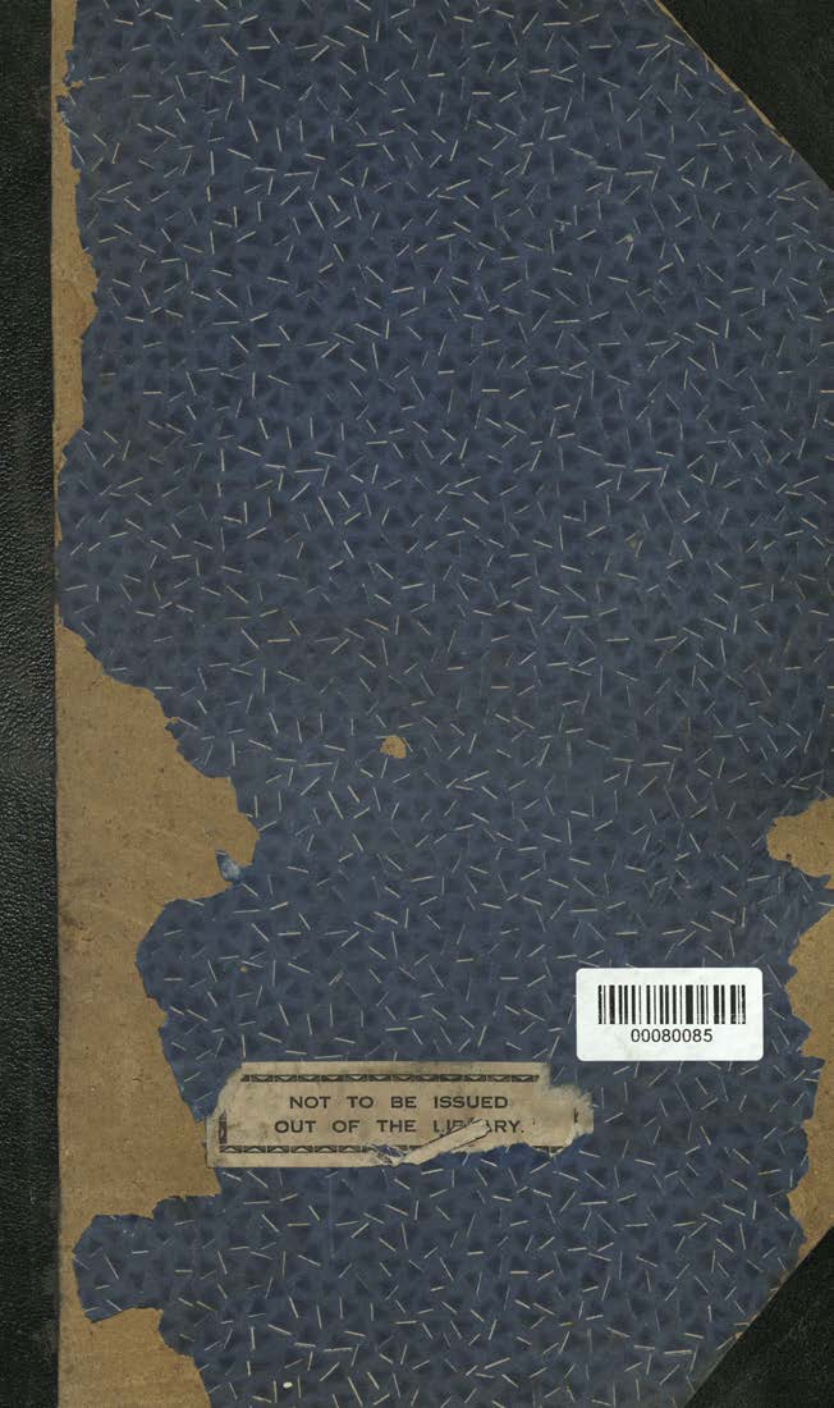
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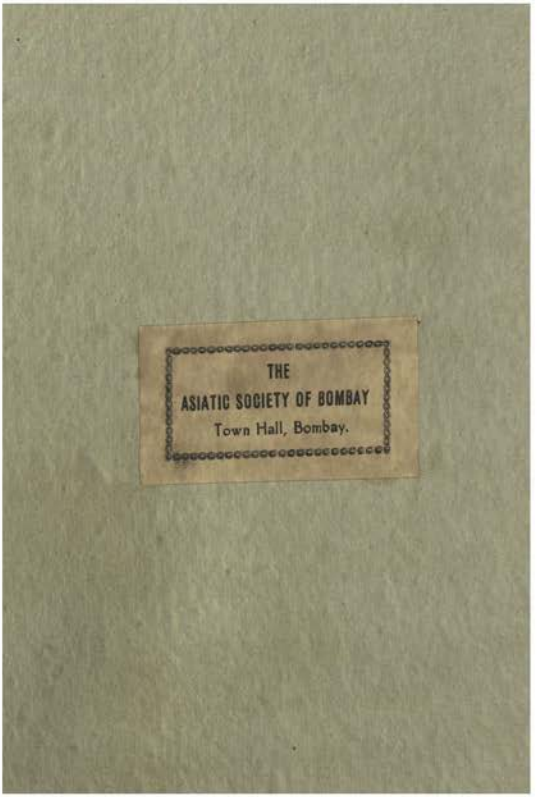
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CYCLOPÆDIA.

CYCLOPÆDIA:

OR, AN

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OF

ARTS AND SCIENCES.

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CONTAINING

An EXPLANATION of the TERMS, and an ACCOUNT OF THE SEVERAL SUBJECTS,

IN THE

LIBERAL AND MECHANICAL ARTS,

AND THE

SCIENCES, HUMAN and DIVINE.

Intended as a COURSE of ANCIENT and MODERN LEARNING.

By E. CHAMBERS, F.R.S.

Floriferis ut apes in saltibus omnia libant,
Omnia nos— LUCRET.

8008

WITH THE

SUPPLEMENT,

AND

MODERN IMPROVEMENTS,

Incorporated in one ALPHABET.

By ABRAHAM REES, D. D.

R b 1

IN FOUR VOLUMES.

VOLUME THE FIRST.

R b 1

LONDON.

Printed for J. F. and C. Rivington, A. Hamilton, T. Payne and Son, W. Owen, B. White, T. Longman, B. Law, C. Rivington, C. Dilly, H. Baldwin, H. S. Woodfall, J. Robson, J. Knox, W. Domville, G. G. J. and J. Robinson, T. Cadell, A. Hamilton, jun. R. Baldwin, W. Otridge, N. Conant, J. Murray, A. Strahan, W. Fox, S. Hayes, E. Johnson, J. Bent, D. Ogilvy, G. and T. Wilkie, and W. Collins.

MDCCLXXXVI.

1786

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TO THE

KING.

SIR,

THE ARTS and SCIENCES humbly crave audience of Your Majeſty. The near connexion they have with the happineſs of a people, promiſes them a favourable reception from a Prince who makes his people's happineſs the baſis of his own. 'Tis by them the parſimony of nature is ſupplied, and life rendered eaſy and agreeable under its numerous infirmities. By them the mind is reclaimed from its native wildneſs, and enriched with ſentiments which lead to virtue and glory. 'Tis they, in fine, that make the difference between Your Majeſty's Subjects, and the ſavages of Canada, or the Cape of Good Hope.

THE protection of ARTS has been ever eſteemed the proper province of the Great. 'Tis a branch of the regal office, which a prince, equal to the whole charge of a Crown, will not ſuffer to be alienated into other hands. From this, do the firſt and moſt diſtinguiſhed names in hiſtory derive a large ſhare of their glory: and if there be any age or nation conſpicuous above the reſt, and which is looked on with envy by our own, it is that wherein the Sovereigns have ſignalized themſelves moſt in this quality.—But, the time is now at hand, when we are no longer to envy Rome her AUGUSTUS and AUGUSTAN AGE; but Rome, in her turn, ſhall envy ours.

SOMETHING extraordinary ſeems intended by Providence, in placing ſuch a Prince at the head of ſuch a people; a Prince inſpired with a generous paſſion, to devote his cares to the welfare of mankind; and a people conſpiring with unexampled ardor and unanimity to all his glorious views. Some of our beſt Princes have had their hands tied down; checked by reluctant factions, which oppoſed every nobler deſign: Your Majeſty has found the happy ſecret to make even contention do You homage; and turn oppoſition itſelf into approbation and applauſe.

THERE is a time reſerved in fate for every nation to arrive at its height; and the uppermoſt place on the terreſtrial ball is held ſucceſſively by ſeveral ſtates. May not the numerous preſages, which uſher in Your Majeſty's reign, give us room to

expect that our turn is next; and that what Greece was under ALEXANDER, and Rome under AUGUSTUS CÆSAR, Britain ſhall be under Your Majeſty's government and protection.

BUT even this were to under-rate our hopes, which are raiſed by your Majeſty to ſomething ſtill more truly glorious. Greatneſs, ſo fondly coveted, has already coſt the world very dear; and though ſtill purſued by unthinking Men under almoſt every ſhape, is only deſirable in a few. Of itſelf it is rather an object of terror and alarm, than delight; and at beſt only pleaſes, when joined with ſomething naturally amiable. From the practice of Your Majeſty, men may correct their ſentiments, and learn, that greatneſs has no charm, except when founded in goodneſs. To be Great and a King, is but a ſmall matter with Your Majeſty; it is a quality many others enjoy in common with You, and to which ſome have even been doomed to their infamy: it is what Herod was; and what Nebuchadnezzar was; and what Nero, and Domitian, were. But, while ſome Princes chuſe to be great in what is deſtructive, and others in things wholly indifferent; it is Your Majeſty's praiſe to be great in what is the perfection of our nature, and that whereby we approach neareſt the Deity. Happy choice! to uſe power only as the means of rendering your beneficence more diffuſive; and thus to make Royalty miniſter to the happineſs of mankind, which it has been uſed to invade.

YOUR Majeſty commands a people capable of every thing. Not more fitted to ſhine in arms, or maintain an extended commerce; than to ſucceed in the ſtiller purſuits of philoſophy, and literature. And it will be Your Majeſty's glory, not to let any of their talents lie unemployed. If Your Majeſty gives the word, while ſome of them are buſied in avenging Your cauſe, by humbling ſome turbulent monarch; ſome in extending Your dominions by new ſettlements, and ſome in increaſing Your people's wealth, by new trades: others will be employed in enlarging our knowledge by new diſcoveries in nature, or new contrivances in art; others in refining our language; others in improving our morals; and others in recording the glories of Your reign in immortal ſong.

THE Work I here preſume to lay at Your Majeſty's feet, is an attempt towards a ſurvey of the republic of learning, as it ſtands in Your Majeſty's moſt auſpicious reign. We have here ſomewhat of the boundary that circumſcribes our preſent proſpect; and ſeparates the known, from the unknown parts of the intelligible world. Under Your Majeſty's princely influence and encouragement, we promiſe ourſelves this boundary will be removed, and the proſpect extended far into the other hemiſphere.—Methinks I ſee trophies erecting to Your Majeſty in the yet undiſcovered regions of Science; and Your Majeſty's Name inſcribed to inventions at preſent held impoſſible.

I am, with all ſincerity and devotion,

May it pleaſe Your MAJESTY,

Your Majeſty's moſt dutiful,

and obedient Subject,

and Servant,

GRAY'S-INN,
October 15th,
1727.

EPHRAIM CHAMBERS.

TO THE

KING.

SIR,

THE patronage of works of Univerſal Science is one of the prerogatives which pertain to Your MAJESTY's high ſtation. The nature of this work, therefore, prompted the Editor to requeſt the honour of Your MAJESTY's protection, and his views could conſiſtently be directed to no other Patron.

AS the ſovereign of a country, in which every kind of Science is induſtriouſly purſued and ſo liberally encouraged, they who labour in promoting it, even in the humbler occupation of collecting and recording the diſcoveries of others, may hope to obtain the favour of Your Royal countenance.

THE original compiler of this Dictionary introduced it to the public notice under the ſanction of Your Royal Grandfather. The Editor of it, in its preſent enlarged ſtate, feels a like ambition: and whilſt he gratefully acknowledges Your MAJESTY's condeſcenſion in permitting him to preſent it to the public under Your Royal Patronage, he is doubly anxious, that the work itſelf, in the execution of it, may appear worthy of Your MAJESTY's approbation.

YOUR MAJESTY's known judgment in many of the ſubjects, which the Dictionary comprehends, might juſtly alarm his diffidence. He is encouraged, however, by the reflection, that he has recorded diſcoveries and improvements, many of which were unknown and unthought of at the time of Your MAJESTY's happy acceſſion: diſcoveries and improvements, which, by extending the boundaries of Science and enlarging the empire of the human mind, diffuſe a glory over this country, unattainable by conqueſt or dominion.

IN the progreſs of this work, the Editor has impartially ſought out and recorded every kind of information, which may do juſtice to the merit of thoſe, of *every country*, who have diſtinguiſhed themſelves in the cauſe of Science: but he has been more particularly

larly ſolicitous to pay a due reſpect to the genius of Britain; and he has felt a peculiar pride, as well as pleaſure, in recording thoſe inventions and improvements, which do honour to *his own country*, and to the diſtinguiſhed munificence of his Sovereign.

THE ſcene, which the Editor's predeceſſor in this literary labour contemplated only in imagination, has been realized under the auſpices of Your MAJESTY. Whilſt ſome have ſucceſſively traverſed the globe, and "erected trophies" to Your MAJESTY in the various departments of Geography, Navigation, and Natural Hiſtory; others, with a ſkill and aſſiduity which have been honoured with Your MAJESTY's peculiar patronage, have explored the heavens, aſcertained with an accuracy unknown before, and extended, far beyond their imagined limits, the dimenſions of the ſolar ſyſtem, and furniſhed the Aſtronomer with new views and ideas of the material univerſe.

SUCH, Sir, are the numerous and important diſcoveries, which have been already made, and which we have yet reaſon to hope for, under Your Royal ſanction and encouragement, as muſt ſecure to Your MAJESTY a tribute of grateful recollection from the learned of the preſent age, and, in the future hiſtory of Science, ſtamp a luſtre on the æra of Your MAJESTY's reign to the lateſt generations.

THAT Your MAJESTY's government, for the farther encouragement of every uſeful art, and for the univerſal benefit of Your ſubjects, may be long and happy: that You may uninterruptedly enjoy every perſonal and domeſtic bleſſing: that You may tranſmit to ſucceeding Princes of Your illuſtrious Family the affectionate attachment of a free and grateful people: and that, after having been long continued in the faithful diſcharge of the duties of Your earthly crown, You may finally receive the reward of a heavenly one, are the fervent prayers of the Editor, who is happy in every occaſion of expreſſing his own attachment to Your Perſon and Family, and who with the profoundeſt reſpect ſubſcribes himſelf,

Your MAJESTY's moſt faithful,
Moſt obedient and moſt devoted
Subject and Servant,

ABRAHAM REES.

Old Jewry,
January 24th 1786.

PREFACE

TO THE

NEW EDITION.

THERE are few works in the Engliſh language which have been more generally and more deſervedly eſteemed than the CYCLOPÆDIA of Mr. CHAMBERS. As a DICTIONARY of univerſal literature and ſcience, comprehending a variety of ſubjects in a ſmall compaſs, and in alphabetical order, it is adapted to a very numerous claſs of readers. We need not fear incurring the charge of exaggerated praiſe, when we aſſert, that it has contributed more to the diffuſion of knowledge than any other publication in our language. In its extent and arrangement, it is ſuited to the occaſions and to the convenience of many perſons, who have neither leiſure nor opportunity to recur to thoſe different ſources of information, whence the materials of which it is compiled are collected. The ſpirit of inquiry that prevails among ſuch perſons merits attention and encouragement. To them a work of this kind, that facilitates their acquiſition of knowledge, cannot fail of being peculiarly acceptable; and from them the compiler of a DICTIONARY, humble and ſubordinate in the ſcale of literary labourers as ſome may think his occupation, will receive a tribute of reſpect and praiſe.

TO others, whoſe acquaintance with particular branches of ſcience precludes the neceſſity of their application to ſuch a work, it will communicate general information concerning ſubjects, to which their attention has not been ſo immediately directed; and thus afford them leiſure for gratifying their taſte or inclination in reſearches, which they may deem more important or more pleaſing, and in which they may be more ambitious of excelling.

THE inquiſitive and ſtudious, whatever be the peculiar object of their inveſtigation, will think it no inconſiderable advantage to be directed by references, ſubjoined to a variety of articles, where they may proſecute their inquiries with ſatisfaction: whilſt thoſe, who are proficients in ſcience, will find it uſeful, on many occaſions, to conſult a DICTIONARY, as they would refer to a common-place book, in order to aſſiſt their memories, without the labour and the loſs of time, which it would require to recur to a great number of diſtinct treatiſes, whence their knowledge was originally derived. Although a profeſſed mathematician would not ſtudy mathematics, nor a philoſopher philoſophy, nor a divine theology, nor any profeſſional man the ſubjects that form the baſis of his profeſſion, in a DICTIONARY; yet all perſons may receive benefit from it, even in the line of their profeſſion or favourite purſuit; and much more in diſquiſitions and inquiries, remote from the courſe of ſtudies, to which their ſituation or inclination leads them. The knowledge with regard to many ſubjects, which a DICTIONARY ſupplies, will bound their views, and anſwer all their purpoſes.

IT is, likewiſe, a conſideration of no ſmall moment, in eſtimating the importance and utility of a SCIENTIFIC DICTIONARY, that it ſupplies in ſome degree the want of a large library; by furniſhing the inquiſitive and curious with hints and abſtracts of ſcience, that are diſperſed in many volumes, which cannot be procured without difficulty, and without conſiderable expence.

IN enumerating the advantages recommending this work, we muſt not forget to mention, that it records and tranſmits to future ages many inventions and improvements, which might otherwiſe ſink into oblivion; that it forms a compendious hiſtory of ſcience; that it furniſhes the outlines of its gradual progreſs and advancement; and that, by preſerving a ſummary of what has been already done and diſcovered, it lays a foundation for farther diſcoveries and improvements. In this latter view of its importance and uſe, it may not be improperly compared to a map of ſcience, in which the line that terminates the *terra cognita* is diſtinctly marked out for the direction of thoſe, whoſe ingenuity and induſtry are employed in extending the boundaries of knowledge, and in exploring thoſe regions that are ſtill unknown.

A DICTIONARY of SCIENCE muſt appear, from this brief account of its deſign and uſe, to be a work of great importance; and its importance, in every country, will be eſtimated by the degree in which knowledge is purſued and promoted. The firſt work of this kind, formed on a ſcale ſufficiently extenſive to anſwer moſt of the purpoſes that have been now recited, which any country can boaſt, was the CYCLOPÆDIA of Mr. CHAMBERS: a work, not only excellent in its general plan and deſign, but executed in a manner that has preſerved its reputation for more than half a century.

AS to the plan, it was admirably adapted to the nature and neceſſary limits of a popular work; deſigned not merely for public libraries and for the uſe of thoſe who ſpare no expence in obtaining the beſt means of information, but for diſſeminating literature and ſcience through the ſubordinate claſſes of mankind. With this view Mr. CHAMBERS ſeems to have adopted the happy medium between a work conſiſting merely of definitions, etymologies, and references, and a voluminous collection of diffuſe and elaborate treatiſes on various ſubjects, the price of which muſt reſtrict it to few purchaſers, and the peruſal of which would be thought tedious by many, who had occaſion for conſulting it.

IN judging of the execution of the CYCLOPÆDIA, there are many circumſtances which ought to be conſidered, before we ſhall be able to form a candid or even a juſt opinion. The limits of two volumes in folio, to which the author, probably doubtful of the ſucceſs of his undertaking, thought proper to confine himſelf, would prevent his admitting, or allow only his curſorily mentioning, many articles, which he might think of inferior importance, or the omiſſion of which, at the time of the firſt publication of the Dictionary, the purchaſers would not much regret. This ſeems to be one reaſon why Natural Hiſtory makes ſo inconſiderable a part of this work, in its original ſtate. The ſucceſs of the firſt edition, which appeared in 1728, enlarged the views of the author; and previouſly to the publication of the ſecond edition in 1738, he had formed a deſign of publiſhing a new work on a more extenſive ſcale, and had actually prepared a conſiderable part of the copy with this view. This deſign, however, was fruſtrated by a bill agitated in parliament (which, indeed, paſſed the houſe of commons, but was rejected in the houſe of lords), containing a clauſe, that obliged the publiſhers of all improved editions of books to print the improvements ſeparately. Accordingly the ſecond edition was publiſhed with corrections and additions, and with an apology to the public for diſappointing their expectations of a larger work. Mr. CHAMBERS was, therefore, far from imagining, that two volumes would allow ſufficient ſcope for the execution of the comprehenſive plan which he had formed for a Dictionary of univerſal literature and ſcience; and he was prevented, merely by collateral circumſtances, from purſuing his own ideas of its perfection to their utmoſt extent.

IT deſerves alſo to be conſidered, that, in a work of ſuch variety and magnitude, adapted to readers of every deſcription, the ſame articles will be thought needleſsly diffuſe or conciſe, according to the particular views and taſte of the reader; and the only juſt ſtandard is that of their real importance, of which, perhaps, the author himſelf is not, in all caſes, a proper judge. Beſides, ſubjects that engage the public attention at the time when a work of this kind is compiled, will naturally be extended beyond the limits, which thoſe who do not conſider the circumſtances that might firſt attend them, may be diſpoſed to allow; and a writer, who ſtudies to gratify the curioſity of his contemporaries, as well as that of poſterity, will be in danger of erring on the ſide of exceſs. This obſervation will probably furniſh an apology for ſome prolonged articles that occur in the original CYCLOPÆDIA.

AFTER all, when we conſider that this was the work of a ſingle perſon, who had the labour of collecting, as well as of arranging its principal materials, it will be thought the moſt wonderful production both of judgment and application, which this or any other country can boaſt. And, therefore, inſtead of complaining of the defects and imperfections to which it is unavoidably ſubject, the judicious and candid will make every reaſonable allowance for the numberleſs difficulties attending its execution.

SUCH, indeed, has been the opinion of the public, with regard to the merit of the CYCLOPÆDIA, that the ſale of it has exceeded that of any other publication of equal price. The ſecond edition in 1738 was ſo favourably received, as to require the publication of a third in 1739, of a fourth in 1741, and of a fifth in 1746. Theſe repeated teſtimonies of the public approbation amply juſtify the character given of it by one, who well knew its value, and who calls it "the pride of booksellers, and the honour of the "Engliſh nation." The proprietors, therefore, were induced, by motives of reſpect and gratitude to the public, as well as by their own intereſt in ſo valuable a work, to correct the errors, and to ſupply the defects of the original Dictionary; errors and defects which time had diſcovered, and which ſubſequent inveſtigations and improvements had occaſioned. Accordingly, in the proſpect of a demand for the ſixth edition, they engaged the late George Lewis Scott, eſq. to prepare a SUPPLEMENT in two additional folio volumes. This gentleman had not proceeded far in the execution of this deſign, when he was diverted from it by other avocations; ſo that the completion of the buſineſs was entruſted with Dr. Hill, whoſe voluminous publications in natural hiſtory are well known. The SUPPLEMENT undoubtedly contained many important and valuable articles, relating to ſubjects that had been either wholly omitted or ſlightly mentioned by Mr. CHAMBERS. But the rapidity with which Dr. Hill executed the province aſſigned him, and the freedom with which he tranſcribed from his own writings and thoſe of others, were not favourable either to the reputation of the work, or to the intereſt of the proprietors.

THE ORIGINAL WORK and the SUPPLEMENT remained in this ſeparate ſtate for many years. However, the inconvenience of a double alphabet continued to be the ſubject of renewed complaints; and it was thought that the SUPPLEMENT, when properly abridged and corrected, might be incorporated, to the ſatisfaction of the public, with the ORIGINAL WORK.

But

But the views of the proprietors extended much farther than to this ſingle object. They were not unapprized of the rapid progreſs of ſcience; and they wiſhed that a work, in the reputation and ſucceſs of which they were ſo much intereſted, might be a comprehenſive and complete regiſter of modern diſcoveries and improvements.

AFTER ſome unſucceſsful attempts to execute this laudable deſign, the work was entruſted to the care of the preſent Editor. The courſe of his ſtudies and official engagements had led him into a general acquaintance with the contents of the CYCLOPÆDIA: and having had frequent occaſions for conſulting it, he was not altogether ignorant either of its excellencies or defects. Having been accuſtomed to ſcientific reſearches, he was not unacquainted with the ſources of information, to which he muſt recur in the progreſs of the work: he had alſo acceſs to ſome valuable libraries, that would furniſh him with books, both ancient and modern, to which he might have occaſion often to refer: he was happy in an intimate acquaintance with ſeveral learned friends, by whoſe advice he might profit, and of whoſe aſſiſtance he could avail himſelf on many occaſions: and the habits of his life were ſuch as would diſpoſe him to ſubmit to the application and labour, which the execution of ſuch a work muſt unavoidably require.

NOTWITHSTANDING theſe advantages, the recital of which ſeems to be neceſſary in order to vindicate him from the charge of preſumption in this undertaking, he engaged in it with great diffidence and anxiety; fearful leſt he ſhould diſappoint the views of the Proprietors and the juſt expectations of the Public. Having embarked, however, he determined to perſevere; and to make every effort, of which he was capable, for improving the work and for ſecuring the approbation of the judicious and candid. With an induſtry and ardour, which the hope of giving ſatisfaction to the public animated, and which the extent and importance of the undertaking both deſerved and required, he devoted to the accompliſhment of it all that time and attention, in the courſe of many years, which his other engagements would allow: and he thinks himſelf happy, that no accident has prevented the uninterrupted progreſs of a publication, to the completion, as well as the reputation and ſucceſs of which his wiſhes and labours have been uniformly directed.

IT was the Editor's intention to recite, at the cloſe of the work, the principal Amendments which the CYCLOPÆDIA has received, and the Additions which it has been thought neceſſary to introduce into this new edition. But they have been ſo numerous, that the recital, however it might redound to the credit of his induſtry, would be tedious and unintereſting to the reader. Thoſe, who have either inclination or leiſure to compare the CYCLOPÆDIA in its preſent ſtate with the ORIGINAL WORK and SUPPLEMENT, will find, that many of the original articles in both have been either abridged or enlarged, as their reſpective nature and importance required; and that many new articles have been inſerted in their alphabetical order; ſo that it would not be eaſy, if it were thought neceſſary or uſeful, to recount the alterations which the former have undergone, and the additions of which the latter conſiſt.

IT will be ſufficient to obſerve, in general, from a regular account which the Editor has preſerved, that the number of NEW ARTICLES amounts to more than FOUR THOUSAND FOUR HUNDRED; ſeveral of which do not occur in any DICTIONARY of SCIENCE, which he has had an opportunity of conſulting: ſome of them are of conſiderable length; many comprehend ſubjects of moment; and the leaſt important were thought too intereſting to be omitted. The ORIGINAL ARTICLES, which ſeemed to require correction, abridgment, or addition, many of which have been very much altered or enlarged, are more numerous than thoſe that are altogether new.

FROM this brief detail it will not be thought ſurpriſing, that, whilſt the number of volumes remains the ſame, agreeably to the propoſals of the Proprietors, the ſize of each volume ſhould be much increaſed. Beſides, by the union of the two alphabets, the combination of articles under the ſame title, the abridgment of thoſe that were needleſly diffuſe, an alteration in the references by cancelling ſome that were of no importance, and printing the ſubject of reference in a different character in the body of the article itſelf, and by a minute attention to many other circumſtances, the Editor has made room for introducing a variety of new matter within the ſame compaſs.

THE Editor reflects with pleaſure, and with grateful reſpect to the numerous purchaſers of this new edition of the CYCLOPÆDIA, that his labours in the cauſe of ſcience have been ſo favourably received. He truſts, that he may be allowed to interpret the extenſive ſale with which it has been honoured, as a teſtimony of the approbation, as it is a full proof of the candour of the public. Acknowledging that candour and confiding in it, it is needleſs to urge thoſe apologies which are furniſhed by the magnitude of this publication, and the variety of ſubjects it comprehends: but he would be unworthy of the indulgence he has experienced, and to which he farther appeals, if he had not conſidered it as an encouragement to unremitting application.

HOPING that the errors and defects, which have eſcaped the moſt diligent attention, will not be thought very conſiderable, either in their number or in their nature, by thoſe who are diſpoſed to judge of the execution of this work by the unavoidable difficulties attending it; and that the numerous corrections and additions, in the various departments of ſcience, which this enlarged

larged edition of the CYCLOPÆDIA contains, will be regarded as important and valuable improvements: the Editor ſubmits it, entire, to the candid judgment of the Public. Their approbation will be eſteemed as the greateſt recompence which he can receive: and the conſciouſneſs of having contributed, in any degree, to the ſpreading of uſeful knowledge, will afford him peculiar ſatisfaction.

THE Editor gratefully acknowledges the hints and communications which he has received, both in converſation and writing, for the improvement of this work. It will appear, by the articles to which they refer, and by the ſubjoined liſt of CORRIGENDA & ADDENDA, that they have not been diſregarded. But he is under peculiar obligations to the friendſhip of the Rev. Dr. Price, to whom the public are indebted for ſeveral articles, that will be thought to enrich this edition, on the ſubjects of ANNUITIES, ASSURANCE, FUNDS, LIFE-*Annuities*, *Bills of* MORTALITY, and SURVIVORSHIP.

SEVERAL flattering teſtimonies of approbation from unknown Correſpondents demand alſo the reſpectful acknowledgments of the Editor: as they have ſerved to animate his aſſiduity and perſeverance in the proſecution of an undertaking, which required reſolution and patience; and in which he muſt have been ſingularly fortunate, if he had eſcaped every kind of reflection.

THE Proprietors think themſelves happy, that the extenſive ſale of this edition has enabled them to cancel moſt of the old Plates, and to be at the expence of new engravings; and to increaſe the number of new plates, far beyond their original deſign. The ingenious artiſt, who had the conduct of this buſineſs, has executed it with an attention and accuracy which, it is hoped, will give ſatisfaction to the Public.

THE ſcheme of annexing an INDEX to this edition was previouſly ſuggeſted to ſeveral judicious friends and approved by them: and experience will evince its utility. The labour of compiling it was undertaken, independently of any regard to the intereſt of the Proprietors, with the ſole view of improving the work, and from a full conviction that it would ſerve as a directory in the uſe of it; and anſwer the purpoſe of informing the reader, where any particular kind of knowledge, which his occaſions or curioſity might diſpoſe him to ſeek, was to be found, and of conducting him from one ſubject to another, much better than any number of references incorporated in the work itſelf. Beſides, it contains an analyſis of ſeveral articles; ſo that by merely running the eye over each column, the reader will readily diſcover, where he may meet with miſcellaneous information on a variety of ſubjects, which the general titles of ſuch articles could not have ſuggeſted to him. To readers, therefore, who conſult the DICTIONARY in order to obtain a general acquaintance with any ſcience or ſubject, and who are not converſant with the terms that occur in it, the INDEX cannot fail of being uſeful: and to others, to whom the terms of any ſcience are more familiar, it will be of ſervice in directing them to a variety of obſervations and facts, which are interſperſed through the ſeveral volumes of the DICTIONARY, and to which no term, however appoſite or comprehenſive in itſelf, or readily occurring to their recollection, could immediately lead them. If we may be allowed to compare the DICTIONARY to a library, conſiſting of a number of books on various ſubjects, the INDEX, which comprehends an alphabetical arrangement of the ſeveral terms contained in it, referred to thoſe heads of ſcience to which they belong, is ſimilar, in its uſe, to that of an Alphabetical and Scientific Catalogue, containing not only an arrangement of the books, under their proper titles, in the order of the alphabet, but an analyſis of their contents, diſtributed in the ſame order, under the diſtinct ſcience or ſubject to which they relate.

THOUGH the Editor was ſatisfied of the importance and uſe of ſuch an INDEX, he was fearful of treſpaſſing on the patience of the public, who, as well as himſelf, could not but wiſh to ſee a ſpeedy termination of this work: he is happy, however, that it is compriſed in ſeven numbers; and hopes the purchaſers will be of opinion, that the DICTIONARY derives a value from it much more than adequate to the additional expence with which it is attended.

PREFACE.

IT is not without ſome concern that I put this work in the reader's hands; a work ſo ſeemingly diſproportionate to any ſingle perſon's experience, and which might have employed an academy. What adds to my apprehenſions, is the ſcanty meaſure of time that could be employed in a performance, which a man's whole life ſcarce appears equal to. The Vocabulary of the academy *della Cruſca* was above forty years in compiling, and the Dictionary of the French Academy much longer; and yet the preſent work will be found more extenſive than either of them in its ſubject and deſign, as much as it falls ſhort of them in reſpect of years, or of hands employed in it.

HERE, the reader might be led to ſuſpect ſomething of diſingenuity; and think I firſt offer him a book, and then give him reaſons why I ſhould not have done it. But his ſuſpicions will abate, when he is appriſed of ſome advantages under which I engaged; which are ſuperior to what had been known in any former work of the kind: ſince all that had been done in them accrued, of courſe, to the benefit of this. I come, like an heir, to a large patrimony, gradually raiſed by the induſtry and endeavours of a long race of anceſtors. What the French and Italian academiſts, the abbé Furetiere, the editors of Trevoux, Savary, Chauvin, Harris, Wolfius, Daviler, and others have done, has been ſubſervient to my purpoſe. To ſay nothing of an inferior claſs of books of this kind, which contributed their ſhare; dictionaries on almoſt every ſubject, from medicine and law, down to heraldry and the manege.

YET this is but a part: I am far from having contented myſelf to take what was ready collected; but have augmented it with a large acceſſion from other quarters. Few parts of the commonwealth of learning, but have been trafficked to on this occaſion. Recourſe has been frequently had to the originals themſelves on the ſeveral arts; and, not to mention what ſmall matters could be furniſhed from my own ſtock, the reader will here have extracts and accounts from a great number of books of all kinds, either overlooked by former lexicographers, or not then extant; and a multitude of improvements in the ſeveral parts, eſpecially of natural knowledge, made in theſe laſt years. If inſtances hereof were required, I hope there are few pages which will not afford ſeveral.

SUCH are the ſources from whence the materials of the preſent work were derived; which, it muſt be allowed, were more than ſufficiently ample: ſo that the difficulty lay in the form and œconomy of it; ſo to diſpoſe ſuch a multitude of materials, as not to make a confuſed heap of incoherent parts, but one conſiſtent whole. And here it muſt be confeſſed there was little aſſiſtance to be had. Former lexicographers have ſcarce attempted any thing like ſtructure in their works; nor ſeem to have been aware, that a dictionary was, in ſome meaſure, capable of the advantages of a continued diſcourſe. Hence it is that we ſee nothing like a whole in what they have done; and, for this reaſon, ſuch materials as they did afford for the preſent work, generally needed farther preparation, ere they became fit for our purpoſe; which was as different from moſt of theirs, as a ſyſtem from a cento.

OUR view was, to conſider the ſeveral matters, not only in themſelves, but relatively, or as they reſpect each other: both to treat them as ſo many wholes, and as ſo many parts of ſome greater whole; their connexion with which to be pointed out by a reference. So that by a courſe of references, from generals to particulars; from premiſes to concluſions; from cauſe to effect, and vice verſa, i. e. from more to leſs complex; and from leſs to more; a communication might be opened between the ſeveral parts of the work; and the ſeveral articles be, in ſome meaſure, replaced in their natural order of ſcience, out of which the alphabetical order had removed them.

FOR an inſtance.—The article ANATOMY, is not only to be conſidered as a whole, i. e. as a particular ſyſtem, or branch of knowledge; and accordingly divided into its parts, *human*, and *comparative*; and human, again, ſubdivided into the *anatomy of ſolids*, and *fluids* (to be referred to in their ſeveral places in the book, where they themſelves being treated of, refer to others ſtill lower, and ſo on); but alſo as a part of MEDICINE; which, accordingly, it refers to; and which, itſelf, refers to another higher, &c. By ſuch means, a chain may be carried on from one end of an art to the other, i. e. from the firſt or ſimpleſt complication of ideas, appropriated to the art, which we call the *elements*, or principles thereof, to the moſt complex, or general one, the name or term that repreſents the whole.

NOR is the purſuit to be dropped here: but as the elements or data, in one art, are ordinarily quæſita in ſome other ſubordinate one, and are furniſhed thereby (as here, for inſtance, the elements of anatomy are furniſhed by *natural hiſtory*, *phyſics*, and *mechanics*; and anatomy itſelf may be conſidered as a datum furniſhed to *medicine*); we may carry on the view farther, and refer out of one art or province into the adjoining ones; and thus lay, as it were, the whole land of knowledge open. It may appear, indeed, with the face of a wilderneſs: but it ſhould be a wilderneſs through which a reader might find his way as ſecurely, though not ſo expeditiouſly and eaſily, as through a regular parterre.

IT may be even ſaid, that if the Syſtem be an improvement upon the Dictionary, the Dictionary is ſome advantage to the Syſtem; and that this is, perhaps, the only way wherein the whole circle, or body of knowledge, with all its parts and dependencies, can well be delivered. In any other form, many thouſand leſſer things muſt needs be concealed: all the pins, the joints, the binding of the fabric, muſt be inviſible of courſe; all the leſſer parts, one might ſay, all the parts whatſoever, muſt be, in ſome

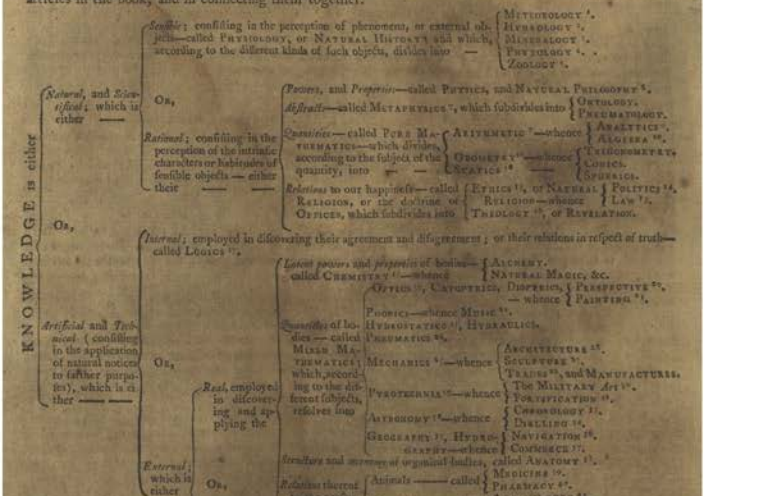
measure, swallowed up in the whole. The imagination, stretched and amplified to take in so large a structure, can have but a very general, undistinguishing perception of any of the component parts. Whereas the parts are not less matter of knowledge when taken separately, than when put together. Nay, and as our ideas are all individuals; and as every thing that exists is one; it may seem more natural to consider knowledge in its parts, i. e. as divided into separate articles, denoted by so many different terms, than to consider the whole assemblage in its utmost composition; which is a thing merely artificial, and the work of imagination.

AND yet the latter way must be allowed to have many and real advantages over the former; which, in truth, is only of use and significance, as it partakes of it. Whence it should follow, that the most advantageous way is, to make use of both: to consider every point, both as a part, to help the imagination to the whole; and as a whole, to help the understanding to each part.—Which is the view in the present work.—So far, we mean, as the many and great difficulties we had to labour under would allow us to pursue it.

IN this view we have endeavoured to give the substance of what has been hitherto discovered in the several branches of knowledge, both natural and artificial: that is, in the knowledge of *nature*, first, as she appears to our senses, either spontaneously, as in *natural history*; or with the assistance of art, as in *anatomy*, *chemistry*, *medicine*, *agriculture*, &c. Secondly, to our imagination, as in *grammar*, *rhetoric*, *poetry*, &c. Thirdly, to our reason; as in *physics*, *metaphysics*, *logics*, and *mathematics*: with the several subordinate arts arising from each; as *agriculture*, *painting*, *sculpture*, *trade*, *manufactures*, *policy*, *law*, &c. and numerous remote particulars, not immediately reducible to any of these heads; as *heraldry*, *philology*, *antiquities*, *customs*, &c.

THE plan of the work, then, I hope, may be allowed to be good, whatever exceptions be taken to the execution of it. It would look extravagant to say, that half the men of letters of an age might be employed in it to advantage; and yet it will appear, that a work accomplished as it ought to be, on the footing of this, would answer most of the purposes of a library, except parade; and contribute more to the propagating of useful knowledge through the body of a people, than half the books extant. After this, let the reader judge how far I may deserve censure for engaging in it, even under some disadvantages; and whether to have failed in such a design may not be some degree of praise.

BUT it will be here necessary to carry on the division of knowledge, just laid down, a little farther; and make a more precise partition of the body thereof, in the formal way of an analysis: the rather, as an analysis, by shewing the origin and derivation of the several parts, and the relation in which they stand to their common stock, and to each other, will assist, both in reinstating the scattered articles in the book, and in connecting them together.


KNOWLEDGE is either
Natural, and Scientifical; which is either
Or,
Sensible; consisting in the perception of phenomena, or external objects—called PHYSIOLOGY, or NATURAL HISTORY: and which, according to the different kinds of such objects, divides into
METEOROLOGY [a].
HYDROLOGY [b].
MINERALOGY [c].
PHYTOLOGY [d].
ZOOLOGY [e].
Rational; consisting in the perception of the intrinsic characters or habitudes of sensible objects — either their
Powers, and Properties—called PHYSICS, and NATURAL PHILOSOPHY [f].
Affects—called METAPHYSICS [g], which subdivides into
ONTOLOGY.
PNEUMATOLOGY.
Quantities—called PURE MATHEMATICS—which divides, according to the subject of the quantity, into
ARITHMETIC [h]—whence ANALYTICS [i], ALGEBRA [k].
GEOMETRY [l]—whence TRIGONOMETRY, CONICS, SPHERICS.
Relations to our happiness—called ETHICS [m], or NATURAL RELIGION—whence POLITICS [n], LAW [o].
RELIGION, or the doctrine of OFFICES, which subdivides into
THEOLOGY [p], or REVELATION.
Or,
Artificial and Technical (consisting in the application of natural notices to farther purposes), which is either
Or,
Internal; employed in discovering their agreement and disagreement; or their relations in respect of truth—called LOGICS [q].
External; which is either
Or,
Real, employed in discovering and applying the
Latent powers and properties of bodies—called CHEMISTRY [r]—whence ALCHEMY. NATURAL MAGIC, &c.
OPTICS [s], CATOPTRICS, DIOPTRICS, — whence PERSPECTIVE [t], PAINTING [u].
PHONICS—whence MUSIC [w].
Quantities of bodies—called MIXED MATHEMATICS; which, according to the different subjects, resolves into
HYDROSTATICS [x], HYDRAULICS.
PNEUMATICS [y].
MECHANICS [z]—whence ARCHITECTURE [A]. SCULPTURE [B]. TRADES [C], and MANUFACTURES.
PYROTECHNIA [D]—whence The MILITARY ART [E]. FORTIFICATION [F].
ASTRONOMY [G]—whence CHRONOLOGY [H]. DIALLING [I].
GEOGRAPHY [K], HYDROGRAPHY—whence NAVIGATION [L]. COMMERCE [M].
Structure and economy of organized bodies, called ANATOMY [N].
Relations thereof to the preservation and improvement — either of
Animals — called MEDICINE [O]. HUSBANDRY [P].
Vegetables — called AGRICULTURE [Q]. GARDENING [R].
Beasts — called FARRIERY [S]. MANAGE—whence HUNTING. FALCONRY. FISHING, &c.
Symbolical, employed in framing and applying
Words, or articulate signs of ideas—called GRAMMAR [T].
Numbers—called HERALDRY [V].
Tropes and Figures—called RHETORIC [X].
Fables—called POETRY [Y].

THIS is a view of knowledge, as it were *in stamine*; exhibiting only the grand constituent parts thereof: it would be needless to pursue it into all its members and ramifications; which is the proper business

[a] METEOROLOGY, or the history of *AIR*, and the *ATMOSPHERE*: including, 1. That of its contents, Æther, Fire, Vapour, Exhalation, &c. 2. Meteors formed therein; as CLOUD, RAIN, SNOW, DEW, DROP, SNOW, HAIL, DEW, DAMP, &c. RAINBOW, PARHELION, HALO, THUNDER, WATER-SPOUT, &c. WINDS, MONSOON, HURRICANE, and the like.

[b] HYDRO-

buſineſs of the book itſelf. It might here, therefore, ſeem ſufficient to refer, from the ſeveral branches thus deduced, to the ſame in the courſe of the work; where their diviſion is carried on. And yet this would

[8] HYDROLOGY, or the hiſtory of *WATER*; including that of SPRINGS, RIVERS, ACIDULÆ, BATHS, &c. of LAKES, SEA, OCEAN, &c. of TIDES, DELUGE, and the like.

[9] MINERALOGY, or the hiſtory of *EARTH*; 1. Its parts; as MOUNTAIN, MINE, MOSS, BOG, GROTTO; and their phenomena, as EARTHQUAKE, VOLCANO, CONFLAGRATION, &c. Its STRATA, as CLAY, BOLE, SAND, &c. 2. FOSSILS or MINERALS, as METALS, GOLD, SILVER, MERCURY, &c. with operations relating to them; as FUSION, REFINING, PURIFYING, PARTING, ESSAYING, &c. LITHARGE, LAVATORY, &c. SALTS, as NITRE, NATRON, GEMMA, ALUM, ARMONIAC, BORAX, &c. SULPHURS, as ARSENIC, AMETZ, AMBERGRISE, COAL, BITUMEN, NAPHTHA, PETROL, &c. SEMI-METALS, as ANTIMONY, CINNABAR, MARCASITE, MAGNET, BISMUTH, CALAMINE, COBALT, &c. STONES, as MARBLE, PORPHYRY, SLATE, ASBESTOS, &c. GEMS, as DIAMOND, RUBY, EMERALD, OPAL, TURCOISE, &c. EMERY, LAPIS LAZULI, whence ULTRAMARINE, AZURE, &c. PETRIFACTIONS, as CRYSTAL, SPAR, STALACTITES, TROCHITES, CORNU AMMONIS, and the like.

[10] PHYTOLOGY, or the hiſtory of *PLANTS*; their origin in the SEED, FRUIT, &c. Their kinds; as TREE, HERB, &c. Extraordinary ſpecies; as TEA, COFFEE, PARAGUAY, VINE, GINSENG, COTTON, TOBACCO, &c. CORAL, MUSHROOM, TRUFFLE, PARASITES, MISTLETO, MOSS, &c. Parts; as ROOT, STONE, FLOWER, WOOD; as GUAIACUM, SASSAFRAS, EBONY, ALOES, &c. LEAVES, FOLIATION, ROLL, &c. BARK; as QUINQUINA, &c. alſo PISTIL, FARINA, STAMINA, &c. Operations thereof; as VEGETATION, GERMINATION, CIRCULATION, &c. Circumſtances; as PERPENDICULARITY, PARALLELISM, FECUNDITY, &c. Productions; as HONEY, WAX, BALSAM, SUGAR, MANNA, &c. GUM, RESIN, CAMPHOR, &c. INDIGO, OPIUM, GALLS, and the like.

[11] ZOOLOGY, or the hiſtory of *ANIMALS*; their origin in EGG, EMBRYO, FŒTUS, GENERATION, CONCEPTION, GESTATION, HATCHING, MIGRATION, &c. Their kinds; as QUADRUPED, BIRD, FISH, INSECT, REPTILE, RUMINANT, CARNIVOROUS, &c. EFFIGIDIARY ſpecies; as UNICORN, TORPEDO, TARANTULA, TORTOISE, CAMELION, SALAMANDER, BARNACLES, ANCHOVY, DEATH-WATCH, &c. MONSTERS; as DOUBLE ANIMALS, HERMAPHRODITES, MULE, PYGMY, GIANT, &c. Metamorphoſes; as AURELIA, METEMPSYCHOSIS, &c. Parts; as HEAD, HAND, FOOT, FINGER, TAIL, FIN, WING, GILLS, &c. Covering; as HAIR, WOOL, SILK, FEATHERS, &c. Armature; as NAIL, STING, HORN, TOOTH, SHELL, PRODUCTS, WEB, &c. Productions; as PEARL, BEZOARD, CASTOREUM, CIVET, MUMMY, UANEA, KERMES, COCHINEAL, &c. Motion; as FLYING, SWIMMING, and the like.

[12] PHYSICS, or the doctrine of *CAUSES*; as NATURE, LAW, &c. Occaſions or means; as PRINCIPLE, MATTER, FORM, &c. Their compoſition, or conſtitution, in ELEMENT, ATOM, PARTICLE, BODY, CHAOS, WORLD, UNIVERSE, SPACE, VACUUM, &c. Properties of body; as EXTENSION, SOLIDITY, FIGURE, DIVISIBILITY, &c. Powers thereof; as ATTRACTION, COHESION, GRAVITATION, REPULSION, ELASTICITY, ELECTRICITY, MAGNETISM, &c. QUALITIES; as FLUIDITY, FIRMNESS, DUCTILITY, HARDNESS, VOLATILITY, DENSITY, POLARITY, LIGHT, HEAT, COLD, &c. Operations or effects thereof; as MOTION, RAREFACTION, DILATATION, CONDENSATION, DISSOLUTION, EBULLITION, FREEZING, EVAPORATION, FERMENTATION, DIGESTION, EFFERVESCENCE, &c. VISION, SEEING, HEARING, FEELING, SMELLING, &c. Modifications or changes; as ALTERATION, CORRUPTION, PUTREFACTION, GENERATION, DEGENERATION, TRANSMUTATION, &c. Syſtems or hypotheſes thereof; CORPUSCULAR, EPICUREAN, ARISTOTELIAN, PERIPATETIC, CARTESIAN, NEWTONIAN, &c. Occult and factitious qualities, powers, and operations; ANTIPERISTASIS, SYMPATHY, ANTIPATHY, ARCHEUS, &c. MAGIC, WITCHCRAFT, FASCINATION, VINCULA DIVINA, LIGATURE, TALISMAN, CABBALA, &c. DRUID, BARD, BRACHMAN, GYMNOSOPHIST, MAGI, ROSICRUCIAN, and the like.

[13] METAPHYSICS, or the doctrine of *ENS*; Eſſence, Exiſtence, Power, Act, *UNDERSTANDING*, &c. (the *MIND*) its Faculties; APPREHENSION, JUDGMENT, IMAGINATION, REASON, WIT, &c. Its Operations; RETENTION, REFLECTION, ASSOCIATION, ABSTRACTION, &c. Its PERCEPTIONS; as SUBSTANCE, ACCIDENT, MODE, &c. RELATIONS; as UNITY, MULTITUDE, INFINITY, UNIVERSAL, &c. QUANTITY, QUALITY, WHOLE, PART, &c. GENUS, SPECIES, DIFFERENCE, &c. PROPER, OPPOSITE, CIRCUMSTANCE, EXTERNAL, &c. Effects hereof; KNOWLEDGE, SCIENCE, ART, EXPERIENCE, &c. Conditions; PROBABILITY, CERTAINTY, FALLACY, &c. Syſtems hereof; NOMINALS, SCOTISTS, &c.

[14] ARITHMETIC, including the doctrine of *DISCRETE* or DISCONTINUOUS *QUANTITY*; viz. NUMBER, RATIO, PROPORTION, &c. Kinds; as INTEGER, FRACTION, DECIMAL, SURD, &c. Relations; as ROOT, POWER, SQUARE, CUBE, &c. RULES or operations thereof; as NOTATION, NUMERATION, ADDITION, SUBTRACTION, &c. REDUCTION, PRACTICE, POSITION, &c. EXTRACTION, APPROXIMATION, &c. Inſtruments ſubſervient thereto; as LOGARITHMS, NEPER'S BONES, &c.

[15] ANALYTICS, or the reſolution of *PROBLEMS* by SPECIES, or ſymbolical expreſſions: RULES or operations hereof; as ADDITION, SUBTRACTION, MULTIPLICATION, &c. Application thereof, in COMBINATION, PERMUTATIONS, MAGIC, SQUARES, CHANCES, GAMING, &c. SERIES, PROGRESSIONS, &c. METHODUS DE MAXIMIS, FLUXIONS, EXPONENTIALS, TANGENTS, &c.

[16] ALGEBRA, or the doctrine of *EQUATIONS*; SIMPLE, QUADRATIC, CUBIC, &c. Operations thereof; as REDUCTION, CONSTRUCTION. Objects thereof; PROBLEMS, RESOLUTION, &c.

[17] GEOMETRY, or the doctrine of *EXTENDED* or CONTINUOUS *QUANTITY*; viz. 1. LINES; RIGHT, PERPENDICULAR, PARALLEL, OBLIQUE, &c. ANGLES; ACUTE, SCALENOUS, VERTICAL, OPPOSITE, &c. 2. FIGURES or SURFACES; TRIANGLE, SQUARE, PARALLELOGRAM, POLYGON, &c. Circumſtances hereof; as PERIMETER, AREA, &c. Operations relating hereto; as BISECTING, DIVIDING, MULTIPLYING, MEASURING, &c. Inſtruments uſed therein; as COMPASSES, RULER, SQUARE, PARALLELISM, SCALE, &c. CURVES; as CIRCLE, CYCLOID, CISSOID, CATENARIA, CAUSTIC, EVOLUTE, QUADRATRIX, &c. Circumſtances thereof; as AXIS, DIAMETER, RADIUS, CENTER, CIRCUMFERENCE, ASIDES, ORDINATE, &c. ARCH, CHORD, SINE, TANGENT, SECANT, &c. Inſtruments uſed herein; as artificial LINES, CANONS, &c. Operations ariſing herefrom; as SURVEYING, taking ANGLES or BEARINGS, &c. with QUADRANT, PLAINTABLE, SEMICIRCLE, CIRCUMFERENTOR, &c. taking DISTANCES, with CHAIN, PERAMBULATOR, &c. PLOTTING into DRAUGHT, MAP, &c. with PROTRACTOR, &c. 3. SOLIDS, or bodies; as CUBE, PARALLELEPIPED, PRISM, PYRAMID, CYLINDER, POLYHEDRON, &c. Their SUPERFICIES, SOLIDITY, &c. Operations relating hereto; as CUBATURE, meaſuring of TIMBER, GAUGING, &c. Inſtruments uſed herein; as CARPENTER'S RULE, SECTOR, SLIDING RULE, GAUGING ROD, &c. The SPHERE; its doctrine, PROJECTION, &c. Application thereof; in PLANISPHERE, ANALEMMA, &c. The CONE; its SECTIONS, ELLIPSIS, PARABOLA, HYPERBOLA, &c. with its ASYMPTOTES, FOCI, &c. Their CONSTRUCTION; QUADRATURES, RECTIFICATION, &c.

[18] STATICS, or the doctrine of *MOTION*: its laws; VELOCITY, MOMENTUM, &c. Cauſes; as GRAVITY, PERCUSSION, COMMUNICATION, &c. Modifications; as COMPOSITION, ACCELERATION, RETARDATION, REFLECTION, REFRACTION, &c. Kinds; as ASCENT, DESCENT, CENTRAL, CENTRIPETAL, &c. OSCILLATION, UNDULATION, PROJECTION, &c. POWERS, or applications thereof; in LEVER, SCREW, &c. PENDULUM, PROJECTILE, &c. Operations directed hereby; as GUNNERY, the MECHANICAL ARTS, &c. enumerated hereafter.

[19] ETHICS, or the conſideration of NATURAL INCLINATIONS,

would sometimes prove inconvenient for the reader; who, to find some particular matter, would go a long circuit, and be referred backwards and forwards, from one end of the book to another: to say nothing

NATIONS, PASSIONS, TASTES, &c. Objects thereof; as GOOD, EVIL, VIRTUE, VICE, BEAUTY, DEFORMITY, &c. PLEASURE, PAIN, &c. RECTITUDE, EQUITY, CONSCIENCE, &c. LAW, OBLIGATION, &c. WILL, LIBERTY, ACTION, ASSENT, &c. NECESSITY, PREMOTION, PROVIDENCE, &c. Systems hereof; STOICS, PLATONISM, ACADEMY, CYNIC, and the like.

" POLICY, or the consideration of *SOCIETY* and *GOVERNMENT*: its origin; in CONTRACT, &c. Constitutions and forms thereof; as, 1. MONARCHY, DESPOTISM, &c. Powers thereof: KING, QUEEN, PRINCE, DUKE, EMPEROR, SULTAN, SOPHY, CALIPH, CÆSAR, CZAR, INCA, ETHNARCH, TETRARCH, DESPOT, and the like. Their TITLES and QUALITIES; MAJESTY, HIGHNESS, GRACE, EXCELLENCE, and the like. Their REGALIA; CROWN, SCEPTRE, TIARA, FASCES, &c. 2. ARISTOCRACY, its powers; as ARCHON, DICTATOR, DOGE, SENATE, COUNCIL, &c. 3. DEMOCRACY, STATES-GENERAL, STADTHOLDER, PROTECTOR, &c. Their SUCCESSION, ELECTIVE, HEREDITARY, by PRIMOGENITURE, &c. Their transactions; as PEACE, WAR, TREATY, UNION, CRUSADE, &c. By ARMIES, FLEETS, EMBASSIES, SECRETARY, PLENIPOTENTIARY, ENVOY, LEGATE, NUNCIO, &c. Their TERRITORIES, EMPIRE, SIGNORY, &c. Their ESTATES, NOBLES, COMMONS, CLERGY, CENSUS, ENUMERATION, TRIBE, QUARTER, &c. PROVINCE, CIRCLE, COUNTY, CITY, TOWN, &c. Magistrature, CHANCELLOR, JUDGE, SHERIFF, JUSTICE, MAYOR, ALDERMAN, BAILIFF, CONSTABLE, INTERREX, CONSUL, PRETOR, CENSOR, VISIER, TRIBUNE, TRIUMVIR, PROVOST, EPHORI, ÆDILE, PREFECT, QUÆSTOR, PROCONSUL, VICEROY, LIEUTENANT, STEWARD, WARDEN, KEEPER, JURISCONSULTUS, PROCURATOR, ADVOCATE, BARRISTER, PROTHONOTARY, CUSTOS, PHILAZER, CHIROGRAPHER, USHER, CLERK, &c. Their jurisdiction; COURTS; as AREOPAGUS, COMITIA, &c. PARLIAMENT, DIET, DIVAN, CHAMBER, ASSIZE, PRIVY-COUNCIL, &c. CHANCERY, KING's-BENCH, EXCHEQUER, ADMIRALTY, VERGE, SESSIONS, TURN, COURTY COURT, LEET, EYRE, &c. TERMS, CIRCUITS, COMMISSIONS, OYER, CONVOCATION, ARCHES, PREROGATIVE, FACULTIES, DELEGATES, ROTA, INQUISITION, &c. Their REVENUES, TREASURY, FISC, EXCHEQUER, TALLY, POLITICAL ARITHMETIC, DUTIES, CUSTOMS, TARIFF, EXCISE, &c. COINAGE, MONEY, INTEREST, USURY, &c. Their HOUSHOLD, CHAMBER, GREEN-CLOTH, WARDROBE, &c. Under STEWARD, CHAMBERLAIN, COMPTROLLER, COFFERER, ACA, ODA, &c. GUARDS, ORDNANCE, &c. directed by CAPTAIN, MASTER, EQUERRY, &c. MILITIA, NAVY, POST, TIMARIOT, ARTIZAN BAND, &c. DIGNITIES; DAUPHIN, ELECTOR, PALATINE, GRAVE, PALSGRAVE, THANE, EARL, COUNT, KNIGHT, GARTER, BARONET, BATH, TEUTONIC, MALTA, ELEPHANT, &c. GENTLEMAN, YEOMAN, &c. Their NAMES, SURNAMES, TITLES, PRECEDENCE, &c. FACTIONS, PATRICIAN, GUELPH, TORY, &c. CORPORATIONS, or lesser COMMUNITIES, UNIVERSITY, ACADEMY, COLLEGE, SOCIETY, CHANTER, SCHOOL, HOSPITAL, INN, Public BUILDINGS; HALL, BASILICA, GUILDHALL, PRISON, TOWER, ARSENAL, LIBRARY, MUSEUM, CIRCUS, &c. Solemn CEREMONIES; as TRIUMPH, TOURNAMENT, CARROUSAL, QUADRIL, DONATIVE, MEDAL, TROPHY, MONUMENT, FUNERAL, TOMB, CATACOMB, &c.

" LAW, or the rules and measures of *SOCIETY*; published in ACT, STATUTE, CHARTER, RESCRIPT, CONSTITUTION, DECRETAL, SENATUS-CONSULTUM, PRAGMATIC SANCTION, &c. Recorded in INSTITUTES, CODE, NOVEL, REGISTER, PANDECT, CENSUS, DOMESDAY, &c. Kinds; CIVIL, CANON, STATUTARY, respecting, 1. Persons; as the KING; his PREROGATIVE, ROYALTIES, &c. viz. Granting DISPENSATION, PARDON, COMMENDAM, EXEMPTION, DIGNITIES, FRANCHISES, FOREST, PARK, PURLIEU, VERT, CHASE, IMPOST, SUBSIDY, TOLL, TAX, AID, HOMAGE, SCUTAGE, PRISAGE, WAIF, ESTRAY, ESCHEAT, TREASURE TROVE, &c. OFFICERS and Magistrates; created by WRIT, WARRANT, COMMISSION, &c. Their OATH, TEST, DECLARATION, VISITATION, PROCURATION, &c. CORPORATIONS; REGULAR, SECULAR, &c. made by CHARTER, PATENT, &c. dissolved by QUO WARRANTO, MANDAMUS, &c. SUBJECTS; as DENIZEN, ALIEN, NATURALIZATION, HUSBAND, WIFE, MARRIAGE, CONCUBINE, SEPARATION, ALIMONY, DOWER, AFFINITY, BASTARD, ADOPTION, EMANCIPATION, LORD, TENANT, VILLAIN, VASSAL, CLIENT, PATRON, SERVANT, SLAVE, RETAINER, MANUMISSION, ENFRANCHISING, &c. TENURE, SERVICE, HOMAGE, FEALTY, SERJEANTY, ESCUAGE, RELIEF, GUARDIAN, WARDSHIP, SOCAGE, HEIR, INTESTATE, ANCESTOR, &c. 2. ESTATES, or things; either real, as TENEMENTS, HEREDITAMENTS, FREEHOLD, FEE, CUSTOMARY, TAIL, GAVELKIND, COURTESY, &c. In REVERSION, MORTGAGE, HYPOTHECA, &c. MANOR, DEMESNE, HONOURS, COMMON, GLEBE, ADVOWSON, &c. Acquired by OCCUPANCY, PRESCRIPTION, DESCENT, CONVEYANCE, FEOFFMENT, FINE, RECOVERY, DEFEIZANCE, LEASE, DEVISE, ATTORNMENT, INVESTITURE, LIVERY, &c. Lost by ALIENATION, MORTMAIN, DISSEISIN, ABATEMENT, SURRENDER, DISCONTINUANCE, DISCLAIMER, FORFEITURE, RESIGNATION, DEPRIVATION, LAPSE, &c. Or personal; as GOODS, CHATTELS, EMBLEMENTS, ANNUITY, DEBTS, SPECIALTY, RECOGNIZANCE, &c. Acquired by SUCCESSION, HERIOT, MORTUARY, HEIRLOOM, TESTAMENT, EXECUTOR, ADMINISTRATOR, ORDINARY, JUDGMENT, FIERI FACIAS, &c. 3. WRONGS or INJURIES; either to person; as CRIMES, TREASON, PARRICIDE, MURDER, FELONY, ASSAULT, RAPE, ASSASSIN, ADULTERY, FORNICATION, DEFLORATION, POLYGAMY, HERESY, &c. Prosecuted by INDICTMENT, ACCUSATION, ACTIONS of CONSPIRACY, and upon the CASE, HABEAS CORPUS, &c. Punished with HANGING, CRUCIFIXION, WHEEL, FURCA, SCALA, PILLORY, TRANSPORTATION, DIVORCE, SCARPISM, &c. Or CIVIL, and to things; as TRESPASS, NUISANCE, DISTURBANCE, &c. Remedied by WRITS of QUARE IMPEDIT, DARREIN PRESENTMENT, APPEAL, ATTAINT, ERROR, RIGHT, DISCENT, SUPERSEDEAS, ACTITA QUERELA, &c. SUIT, or COURSE of proceedings, whereby redress is procured; including, 1. PROCESS; either by BILL, SUMMONS, SUBPŒNA, ATTACHMENT, CAPIAS, EXIGENT, &c. to which belong APPEARANCE, ATTORNEY, BAIL, ESSOIN, DEFAULT, NONSUIT, ARRAIGNMENT, &c. 2. PLEADING; whence COUNT, DECLARATION, AID PRIER, VOUCHER, AGE PRIER, BAR, ABATE, RELEASE, REPLICATION, OUTLAWRY, SEQUESTRATION, &c. 3. ISSUE; whence DEMURRER, 4. TRIAL; whence PROOF, EVIDENCE, PRESUMPTION, OATH, AFFIDAVIT, AFFIRMATION, JURY, CHALLENGE, ARRAY, VERDICT, BATTEL, DUEL, CHAMPION, PURGATION, ORDEAL, &c. FAINE FORT ET DURE, RACK, TORTURE, &c. 5. JUDGMENT; whence ARREST, &c. 6 EXECUTION; whence SCIRE FACIAS, REPLEVIN, &c.

" THEOLOGY, or the consideration of *GOD*: his nature and ATTRIBUTES; as ETERNITY, UBIQUITY, &c. His UNITY, TRINITY, &c. PERSONS, HYPOSTASIS, &c. Our duty to him, discovered by INSPIRATION, REVELATION, PROPHECY, &c. by the MESSIAH, EVANGELISTS, APOSTLES, &c. In the BIBLE, PENTATEUCH, HAGIOGRAPHA, PSALTER, GOSPEL, APOCALYPSE, &c. CANON, DEUTEROCANONICAL, APOCRYPHA, &c. Circumstances thereof; STYLE, ALLEGORY, TYPE, PARABLE, MYSTICAL, &c. TEXT, VERSION, SEPTUAGINT, VULGATE, &c. PARAPHRASE, TARGUM, &c. POINTS, QUOTATIONS, &c. Matter thereof; Declarations, of INCARNATION, PASSION, CRUCIFIXION, MIRACLES, &c. Injunctions; as WORSHIP, PRAYER, SACRIFICE, &c. SACRAMENTS; as EUCHARIST, BAPTISM, &c. PROMISES; as GRACE, JUSTIFICATION, &c. DECREES; as PREDESTINATION, ELECTION, REPROBATION, &c. Breaches on our part, SIN, FALL, IMPUTATION, &c. Remedies thereof; by PENITENCE, CONFESSION, &c. Rewards and punishments allotted thereto; HEAVEN, HELL, RESURRECTION, IMMORTALITY, &c. His MINISTERS; ANGELS, DEVILS, &c. His CHURCH; either TRIUMPHANT; as SAINTS, MARTYRS, CONFESSORS, FATHERS, DOCTORS, &c. or MILITANT, &c. In OFFICES, CREEDS, LITURGY, DECALOGUE, DOXOLOGY, TRISAGION, &c. Discipline and rites; as ABSOLUTION, ANATHEMA, EXCOMMUNICATION, &c. CATECHISM, CONFIRMATION, CONFESSION, &c. Its HIERARCHY; as BISHOP, PRIEST, DEACON, &c. PATRIARCH, ARCHBISHOP, PRIMATE, DEAN, CANON, PREBEND, ARCHDEACON, CHANTER, &c. Their cuftoms; MITRE, CROZIER, PALLIUM, &c. Their ORDINATION,

nothing of the interruptions which may frequently happen in the series of references. To obviate this, we have taken a middle course, and carried on the distribution farther, in the way of notes at the bottom

tion, Consecration, Collation, Imposition, &c. Benefices, Revenues, Tithes, &c. Places set apart; as Church, Chapel, Oratory, &c. Cathedral, Parochial, Cardinal, &c. Choir, Nave, Altar, Font, &c. Diocese, Province, &c. Assemblies; as Synod, Council, Convocation, Consistory, Chapter, Presbytery, &c. Feasts, Fasts, Lent, Vigils, &c. Easter, Epiphany, Pentecost, Annunciation, Purification, Presentation, &c. Particular Systems, or professions thereof, viz. Reformed, or Protestant; as the Church of England, Lutheranism, Calvinism, &c. Romish, or Latin; its Mass, Breviary, Legend, &c. Transubstantiation, Extreme Unction, Supererogation, Penance, &c. Hierarchy; Pope, Cardinal, &c. Secular, Regular, Monk, Religious, Abbot, Prior, &c. Order, Congregation, Monastery, General, &c. Jesuit, Carthusian, Carmelite, Augustine, Dominican, &c. Third order; Coenobite, Anachoret, Hermit, Recluse, Monastery, Cell, Rule, Vow, Reform, Noviciate, &c. Image, Relics, Saint, Virgin, Rosary, &c. Canonization, Beatification, &c. Indulgence, Jubilee, Exorcism, &c. Greek; its Anthologion, Prothesis, Particles, &c. Maronite, Jacobite, Thomaan, &c. Armenian, Cophti, Solitary, &c. Sects, and Heresies; as Manichees, Gnostics, Arians, &c. Esonites, Nestorians, Millennaries, Quartodecimans, &c. Montanists, Socinians, Arminians, &c. Presbyterians, Anabaptists, Independents, Quakers, &c. Quietists, Servetists, Pre-Adamites, &c. Deist, Atheist, Spinosism, &c. Jewish; its Talmud, Tradition, &c. Temple, Tabernacle, Sanctuary, Ark, &c. Pontiff, Levite, Tribe, &c. Ephod, Urim and Thummim, Circumcision, Sabbath, Sanhedrim, &c. Rabbi, Doctor, Cabbala, Massora, &c. Pharisee, Sadducee, Essean, Caraite, &c. Nazarite, Therapeutæ, &c. Samaritan, Dositheans, Hellenist, &c. Passover, Scenopegia, Genesima, &c. Mahometan; their Alcoran, Mosti, Dervis, Morabet, Muselman, &c. Heathen; their Idolatry, Theogony, &c. Their Gods; Penates, Lares, Lemures, &c. Satyrs, Sylvans, Nymphs, Tritons, &c. Demi-God, Hero, Fortune, Destiny, Demon, Genius, &c. Apotheosis, Sacrifice, &c. Feast, Lustration, &c. as Eleusinia, Saturnalia, Cerealia, &c. Ministers thereof; Rex, Pontifex, Flamen, Vestal, Cortezans, &c. Games; Olympic, Isthmia, &c. Divination, Oracle, Pythian, Sibyl, &c. Augur, Auspex, &c. Trifle, Fane, Pagod, &c. Sects; as Bramans, Brachmans, Sabæans, &c.

" LOGICS, or the consideration of *IDEAS* or *NOTIONS* their kinds; Simple, Complex, Adequate, &c. Disposition into classes or Categories, Predicaments, Predicates, &c. Their composition, or adhesion into Axioms, Propositions, Problems, Theorems, Tropes, Hypotheses, Arguments, as Syllogism, Enthymeme, Sorites, Sophism, Dilemma, Crocodile, &c. Their Resolution; Definition, Division, &c. into Premises, Consequences, Terms, &c. Their Truth, Falsehood, Evidence, Demonstration, &c. Operations therewith; as Argumentation, Induction, Discoursing, Philosophizing, &c. Distinction, Distinction, Contradiction, Reductio ad Absurdum, &c.

" CHEMISTRY, including the use of *FIRE*, Water, Dutch, Fern-Pots, Athanors, Furnaces, Retorts, and other instruments to change Minerals, Vegetables, and Fossils bodies, by inducing Fusion, Putrefaction, Fermentation, Distillation, Exhalation, &c. and thereby procuring Spirits, Salts, Oils, Acids, Alcalies, Aromatic Tinctures, Wines, Vinegars, Flowers, Calces, Crystals, Soaps, Tartars, Regulus, Magistery, Extracts, Elixirs, Cerusse, Menstruum, Limbarde, Quintessence, Philosophic Alcahest, Philosopher's Stone, and the like; by the operations of Distillation, Exhalation, Coloration, Sublimation, Rectification, Crystallization, Calcination, Amalgamation, Digestion, Precipitation, Vitrification, Fixation, Transmutation, and the like. Arbor Dianæ, Aurum Fulminans, artificial Earthquake, Magic, Divination, &c.

" OPTICS, including the laws and consideration of *VISION*, and Visible Objects; effected by means of Light; its Rays; their Refrangibility, Reflexibility, &c. Focus, Transparency, Opacity, Shadow, &c. Reflection thereof, in Mirror, Looking-Glass, Catoptric, Cistula, &c. Refraction, in Lens, Prism, Glass, &c. Application, in Telescope, Microscope, Magic Lantern, &c. Spectacle, Polemoscope, Polyhedron, Camera Obscura, &c.

" PERSPECTIVE, or the projection of Points, Lines, Planes, &c. in Scenography, Orthography, Iconography, Anamorphosis, &c.

" PAINTING, or the *DESIGNING* of objects in Clair-obscure, Proportion, &c. with Ordonnance, Expression, &c. Circumstances hereof; Attitude, Contrast, Group, &c. Kinds; Limning, Miniature, Camieux, Fresco, &c. Enamelling, Mosaic, &c.

" PHONICS, or the doctrine of *SOUNDS*, Voice, &c. Their Modifications, in Echo, Resonance, Whispering Place, Speaking Trumpet, &c. Their Tune, Gravity, Interval, &c. Time, Triple, &c. expressed by Note, Chord, &c. Comparisons thereof; Concord, as Union, Octave, Third, Fourth, Diapason, &c. Compositions; as Melody, Harmony, Counterpoint, Symphony, Sylvodia, Chime, Song, Rhythmus, &c. Kinds; Genius, Mode, &c. Circumstances; Key, Cleff, Signature, Transposition, &c. Staff, Scale, Gammut, Solfaing, Modulation, &c. Instruments; Organ, Bell, Trumpet, Lyra, Cymbal, Violin, Harpsichord, &c.

" HYDROSTATICS, or the consideration of *FLUIDS*; their Specific Gravity, Density, Equilibrium, &c. Instruments to measure the same; as Areometer, Hydrostatical Balance, &c. Siphon, Torricellian, &c. Motion thereof, in Pump, Fountain, Spiral Screw, Hydrocaristerium, Hydromantic, &c.

" PNEUMATICS, or the consideration of the *AIR*; its Weight, Density, Pressure, Elasticity, &c. Condensation, Rarefaction, Motion, Wind, &c. in Air-Pump, Suction, Vacuum, &c. Measured by Barometer, Thermometer, Hygrometer, Manometer, &c. Anemometer, Windmill, &c.

" MECHANICS, including the structure and contrivance of *MACHINES*; as Balance, Steelyard, Pulley, Polypast, &c. Wheel, Clock, Watch, Pendulum, Spring, Fusee, &c. Clepsydra, Coach, Rota Aristotelica, Perpetual Motion, &c. Mill, Press, Vice, Lathe, Loom, Windlass, &c. Operations of Swimming, Diving, Flying, &c.

" ARCHITECTURE, including the consideration of *BUILDINGS*; as House, Temple, Church, Hall, Palace, Theatre, &c. Ship, Galley, Galleon, Ark, Boat, Raft, &c. Pyramid, Mausoleum, Pantheon, &c. Capitol, Seraglio, Lucullus, &c. Arch, Vault, Bridge, Monument, Tomb, &c. Forms thereof; Rotundo, Playform, Pinnacle, &c. Terms, Design, Iconography, Profile, &c. Parts; as Foundation, Wall, Roof, &c. Door, Window, Stairs, Chimney, &c. Orders; as Tuscan, Doric, Corinthian, &c. Caryatides, Attic, Gothic, Rose Chrome; Pilasters, Astile, &c. Parts thereof; Entablature, Capital, Portal, &c. Cornice, Frieze, Base, &c. Modern Refinement, Modillion, Console, &c. Modillion; Ogee, Tore, Astragal, Scotia, Scotia, Cymol, &c. Materials; as Brick, Stone, Tile, Slate, Shingle, &c. Timber, Wainscot, Glass, Lead, Plaister, &c. Beam, Rafter, Mortar, Nail, Hinge, Key, Lock, &c. Quarry, Masonry, &c.

" SCULPTURE, or the framing of Statue, Figure, Ornament, &c. in Relievo, Creux, &c. as Carving,

tom of the pages; but this is in a looser manner, to prevent the embarrafs of a ſtrict analyſis, ſo complex and diffuſive as this muſt otherwiſe prove. Some of the principal articles, in every branch of ſcience

CARVING, POTTERY, PORCELAIN, &c. ENGRAVING; SEAL, DYE, &c. ETCHING, CUTTING, MEZZOTINTO, &c. FOUNDERY: of BELL, LETTER, ORDNANCE, &c. COINING; MONEY, MEDAL, MEDALLION, &c. PILE, LEGEND, &c. LAPIDARY, TURNING, INLAYING, VARNEERING, DAMASQUEENING, ENCHASING, &c.

" TRADES and MANUFACTURES; as PRINTING, PAPER-MAKING, BOOK-BINDING, &c. GILDING, JAPANNING, GLASS-MAKING, GRINDING, &c. PLUMBERY, FORGING, HAMMERING, &c. WEAVING, BLEACHING, WHITENING, &c. FULLING, DYING, PRESSING, SHEERING, CALENDRING, TARRYING, FRIEZING, &c. WOOLLEN, SILK, LINEN INCOMBUSTIBLE, &c. CLOTH, SERGE, TAFFETY, STOCKING, &c. VELVET, TAPESTRY, HAT, &c. TANNING, CURRYING, TAWING, &c. SHAMOISING, SHAGREEN, MOROCCO, &c. Making PARCHMENT, GLUE, GUNPOWDER, SMALT, SOAP, STARCH, &c. CANDLE, TAPER, TORCH, &c. STEEL, BUTTON, PIN, NEEDLE, PIPE, FAN, PERUKE, &c.

" PYROTECHNY, or Artificial *FIRE-WORKS*: including the conſideration and uſe of GUNPOWDER, MATCH, FUSIL, &c. Of ORDNANCE, CANNON, GUN, MORTAR, &c. CARRIAGE, CHARGE, PROJECTION, RANGE, POINT-BLANK, RECOIL, &c. PETARD, CARCASS, SHOT, BOMB, GRANADO, &c. ROCKET, STAR, &c.

" MILITARY ARTS, including the conſideration of *ARMIES*, FLEETS, CAVALRY, INFANTRY, &c. conſiſting of REGIMENTS, TROOPS, COMPANIES, PHALANX, LEGION, &c. SOLDIERS; DRAGOON, GRENADIER, PIONEER, CUIRASSIER, ARCHER, JANISSARY, SPAHI, VELITES, ARQUEBUSIDES, GENS'ARMERY, &c. Divided into SQUADRON, BATTALION, BRIGADE, &c. commanded by GENERAL, MARSHALL, BASHAW, ADMIRAL, &c. LIEUTENANT, BRIGADIER, COLONEL, CAPTAIN, SERJEANT, MAJOR, ADJUTANT, ENSIGN, QUARTER-MASTER, TRIBUNE, CENTURION, PRIMIPILUS, &c. In BATTLE, SIEGE, MARCH, CAMP, &c. Ranged in LINE, COLUMN, &c. Motions; ATTACK, RETREAT, HALT, &c. EVOLUTION; WHEELING, COUNTER-WHEELING, &c. SIGNALS; WORD, DRUM, CHAMADE, &c. GUARDS; GARRISON, PIQUET, PATROL, ROUND, QUARTER, PLACE of ARMS, &c. STANDARD, BANNER, EAGLE, LABARUM, &c. Their ARMS; ARTILLERY, CARABINE, MUSQUET, &c. HELMET, BUCKLER, PELTA, CUIRASS, &c. AXES, BALISTA, CATAPULTA, SLING, &c.

" FORTIFICATION, or the conſtruction of *FORTRESSES*; as CITADEL, CASTLE, TOWER, &c. FORT, STAR, REDOUBT, &c. WORKS, or parts thereof; RAMPART, BASTION, DITCH, COUNTERSCARP, CURTIN, &c. RAVELINE, HORN WORK, CROWNWORK, &c. APPROACHES; TRENCH, SAP, MINE, &c. LINE, PARALLEL, CIRCUMVALLATION, &c. BATTERY, ATTACK, &c.

" ASTRONOMY, or the doctrine of the *HEAVENS*; their CIRCLES, ECLIPTIC, ZODIAC, MERIDIAN, EQUATOR, VERTICAL, AZIMUTH, GALACTIC, POINTS; as POLE, ZENITH, NADIR, &c. Celeſtial bodies, viz. STARS, SUNS, &c. Aſſemblage thereof; into SIGN, CONSTELLATION, &c. Their DESCRIPTION, CULMINATION, REFRACTION, DECLINATION, ASCENSION, LONGITUDE, LATITUDE, ALTITUDE, AMPLITUDE, AZIMUTH; PLANETS; as SATURN, VENUS, EARTH, MOON, SATELLITE, COMET, &c. Their PLACES, ASPECTS, SYZIGY, CONJUNCTION, QUADRATURE, DIAMETER, DISTANCE, PERIOD, REVOLUTION, ORBIT, NODE, &c. Their STATION, RETROGRADATION, ELONGATION, &c. Their PHASES, ECLIPSE, PENUMBRA, OCCULTATION, PARALLAX, CREPUSCULE, MACHINE, &c. Obſervations thereof; taken with the QUADRANT, CANNON, MICROMETER, RETICULA, &c. Collected in CATALOGUE, TABLES, &c. HYPOTHESES, or SYSTEMS thereof; COPERNICAN, TYCHONIC, PTOLEMAIC, &c. Exhibited in SPHERE, GLOBE, &c.

" CHRONOLOGY, or the doctrine of *TIME*; meaſured by YEAR, MONTH, WEEK, DAY, HOUR, AGE, PERIOD, CYCLE, &c. Commencing from EPOCHA, INCARNATION, HEGIRA, &c. Laid down in FASTI, ALMANACK, CALENDAR, JULIAN, GREGORIAN, &c. Accommodated to FEASTS, FERIÆ, EASTER, &c. by means of EPACT, GOLDEN NUMBER, DOMINICAL, &c.

" DIALLING, including the FURNITURE, and projection of *DIALS*; HORIZONTAL, DECLINING, RECLINING, DITROCHINING, &c. MOON-DIAL, RINGDIAL, HORODICTICAL, &c. Inſtruments; as DECLINATOR, ANALEMMA, SCALE, &c.

" GEOGRAPHY, including the doctrine of the *EARTH*, or *GLOBE* in CIRCLES, PARALLEL, TROPIC, HORIZON, AXIS, POLE, &c. In ZONES, CLIMATES, &c. Its PLACES; their LONGITUDE, LATITUDE, DISTANCE, ELEVATION, &c. Inhabitants; ANTIPODES, ABORIGINES, HETEROSCIANS, AMPHISCII, PERIŒCI, &c. Inſtruments relating thereto; GLOBE, MAP, &c.

" NAVIGATION, or the conſideration of *SAILING*; in SHIP, FRIGATE, BARK, &c. Parts thereof; MAST, ANCHOR, SAILS, YARDS, CORDAGE, CAPSTAN, RUDDER, DECK, &c. Their COURSE, ROUTE, &c. ſhewn by COMPASS, NEEDLE, VARIATION, &c. Directed by STEERING, CURRENT, &c. Diſtance, or RECKONING, by LOG, OBSERVATION, LONGITUDE, LATITUDE, &c. Taken by FORESTAFF, BACKSTAFF, ASTROLABE, NOCTURNAL, NAVICAL QUADRANT, &c. Wrought by GUNTER, CHART, MERCATOR, TRAVERSE, &c. The operations of SOUNDING, WEIGHING, CAREENING, SIGNALS, BUOY, &c.

" COMMERCE, or the affairs of *MERCHANDIZE*; including MONEY, COIN, SPECIES, &c. as POUND, CROWN, SHILLING, PENNY, STERLING, DUCAT, DOLLAR, PIECE of EIGHT, TALBOT, SESTERCE, SHEKEL, and the like. WEIGHTS; LIBRA, OUNCE, &c. MEASURES; FOOT, YARD, STANDARD, &c. Given in EXCHANGE, TRUCK, PERMUTATION, COMMUTATION, &c. for MANUFACTURE, SPICE, DRUG, WOOLLEN, SLAVE, NEGRO, &c. IMPORTED, EXPORTED, TRANSPORTED, CONVOY, FLEET, &c. Conditions thereof; TARIFF, CONTRABAND, CHARTER-PARTY, FREIGHT, AVERAGE, &c. CUSTOMS, DUTY, DRAWBACK, POUNDAGE, &c. BOTTOMRY, FIRE, &c. Tranſacted by COMPANY; as HANSE, STEELYARD, EAST INDIA, TURKEY, HAMBURGH, MISSISIPPI, SOUTH SEA, ASSIENTO, REGISTER, COLONY, FISHERY, FACTORY, &c. At STAPLE, FAIR, MARKET, BANK, EXCHANGE, &c. By COMMISSION, FACTOR, BROKER, &c. WEIGHING, paying by BILLS of USANCE, ACCEPTANCE, PAR, PROTEST, DISCOUNT, RECHANGE, &c. ACTION, SUBSCRIPTION, BOOK-KEEPING, &c.

" ANATOMY, or the ANALYSIS of *ANIMAL BODIES*, and their PARTS, viz. BONES; as CRANIUM, RIB, VERTEBRA, RADIUS, FEMUR, TIBIA, SACRUM, PUBIS, PATELLA, &c. Their ARTICULATION, APOPHYSES, &c. MUSCLES; ADDUCTION, ABDUCTION, ERECTOR, DEPRESSOR, DELTOIDES, SARTORIUS, CUCULLARIS, ORBICULARIS, SPHINCTER, &c. Their TENDONS, FIBRES, &c. VESSELS; as ARTERY, AORTA, ASPERA, TRACHEA, PULMONARY, &c. VEINS; as CAVA, PORTA, JUGULAR, CARDIAC, &c. GLANDS; as PANCREAS, PAROTIDES, TESTICLES, &c. NERVES; OPTIC, OLFACTORY, AUDITORY, &c. LYMPHATIC, LACTEAL, MESENTERIC, MUSCULOUS, &c. Their VALVES, TUNICS, ANASTOMOSES, &c. Their HUMOURS; as CHYLE, BLOOD, SPIRIT, SERUM, GALL, URINE, MILK, SWEAT, MARROW, &c. MEMBRANE; PANNICLE, CUTIS, CUTICULA, PAPILLA, &c. VENTRICLES, MEDIASTINUM, BRAIN, &c. EYE, EAR, PUPIL, TYMPANUM, TONGUE, TOOTH, PALATE, LARYNX, GLOTTIS, OESOPHAGUS, &c. VISCERA, STOMACH, LUNGS, HEART, &c. LIVER, SPLEEN, KIDNEY, INTESTINES, BLADDER, &c. FUNCTIONS of operations hereof; RESPIRATION, DEGLUTITION, DIGESTION, CHYLIFICATION, SANGUIFICATION, CIRCULATION, SYSTOLE, NUTRITION, SECRETION, EXCRETION, PERSPIRATION, VOMITING, &c. GENERATION, PENIS, TESTICLES, CLITORIS, MATRIX, NYMPHÆ, HYMEN, EMBRYO, ZOOPHYTE, MOLE, &c. EJECTION, GENERATION, CONCEPTION, GESTATION, DELIVERY, LOCHIA, MEMBRI, &c.

" MEDICINE, including the conſideration of *LIFE* and *HEALTH*: conditions thereof; LONGEVITY, STRENGTH,

ence, are hereby brought to light, and such as will naturally suggest, and lead to the rest; so that this may afford the reader a sort of *summary* of the whole; and, at the same time, dispense a kind of auxiliary, or succedaneous order throughout the whole; the articles omitted all naturally enough ranging themselves in their proper places among these. A detail of this kind is of the more consequence, as it may not only supply the office of a *table of contents*, by presenting the dispersed materials of the book in one view; but also that of a rubric, or directory, by indicating the order they are most advantageously read in. Note, then, that the initial words of the *notes* correspond to the final ones of the *analysis*; and that their several members, or items of both, make so many heads or articles in the book.

I might here have ended my preface; and perhaps the reader would be willing enough to be thus dismissed. But something has been already started, which will require farther disquisition. The distribution we have made of knowledge is founded on this; that the several branches thereof commence either Art or Science, according to the agency or non-agency of the human mind, in respect thereof. It remains to take the matter up a little higher, and explain the reason and manner of this operation: to consider knowledge in its principles, antecedent to such intervention of ours; and even pursue it up to its cause, and shew how it exists there: and trace the progress of the mind through the whole, and the order of the modifications induced by it. This is a desideratum which we could not here decline entering upon, on account of its immediate relation to the present design. It is the basis of all learning in general; the great, but obscure hinge, on which the whole Encyclopædia turns.

TO be more explicit:—Words are the immediate matter of knowledge; I mean of knowledge considered as communicable, or capable of being transmitted from one to another. We should have known many things without language; but it would only have been such as we had seen or perceived ourselves. The observations of others could no way have been added to our own; but every individual must have

STRENGTH, TEMPERAMENT, &c. Means; as FOOD, DRINK, EXERCISE, &c. Opposites; as DEATH, DISEASE, &c. Kinds hereof; CHRONIC, EPIDEMIC, CONTAGIOUS, &c. as PLAGUE, FEVER, GOUT, APOPLEXY, EPILEPSY, PALSY, POX, POLYPUS, PALPITATION, MANIA, HYDROPHOBIA, SPASM, HYPOCHONDRIAC, PHTHISIS, SCORBUTUS, DROPSY, TYMPANITES, LEPRA, ITCH, PLICA, OPHTHALMIA, GUTTA CATARACT, and the like. WOUND, ULCER, CANCER, FRACTURE, FISSURE, CARIES, and the like. SYMPTOMS: SIGN, DIAGNOSTIC, PULSE, URINE, &c. PRESCRIPTION, CRISIS, CURE, &c. REGIMEN, DIET, MEDICINE, &c. Kinds hereof; SPECIFIC, PURGATIVE, EMETIC, DIAPHORETIC, DIURETIC, ALTERATIVE, STYPTIC, ASTRINGENT, EMOLLIENT, ODIATE, ABSORBENT, CAUSTIC, ANODYNE, SYMPATHETIC, CARDIAC, CEPHALIC, FEBRIFUGE, ANTIMONIAL, CHALYBEAT, MERCURIAL, and the like. OPERATIONS; as EVACUATION, PHLEBOTOMY, SUTURE, LITHOTOMY, AMPUTATION, INOCULATION, SALIVATION, COUCHING, CUPPING, TREPANNING, TOUCHING, PARACENTESIS, STROAKING, TRANSFUSION, CASTRATION, CIRCUMCISION, and the like.

" PHARMACY, or the PREPARATION and COMPOSITION of *REMEDIES*; as MITHRIDATE, TREACLE, HIERA PICRA, LAUDANUM, DIALEMA, TINCTURE, CALOMEL, &c. in the form of ELECTUARY, CONFECTION, EXTRACT, TINCTURE, SYRUP, TROCHE, PILL, POWDER, LOHOC, POTION, APOZEM, DROPS, medicated ALES, WINES, WATERS, UNGUENT, EMPLASTER, PURGE, CLYSTER, SUPPOSITORY, PESSARY, COLLYRIUM, &c. From DRUGS, or SIMPLES; as GUAIACUM, SASSAFRAS, COLOCYNTHIS, CROCUS, RHUBARB, CASSIA, SENNA, CORTEX, STYRAX, JALAP, SCAMMONY, OPIUM, &c. FATS, CLAWS, HORNS, &c. of VIPER, CRAB, ELK, &c. CANTHARIDES, MILLEPEDES, MUMMY, USNEA, ICHTHYOCOLLA, &c. ANTIMONY, ORPIMENT, ASPHALTUS, BISMUTH, MARCASITE, BOLE, CINNABAR, MARS, VENUS, &c.

" AGRICULTURE, or the TILLAGE and improvement of *SOILS*, CLAY, SAND, EARTH, &c. by the operations of PLOWING, FALLOWING, BURNING, SEMBRADURE, SEMINATION, MANURING, &c. To produce CORN, HEMP, FLAX, LIQUORICE, SAFFRON, &c. For MALT, FARINA, &c. GRANARY, THRESHING, &c. The culture of TREES, TIMBER, &c. by PLANTING, SHROWDING, BARKING, &c. For COPPICE, PARK, PADDOCK, HEDGE, PASTURE, &c.

" GARDENING, including the culture of *HERBS*, FLOWERS, FRUITS, &c. as DWARF, STANDARD, WALL, ESPALIER, SALLET, &c. The operations of PLANTING, TRANSPLANTING, REPLANTING, WATERING, ENGRAFTING, INOCULATING, PRUNING, PINCHING, VARIEGATING, &c. Preventing DISEASES, BLIGHTS, GUM, &c. The USE and ordering of a HOT-BED, GREEN-HOUSE, NURSERY, GARDEN, VINEYARD, &c. Their EXPOSURE, WALLS, HORIZONTAL SHELTER, &c. WALKS, GRASS-PLOT, TERRACE, QUINCUNX, PARTERRE, &c.

" MANEGE, including the consideration of *HORSES*, their AGE, COLOUR, TOOTH, HOOF, STAR, &c. PACES; as AMBLE, GALLOP, &c. AIRS; as VOLTE, DEMIVOLTE, CURVET, CAPRIOLE, &c. AID, CORRECTION, HAND, BIT, &c. SADDLE, SHOE, BRIDLE, &c. DISEASES; as HALTING, FARCY, STAGGERS, SCRATCHES, YELLOWS, &c. Operations; as ROWELLING, CURTAILING, GELDING, &c. HAWK, HAWKING, HOOD, &c. RECLAIMING, CASTING, &c. PIP, FILANDERS, &c. HOUND, HUNTING, &c. RUT, STALKING, BIRDLIME, TRAMMEL-NET, BAT-FOWLING, &c. FISH, FISHING, FISHERY, &c. ANGLING, HOOK, ROD, FLOAT, &c. BAIT, FLYING, HUXING, &c.

" GRAMMAR, or the consideration of *LANGUAGE*: as ENGLISH, LATIN, GREEK, HEBREW, FRENCH, &c. Their DIALECT, IDIOM, PATAVINITY, &c. Matter thereof; LETTER, VOWEL, CONSONANT, DIPHTHONG, ASPIRATE, CHARACTER, SYMBOL, HIEROGLYPHIC, &c. SYLLABLE, PARTICLE, &c. WORDS; kinds thereof; NOUN, PRONOUN, VERB, &c. SUBSTANTIVE, ADJECTIVE, &c. Their CONSTRUCTION, CONCORD, REGIMEN, &c. In CASE, NOMINATIVE, GENITIVE, &c. GENDER, MASCULINE, &c. NUMBER, PERSON, MOOD, TENSE, &c. INFINITENESS, PHRASE, PERIOD, &c. Distinguished by POINT, ACCENT, COMMA, &c. Delivered by PRONUNCIATION, WRITING, ORTHOGRAPHY, &c.

" HERALDRY, or the consideration of *COATS*; consisting of FIELD, CHARGE, FIGURE, &c. as CROSS, CHEVRON, BEND, PALE, &c. with ABATEMENT, DIFFERENCE, QUARTERING, &c. Composed of COLOUR, METAL, POINTS, &c. Born on ESCUTCHEON, SHIELD, &c. Accompanied with SUPPORTERS, HELMET, CREST, MANTLING, MOTTO, &c. DEVICE, EMBLEM, REBUS, ÆNIGMA, &c. And described by BLAZON.

" RHETORIC, or the means of *PERSUASION*; as INVENTION, AMPLIFICATION, TOPIC; PLACE, ARGUMENT, PASSIONS, MANNERS, &c. DISPOSITION, EXORDIUM, NARRATION, CONFIRMATION, PERORATION, &c. ELOCUTION, SUBLIME, STYLE, NUMBERS, &c. FIGURES; as EXCLAMATION, PLEONASM, EPIZEUXIS, APOSTROPHE, PROSOPOPŒIA, ANTITHESIS, &c. TROPES; as METAPHOR, ALLEGORY, SYNECDOCHE, SARCASM, HYPERBOLE, CATACHRESIS, &c. ACTION, CRISPEX, MONSTONIA, &c. COMPOSITIONS; as ORATION, DECLAMATION, PANEGYRIC, &c. PARABLE, ESSAY, DIALOGUE, HISTORY, &c.

" POETRY; including the consideration of *VERSE*; as METRE, FEET, QUANTITY, &c. as HEXAMETER, ALEXANDRINE, SPONDEE, IAMBIC, &c. RHYME, STANZA, &c. COMPOSITIONS; as EPIGRAM, ELEGY, SONG, MADRIGAL, HYMN, ODE, PINDARIC, &c. ECLOGUE, IDYLLIUM, GEORGIC, &c. ANAGRAM, ACROSTIC, BURLESQUE, MACARONIC, LEONINE, TROUBADOUR, &c. DRAMATIC; as TRAGEDY, COMEDY, HISTORY-TRAGEDIES, FARCE, &c. Parts thereof; ACT, SCENE, PROTASIS, EPITASIS, CATASTROPHE, &c. Circumstances; PROLOGUE, EPILOGUE, SOLILOQUY, CHORUS, &c. Laws; UNITY, ACTION, &c. EPIC; its FABLE, HERO, MACHINES, &c. CHARACTERS, MANNERS, SENTIMENTS, &c. PROSOPOPŒIA, PROPOSITION, INVOCATION, EPISODE, &c. ILIAD, ODYSSEY, RHAPSODY, &c.

gone

gone through a courſe for himſelf, without any aſſiſtance either from predeceſſors, or contemporaries. It is evident, that, in this caſe, nothing like an art or ſcience could ever have ariſen: the little ſyſtem of things, which come immediately in one man's way, would but have afforded a ſlender ſtock of knowledge; eſpecially to a being whoſe views were all to terminate in himſelf. Add, that as the chief occaſions of his obſervation would have been of the ſame kind with thoſe of other animals; it is probable his knowledge would not have been very different, whether we conſider its quantity or quality. It is confeſſed, that all our knowledge, in its origin, is no other than ſenſe; whence it ſhould follow, that one being has no natural advantage over another, in its diſpoſitions for knowledge, other than what it has in the ſuperior number, extent, or acuteneſs, of its ſenſes.

IT is, then, to language that we are chiefly indebted for what we call *ſcience*. By means of language our ideas and notices, though things in their own nature merely perſonal, and adapted only to private uſe, are extended to others, to improve their ſtock. And thus, by a kind of ſecond ſenſe, a man gets perceptions of the objects that are perceived by all mankind; and is preſent, as it were by proxy, to things at all diſtances from him: we hear ſounds made a thouſand years ago; and ſee things that paſs a thouſand miles off. If the eagle really ſees, the raven ſmells, and the hare hears, farther and better than man; their ſenſe, at beſt, is but narrow, in compariſon of ours, which is extended, by the artifice of language, over the whole globe. They ſee with their own eyes only; we with thoſe of a whole ſpecies. In effect, by language, we are upon much the ſame footing, in reſpect of knowledge, as if each individual had the natural ſenſe of a thouſand: an acceſſion, which, alone, muſt have ſet us far above any other animals. But, at the ſame time, this very acceſſion of a multitude of ideas, more than naturally belonged to us, muſt have been in a great meaſure uſeleſs, without certain other faculties of ordering and arranging them; of abſtracting, or making one a repreſentative of many; of comparing them together, in order to learn their relations; and of combining them, &c. The effect thereof is what we call *diſcovering* and *philoſophizing*; whence ariſe *doctrines*, *theories*, &c.

EVERY word is ſuppoſed to ſtand for ſome point, article, or relation of knowledge. From which it follows, that the vocabulary of any language is repreſentative of the ſeveral notices of the people among whom it obtains: I mean of the primary, or abſolute notices; for, by the conſtruction of theſe words with one another, a new ſet of ſecondary or relative notices are expreſſed. To enter better into this, it may be obſerved, that the ſeveral objects of our ſenſes, with that other ſet of things analogous hereto, the proper objects of the imagination, are repreſented by fixed names *; denoting ſome of them, individuals †; others, kinds §, &c. Now theſe, which make the firſt or fundamental part of a language, it is obvious, are no other than a repreſentation of the works of nature and art, as they exiſt in a kind of ſtill life, or in a ſtate of inaction, and independency one upon another. But, in regard we do not find the creation thus quieſcent, but obſerve a great number of mutations ariſe in the things we are converſant among; we are hence put under a neceſſity of framing another ſet of words, to expreſs theſe variations, and the actions to which they are owing, with the ſeveral circumſtances and modifications thereof ‖. By this means, nature is removed, as it were, out of her dormant conſtitution, and ſhewn in action; and thus may occaſional deſcriptions be framed, accommodate to the preſent ſtate of things.

HENCE ariſe two kinds of knowledge; the one abſolute, including the ſtanding phænomena; the other relative, or occaſional, including what is done, or paſſes, with regard to them. The former is, in ſome ſenſe, permanent; the latter is merely tranſient, or hiſtorical. The firſt is held forth, as already obſerved, in the vocabulary: the ſecond is vague, and uncircumſcribed by any bounds; being what fills all the other books. In effect, this laſt, being in ſome meaſure caſual, may be ſaid to be infinite: becauſe every new caſe, i. e. every new application and combination of the former, furniſhes ſomething new.

IN the wide field of intelligibles appear ſome parts which have been more cultivated than the reſt; chiefly on account of the richneſs of the ſoil, and its eaſy tillage; but partly too by reaſon of the ſkilful and induſtrious hands under which it has fallen. Theſe ſpots, regularly laid out, and conveniently circumſcribed, and fenced round, make what we call the *Arts and Sciences*: and to theſe have the labours and endeavours of the men of curioſity and learning, in all ages, been chiefly confined. Their bounds have been enlarged from time to time, and new acquiſitions made from the adjoining waſte; but ſtill the ſpace of ground they poſſeſs is but narrow; and there is room either to extend them vaſtly, or to lay out new ones.

THEY were divided, by their firſt diſcoverers, into a number of ſubordinate provinces, under diſtinct names; and have thus remained for time immemorial, with little alteration. And yet this diſtribution of the land of ſciences, like that of the face of the earth and heavens, is wholly arbitrary; and might be altered, perhaps not without advantage. Had not Alexander, Cæſar, and Genghis Khan, lived, the diviſion of the terraqueous globe had, doubtleſs, been very different from what we now find it: and the caſe would have been the ſame with the world of learning, had no ſuch perſon been born as Ariſtotle. The firſt diviſions of knowledge were as ſcanty and ill converted as thoſe of the firſt geographers; and for the like reaſon: and though future Bacons, Cartes's, and Newtons, by opening new tracks, have carried our knowledge a great way farther; yet the regard we bear to the ancient adventurers, and the eſtabliſhed diviſions, have made us take up with it, under all its inconveniences, and ſtrain and ſtretch things, to make our later diſcoveries quadrate thereto. I do not know whether it might not be more for the general intereſt of learning, to have the partitions thrown down, and the whole laid in common again, under new diſtinguiſhed names. Our inquirers, in ſuch caſe, would not be confined to ſo narrow bounds; but we ſhould be led to explore many a rich track, now doomed to lie neglected, becauſe it is without the pale.

ART, and SCIENCE, are, indeed, words of familiar uſe, and great ſignificance: but, I doubt, little underſtood: philoſophers have long laboured to explain and aſcertain their notion and difference; but all their explanation amounts to little more than the ſubſtituting of one obſcure notion for another. Their attempts have uſually terminated in ſome abſtracted definition, which rather caſts obſcurity than light on the ſubject: and ſuppoſes very little of the eſſence, and obvious phenomena thereof. To come at which, we muſt look at the ſame of a new inveſtigation.

TO SCIENCE, then, ſeem to belong ſuch things as men may diſcover by the uſe of ſenſe and reaſoning; whatever the mind objects in virtue of that faculty whereby we perceive things, and their rela-

* *Nouns.* † *Proper Names.* § *Appellatives.* ‖ *Verbs, Particles, Adverbs, &c.*

tions,

tions, is matter of science: such are the laws of nature, the affections of bodies, the rules and criterions of right and wrong, truth and error, the properties of lines and numbers, &c. Science, in effect, is the result of reason and sense, in their general or natural state, as imparted to all men, and not modified, or circumstantiated, by any thing peculiar in the make of a man's mind, the objects he has been conversant among, or the ideas he has present to him. In fine, science is no other than a series of deductions, or conclusions, which every person, endued with those faculties, may, with a proper degree of attention, see, and draw: and a science, i. e. a formed science, is no more than a system of such conclusions, relating to some one subject, orderly and artfully laid down in words. Thus a person who has all the ideas expressed in Euclid's *Definitions*, and sees the immediate connexion of those in his *Axioms*; which no man, acquainted with his language, can be supposed without; may be said to have it in his power, with attention and industry, to form all the theorems and problems that follow: he has nothing to do but to range those ideas orderly in his mind, compare them together, one by one, in all their changes, and put down the immediate relations observed in the comparison, i. e. their parity, imparity, &c. And after the relations of each to each are thus got, which make a kind of primary propositions; to proceed to combine them, and take down the relation resulting from a comparison of the several combinations. By such means, without any other helps than penetration and perseverance, might he make out an infinite number of propositions; possibly more than Euclid has done: there being a new relation, i. e. a new proposition, resulting from every new combination.

TO ART, on the other hand, belong such things as mere reason would not have attained to; things which lie out of the direct path of deduction, and which require a peculiar cast, or turn of mind, to see, or arrive at. A man might call these the results of particular or personal reason, in opposition to the former; but that such a denomination would be thought unphilosophical. It may, perhaps, be more just to consider reason, here, as modified or tinctured with something in the complexion, humour, or manner of thinking, of the person; or as restrained and diverted out of its proper course, by some views or notices peculiar to him. The difference between the two may be illustrated by that between wit and humour: the former whereof is a general faculty of exciting agreeable and surprising pictures in the imagination; and the latter a particular one: the former is pure and absolute in its kind: the latter tinged with something foreign and complexional.

AN *art* and a *science*, therefore, only seem to differ as less and more pure: a science is a system of deductions made by reason alone, undetermined by any thing foreign, or extrinsic to itself: an art, on the contrary, requires a number of data, and postulata, to be furnished from without; and never goes any length, without, at every turn, needing new ones. It is, in one sense, the knowledge and perception of these data that constitutes the art: the rest, that is, the doctrinal part, is of the nature of science; which attentive reason alone will descry.

AN art, in this light, appears to be a portion of science, or general knowledge, considered, not in itself, as science, but with relation to its circumstances, or appendages. In a science, the mind looks directly backwards and forwards to the premises and conclusions: in an art we also look laterally to the concomitant circumstances. A science, in effect, is that to an art, which a stream running in a direct channel, with regard to any thing but its own progress, is to the same stream turned out of its proper course, and disposed into cascades, jets, cisterns, ponds, &c. In which case the progress of the stream is not considered with regard to itself, but only as it concerns the works; every one of which modifies the course of the stream, and leads it out of its way. It is easy to trace the progress of the former, from its rise to its issue; in regard it flows consequentially: but a man ever so well acquainted with this, will not be able to discover that of the latter, in regard it depends on the genius, humour, and caprice, of the engineer who laid the design.

THESE are some of the different characters, or conditions, of *art* and *science*; but there is a difference between them prior to any of these, and of which these are only consequences. The origin of them all lies higher, in the principle of action, or operation, above specified; namely, as the mind is either active or passive, in respect of them. With regard to this, those things may be said to belong to science, which we only see, or perceive; which flow from the nature and constitution of things, by the sole agency of the author thereof; subservient only to his general purposes; exclusive of any immediate agency, or intervention of ours. And, on the contrary, those things belong to art, wherein such science or perception is further modified, and applied, by us, to particular purposes and occasions of our own. From hence arise the several differences above mentioned: for the matters of art are only personal, as they are according to the measure of the artist's natural faculties, in respect of quantity and degree; and to the complexion and cast of his moral faculties, in respect of their quality. The perception, even of matters of art, is of the nature of science: to that thus far the two agree: and their differences only commence from the superinducing of a farther modification in the matter of such perception; and the giving it a new direction to some particular end. By means hereof, it becomes invested with a new set of conditions, and circumstances wholly personal; as being all framed and adapted to the particular view and aim of the artist, and conducted according to his particular degree of knowledge and abilities; which is the effect of a particular set of objects, and a particular organism of body. In a word, in art there is a moral view or motive, superadded to the natural science, or perception; which motive is the proper principle, or primum mobile, of art; perception is its matter; and some member of the body its organ, or instrument. And from such new principle, &c. arise a new set of secondary perceptions analogous to the natural and primary ones. The whole, therefore, ends in this; that science arises from a natural principle, art from a moral one; or even, as moral matters are also, in one sense, natural, science may be said to be of divine original, art of human*.

HAVING

* THIS doctrine may seem to overturn the Aristotelian definition of art; *Art is nature worse with reason effected*; a definition, which, at first sight, appears to be taken from a partial consideration of the subject. It is to be the single character or condition of art, to proceed according to right reason; the more and purer this reason, the more perfect the art. But, in some of the arts, reason appears to have little to do; and the less, as those arts are in greater purity and perfection. Thus it is in poetry; a man that would undertake an ode, or an epic poem, on the strength of his reason, would be miserably mistaken: all his efforts would not carry him above the humble sphere of versification, where he must be confined as much as an impotent, another kind. So far is reason from being the sole, or chief, or even a considerable, ingredient in poetry, that it can scarce follow at a distance, or even at all. The principle of motion is evidently something other than reason; or how was the greatest philosophers would be the best poets, and vice versa. On the contrary, most of us have known people very much in the natural science, or perception; kind of madness. Poetry is an appendage of one a symptom thereof. Longinus accordingly puts among phenomena, for the poets: a spice of the same thing, and no more, is to be thought any reflection upon a man, seated on that throne, fine, flourish to very good compass: some of the greatest philosophers, prophets, legislator,

HAVING discussed the nature and characters of *art* and *science*, it remains to settle the notion of a TERM *of art*; an expression as little understood as any thing in language. Art and science, we have observed

doctors, fathers, and saints, of all ages, being confessedly his admirers. It is remarkable with what respect and awe the ancients treated people suspected to be touched: the very names they called them by inspire a high veneration, and place them, as it were, at the threshold of Jupiter's. One of their most common appellations, *numine afflati*, is, at the same time, the most just and philosophical that can be thought of. In effect, a share of fury and enthusiasm is held, by them, a condition absolutely necessary, in order to rise above the crowd. We may add, that the poets themselves have a hundred times expressly attributed all their greatest and happiest thoughts to enthusiasm, ecstasy, and fury; and they do it implicitly, almost in every piece they write; it being their standing practice to take a formal leave of common sense at first setting out, and call a Muse for their future guide; which, to talk out of the poetical style, is as much as to say, they resign themselves over to the conduct of genius and imagination, which they now find strong and prevalent in them: thus inspired, a new scene of objects arises; calles on calles; and they see things invisible to other eyes. From such prevalency of imagination arises what we call POWER, which is common to all men, in a greater or less degree; philosophers have a little of it, poets a great deal, and lunatics scarce any thing else.

IT may seem strange to say, that the principle is precisely of the same kind in things all. We are wont to consider it, in the two first, as constituting, in the latter, as diffusive in the former, it is only accidental to the latter, perpetual in the one, it is voluntary, and incontrollable in the other, limited, and restrained. The lunatic, in the one case, driven of necessity, as reasoning exists and anchor to hold by; and, in the other, falls out of concert as finding the wind favourable, and the voyage desirable. But let us not count to much upon this difference in degree, between the talents of the poet, and those of the lunatic: the moving principle is the same in both, though its effects be various. If the proper balance and adjustment between the powers of reason and imagination be wanting, yet they still retain their nature; as far as mad is the same, whether the pilot directs the helm or not.

THIS doctrine is plainly countenanced by the ancients; who, in some respects, seem to have had clearer and juster notions than the moderns: if being not embarrassed with the jargon and refinements of the scholastic learning. Philosophy, which shews us one degree more simple and obvious than nature, nature itself not yet covered and concealed under so much elucidation, but affected more frequent, and more clear of herself. Accordingly, the divine Plato in his *Phædrus*, affirms, "that rushing "mania and madness all one and the same thing;" and has a long and cogent discourse to prove, that it must be so: and among the several species of enthusiastic, he expressly ranks poetry. In effect, the motions and passions make use of the principal branches in the division of madness, or inspiration. Aristotle, indeed, though he divide enthusiasm somewhat differently from Plato; yet agrees with him in making poetry a species of it. Nay, the most reserved of all the ancient critics, Longinus, declares, "that the poet is possessed with a kind of enthusiasm; that he "believes he really sees what he speaks; and represents it thus "to others, that they catch the enthusiasm, and be likewise." Add, that, speaking of the sublime, he does not scruple to use *divine inspiration* as synonymous with *genius*.

THE principle, then, of the art of poetry, is something other than reason; and I know of no appellation more proper for the nature and effects of it, than poetry: nothing that can follow, build, and produce things to fine, and so full of genius, architecture, agriculture, &c. are arts, but in an inferior degree. And yet, turning another side of things towards, poetry will hence appear to have any thing of an art in it, but rather to be all the work of nature, wherein human thought and study have the least hand. It is produced by a principle superior to that of reason, i. e. a more immediate gift of God: and the poet, in the same manner as the philosophers and artists, is what he is, not that he can be told of most of them, or even what they are, but precisely what, and when we say, that are produced itself, we mean nothing more than the poet's imagination may be considered as a field, wherein the authors of nature produces a set of objects, which existed not before: new images arise here, like new plants, according to the settled laws of the Creator; so fruitful is the womb of nature! New worlds, innumerable, arise out of every particle of an old one.

THE *subject* area, or fame love in call things, i. e. such from which proceed all the rest, may be divided into the primary or secondary or derivative nature, added by amplifications from the old stock; and producing out of something true things that just the like. Here, at first sight, some persons seem to be quality of creation; the poetry's power over the truth has been made a shadow or the limits of that of the Deity over his works: and yet the parties, as both imply nothing in accordance to his own productions. Where, that is, the power or principle of action and motion, to which we owe the visible frame, and all the appearances and alternations of nature; or that power, which perfectly produces different effects, according to the different circumstances of things: runs a great globe, being perfectly terrified about its axis, and so hard applied to its surface, grows warm, emits light, attracts bodies, &c. [illegible] homogeneous, electrical body, though before, in the same of their properties. So compounded, a mass of stone, iron, [illegible] matters, being only touched with a [illegible] hand, instantly leaves off, and

smoke, with noise; perhaps bursts a rock, or drives a ball to a parabolic direction, and bowls a tower, or other work. Now nothing arises here, but in consequence of pre-established laws which impose, that the globe and the powder, whenever matter they come under such circumstances, shall exhibit such appearances. There are no two bodies in nature more different from each other, than the same is from itself, under the different circumstances of contiguity or non-contiguity with some other body, e. gr. with a spark of fire. But both states are equally natural; and there must be a law of nature to produce the appearances of one state, as well as of the other. Now the necessity of man amounts to this, that he has it in his power to put bodies in such circumstances, as are necessary to make this or that respective law take hold of them. And this we call *art*; and by this means we can produce a number of things, or bring them into all, which otherwise would have remained in eternal non-entity. Men may be said to create them, but no otherwise than the apothecary creates the lilliber, or the gardener the apple; i. e. those effects would necessarily have arisen, upon the same position of the circumstances and the cause, and the scion and stock, if there never had been apothecary or gardener in the world.

WE may define the works or productions of art, therefore, to be all those phænomena, or effects, which would not have arisen without the agency, or intervention of man. But man can only be said to act, or intervene, so far, as what he does is his own principle, without being moved or directed by any external power; i. e. so far as he is exempted from the influence of any necessary laws of nature, concerning, however remotely, to such effect. So that if, as those philosophers have maintained, man were not really and truly a free agent, there would be no such thing as art, in the sense here affixed to that word: and we have a name given to that system or laws of effects, to which man is made by nature, and in her hands, subservient; and might, with equal reason, be attributed to such effects as any other natural production is subservient to.

WE see, then, how far man is concerned in the productions of art. Our endeavours are restricted, by nature, to be means necessary to the laws taking place, from whence the effects are to arise. We are part of the chain, whereby the effect is connected to the cause. The circumstances are in our power, on which such and such laws depend; and these we may be said to be active, in the sole of art: supposing that there is nothing higher, or further; and that the effect rests with *us*: in a word, that our agency is not subordinate, but collateral, to that of the Almighty. But if there be other superior laws which inspect those same circumstances, and which are such in our power; i. e. if the circumstances necessary to the former laws be, themselves, suggested the effects of necessary laws, and the immediate work of nature; our agency will absolute into nothing. The utmost that can be said of us in such case is, that we are the instrument of the one, and passive in respect of the other; which, in most people, may appear a kind of contradiction. The thing cannot be formed, unless our inclination concur thereto; so far its existence depends on art: but are our inclinations, with respect thereto, of our own growth; or do they rise naturally, in consequence of an apprehension of good and disadvantage in the subject? That is, does any thing appear good and advantageous to us, absolutely, and of itself? or only what the Creator represents to us as such? And do we desire and pursue such forming good, from any principles and tendency that is in us, other than what are owing to his laws? The difficulty seems to amount to this; whether between our faculties of apprehending, or willing, and their respective objects, there be any relation which he did not create? If any allege, that in such relation consistences the faculty; and therefore, that the question ends in this, whether our faculties are from God, or ourselves; i. e. whether they be the causes of themselves? I should suspect some sophism in the case, which, at present, I have not penetration enough to detect.

BUT having traced the agency of man thus far, we must here divide; and, from the consideration of the effects ours; i. e. no such part from what art does out of us, to what it does in us: or rather, from the arts whose fruits is supposed in ourselves, and which proceed outwards; to those whose fruits comes without us, and act inwards; that is, from those which arise from our observation and reason, directing us how to manage occasions to the laws which obtain in the external world; to those which flow from our imagination, and fecundity excellent of the laws which obtain in the internal world. And the query which may, perhaps, carry us where the reader little imagines; but which will afford an ample discussion of the principle above established; and a further insight into the origin and course of science and art, and the nature and province of our agency, and powers, therein.

WE have already said something concerning poetry; one for its own sake, but as a proper introduction to the matter in view. It remains the lowest article in our progress, and may be considered as the toil in the book of arts; there being a sort of precedence from the beginning of the subject to the end. It begins with the first matter of knowledge, the common objects of our senses; and proceeds through the various modifications they undergo by the other faculties of imagination and reason, till it ends in the most sublime speculations of which our nature is capable. All these parts are connected in us, and, as it were, interwoven, that they are part of one

Chancellor, Librarian, Orderly, Tutor, Kalyan, Editorial, Pharmacist, Psychiatrist, &c.

observed, are denominations of knowledge, under this or that habitude; and words are representatives of the several parts thereof. The whole compass of words, in all their cases, is supposed equivalent to the

selves, and obey and take directions from our will, and minister to all our wiles and purposes: of which, this of producing images, and making fables, is in one sense, the most conspicuous; insomuch as the greatest effects here arise from the slenderest means and endeavours. The poet flies but little in the matter; but nature cooperates so strongly with him, that this little suffices, even to make new worlds. In effect, the poet feems, as it were, to sit nearer the spring of action than other men; and to have only to do with the general and higher principles thereof, which command and direct a number of other subordinate ones, that he himself is not ordinarily aware of. What we shall say of poetry, therefore, will hold proportionably of all the other arts; and we have only here to note, by the bye, the influence of inspiration is here the most apparent and palpable. The principle or spirit of poetry may be said to be that of art in general; and hence many authors do not scruple to make all arts the invention of poets; thus Je is that Homer is often complimented with being the father of all arts.

THE mind is allowed to be paffive, in refpect of the matter of the art of poetry. We need no quote the fects to prove it: no true poet ever queftioned his inspiration: every body knows, that their whole fyftem is built on the fuppofition. And hence the ftories of *Apollo* and the *Muſes*, of *Helicon* and *Parnaſſus*; the dreams of *Pindus*, and the *Aonian* maids; but the philofophers and critics alfo give them their fuffrages, and affert their inspiration, in the ftrongeft terms. Plato contends at large, that all poetry is "by immediate divine inſpiration, in the proper and "literal fenfe of the word." Ariſtotle confirms it; φασι γαρ, poetry comes by divine inſpiration. And Plutarch fays as much of all the branches of enthuſiaſm, poetical, divinatory, bacchical or conviviall, martial or erotic: to all which, he obferves, the appellation θειασμος was made ufe of, equally agreed. And not only fo, but they hold the enthuſiaſm communicable from one to another. It arifes from the poet, as its centre, and is diffufed in orbem; in a lefs degree of intenſeneſs, the farther it recedes from him. Plato affirms, that the audience, or thofe who ſung and rehearſed the poets words on the public theatres, nay, and the ſpectators themſelves, were all divinely inſpired, in fome degree; which is illuſtrated in the caſe of a needle touched by a magnet, which communicates the attractive property to another needle; that, to a third; and ſo on, but with a continual diminution. Nor does the effeft end here; but the profeſſors of other arts, as ſculpture, criticiſm, and even philoſophy itſelf, borrow their flame and inſpiration from this fire. Thus Phidias declared he was inſpired to make that wonderful ſtatue of Jupiter Olympius, by the reading of Homer: and thus Ariſtotle may be ſaid to have been inſpired by the ſame poet, to compoſe his ſyſtematical *Poetics*, the like, one of our own poets ſays of Longinus, that he was inſpired by the Muſes, or with the fire of a poet.

BUT, after poetry, rhetoric comes neareſt, and ſhares moſt of the ſpirit thereof: accordingly Plato, in his dialogue intitled *Ion*, allows, that "as we ſay pythians, prophets, and "poets, are div nely agitated; ſo we do of orators." Elſewhere he adds, "that they are certainly inſpired of God, and plainly "poſſeſſed." So *Iſocrates* himſelf tells us, that "Demoſthenes's fpeech plainly ſhewed the deity favoured him with a ſhare "in among the muſeleers, that "they were poſſeſſed as ſecond "hand, and brought to do many things againſt their own reaſon "and judgment." And Æſchines, his profeſſed enemy and antagoniſt, allows as much. I need not ſay, that Plutarch relates the life of Cicero, in the inſtance of his oration to Cæſar for Ligarius.

SOMETHING like this has been obſerved, even in the caſe of prayer to God: ſeveral heroes are on record for poſſeſſing their hearers that way. Hacket, conſured for blaſphemy under queen Elizabeth, is ſaid, by the biſhop, "to have ra- "viſhed all that heard him at his devotions, and converted many "in ſpite of their teeth." and Surravius relates, the people were poſſeſſed, that "God directed his tongue." S. Baſil even affirms, "that our prayers are never right or acceptable, till the "fervour thereof carry us out of ourſelves, ſo that God poſ- "ſeſſes us in ſome extraordinary manner." And hence the learned and pious Cudworth thinkſ there a new kind of enthuſiaſm, which he calls "a poſſeſſion by God, without any inſpiration." The author laſt mentioned makes no ſcruple to rank even "the omi- "nary delights and benefits men receive from the harangues of "orators, ſophiſts, preachers, &c. among the effects of enthu- "ſiaſm and inſpiration; as being what could never have ariſen "from mere common reaſon." And Plutarch, and others, make that ardour which the ſoldier feels in battle, of the ſame kind with that which inſpired the prophet, orator, and poet.

WE have here laid no leſs than a ſyſtem, ſufficient to account for moſt of the phænomena in the moral world, on principles of enthuſiaſm: and yet there are only a few, out of infinite inſtances, of the immediate agency and inſpiration of the Deity. We find the ſame principle in every art, every invention, every diſcovery; where no natural and neceſſary connexion is perceived between the diſcovery, and ſomething known before. What has no immediate dependence, either on what we perceive by ſenſation, or reflection, comes by the ſchools of inſpiration, i. e. of imagination; for theſe are ſynon. The imagination may be called the inſtrumental art, as ſenſe is of ſcience. The faculty of reaſon can make no great diſcoveries; it can only advance from one ſtep to another, which muſt be ready laid to its hand; and if there be any where interrupted or diſcontinued, there it is at a ſtand. It is, in fine, a limited principle, ſubject to very narrow bounds; whereas the imagination ſeems to be indefinite, and diſtinguiſh'd from the Creator's hand, to be occaſionally made uſe of for the conduct of mankind.

THE truth is, when we ſay, ſuch a thing is the effect of enthuſiaſm, or inſpiration (ſpeaking, I mean, of profane matters; the inſpiration, by influence, of Scripture, being matter of a very different conſideration, and quite beſide our preſent purpoſe); this does not remove it out of the ordinary courſe of things: it does not put it on any principle different from that whereby cauſes and effects ſucceed each other in the phyſical world. We can account for the phænomena of the imagination, as well as thoſe of ſenſation. They have their reſpective laws, like other things, which they are ſubject to; and to which we have ſeen, and profeſs appropriated. In effect, all the inſpiration here ſpoken of may be produced without any great conjectures. If the reader will but take advice at this novel philoſophize, he may be convinced of it. And, 1. In the inſtance of the poetical kind.

THE inſpiration of poetry is of a full and pure kind; and needs little artifice and apparatus to produce it in an imagination naturally diſpoſed for it. The attentive conſideration of ſome intereſting object uſually ſuffices to ſet it a-working. And the gentleneſs of that faculty have all nature to chooſe out of: the moſt ſublime, the moſt agreeable ſcenes, and the moſt moving objects. Hence it is, that they are continually harping on "groves and "ſhades, and gods and nymphs, and ſtars and flowers." How do they riot in "meadows, rivulets, and purling brooks, "and rivers wide: towers and battlements they ſee, boſom'd "high in tufted trees!" Sometimes they ſing of "knights and "squires, and maids forlorn." Then, "of rills and tournaments, "and feats of arms: pomp, and feaſt, and revelry, with courtly "and antique pageantry: ſtories of Thebes and of Troy; or "the tale of Troy divine: of Arthur and Conſtantine bold: of "Cambal and of Algariffe, and who took Canace to wife." If there fail, they have all that is gloomy, and ſolemn, and terrible, in nature, at their beck: we may now expect to ſee "the "red bolt, or forked lightning glanc!" Earthquakes and tempeſts ſhaken roar in vain: if by chance they do, the "ill-boding "raven's croak" is ready at hand; or elſe "the fat-off curfew "ſounds o'er ſome wide watered ſhore, ſwinging ſlow with ſullenn "roar." And now for "ſolemn obſcure ſhades, and ragged hor- "rid rocks:" next enter "hoary hoaſts and ſhriefs, and "fights unholy: Gorgons, and Hydras, and Chimæras dire." Images of things moſt moving to ſenſe readily alarm, and raiſe a commotion in the imagination. And the new ideas thus procured, coming to be mixed and combined, in the imagination, with others there before, new effects ariſe from them, in conſequence of the laws of the ſenſitive: much as inſenſibly as fire and water, meeting, produce a new ſpirit of nitre, and oil of vitriol.

SCALIGER diſtinguiſhes two kinds of *Enthuſiaſts*, or poets diſtinctly inſpired: the firſt, thoſe on whom the inſpiration falls, as it were, from heaven; without any thought or ſeeking; or, at leaſt, by means of prayer and invocation. The ſecond, thoſe to whom it is procured by the fumes of wine. All required to the firſt, is a delicate, pregnant imagination; ſuſceptible of any ſudden impreſſions that may happen to be made in the courſe of the animal ſpirits. Thoſe ſpirits, like the ſubtile and active parts of the finer fluids, we find, are kept in continual motion, by the bare tremor of the atmoſphere, though to us inſenſible: and thus the air is never ſo ſtill, but that the aſpen leaf feels its impulſe, and bends and trembles to it; when others require a ruder guſt to move them: yet theſe, too, give way in a general ſtorm; while ſtones, from utter inſenſibility accordingly, we read in ancient hiſtory, of whole nations being ſtruck into fenſe with the poetical fury; few of the cities of Greece, not even Athens itſelf with all its philoſophy, but has, one time or other, laboured under theſe ſyſtematical enthuſiaſms.

WE have already obſerved, that invention is the principle or ſource of poetry: an excellent poet, of our own age and ſide, is to this effect, furniſhes an art with all its materials; and that, without it, judgment itſelf can, at beſt, but fit it wiſely. Now this faculty of imagination itſelf is uſually, no other than a delicacy, or readineſs of taking hints; but more or ſeldom, when we are led to cauſes, relating to, or the contemplation of, the paſſions. Invention, conſiſts in the ſudden ſimple ideas: thoſe can only come by the way of ſenſe and obſervation; all that paſſes in the other caſe, is, then from the harmony of certain things, i. e. the comprehenſive ſyſtem, or general ſcheme, certain new images or pictures ariſe, according to the order of things. The ſprightly imagination is led, on various occaſions, to compound new ideas: and many of them ſo oddly and luckily, that we take its proceedings for new things; and think poets are never known, becauſe they did not before exiſt. But, in ſtrictneſs, there is no more real invention in the poet, than in the ingenuity or mobile worker, who mingles and combines the various coloured materials furniſhed to his hand, ſo as to make an advantage or picture, which before had no exiſtence.

THE reader who has any doubts about this, need only take the firſt piece of poetry that comes in his way to be convinced that all that is new, and ſurprizing in it, is no other than new compoſition, and combination of former ideas. In the *Iliad* or *Odyſſey*, *Paradiſe Loſt*, and the moſt poetical pieces in our, or perhaps in any language; how eaſy is it to reſolve all that is to be great and ravishing, to the new, unuſual, and frequently wild and romantic aſſemblages of imagination? Who can contain himſelf at—? Sport which wrinkled care derides, and laughter holding

the whole system of possible science, though it is only a small part thereof that is actual, i. e. only a few of the possible combinations are, or ever will be, made.

THE

" hock his sides.—Cynthia peeping through a cloud, while rock-" ing winds are piping loud.—To hear the lark begin her flight, " and singing startle the dull night; or early cock with lively " din, scatter the rear of darkness thin: or, listen how the " hounds and horn, loudly rouse the slumbering morn.—Or few " glowing embers, through the room, teach light to counterfeit " a gloom.—Or, flaried windows richly dight, calling a dim re-" ligious light.—Or hear Orpheus sing such notes, as warbled to " the string, drew iron tears down Pluto's cheek."

PERSONIFICATION, which is of that extent and importance, that it is usually held the life and essence of poetry, is a vast source of new imagery. By this, not only different objects, but different systems and worlds, are combined and blended together; and what belongs to one kind of being, man, is attributed to every other; each object, either of sense or imagination, being occasionally invested with all the characters and properties belonging to the human kind. Thus an arrow grows impatient, and thirsts to drink the blood of a foe; or hunters and dogs half-way, hasten to carry death, &c. So an action of the body, laughter, is represented, by Milton, as lifeful Morning, ready to build its sides. One of the planets, the moon, is represented as tricked up, and frounced; and again as ker chiefed, and in a decent undress, and thus going a hunting. To tell us that a fine spring morning, attended with a gentle gale of wind, is very pleasant; poetically—" Zephyr with Aurora playing, as " he met her once a maying, on a bed of violets blue, and " fresh-blown roses dight in dew, filled her with a daughter fair, " yclept sweet Hesperidusa, and Mirth an eirl." How confident with the nature of things, is the breath of air found lay on early hour of the day down; and that, from a green gown thus borne, a portion of the mind should in time be brought forth! In effect, the inspiration of the poet frequently amounts to little more, than relating things that are naturally incongruous. He does not invent, he only manipulates; nor has he the least power to move, other than what he derives from the novelty and strangeness of his combinations; to which nothing exists in the ordinary system, but one way constantly. If by means, it any such, you furnish an unnatural novelty against the invention; and sensation the memory, where all knowledge originally commences. And the whole process is nothing but the action or operation of the Deity, in a course of laws.

AS to the second kind of poets, in whom the inspiration is excited by means of wine, Cataubon is perfectly inclined at it; judging it the highest strain of forgery, to suppose a man may be divinely inspired by the fumes of liquor. And yet I do not know whether his right be not founded on a misapprehension. If Scaliger allege, that the juice of the grape may be a means or condition necessary to make the laws that produce to invention take place; I do not see what religion here to be hurt, more than in any other enthusiasm. The use of such means is no way derogatory to the power or goodness of God, who still remains the author of this, as of any other inspiration; whether he be by vision, by voices, dreams, or the like. What matters it, whether the sound of a speech, or the sight of a book, or the refreshment of a liquor, be the occasion? And of all the blessings this juice is made the instrument of to us; why should it be precluded from that, which even the vilest of God's creatures occasionally minister?

THE inspiration of orators, bears a near relation to that of the poets; though, being somewhat grosser, it demands more industry and art. Quintilian tells us how a orator is to get inspired: " not by fustian hyperbolics, and gaping at the stars more-" over, and carefully avoiding things worn in the mind; but by mix-" ging the judge and the audience perfons, and lroughly re-" presenting to himself the fact, the occasion," &c. He adds, that nobody ought to pretend to be an orator, unless he have this art of inspiration at command; for that he can raise it at pleasure.

WHAT has been said above, explains some of the general principles of this art, and their connexion with other physical effects: and it would be easy to trace and purfue the same, where they appear in other cases, and with other circumstances. Thus the inspiration exerted by the orator in his audience, is resolved, by Cataubon, into the music of the speaker, i. e. the tone and cadence of his voice; and the ordering, or order and placing of his words: in which last, how simple and trivial soever it may seem, all the great masters on the subject allow something mysterious, and unaccountably forcible: and accordingly make it the principal part of rhetoric. And yet there is nothing in the whole, but what refolves from the powers, properties, &c. of the several letters, combined as to many sounds, artfully combined. In effect, there is found figure, or numbers, and some degree, or dimension, in all diction; much more in that of oratory: and music itself has no charms in it, but what it derives from thofe very sources.

NOR need it be noticed, that the use of metaphors contributes in fhare to the effect: the secret wonder conlists in this, that they are, as it were, accommodated to the senses; and present such images to the imagination, as move as much, when perceived in the way of sensation.

AS to that enthusiasm felt in prayer, we cause is not far to seek. The powers of rhetoric and music, and a peculiar fervour of imagination, called by an apprehension of the presence of God, &c. will go a great way. We may add, that the ancient heathens made use of dithyrambics in all their most solemn prayers; which, Proclus observes, are peculiarly fit to stir up enthusiastical dispositions. A man that rides Pindar's horse cannot well fail of going at a great rate.

BUT the most extraordinary and unaccountable kind of inspiration is still left behind; viz. that of prophecy, divination, discovering cures by dreams, &c. which yet may all be produced by art: and accordingly, they have all been taught and studied like other arts: not to fay, alfo, profited like trades for a livelihood. Schools and colleges of prophets, diviners, augurs, &c. were numerous, both among Jews and Gentiles; and there was little in their discipline, but what may be resolved into what has been already laid. Hence all the means above mentioned, all the springs of enthusiasm, were used; and frequently all combined together, to make the more compound and extraordinary effect. The light of rainbjects, as rocks and mountains, wild prospects, solitary places, gloomy cares, furious rivers, seas, &c. which we find so work so strongly on the mind, were indulged; and frequent changes, and sudden transitions, were made from one to another. Such unusual objects necessarily suggested unusual ideas; which were heightened by proper applications to all the other faculties. And when the person was at length got out of the ordinary forms of thinking, what he uttered was judged oracular. And among a large mass of objects, which presented themselves to him, some could not want an analogy to things that were ready to happen; at leaft in the opinion of a person already poflefled with the notion thereof. It may be added, that the prophecies themselves had their share in producing identity; the events whereof partook of the predictions some more, others less, according to the degree of poflible, of the parties concerned in them. In effect, the respective skill retained immediately of the means made use of to raise it. And hence a revelation was artificially productive of the completion required; which was the very aim of the art. So that the distinction, when most perfect, really supposed a natural knowledge of the thing demanded and was built on it.

AS to dreams, &c. there was a foundation for them; the circumstances whereof might be appropriated to raise in the imagination, and the idea of the thing requested. And in the celebration of ceremonies, the party was to fast, to lie in the temple; and the priests had not only the pleasing of his body, and the strewing of his bed, but also the management of omens, sounds, &c. in the night-time. So that if many natural means were known for the cure, here was room enough to fuggeft it to the patient's imagination, which was made accessible to them; and, as it were, put into their hands. But if no adequate remedy were known; as, it is probable, they chiefly entered to far into the part; yet, what was the harm, if the means fuggested, perhaps at random, to some operation, when enforced by the opinion of its coming by miracle and inspiration? We see what the bare posfuence and assurance of a physician will frequently do; even cure disorders for above the reach of his skill: and what an improvement would it not be to the faculty, to have the further assistance of a little flaw of religion and ceremony?

I AM afraid I may seem to have been too long about from my subject; but I think it worth doing in my eye, as little as capitulation will convince the reader, that we have no wandered far out of the way. We have shewn whence all our knowledge originally rifes; that fantasm is its only source; that what comes this way, comes by the agency of the Divine Being; that it is further modified by the memory or imagination, where new assemblages are frequently made, which is called invention; that it is continually altering, by the addition of new ideas from without; but ftill retains fubject to the laws impofed by the Creator; so that nothing happens thereon, but as conformable of fuch laws. Thus has the mind appears merely paflive; and thus it ftands with respect to the matter of all knowledge and art. It remains, now, to conlider its form, or that whereby such knowledge becomes art, i. e. becomes fubservient to human purposes, and under the direction of human reason.

HERE, therefore, a new ftate of the mind, agency, and a new faculty observed, whereby it operates on the fantasm and effects the end. We will be best ascertained, by inquiring what we find in the arts, e. g. Homer's mind, that concurred with his inspiration or invention, to the production of his poem? This will be found to resolve into, firft, an inclination to produce fome piece, in the way of fable, that ftall strongly represent the misfchiefs of discord among confederates; and, fecondly, a knowledge of certain means necessary to that end, or an acquaintance with certain rules and maxims which tend to produce such an effect.

THE firft is a moral virtue, or motive, which has already been laid down as the fpring, or principle, of all human action, and which is founded on the appointment of good, or utterance, to arife from fuch a power. The fecond, viz. the knowledge of the means, ftands on the common footing of the knowledge hitherto difcovered of.

THE means and inventions of an art make a kind of preliminary doctrine, secretary or instructive element, called *the theory of the art*; which alfo, in our fenfe, may be conlidered as another art, diftinct from the former; as itself, in time at it, is the business of another art. For inftance, a certain pofition, or fet of motions of the body, is conditional, by nature, the occasion of a poetic inflammation; and fuch and fuch images and ideas, arifing therefrom, be conlidered the occasions of fuch paflions in the mind of a reader, and fuch views consequent thereon; viz. an averfion to enmity and contention; to form an art productive of these effects, we muft firft observe the like effects to arife from

THE business of knowledge, then, is cantoned out among the body of words: but they do not bear equal shares thereof. Being creatures of our own, we have dealt with them accordingly; and made some the like causes; and infer, that it is probable these motions, or those images, are the occasions thereof: and consider their order, manner, and circumstance, so form the art, or method. So that we have here, as before, 1. Matter, or phenomena, furnished by sensation, and preserved in the memory. 2. Form, arising from the moral view, which led us to frame an art; and, in order thereto, to consider and dwell on the phenomena, compare their together, and infer something from them.

IT appears, therefore, that we have two sorts of poetry, very different from each other, arising from different souls, tending to different ends, and rarely found, in any great degree, in the same person. The first art Homer perfected in perfection; the second, Aristotle.

BUT, for all their difference, the two will be found of the same general nature and kind; and only to differ in point of degree, and subordination: as they are to the, or further from, the principles of all knowledge and art; judgment. Homer, we have shewn, was inspired: he derived his art only from nature, acting on him in the ordinary course of things, and first presenting objects to his senses, then to his imagination; and others as inspired from him, i. e. from whom the inspiration from nature, through his means, among them as Aristotle. Nature, as he appears to the senses, is Homer's object; as he frames herself in Homer, he is Aristotle's: by which time the inspiration is grown a degree cooler, and the terrible: and the mind, thus excited or second-hand, moving the mind-knife, it can spread more readily to them, and perceive their relations better. To the first it fails like lightning immediately from heaven; the second may be compared to the reflexion of the same lightning in a mirror. The reading of Homer, i. e. the exciting and calling up his ideas, and images, is more severe, impregnate Aristotle's imagination, and manifest the poet's whole face: turn the philosopher's widow, to be farther subtituted. Accordingly, Aristotle, applying his reason to them, and examining them closely on all sides, perceived divers relations and analogies between them, which Homer was not aware of: and which the warmth of his imagination, and the quick succession of new ideas, would not give him room to attend to. These analogies he calls rules, or forms; the collection of them advanced make what we call Aristotle's Art of Poetry.

THE like process might be observed in the several other arts. Those we have hitherto chiefly kept to, have been of the symbolical kind: we shall here give an instance in what we call the real kind, viz. architecture. An Athenian sculptor, then, observing an acanthus drooping up under a bellarc, is pleased with the figure it presents; and, taking the hint, frames the capital of a column on the same: and, by a number of like helps, an entire order gradually arose; and, in time, a whole art. Things then advanced, and another person finding a building framed after such manner, he attentively examines the several members, their forms, proportions, &c. and puts them down in writing: and thus does another perform set after set. And between the two there will remain the information already observed between the master and occasions of producing them: and the rules thus formed, being couched in words, supply the office of the external objects they were originally derived from, and prove occasions of taking hints, or imagery, in the imaginations of future artists, to be imitated in the proper manner.

THE arts, then, of poetry and architecture, even first in at Homer's and Callimachus's time, in the simple quality of natural objects; which, meeting with other ideas in the memory, or imagination, and coming to be compared and combined together with, by the agency of the moral view or principle which suggested the making of a poem, &c. to advantageous and definable, new productions arise, e. g. a poem or a building; which coming, at length, under the cognizance and consideration of reason, certain relations or analogies are discovered therein, which tend to propagate and produce the like at any time. Reason turns rules in matter; which rules prove like the philosophers stone, which tends to change whatever it is applied to into its nature, and the materials thus transmuted, like the pretended multiplied conversations of the same thing, from every thing they are applied to, produce rules again. And thus are we arrived at the reason of the artificial definition of art above mentioned, which we see has pretty deep, and cost some pains to come at; as the many other doctrines of the philosophers, which the precociousness of moderns has scoffed at falls, only because they would not be at the pains to follow their track.

REASON, in short, which is the full faculty the matter of art arrives at, is the full time which the form or rules thereof, which are to propagate it, arise. In which view, reason may be laid down as the principle of this secondary art, or theory: as imagination is of the primary one. We fall for the effect of the first here, even in the latter art; external objects strike the senses and imagination so strongly, that they recede to reason; which, like an infallible middle substance, reflects them back again; and thus they again grow into objects of sense, and so on in a circle.

THIS seems to make the two arts differ very widely: and as reason appears our highest faculty, (inasmuch as it is this alone that tends to produce and multiply, and accordingly all our knowledge appears proportionably higher and purer, as reason is more concerned therein), the rules or theory of an art appears of infinitely greater consequence than the matter thereof. Reason is, in some sense, active and, like the Almighty mind, tends to produce new things, new systems, without end: the latter is more passive, and ends in mere human perception.

YET Aristotle's rules, it must be observed, do not tend to produce poetry: I mean not the matter of poetry, but only the form; Aristotle's art is not the art of poetry, in that sense, as the rules do not tend to produce enthusiasm. They only give the human parts, and points when reason observes in the productions of the imagination, i. e. what there is in them, that is a proper object to this full faculty, and enters under its notice. In short, poetry is only subject to Aristotle's rules, as there is reason, not as there is imagination or invention, in it.

THE theory of poetry, we have observed, is now of poetry, in a higher ground; and to turn the lemon upon us, is the bulkiest of this other art or inspiration. The immediate inspiration is not to immediate as we may imagine: it is not the absolute principle of art; but with itself subordinate to another farther or higher art; for that we must not only have art, and rules to produce poetry, but also to produce the principle thereof, inspiration, or invention. And the same will hold of the rules of this last art, themselves, which will require others: and so on in succession: at least, the series will be infinite, if we only take outwards, and not one step, into the centre.

TO clear up this, it may be observed, that the art, e. g. of poetry, is not only subordinate to another higher art, as above laid down, but that its matter and form to each of them the subject of a particular art, and each of them requires another higher art to produce them. The theory for instance, necessary for inspiration, or the invention of things, make one arts and those for their application to the perfect purpose, another; to shut the art of poetry resolves itself into two subordinate ones; the first of which may be called the art of invention, the other the art of judgment, or disposition; each of which has all the characters of the general art, and is to be treated in the same abstracted manner, like its, and resolves into principles of its own kind with it. Nor does the view end here: for to each of these subordinate arts may be conceived as consisting of matter and form, each of them resolves itself into two other arts; and the first may be said of each of these; and so on. So that there is really an infinite series of arts, previous to one another, and mutually subordinate; different from each other, though all of the same general nature, and only differing in points of order, or subordinacy. They are subordinately from the same cause, and tend subordinately to the same end; which difference or subordination, as already noted, arises only from their greater or less distance from the principle of all knowledge, sensation.

UPON the whole; sensible nature furnishes the matter of them all, by means of the imagination; and moral nature the form, by means of the light of reason. The former proposition has been sufficiently insisted on already; it remains to explain a little further into the latter, viz. *that reason furnishes the means*, &c. must be further explained, ere it be received. Our reason, it is to be observed, does not perceive any necessary and immediate connexion between the means and the effect; but there really is none; contingently, reason cannot be the author of them: in regard, the medium is nothing, whereby alone, it could possibly attain the end. Reason, therefore, is determined by some other cause, which will, at length, be found to end in instinct, or fate, which we are know, that fixed causes produce to such end, we must still have observed, or found it so by experience. Our memory suggests to us, that such or the like causes have been followed by such or the like effects; which is the only foundation we have to expect any thing from them on the present occasion. Thus, if Homer's reason directs him to retire into a place free of noise and disturbance, that he may meditate his poem; and to dine temper, and there to apply himself with attention and application to what he has formed; to contemplate of which manner, new ideas and images present themselves, some more immediately relative to the present purpose, others less: whence comes all this, but that Homer remembers such or the like ideas were now wanted, to have arisen upon the use of such or the like means? And if, among the crowd of images, he chooses only such as are most proper and pertinent to his purpose, it is because he finds, upon reflection, that the rest will not do. This is all that he remembers fairly, or becomes conscious of, to have contributed more fully to ends the last mind. But how others? So that the whole process appears to be little other than instinct, which, we know, resolves into fate.

BUT accuracy, it is here to be noted, deals only in positive things in nature: that no fact can be, or exist, but under some determinate circumstances; that effects of fact be matters are merely variations of circumstance, and relate only to those circumstances, circumstances, &c. which can never happen again. So that memory speaks nothing to the purpose, but only of the circumstances how the particular purpose, one in view, is to be obtained: its language is only this: "So such means and such circumstances, such effects." To make the application of past things to present, is the office of reason; which comes in to the assistance of memory, and tells us that, "since these things have been so formerly, and nothing else, they will now be so too." And, consequently, it is reason that, in brief, presides over the present matters.

OUR insight into things ranges in two lines; and it is only reason in that, in some manner or other to the end, i. e. what further or higher ends there are, to enable it to furnish materials for the present purpose; from the circumstances of past cases? This is the business of memory, properly so called: and of discrimination, good and bad judgment, and invention, &c. By virtue of these, the mind sees, that such or such means were

some more, others less significant, at pleasure; some stand for large provinces, others for petty districts thereof. In effect, the order wherein we attain our knowledge, has occasioned us to make a kind of sort-ment in the matter thereof. Though the mind only sees and perceives individuals, which alone are the proper objects thereof; yet it has a power of combining and complicating these together, for its own convenience: and hence its progress from particulars to generals, from simple to complex. Hence we come to have words of all orders and degrees; from the simplicity of an atom, to the com-plexness of the universe. It is pleasant to trace the mind, bundling up its ideas, and giving names to the several parcels; to observe, for instance, how it proceeds from the simple idea, *thinking*, to the more comprehensive one, *knowledge*, thence to a *science*, thence forward to *scientifical*, &c.

INDEED there are very few of our words that express single or simple ideas. The reason is, that, observing certain relations to obtain between the several ideas; as of cause and effect, subject and attri-bute, &c. we do not so much consider them absolutely, and independently, as under such circumstances and relations to each other. The great readiness or propensity of the mind to combine its ideas, and thus pay or receive them in parcels, has left us very few simple ones; I mean, very few names which denote only one idea. The words *atom*, or *mathematical point*, usually imply several ideas; in regard we are led to take the attributes and relations into the consideration of the subject: thus we consider the *atom*, as hard, heavy, and indivisible; as the principle of physical magnitude; as contributing to the constitution of bodies, &c. And even the primary qualities themselves, as hardness, heaviness, and the like, simple as they are in their own nature, are so far combined with particular circumstances, e. gr. their cause, &c. that their names become none of the least complex.

NOW what we call a *term*, is no other than "a word which denotes an assemblage, or system of "ideas, relating to some one point, which the mind has artfully complicated, or associated together, "for the convenience of its own operations." Or, it is "a word which comprehends several ideas "under a certain relation to each other, whereby they represent some complex piece of knowledge to "the mind, for the convenience, &c." Or, "it is a word, which holds several different ideas com-"bined together in a relation, such as they appeared under when the mind first considered them as a "flanding phenomenon, and took measures to have them fixed or retained in that quality."

THE effect of *term* is, that by virtue thereof, we are enabled to receive or communicate knowledge with more ease and dispatch; forasmuch as, having proper combinations thereof always ready made, we are saved the necessity of beginning *de novo*, and detailing it in individuals: much as in arithmetic, to avoid the embarrass of a large number of units, we tell by tens, or sixties, or hundreds: with the like view, on some occasions, we make up certain sums of money in rouleaux, or in purses; and thus pay and receive them, without the trouble of telling or enumerating the contents.

IN this sense of a *term*, we shall find little else in language. Among nouns all are such, except pro-per names, which, indeed, are out of the ordinary case of language; yet even these sometimes become terms: as when any particular ideas become constantly attached to them, e. gr. in *Maecenas*, *Machiavel*, *Augustus*, *Atlas*, *Thersites*, *Argus*, &c. And, among verbs, very few but are terms, except the general ones, *to be*, *to do*, and *to suffer*. As all the others suppose these, and modify, or superadd some farther cir-cumstances thereto; they commence terms of course: such, for instance, is the word *to moisten*; which, as it carries a farther meaning than the bare act of applying a fluid to a dry body; and denotes, e. gr. the modus of action, and the alteration superinduced by it, viz. the softening, lubricating, &c. is a thorough term. So, *to strike*, as it not only implies a certain motion of the arm, but this motion ef-fected by the successive contraction and dilatation of certain muscles, &c. has every thing that is essen-tial to a term. In the same sense, a *staff* is a term, as much as a *lever*; and a *pin*, as an *axis in peri-trochio*.

THIS may look like stretching a point, especially to those who are wed to consider *terms*, as things, I know not how, quaint and mysterious; and make a *term* and a hard word the same thing. But there is no remedy: complexness is the only characteristic, that will be found to hold good, of them all; and if there be any other more specific, and distinguishing properties in most of them, as we shall have occasion, hereafter, to shew there are; yet these, not being universal, cannot be made the foundation of a just philosophical definition. They may, perhaps, be introduced, to good purpose, into a popu-lar one; as they afford a more useful and adequate knowledge of the subject, so far as they do obtain.

THUS much relates to what we may call *terms of knowledge*, which are one degree more simple than the terms of an art or science: and were, for that reason, pitched upon to exhibit the common nature and origin of both. These latter arise out of the former, by the superaddition of some new character, or condition. They were before members of the commonwealth of knowledge: but they are now in-

"followed by such effects; such others, by parity of reason, will "be followed by such others." And that, "as there are such "and such differences between former and present occasions, and "circumstances; there must be such and such other correspond-"ent variations in the present motions, to keep up the vicis-"situde." All which relates to what the comprehension of *analogy* is. Thus it is found, that every reason, every step of an art, includes what has been already shewn of the whole art; and consists of *matter*, furnished by memory, from former and ob-servation; and *form*, furnished by reason, from comparison and analogy.

AND thus it is evident that makes all our historical knowledge of any significancy to us. It is thus that natural events are follow-ed to the perfect conclusion. We may look upon them as the bestowment or faculty of transferring; whereby the effects of be-ner times and places are brought over to the present ones. With-out this, facts would lie in their sites and numbers, with all its copia, would be no other than artificial lumber. It is this fa-culty alone, that arranges and bundles them into any thing of subordinacy. Memory only performs them as they first ap-peared; without direct act, and independency of each other, be-ing connected by nothing but their contemporaneity, or co-existence, in point of time and place. The establishment of all other rela-tions is the work of reason; which, from these low faculties re-lations, infers numerous recovery; e. gr. from the coexistence of two things in respect of time, place, &c. it concludes they have new appearances, perceived by the very act coexistent by the other; and, moreover, that there was some power in the latter, by which this was effected, &c. And thus it is we come at the relations of perception of cause, effect, action, passion, pro-perty, quality, &c. So that to this faculty of reason we owe the whole science of physics; which is no other than the doctrine of causes: at least the form thereof. The matter, i. e. the facts, come furnished in, being furnished by *senses*, constitute *natural his-tory*, the basis of all knowledge whatever.

WE are now got to the top of all our natural faculties, *reason*; and the most refined of all our common, vulgar. It re-mains to observe, that with this natural reason is connected *mo-ral perception*. In the case, the influence, of good; to the voice of reason representing a thing as such, is connected a desire or inclination towards the same; which is the great principle of hu-man action, or operation, and ministers a number of subordi-nate ones; the application of all which constitutes what we call the *power* of finding good.

AND thus we are got to the bottom of all our moral faculties, *affections* or *inclinations*. Hence, as reason is the end of pur-pose, or perception; inclination is the beginning of action; the one terminating in the apprehension of good, where the other commences. And again, as the perception of reason is the ul-timate effect of science; the inclination, arising by means here-of, is the beginning of art: the two being joined, and, as it were, incorporated, in some middle point. And thus external or physical things come to influence or produce internal or moral nature. And thus do physics take hold of ethics, God of man.

corporated into some certain province, or city thereof; where they become of farther significance and conſideration than before: that is, ſome new ideas and circumſtances are now taken into the combination, which before did not belong to it. A term of art, then, "is a word that has a meaning beyond its general or ſcientifical one, and this meaning reſtrained to ſome one art." Or, "it is a word uſed "to denote a certain combination of ideas, under ſome peculiar relation, retained arbitrarily in ſome "art, and either not uſed in any other art, or for a different combination, or with other relations and "circumſtances."

TO make the way a little clearer to the philoſophy of a term of art, it is to be obſerved, that from the primary, or literal ſenſe of words, we frequently, by abſtraction, form a ſecondary, general, or philoſophical one, expreſſing only the quality moſt predominant in the former, excluſive of the particular circumſtances of the concrete. Thus, the word *ſpirit* literally and primarily ſignifying *breath*, we thence frame a more ſimple general meaning, and uſe the word for any thin, ſubtile matter whatſoever. Now, terms of art are not immediately formed from the literal or grammatical, but from the general or philoſophical acceptation of words; which is their proper baſis, or the ground-work they are erected on. The general or abſtract ſenſe of ſome word already eſtabliſhed, being found to agree to ſomething which we have occaſion to give a name to; we take the word in that ſenſe, and ſuperadd the other incidents and circumſtances, which the preſent occaſions furniſh, thereto; which, being different, according to the different matter and ſubject of the art, ſpecify the meaning of the term in this or that art. So that the word which, to raiſe it to a philoſophical or ſcientifical ſenſe, was generalized, to form a technical one, is again particularized, or appropriated, and inveſted with new accidents.

THUS, the ſame word *ſpirit*, which literally ſignifies breath, and philoſophically any ſubtile ſubſtance, is technically brought to denote divers other things; as, in anatomy, a thin, animal juice ſecreted in the brain, and deriached thence through the nerves, for the uſes of ſenſation, and muſcular motion; in chemiſtry, the exhalations of bodies expoſed to the fire: in theology, the third perſon of the Trinity: in metaphyſics, any incorporeal agent, or intelligence, &c. In all which, we ſee the ſame ſubſtratum, viz. a fine ſubtile ſubſtance; but this modified a great diverſity of ways; each of which is ſuſceptible, by farther ſuper-additions, of infinite more. And hence we have legions of ſorts of ſpirits, both in the human body, the chemiſts laboratories, the hierarchy, &c.

THE notion of a term will receive ſome farther light from that of a DEFINITION; which is, as it were, the analyſis thereof. By *definition* we undo what was done in forming the term; that is, we reſolve the complex ideas into ſimple ones, or reſtore the ideas from their new and artificial ſtate, to their primitive and vague one. A *definition*, then, may be defined, "An enumeration of the ſeveral ſimple "ideas couched under any terms, in the relation wherein they ſtand to one another." We have already ſhewn, that terms are words which have peculiar and determinate meanings, reſulting from a certain combination of ideas; in which view, a term may be ſaid to be "a word that is capable of definition;" i. e. of having its ſenſe explained and aſcertained, by an enumeration of its properties and relations; by which it is diſtinguiſhed from words merely grammatical, whoſe meanings are general and indeterminate, and may be uſed with equal propriety in a thouſand caſes. We can explain a term; a word is inexplicable: all we can do towards this, amounts not to definition, but only to ſubſtitution, or the giving a ſynonymon.

THUS the idea attached to the word *force*, is abſolutely incommunicable by means of any language: we can only try whether the party have it not already, under another name; to which end, we may tell him it is *power*, or *energy*, or *vigour*; if he have ideas for any of theſe, he will take in that of force, by its relation thereto; if he have not, we muſt proceed to try him with more, and tell him it is *force*, or *vis*, or *efficacia*, or *potentia*, &c. or it is *ſua*, or *ωϛη*, or *δυναμις*, &c. If none of theſe will do, it remains to try, whether he may not have it without any name to it; and ſay, it is "that whereby one thing, "coming in contact with another, moves, or ſhakes, or breaks it," &c. If, by any of theſe means, he learns what force is, he does not form any new idea; he only learns a new name; and finds, that what he had known by one name, others call by another; or that what he had never taken the pains to diſtinguiſh by any name, ſome others have. To get the idea, he muſt have recourſe to ſenſation, not to language; it being a phyſical *cur*, and only to be attained that way.

BUT the ſimple idea, called *force*, being given; and coming to be afterwards modified, or circumſtantiated by new accidents added thereto, and thus formed into terms, in this or that art; it is here in the power of language alone to excite them, by reſolving ſuch compound idea into its ingredient ones; which, being re-compounded, or put together again, in the manner aſſigned by the definition, give the full adequate import thereof. Thus the idea of *force* being variouſly modified, and combined with other ideas of *centre*, *attraction*, *repulſion*, *mill*, *machine*, &c. in the words *central force*, *centripetal force*, *centrifugal force*, *neceſſity* or *moral force*, *mechanic force*, &c. we can, by definition, arrive at the meaning thereof; by having thoſe circumſtances ſpecified, or ſuperadded to the idea of force. In this caſe, there is no coming at the idea by ſenſation, in regard it is a creature of our own, and does not exiſt any where without us, to make an object of ſenſe.

HENCE appear all the diverſity of definitions; technical ones, compoſing only to terms, as to *central force*; ſcientifical, or philoſophical, to qualities, as *heaviness*; and nominal, or ſucceedaneous, belonging to ſimple ideas, as *power*, or *energy*.

IT is the various aſſemblage of ſimple ideas, denoted by common words, that makes all the variety of terms; as it is of ſimples in an apothecary's ſhop, that makes the variety of his medicines. The analogy goes farther; and it may be ſaid, terms, like medicines, only differ from each other as their ingredient ideas, and the relations thereof differ. If theſe be not all rehearſed in the definition, the term or medicine is not ſpecified, or diſtinguiſhed from ſome other, which may have all, except that one or two omitted. Conſequently, ſuch one or two are the characteriſtics of that term; which may be explained, in ſome ſort, by only enumerating thoſe characteriſtics, and couching the reſt under the name of that other term. This amounts to little more than the ſubſtitution above mentioned; and yet to this is reducible all that the ſchoolmen teach of *genus*, *ſpecies*, and *differences*.

BESIDES ſimple words, which we have obſerved are, in their own nature, inexplicable; there are divers others that become accidentally ſo; and ſuch are all the duties or preliminary principles of any art, with reſpect to thoſe who confine themſelves to the bounds of that art. Thus, if it be demanded of an apothecary to define one of his ſimples, e. gr. mercury; he muſt needs be at a ſtand, unleſs he be likewiſe verſed in mineralogy; by reaſon it is putting him to explain a principle, which his art does not explain, but aſſume; the explication thereof lying in another province. But aſk him to de-

fine calomel, and he is prepared for you: and will readily enumerate the several ingredients, and the manner of preparing it, which is the proper pharmaceutical definition of calomel.

HERE it may be observed, that the words used in the definition of a term do many of them represent complex ideas; and, consequently, ought themselves to be first defined, if we would have the definition complete. The term has usually divers subaltern ones; all which are resolvable into it, and make part and parcel of the knowledge held forth by it. Thus, if mercurius precipitatus albus be defined, "A white medicinal powder, precipitated from a solution of crude mercury in aqua fortis by adding thereto a lixivium of sea-salt:" and then purified by repeated solutions in a filter," &c. &c. the ideas, *powder, precipitated, solution, mercury, aqua fortis, solution, filter*, &c. remain to be explained, or turnish the complete notion of white precipitate. But as this would be endless, and would defeat the intention of a definition, the practice obtains, to suppose all other terms known, except that particular one under definition. By this means we avoid the embarrass of bringing down every word to its principles, or simple ideas, and confine ourselves by bringing it to the next complex ones: since the bringing an unknown term to several known ones, is a kind of indirect definition.

SUCH is the nature of a technical definition, which holds good or valid for those of that art, or craft, who are to be supposed furnished with the necessary data, or preliminary notices. But to make a scientifical definition, we must go a little lower; and bring down the words, if not to their simple ideas, yet to general or common ones. For it is to be observed, there are great numbers of complex ideas current among most common people, which therefore may be considered as data, and used as simple ones, for more convenience sake. All technical apparatus, then, is to be here thrown by; and instead of giving five or six hard words for one, the general effect and meanings thereof are to be made use of. Thus, the precipitate above mentioned may be defined, "a white powder, which falls down "from quicksilver dissolved in spirit of saltpetre, upon adding salt there in; and afterwards washed, again "and again, by passing fair water through it," &c. where, though several of the words be complex; yet most people, in the ordinary course of life, have framed the complex ideas belonging to them; so that they may be considered as simple ones. Yet the definition can scarce be said to be complete, even here: the general, or philosophical sense of words, we have observed, is formed from the grammatical one; and, consequently, the definition ought, in strictness, to extend thither: the solution, to be adequate, should go as far as the knot; the analysis, as the synthesis.

THE reader already begins to feel this Preface grow tiresome; and yet several things are still behind. Where so large a work was to follow, he perhaps imagines he should have been excused from a long introduction: and the like, probably, may the author say; who, after so tedious a work, could not be over-fond of any additional fatigue. But, the expediency of the case, which swayed and determined the one, may, we hope, induce to satisfy the other. Several matters were purposely waved in the course of the BOOK, to be treated of in the PREFACE: which appeared the most proper place for such things as bore a regard to the whole work. What has been hitherto omitted on, as well as what remains, immediately attacks every article in the book; and tends, withal, to let a little needful light into certain points, hitherto involved in great obscurity. A *preface* may be considered as a vehicle wherein fit to convey the reader, commodiously, from the title-page into the book. The preface is a kind of comment upon the title; the book a paraphrase on it: or, if you had rather, the book is the title extended, the preface the title explained.

HAVING, therefore, dilucidated some of the leading words of our title, ART, SCIENCE, TERMS, and DEFINITION; we proceed to consider the nature of a DICTIONARY. It were to be wished, that the many adventurers in print, who publish their thoughts under this or that form and denomination, would frame to themselves some precise notion of the character and laws thereof. There is something arbitrary and artificial in all writings: they are a kind of draughts, or pictures, where the aspect, attitude, and light, which the objects are taken in, though merely arbitrary, yet ever must direct the whole representation. Books are, as it were, plans or prospects of ideas artfully arranged and exhibited, not to the eye, but to the imagination; and there is a kind of analogous perspective, which obtains in them, wherein we have forced, or not much unlike points of sight, and of distance. An author, in effect, has some particular view or design in drawing out his ideas; either scientific, to represent something, or to distort and ridicule it, or to amplify and exremate, or discover, or teach, or prove, &c. whence arise divers kinds or compositions, under the names of *systems, treatises, theories, essays, inquiries, examinations, complexions, comments, memoirs, lectures*, &c. in all which, though the matter or subject may be the same, the conduct or artificial part is very different: as much as a full-life room a history, or a grotesque, or a nudity, or a caricature, or a frame-work, or a miniature, or a profile, &c. each of these methods of composition has its particular characters, and laws: and, to form a judgment of the things represented, from the pictures made of them, it is necessary we be able to unravel or undo what is artificial in them, reduce them into their former state, and extricate what has been added to them in the representation: that is, we should know the manner thereof; whether, as they be mere nature, shewn through this or that medium, in a true, or fun-view, whether in or without, to be viewed from above, or below; or nature raised and improved, or altered for the better, or the worse. The case amounts to the same as the viewing of objects in a mirror; where, unless the form of the mirror be known, viz. whether to be plain, concave, convex, cylindric, or conic, &c. we can make no judgment of the magnitude, figure, &c. of the objects.

IT is beyond our purpose to enter into the nature of the several methods of composition above mentioned; I shall only note, by the way, that the first writers in each worked and chalked out the measures of all that came after them. The several manners of composing amount to so many arts; which, we have already seen, are things, in great measure, personal, and depend on the genius or humour of the inventor.

WERE we to inquire who first led up the way of Dictionaries, of first to which frequented, some little grammarian would, probably, be found at the head thereof; and from his particular views, designs, &c. if known, one might probably deduce not only the general sense but even the particular circumstances of the motive, or collection under that name. The solution, however, extends both ways; and if we cannot deduce the nature of a Dictionary from the condition of the author, we may the condition of the author from the nature of the Dictionary. Thus much at least, we may conclude, that he was an *artist*: that his view was not to improve or advance knowledge, but to teach to convey it; and that he was hence led to untie the complexions, or bundles of ideas his predecessors had made, and to reduce them to their natural simplicity; which is all that is essential to a lexicographer. Probably this was

was in the early days of the Egyptian sages, when words were more complex and obscure than now, and mystic symbols and hieroglyphics obtained; so that an explication of their marks or words might amount to a revelation of their whole inner philosophy: in which case, instead of a grammarian, we must put, perhaps, a priest or mystagogue at the head of Dictionaries. Indeed, this seems the more probable, because a grammatical Dictionary could only have place where a language was already become very copious, and many synonymous got into it; or where the people of one language were desirous to learn that of another: which we have no reason to think could be very early, or till much commerce and communication had made it necessary.

WHEN a path is once made, men are naturally disposed to follow it, even though it be not the most convenient: numbers will enlarge and widen, or even make it straighter and easier; but it is odds they do not alter its course. To deviate from it, is chiefly for the ignorant, or the irregular; persons who do not well know it, or are too licentious to keep it. And hence the alterations and improvements made in the several arts, are chiefly owing to people of those characters. There is scarce a more powerful principle in nature than that of imitation, which not only leads us to do *what* we see others do, but *as* they do it. It is true, there are exceptions from every rule; there are persons in good measure exempted from the influence of this principle; and it is happy there are; witness our Paracelsuses, Hobbeses, Leibnitzes, &c. In effect, if an art were first broached by a happy genius, it is afterwards cultivated, on his principles, to advantage; otherwise not: and it may wait long for the anomalous hand of some reformer, to set it to rights. Some of our arts have met with such hands, others still want them.

WERE we to give an absolute and consistent definition of a Dictionary, we should say, "It is a "collection of definitions of the words of a language." Whence, according to the different kinds of words, and definitions above laid down, i. e. according to the different matter, and the different view wherein such matter is considered, will arise different sorts of Dictionaries: *grammatical*, as the common Dictionaries of languages; which, for one word, substitute another of equal import, but more obvious sense: *philosophical*, which give the general force or effect of words, or what is common in them in all the occasions where they occur: and *technical*, which give the particular sense attached to them in some one or more arts.

BUT, in truth, this is a little chimerical: though we have Dictionaries under all these titles, it would, perhaps, be hard to find any conformable to this partition; which is not so much taken from what really is, as what might, or should be. Dictionary-writers are far from considering their subject so closely, or confining themselves to so narrow, though direct a channel: they must have more room; and think themselves privileged by the general quality of lexicographers, to use all kinds of definitions promiscuously. It is no wonder they should not keep to views which they had not, and which could only arise from researches they never made. While the notions of *term* and *art* remained yet in the rubbish wherein they were left by the schoolmen, those of *definition*, and *Dictionary*, must needs be vague, and arbitrary enough; and the Dictionarists and Expositors profited by an embarrass which it was their business to have removed. They have not only built on it, but improved it, by a continual varying and confounding of views, imperfect enumerations, &c.

IT is not to be imagined, what mischiefs and inconveniences have arisen from this single head; what great uncertainty it has introduced into language; and what an obstacle it has been to the improvement thereof. It is certain it has, in great measure, defeated the intention of speech; and turned knowledge, which that was to be the medium of, into jargon and controversy. All the confusion of Babel is brought upon us hereby; and people of the same country, nay the same profession, no longer understand one another. The effect is, that our knowledge is grown into little other than that of peoples misunderstandings or misapprehensions of one another; which is the only kind of knowledge that grows; and which will for ever grow; there being the seeds already laid of such disputes, as, according to the ordinary spreading of such things, must overshadow and starve every thing else. If all men meant precisely the same thing by the same name, there would be no room for their differing upon any point, either in philosophy, or any thing else: there is no more possibility of seeing the relations of things to each other differently, than of altering their nature, and overturning the system. Relations of ideas are as immutable as the Creator's will. Error, in effect, is no natural production; nor is there any direct way of coming at it; we must go about for it; and find some law of nature, to put it in our power. So that error is, in one sense, truth, ere it take place; only it is not the truth it is taken for.

THERE are two manners of writing: in the one, which we may call *scientifical*, we proceed from ideas, and things, to words; that is, we first lay down the thing, then the name it is called by. This is the way of discovery, or invention; because the thing ought to be first found, before it is named. In this way, we come from knowledge to ignorance; from simple and common ideas, to complex ones.

THE other is *didactic*, just the reverse of the former; in which we go from words and sounds, to ideas and things; that is, begin with the term, and end with the explanation. This is the historical way, or the way of teaching and narration; of resolving the extraordinary knowledge of one person into the ordinary of another; of distributing artificial complications into their simple ideas; and thus raising, and levelling again, what art had erected.

THE Dictionary comes under the latter kind. It supposes the advances and discoveries made, and proceeds to explain or relate them. The Lexicographer, like an historian, comes after the affair; and gives a description of what passed. The several terms are so many subjects, supposed to be known to him; and which he imparts to others, by a detail of the particulars thereof. Indeed, the analogy between a *Dictionary* and a *history*, is closer than people at first sight may imagine: the Dictionary relates what has passed, with regard to each of our ideas, in the coalitions or combinations that have been made thereof: its business is, to deliver the progresses made in the several parts of knowledge under consideration, by an orderly retrospect, and deduction of the terms, from their present complex, to their original simple state. The dictionary of an art, is the proper history of such art; the Dictionary of a language, the history of that language. The one relates that such an art, or such and such parts thereof, stand so and so; are managed so and so; and the result so and so: the other, that such and such a word is used as synonymous to such and such others. The Dictionary-writer is not supposed to have any hand in the thing he relates; he is no more concerned to make the improvements, or establish the significations, than the historian to atchieve the transaction he relates.

THE difference between what we commonly call the *history of an art*, and a *Dictionary* thereof, is only circumstantial; arising from the different views of the two sorts of authors; the one chiefly re-

gards the time and order, when each ſtep, each advance was firſt made; i. e. how it ſtood with reſpect to ſuch and ſuch æras, or periods of time; and might more properly be called the *chronology of the art*: the other, regarding chiefly the object or intention of the art, relates its preſent conſtitution, and how it proceeds to attain the end propoſed. You may add, that the former primarily conſiders what is paſt, or already advanced; the other, alſo what is preſent, or remains to be done: the one tells, e. gr. how Mercury, finding a dead tortoiſe on the ſhore, took its ſhell, added ſtrings to it, and made it into a lyre: the other, how a lyre is, or may be, made. And if you will likewiſe add this, that the hiſtory intermixes divers foreign and accidental circumſtances with the diſcovery, which the Dictionary abſtracts, and ſets aſide, and ſo reduces it nearer to ſcience; you will have the full and adequate difference between them. Thus the making of the firſt lyre is related with ſome circumſtances, which have no place in the proper ſtructure of the inſtrument, and are therefore to be omitted in the Dictionary; which only takes in what belongs to the art, or artiſts in general; not what belongs to ſome one of them.

THE whole, in effect, amounts to this, that the firſt time of doing a thing is related by the hiſtorian with the ſeveral particulars which in any-wiſe, though occaſionally only, and remotely, affected it: whereas the lexicographer, coming afterwards, keeps more cloſely and ſecretly to the point, and

more than authentic inſtruments, declarations, &c. in a hiſtory. To demonſtrate the ſeveral properties and relations, e. gr. of *lines*, *angles*, *numbers*, &c. in a Dictionary, were an indiſcretion as great, as for an hiſtorian to produce certificates and copies of pariſh-regiſters, of the births, burials, marriages, &c. of the ſeveral perſons whoſe actions he relates. And yet, on ſome extraordinary occaſions, we have not omitted to give demonſtrations; where, for inſtance, there was any thing very intereſting, or important in them: a practice like which hiſtorians themſelves frequently give into; though it be a confeſſed irregularity; as it breaks in upon the unity of the narration.

BUT we are far from the views of certain Dictionary-writers, who ſeem to think it incumbent on them to demonſtrate every thing that is capable thereof. This is directly to forget the nature of their work; and to diſpenſe with the rules, both to their own and reader's coſt. How dear, e. gr. muſt a competent demonſtration of moſt of Euclid's propoſitions be here purchaſed! Either the reader muſt be at the pains of picking it piece-meal out of twenty ſeveral parts of the book, where the alphabet has happened to caſt it; or the author muſt relinquiſh the Dictionary-method, and deliver things together, that properly belong to ſo many ſeveral places: or elſe there muſt be a repetition of the ſame thing a dozen times over? And for what? Why, to make the Dictionary do the buſineſs of an Euclid's Elements: which it is the unfitteſt in the world for. You might, with equal propriety, make an oziers-baſket ſupply the office of a pleaſure-boat; or a ſword-pummel that of a portmanteau, as Parſeeſius is ſaid to have done.

WHEN a thing has been once regularly demonſtrated, it may be aſſumed, or taken for granted: every body, perhaps, may be concerned in the truth of it, but not to ſee the truth of it. To make it a principle to take nothing on truſt, would be as troubleſome in the ſciences, as in life; and would render us, for ever, both wretched and ignorant. Not only ſuppoſitions, but even errors, frequently lead us to knowledge otherwiſe inacceſſible. Mathematicians themſelves, who, of all others, keep moſt to demonſtration, yet find themſelves under a frequent neceſſity of admitting and making uſe of things as true, which they do not then ſee to be ſo; and thus are ſwayed, like other people, by authority. A perſon who makes uſe of the equality of the ſquare of the hypothenuſe, to the ſquares of the two ſides, upon the credit of Pythagoras or Euclid's having demonſtrated it, does little more than what they themſelves do on many occaſions, who aſſume and make uſe of propoſitions they have no other evidence of, but the knowledge and remembrance of their having been demonſtrated.

THE caſe is much the ſame with *experiments*, which ſtands on the like footing as demonſtrating. They are both neceſſary in their kind; the former, as it leads on our knowledge, the latter as it follows and ſecures the rear: but their uſe is to be reſtrained to theſe purpoſes; and may be diſpenſed withal, in caſes where neither of theſe are concerned. A perſon who would diſcover any point in phyſics, or broach and eſtabliſh any point in mathematics, muſt uſe them: but the occaſion is, in great meaſure, private and perſonal; and does not extend to the public in the ſame degree as the knowledge of the doctrines themſelves. That is, the particular means by which a thing was firſt come at, or is ſhewn to be true, do not intereſt us ſo immediately as the knowledge of the thing itſelf, which might have ariſen from various other means, and in other manners: a man may know a thing in the way of *preſumption*, of *opinion*, of *surmiſe*, of *authority*, and forty other ways; which, though all much inferior, and leſs excellent than the way of *demonſtration* and *certainty*; yet we are glad of them on many occaſions, and uſe them to good purpoſe. Every degree of knowledge is valuable. It would be an unreaſonable, as well as incommodious fulleneſs in us, to refuſe all light, except that of noon-day. We find our eaſe and happineſs frequently depend on the doing of things by twilight, or even moon-light, or the ſtill more dubious light of a ruſh, or glow-worm.

PYTHAGORAS, in all probability, was not ignorant of the equality of the ſquare of the hypothenuſe, &c. before he demonſtrated it; elſe, what ſhould have led him to look for the demonſtration? And the like may be ſaid of many of Mr. Boyle's experiments. Plato even obſerves, that "the "very putting a queſtion, implies ſome knowledge of the thing demanded; ſince, without this, we "ſhould not know what what is returned is an anſwer."

LESS might have ſufficed to ſhew why, in the courſe of this work, we have uſually omitted the apparatus of demonſtrations and experiments; and given the doctrines pure, and unincumbered by any thing not eſſential to them. The experiments, for inſtance, which led to the theory of light and colours, what would they be, but like the ſcaffolding before a fine building, which break and interrupt the ſight, and hide moſt of the beauties of the work? Such ſcaffolding, it is true, would be of uſe to the connoiſſeurs; who might have a mind to examine the work, to meaſure the proportions of the ſeveral parts, and inquire whether every ſtone were juſtly laid. But, to the generality, it would rather be an incumbrance, much to the diſadvantage of the edifice. Yet, in the caſe of experiments, as of demonſtrations, we have receded a little from ſtrict method, in favour of ſuch as have any thing very remarkable or beautiful in them. For the reſt, the reader, if his curioſity ſerve him, is told where to have them at firſt-hand.

IN the caſe of definitions, too, we do not keep inviolably to what has been above laid down, but reſerve to ourſelves the diſcretionary right claimed by our predeceſſors. We make uſe, occaſionally, of all ſorts of definitions, as they beſt ſuit our deſign, the conveying of knowledge. In effect, we have uſually a regard to the degree of notoriety, importance, &c. of the term, though a point arbitrary and indeterminate enough; and endeavour to accommodate the explication thereto. The rule ſhould be, to ſay, *Communia propriis, propria communibus*; to expreſs common things ſo, as that even the learned may be the better for them; and the more abſtract and difficult ſo, as that even the ignorant may enter into them. Accordingly, in popular terms, we endeavour to give a *cyclopical* definition; i. e. to wave the general and obvious meaning, which is ſuppoſed to be known, and enter farther into the nature of the thing, not known. But, in the more remote terms, the *genuine* and *nominal* definition is alſo given, as being ſuppoſed there to be wanted.

THE literal and technical definitions of a term are lame and imperfect without each other; the firſt gives its uſe and effect, as part of general or abſtracted ſcience; the ſecond, as applied to ſome particular ſubject. The literal notion, e. gr. of *relation*, is that of "conformity, dependence, or com- "parition of one thing to another;" than which nothing is common to relation, both in grammar, logic, geometry, &c. i. e. it expreſſes this, both when applied to words, to propoſitions, to quantities, &c. The technical notion of relation, in grammar, is "the dependence of words in conſtruction:" this makes the grammatical notion of relation, i. e. it limits, or ties down, the general abſtract idea of relation, to the particular ſubject of grammar, words. So, the technical notion of relation with regard to

arithmetic, geometry, &c. is "the conformity or dependence between two or more lines or "numbers."

FROM the whole, it follows, that the two kinds of definitions differ as an art and a science, as general and particular reason. And hence, from the several technical or particular meanings, one might run back to the general, or literal meaning, by abstracting, but not contrariwise, from the general or abstract, to the particular ones; in regard those other are arbitrary, and depend on the good pleasure of the artist, who first introduced them.

IN strictness, every term should be first given in its literal or grammatical meaning; especially if it be a term in several arts: as this helps to shew the orderly derivation of the word, from the simple or general idea that gave rise to it, to its last, and most complex one. Yet we have not always kept to this method. In some words, there is much of the literal import of the word preserved in the term, or the technical one; as in the word *free*, or *freedom*: a man who has a notion of *freedom*, in its common or literal sense, will easily pass on to all the particular ones, as *free city*, *free port*, *freedom of speech*, *of behaviour*, &c. to that, in this case, a literal definition might almost alone suffice; the meaning of the word having suffered little alteration at the hands of artists. In other words, the literal or primary import of the word is almost lost in the term: for instance, in the word *power*, in arithmetic; which will scarce bear any tolerable definition at all. Literally, the word implies a relation of superiority, or influence over something, which, in respect hereof, is conceived as weak, &c. According to the analogy of language, therefore, the arithmetical power should have somewhat of this relation of superiority over the root: but the root itself is also a power; so that the definition of power must take in two opposite relations, viz. both power and subjection.

PERHAPS, to go on in the most regular manner, and take up things at their source, we should begin with settling the etymologies of words: but the great alteration many words have undergone, and the great length they have been carried from their original meanings, in being borrowed from one language or age to another, would frequently make this not only a tedious, but an useless labour: so that here, too, we have used a discretionary power, and only meddled with etymologies, where they appeared of some significance.

TO explain a term, as a term, we usually express the circumstances wherewith it is attended, in the art to which it belongs, in their technical names. This is agreeable to the manner of artists, who, writing of their respective arts, use terms as common words, and suppose them to be known; and it is this that constitutes a technical explanation; not the giving the general effect or force, in such words as may equally agree to all other arts. And yet, in some cases, we recede from this rule, particularly in divers of the lower trades or manual arts, and the structure of some machines: thus, e. gr. in turnery, we make no difficulty, instead of *chord*, to say a round piece of wood, &c. The reason is, that where the several subordinate terms of a definition are themselves explained in their places, we may suppose them understood: but where the term defined is itself so low, that we do not go lower to define the parts couched under it; there we choose, as more intelligible, to substitute some more obvious name, or the general meaning of the word, for the term itself; and thus prefer the general or popular, to the technical definition.

FOR it is to be observed, that the Dictionary has its limits; it only carries matters to a certain pitch of simplicity, where we suppose people may take them up, and carry them farther as they please. We bring them into their sphere, and so leave them. So much knowledge, i. e. such a number of complex ideas, as we may presume people usually to have got in the common occurrences of life, we are willing to suppose, as a footing: where these end, our work is to begin, which is to take in the rest.

IF, at any time we explain a complex idea, which it may be supposed most people have formed; it is because we think they do not take in all the simple ideas that go to constitute it: as in the case of *milk*, *blood*, or the like, where people are contented with two or three of the more obvious properties and phenomena, and slur over the rest. Thus, in milk, *whiteness* and *fluidity* are almost alone considered; and these, in the common opinion, constitute *milk*; so that whatever has these two attributes, comes in for the denomination *milky*. The texture and component parts of this milk, the manner of that fluid's being secreted, collected, &c. with the peculiar properties and virtues resulting from all these, are left behind. So in *blood*, it is enough it be a reddish, pretty compact, animal juice; when warm, fluid and homogeneous, &c. This is going a great way, and even Dictionaries seldom go farther: but, for the component parts, the *crass* and *serum*; with the component principles of these, viz. the *oil*, *phlegm*, &c. their forms, properties, &c. whence arise the crasis, colour, heat, specific gravity, &c. of blood, Dictionary-writers do not ordinarily trouble themselves.

IF, by the artifice above mentioned, we get free of a vast load of plebeian words, which must have greatly incumbered us; the grammar and analogy of language disengage us from a still greater number of all kinds. The various states of the same word, considered as it comes under different parts of speech, and accordingly assumes different terminations, increases the list of terms immensely: as in *dark*, *darkness*, *darkening*; *prodigal*, *prodigious*, *prodigiously*, *prodigiousness*, &c. which may either be considered as one and the same word, under different habitudes; in regard there is a common basis of them all: or, as so many different terms, in regard every one takes in something not contained in the other. This latitude we make use of occasionally; and either consider the words this way or that, as seems most advantageous to our purpose. In some cases, where the alteration is merely grammatical, we content ourselves to explain them in one state, e. gr. *precipice*; and suppose the reader able, by grammar, to form the rest, as *precipitous*, &c. In others, where several particular ideas are arbitrarily superadded to the word in one part of speech which do not belong to it in another, we there explain it in all: as, *precipitate*, *precipitant*, *precipitation*, &c.

THIS gives an occasion to mention a strange kind of licence, frequently practised in our language. Though there be ordinarily a great deal of difference between the several states or modifications of the same word, e. gr. *reading*, *reputing*, *reasoning*, &c. the same as between the action and quality, the power and the exercise of it in this or that case, the cause and the effect; yet authors make no difficulty of using them promiscuously; which would make downright nonsense, were the readers to keep to the strict import of the word. But the truth is, they are not so critical about the matter: if the meaning come within their reach, they jump at it, and are glad to take it; without waiting to see whether it would reach them in its proper direction, or whether it might not rather fall short, or fly by them. What confusion should we make, even in our best and clearest writers, were we to resolve not to understand

ſtand them but according to the ſtrict rules of grammar, and not indulge them the liberty of uſing one word for another? In a thouſand caſes, the ſame idea is denoted by oppoſite terms: thus, we ſay, ſuch a medicine is good *for*, or *againſt*, the worms, plague, &c.

IT may be urged, that as cuſtom has authorized this latitudinarian practice, it is become of grammatical authority; and that as the licence is known, it cannot deceive us; ſince the readers are led, on ſuch occaſions, to relax the bonds of grammar, and annul the difference between words, in order to admit one a ſubſtitute for another. But I am afraid this expedient ſcarce indemnifies us from the abuſe. Beſides the extraordinary embarraſs of reading what is thus promiſcuouſly written; it is not always we know when and how to ſuperſede the ſtrict import of an author's words, and make him ſpeak ſenſe in his own deſpite. This I take to be none of the leaſt occaſions of controverſy and diſpute owing to language, and which we may almoſt deſpair of ſeeing rectified, unleſs in a new one.

I SHALL not here enter upon the merits and defects of the Engliſh tongue, conſidered as a language: a great deal has been ſaid on that head by others, for which the reader may turn to the proper article in the Dictionary itſelf. What we have to add, will be chiefly as it ſtands with regard to the arts, and more particularly, to a Dictionary of arts.

I BELIEVE none will queſtion but we have met with difficulties enough in the courſe of this work. The very bulk and dimenſions of it confeſs as much, and the variety of its matter ſtill more. But theſe were natural difficulties, appendant to the very deſign; and therefore did not affect us ſo much as ſome others, which aroſe from it at ſecond-hand, or were ſuperadded to it, as it were, by accidents. And ſuch was the preſent ſtate of our language, which alone were ſufficient to have baffled the beſt ſcheme, and broken through the beſt meaſures, that could be formed.

WE have already repreſented language as ſomething very important: and as having a near and neceſſary intereſt in knowledge. *Words* are ſolemn things, as they are repreſentatives of ideas themſelves, and uſed on moſt occaſions in their ſtead: and *terms*, or combinations of ideas, are ſtill more ſo; as much as complex engines are of farther and nicer conſideration than the ſimple mechanic powers. But who would imagine this, to conſider the wanton uſe we make of them; and with how little fear or diſcretion words are treated among us? Every body thinks himſelf privileged to alter, or let alone, the old, and introduce new ones at pleaſure. England is open to all nations; and our traders in the commodity import their wares from every country, in all ſecurity. The humour of importing ſeems to have poſſeſſed every part of us: we are not only unwilling to be without the natural produces, the faſhions, and the follies, of our neighbour countries; but we even envy them their ſounds and phraſes. The effect is, that our language continues in a perpetual flux; and no body maſter of it for two days together.

A MAN never knows when he is at the end of the terms, e. g. in architecture. When he has got two or three names for ſome one member, and thinks himſelf over-ſtocked, it is odds he has not half. It is not enough he knows what the thing is named in Engliſh; but he muſt likewiſe learn what the French, Italians, Latins, and Greeks, likewiſe call it, or frequently find himſelf at a ſtand. Thus it is in the caſe of *filets, liſts, liſtels, regulæ, platbands, bandlets, taeniæ*, and *bayettes*: of *cornices, ogivals, baſcons*, and *tores*: of *gules, guttæ, modions, cymas, cymatiums, ogees*, and *talons*: *mutules, modules, echinuſes, quarter-rounds, boultins*, &c. between which, there are no known, allowed differences: but they are either uſed indiſcriminately, or diſtinguiſhed arbitrarily; one perſon making this diſtinction, and the next another, or perhaps none at all. So that if we come ſtrictly to Dictionaries, we ſhould have a different one for every author.

BUT the miſchief does not end here: for as the ancient arts are, in many reſpects, different from the moderns; the uſe of their terms neceſſarily involves us in a new confuſion, and makes the ſame word ſtand in an ancient author for one thing, and in a modern for another. Thus it is in *parabata, veſtibula, aula*, &c. In effect, there is that alteration continually making in the language of architecture, that there ought to be a different Dictionary of it for every different age.

THE truth is, a fourth part of the words, in ſome of our popular Dictionaries, ſtand on no better authority than the ſingle practice of ſome one fanciful author, who has met with Dictionary-writers fond enough to take his trippery off his hands, and expoſe them to the public for legitimate goods. By ſuch means theſe exotics have obtained a kind of currency: ſo that a Dictionary would be thought defective without them. To omit even our fopperies, would be thought a fault; and might even be eſteemed, by ſome, as the moſt unpardonable of all. On theſe accounts we have been obliged to tranſporize a little, how much ſoever againſt the grain; and thus, perhaps, have contributed to the ſtill farther eſtabliſhment of a number of words, which we had much rather have proſcribed.

UPON the whole, nothing could be more deſireable than an *actus reformatorius*, to clear the language of ſuperfluous words and ſynonymes; to expunge the modern French and Italian terms in the ſeveral arts, where we have Latin and Greek ones; and even the Latin and Greek ones, where we have Engliſh or Saxon ones, equal in ſound and ſignificancy. I think the learned languages ought to have the preference to the moderns, becauſe every perſon may be ſuppoſed to have read, but not to have travelled; and our country words I would prefer to any others, becauſe there is the moſt analogy between them, and they uſually retain more of the origin and etymology than thoſe tranſplanted from other languages. Such a reform would reduce our dictionaries to more reaſonable dimenſions; and diſencumber the arts of half the difficulty now to be ſurmounted in attaining them.

BUT there is another ſpring of words no leſs prolific than that hitherto ſpoken of, and which has produced a ſwarm of ſpurious, miſhapen words, which no nation but our own would have owned: I mean the itch of coining, or making, Engliſh words, by a fact of analogy, from the Latin and Greek ones. This fault the tribe of lexicographers have carried to a deteſtable exceſs. How muſt a man ſtare, to ſee what deteſtable ſtuff ſome late writers of that claſs have furniſhed us with; words of their own manufacture, ſcarce fit to do any thing with, except ruin paper! Witneſs *ſcepticiſm, ſtoicism, pantheiſm, ſcribe, pragmatic, ſagacity, ſophiſtry, modernity, exigent, ſophiſtic*, and many thouſand more, at the reader's ſervice, to be met with all in a Dictionary which few people are without. We are already overrun with this writer's ſcarecrows: what ſhall we do, when, having thus anglicized all the Greek and Latin words, he proceeds to do the ſame with the Dutch, Iriſh, and Welſh? Indeed I am the leſs angry with him, for that he has carried the abuſe ſo far, as muſt not only ſave people from being ſeduced, but bring the practice into contempt: ſuch monſters cannot poſſibly live long; if they have eſcaped the miſchief, who ought to have ſtrangled them ere they came to light, yet, if ever they ſtir abroad, they muſt infallibly be knocked o'the head.

HOW oddly will our practice in this reſpect look, when confronted with that of our neighbours? One of the moſt learned men, and beſt critics, of the laſt age, M. Menage, incurred infinite cenſure, for only endeavouring to introduce the ſingle word *proſateur*, and could not ſucceed in it; notwithſtanding that a word of that import was confeſſedly wanting in the French, and both the ſound and analogy of the new word were unexceptionable.

TO return.—The different ſtates of different arts are remarkable: ſome of them have been refined to a degree of ſubtilty that has ruined them; as metaphyſics, and logics: others have ſcarce had any culture, but lie waſte and over-run for want of it: as agriculture, &c. The groſſneſs of ſome is their fault; it being ſuch as diſguſts and forbids a delicate mind from purſuing them: in others, their ſubtilty and nicety is their bane, as leaving nothing for the mind to feed on. What meagre fare, for inſtance, are the ſchool rules, and doctrines of *mediums*, and *extremes*? &c. They furniſh us, indeed, with relations, and true relations too: but theſe ſo remote from all purpoſes of life, that they are in great meaſure inſignificant.

IT is certain, all our knowledge and arts ultimately refer to the great end of preſervation. The faculties of the mind, like thoſe of the body, were not given us for the mere exerciſe, or gratification, of them, but in ſubſerviency to farther purpoſes. Our knowledge is all originally a ſort of revelation; and the Divine Being reveals nothing to us for the mere vague ſake of our knowing it, but that it may miniſter to his ends, the being and well-being of his creatures. Our perceptions and notices are ſecond cauſes, or at leaſt occaſions, of what we do; and, no doubt, are under the direction of him for whom we do, whoſe glory is ſerved thereby. In reality, they all centre and terminate, at laſt, in our preſervation; and, according as they are farther from, or nearer to, this point, they are found fainter or ſtronger; very near, they are palpable and cogent; as they recede, they contiually abate of their clearneſs and evidence; and when arrived at a certain diſtance, they dwindle to nothing, and are loſt. At a great height from this centre, the nexus, or chain, whereby things are held together, and in virtue whereof we conclude from things known, to things unknown, becomes inſenſible; ſo that we loſe our hold, and wander on we know not where. Our faculties here falter; the objects they meet with are inadequate to them; the air grows too thin for reſpiration. But where we leave off, there, poſſibly, ſome ſuperior order of beings may take it up.

IN effect, the ſeveral arts have been cultivated to more or leſs purpoſe, as our preſervation is more or leſs immediately intereſted in them; and by this key one might almoſt venture to judge which arts are capable of being carried ſtill farther, and which not. Our knowledge of *very great*, and of *very little* things, is very imperfect, e. gr. of very great and little *objects*, *diſtances*, *ſounds*, &c. And the reaſon, no doubt, is, that there is but little relation between us and them; ſo that we are but little intereſted in the knowledge of them. Thoſe things we have neceſſarily and immediately to do withal, are made to our reach: for the reſt, it is no great matter what they are.

AND yet our curioſity has found means of making even theſe more cognizable than otherwiſe they are: we can, in ſome meaſure, alter the eſtabliſhed relation between our faculties and their objects, and make uſe of one law of nature to undo, or ſuperſede, another. Thus we can magnify a little ſound, or little body, or a little diſtance, &c. or we can diminiſh large ones; and thus make things, in ſome meaſure, adequate objects, that naturally are not ſo.

BUT there is no great advantage in this: we only, by theſe means, come at a better apprehenſion of things which nature ſeemed to put out of our way, for no other reaſon but becauſe they did not concern us, leſt we ſhould be engaged to miſtake, and run after things we had no buſineſs with, to the neglect of thoſe with which we have. Thus anatomy is found of leſs uſe in phyſic than at firſt ſight one would imagine; as being employed in taking things aſunder, and conſidering them in parts, which nature intended to act in conjunction. There is I know not what ſecret law, whereby the effect of a thing is, as it were, annexed to its integral ſtate; ſo that in proportion as you either diminiſh it, or enlarge it, its effect is altered, in a manner beyond what we can well account for, from the bare conſideration of magnitude.

ABUNDANCE of the leſs uſeful notices we find were kept back, and left to be accidentally turned up in courſe of time: ſuch as the knowledge of optic glaſſes, and their effects. This affords an illuſtration of the goodneſs of nature, in contriving, that things moſt uſeful and neceſſary ſhould be moſt obvious, ſo as to be almoſt diſcoverable by a ſort of inſtinct; and the other leſs immediately uſeful ones leſt to be accidentally turned up in the courſe of experiment and diſquiſition. We may admire her wiſdom ſtill farther in this, that ſhe ſhould, as it were, go out of her way, and annex a ſort of pleaſure beyond her main purpoſe, to the knowledge even of things not immediately uſeful, in order to engage us to induſtry and activity. This ſhews that ſhe has ends to ſerve by that very activity; and, perhaps, is the beſt demonſtration in the world of the neceſſity we are under to purſue knowledge: and may raiſe a ſuſpicion, that this very purſuit may poſſibly contribute to our preſervation, in ſome farther manner not yet attended to.

IT is no wonder the ſchool-philoſophy ſhould be carried to ſuch a length, conſidering the narrowneſs of its object, and the great number of hands to cultivate it, for ſo long a time. Its chief employment is in aſſigning and enumerating the characters and differences of our perceptions, taken as they are excited in us in the natural courſe of things; by which it is diſtinguiſhed from the modern philoſophy, which is chiefly employed in means to vary and modify theſe perceptions; and thus find out farther relations and differences than would otherwiſe have appeared. The philoſophers of the former kind are contented to take nature as ſhe comes home to them, and apply their reaſonings thereto without more ado: thoſe of the latter go out in queſt of her, to have more matter to reaſon upon. The former are more contemplative, the latter more active; the former, in fine, reaſon, abſtract, and diſcourſe, more; the latter, obſerve, try, and deſcribe, more.

HENCE we diſcover why the old is much more perfect in its kind than the new. The former has little to do but compare, order, methodize, &c. what is ready at hand; the latter has likewiſe to *find*. After which, all the labour of the other ſtill remains. The former takes nature in all her ſimplicity; the latter adds art to her; and thus brings nature into conſideration in all her diverſity: the former chiefly conſiders natural bodies in their integral ſtate; the latter divides and analyſes them: ſo that the former finds moſt of the principal relations; the latter many more curious and amuſing ones. Hence the former haſted to its perfection, and could not long hold out, for that its matter was limited: the latter can ſcarce arrive at perfection, ſince experiments are endleſs. To ſay no more, to have philoſophy complete, we ſhould have the order, preciſion, and diſtinctneſs, of the old; and the matter, the copia, of the new.

THE modern is yet wild, and unascertained: it is not arrived at the maturity of method; the mine is but just opened, and the adventurers are chiefly solicitous about the matter, to see what it affords; it will be long ere it arrive at a just extent, to give room and leisure for reducing it to regularity: not but the rules and methods of the ancients are, in some measure, applicable to the new, and will go a good way towards the arranging of it; but the present philosophers seem too warm and sanguine for such a business; and the farther they go on to dig materials, still the more difficult will the ranging of them be. This a man may be positive of, he never will see half the experiments and observations already made, employed in a system of physics.

BUT when that is done, much will still remain ere we have the chief uses of it. For physical knowledge, strictly considered, is only a means of arriving at a higher and farther kind. Histories, observations, and experiments of the kinds, order, strata, &c. for instance, of fossils, are useful things, as they tend to lay in a stock of sensible phenomena for the mind to work upon, digest, and draw new notices from, for the improvement of our own faculties, and the better conduct of life: but it is short-sightedness to forget this farther view, and look only to the things themselves. The bare acquisition of new ideas is no real advantage, unless they be such as are adapted to the circumstances of our wants and occasions, or capable of being made so. Knowledge, in its first state, is like food in the stomach, which may please and satisfy us, but is of no use to the body till farther prepared: it must be carried farther, and assimilated, ere it feed us. The modern philosophy is not so properly a philosophy, as the adv. or opening, of one: its matter has yet only undergone the first concoction: we are yet chiefly conversant about new physical relations, learned by sensation; whereas, to bring it to the perfection required, it must have undergone the farther operations of imagination and reason. Mere physics, as such, do not make a philosophy; those physics must first be carried up to metaphysics, and ethics, ere we can justly stop.

SENSIBLE phenomena, we have already shewn, are the foundation of philosophy; but the edifice will neither make any figure, nor afford much convenience, till it be carried one or two stories higher; it is but, as it were, the cellaring, or ground-work; which one would think were no very commodious place to live and spend one's time in: it is one extreme to take our lodging, as some virtuosos are contented to do, under-ground; and another, to reside altogether in the garrets, as the schoolmen may be said to have done.

THE school-philosophy, however, is of some farther use, as matter of history: we learn by it how people have thought, what views have obtained, and in what various manners the same thing has been conceived; which, though it be knowledge, as it were, once removed, yet is not entirely useless. The history of human thoughts is, no doubt, the most valuable of all others; it being this alone that can make the basis of a just logic: as physiology, of just physics. We must know wherein people have failed, or fallen short, or been deceived, to learn the reasons thereof, or be able to form rules for avoiding the like. The several opinions that have obtained, may be considered as so many phenomena of the human mind, which must be considered, and enquired into, to find its nature. This alone were enough to have engaged us not to omit that part of learning in the present work: though there were not wanting other circumstantial reasons, which had also their share; as the necessity hereof to the understanding, not only of the ancient writers, but even of the modern ones, who frequently combat, remark, &c. upon the ancient notions. To which it may be added, that abundance of our terms and phrases are derived from them, and therefore could not be so completely understood without them.

THE language of the ancient and modern philosophy is not very different: the chief diversity is in the different ideas affixed to the same words, and the different applications of them. And happy had it been for the moderns, had they formed a new set of terms, adapted to their new notions! By adopting the old ones, they have not only introduced much ambiguity and confusion, but have even lost the credit of many of their own discoveries, which now lie blended and buried among those of the ancients. One is at a loss to think what could induce the great philosopher of our age to retain the word *attraction* in the sense he has done. The stamp and impression it had already taken from the ancients, made it less fit to receive a new one; it could, at best, but take it imperfectly, and the result was, a promiscuous image, wherein we neither see the old nor the new distinctly. It is difficult for the imagination totally to divest a sound of its received meaning, and consider it as indifferent to all things, as much as it is to annihilate the characters on a piece of paper, and consider it as a mere blank. Accordingly, though the great author above mentioned explained over and over, in the clearest terms, the sense he affixed to his *attraction*, yet experience verifies how much he was overseen; the chief objections against his whole system having been drawn from misapprehensions of this very word, which keep half the philosophers in Europe still at a distance, afraid to admit a most excellent doctrine, merely out of distrust of the vehicle by which it is conveyed. But this by the way. The reader who desires to see farther, may turn to the articles ATTRACTION, NEWTONIAN PHILOSOPHY, GRAVITATION, &c.

WHAT has been spoken of the school-philosophy reminds us of *astrology*, the terms whereof are not omitted in this work. Were it only that it once obtained, is still extant in books, and has given occasion to abundance of terms and phrases adopted into other arts, it would have a title to be remembered. "The history of men's follies, says the inimitable Fontenelle, makes no small part of "learning; and, unhappily for us, much of our knowledge terminates there." But this is not all; and they who absolutely reject all astrology as frivolous, do not know it. Every art and science has its vanities and foibles, even philosophy, mathematics, and theology; and every one its good sense, even astrology. The heavenly bodies have their influences: the foundation, therefore, of astrology is good; but those influences are not directed by the rules commonly laid down, nor do they produce the effects usually attributed to them; so that the superstructure is false. Astrology, therefore, ought not to be exploded, but reformed. Indeed a reformation would reduce it into a little compass; but this little is too much to be lost, as it now is, among the heap of trumpery mixed with it. We have even been careful to preserve what is just and rational in the doctrines of *physiognomy*, *witchcraft*, and many other fanciful arts. The time was, when physics was not much more worthy the study of a man of sense than astrology now is; so that one might propose an *introductio ad famam astrologiam*, as a desideratum.

OUR Preface seems now grown into a Dissertation in good earnest: enough has been discoursed of the general nature and subject of the work; allow me now to descend a little more to particular and personal matters, and thus end my Preface, where I need not have wanted precedents for beginning it.

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WHAT has been said hitherto, has been on the advantageous side of my work: to acquit myself to the reader, it will be necessary I turn the medal, and represent some things which appear on the contrary side. The book, in reality, is not without considerable failings, of more kinds than one. The curious reader must expect he will here meet with omissions, and there with redundancies: here the method and œconomy are not kept to; there an article is imperfectly treated: here, a passage from some other language is not sufficiently naturalized; there, a sentiment of some other author is not sufficiently digested: here, in fine, the author was overseen; and there the printer.

ONE might palliate these objections, by alleging, that "they are things not peculiar to this "work, but extend to all the kind; that most of them arise, of necessity, from the very nature "and form of a Dictionary; and that many of them are not peculiar even to a Dictionary, but "are found in all extensive undertakings, and are appendant to the very best part of its design, "its universality." But, instead of extenuating, I had rather be taxed with inflaming and aggravating.

FOR *errors*, they cannot be very few, considering the hands through which most parts of our knowledge have passed, and from whom we are obliged to take many of our accounts! What one author, upon the shortest subject, can be produced, that has not his share of them? And what Argus could possibly see and correct the overlights in all the authors he had to do with? Scaliger, in his exercitations against Cardan, has shewn some twenty thousand in one small work; and no one imagines he has picked it perfectly clean. Yet Cardan was no ill author. Bayle's chief design in composing his Dictionary, was to detect the errors in Moreri; which he succeeded in so well, that his book has been called the *errata of Moreri*. Yet is not Bayle himself without his errors: a late writer has discovered some twenty-five in a single article of not quite so many lines. F. Hardouin, in the preface to his Nummi Antiqui Populorum & Urbium, says, it may be called *Errata Antiquariorum*; and yet M. Vaillant spied not less than three hundred errors at the first reading it over. So easy a matter is it to discover faults in others, and so difficult to prevent them in ourselves! The most learned Dr. ***** who offered to point out five thousand faults in the Lexicon of Hesychius, has been charged with committing forty-six in his emendations of the first book of Horace's Odes, besides many in the notes.

NOTHING of this kind can appear surprising, when we consider on what a multitude of sides a man is accessible to error! An author we trust to, deceives us—our own judgment betrays us—our attention leaves us for a moment—our very eyes and hands play us false—or, suppose we escape all these snares, an amanuensis shall bring us into the scrape; or, if we get clear here too, we are in imminent danger of miscarrying in the printer's hands.

IN a work of any considerable extent, and variety of matters, it seems impossible not to err. All the qualifications requisite for a faultless writer, scarce ever concurred in a more signal manner than they did in *Jos.* Scaliger, whose book De Emendatione Temporum is one of the chief performances in the whole compass of literature. Yet has F. Petau discovered, at least, a thousand slips in it!—Who then can be safe? He only who writes nothing, or next to nothing. If a Baronius will compile Annals; Du Pin, a Bibliotheque; or Baillet, Jugemens des Sçavans; what triumphs do they prepare for future Pagis, Simons, and Menages?

THE most we can say, is, that we hope there will be few errors found in the present work, in comparison with others of the like kind: many thousands we have corrected, both in the Dictionaries and other writings we have collected from, by means of the light which other parts of knowledge afforded; but after so large a harvest, no doubt, there remains a sufficient gleaning. We flatter ourselves, however, that what we have overlooked, the reader will frequently be enabled to correct, by the means here afforded; and that there will not be many errors found in the book, which the book itself will not help to rectify.

AS to *omissions*, there is scarce any avoiding them; and the more intelligent the reader is, the more of this kind he will necessarily discover. Indeed, I must own myself greatly a debtor on this score; and though at present insolvent, yet if the reader will give me credit, it shall be my endeavour to see all I owe discharged: if not in a lump, yet by a course of payments.

FOR *redundancies*, people will hardly be agreed about them. After one man has picked what he thinks fit of this kind, and laid it by, it is odds but a second taxes his temerity, and want of taste, and reflettes half of them to their places; and a third will, perhaps, be tempted to replace the remainder.

AS to *irregularities*, and breaches of method, I will not claim impunity on the score of being the first that has attempted to introduce any certain rules or method into this way of writing; but there will be, at least, this peculiarity attending my case, that I cannot easily be indicted for the breach of any laws but my own. I am liable, however, there is no point I have been more delinquent in, than this of method; and that the references, and necessary connexions between the parts, which *should shew their* relation, and help to put them together, are but too frequently either drops, by which the reader is left without his clue; or misplaced, by which he is put on a wrong quest.

THE *references*, it may be necessary to observe, are of two kinds; the one *real*, which direct to some other article, wherein the matter in hand is farther explained; the other *grammatical*, or *verbal*, serving to indicate some particularity relating to the name; e. gr. some synonym, paronym, opposite, etymon, or the like. The use of the former is palpable, as they are convenient about the relation of *things*; that of the latter is more obscure, as dealing only in the relations of *words*: yet are these as essential to the work, considered as a Dictionary, as the others are to it, considered as a body, or system.

AS to *falsehood*, and crudity, no doubt, there must be much of that kind, considering the short time to great a load of fruit had to hang and ripen. Much of it was gathered ere it could possibly be matured; so that it is no wonder it now-and-then tastes of the wood. But setting aside this; if a man may not be allowed to lay a good number of but indifferent things in the compass of five hundred sheets, I know not who would be an author.

LASTLY, as to there being little *new*, and of my own growth, I must here change my style; and, from confession, turn to vindication. The work is, what it ought to be, a *collection*; not the produce of one man's wit, for that would go but a little way; but of a whole commonwealth. If any person will undertake to write a Dictionary, even of some one particular art, from his own fund alone, a man may safely venture to foretel, that it will not be good for much. I do not pretend to

entertain

entertain my guests at this rate, with just what my own scanty granaries afford: the whole country is ransacked to make them the fuller banquet. Nobody that fell in my way has been spared, ancient nor modern, foreign nor domestic, Christian, nor Jew, nor Heathen: philosophers, divines, mathematicians, critics, casuists, grammarians, physicians, antiquaries, mechanics, have been all brought under contribution.

NONE of my predecessors can blame me for the use I have made of them; since it is their own avowed practice. It is a kind of privilege attached to the office of lexicographer; if not by any formal grant, yet by connivance, at least. I have already assumed the *bee* for my device; and who ever brought an action of trover or trespass against that avowed free-booter?

IT is vain to pretend any thing of property in things of this nature. To offer our thoughts to the public, and yet pretend a right reserved therein to one's self, if it be not absurd, yet it is sordid. The words we speak, nay, the breath we emit, is not more vague and common than our thoughts, when divulged in print. You may as well prohibit people to use the light that shines in their eyes, because it comes from your candle: even clap it in a dark lantern, and let us not be amused and dazzled by it: if we may not be the better for the good things, let us not be the worse for the ill and indifferent ones mixed with them.

WE see the same thought, which was first started in one author under a world of crudity, borrowed by another, become farther improved and ripened; and at length, being transmitted to a third, yield fruit in abundance. All plants will not thrive in all soils that will produce them; some languish in their mother beds: whence the gardener is under a frequent necessity of replanting, &c.

SOME persons, I know, condemn all use of Dictionaries, abridgments, and compilations whatever. The Scaligers, Salmasiuses, Huets, and other critics, protest against every thing that may tend to facilitate and shorten the course of study, as it tends, at the same time, to lessen diligence and application, to exempt men from the necessity of going to the fountain-heads, and thus renders them superficial. What we attain easily, say they, is lost again as easily: one of the chief fruits of study is, to cause men to labour and attention: what room is left for the judgment to act, where every thing is methodized, and laid in order? What occasion for the memory, where a man can immediately have recourse to every thing he wants? And who would burden his head with a stock of knowledge, which he can always keep by him on much easier terms? It is added, that the exact and profound learning of the ancient writers was chiefly owing to this, that they had no such helps; which obliged them to go painfully to the sources, and study their authors at first hand.

THIS is the common style of men of the first-rate erudition; and were it only directed to those who aspire to the same rank with themselves, it would undoubtedly be excellent. He who pretends to have a seat on that bench, must go to work the severe way: he must not study, e. gr. *antiquity*, in Dictionaries, or even in modern Systems, but in the ancient writers themselves; the *Jewish* antiquities, for instance, in the books of the Old Testament, Philo, Josephus, the Talmud, Maimonides, and the Rabbins: the *Grecian*, in Homer, the ancient tragedians, Aristophanes's comedies, Diodorus Siculus, Pausanias, Athenæus, and others: the *Roman*, in Livy, Dionysius Halicarnassus, and other ancients in both languages; the *Christian* in the Acts of the apostles, and the Greek and Latin fathers. These he is to be reading night and day, in order to arrive at the right understanding of them, meditating, and making frequent reflections on them, striving to penetrate into all their views; maturely weighing all the circumstances in them; and, lastly, comparing all with the hints, remarks, and improvements, suggested in the writings and comments of the more learned among the moderns.

ALL this, no doubt, is excellent. But there are not many subjects or branches of science that a man can thus go through! And the greater part of mankind consists of such as are not enough interested in any one, to be solicitous about so thorough and profound a knowledge of it. Add, that those who do, are forced, on many occasions, to make use of Dictionaries, and other helps; and that those who speak most contemptuously of them do the same, oftener than they care to own it.

IN reality, a reduction of the vast bulk of universal knowledge into a lesser compass (as I have elsewhere had occasion to observe) is of no small advantage to all those concerned in the acquisition of learning, that is, of all persons in general: for I know of no rank, condition, or even sex, that is dispensed from the necessity of cultivating and improving their own minds. By means hereof a stock of knowledge becomes attainable on easy terms, sufficient for the purposes of most persons, except those who make learning their more immediate profession; and for those too in most parts of science, except that which makes their immediate province. Such a design may perhaps seem most adapted to the uses of men of business, who cannot spend a deal of time; or of men of pleasure, who do not care to be at such pains in the pursuit of knowledge: but it would be no less advantageous to men of letters and study, whatever faculty or branch of science they devote themselves to; since Polymathy, or a general acquaintance with all the rest, is indispensably requisite to arrive at an excellency in any one, by reason of that near connexion which is between the several sciences, and the mutual lights they afford each other. And what a vast career does this open? what a multitude of books and subjects will they have to make their way through; and what helps are not requisite to facilitate to laborious a course? Without these, either a man's whole life will be in danger to be spent in preliminaries, and preparing himself for his province, or he must resolve to set out with less ceremony, exclude the numerous kindred sciences out of his scheme, and retrench himself within the narrow limits of a single one. This, it must be owned, is but too often done, to the no small dishonour both of learning itself, and of those who cultivate it. By this means the sciences become cantoned out into so many separate districts, and the due communication between them is cut off, by which each is defrauded of the improvements which might be derived to it from the rest. Hence, in great measure, the inferiority of the modern authors to the ancient. A narrow compass of knowledge, it is certain, will not enable a man to write with that dignity and masterhood, which is found in most of the ancient writers; who, besides the particular science they wrote on, were conversant in all the rest. Those who have the least acquaintance with the ancient method of study, know how severe they were on this head: a man was not allowed to be an orator, historian, poet, grammarian, or even architect, or musician, much less a philosopher, without the whole circle of sciences. The same we still find insisted on as necessary by later writers, though the difficulty of arriving at it is so much increased, and the modern *Cyclopædia* become so vastly more extensive, as well as intricate, than the ancient. How many new arts and sciences, and new appendages

pendages of old ones, come under consideration among us, that the ancients overlooked? How many languages, living and dead, is a modern obliged to learn, when a Roman or Athenian was thought sufficiently furnished with one, or two? And how many difficulties have we to struggle with, in the acquisition of their sciences; the ancient chronology, for instance, geography, or the like; from which they were free? We charge ourselves with the knowledge of their affairs, as well as our own; study minutely not only their sciences, but their most indifferent actions and customs, and their very words and phrases, which with us make spacious fields of learning, under the denomination of *antiquity* and *philology*. The dilemma then is apparent; either our talents and application must be greater, or our lives must be longer than those of the ancients; or else our proficiency must be less in proportion, unless some means be had recourse to, to expedite the same.

IN effect, a reduction of the body of learning is growing every day more and more necessary; as the objects of our knowledge are increasing, books becoming more numerous, and new points of dispute and inquiry turning up. For want of this, the sciences remain in great measure at a stand, or can advance only imperceptibly; since the whole life of those who should make discoveries, is spent in learning what is already found out. Hence, such improvements as are occasionally made, rarely arrive at any maturity, but terminate in hints, and imperfect openings, or in queries and proposals for farther inquiry. Most of the late discoveries in the sciences remain thus crude and imperfect; the whole vast systems of microscopical plants and animals, and telescopic worlds, of attraction, magnetism, electricity, and the like, remain as it were, in embryo. How many curious observations, and anomalous cases, are scattered in the writings of modern philosophers, which want to be reduced to systems? And what numerous lights are held forth in the writings of modern virtuosos, for supplying divers desiderata in the sciences, to no other purpose? How many operations are there, both of nature and art, of which we have imperfect notices, which want to be compared, and traced more minutely? Transmutations, petrifactions, reproductions of organical parts, recompositions of bodies from their principles, rectifications, meliorations, accelerations of growth, multiplications of species; to say nothing of transfusions, inoculations, injections, and the like; which are like to perish, as multitudes have done before them, for want of time to pursue them.

TO do justice to a *collection*, I mean a general and promiscuous one, it has its advantages. Where numbers of things are thrown precariously together, we sometimes discover relations among them, which we should never have thought of looking for; as the painter's and sculptor's fancy is frequently led on to the boldest and most masterly designs, by something they spy in the fortuitous sketches of chance or nature; insomuch that a celebrated Italian makes no scruple to lay this down as the first origin and occasion of all these arts. It is certain most of our knowledge is empirical, the result of accident, occasion, and casual experiment; it is but very little we owe to dogmatizing and method; which, as already observed, are posterior things, and only come in play after the game is started. It was, in all probability, the hand of chance, that first threw sulphur, charcoal, and saltpetre, together; and little did he, who thus produced gunpowder, imagine he was inventing a new art of making war.

IT is, indeed, surprising, to consider what slender experiments and observations many of the capital doctrines have arisen from: the blows of a smith's hammer on an anvil are said to have given rise to the musical notes; which Guido, a poor friar, perfected by what he observed in conning over his beads. The inventions of printing, of glass, of dying, of the dipping-needle, of phosphorus, of telescopes, of taffety, of antimony, &c. are supposed to have arisen in the like manner; as the reader may find under their proper articles; and how many more we know not, by reason the great obscurity of their first rise, ere they attained a degree of usefulness and perfection fit to be taken notice of, has buried the particular circumstances thereof. If we will hear the ancient Phœnicians and Egyptians, among whom most of the arts are supposed to have arisen, they all came from casual observations; geometry from the inundations of the Nile; the flight of the crane gave occasion to the invention of the rudder; the ibis taught to administer a clyster; the swallow to build; and the spider to weave, &c. In effect, a new observation, in some people's minds, prepared for it, is like a spark in an heap of gunpowder, which may blow a whole mine.

WHAT advantages may not philosophy be expected to derive from such a collection, or farrago, of arts, when it is considered, that every circumstance, every article of an art, is to be looked upon as a datum, a phenomenon, or experiment in philosophy? and that the least of them may possibly be the foundation of a new system?—To consider only the dying of cloth; or tanning, or currying, of leather; what is the whole process, but a series of physical effects, arising from new applications of body to body? And how many lectures will the philosopher have, from painting, gardening, agriculture, &c. touching planting, ingrafting, pruning, exposure, expression, walls, &c. which might never have come in his way but by such a chance? When a thing is once started, it may be applied infinite ways, and nobody knows where it will stop.

THROUGHOUT the whole of this work a particular regard has been had, both in the choice of the several heads, and in amplifying on them, to the extending of our views, and opening new tracks, new scenes, new vistas. We have endeavoured not only to furnish the mind, but to enlarge it, by placing it in a great variety of situations, and presenting to it the sentiments, notions, manners, customs, &c. of most ages, people, sects, &c. that have any thing new, unusual, or original, in them.

SUCH a variety of views, and manners of thinking, is a sure remedy against being too violently attached to any one; and is the best way of preventing the making of pedants, bigots, &c. of any kind. It may be said, that every art, every system, tends to give the mind a particular turn; and that the only way of maintaining it in its natural rectitude, is by calling in other opposite ones, by way of counter-balance. Thus what is unsufferable in the mere mathematician, critic, grammarian, chemist, poet, or herald, is qualified, and rendered amiable, by a due admixture of the rest.

THIS, indeed, is not the way to make a very great progress in any art; but at the same time it is the only way to hinder our being spoiled by any. Though this is only to be understood with regard to personal benefit; for no doubt the public is more benefited by the mere pursuers of particular arts, than by the general appliers to all; since, by the former, each is brought to greater perfection, and the mixture and temperament wanting in the individuals is found in the whole.

TO conclude: the ultimate view of a work of this kind should be, the forming of a sound mind, i. e. acquiring a system of perceptions and notions agreeing to the system of things, or in the relations

thereto intended by its author. The end of learning and ſtudy, is not the filling of our heads with other men's ideas; that is an enrichment which may prove for the worſe: richneſs is only a matter of ſecondary conſideration; ſoundneſs is the firſt. There are many manures which the huſbandman dare not uſe, by reaſon they would corrupt the land, at the ſame time they enriched it, and lay the foundation of a diſeaſe, which would in the end impoveriſh, and make it ſpend itſelf in unprofitable weeds. But it muſt be owned, men's heads are not ſo eaſily filled; the memory is not ſo tenacious as we may imagine; ideas are tranſient things, and ſeldom ſtay long enough with us to do either much good, or harm: ten to one but what we read to-day, is moſt of it forgot again to-morrow. And what chiefly makes new ideas of any ſignificancy, is their extending and enlarging the mind, and making it more capacious, and ſuſceptible. But neither is this enlargement the laſt aim; but is chiefly of uſe, as it contributes to the increaſing our ſenſibility, to the making our faculties more ſubtile and adequate, and giving us a more exquiſite perception of things that occur; and thus enabling us to judge clearly, pronounce boldly, conclude readily, diſtinguiſh accurately, and to apprehend the manner and reaſons of our deciſions. To which end ſeveral things may conduce, that are not ſo much direct matters of knowledge, as collateral to it; for inſtance, much of the ſchool-philoſophy, which, by exerciſing and exciting the mind, has a kind of inſtrumental tendency to ſharpen its faculties, and needs only be read, not retained, to produce its effect. But even this does not amount to the full and adequate end of knowledge: this is only improving the organ; and there muſt be ſome farther end in ſuch improvement. No man ſharpens his weapon on the ſole conſideration of having it ſharp, but to be the fitter for uſe. Briefly then, our faculties being only ſo many inlets whereby, and according to the meaſure whereof, we receive intimations of the Creator's will, and the effects of his power and action; all the improvements made in them, have a tendency to ſubject us more entirely to his influence and direction; and thus make us conſpire, and move more in concert with the reſt of his works, to accompliſh the great end of all things; in which our happineſs and perfection conſiſt; the perfection of a ſingle nature ariſing in proportion as it contributes to that of the univerſe.

CYCLOPÆDIA:

OR, AN

UNIVERSAL DICTIONARY

OF

ARTS and SCIENCES.

A.

A May be considered, I. As a LETTER; II. As a WORD; and III. As an ABBREVIATION.

I. A, as a LETTER, or the mark of a vocal sound, is the most simple, and that which the mouth and throat will easily suffer to utter.

To pronounce it clearly, we need only open the mouth wider than for any other sound, and then emit the air from our lungs. It is the first letter of the alphabet in all the known languages of the world, except in that of the Sclavonians; to which, according to Ludolfus, it is the thirteenth.

We must seek the origin of this, and the rest of our letters, in the Oriental languages. See ALPHABET and LETTER.

In the English language, the character A is the mark of three different sounds, which are termed by our grammarians, the broad A, the open A, and the close A.

1. Our broad A resembles the sound marked by the German A, and is found in many of our monosyllables, as *all*, *wall*, *call*, *talk*, where it is pronounced as in *ewig*, and *law*, as in *laus*.

It is probable that this sound was that which the Saxons sometimes expressed by the character A, as it is still, almost universally, retained in the rustic pronunciation and northern dialects of our language; as *mare* for *mill*, *more* for *mun*, *hawk* for *hank*, &c.

2. The open A of the English, is not unlike the A of the Italian, and is the sound marked by this letter in *father*, *rather*, &c.

3. The close sound marked by the character A, is peculiar to the English language, and resembles the sound of the French *e masculine*, or of that diphthong in *ai*, *au*, perhaps it is a middle sound between these, or between the *a* and *e*. Such we have in the words *place*, *face*, *wake*, and in all those that terminate in *ation*, as *salvation*, *profanation*, &c.

The sound of which A is the character in our language, is sometimes short; as in the words *can*, *man*, *hand*, &c. at other times long; as in *cane*, *mane*, &c. Their length is commonly denoted by an *Italian* letter placed to the *a*; as in *plate*, *cane*, &c. or by an *e* added at the end of a word; as in *plane*, *crane*, &c.

Some contend that there are four, others, that there are five distinct sounds, denoted by the character A in the English language. There are, perhaps, little variations and distinctions in the sounds marked by the character A, as well as by the other vowel letters in our alphabet; but they are so local or arbitrary, or, else all, so nice and subtile, that they entirely escape the notice of foreigners, and are barely distinguishable by the natives. Those who desire to enter more deeply into the first formation of sounds, and to see the elementary principles of speech treated with philosophical accuracy will find satisfaction in the ingenious treatises of Wallis and Holder.

In harmonic poetry, the letter A is sometimes added after words, to lengthen them a syllable, without altering their sense; as *home*, for *hame*, in Dryden, &c. It is sometimes redundant, when prefixed to words, as *wife*, *awake*; the same with *with*, *awhile*, &c.

In our calendar, A is the first of the *dominical* letters, which were introduced in imitation of the eight *nundinal* letters of the Romans, of which their A was one.

II. A is a WORD. This first simple sound is used in our language to express most of the different emotions of the soul. We naturally utter it on all sudden occasions of admiration, joy, anguish, apprehension of danger, &c. and where the emotion is very great, viz. A is enforced by adding an *h* to it, *ah!*

It is sometimes a noun, for we say, great A and little a; but it is most commonly a definite.

A, is also a pronoun, and denotes the number one; as man is among the *a*, as were one man. It is also used as an indefinite article; for we say, a man may conclude what he pleases, any man.

A, used as an article, has no plural signification; before a word beginning with a vowel, *y* and *h* excepted, and before silent *h* preceding a vowel, it is written *an*, which also is the contraction of *one*; as an harbour, an ox, an hour, &c. A seems to be a true and genuine preposition, in the three following cases. 1. When it is put before a participle or participial noun, denoting some action not yet accomplished; as I am *a* writing. 2. When it is placed before local surnames; as Thomas *a* Becket. 3. When it is used in computations; e. g. about, *about*, &c. Dr. Wallis supposes it to be a contraction of *at*; but Dr. Lowth thinks that *a* is the preposition *on*, and sometimes *of*. *At*, he says, has relation chiefly to *place*; *on* has a more general relation, and may be applied to *action*, and many other things, as well as *place*.

In some instances, A has a peculiar signification, denoting the proportion of one thing to another; as such income a year; so many hours a day; so much a man, &c.

III. A is also an ABBREVIATION. A put to bills of exchange, is in England an abbreviation for *accepted*, and in France for the word *avisé*. It is likewise often among merchants to mark their sets of books with the letters A, B, C, &c. instead of the numbers, 1, 2, 3, &c.

In the Roman inscriptions, the sense of the A is to be collected chiefly from the connection of the words, and the scope of the inscription. A finely stands for *ædilis*, *Augustus*, *agere*, *aiunt*, *ante*, *ab*, *ad*, *aio*, *annus*, *ars*, *aurum*, *aqua*, *aurum*, *amicus*, *ager*, *aut*, *aula*, *aulus*, &c. and by a more modern abbreviation for *annus*. Thus A. M. stands for *ab urbe Anno*, *Master of Arts*, and A. D. for *Anno Domini*, *Doctor of Arts*. A A. signifies *Annis*, and A A A. stands for *auro, argento, ære*. All stands for *ante hanc*, and A U for *ab urbe condita*, &c. On Greek and Roman medals, A denotes commonly the name of the place where they were struck; as Athens, Argos, Antioch, Apollonia. On French coins A is the mark of the mint of Paris, and AA signifies their coinage at Metz.

The Romans in their wills used their A to denote distribution; wherce Cicero calls it *littera fatidica & fatalis*.

Laws. Their manner was this: Three ballots were given to each judge, marked one with A for *absolvo*, *I absolve*; a second with C for *condemno*, *I condemn*; and the third with NL for *non liquet*, *it is not clear*. One or other of these, each judge according to his judgment, put into an urn; and the greater sequence or combination of letters, or the other in the order of their being drawn out, was the most common; if the numbers of the two first were equal, the accused was acquitted.

The Romans also made use of the letter A, in recording their suffrages in favour of any person. When a cause was propounded to the people, and all were come to agreement, each voter had two tablets put into his hand, the one marked A, signifying *absolvo*, I absolve; the other C, *condemno*, I condemn. *I absolve* and *I condemn* were also marked by the letters U. R. for *uti rogas*, as you ask; and by turning the *apex*, by putting the one, or the other, into the form A, in the days of Severus and Antoninus, all the criminal causes, and appeals for liberty, were written with a dash over it, thus A, signifying the timeform. The letter A was also used by chronologers and historians as an abbreviation for *ante*; as they put A. M. for *ante meridiem*, A. D. for *anno Domini*, &c.

The Romans dated from the building of Rome; and in their writings A. U. C. stands for *anno urbis conditæ*. The C. or the anno, As prefixed, to a word, is a genitive case particle. So Livy says it was done *anno* urbis conditæ *centesimo quinquagesimo*. Well, there it was also a numeral letter for a hundred.

Among logicians, A denotes an universal affirmative proposition.

In Algebra, A or a, and the first letters of the alphabet, represent known quantities, and the last letters represent unknown: thus $ax^2 + bx = c$.

In the *prolegomena* of physicians, A, or a, or an, denotes some part of the ingredients which are to a composition of the preparation and which is taken in the same quantity as another in the Greek receipt.

Among chemists, AAA signifies an AMALGAM, or the operation of amalgamating.

AABAM. Some of the Jewish rabbi's have also this word for the flood.

AAM, or CAAM, is a liquid measure generally used by the Dutch; it contains 128 *mingles*, each single mingle about 38 ounces avoirdupois; and consequently the *aam* is equal to 140 pints of Paris, or 120 pints of English wine measure. The *aam* just weighing 252 pounds, and that of England 256 pounds.

AARONICAL, in Sacred History, the lot of a Levite appointed to the Priest's office, and in Hebrew, שרת, of the tribe of Aaron's race, as distinguished from Levites, who were not of the race of Aaron's sons, which constituted the first and principal order of priesthood.

AB, in the Hebrew chronology, the eleventh month of the civil year, and the fifth of the ecclesiastical year, which begins with *Nisan*. The month is subject to the moon of *Tabi*, and consists of 30 days.

The ninth day of this month is observed as a fast by the Jews, in commemoration of the destruction of the temple by Nebuchadnezzar, in the year before Christ 588. Josephus observes, that the burning of the temple by Nebuchadnezzar happened on the fortieth day of the year on which it was afterwards burned by Titus.

ABACISTS, in the Greek Assembly, is the name of the 318 fathers of the council of Nice.

ABACUS, in Architecture, the uppermost member of the capital of a column, serving as a crowning to the whole. It is a kind of square table, supporting the architrave. Some of the Moderns call it *Tailloir*, or *Tailloir*, from its use in cutting meat. It is also called the *Plinth*, and sometimes the *Cymatium*. It is usually made square, and is always so in the Tuscan and Doric orders; but in the Ionic and Corinthian it is sometimes circular, and sometimes square with the sides bent in circularly. The height of the abacus is usually one-seventh part of the diameter of the column; but in the Tuscan order it is one-sixth, and in the Ionic and Corinthian one-eighth. The breadth of the abacus is usually equal to the height of the column, but in the Tuscan order it is one-seventh more than the height.

ABACUS, in Perspective, a plane parallel to the geometrical plane, on which the figure is supposed to be drawn.

ABACUS, among the Romans, was a sort of cupboard, or buffet, for plate.

The word is derived from the Greek ἄβαξ, which among that people, signified the same thing.

ABACUS, among the Mathematicians, was a little table covered over with dust, on which they drew their schemes and figures.

In the East, the word seems formed from the Phœnician עבק, *abak*, *dust*.

ABACUS *Pythagoricus*, a table of numbers, contrived for the ready learning of the principles of arithmetic; so denominated from his inventor, Pythagoras.

He has, from an agreement in point of use, the names *Abacus* and *Mensa* are used, among Latin and Italian writers, for arithmetic, or ABC, &c.

The *Abacus Pythagoricus* was, in all probability, no other than what we call a multiplication table.

Lindenius and Wedelius give us methods of performing the operation with the help of the *Abacus*; but they are too operose to commend them for practice. See MULTIPLICATION.

The *Abacus* for facilitating the operations of arithmetic is an instrument adapted to universal use in the art of arithmetic; whether it is to have reference to the method of computing by the fingers, counting agreed on, or figures (which is the most common way), or to the Indian method of performing by means of counters, or figures, wrought with the pen.

Hence the *Abacus* is distinguished into various kinds, according to the various sorts of nations, among the Greeks, Romans, Chinese, Georgians, French, &c. It consists, in point of facility, and circumstance of operation, in a table, cabinet, or frame of wood, or other of the same, or with a piece of linen, adapted to the performance in point of acquisition.

The *Abacus* is variously contrived; that chiefly used in European accounting, consists by drawing any number of parallel lines, at pleasure, at a distance from each other, equal to half the diameter of a counter, or counter-like. Here a counter placed on the first or lowermost line signifies 1; on the second, 2; on the third, 3; and so on the fourth, 4; on the fifth, 5; and so on. In the spaces between the lines, the same numbers signify half as much as in the lines; thus, a counter placed in the first space signifies 10, in the second 20, in the third 30, &c. By this contrivance the first line signifies 1, 10, 100, 1000, &c. the second 2, 20, 200, 2000, &c. the third 5, 50, 500, 5000, &c. the fourth 10, 100, 1000, 10000, &c. the fifth 20, 200, 2000, 20000, &c. and the sixth 50, 500, 5000, 50000, &c. By which means any sum, by placing of counters, is made. Wolf. Lex. Math.

The Gothic Abacus, &c. is a curious book, cut in oblong forms, invented by Gerard Langraave, described parallel to one another, and numbered with an equal number of little lines half, like the heads of a necklace. By this arrangement of the lines, differentiating the numbers into different circles, and observing the relations of the

the lower to the upper, all kinds of computations were easily performed. Mahudel, in Hist. Acad. R. Inscr. t. iii. p. 300.

The Roman *Abacus* was much the same with the Grecian, except that instead of strings, or wires, and beads in the Roman, we find plain and grooves for them to slide in. It is described by several authors; but notwithstanding all their descriptions, we should have had a very obscure idea of the ancient manner of reckoning, had there not been figures of it found among the ancient marbles. Phil. Trans. N° 180.

The Chinese *Abacus* equalizes, like the Grecian, of several series of beads strung on brass wires, extended from the top to the bottom of the instrument, and divided in the middle by a cross piece from side to side; so that in the upper row each string has two beads, which are each reckoned for five; and in the lower row each string has five beads of common values; the full being reckoned as 1; the second, as 10; the third, as 100; and so among us. Add, that instead of four pins for signs, or units, in the Roman *Abacus*, the Chinese have five beads. We have two different figures, and descriptions, of the Chinese *Abacus*, one given by P. Martinius, who had lived many years in China; the other by Dr. Bell, who copied it from a Chinese dictionary of the court-language. See Sand-Pan.

ABACUS *pythagoricus* is a rectangular table, or square, forming the right angle, wherein the numbers from 1 to 60, and its area, are produced in each row of the opposite numbers. This table is called a MULTIPLICATION.

ABACUS *of palmetta*, in the *Roman Mode*, denotes the machinery, wherein the strings of the polyplectra, or instruments of many strings, were strung, with a plectrum made of quills.

ABACUS *harmonicus* is used by Kircher for the structure and disposition of the keys of a musical instrument, whether they are to be touched with the hands or the feet.

ABACUS *Mobile*. A trough used in the mines, wherein the ore is washed.

ABACUS, or ASTRAGALUS, in *Architecture*, is the uppermost member of the capital of a column, serving as a kind of crowning, both to the capital and the whole column.

Many of our dictionary writers very erroneously make the *Abacus* to be the capital itself.

Vitruvius, and others after him, who give the history of the orders, tell us, the *Abacus* was originally intended to represent a square tile laid over an urn, to gather down a better than, covered over the top of an ancient; the plain flooring up the following forms, contemplated the bodies all around, till meeting with the tile, it curled back in a kind of scroll. Callimachus, an ingenious sculptor, pulling by, took the hint, and immediately executed a capital on this plan; representing the tile by the *Abacus*, the leaves by the volutes, and the basket by the vase, or body of the capital.—See *Tab. Archit. fig.* 21.

There is some difference in the form of the *Abacus* in different orders. In the Tuscan, Doric, and ancient Ionic, it is a flat, square member, well enough representing its original tile; whence the French call it *tailloir*, *tranchoir*. See *fig.* 22. & 27. See also TUSCAN, DORIC, and IONIC.

In the richer orders it loses its native form; its four sides or faces, being arched, or cut inwards, with some ornament, as a role, or other flower, or a fillet, in the middle of each arch.—See *fig.* 25. & 30. See CORINTHIAN and COMPOSITE.

But some architects take other liberties in the *Abacus*, both in respect of its figure, and other. Thus, in the Tuscan order, where it is the largest, and most massive, we taking up one third of the height of the whole capital, it is sometimes called the eye of the capital.—In the Doric it is not always the uppermost member of the capital; a cymatium being frequently placed over it.—In the Ionic, some make it a perfect ogee, and crown it with a fillet.

The proportion of the *Abacus*, as prescribed by Vitruvius, is, that its diagonal (from corner to corner) be twice its height. A rule which the moderns make no difficulty of dispensing with.

ABACUS is also used by Scamozzi for a concave moulding in the capital of the Tuscan pedestal.

ABACUS likewise, in the *Antient Architecture*, is used to denote certain compartments in the incrustation or lining of the walls of state-rooms, mosaic pavements, and the like. These were *Abaci* of marble, porphyry, jasper, alabaster, and even glass; shaped variously, square, triangular, and the like.

ABADIR, in the Roman *Theology*, the stone which Saturn swallowed, believing it his new-born son Jupiter, and which at length became deified, and the object of religious worship.

ABAFT, in the *Sea Language*, is used in speaking of things placed or done toward the stern, or under-part of a ship; called also *aft*, and stands opposite to *afore*. Thus they say a thing is *abaft* the fore-mast, when it is behind it, or nearer the stern than the fore-mast is. The post of the master, captain, and other officers, is *abaft* the main-mast.

The stern, strictly speaking, is only the outside; but *abaft* includes both inside and out.

ABAFT, the same thing with ABASE, although of different value; it is worth at Dublin, and throughout all Georgia, about 36 sols French money; four *chaouses*, which are also called Turks, make one *abaft*.

ABALIENATION, from *ab* and *alienare*, to *alienate*, in the Roman Law, denotes a species of alienation; whereby those goods called *res mancipi*, such as cattle, slaves, lands, and possessions, within the territory of Italy, were transferred to persons legally capable thereof, either by a *mancipation*, called *mancipatio vera*, or a surrender in open court.

ABALIENATIO, alienated from, a medical term, which, when applied to the body, signifies that the part is lessened, or in a manner destroyed; as a member is said when applied to the bodies, diseases their vast destruction.

ABANGA, the name which the inhabitants of the island of St. Thomas give to the fruit of the *cynomorium*, which is about the size of a quince, to which it bears great resemblance; it is also used as the lemon is generally, by the Greeks and Arabians. See ADU.

ABAPTISTON, or ANAPTISTON, is used to denote an instrument for the more expeditious and perfect cutting of the feathers, or preparing part of the instrument, called the *nib*, because it is generally contrived in such a manner as to prevent its cutting too deeply into the skull, and wounding the brain, when the bone is cut through.

It is derived from the negative *a*, and *baptizo*, *I immerge*. See TESTRAW.

ABARCA, an ancient kind of shoe used in Spain to pass the mountains, made of raw hides, and bound with cords, which secured them upon the foot.

ABARNABAS, is a term used by some of the alchemists, particularly *Zadith*, in the *Tabularium Chymi*, who tells us that it is the same as the *lac virginis*, or MAGNESIA.

ABARTAMES, hail.

ABARTICULATIO, in *Anatomy*. See DIARTHROSIS.

ABAS, a weight used in Persia for weighing pearls; being an eighth part lighter than the European CARAT.

ABAS sometimes signifies the EYE-SHOT. See TIMEA.

ABASED, ABASING, in *Heraldry*, is applied to the sun, or when it declines, when there are eight rays, four upon each hand towards the point of the shield; or when the wings are that are turned every way of bearing them being spread, with the tip pointing to the chief, or the middle.

A chevron, pale, bend, &c. are alſo ſaid to be *abaſed* when their points terminate in, or below the centre of the ſhield.

A gate, or ordinary is ſaid to be *abaſed*, when below its due ſituation.

ABASSI, a ſilver coin current in Perſia, worth two mamoudis, or four chayes; the chaye being eſtimated at nine ſols ſix deniers of French money, makes the *Abaſſi* worth thirty-eight ſols; ſeventeen ſols of Holland, or near eighteen pence Engliſh. It derives its name from Schah Abbas II. King of Perſia, under whom it was ſtruck.

ABAT-CHAUVRE, a name given in Poitou, Angoumois, Saintonge, Le Marche, and Limoſin, in France, to a ſort of very ordinary wood: much like that called by the French *peuplier*, and *tremble*.

ABATE, in *Law*, ſignifies to throw down; as, to *abate* a houſe.

In this ſenſe uſed to denote the act of one who ſteps into an eſtate, void by the death of the laſt poſſeſſor, before the heir can enter; and by that means keeps him out.

ABATE alſo denotes a defeat or overthrow, on account of ſome error or exception. See ARRAIGNMENT.

ABATE, in the *Manage*. A horſe is ſaid to *abate*, or take down his curvets, when he puts both his hinder legs to the ground at once, and obſerves the ſame cadences in all the turns.

ABATTEMENT, in *Commerce*, (from the French *abattre*) a term uſed for a retribution of trade to all French merchants in the ports of the Levant, who will not ſtand to their bargains, or who refuſe to pay their debts. It is a Cuſtom of the French conſul, which muſt be taken off, before they can ſue any perſon for the payment of their debts.

ABATEMENT, in *Heraldry*, ſomething added to a coat-armour, to diminiſh its proper value and dignity, and note ſome diſhonourable action, or ſtain, in the character of the perſon who bears it. It may be made by retention or diminution.

Retention is either turning the whole eſcutcheon aſide-down-

down; or the adding another escutcheon, inverted, to the former.

Diminution is the blemishing any part by adding a flaw, or mark of diminution: such are the delf, a point dexter, a point champaign, a plain point, a gore sinister, and a gusset. See each under its proper article.

It may be added, that the field is azure and always be either tawney or murrey; otherwise, instead of diminutions, they become additions of honour.

The last edition of Guillim affirms the whole system of *diminutions*, as a chimera. He alledges that no one instance is to be met with of such bearing; and that it implies a contradiction to suppose it. Arms, being assigned *ambitiosis & honoris*, cannot admit of any mark of infamy, without ceasing to be arms, and becoming badges of disgrace, which all would covet to lay aside. Add, that as an hereditary honour can be actually transmitted to another on the marks thereof. Both indeed may be forfeited; as in the case of treason, where the escutcheon is usually reversed, to intimate a total suppression of the honour.

Some authors, however, are produced to the contrary by Columbiere and others. But these, though they may owe some extraordinary testimonials of favour to offences committed in their practices, do not amount to a proof of such matter as justifies a mark to authorize the being of particular badges in the lands of inferior officers, or beings of arms.

In a word, as arms are rather the titles of the deed, than of the being, a special term, that they can neither have diminution nor offence; for thus an equal indignity would be put upon the gazelle and the dolphinden. Diminutions, therefore and *honoraries*, can only affect simple beings, and solely when the person who attaines them, is yet alive, and has furnished his former glass by his after misbehaviours. Even in this case, where *honoraries* may properly take place, it can only be made by the *suppression* of some honourable badge, and not by the introduction of any dishonouring emblem.

ABATEMENT, in *Law*, is the frustrating, or letting aside a suit, on account of some fault, either in the matter, or proceeding thereof. See *Plea in*.

ABATEMENT, is some exception alledged, either against the plaintiff's writ, as wanting due form, or against his count or declaration, as being insufficient, or varying from the writ, specialty, or record; or against the matter of either, as insufficient, or being before another court; or against the allegations, as being uncertain, or account of some misnomer, or the death of one of the parties, or the marriage of the plaintiff, being a woman; to which count and disability.—Upon any of these, the defendant prays, that the plaintiff's writ or plaint may *abate*, i. e. that his suit may cease for that time: if it be granted, all writs and proceedings must begin de novo.

The *death* of a party to a suit rules equally the writ before judgment, until the statute 8 and 9 W. III. c. 11. by which neither the death of the plaintiff or defendant shall *abate* it, if the action might be originally prosecuted by and against the executors or administrators of the parties; and if there are two or more plaintiffs or defendants, and one, or more, die, the writ or action shall not *abate*, if the cause of action survives to the surviving plaintiff, against the surviving defendant, &c. It also ceases an irregular entry upon lands.

ABATEMENT, in *Commerce*. See DISCOUNT and REBATE.

ABATEMENT, in the *Customs*, is an allowance made upon the duty of goods, when the quantity damaged is ascertained by the judgment of two merchants upon oath, and ascertained by a certificate from the surveyor and landwaiter.

ABATIS, or ABATIS, in *Writers of the Roman Art*, denotes an officer in the tables, who had the care and distribution of the provender. The name is derived from *Abatus*, the name of a master-worker of arms. Du Cange.

ABATIS, or ABATIS, from the French, *abattre*, to *fell* down, in the *Military Art*, denotes a heap of large trees thrown together, either lengthways or with their boughs, and disposed in guard entrenchments, to cover the passage of a river, or obstruct roads, &c.

ABATOR, in *Law*. See ABATE.

ABAVI, ABAVO, or ATAVISMI; large ears of hilleyes, which bear a fine like a gourd.

ABB, among Cartiers, denotes the yarn of a weaver's warp, or woof the wool of which it is made is called *Abb*.

ABBA, in the Syriac and Chaldaic languages, literally signifies a father; and figuratively, a superior, reputed as a father in respect of age, dignity, or office.

It was also commonly used as a title of honour, which some give to God, as he still retains it in the Protestant communion.

ABBA, ABB, or ABBE, a term, particularly used in the Syriac, Coptic, and Ethiopic churches, as a title which the people give their bishops.

The bishops themselves bestow the title *Abba*, more eminently on the patriarch of Alexandria; which also caused the people to give him that of *Baba*, or *Papa*, that is, grandfather; a title which he bore before the bishop of Rome. It is a jewish title of honour, given to certain of their chief Rabbins, called Tannites; and it is also particularly used by some writers of the middle age, for the superior of a monastery, usually called ABBOT.

ABBAISSEUR, in *Anatomy*, a name given by Winslow, and other French writers, to one of the muscles of the eye, called by others the *depressor* and *tormens*; and by Fabricius, the *cellus inferior*. Cowper and Albinus call it the *depressor oculi*; and it is one of the *recti oculi* of the last author.

ABBEY, the superior of an ABBEY, or convent of monks. The *Abbot* has the same rights and authority over the nuns, that the ABBOTS regular have over their monks. His law, indeed, does not allow him to perform the spiritual functions annexed to the priesthood.

F. Marsollier, in his treatise on the rights of the church, observes, that some *Abbots* have claimed a jurisdiction even over bishops, that their sacred character might exempt them from being the object of a secular or civil power.

St. Basil in his rule, allows the *Abbot*, to be present with the priest, at the confession of his sins.

ABBEY, or ABBY, a monastery, or religious house, governed by a superior under the title of ABBOT, or ABBESS.

In our ancient history, the word is sometimes also written MONKERY. By 31 H. VIII. c. 13. *Abbeys* are given to the king.

ABBEYS, mitre lands, or BISHOPRICS, in that case are to be under the direction of an *Abbot*, and the other of 1 priest, but about one prior two more a priest conventual, or much the same thing, and after in like sort the rest.

One third of the lesser benefices in England were anciently, by the popes grants, appropriated to *Abbeys*, and other religious houses; which, upon their dissolution in the 27th Henry VIII became forfeited. For an estimate of the number and value of religious houses, abolished and forfeited in this reign, see MONASTERY.

ABBOT, or ABBAT, originally derived from the Hebrew *Ab*, *father*, signifies the superior or governor of monks united into an abbey or priory.

Abbots were really distinguished from the clergy, though frequently confounded with them; because a degree above bishops. St. Jerom, writing to Heliodorus, says expressly, *nos monachos non ab ordine, sed a vocabulo*.

In the early days the *Abbots* were subject to the bishops, and the ordinary parish. Their monasteries being remote from cities, and built in the farthest islands, they had no other to be ordained abbots. They went out themselves to the parish-church with the rest of the people, and if they were too remote, which kept them from, in attendance the forenoons, till, at length, they were allowed to have priests of their own body. The *Abbot*, or archimandrite, himself was usually the priest; but his function exempted no further than to the outward observance of his monastery, and he remained still in obedience to the bishop.

The *Abbots* first wore off their former plainness and simplicity, and endeavoured to be independent of the bishops, which occasioned them divers laws to be made against them at the council at Chalcedon; insomuch arising thus, in time, many of them carried the point of independency, and got the appellation of *mitred*, with other badges of the episcopate, particularly of the staff.

Hence arose two species and distinctions of *Abbots*, *mitred*, and not *mitred*; *crosiered*, and not *crosiered*; *benedictine*, and *cluniac*, &c.

Abbots, *Mitred*, were those privileged to wear the *mitre*; and who allowed a full episcopal authority within their several precincts.—Among us, these were also called *Abbots of baronial degree*; and they were lords of parliament. Of these Sir Edward Coke reckons twenty-seven in England, whilst two mitred priors.

The rest, who were not mitred, were subject to the bishops.

Abbots, *Crosiered*, are those who bear the CROSIER, or pastoral staff.

Abbots were likewise distinguished into *Abbots regular*, and *abbots secular*; but are now chiefly distinguished into *titulary* and *commendatory*.

Abbots, *Regular*, are real monks, or religious, who have taken the vows, and were the heads of the ORDER.

Such all others professed to be; it being expressly provided by the canons, that none but *Abbots* have the command over monks.—But, in fact, it is found far otherwise; in France, as it is, there are now but six regular abbeys.

Abbots in commendam, are freedom though they have undergone

dergone the ordeale, and are obliged, by their bulls, to take orders when they come of age.

Though the same ceremonies subsisted, that they have in the administration of their abbeys for a time; yet do they lord, and reap the fruits of them for ever, as well the regular abbots.

Their BULLS give them a full power *hora ac die quibus quos ac quotiescunque*; and yet it is true that the common duties of office do not perform any spiritual offices; nor have they any spiritual jurisdiction over their monks. So that the phrase *in spiritualibus*, is rather founding of the Roman bulls, than a reality.

The ceremonies whereby abbots are created, is properly called benediction; or consecration, though chiefly, consecration.

It anciently consisted in clothing him with the habit called *cuculla*, a cowl; putting the pastoral staff in his hand, and the shoes called *pedalia*, or *sandalia*, on his feet. These particulars we learn from the *Ordo Romanus* of Theodore, archbishop of Canterbury.

ABBOT is also a title, which has been given to certain bishops, because their sees had originally been abbeys; and they were even elected by the monks: such are those of Canons and Montreal in Sicily.

ABBOT is also an appellation sometimes given to the superiors or generals of some congregations of regular canons; as that of St. Genevieve at Paris.

ABBOT is also a title borne by several magistrates, and other lay-persons. Among the Grecians, one of these principal magistrates was called the abbot of the people.

In France, particularly about the time of Charlemagne, there were several lords and countries, who having the superintendence of certain abbeys committed to them, were called *commendatory* abbots, or abbey-counts.

ABBREVIATION, in Antiquity, is the contraction of a word, or phrase, made by dropping some of the letters, or by substituting certain marks, or characters, in their place.

Lawyers, physicians, &c. are abundance of *abbreviators*, partly for the sake of expedition, and partly for that of secrecy. A full of the principal *abbreviations*, in the several arts and faculties, see under CHARACTER.

Of all people, the Romans are the most remarkable for this practice: in the their writings are unintelligible, without an explanation of the Hebrew *abbreviators*. The Jewish rabbins and copyists do not content themselves to *abbreviate* words, like the Greeks and Latins, by retrenching some of the letters, or syllables thereof; but they frequently take away all except the initial letters. Thus, for instance, for *rabbi*, they write RB. or RBI, or RBN, according to the place it is found in.

But still further, they frequently take the initial letters of several succeeding words, join them together, and adding points to them, make a barbarous sort of word, representative of all the words that produced them. Thus, *Kadisch Jaroch*, the title of Hebrew morning *prayers*, is called *Kaj*; and *Rabbi Abba ben Mamon*, is *Rambam*. Mercerus, David de Pomis, Schindler, Buxtorf, &c. have given explications of such *abbreviations*. The most copious collection of Roman *abbreviations*, is that of Sertorius Ursatus: *Notarum Explan. quam, ex variis Romanorum commentariis*.

ABBREVIATOR is more particularly used for an officer in the court of Rome, appointed as assistant to the vice-chancellor, for drawing up the popes briefs, and reducing petitions, when granted by the pontiff, into proper form, by being converted into bulls.

The *abbreviators* are supposed by Crompton, to be the successors either of the secretaries in the imperial household, or of the *breve scribæ*, said to have been placed by pope Clement I. in the seven quarters of Rome, to write down the acts of the martyrs within their respective districts. They are said to have taken those names, either from their writing the *breves*, *briefs*, or shorter epistles of the popes; or from their making use of notes, or abbreviations in writing. The latter opinion may seem the more probable, because the name is sometimes used by writers of the middle age, as synonymous with *notarius*, or *tachygraphus*.

The *abbreviators* at present make a college of seventy-two persons, divided into two ranks; one called *abbreviatores de parco minori*, who are twelve in number, all prelates; the other, *abbreviatores de parco majori*, called also *communes*, who may be as many. Crompton has two volumes on the institution, office, privileges, customs, &c. of the *abbreviators*.

ABBREVIATURE is also a term given by some authors to an ancient literary academy, supposed to have been at Rome, in the fifteenth century, and composed of the chief men of letters of the age, as Pomp. Lætus, Platina, Pontanus, Inessuretus, Sabellicus, &c. who, by the title of the society, changed their names at their admission: but for their so doing ancient Greek or Roman; but the existence of such an academy is very doubtful.

ABBREUVOIR, in *Heraldry*, the joint, or junction of two pieces; or the intention of space between two pieces, and filled up with mortar.

It is used in French, and literally denotes a watering-place.

ABECEDARY, ABECEDARIAN, or ABECEDARIUS, is sometimes applied to compositions whose parts are disposed of the order of the letters of the alphabet.

In the first ecclesiastics it is synonymous with *agnoscendi*. Thus we meet with abecedarian psalms, lamentations, prayers, and the like; chiefly among Hebrew writers; which makes it probable they were the inventors of this species of writ.

ABDALS, in the Eastern countries, a kind of saints supposed to be inspired to a degree of madness. The word comes, perhaps, from the Arabic, signifying the servant of God. The Persians call them *abdaldschi*, and speak of the Latins as of speaking of their prophets and *abdals*, *qui fecerunt Deum ex nihilo*, &c.

The *abdals* are often carried by crowds of mad, especially in the Indies, to run almost the streets, and kill all they meet of a different religion. The English sailors call this running a muck, from the name of the instrument, a sort of poignard, employed on this occasion. D'Herbel. Bib. Orient.

ABDELAVI, an Egyptian plant said to have a narcotic, except that the root is more cooling, and acute in the extremities.

ABDEST, among the *Mahometans*, a peculiar manner of washing, before prayer, entering the mosque, or reading the Alcoran; practised with many ceremonies both by Turks and Persians. The world is compounded of the Persian *ab*, water, and *dest*, hand.

ABDICARIA *propositio*, in Logic, is used for a negative proposition.

ABDICATION, ABDICATING, formed from *abdicare*, to renounce, the act whereby a magistrate, or person in office, renounces, and gives up the same, before the legal term of service is expired.

Abdication is frequently confounded with *resignation*, but, strictly speaking, there is a difference: *abdication* being done purely and simply, whereas *resignation* is done as in favour of some third person.

In this trade, Diocletian is said to have *abdicated* the empire; and Philip IV. of Spain *resigned* it. The parliament of England voted king James's visitation of the laws, and his quitting the kingdom, without providing for the due administration of affairs in his absence, to import an *abdication* of the crown. The lords would have had the word *desertion* made use of; but the commons thought it was not comprehensive enough, because the king might desert from the liberty of returning.

The lords call it a *forfeiture* of the crown, from the vote of commons.

ABDICATIVE, among Roman lawyers, is more particularly used for the act whereby a father disowned or disinherited his son, and expelled him the family.

In this sense, the word is synonymous with the Greek *αποκηρυξις*, and the Latin *exheredatio*, or sometimes *abjectio*, and *ejectio*; and stands opposed to *adoption*. It is distinguished from *interdictio*, or *abdicatio*, in that the former was done in the father's lifetime, and latter by will or his heirs, in that whenever was effected, was also disinherited; but not vice versa.

ABDITE *Causes*, are the secret or remote causes of distempers, which physicians of the dogmatic, or rational sect, attempt, were necessary to be known, in order to establish a right method of cure.

ABDOMEN, in Anatomy, the belly, or lower cavity or the part of the body comprehended between the thorax and the rump.

The word is derived from *abdo*, to hide.

Anatomists usually divide the whole trunk of the human body, which consists of the three principal regions, or cavities, the head, the thorax or breast, and the abdomen, which makes the largest part of the trunk, being terminated by the diaphragm above, and by the *ossa ilei* below.

The abdomen is lined internally with a thin, fine membrane, which, investing all the other viscera mentioned, is called the *peritonæum*, which see.

The abdomen contains the stomach, the liver, the spleen, the pancreas, the kidneys, the bladder, the intestines, the mesentery, the lacteal vessels, the lymphatics, the vena cava, the aorta, the emulgent vessels, the vena portæ, the receptaculum chyli, the ureters, the urinary bladder, and the organs of generation.

The abdomen is supported by the muscles of the back, the *musculi recti*, the *pyramidales*, the *obliqui descendentes*, and the *transversales*.

The abdomen is also covered with the *cutis*, the *membrana adiposa*, and the *tunica communis*.

The abdomen is subject to many diseases, as the *ascites*, the *tympanites*, the *hernia*, the *colica*, the *passio iliaca*, the *dysenteria*, the *diarrhœa*, the *cholera*, the *lienteria*, the *jaundice*, the *hæmorrhoids*, the *iliac passion

These muscles are the OBLIQUI *descendentes* and *ascendentes*, the RECTUS *transversalis* and PYRAMIDALES. See descriptions of the veins, arteries, and muscles, &c. of the *abdomen*, under their respective names.

The *abdomen* is subdivided into leſſer regions, or cavities; of which three are anterior, the uppermoſt, called the epigaſtric, commences from the diaphragm and *cartilago ensiformis*, and terminates two fingers breadth above the navel; the ſecond, called the umbilical, begins where the former ends, and terminates two fingers breadth below the navel; the third, called the hypogaſtric, deſcends as low as the *os pubis*. Each of theſe ſubdiviſions the moſt accurate writers divide farther into three parts; a middle, and two lateral ones; called the HYPOCHONDRIA. The middle part of the umbilical is called the *umbilicus*, or navel; and its lateral parts the *lumbi*, or loins: the middle of the hypogaſtric is called the *pubes* or *mons veneris*, and its ſides the *inguina*, or flanks. The whole may be called the *regions*, *abdominis*, *ſcilicet* regiones, and HYPOCHONDRIA, ſometimes called the lumbar regions. There is but one poſterior region, called *regio lumbaris*, which, is the poſterior part of the *abdomen*, comprehending all that ſpace which reaches from the loweſt ribs on each ſide, and the laſt *vertebræ* of the back to the *os ſacrum*, and the neighbouring parts of the *ilia* or *ossa*. Authors however are not agreed whether the hindpart be properly included in the *abdomen*, which ſome reſtrain to the anterior, or fore-part only.

ABDOMEN, *pathology of the*, or inflammations, abſceſſes, *fiſtulæ*, indurations, inflations, ſpaſms, &c. Hence the *abdomen* becomes the ſeat of divers operations; as perforations, ſutures, ſections, &c.

ABDOMEN, *wounds of the*, may be conſidered as of two kinds:

1. Such as affect the integuments only.

2. Such as affect the muſcles, together with the integument, without penetrating the *peritonæum*.

3. Such as with the other accidents penetrate into the cavity, without wounding any of its contents.

4. Such as penetrating into the cavity, wound ſome or other of its contents.

The firſt ſort, or ſuperficial wounds of the *abdomen*, are not eſteemed dangerous, and require no treatment different from other wounds. However Arnaud (lib. 3. cap. 4.) and Vigo (lib. 3. cap. 11.) agree in pronouncing ſmall mere bladder-like accidents, which are received within two or three fingers breadth of the navel.

The ſecond ſort are diſtinguiſhed from the firſt by the probe; for if the patient is carefully placed in the ſituation in which the wound was given, and the probe be introduced, it will generally paſs into the cavity of the *abdomen*, if the *peritonæum* is not injured. Another way of diſtinguiſhing theſe wounds fully is injecting warm water into them, and if it returns immediately, through, or near to the wound, to be only mucilage; but if any conſiderable quantity remain in the wound, the cavity is certainly penetrated. If the wound is large, great ſkill is required in the ſurgeon, eſpecially if it is neceſſary a tranſverſe, or oblique direction for the future be neceſſary, to keep the gaping lips of the wound together. Having taken theſe precautions, to preſerve the inteſtines and *peritonæum* in their natural ſituation, the wound is to be dreſſed with vulnerary baſſilicon, and an adheſive plaiſter; the patient muſt alſo be enjoined abſtinence, muſt have reſt, and his bowels muſt be kept open. In wounds of the *abdomen*, that penetrate into its cavity, the ſurgeon is firſt to examine very carefully, whether any of its contents partake of the injury. It will be found that this is not the caſe, if there is no great degree of weakneſs, hæmorrhage, pain, fever, &c. if on laying the patient upon the wounded ſide, there is no diſcharge of chyle, gall, excrement, or urine; if milk being injected warm, returns without any laceration in its colours; if the injecting inſtrument has not been very ſharp; and laſtly, if there is no vomiting or diſcharge of blood by the mouth, ſtool, or urine, nor ſwelling or hardneſs of the belly.

We have ſome very valuable remarks on the ſpontaneous ruptures of the *abdomen*, in the Medical Eſſays of Edinburgh, vol. v. art. 59.

There is a ſmall tendinous ſeam of the *cartilago enſiformis*, between the muſcles called *recti* and *tranſverſales*, into which on the left ſide, by violent vomiting, the ſtomach is ſometimes ruptured. This accident excites pain, which is greater when the patient is up, and ſuſpended by lying in a horizontal poſture; this circumſtance is the pathognomonic ſign of the diſeaſe, wherein which, in caſe of its continuing obſtinate, the ſkin muſt be laid open, and the rupture reduced in the ordinary manner.

ABDOMINALES, in the *Linnæan Syſtem of Ichthyology*, an order of FISH, having the ventral fins placed behind the pectoral in the abdomen, and comprehending fourteen genera and one hundred and ſeventy-ſeven ſpecies.

ABDUCENS *oculum*, [illegible] a name given by Spigelius to a muſcle, [illegible] called the *ſixth pair of nerves*.

oculum. This is the *locator oculi* of Albinus, the *commune et externum oculorum communis* of others.

ABDUCENT, *adjective*. See ABDUCTOR.

ABDUCTION, in *Logic*, a kind of argumentation, by the Greeks called *apagoge*; wherein the greater extreme is evidently contained in the medium, but the medium not ſo evidently in the leſſer extreme as not to require ſome further medium, or proof, to make it appear.

It is called *abduction*, from the *greater* extreme's being drawn from the conſideration; a draw'd name to prove the propoſition aſſumed.

Thus in the ſyllogiſm, "All whom God abſolves are free of ſin; but God abſolves all who are in Chriſt: therefore, all who are in Chriſt are free of ſin." The major is evident: but the minor, or aſſumption, is not ſo, without ſome other propoſition to prove it; as "God receives all ſatisfactions for ſin by the ſuffering of Jeſus Chriſt."

ABDUCTION, in *Surgery*, denotes a ſpecies of EXARTICULATION, wherein the bone moves in the manner of a door upon its hinges.

ABDUCTOR, or ABDUCENS, in *Anatomy*, a name common to ſeveral muſcles, whoſe office is the withdrawing, opening, or pulling back, the parts they are fixed to.

The names and compounds of *ab*, *from*, and *duco*, *to draw*. Theſe muſcles are called ABDUCENTES.

ABDUCTOR *auriculæ*, or of the little finger, ariſes from the annular ligament, and the third and fourth bones of the carpus in the ſecond rank; and is inſerted externally into the firſt bone of the little finger: it ſerves to draw that finger from the reſt; and alſo to bend it a little. See *Tab. Anat.* [illegible] *fig.* 3. *n.* 23.

In ſome ſubjects it appears divided into two or three muſcles, conſiſting of ſo many different ſeries of fibres.

ABDUCTOR *indicis*, or of the fore-finger, ariſes from the inſide of the baſe of the thumb, and is inſerted into the firſt bone of the fore-finger, which it draws from the reſt towards the thumb. See *Tab. Anat.* (Muſcl.) *fig.* 1. *n.* 12. *fig.* 2. *n.* 21. *fig.* 3. *n.* 8.

ABDUCTOR *minimi digiti manus*. See ABDUCENS *auriculare*.

ABDUCTOR *minimi digiti pedis*, or of the little toe, ariſes from the outſide of the *os calcis*, near the tuberous bone of the *metatarſus*, and is inſerted laterally into the outſide of the firſt bone of that toe, which it pulls from the reſt. See *Tab. Anat.* [illegible] *fig.* 3. *n.* 45.

ABDUCTOR *oculi*, or of the eye, is one of the four *recti*, or ſtraight muſcles, ariſing from the bottom of the orbit, and ſpread over the fore-part of the eye, ſerving to draw the eye towards the outer canthus.

ABDUCTOR *pollicis manus*, or of the thumb, ariſes from the annular ligament and firſt bone of the carpus; from whence paſſing the thumb, it is inſerted into the bone called *os ſcaphoides*. It draws the thumb from the fingers. See *Tab. Anat.* [illegible] *fig.* 3. *n.* 31. *Tab. Anat.* [illegible] *fig.* 2. *n.* 21. *Tab. Anat.* [illegible] *fig.* 3. *n.* 15. *Tab.* [illegible].

ABDUCTOR *pollicis pedis*, or *hallucis*, a name given by Albinus to a muſcle of the hand called by Winſlow, Cowper and others, EXTENSOR *primi internodii*.

ABDUCTOR *ſecundi internodii pollicis manus*, or *extenſor primus*, a name given by Albinus to a muſcle of the hand called by Winſlow, and ſome others, the EXTENSOR *primi*; and by the generality of Authors, by names but little expreſſive, as ANCÆUS or ULNÆ. Bidloo calls it *carpo-phalangæus primus*, and Spigelius, *cubito-ſub-phalangæus*. Cowper calls it the *extenſor communis alterius digiti*, and Douglas, the *ſecond pair commonly ſo named*.

ABDUCTOR *pollicis pedis*, or of the great toe, ſpring from the inſide of the *os calcis*, and the greater *os cuneiforme*, and is inſerted into the outſide of the cartilage of the firſt bone of the great toe. It ſerves to draw the great toe from the reſt. See *fig.* 1. *n.* 39. *fig.* 2. *n.* 39.

Some anatomiſts likewiſe reckon four *abductores* of the thigh. ABDUCTOR *femoris*, *primus*, *ſecundus*, or *tertius*, and *quartus*. The office of theſe four muſcles is to withdraw the thigh-bone, according to their different directions.

ABECEDARIAN. See ANABAPTISTS.

ABEL TREE, or ABELE-TREE, a ſpecies of poplar, with large leaves. This tree may be propagated by layers or cuttings, and alſo by ſuckers. Many advantages might be derived from planting it in boggy ſoils, where few other trees will thrive. The wood of it is uſeful for flooring or wainſcoting rooms; and it is preferred for cutlers uſes to any other, on account of its peculiar whiteneſs. The quick rate of its growth, is another that it will yield ſtems of eighteen or twenty feet long in a year, renders it eligible in plantations that are deſigned for ſhade or ſhelter.

ABELIANS, ABELONIANS, or ABELOITES, a ſect in Africa, not far from Hippo, which diſtinguiſhing ſect and practice were in many, and yet live with their wives

in

in a professed abstinence, without having any carnal commerce together. 1 Cor. vii. 29. "The learned have given points to discern the principle they went upon, and the reason of their abstinence, to each sex's peculiar. But, in effect, it is more than probable, they took their measure from Adam for no other reason, but because, like that patriarch, they had no (flesh) marriage to consummate after marriage; but because he was killed before he left married."

ABELICEA, the name of a very tall tree, growing principally in Crete, called alſo cupreſſus monſtrosa, and pinus cretenſis.

ABELMOSCH, a ſpecies of the okra, or Pelusa Cretica.

ABELMUSCH, or Abrumusk, the muſk-ſeed, a ſmall odoriferous ſeed brought from Egypt, chiefly uſed in perfumes. The beſt comes from Martinico.

ABELUITES, } See Abelians.
ABELONIANS, }

ABENSI, *Gaius*, a freed-man of the ſecond or third century, mentioned in the firſt book of the conſtitutions Liber.

ABERRATURIRE, Abberuncare, in *ſecond Lexicons*, ſignifies to murder that has been planned, or made private by a ſubſequent proceſs.

The word is Aper-ſcatere, compounded of *aper*, *proved* as cave; and *ſcatere*, *throw* or *remove*.

In this ſenſe, *aperſcatere*, called alſo *exterminare*, amounts to the ſame with *occidere* and *necare*, or *necare occulte* and *ſtrage*; and ſtrage applied to open murder, which was not attended formerly with the authority of the law.

Lambard explains *aberruncare* by *ſubmovere* and *tollere*, and *ſcatinus*, by *occidere*, *exterminare*, and *ſubmovere*, by *aperſcatere* and *aperſcatinus* by *aperſcatere* and *aperſcatinus* by *aperſcatere* and *aperſcatinus*

lord's improvements, because they mistook upon a pre-conceived theory of his own. At last, however, convinced of their reality and importance by Mr. Clairaut, he admitted; and soon after received further satisfaction from the experiments of M. Zeuner, of Petersburgh.

M. Zeuner demonstrated, that it is the *kind*, or the composition of glass, which gives it that remarkable property; that, while the refraction of the mean rays is nearly the same, that of the extreme rays confessedly differs; and by increasing the least, he produced a kind of glass, which occasioned a much greater separation of the extreme rays, than the first glass which Mr. Dollond had made use of, and to the same proportion considered the mean refraction. M. Zeuner, in the course of his experiments, made glass of mercury and flint, with a contrary or reverse effect; and found, that this mixture greatly diminished the mean refraction, without making hardly any change in the dispersion; and at length obtained a kind of glass greatly superior to the first glass of Mr. Dollond in the construction of telescopes. Hence it occasioned less loss or great a dispersion of the rays as the common glass, while the mean refraction was only as 2 to 3.

In 1758, Mr. Dollond made a further improvement in telescopes, by introducing new object-glasses of crown glass and one of flint. See Phil. Trans. vol. L. p. 733, 743; and vol. LV. p. 36. Hill. Ac. Par. 1750, p. 185, 622. Hunt, 1760, p. 192. Gaed. Mem. for XVI. p. 322. Ac. Berl. 1762, and 1766.

For a further account of Mr. Dollond's new refracting or achromatic telescopes, see the article TELESCOPE.

ABERRATION, *aberratio*, of, is a luminous circle, surrounding the real disk of the sun, and depending on the *aberration* of the *fixed stars*, whereby his apparent diameter is enlarged.

ABERSION, diet or duty.

ABESSI, the same as ABASSI: they signify the money that remains of the demesne, after the clyde is separated from it; that is, rent-corn.

ABESTOS, or ASBESTOS, the name of one of the sacred stones in the Persian Magic, which they attribute to their great founder Zoroaster, or Zeroadish.

The description, a commentary, or exposition of two other of their original books, called Zend and Pezend, together these contain the whole system of the religion or worship of Zoroaster. D'Herbel. Bibl. Orient. p. 911. Hyde de Rel. vet. Pers. c. 21.

According to Du Perron, the *Avesta* signifies the language of the original text of Zoroaster's works. Hill. Ac. Sc. Par. 1761. See SOUDEKUT and SHASTAH.

ABESTON, See ASBESTOS.

ABESUM, unbaked, or quick-lime. See CALX.

ABETTOR, or ABETTER, in Law, one who incites or encourages another to perform felonious criminal; or by some way aids him in the performance itself.

Thus those who procure others to lie and take oaths of felony, of murder against men, to render them infamous, are particularly denominated *abettors*.

So likewise in BURGLARY, are such as advise or procure a murder to be committed, or act steadily therein.

These are stiled in STEALING, but not in TREASON: the law looking on all these concerned in action as principals.

ABEVACUATION, in *Medicine*, denotes a partial evacuation of the peccant humours, either by nature or art.

ABEYANCE, or ABEYANCY, in *Law*, denotes something that only exists in expectation, or in the understanding, or remembrance of the law.

Abeyance, in our law, amounts to much the same as *reversio penes*, among the Romans, and *penes donatorem* or *donatum*, among the Greeks; L. 2. *Lex penes donatorem* or *reposita*, or rather *penes donatum reposita*. So civilians say land and goods do *jacere*; a common lawyer say, that things in like condition are in *abeyance*.

It is a maxim in law, that of every land, either there is a fee simple in somebody, or it is in *abeyance*. If either a freehold ceases by the death of a person, the freehold is said to be in *abeyance*, till a new person be instituted: for the person has not the fee, but only the right of purchasing it, the freehold itself being in the crown or the patentee, and therefore the fee is perpetually in abeyance.

ABGIL, in *Botany*, a name given by some to *Salvia*, or sage-tree, called Sirian, well known as a pot-herb in many countries.

ABIB, in the *Hebrew Chronology*, the name of the first month of their ecclesiastical year. The month was afterwards called Nisan, and answers to part of our March and April.

ABIES, in *Botany*, See FIR-TREE.

ABIETARIUS, See *pinetum*.

ABIETINUS, See RESINOUS.

ABIGEUS, or ABACTOR.

ABILITY is used, in *Law*, for a capacity of doing any thing, relating either to the acquisition of property or the performance of it.

Ability in the former consideration, with regard to property, is applied to persons, or executors.

Every person is supposed to be able, if not to have the power of having and disposing of estates, unless it appears out of statute.

The King's alien are to be able to inherit in England, wherefore sons and children of subjects born beyond sea, may inherit, if their birth were within the allegiance of the King.

ABINTESTATE, ABSQUETESTATO, in the Civil Law, is applied to a person who deceases intestate, or without a will.

ABIRRITATING, an internal remedy, denoting a being that, or extract, from all ANIRRITATIVES, or expedients of any kind.

The Abirritating, or thinning property, is said to arise to give the principles the more active power, by the removal of others for restoring their equilibrium between the living also to exempt the fluids to their common or new state in that comedies.

ABIT, or ABITE, Corn.

ABJURATION, in a general sense, the act of denying, or renouncing a thing in a solemn manner, and even with an oath.

The word is compounded of *ab*, from or away, and *juro*, I swear.

Among the Romans, abjuration signified the denying a debt, pledge, deposit, or the like, with an oath.

In modern times, abjuration is considered with greater propriety, and is distinguished from perjury, as the one is supposed not.

ABJURATION, among lawyers, is used for a solemn renunciation or retractation of some error, or opinion, as false and pernicious.

In one sense it is, to abjure a person, is to renounce all authority or dominion of such a person.

By the act of settlement, a person is not allowed ever to act any regal authority in the person called the Pretender, or ever to any time the inheritance of a subject. 12 and 13 W. III. 1 Geo. I. The articles of the oath required by these statutes are liable to misrepresentations, &c.

The oath of abjuration, by the 5th C. III. and 6 Geo. I. c. 53. is only and expressly to renounce, and disclaim, and abjure the pretended prince of Wales during the life of the late King James the Second, and from the year of pretended reign upon himself the title and style of King of England, by the name of James the Third, or of Scotland, by the name of James the Eighth, or the title and style of King of Great Britain, both and singular, or any whatsoever, to the crown of this realm, or any other dominions thereunto belonging. And I do sincerely profess, and adjure any allegiance or obedience unto them. And I do faithfully promise, to the utmost of my power, to support, maintain, and defend against all traitorous conspiracies, and attempts whatsoever, which shall be made against his person, crown, and dignity, and his successors, by the said pretended prince of Wales, or any other person whatsoever, or persons of or from any power or authority derived, or pretended to be derived, from him or them. And I do my best endeavour to disclose and make known to his majesty, and his successors, all treasons and traitorous conspiracies which I shall know to be against him or any of them. And I do faithfully promise, to the utmost of my power, to support, maintain, and defend the succession of the crown against the descendants of the said James, and against all other persons whatsoever, which succession, by an act, intitled, *An act for the further limitation of the crown, and better securing the rights and liberties of the subject*, is and stands limited to the princess Sophia, late electress dowager of Hanover, and the heirs of her body, being protestants. And all these things I do plainly and sincerely acknowledge and swear, according to these express words by me spoken, and according to the plain and common sense and understanding of the same words, without any equivocation, or mental evasion, or secret reservation whatsoever. And I do make this recognition and acknowledgment, abjuration, renunciation, and promise, heartily, willingly, and truly, upon the true faith of a Christian. So help me God.

An ABJURATION is the oath in use among Catholics, for an oath taken by a person guilty of heresy, who, flying to a place of sanctuary, would swear to forsake it's errors, and live in those of other communities. We also find abjurations of conspiracy, of crime, &c. for three years, for one year and a day, and the like. This, in some cafe,

reason be given, is, that the wound was the husband's property, who was destroyed, by the loss, the sole object of it; to prevent his being impoſed upon in the children he was to bring up. But theſe two laſt are moſt abſurd, who had been impregnated by others than their huſbands.

The foundation on which the practice is ſaid to have been allowed, was, that the fœtus was, as it were, was reputed as a part of the mother, ſuckt as one of her own viſcera, were ſtruck by the ſame power as over the reſt; beſides, that it was not reputed as a man, becauſe no ſenſe, otherwiſe than as a vegetable; unleſs, poſſibly, the ſame comment as little more than that of ſwearing merge here from the text. V. Jurat. Art. 6. n. 300. Scotus Comment. ad Sententiar Magiſtri, l. iii. d. 3. The laſt-cited author repreſents it as a peculiar grace of Heaven, that the ſoul ſo new, the other ſo recent, eſcaped the cruel fleſhy in their beauty and ſtate, deſtroyed the fœtus in his womb. Nequaquam ſine ſpiritu ſanctificationis ſuæ, poſſet infantem ante animationem ſuam occidere non poſſet ante ſuæ rationalitatis ſuæ, ne ante ſuæ rationalitatis ſuæ creationem ſuæ animationem.

The primitive fathers, Athenagoras, Tertullian, Minucius Felix, Auguſtin, &c. proclaimed loudly againſt the practice, as a mortal murder: Homicidam feminam ſit, præſtare non eſſe quod nascatur, quis dubitet? Nec refert natum quis occidat an nascentem. Several councils have declared againſt it. Yet we are told that the moſt Roman eccleſiaſtical laws allow of abortion before 40 days. Sigaus mentions the rules by which a diſtinction may be made.

The practice of artificial abortion is chiefly in the hands of women and matrons, rarely in that of phyſicians; and, in ſome countries, are not admitted to the profeſſion without ſwearing it. Hippocrates, in the oath he would have required of all phyſicians, includes this: and giving the ſame admonitions charge elſewhere he gives the reaſon of it, ſolicitude for himſelf preſented a mark to miſchance. The time for it is generally after impregnation at leaſt within the third or fourth month of pregnancy. The manner of effecting it is chiefly by medicines of the purgative, and ſtrobiliſative kind: Rarely external preſſure of the abdomen, or violent draught, frequent vomiting them. External violences are alſo ſometimes, but uncertain as to hoping from a blow, preſcribed by Hippocrates: or Ovum collapſum, and conſequent evacuations, have been frequently practiſed for the ſame end. Yet all the powers of medicine often fail in theſe cases abortive, by reaſon of the unnatural cloſe contraction of the orifice of the uterus, which has been known to hold out againſt the moſt violent means, ſyſternutics, fellations, and the like; againſt the ſtrongeſt purgatives and evacuations; againſt the ſtrikingeſt effects of terrors, fears, fevers, &c. againſt large quantities of crocus metallorum, antimonii, myrrhæ, ſantarum, the forms of medicine ſo-reſtrictive, &c.

The moſt leaſt method is by puncture of the uterus, with a pointed inſtrument for the purpoſe; but abſolutely wanting as, and unknown to the ancients. Fabricius mentions a midwife hanged at Paris, for killing a fœtus in the womb, by ramming a bodkin, or kind of needle, up the vagina, through the orifice of the uterus; by which miſcarriage was produced, but with ſuch ill effects, that the mother was ſeized with convulſions, and died miſerably. The examined midwife ſaid ſhe had received many bribes in the ſame manner, with good effect. One new and country eſpecially a peculiar inſtance, a woman having been four years ago executed among us for the like fact. Amatilius has a paſſage, which ſhews the ſame was practiſed in thoſe days, of others among the Indians, qui ſuppoſitis in genitalia caſtoreis, aut purgationibus appoſitis, partus excutiunt ſuboles ſuas interficiunt. The operation, conſidering the tenderneſs of the part, muſt be of the utmoſt danger. Hereabouts gives an account of what he obſerved in diſſecting a girl at Nuremberg, in 1712, who died of the operation which ſhe had performed on herſelf; the neck of the uterus appeared exceedingly diſtended, the ſeveral tunicles incurred and exceriated, the uterus itſelf inflamed and putrefied, &c.

Abortion may be procured by violently compreſſing the belly, the præcordia, the membranes, or the umbilicus. When the time of miſcarriage is juſt at hand, the pains are much the ſame as thoſe in labour.

Abortion is dangerous when the time of pregnancy is far advanced, ſo that the fœtus muſt be large; where the cauſe is very violent, or the patient ſtrongly conſtituted, and where a large hæmorrhage precedes, or enſues, or the fœtus is putrified, &c. Under other circumſtances it rarely proves mortal.

Abortion is alſo uſed, ſometimes ſimilarly, for a fœtus, which, dying in the womb, continues there beyond the natural term; ſometimes ſeveral years, and even during the whole life of the mother.

ABORTIVE, ſomething early born, or in the ſtate of a fœtus that arrived at its maturity and perfection.

ABORTIVE Bee, Queen abortive, is ſometimes uſed among the naturaliſts, as ſynonymous with exeſtous or ſpurious, to denote the inſects to which the ſame are given. In this ſenſe, the name is contrary to the magnificent epithet for that which end is ſaid to be long to reign, Regnum quæ nescit habere exercitum. See Exeſtous.

Among modern phyſicians, abortive fevers are chiefly underſtood of a kind of intermittings, which ſometimes precede, and bring on abortion, or other diſeaſes, and ſooth to the act of evacuation.

The cauſe is a ſudden ſeparation of the membranes from the uterus, which was firſt found to be effected by the ſeparation of the placenta, or ſecundine, or the cord. Thence the lightning and ſtroke of the phyſician. Thence the ſhivering and horror, the ſickneſs, the ſcobilitudines, or the ſtrikings before the eyes, ſhort returns occaſioned by abortive haemorrhages.

ABORTIVE herb, a deſcription of corn mentioned by Mr Tillet, and ſuppoſed to be occaſioned by putting it to grow long before harveſt, and ever ſo known by a ſuperiority in the ſtalk, the leaves, the ear, and even the grain.

ABORTIVE ſeaſon is much of the ſame as the laſt.

ABRA, a ſilver coin in Poland, nearly equivalent to the Engliſh ſhilling. It is current through all the dominions of the Grand Seignior, at the value of one fourth of the Holland's dollar, or about Ten-Cents.

ABRACADABRA, a magic word, recommended by the ancients Sammonicus, ſuppoſed to have the virtue of a charm or amulet, in curing agues, and preventing inflammation, particularly the fever called by the phyſicians ephemera.

To have this effect, the word muſt be wrote on paper, and repeated, omitting each time the laſt letter of the former, ſo that the whole may form a kind of inverted cone, in which there is this peculiarity, that whole words appear the ſame backwards as forwards, and the ſame from the right, and from the left hand; and, as many will have it, the ſame ſtanding as it is found in the firſt whole line. According to Julius Africanus, another manner exiſted, the pronouncing of the word in the ſame manner as we do now.

ABRAHAMIANS, or ABRAHAMITES, a ſect of heretics, who aſſumed the name of the Patriarch.

They took up the name from that of one Abraham, a native of Antioch, of the Arabs called Tachiens, who was alſo the author of their peculiar tenets in point of faith. The Abrahamians were about the end of the eighth century, and were ſuppreſſed by the vigilance of Cyrenus, patriarch of Antioch.

ABRAHAMITES is alſo uſed in Cox. Hiſtory, for a race of monks, who reſiſted death on the worſhip of images under Theophilus.

ABRAMIS, in Ichthyology, a name given by Belonius and others, to the cyprinus brama, or breme.

ABRANA, among ſtonemen with cloſets or pits of the habitations; or places, where the ſtone is to remain and harden as to be faſhioned to uſe.

ABRASAXAS, an antique in the form of a ſtone. See Abraxas.

ABRASION, in Surgery, and among Medical Writers, for the act of wearing away the natural mucus which covers the membranes, and particularly thoſe of the ſtomach and inteſtines, by ſharp corroſive medicines, or tumours.

The word is compoſed of the Latin ab, and rado, to ſcrape off.

ABRAUS, in Natural Hiſtory, a name given by ſome writers, to a ſpecies of eel-pout, called in England by the name of cunners, &c. to give a late account of new authorities, and new names; but I know of no Welſh, but miſtaken Saxon or Germans and Dutch.

ABRAXAS, a fictitious word, ſignifying a number which is produced when the ſeven Hebrew letters, the number of days in the week, and Egyptian letters, the number of days in the year.

Abraxas is a word of ſeven ſyllables, formed by ancient Gnoſtics or Baſilidians from the Greek letters, conſidered as numerical characters, according to the cuſtom of the Greeks, who expreſſed their numbers by letters of the alphabet; the values of which in the preſent word ſtands thus: A 1, B 2, R 100, A 1, S 200, A 1, X 600, which added together make the number 365.

The word is variouſly written, among modern authors, abraxas, abrasax, and ſome have added, by a corrupt pronunciation of the letter B and V, the abraxas, or as is found on all the Greek remains, as well as on ancient ſtones. Iſaac Caſaubon has abraxas, but the moſt uſual is abraxas, and the chapter in which the word occurs is only extant in Latin;

ABROTANUM, or ABROTONUM. See SOUTHERNWOOD.

ABRUGI. See ARROW.

ABRUS, in the *Materia Medica*, the name of a seed produced by one of the phaselus, or kidney-beans, and commonly called Angola-seeds.

ABSCESS, in *Medicine*, a kind of inflammatory tumour, containing purulent matter, pent up in a fleshy part, and corrupting and confuming the flesh, and other substance thereof.

Abscess is the same with what the Greeks call *apostema*, and the English *imposthume*, or *impostumation*.

Although all *abscesses* are the consequences of inflammation. The ripening of *abscesses* is promoted by poultices, &c. *Abscesses* are opened either by caustic, or incision; but the latter way is in most cases preferable.

Abscesses arise often in women after delivery; and though dangerous in themselves, yet they often appear to be the *crisis* of the disease, that gave rise to them. For the cure, if they cannot be discussed, i. e. carried off by proper artificial evacuations, as phlebotomy, purging, &c. with the occasional use of calomel, and gentle peripirative fotuses, liniments, and cataplasms; recourse is to be had to the contrary method, and they muft be brought to suppuration.

ABSCISSE, ABSCISSA, in *Conics*, a part of the diameter or tranfverse *axis*, of a conic section, intercepted between the *vertex*, or some other fixed point, and a femiordinate. See CONIC *Section*.

Such are the lines A P, A P, &c. (*Tab. Conics, fig.* 20.) intercepted between the vertex A, and the femiordinates PM, PM, &c. which are called *abscisse*, of the Latin *abscindere, to cut off*; as being parts cut off from the *axis*. Others call them *segmenta*, q. d. *secta*.

In the *parabola* the *abscisse* is a third proportional to the *parameter* and femiordinate; and the *parameter* a third proportional to the *abscisse* and femiordinate.

In the *ellipse*, the square of the femiordinate is equal to the rectangle of the *parameter* into the *abscisse*, fubmitting another rectangle of the fame *abscisse*, into a fourth proportional to the *axis*, *parameter*, and *abscisse*.

In the *hyperbola*, the squares of the femiordinates are to each other as the rectangles of the *abscisse* into another line, compofed of the *abscisse* and the tranfverse *axis*.

ABSCISSION, in *Rhetoric*, is a figure of fpeech, when beginning to fay a thing, we break off short, as fuppofing the matter fufficiently fignified, by what has been already faid. Cicer. ad Heren. lib. iv. cap. 35.

For an inftance: one of her fex, age, and beauty, to be feen alone, at fuch an hour, with a man of his character.—I need fay no more.

Abscission is a fpecies of ellipsis, or fuppreffion. Scaliger diftinguifhes it from praecision, and fufpenfion.

Aftrologers alfo fpeak of an *abscission* of the light of a planet, by another planet's paffing by it, and joining a third before it. *Abscission* is held a detrimentous.

ABSCISSION, in *Surgery*, denotes the act of taking away fome morbid or fuperfluous part by an edged inftrument. In this fenfe *abscission* amounts in the fame with the Greek ἀποκοπή. Cowper fpeaks of the *abscission* of a leg; which is more properly called amputation. The *abscission of the* prepuce makes what we call circumcifion. *Abscission* of the ears is a kind of legal punifhment, inflicted on perjury. In fome countries they alfo practife *abscission* of the nofe, on traitors in an army, as a punifhment reputed worfe than death.

ABSCISSION, in more propriety ufed for the operation of cutting away fome loft part of the body, when depraved, or grown horrid.

In which fenfe, *abscission* differs from amputation, in that the latter is of whole or bony part, the former of a fleshy or membranous one; yet they are fometimes confounded.

We fay the *abscission* of a nerve, lip, cheek, or the like. Mr. Shipton gives an inftance of the *abscission* of a portion of the jugular, not being mortal. Phil. Trans. N° 263.

ABSINTHITES, ABSINTHITUM, or ABSINTHIATUM, fomething tinged or impregnated with the virtues of *abfinthium*, or WORMWOOD.

Barthelin mentions a woman whofe milk was become *abfinthiated*, and rendered bitter as gall, by the too liberal ufe of wormwood. Act. Med. tome iii.

Vinum abfinthites, or peraithes abfinthiatum, wormwood wine, is much fpoke of among the ancients, as a wholefome agreeable drink, and even an antidote againft drunkenneſs; though fome have charged it with being offenfive to the head, and liable to cauſe fevers, cephalalgies, vomitings, uterine fluxes, &c. Ray alfo makes it a preventive of scurvy. The preparation is given by many. According to the common account, it is made by infufing the leaves of the plant in a quantity of wine. But Lehr fhews that it fhould rather be prepared by fermentation, in order to correct the crudities of the plant, and call forth its volatile falt. Paulli prepares it even without *abfinthium*. Dr. Bowle preſers the *aqua abfinthites*, or wormwood-water taken in a fmall quantity after meals, to the wine; as being leſs liable to affect the head, and fill it with vapours.

ABSINTHIUM, in *Botany*. See WORMWOOD.

ABSINTHIUM is alſo a name given by other plants, by different authors; as to dwarf *pharnacia*, with leaves divided like the leaves of wormwood; alſo to the Alpine *chamaecifus*, with fouthernwood-leaves.

ABSIS. See APSIS.

ABSOLUTE, in a general fenſe, fomething that ſtands free or independent.

ABSOLUTE, in *Metaphyſics*, denotes a being whofe whole eſſence does not conſiſt in a mere habitude or relation to another.

In which fenſe *abſolute* ſtands oppoſed to *relative* or *reſpective*.

ABSOLUTE is more particularly underſtood of a thing which does not proceed from any cauſe, or does not ſubſiſt by virtue of any other being, conſidered as its cauſe.

In which ſenſe, God alone is *abſolute*.

Abſolute, in this ſenſe, is ſynonymous with *independent*, and ſtands oppoſed to *dependent*.

ABSOLUTE alſo denotes a thing's being free from conditions or limitations.

In this ſenſe, the word is ſynonymous with *unconditional*. We ſay, an *abſolute decree*, *abſolute* promiſe, *abſolute* obedience. The covenant with Noah was *abſolute*, and without conditions; that under the Goſpel, on condition of faith and obedience. The Antinomians alſo hold the goſpel-covenant *abſolute*, and that Chriſt has purchaſed our ſalvation, without any conditions to be performed on our parts.

ABSOLUTE *government*, that wherein the prince is left ſolely to his own will, being not limited to the obſervance of any laws, except thoſe of his own diſcretion.

When the Dukes made their king *abſolute*, in 1660, they declared him abſolved from his coronation oath.

ABSOLUTE *number*, in *Algebra*, is the known quantity or number which poſſeſſes one entire ſide, or part of an EQUATION; being the rectangle or ſolid whoſe root or value is to be found.

Thus, in the equation $aa + 36a = 36$, the *abſolute number* is 36; which is equal to a multiplied by itſelf, and added to 36 times a.

This is what Vieta calls *homogeneum comparationis*.

ABSOLUTE *equation*, in *Aſtronomy*, is the ſum of the optic and excentric equations.

ABSOLUTE *ablative*. See ABLATIVE.

ABSOLUTE *motion, place, ſpace*. See the reſpective ſubſtantives.

ABSOLUTELY, in a general ſenſe, ſtands oppoſed to *reſpectively*. See RELATIVE.

Thus the terms of a propoſition are ſaid to be taken *abſolutely*, that is, without relation to each other. Man, conſidered *abſolutely*, and in himſelf, is a reaſonable creature.

ABSOLUTELY is alſo uſed for *unlimitedly* or *unconditionally*. In which ſenſe, the ſchoolmen oppoſe it to *ſecundum quid*. Thus a thing is ſaid to be *abſolutely*, and ſimply, good.

ABSOLUTELY is alſo uſed by *Divines*, in oppoſition to *declaratively*.

The church of Rome holds, that a prieſt can forgive ſins *abſolutely*; the proteſtants ſay, only *declaratively*, and miniſterially.

ABSOLUTELY, in *Geometry*, is taken for entirely, or completely. Thus we ſay, ſuch a thing is *abſolutely* round; in contradiſtinction from that which is only partly ſo; as a ſpheroid, cycloid, &c.

ABSOLUTELY, in *Grammar*; we ſay, a word is taken *abſolutely*, *abſolute ſumptum*, when it has no *regimen*, or government. Thus, in the phraſe, We ſhould pray without ceaſing, the word *pray* is taken *abſolutely*, as it governs nothing.

ABSOLUTION, ABSOLUTIO, in the *Civil Law*, &c. a definitive ſentence, whereby a perſon, accuſed of any crime, is acquitted, and declared innocent.

Among the Romans, the ordinary method of pronouncing judgment was this: after the cauſe had been pleaded on both ſides, the people aſked the word *diceruat*, q. d. they have ſaid what they had to ſay; then three ballots were diſtributed to each judge, marked as mentioned under the article A; and as the majority fell of either mark, the accuſed was *abſolved* or condemned, &c. If he were abſolved, the prætor diſmiſſed him with *vadatur non poſſe, ne vadetur poſſe*.

ABSOLUTION, in the *Canon Law*, is a juridical act, whereby a prieſt, as a judge, remits the ſins of ſuch as, upon confeſſion, appear to have the conditions requiſite thereto.

The Romaniſts hold *abſolution* a part of the ſacrament of penance: the council of Trent, ſeſſ. xiv. cap. iii. and that of Florence, in the decree *ad Armenos*, declare the form

form or essence of the sacrament to lie in the words of *absolution*, I absolve thee of thy sins.

The formula of absolution, in the Romish church, is absolute: in the Greek church, it is deprecatory; and in the churches of the reformed, declarative.

In the church of Rome there are divers other political *absolutions*; as,

ABSOLUTIO *ad cautelam*, which is necessary where a person has been witness to the execution of sentence of death on a criminal, or has any other way disqualified himself for the holding of a benefice.

ABSOLUTIO *ad cautelam*, is that granted to a person who has lodged an appeal against a sentence of excommunication, by which the force of the sentence is suspended.

It being a maxim, in the papal jurisprudence, that the sentence stands good, notwithstanding any appeal; this sort of *absolution* is sometimes granted until the issue of his appeal be known; by means hereof, some articles, at least, of his excommunication, are taken off; insomuch that persons may converse with him without danger: and, besides, in case of death, the sentence is supposed to be of some avail to him.

ABSOLUTISM, the *system* of God's acting absolutely in the affair of salvation: maintained by the CALVINISTS, for which, among other doctrines, the LUTHERANS reject all union with them.

ABSORBENTS, in a general sense, is used for such things as have the faculty of *absorbing*, or swallowing up others.

Alkies are an *absorbent* in respect of water, though not in the sense supposed by Aristotle, from whom we derive a vulgar error, that a pot full of ashes will still *absorb* as much water as if empty. Cloves are so evident an *absorbent* of moisture, that we are told, if care be not taken in the inspecting, to keep all water, wine, and the like, at a good distance from them, a certain quantity of cloves will, in two days time, drain a whole hogshead of wine. M. Homberg has a discourse on the quantity of acids *absorbed* by terrestrial substances, wherein he shews how much cold any known acids will strain. M. de la Hire gives an experiment for ascertaining the quantity of water *absorbed* by plants. Mem. Acad. R. Scienc. an. 1700. p. 81.

ABSORBENTS, in *Medicine*, remedies which, by the loftiness or porosity of their component parts, become proper to discharge the asperities of sharp pungent humours; or to imbibe or dry away, as with a sponge, superfluous moistures; and are of divers kinds; simple, compound, saline, sanguineous mucous, fixed, earthy, acid, alkaline, &c. In the *Pharmacopœias*, we meet with several forms of *absorbents*; such are the testaceous powders, hartshorn, coral, crab's eyes and claws, calcined bones, burnt ivory, *terra sigillata*, and even iron itself: also divers woods; as sanders, mullin, guaiacum, sassafras; and divers roots; as china, sarsaparilla, &c.

Absorbents consume the humours without soiling them, and have sometimes the effect of strengthening; sometimes of purgatives, ofterns of calomel, to allay fermentations. They are of use for tempering acrimonies, and, after emollients and aperients, for healing tumors: some hold them necessary for preventing the ill effects of bitters: they are good in cardialgias or heats of the stomach, and hiccups; they are also given in bellies and other chronical cases, as coughs, though with great caution and reserve. *Absorbents* have also their ill effects; especially if too lavishly given, being liable to many congestions in the *viscera*: they are hurtful in the itch, bilious fevers, dysenteries, hypochondriacal and hysteric cases, quartans, &c. according to some. Juncker.

They are generally prescribed as the only remedy for the acute diseases of infants, though held by others rather hurtful to children, by loading their tender viscera, and creating obstructions in the capillaries.

Particular kinds of *absorbents* have their particular effects; old cuttlebones are preferred for children; magnesias and compositions are least suitable, as being always made fermented with acids. *Absorbents* tempered with cold juices, as of citrons, are good in coughs and exanthems prepared with cinnabar in itches; with nitre, gypsum, in the bubeus; saline, in the itch; mariner in chronical cases of the head; in which last case, the cranny are hurtful.

They are sometimes applied to ulcers; but little to be observed, that the milder terrestrious *absorbents*, such as coral, &c. put into an ulcer, where a bone is carious, can have little other effect than to imbibe the matter of the ulcer; if they fall into any convulsion of the corrupted juice, they may remain so long there, that the matter they imbibe may become acrid. Lister in an *absorbent*, which has not this disadvantage. Hamon, in Med. Eff. Lond. vol. v. art. 24.

The taking of an immoderate quantity of crab's eyes, and other *absorbents*, for the heart-burn, has sometimes been attended with fatal consequences. See Phil. Trans. N° 439. fect 2.

Van Swieten in his comment on Boerhaave's Aphorisms, observes, that these *absorbent* powders ought not to be ground too fine, but rather left somewhat coarse, as they will be less apt to concrete and prove dangerous.

It is a necessary caution to drink diluting liquors with them; also to take gentle purges; as well for some time after they are left off, as during the use of them.

Astringents are much the same with what we otherwise call driers and sweeteners. Latin writers also use the word as synonymous with *anhidrotica* and *siccantia*.

The term *absorbent* is frequently confounded with *alkalies*, alkalies having, really, the effect of *absorbents*, with respect to acids.

ABSORBENT *vessels*, a minute kind of vessels, found in animal bodies, which attract and imbibe the nutritious, and other matters brought near their mouths.

These are sometimes also called *vasa seu venæ vessels*, and sometimes *absorbent pores*.

Absorbent vessels are found in all parts of the body, especially where the membranes lie open to cavities, as in the mouth, œsophagus, stomach, intestines, &c. A late author computes no less than 7000,000,000 in one square foot of the surface of the stomach; by these, mercury, plasters, and the like medicines externally applied, enter the habit of the body; to these are also owing the instantaneous effects of spirits, drams, water, &c. upon the body. The like vessels are also numerous in the skin; where they are supposed to imbibe the fluid matter floating in the ambient air, and convey them into the body. Mortimer. Exerg. Inaug. de Ingref. Humor. in Corp.

It has been said that there are no *absorbent* veins, and that absorption is performed entirely by the valvular *lymphatics*. But if this were the case, we should be continually subject to a *hydrocephalus*; because in the head no valvular *lymphatics* are found. It is plain that there are *absorbent* veins that open into the cavities of the body, because in the ulcers the extravasated water is frequently received into the circulation, and discharged by urine or stool. Dr. Hunter ascertains it by the following experiment on a living dog; an opening was made in the cavity of his belly, and three quarts of warm water injected and secured; five hours after he was examined, and not above four ounces of the water remained.

For farther satisfaction on this subject, consult Hunter's Commentaries, and Dr. Garnet's Observations on them, in the Medic. Mus. vol. ii. p. 229; and also Dr. Wilkinson, ibid. p. 217, &c.

Absorbent vessels are more particularly used for those lacteals which open into the sides of the intestinal tube, to imbibe the chyle in its descent from the stomach, and convey it into the mesenteric veins.

Nasmyth, Malpighi, Leeuwenhoeck, De la Hire, &c. speak of the like *absorbents* in plants; the fibrous or hairy roots of which are considered as a kind of *vasa absorbentia*, which attract and imbibe the nutritious juices from the earth.

ABSORDING, the act of sucking up, or imbibing another body. Sir Isaac Newton shews that black bodies *absorb* all the rays they receive, and that those rays of light which impinge against the solid particles of bodies are *absorbed* and lost: but it appears from some later experiments and observations of M. Bouguer, that this effect is to be attributed, not to the impact of light on the solid parts of bodies, but to the action of those power diffused over their surfaces. He found by repeated trials on the reflection of light, from the surface of water, and of different pieces of crystal, that a considerable quantity of light, when the angles of incidence were small, was actually extinguished. This effect, he observed, was diminished by increasing the incidence; to that, at an inclination to crystal or above 45° 49', a very small part of the rays were *absorbed*, though some few were lost, when they fell perpendicularly on the reflecting surface. See his Traité d'Optique. Paris, 1760.

ABSORPTION, in the *Animal Oeconomy*, is used for that power whereby the small open orifices of vessels imbibe liquors lodged in the cavities of the animal bodies. This, according to Dr. Monro, is observed to increase or diminish proportionably to the strength or weakness of the arteriole. Med. Ess. Edinb. vol. ii. p. 6, 2.

Fluids applied to the surface of the body are also absorbed through the minute pores of the skin, and the mouths of a set of vessels appropriated for this action; which, besides the property of capillary tubes, possess also a contractile power from irritation.

ABSORPTION *of the earth*, a term used by Kircher and others, for the sinking in of large tracts of land, by means of subterraneous commotions, and many other accidents.

Pliny tells us, that in his time the mountain Cymbetus, with the town of Eurine, which stood on its side, were wholly *absorbed* into the earth, so that not the least trace of either remained; and he records the like fate of the city Tamasia in Magnesia, and also it of the moun-

tain Sypelus, hath thus *absorbed* by a violent opening of the earth. Cabira and Garnaim, towns once famous in Phœnicia, are recorded to have flagged the same fate; and the vale promontory, called Hilegium, in Achaia, after a violent earthquake in the night-time, was not to be seen in the morning, the whole having disappeared, and the earth closed over it. These and many other histories, attested by the authors of great credit among the ancients, abundantly prove the fact in the earlier ages; and there have not been wanting such many instances of more modern date. Kircher's Mund. Subter. p. 57.

The mountain Picus, in one of the Moluccs Isles, was so lofty, that it appeared at great distances as an immense column reared erect in the air, and served as a land-mark to sailors; an earthquake in this island destroyed it, at one instant the whole mountain was *absorbed* into the bowels of the earth, and no mark of its place remained, but a salt lake of water exactly answering to the shape of the base of the mountain. A like accident, but of a more terrible kind happened in China, in the year 1556, when a whole province of the mountainous parts of that kingdom was in one moment *absorbed* into the earth, and all the towns buried, the whole number of the inhabitants sinking with it, and an immense lake of water remaining in its place to this time. Of much later date is the destruction of a city in the confines of Switzerland; but this, though gradually said to have been swallowed up into the earth, was not precisely an *absorption*, for the whole city was buried by the fall of a mountain upon it.

The burning mountains, Vesuvius and Strongylus, both once very high, have in length of time lost half their height, the upper part having been undermined by the burning, and having fallen into, and been *absorbed* by the under part. And in the year 1646, during the terrible earthquake in the kingdom of Chili, several whole mountains of the Andes disappeared, and were one after another wholly *absorbed* in the earth.

These, and a thousand other accidents of the like kind, prove the truth of *absorption* in general; some of them leaving level ground in the place of the things *absorbed*, some immense chasms and cracks, and some lakes of fresh or salt waters; and it may be that many immense lakes were formed in ages, of which we have no histories by the like *absorptions*.

Pliny gives many accounts of the restoring of places thus *absorbed*, but later observations do not give an equal credit to those parts of this history.

There are instances, however, of islands being produced, though we cannot affirm them to have appeared in the place of any which have been *absorbed*.

In the year 1638, an island was raised near St. Michael's in the Atlantic ocean, by subterraneous fires, which threw up stones and other subterraneous productions, in such quantities that they formed an island of five miles in length. The mountain raised in one night, in the sea near Pozzoli, is another instance of this sudden production of such mountains; this appeared after one night's violent subterraneous conflict, and still keeps its place, and is known by the name of Mons Sanctus.

ABSTEMIOUS, is properly understood of a person who refrains absolutely from all use of wine.

It is compounded of *abs*, *from*, and *temetum*, *wine*.

The history of Mr. Wood, in the Medic. Transf. vol. ii. p. 362. art. 18. is a very remarkable exemplification of the very beneficial alterations which may be effected on the human body, by a strict course of abstemiousness.

The Roman ladies, in the best ages of the republic, were all enjoined to be *abstemious*; and that it might appear, by their breath, whether or no they kept up to the injunction, it was one of the laws of the Roman civility, that they should kiss their friends and relations whenever they accosted them.

ABSTENTUS, among *Civilians*, is understood of an heir who holds by his time from taking on him an inheritance. Among *Ecclesiastical Writers*, the word is also used for a person excommunicated.

ABSTERGENTS, or ABSTERSIVES *medicines*, more usually called among physicians DETERGENTS, are cleansing *medicines* of a phlegmatic nature, capable of dissolving concretions formed of serum and oil, which some imply, to an obscure, cannot effect.

ABSTINENCE, in a general sense, the act or habit of refraining from something which we have a propensity to, or find pleasure in.

The word is derived from *abstinere*; formed of *abs*, *from* and *teneo*, *to hold*.

The Jews were obliged to abstain from their wives at certain times. The same is enjoined, in the Apostolical Constitutions, on all fasts and meagre days; the church of England recommends certain days of fasting and *abstinence*.—*Abstinence from fish* has been enjoined by statute ever since the Reformation, particularly on Fridays and Saturdays, and on vigils, and all commonly called fish-days, 2 and 3 Ed. VI. c. 19.—The like injunctions were renewed under queen Elizabeth, but at the same time it was declared, that this was done, not out of motives of religion, as if there were any difference in meats, but in favour of the consumption of sea-fish, and to multiply the number of fishermen and mariners, as well as store the stock of sheep. 5 Eliz. c. 5. The great fast, says Augustine, is to *abstain* from flesh.

The ancient athletæ lived in a perpetual *abstinence* from all kind of sensible pleasure to render their bodies more robust and hardy.

ABSTINENCE is more particularly used for a spare DIET, or a slender parsimonious mode of food.

The physicians relate wonders of the effects of *abstinence* in the cure of many disorders, and in protracting the term of life. The noble Venetian Cornaro, after all imaginable means had proved vain, by that his life was despaired of as forty, recovered, and lived to near a hundred, by mere dint of *abstinence*; as he himself gives the account.

Most of the chronical diseases, the infirmities of old age, and the short lives of Englishmen are owing, according to Dr. Cheyne, to repletion; and may be either cured, prevented, or remedied, by *abstinence*.

Among the brute creation, we see extraordinary instances of long *abstinence*.—It is the natural course of divers species to fast four, five, or six months every year, without either eating or drinking: accordingly the tortoise, dormouse, serpent, &c. are observed regularly to expire, at certain seasons, to their respective cells, and hide themselves: some get into the caverns of rocks, of trees; others go holes under ground; others get into the mud, and lay themselves up in the slime of rivers; others bury themselves under water, &c.

The serpent kind bear *abstinence* to a very great degree. We have seen rattle-snakes that have subsisted many months without any food, yet still retain their figure and sprightliness. Dr. Shaw speaks of a couple of *aspides* (a sort of Egyptian serpents), which had been kept five years in a bottle close corked, without any sort of food, unless a small quantity of sand, wherein they coiled themselves up in the bottom of the vessel, may be reckoned as such; yet, when he saw them, they had cast their skins, and were as brisk and as lively as if just taken.

In effect, several species of birds, the whole tribe almost of insects, and many among the other tribes, are able to subsist all winter, not only without food, but many of them without respiration too.—This furnishes an admirable instance of the wisdom of the Creator: the proper food of those creatures, especially the insect tribe, being then wanting, there is a provision for them to live without it. When the fields are divested of their flowery furniture, and the trees and plants are stripped of their fruits, what would become of such animals as are subsisted only by the produce of the spring and summer, and of others which are incapable of bearing severe colds? To prevent the total destruction and extirpation of many species of animals, the Author of nature has provided, that creatures, that have served of their food, should be likewise impressed with a power, to lead them thus to shelter themselves out of the way of danger; and that, when there arrived, the natural texture and viscidity of their blood should dispose it, by a further degree of cold, to log and stagnate in the vessels: so that the circulation stopping, and the animal functions being, in a great measure, suspended, there is no sensible waste or consumption of parts, but they remain in a kind of drowsy neutral state, between life and death, till the warm sun restores both them and their food together, by thawing the congealed juices, both of such animals and vegetables. The fact, however, is questionable; and will be more particularly considered hereafter.

It is more than probable, that all motion of the animal juices is extinct in flies, and other insects, when thus asleep; in that, though cut in pieces, they do not awake, nor does any fluid come out at the wound, unless some extraordinary degree of warmth hath been first applied to unbind the congelation.—The sleep of such animals is little else than death, and their waking a resurrection.—For if life does not consist in a circulation of the blood, we do not know what it consists in.

Hence it is no wonder that tortoises, dormice, &c. are found so fat and flashy, after long months *abstinence*, as before. Sir C. Lyttelton weighed his tortoise several years successively, as its going to earth in October, and coming out again, in March; and found that of four pounds four ounces, it only used to lose about one ounce. Vide Phil. Transf. N° 194.

It is to be added, that in most of the instances of long *abstinence* related by naturalists, there were apparent marks of a texture of blood and humours, much like that of summer beasts and insects; though it is no improbable opinion, that the air itself may furnish something for nutrition. It is certain, there are substances of all kinds, animal, vegetable, &c. floating in the atmosphere;

mosphere; which must be continually taken in by respiration: and that an animal body may be nourished thereby, is evident in the instance of vipers; which, if taken when first brought forth, and kept from every thing but air, will yet grow very considerably in a few days. So the eggs of lizards are also observed to increase in bulk, after they are produced, though there be nothing to furnish the increment but air alone: after the like manner as the eggs or sperm of fishes grow, and are nourished with the water. And hence, some say, it is, that cooks, turnspits dogs, &c. though they eat but little, yet are usually fat.

ABSTINENCE is also used sometimes to signify a *suppression*. Thus in Cœlius Aurelianus, *abstinentia fœtoris*, signifies a suppression of sweat. Sometimes in this author it means a *compression*; as *Spiritus ab abstinentiam clunium*, means the wind shut up in the intestines by compression, thereby causing the ILIAC *passion*.

ABSTINENTES, in *Ecclesiastical History*, a sort of people, in the ancient church, who carried *abstinence* and mortification so far, that they have been put in the catalogue of heretics; though wherein their error consisted is little agreed on.

Some represent the *Abstinentes* as the same with those otherwise called *Continentes*, and that they particularly enjoined *abstinence* from the use of marriage: others say, from flesh, and others from wine. Others will have them a branch of the GNOSTICS, and that their heresy consisted in holding flesh evil in itself, and created by the devil. Some make them the same with the *Hieracites*; others with the *Encratites*. They are said to have risen in Spain and the Gauls in the last century.

ABSTRACT, ABSTRACTUM, in *Philosophy*. See ABSTRACTION.

ABSTRACT *idea*, among *Logicians*, denotes an idea formed in the mind, when we consider a thing simply in itself, without respect to the subject wherein it resides; or it is a simple idea detached and separated from any particular subject or complex idea, for the sake of viewing and considering it more distinctly.

Thus, magnitude and humanity are *abstracts* or *abstract* ideas, when considered in themselves, and without being attached to any particular body, or person; though they cannot have any real subsistence without such subjects, nor the subjects without them.

Whiteness is an *abstract*, inasmuch as it does not denote any one white object, but that colour, or idea in the general, wherever found.

Abstract ideas are opposed to those which are concrete: the concrete denoting a general or *abstract* idea's being attached to some particular subject, or considered as combined with some other ideas: as, *great-house*, *white wall*. All one simple ideas, says Mr. LOCKE, have *abstract*, as well as *concrete* names: as *whiteness*, *sweetness*, *sweet*, &c. The like also holds in most ideas of modes, and relations: as, *colour*, *sin*: *equality*, *equal*, &c.

But as to our ideas of substances, we have very few *abstract* names at all. Those few that the schools have forged, as *humanitas*, *Homoeitas*, &c. bear no proportion to the infinite number of names of substances; and could never get admittance into common use, or obtain the licence of public approbation; which seems to intimate a confession of mankind, that they have no ideas of the real essences or substances; since they have not names for such ideas.

Indeed the reality and existence of all *abstract* ideas, and of any such faculty in the mind as *abstraction*, has of late been controverted.

ABSTRACT *terms*, are those made use of to denote *abstract* ideas. To which sense the words *whiteness*, *paternity*, *animality*, *justice*, *cowardice*, &c. are *abstracts*, or *abstract terms*.

ABSTRACT is also extended to divers other things, in respect of their purity, simplicity, subtility, &c. In which sense we say,

ABSTRACT *numbers*, which are allemblages of units considered in themselves, and not applied to denote any collections of particular sorts of things.

ABSTRACT *mathematics* are those branches employed about quantity considered absolutely, or in the general, without restriction to any certain kind, or species of it.

Such are *Geometry* and *Arithmetic*.

In this sense, *abstract* mathematics stand opposed to mixed mathematics; wherein simple and *abstracted* properties and relations of quantity delivered in the former, are applied to sensible objects; and by that means become intermixed with physical considerations. Such are *Hydrostatics*, *Optics*, *Navigation*, &c.

ABSTRACT is also used in matters of *Literature*, for a compendious view, or EPITOME of a larger work.

An *abstract*, is supposed to be a degree shorter, and more superficial than an abridgment.

ABSTRACTI, *abstracted*, in *Church History*, is a name given to a sect among the Lutherans, under the lead of Illyricus, a Pannian bishop, who stirred against Beza, "that Christ was to be adored not only in the concrete, "as the son of God, but that his flesh in the abstract was "an object of adoration," Wigandus prevailed so far against Hesshusius as to get him deposed; after words the *abstracti* gained the ascendant, and Wigandus was silenced. Micræl. Hist. Eccl. l. iii. f. 2. &c. Budd. Ing. Hist. Theol. l. ii. c. 7.

ABSTRACTION, an operation of the mind, whereby we separate things naturally conjunct, or existing together; and form, and consider, ideas of things thus separated. The faculty of *abstracting* stands directly opposite to that of compounding. By composition we consider those things together, which in reality are not joined together in one existence. And by *abstraction* we consider those things separately and apart, which in reality do not exist apart. *Abstraction* is chiefly employed these three ways. First, when the mind considers any one part of a thing in some respect distinct from the whole: as a man's arm, without the consideration of the rest of the body.

Secondly, when we consider the MODE of any substance, omitting the substance itself, or when we separately consider several modes which subsist together in one subject. This *abstraction* the *Geometricians* make use of, when they consider the length of a body separately, which they call a LINE; omitting the consideration of its breadth and depth.

Thirdly, it is by *abstraction*, that the mind frames general, or universal ideas: omitting the modes and relations of the particular objects whence they are formed. Thus, when we would understand a thinking being in general, we gather from our self-consciousness what it is to think; and omitting the consideration of those things which have a peculiar relation to our own mind, or to the human mind, we conceive of a thinking being in general.

Ideas framed thus, which are what we properly call *abstract ideas*, become general representatives of all objects of the same kind; and their names applicable to whatever exists conformable to such ideas. Thus, the colour that we receive from chalk, snow, milk, &c. is a representative of all of that kind; and has a name given it, *whiteness*, which signifies the same quality, wherever found or imagined. It is this faculty, or power of *abstracting*, according to Mr. Locke, that makes the great difference between men and brutes; even those latter must be allowed to have some share of reason; that they really reason in some cases, seems almost as evident as that they have sense; but it is only in particular ideas. They are tied up to those narrow bounds; and do not seem to have any faculty of enlarging them by *abstraction*. Essay on Human Understanding, lib. ii. cap. 11. lib. iii. cap. 3. Such is the doctrine of *abstract* ideas, under the improvements of that excellent author. In effect, it is the standing opinion, that the mind has such a power or faculty of framing *abstract* ideas or notions of things; and on such very ideas do a great part of the writings of philosophers turn. These are supposed in all their systems; and without them there would be nothing done. They are more especially reputed the object of logic, mathematics, and metaphysics, and all that passes under the notion of the most *abstracted* and sublime learning.

Yet has a late eminent and ingenious author, Dr. Berkeley, controlled the reality of any such ideas: and gone a good way towards overturning the whole system, and consequently towards setting philosophy on a new foundation. See a Treatise concerning the Principles of Human Knowledge, first printed in 1710.

The qualities or modes of things, it is on all hands agreed, do really never exist apart, and separated each from all others; but are constantly mixed and combined together, several in the same object. But, say the philosophers, the mind being able to consider each quality, singly, or *abstracted* from other qualities with which it is united, does by that means frame to itself *abstract* ideas, of a different nature and kind from the sensible ones.

For an example hereof; the eye perceiving an object extended, coloured, and moved, resolves this compound idea into its simple constituent ones; and viewing each by itself, exclusive of the rest, frames *abstract* ideas of extension, colour, and motion themselves, or in their own nature. Not that it is possible for such colour and motion to exist without extension; but only that the mind can frame to itself, by *abstraction*, the idea of colour exclusive of extension; and of motion, exclusive both of colour and extension.

Again, say the same philosophers, the mind having observed that in the particular extensions perceived by sense, there is something common, and alike in all; and some other things peculiar: as, this, or that figure, or magnitude, which distinguish them one from another: it can consider apart, or single out by itself, what is common; making thereof a general *abstract* idea of extension, which is neither line, surface, nor solid, nor has any figure or magnitude, but is an idea entirely prescinded from them all. So, likewise, by leaving out of the several colours perceived by sense, that which distinguishes them one

from another, and only retaining what is common to all, it makes an idea of colour in the *abstract*, which is neither red, nor blue, nor white, &c.—After the same manner by considering motion *abstractedly*, both from the body moved, and from the figure it describes, and all particular directions and velocities; an *abstract* idea of motion is framed, which equally corresponds to all motions whatever.

They add, that as the mind frames *abstract* ideas of qualities or modes, so does it, by the same faculty, obtain *abstract* ideas of the more compound beings, which include many co-existent qualities. For an example: Having observed that Peter, James, John, &c. resemble each other in shape, and other qualities; we can leave out of the complex idea we had of Peter, James, &c. that which is peculiar to each, retaining only what is common to all, and so make an *abstract* idea, wherein all the particulars equally partake. And thus it is we are supposed to obtain the *abstract* idea of man, or of humanity, or human nature; wherein there is indeed included colour, because no man but has some colour; but it is neither white, nor black, nor brown; because there is no one particular colour wherein all men partake. So likewise there is included stature, but then it is neither tall nor low, nor yet middle stature, but something *abstracted* from all these; and so of the rest.

Farther yet, there being a general variety of other creatures, which partake in some parts, but not all, of the complex idea of man; the mind leaving out those parts which are peculiar to men, and retaining only those which are common to all living creatures, frames the idea of animal; which *abstracts* or participates not only of all men, but all birds, beasts, fishes, and insects.

The constituent parts of such *abstract* idea of animal, are body, life, sense, and spontaneous motion. By body is meant, body without any particular shape or figure; there being no one common to all animals; without covering, either of hair, or feathers, or scales; nor yet naked; hair, feathers, scales, and nakedness, being the distinguishing properties of particular animals, and for that reason left out of the *abstract* idea. Upon the same account, the spontaneous motion must be neither walking, nor flying, nor creeping; it is nevertheless a motion. But what the motion is, it is not easy to conceive. "I will not affirm, says Dr. Berkley, that other "people have not this wonderful faculty of *abstracting* "their ideas; but I am confident I have it not myself. "I have, indeed, a faculty of imagining, or representing "to myself the ideas of things I have perceived, or of va"riously compounding or dividing them: I can imagine "a man with two heads, or the upper parts of a man "joined to the body of a horse. I can consider the hand, "the eye, the nose, each by itself, *abstracted* or separated "from the rest of the body. But then, whatever hand "or eye I imagine, it must have some particular shape "and colour. So again, the idea of a man I frame to "myself, must be either of a white, or a black, or a "tawny, a straight, or a crooked, a tall, or a low, or a "middle-sized man.

"I cannot, by any effort of thought, conceive the *abstract* "idea above described: and it is equally impossible for "me to form the *abstract* idea of motion, distinct from "the body moving, and which is neither swift nor slow, "curvilinear nor rectilinear. And the like may be said "of all other *abstract* general ideas whatever."

Since all things that exist are only particulars, "Whence, "says Mr. Locke, is it, that we come by general words, "or terms of a thousand individuals." His answer is, terms only become general, by being made the signs of *abstract* and general ideas; so that the generality of *abstract* ideas should follow from the reality of general words.—But, according to Dr. Berkeley, a word becomes general, by being made the sign, not of an *abstract* general idea, but of several particular ones, any of which it indifferently suggests to the mind.—For an example, when I say, that whatever has extension is divisible; the proposition is to be understood of extension in general; not that I must conceive any *abstract* general idea of extension which is neither line, surface, nor solid, neither great nor small, &c. To make this more evident, suppose a geometrician to be demonstrating a method of dividing a line into two equal parts: in order hereto, he draws, for instance, a black line, an inch long; and this, which in itself is a particular line, is nevertheless, with respect to its signification, general; since it represents all lines whatever; so that what is demonstrated of this one, will hold of all others.—And as that particular line becomes general by being made a sign; so does the name *line*; and as the former owes its generality, not to its being the sign of an *abstract* or general line, but of any of all particular right lines that may possibly exist; so must the latter derive its generality from the same cause.

But to this reasoning it has been replied, that the universality consists in the idea; and not merely in the name as used to signify, and recall into the mind, a variety of particular things, forasmuch that which is the immediate object of reflection; because how we no previous fixed notion what the name signifies, we could not know what particular things to apply it to, or assign any reason for applying it to one thing, rather than another. All that can be pictured in the imagination, as well as all that we take notice of by our senses, is indeed particular. And whenever any general notions are present in the mind, the imagination, at the same time, is commonly engaged in representing to itself some of the particulars comprehended under them. But it would be a very strange inference from hence, that we have none but particular ideas. As well might we conclude, that we have no other notion of any thing than of its name, because they are so associated in our minds, that we cannot separate them; or of the sun, than as a white bright circle, such as we see in the heavens, because this idea or phantasm is apt to accompany all our thoughts of it. See Dr. Price's Review of the principal Questions and Difficulties in Morals, p. 43.

Dr. Cudworth observes, that *abstract* ideas are implied in the cognoscitive power of the mind; and he pronounces the opinion, that they are only singular ideas annexed to a common term; or in other words, names without any meaning; to be so ridiculously false, as to deserve no confutation. See Eternal and Immutable Morality, book iv.

Mr. Locke speaking of the difficulty of forming *abstract* ideas, says: "And does it not require some pains and "skill to form the general idea of a triangle, (which yet "is none of the most *abstract* and comprehensive) for it "must neither be oblique, nor rectangular; neither equi"lateral, isosceles, nor scalenum, but all, and none of "these at once."—Now, let any man look into his thoughts, and try whether he has, or can attain to an idea of a triangle, correspondent to this description.

Dr. Campbell, in his Philosophy of Rhetoric, vol. ii. p. 195, exercises his apprehension, that the bare mention of this hypothesis is equivalent to a confutation of it, since it really contains nothing. He adopts the sentiments of Berkeley on this subject, and will allow to the mind no other power of *abstraction*, if the term be retained, beside that, by which a particular idea is regarded, as representing a whole order. Mr. Locke, he says, has, on some occasions, evidently inclined to the same opinion; in proof of which he refers to his Essay, book iii. cap. 3. § 11.

From the notion of *abstract* ideas, Dr. Berkeley endeavours to shew, it was, that bodies first came to be supposed to have an existence of their own exclusively and independent of the mind perceiving them.—"Can there be "a greater train of *abstraction*, says he, than to distinguish "the existence of sensible objects from their being perceived, so as to conceive them existing unperceived?

If there were external bodies, he says, it is impossible we should ever come to know it; and if there were not, we might have the very same reasons to think there were that we have now. His principal argument may be reduced to the following syllogism: Whatever is immediately perceived by sense, is an idea: sensible things are immediately perceived by sense: for the proof of which he appeals to experience: therefore sensible things are ideas; and consequently exist only in the mind. See his Dialogues between Hilas and Philonous.

The late lord Bolingbroke likewise controverted the existence of *abstract* ideas; and Mr. Hume, in his Essays, asserts that it is unintelligible and absurd to conclude, that the ideas of primary qualities are obtained by *abstraction*; and he has pursued Berkeley's reasoning to an extent, which he himself never intended, and represented all his arguments as merely sceptical, "because they admit of "no answer, and produce no conviction." He concurs with Dr. Berkeley in denying the existence of matter; and advances a step further, maintaining that the soul is merely a bundle of perceptions, and that there is nothing in the universe but impressions and ideas.

Some late Scotch writers, Doctors Reid, Beattie, and Stone, Oswald, with a view of obviating those sceptical inferences, which had been deduced from the principles of Mr. Locke, have, in opposition to these, asserted a new system respecting the nature and origin of our ideas, the outlines of which, with remarks, will be inserted under their proper heads, in the course of this work. See Ideas, Intuition, and Common Sense.

We shall only add, that *abstraction*, on the common system, is no more than generalising: it is making one thing stand for a hundred, by omitting the consideration of the differences between them: it is taking several differents, i. e. different combinations, setting aside the peculiarity

liarities in each, and considering only what is found alike in all.—Thus it is that I say, I love my friend, love my mistress, love myself, my bottle, my book, my ease, &c. —Not that it is poſſible I ſhould have the ſame perception with reſpect to any two different ſorts of things, things that ſtand in different relations to me; but only that there is ſomething in them all that bears a reſemblance to myſelf, in ſome circumſtances or other, I chuſe to call it by one name, *love*. For if I conſider the nature and effects of them all, I ſhall find they lead me to different ways, to very different actions; all the reaſon of which is between them, as a ſort of pleaſure or [illegible] ſtriking upon the application of the particular [illegible] proper organ, or ſenſe.—The *abſtract* idea [illegible]on, will terminate in the idea of pleaſure: but it is certain, there can be no idea of pleaſure without a thing pleaſant to excite it. Any other *abſtract* idea of pleaſure, will amount to no more than a view or perception of the circumſtances where with our pleaſures have been attended; but theſe are mere externals foreign to the pleaſurable ſenſation itſelf; which nothing but an object applied in ſuch and ſuch a manner can excite.—I ſuppoſe an idea of pleaſure produced indirectly, by any other than by the proper cauſe, is as abſurd as to ſuppoſe an idea of ſound, produced without a ſonorous object. The mind has no power of making any ideas, call them what you will, whether *abſtract* or *concrete*, or *general*, or *particular*: its activity goes no farther than to the perceiving of ſuch as are preſented to it, ſo that its action is really no other than a degree of paſſion.

ABSTRACTION, in *Chemiſtry*, denotes the drawing off, or exhaling away, a menſtruum from the ſubject it had been put to diſſolve.

Some alſo uſe the word as ſynonymous with DISTILLATION, or even CIRCULATION.

ABSTRACTITIOUS, or ABSTRACTIVE, is applied by ſome modern *Chemiſts* to a ſpirit drawn from vegetables without fermentation.

In which ſenſe *abſtractitious* ſpirits are ſynonymous with natural ſpirits, and ſtand oppoſed to fermentative or artificial ones.

Such ſpirits are chiefly procured from plants which abound in volatile ſalt. The *abſtractitious* ſpirit of ſcurvygraſs is preferred to that procured by fermentation.

All the native ſpirits of aromatic plants are called *abſtractitious*.

ABSTRUSE, denotes ſomething deep, hidden, or far removed from the common apprehenſions, and ways of conceiving; in oppoſition to what is obvious and palpable.

The word is of Latin original, *abſtruſus*; formed of *abs*, *from*, and *trudo*, *I thruſt*.

In this ſenſe *Metaphyſics* is an *abſtruſe* ſcience; and many ſpeculations of *Mathematics* are likewiſe *abſtruſe*.

ABSURD, ABSURDUM, a term applied to any action or ſentiment that thwarts, or goes contrary to ſome evident truth.

Thus, a propoſition would be *abſurd*, that ſhould affirm, that two and two make five; or that ſhould deny them to make four.

The *Logicians* and *Mathematicians* have a way of proving the truth of a propoſition, by ſhewing that the contrary is *abſurd*.

This they call

Reductio ad ABSURDUM, or *argument ab abſurdo*.

Abſurd, when applied to actions, is ſynonymous with *ridiculous*.

ABSURDITY, a kind of error or offence againſt ſome evident or generally allowed truth or principle.

The greateſt of all *abſurdities* is CONTRADICTION.

The ſchoolmen make two ſpecies of *abſurdities*.—The one, *abſolute*, *actual*, which contradicts the common ſenſe of mankind; the other *relative*, *real*, which gives the lie to ſome one or more philoſophers, or perſons of great weight and authority.

In this ſenſe the doctrine of a vacuum is an *abſurdity*; as being contrary to Ariſtotle: and that of a vacuum, as being contrary to Sir Iſaac Newton.—In effect, there is ſcarce one truth of any moment, that is not an *abſurdity* in ſome ſenſe; as being repugnant to the ſyſtem of ſome ſect, or party.

As reaſon conſiſts in the due uſe of names and words, *abſurdity* conſiſts in the abuſe of them. The higheſt of all our faculties, and our failings, take their riſe from the ſame thing, language: and are as it were coupled together, to temper each other, and reduce human nature to a kind of mediocrity.

Hobbes aſſigns *abſurdity* as a privilege peculiar to man, and which no other creature is capable of: he adds, that of all men, thoſe called philoſophers are moſt expoſed to it. Whence the ſaying of Cicero, there is nothing ſo *abſurd* but has been ſaid by a philoſopher, *nihil tam abſurdè dici poſſit, quod non dicatur a philoſopho*. The reaſon ſeems to be, that of all men they reaſon, and diſcourſe moſt. Yet a nearer and more apparent cauſe may be aſſigned, *viz.* their neglect, at leaſt in part, to examine the terms they make uſe of, i. e. to affix the preciſe idea each is made to repreſent; which is much like a man's undertaking to number, without knowing the value of the numeral figures; reaſoning, according to the author firſt cited, being no other than computing. Divers *abſurdities* alſo ariſe from the wrong connecting of names into propoſitions; as firſt, when the names of bodies are applied to accidents; or the names of accidents to bodies: as in that propoſition, "faith infuſed, or inſpired" ſince nothing is either infuſible, or inſpirable, but body: and the ſame *abſurdity* the Cartheſians fall into, when they make extenſion to conſiſtute body, &c. Secondly, when the names of accidents inherent in external bodies are attributed to accidents of our own bodies: as when it is ſaid, that colour is in the object, ſound in the air, &c. Thirdly, when the names of bodies are attributed to words, or conceptions; as is done by thoſe who aſſert that there are univerſal things, that animal is a genus, &c. Fourthly, when the names of accidents are given to words, and propoſitions; as when it is ſaid, that the definition is the eſſence of the thing, or a perſon's command is his will. Fifthly, when in lieu of proper words, metaphors and tropes are made uſe of: as, the way leads to ſuch a place, the proverb ſays this or that; whoſe uſe though allowable on ordinary occaſions, yet is of miſchievous conſequence in reaſoning and ſearching after truth. Laſtly, when names are taken at random, and uſed without meaning; as tranſubſtantiation, conſubſtantiation, *entechies*, &c.

He that can avoid theſe rocks will not eaſily fall into an *abſurdity*, except in a very long chain of reaſoning, when he may be apt to forget ſome propoſition before laid down. Hobb. Lev. P. 1. c. 5. p. 22.

ABSUS, the Egyptian LOTUS. Ray.

ABSYNTHIUM, or ABSINTHIUM, a medicinal plant of conſiderable efficacy in quality of a bitter, and ſtomachic, commonly called WORMWOOD.

The word ſeems compounded of the privative particle *a* and *δοκω*, *dulcedo*, *pleaſure*; alluding to the diſagreeable taſte of this plant.

ABSYNTHUS, in *Natural Hiſtory*, the name of a ſtone, deſcribed by ſome old authors as being of a black colour, variegated with ſpots and veins of red. They ſay that when once heated, it retains the warmth for ſeven days. The account ſeems ſuperſtitious and imaginary, and the deſcription they give to ſhort, that it is not eaſy to gueſs what ſtone, if any in nature, was meant to be pointed out by them. Probably the word is only a corruption of the AHICTOS, or *aſſites*, of Pliny.

ABUCCO, or ABOCCO, or ABOCCIS, a weight uſed in the kingdom of Pegu. One *abucco* is twelve teccelis and a half; two *abuccos* make an agiso, which really called gito; two gito make half a tuna; and a tuna weighs a hundred teccelis; that is to ſay, two pounds and five ounces the heavy weight, or three pounds nine ounces light weight of Venice.

ABUKESB. See ASLENI.

ABUNA, among the *Chriſtian Arabs*, is the title or appellation of a religious character.

The word, which is Arabic, is ſometimes alſo written *abouna*, ſometimes *abonna*, and by ſome *aboona*, or *aboona*; it literally denotes *father*, and is more particularly uſed for the archbiſhop or metropolitan of the Abyſſinian church. Fabr. Lux. Evang. c. 45. Ludolf. Hiſt. Æthiop. lib. iii. c. 7.

ABUNDANT *Numbers*, are thoſe whoſe quota parts, added together, exceed the NUMBER itſelf whereof they are parts.

Thus the number 12 is *abundant*, its quota-parts, 1, 2, 3, 4, and 6, amounting to 16.—In oppoſition to *abundant* numbers ſtand DEFICIENT ones.

ABUNDANT *Notion*, in *Logic*, is that which includes more marks and characteriſtics than are neceſſary to diſtinguiſh it from others.

Thus, we may be ſaid to give an *abundant* notion of a rectilineal triangle, when we deſcribe it as a ſpace terminated by three right lines, and containing three angles. Inaſmuch as the number of its angles is determined by that of its ſides; ſo that the bare mention of its three ſides was ſufficient to have defined it.

ABUSE, an irregular uſe of a thing, or the introducing of ſomething contrary to the true intention thereof.

The word is compounded of *ab*, *from*, and *uſus*, *uſe*.

In *Grammar*, to apply a word *abuſively*, or in an *abuſive* ſenſe, is to miſapply, or pervert its meaning.

A perſon is alſo ſaid to *abuſe* his benefices, without the conſent of the biſhop, is deemed *abuſive*, and conſequently is null.

ABUTILON, in *Botany*, the name of a genus of plants, allied to the MALLOW kind. Dr. Linnæus calls it *Sida*, and ranges it in the claſs of *monadelphia polyandria*.

The

The characters are these: the flower wholly resembles that of the mallow; but the fruit resembles a sort of head composed of several capsules, so disposed round an axis, that every *brin* of that receives one of these. These capsules are bivalve, and usually contain kidney-shaped seeds.

Miller enumerates fifteen species of this plant; which is aperient and vulnerary. The leaves externally applied cleanse ulcers; the seed provokes urine, and expels gravel. See *Indian* MALLOW.

ABUTTALS, ABUTTALS, ABUTAES, among *Law-writers*, denote the buttings or boundings of a piece of land; expressing on what other lands, highways, or the like, the several extremes thereof do *abut*, or terminate.

In this sense, the word is sometimes also written corruptly *abuttals*, or *abutals*.—In old surveys, we often find them called *bendlands*. *Abuttals* amounts to the same with what Latin writers call *capita*; Marculfus, *fronts*; the French, *bouts*. In Coke, the plaintiff is said to fail in his *abuttals*, that is, in setting forth how the land is bounded.

ABYSS, is a general sense, denotes something profound, and, as it were, bottomless.

The word is originally Greek, ἄβυσσος; compounded of the privative α, and βυσσος, *bottom*; q. d. *without a bottom*.

We say, the *abyss* of a mountain, an *abyss* of waters, the great *abyss*, the Mosaic *abyss*, an unfathomable *abyss*, &c.

ABYSS, in a more particular sense, denotes a deep mass, or fund of waters.

In this sense, the word is particularly used, in the Septuagint, for the water which God created at the beginning with the earth, which encompassed it round, and which our translators render by the *deep*. Thus it is that darkness is said to have been on the face of the *abyss*.

ABYSS is also used for an immense cavern in the earth, where God collected all those waters on the third day; which, in our version, is rendered the *deep*, and elsewhere, the *great deep*.

Dr. Woodward has made several observations and conjectures with reference to this great *abyss*, in his Natural History of the Earth. He asserts, that there is a vast collection of waters enclosed in the bowels of the earth; constituting a huge orb in the interior or central parts of it; and over the surface of this water he supposes the terrestrial strata to be expanded. This, according to him, is what Moses calls the *great deep*, and what most authors render the *great abyss*.

That there is such an assemblage of waters lodged in the depths of the earth, is confirmed by abundance of observations. See EARTH and DELUGE.

The water of this vast *abyss*, he asserts, does communicate with that of the ocean, by means of certain histories, or chasms passing between it and the bottom of the ocean: and this and the *abyss* he supposes to have one common centre, around which the water of both is placed; but so that the ordinary surface of the *abyss* is not level with that of the ocean, nor at so great a distance from the centre, as the other, it being, for the most part, restrained and depressed by the strata of earth lying upon it. But wherever those strata are broken, or are so lax and porous, that water can pervade them, there the water of the *abyss* ascends, fills up all the clefts and fissures into which it can get admittance, and saturates all the interstices and pores of the earth, stone, or other matter, all round the globe, quite up to the level of the ocean.

The existence of an *abyss*, or receptacle of subterraneous waters, is controverted by Cumberland, and defended by Dr. Woodward, chiefly by two arguments; the first, drawn from the vast quantity of water, which covered the earth in the time of the deluge; the second, from the consideration of earthquakes, which he endeavours to shew are occasioned by the violence of the waters in this *abyss*. A great part of the terrestrial globe has been frequently shaken at the same moment; which argues, that the waters, which were the occasion hereof, were co-extended with that part of the globe. There are even instances of universal earthquakes; which shew that the whole *abyss* must have been agitated: for to general an effect must have been produced by as general a cause; and that cause can be nothing but the subterraneous *abyss*. For the true cause of earthquakes, see EARTHQUAKE.

This *abyss* is no useless thing; when once established, it serves to solve several difficult phenomena; as the origin of springs and rivers; the level maintained in the surface of different seas, and their not overflowing their banks. To the effluvia emitted from this *abyss* some even attribute all the diversities of weather, and changes in our atmosphere; and, what is more, the origin of every thing in the earth, or on its surface. Dr. Woodward has an epistle on the ceremony of the great *abyss* hid in the bowels of the earth, and the perpetual communication between it and the atmosphere. Ray, and other authors, ancient as well as modern, suppose a communication between the Caspian sea and the ocean, by means of a subterranean *abyss*; and to this they attribute it, that the Caspian does not overflow, notwithstanding the great number of large rivers it receives; of which Kempfer reckons above fifty in the compass of sixty miles. But the daily evaporation may be sufficient for this purpose. See EVAPORATION, SEA, and SPRING.

ABYSS is also used to denote the cavern or belly of a hollow mountain.

In which sense Mr. Tournefort describes the *abyss* of mount Ararat, a horrible spectacle.

ABYSS is also used to denote HELL. In which sense the word is synonymous with what is otherwise called Barathrum, Erebus, and Tartarus; in the English Bible, the *bottomless pit*.

ABYSS is more particularly used, in *Antiquity*, to denote the temple of Proserpine.

It was thus called, on account of the immense fund of gold and silver deposited there; some say hid under ground.

ABYSS is also used in *Heraldry*, to denote the centre of an *escutcheon*.

In which sense, a thing is said to be borne in *abyss*, or *abysme*, when placed in the middle of the shield, clear from any other bearing: he bears azure, fleur de lis, in *abyss*. Columbiere.

ABYSS is also used, by some *Alchemists*, for the immediate receptacle of seminal matter; by others, for the first matter itself.

ABYSS is also used metaphorically, for a thing not to be known or comprehended, on account of its immense extent, or profundity.

In which sense it coincides with secrecy, inscrutable, incomprehensible, &c.—The judgments of God are called a great *abyss*.

ABYSS, in *Typography*, is synonymous with QUERE.

ABYSSINIAN is used as the name of a sect, in the Christian church, established in the empire of Abyssinia.

The *Abyssinians* are a branch of the Cophts, or Jacobites, with whom they agree in admitting only one nature in Jesus Christ, and rejecting the council of Chalcedon; whence they are also called MONOPHYSITES, and EUTYCHIANS.

The *Abyssinian* church is governed by a bishop, or metropolitan, styled ABUNA, sent them by the Coptic patriarch of Alexandria residing at Cairo, who is the only person that ordains priests.

They have canons also, and monks; the former of whom marry, the latter at their admission vow celibacy, but with a reservation. Le Grand says, they make a promise aloud, before their superiors, to keep chastity, but add in a low voice, in my *heart*. The emperor has a kind of supremacy in ecclesiastical matters.

The *Abyssinians* have always expressed an inclination to be reconciled to the see of Rome; but rather out of interest of state than any other motive.

Meanwhile, and other circumstances, despite the *Abyssinians* of Judaism, in regard to the many Jewish observances still in use among them: some have even doubted, whether they are more Christians, or Jews. Lobo says expressly, they are only Christians in name: they practise circumcision on females, as well as males. They eat no meats prohibited by the law of Moses. Women are obliged to the legal purifications. Brothers marry their brothers wives, &c. They abstain from hog's flesh, blood, meats strangled, &c. and observe both Saturday and Sunday sabbaths, according to the custom of the primitive church: also divers marks of Judaism; though by some reduced into mere human institution, and usage. They celebrate the Epiphany with peculiar solemnity, in memory of Christ's baptism; when they plunge and sport in ponds and rivers: which has occasioned some to affirm that they were baptized anew every year. Among the saints-days is one consecrated to Pilate and his wife; because Pilate washed his hands before he pronounced sentence on Christ; and his wife declared him to have nothing to do with the blood of that just person. They have four lents: the great one commences ten days earlier than ours, and is observed with much severity, many abstaining therein even from fish, because St. Paul says there is one kind of flesh of men, and another of fishes. They allow of divorce, which is easily granted among them, and by the civil judges: nor do their civil laws prohibit polygamy. They have at least as many miracles, and legends of saints, as the Romish church; which proved no small embarrassment to the Jesuit missionaries to whom they produced so many miracles, wrought by their saints, in proof of their religion, and those so well

circum-

circumstantiated and attested, that the Jesuits were obliged to deny miracles to be any proof of a true religion; and in proof hereof to allege the same arguments against the [illegible] which protestants in Europe allege against the [illegible]. Audoli allows that they believe the real presence [illegible] Lutheran manner, but denies that they hold [illegible] station; though Renaudot asserts, that they [illegible]. They pray for the dead, and invoke saints [illegible] and have so great a veneration for the Virgin, [illegible] charged the Jesuits with not tendering her [illegible] enough. Images in painting they venerate, but [illegible] in relievo, except the cross. They hold that [illegible] first man is not created, because, say they, God [illegible] his work on the sixth day. They admit the apocryphal books, and the canons of the apostles, as well as the apostolical constitutions, for genuine. Their liturgy is given by Alvarez, and in English by Pegit; their calendar by Ludolf; the answers of abbe Gregory to certain questions, propoled by the author last cited, are published by Fabricius, under the title of Theologia Æthiopica.

ACACALIS, in the *Materia Medica*, the name given by some authors to the *succus hibernus*, or wild carob.

ACACALOUI, in *Ornithology*, the name of an American bird called by some corvus *aquaticus*, or the water raven. The male is four inches long from his beak to the end of his tail, and is moderately fleshy; his legs are a span and a half long. Its beak is two hands breadth long, is bent like a bow, and of a blue colour: his head is small: it is of a mixt brown and red colour on the breast and belly, and of a finely variegated hue on the back, made up of a shining purple, black, and green; its wings are of a fine green, which looks very bright and glossy in the sun. It is a native of Mexico, and is common about lakes and rivers, feeding on fish; it is eaten, but is coarse, and of a rank fishy taste.

ACACIA, in *Botany*, the name of a genus of trees, the characters of which are these: the flower consists only of one leaf, and is of the funnel-fashioned kind, and usually contains a great number of stamina; and the flowers are commonly collected in clusters, or little heads: the pistil arises from the bottom of the flower, and finally becomes a bivalvous fruit divided into several hollows, and containing a number of roundish seeds. The *acacias* belong to the *polygamia monœcia* class of Linnæus.

The species of *acacia* enumerated by Mr. Tournefort are twelve; and by Miller, twenty two.

The Arabian pepper of Matthiolus seems to belong to this genus of plants.

The flowers of the *acacia* are used by the Chinese in making that yellow, which, we see, they use in their silks and stuffs; and appears with much elegance in their painting on paper. The method is this:

They gather the flowers before they are fully open; these they put into a clean earthen vessel over a gentle heat, and stir them continually about, as they do the tea-leaves, till they become dry and of a yellow colour; then to half a pound of the flowers they add three spoonfuls of fair water, and after that a little more, till there is just enough to hold the flowers moistened and together: they boil this for some time, and the juice of the flowers mixing with the water, it becomes thick and yellow; then they take it from the fire, and strain it through a piece of coarse silk. To the liquor they add half an ounce of common alum, and an ounce of calcined oyster-shells reduced to a fine powder. All is then well mixed together; and this is the fine lasting yellow they have so long used.

The dyers of large pieces use the flowers and seeds of the *acacia* for dying three different sorts of yellow. They roast the flowers, as before observed, and then mixing the seeds with them, which must be gathered for this purpose when full ripe: by different admixture of these, they give six different shades of colour; only for the deepest of all, they give a small admixture of Brasil wood.

Mr. Geoffroy, with great probability, attributes the origin of bitumen to the juices of this plant; which being brought by certain animals, and vellicating the stomach by their great roughness and astringency, cause a copious secretion of the bile, till at length they become costed over with a slimy matter, which we call BEZOAR, or BEZOARD.

ACACIA *fistularis*, signifies TABASHEER.

ACACIA, *bastard* or *true*, *vulgaris*, in *Botany*, a genus of the *Monadelphia decandria* class. Its characters are these: the empalement of the flower is small, and divided into four parts, the three under segments being narrow, but the upper one broad; the flower is of the PEA-*flower* kind, the standard is large, roundish, obtuse, and spreads open; the two wings are oval, and have short appendices, which are obtuse; the keel is roundish, compressed, obtuse, and is extended the length of the wings; in the centre are situated ten stamina, nine joined together, and the other standing single, terminated by roundish summits; it hath an oblong cylindrical germen, supporting a slender style, crowned by a hairy stigma; the germen afterward becomes an oblong compressed pod, including kidney-shaped seeds. Miller enumerates ten, and Linnæus seven species.

ACACIA *Britannica*, signifies LOGWOOD.

ACACIA, in *Medicine*, an inspissated juice of a shrub of the thorn kind, used as an astringent.

It is prepared by inspissating, to a due consistence, the juice expressed from the unripe pods of a large prickly tree of this name.

There are two kinds, the *vera*, and *Germanica*.

The ACACIA *vera* is brought from the Levant in round balls, of different sizes, in tine bladders; and supposed to be the juice of the pods of a large thorny tree, growing in Egypt and Arabia. Some naturalists will have it the same tree that yields the gum arabic.

This is very auftere, and binding; and, on that account, good against fluxes. Choak that of a cat-skin, smooth and shining; and of an aftringent disagreeable taste. It is, or should be, an ingredient in the *Tincture Ambrosiaca*.

The *German* ACACIA is a counterfeit of the former; being made of the juice of unripe sloes, boiled to the consistence of a solid extract, and put up in bladders like the former. It is distinguished from it chiefly by its colour, which is as black as that of Spanish liquorice. It is used as a substitute to the true *acacia*.

ACACIA, among *Antiquaries*, denotes something resembling a kind of roll or bag, seen on medals in the hands of several of the consuls, and emperors, from the time of Anastasius.

According to Du-Cange, the *acacia*, properly so called, was a purple bag, filled with earth, or sand, and borne by the prince in his left hand, to remind him of his frailty and mortality; in prevent his being too much elated with his station.

But authors are not agreed, either about the use of this roll, or about the substance whereof it consists; some taking it for a handkerchief rolled up, which the person who presided at the games threw out as a signal for their beginning; whilst others rather imagine it intended to represent a roll of memoirs, or petitions.

ACACIANS, in *Church History*, the followers of Acacius, bishop of Cæsarea, who flourished about the middle of the fourth century. Some of them maintained, that the Son was not of the same, but of a similar substance with the Father: others held that he was of a different substance from the Father. This was likewise the denomination of another sect, derived from the name of their leader, a patriarch of Constantinople, in the fifth century, who favoured the opinion of Eutyches. See EUTYCHIANS.

ACADEMICS, a sect of philosophers, who followed the doctrine of Socrates and Plato, as to the uncertainty of knowledge, and the incomprehensibility of truth.

Academic, in this sense, amounts to much the same with Platonist; the difference between them being only in point of time. They who embraced the system of Plato, among the ancients, were called *Academics*; whereas those who did the same, since the restoration of learning, have assumed the denomination of Platonists.

We usually reckon three sects of *Academics*; though some make five. The ancient *Academy* was that whereof Plato was the chief. See PLATONISM.

Arcesilas, one of his successors, introducing some alterations into the philosophy of this sect, founded what they call the *second Academy*.

The establishment of the third, called also the *new Academy*, is attributed to Lacydes, or rather to Carneades.

Some authors add a fourth, founded by Philo; and a fifth by Antiochus, called the *Antiochian*, which tempered the ancient *Academy* with STOICISM.

The ancient *Academy* doubted of every thing; and went so far as to make it a doubt whether or no they ought to doubt. It was a first of principle with them, never to be certain, or satisfied of any thing; never to affirm, or deny any thing, either for true or false. In effect, they asserted an absolute ACATALEPSIA.

The *new Academy* was somewhat more reasonable; they owned several things for truths, but without attaching themselves to any with entire assurance. These philosophers had found, that the ordinary commerce of life and society was inconsistent with the absolute and universal doubtfulness of the ancient *Academy*: and yet it is evident, they looked upon things rather as probable, than as true and certain: by this amendment, thinking to secure themselves from those absurdities into which the ancient *Academy* had fallen. See the *academical* questions

queſtions of Cicero; where that philoſopher explains and unravels the ſentiments of thoſe who in his days called themſelves followers of the new and old *academy*, with great clearneſs and addreſs.

ACADEMICS, or rather ACADEMICKS, it alſo uſed among us for the members of the modern *academies*, or inſtituted ſocieties of learned perſons.

ACADEMY, ACADEMIA, in *Antiquity*, a fine villa, or pleaſure-houſe, ſituate in one of the ſuburbs of Athens, about a mile from the city; where Plato, and the wiſe men who followed him, held aſſemblies for diſputes and philoſophical conferences; and which gave the denomination to the ſect of ACADEMICS.

It took its name, *academy*, from one Academus, or Ecademus, a citizen of Athens, to whom it originally belonged; and who uſed to have gymnaſtic ſports or exerciſes therein.—He lived in the time of Theſeus.

Some, miſtakenly, derive its name and origin from Cadmus the Phœnician, as being the firſt who introduced learning, and the uſe of letters, among the Greeks.

The *academy* was farther improved and adorned by Cimon, with fountains, trees, ſhady walks, &c. for the convenience of the philoſophers, and men of learning, who here met to converſe, diſpute, &c.—Hipparchus, the ſon of Piſiſtratus, built a wall round it; and in order to defray the charges, laid ſo heavy a tax on the people, that ever after Lycurgus tuition, was uſed proverbially for any expenſive buſineſs.—It was alſo the burying-place of illuſtrious perſons, who had deſerved well of the republic.

Here it was that Plato taught his philoſophy; and from him all public places, deſtined for the aſſemblies of the learned and ingenious, have been ſince called ACADEMIES.

Sylla ſacrificed the delicious groves and walks of the *academy*, planted by Cimon, to the uſes of war; and employed thoſe very trees to make machines wherewith to batter the city. Cicero alſo had a villa, or country retirement near Puzzuoli, which he called by the ſame name, *academia*; where he uſed to entertain his philoſophical friends.—It was here he compoſed his Academical Queſtions, and his books De Natura Deorum.

ACADEMY is more frequently uſed among the moderns, for a regular ſociety, or company of learned perſons inſtituted under the protection of a prince, for the cultivation and improvement of arts or ſciences.

Some authors confound *academy* with univerſity; but though much the ſame in Latin, they are very different things in Engliſh.—An univerſity is, properly, a body compoſed of graduates in the ſeveral faculties; of profeſſors, who teach in the public ſchools; of regents or tutors, and ſtudents who learn under them, and aſpire likewiſe to degrees. Whereas, an *academy* is not intended to teach, or profeſs any art, ſuch as it is, but to improve it: it is not for novices to be inſtructed in, but for thoſe that are more knowing; for perſons of diſtinguiſhed abilities to confer in, and communicate their lights and diſcoveries to each other, for their mutual benefit and improvement.

The firſt *academy* we read of, was eſtabliſhed by Charlemagne at the motion of Alcuin: it was compoſed of the chief wits of the court, the emperor himſelf being a member.—In their *academical* conferences, every perſon was to give an account of what ancient authors he had read; and each of them aſſumed the name of ſome ancient author, who pleaſed him moſt, or ſome celebrated perſon of antiquity. Alcuin, from whoſe letters we learn theſe particulars, took that of Flaccus, the ſurname of Horace; a young lord, named Angilbert, took that of Homer; Adalard, biſhop of Corbie, was called Auguſtin; Riculfe, biſhop of Mentz, was Dametas; and the king himſelf, David.

Moſt nations have now their *academies*, Ruſſia not excepted.

Of theſe uſeful inſtitutions we ſhall give an account in the following order.

ACADEMIES of *Antiquities*, as

The *Academy* at Cortona, eſtabliſhed for the ſtudy of the Hetrurian antiquities, which are numerous and extenſive. Their head is called Lucumon, a name taken from the ancient governors of Hetruria. One of their laws is, to give audience to poets only one day in the year; another is, to fix their ſeſſions, and impoſe a tax of a diſſertation on each member in his turn.

The *Academy of Antiquities* at Upſal, owes its riſe to queen Chriſtina, but its eſtabliſhment chiefly to Charles Guſtavus her ſucceſſor. Its deſign is for illuſtrating the northern languages, and the antiquities of the country, its ſtones, coins, and the like monuments; in which notable diſcoveries have been made by it. The more eminent of its members have been Verelius, Loccenius, Scheffer, Rudbeck, Keder, Salin, Peringſkiold, &c.

ACADEMY *of Architecture* was eſtabliſhed at Paris by M. Colbert, in 1671.

ACADEMY, *Royal, of Arts*, was inſtituted in London for the encouragement of *Deſigning*, *Painting*, *Sculpture*, &c. in the year 1768. This *academy* is under the immediate patronage of the king, and under the direction of *forty* artiſts of the firſt rank in their ſeveral profeſſions. It ſupplies, in winter, living models of different characters, to draw after; and, in ſummer, models of the ſame kind to paint after. Out of the ſaid *academicians*, are annually elected out of the forty, whoſe buſineſs is to attend by rotation, to fix the figure, to examine the performances of the ſtudents, and to give them neceſſary inſtructions. There are likewiſe *four* profeſſors, of *Painting*, of *Architecture*, of *Anatomy*, and of *Perſpective* who annually read public lectures on the ſubjects of their ſeveral departments; beſides a preſident, a council, and other officers.

The admiſſion to this *academy* is free to all ſtudents properly qualified to reap advantage from the ſtudies cultivated in it; and there is an annual exhibition of paintings, ſculptures, and deſigns, open to all artiſts of diſtinguiſhed merit.

ACADEMIES of *Belles Lettres*, thoſe wherein eloquence and poetry are chiefly cultivated. Italy is full of theſe; and France has its three; ſuch are

The *academy of Umidi* at Florence, called afterwards La Florentina, in honour of the grand-duke Coſmo I. who declared himſelf its protector in 1540; it flouriſhes both for the works it has produced, and its members; of which ſix theſe two laſt ages have included moſt of the famous men, not only in Tuſcany, but in all Italy. Their chief attention is to the Italian poetry.

ACADEMY *of Humoriſts*, *Umoriſti*, firſt had its origin at Rome, from the marriage of Lorenzo Maſcardi, a Roman gentleman, at which ſeveral perſons of condition were gueſts; and it being carnival-time, to give the ladies ſome diverſion, they took themſelves to the reciting of verſes, ſonnets, ſpeeches, and comedies, firſt, *ex tempore*, and afterwards premeditatedly; which gave them the denomination of *Beſtioni*. After ſome experience, coming more and more into the taſte of theſe exerciſes, they reſolved to form an *academy of Belles Lettres*; and changed the title of *Beſtioni* for that of *Humoriſti*; chooſing for their device a cloud, which, after being formed of the ſaline exhalations of the ſea, returns in a gentle ſweet ſhower, with the motto from Lucretius, *redit agmine denſo*.

ACADEMY *of Arcadia* was eſtabliſhed at Rome in 1690, for reviving the ſtudy of poetry, and the *belles lettres*; and comprehends moſt of the politer wits in Italy, of both ſexes; many princes, cardinals, and other eccleſiaſtics: to avoid all diſputes among whom, about pre-eminence, it is wiſely prohibited, that all appear without, after the manner of ſhepherds of Arcadia. Within ten years from its firſt eſtabliſhment, the number of *academiſts* amounted to ſix hundred. They hold aſſemblies ſeven times a year, in a mead or grove; or late in the gardens of the duke of Salviati. Six of theſe meetings are employed in the recitation of poems, and verſes of the *Arcadi* reſiding at Rome, who read their own compoſitions; except ladies and cardinals, who are allowed to make uſe of other ſhepherds for this office. The ſeventh meeting is ſet apart for the compoſitions of foreign, or abſent members; in which there is more entertainment than in all the reſt, becauſe the pieces produced here are written in all the different ſtyles and dialects of Italy.

The government of this *academy* is wholly democratical, allowing of no prince or protector, but only a *cuſtos*, who repreſents the whole ſociety, choſen each olympiad, that is every four years, with a power of electing twelve others yearly, to aſſiſt him in the adminiſtration. Under theſe are two *ſubcuſtodes*, one vicar or *preſident*, and four *deputies* or aſſiſtants, annually choſen. There are five ways of electing members; the firſt called *acclamation*, uſed when ſovereign princes, cardinals, and ambaſſadors of kings, deſire to be admitted; in which caſe the votes are given *viva voce*; the ſecond *examination*, introduced in favour of ladies and gentlemen of colonies; where the votes are taken privately: the third *coöptation*, eſtabliſhed in favour of colleges and univerſities, where the young gentry are bred, who have each a privilege of recommending one, or two members privately to be balloted for: the fourth *ſurrogation*, whereby new ſhepherds are ſubſtituted in the room of thoſe dead, or expelled: the laſt *delineation*, whereby, when there is no vacancy of members, perſons of poetical merit have the title *Arcadi* conferred on them, till ſuch time as a vacancy ſhall happen. All the members of this body, at their admiſſion, aſſume new paſtoral names, in imitation of thoſe of ancient Arcadians. The *academy* has divers colonies of *Arcadi* eſtabliſhed

in other cities in Italy, all regulated after the same manner.

ACADEMY, [illegible] established by letters patent in 1[illegible] fifty years earlier in private conference[illegible] house of M. de Beleux. M. de Segrais[illegible], to spend the rest of his days, reso[illegible]sire to their meetings. In 1707, M. [illegible] of the generality of Caen, procured th[illegible]t for exciting them into a perpetual [illegible] Foucault was to be protector for th[illegible]e afterwards left to the members, th[illegible] was fixed to thirty, and the choice o[illegible] left to M. Foucault. Beside the thi[illegible] to add some supernumerary members[illegible], from the ecclesiastical commo[illegible]

An assembly of [illegible]rsons, are said only to want letters patent to form a royal *academy*, inferior to few in France. It consists of twenty *academists*, with a director at their head, and a secretary who is perpetual. V. Lombard, *Johnie*, one of the members, here read a learned dissertation on infinity.

ACADEMIES *Chirurgical*; so that first instituted at Paris in 1731, and finally established by letters patent from the king in 1748; the members of which are not only to publish their own and correspondents observations and improvements, but to give an account of all that is published in surgery, and to compose a complete history of this art, by their extracts from all the authors, ancient and modern, who have wrote on it. A question in surgery is to be proposed by the *academy* yearly; and a prize of a gold medal of five hundred livres value to be given to him who furnishes the most satisfactory answer.

ACADEMIES *Geographical*; as that of the Argonauts at Venice, instituted at the solicitation of F. Coronelli, for the improvement of *Geography*. The design of the *academia argonautica* is to procure exact maps, geographical, topographical, hydrographical, and chorographical, of the celestial as well as terrestrial globe, and the several regions and parts thereof, together with geographical, historical, and astronomical descriptions, accommodated thereto, to be made and published in order to which, the several members obliged themselves, by their fidelity oaths, to take one or more copies of each piece, published under the direction of the *academy*, and to advance the money or part of it in order to defray the charge of publication. To this end, there are three societies formed at Venice, Paris, and Rome; the first under F. Bucco, provincial of the Minorites of Hungary; the second, under the abbot Bignon; and Le Payenne au Marais; the third, under F. Ant. Baldigiani, Jesuit, professor of mathematics in the Roman college; to whom those admitted themselves, who are willing to engage in this design. The Argonauts number 150 members in the several countries of Europe; their device is the terraqueous globe, with the motto, *non ultra*. At the expence of this *academy*, all the globes, maps, and geographical writings, of F. Coronelli have been published.

ACADEMY *of Dancing*. One of this kind was instituted by Lewis XIV. with extraordinary privileges.

ACADEMIES *Ecclesiastical*; as that at Bologna, employed in the examination of the doctrine, discipline, and history of each age of the church.

ACADEMIES *Historical*; as the *Royal Academy of Portuguese History* at Lisbon, was instituted by king John V. in 1720, as appears by a medal struck by the *academy*, on the front whereof is that prince's effigy, with the inscription *Johannes V. Lusitanorum Rex*; and on the reverse, the same prince standing in repentance supporting and raising History, almost prostrate before him, with the legend *Historia Resurgens*; underneath are the following words in three lines, RESUS ACADEMIA HIST LUSIT. LVSITANI INSTITUTA VI. Idus Decembres MDCCXX. This *academy* consists of a director, four censors, a secretary and nine members; to each of whom is assigned some part, either of the ecclesiastical, or civil history of the nation; which he is to treat either in Latin, or Portuguese.

ACADEMY *of Sacred History*, at Tubingen, was lately established by some learned men, for publishing the best historical writings, the lives of the chief historians, and compiling new histories, on the several points and periods thereof.

ACADEMIES *of Languages*, are called by some, *Grammatical academies*, as

The *Academy della Crusca*, at Florence, famous for its vocabulary of the Italian tongue, was founded in 1582, but lasted scarce above the next 15, when it became ruined for a dispute between Count Salviati and several of its members. Many authors at most confound this with the Florentine *academy*.

ACADEMIES *of Emulation* had their rise in 1617, at an assembly of several princes and nobility of the country, who met with a design to refine and perfect the German tongue. It flourished long under the direction of princes of the empire, who were always chosen presidents. In 1668, the number of members arose to upwards of nine hundred.

ACADEMY, *French*, had its rise in a private meeting of men of letters, in the house of Mr. Conrart, in the year 1628. Cardinal Richlieu, in 1635, at the instance of Mr. Chapelain, erected it into an *academy* for refining and ascertaining the French language and style. The number of the members was limited to forty, out of whom a director, a chancellor, and secretary, are to be chosen; the two former hold their post for two months, the secretary is perpetual. Several privileges and immunities were conferred on the new *academy*, particularly the *droit de committimus*, or a privilege of not appearing to answer before any court, but that of the king's household. Their first assemblies were held in the cardinal's apartment; after his death, in that of the chancellor Seguier. At last an apartment was given them in the Louvre, now called *l'Academie Francoise*. They meet three times a week in the Louvre; at meeting up, forty silver medals are distributed among them, having on one side the king of France's head, and on the *revers*, *protector de l'academie*, with a laurel and this motto, *a l'immortalité*. By this distribution, the attention of the *academists* is secured; those who are present receiving the surplus, otherwise intended for the absent.

As to the employments of the *academy*; its design being not only to give rules, but examples of good writing; they began with making Eloges on subjects taken at pleasure, each member in his turn; twenty of these have been printed. Their next work was a critique of the Cid of P. Corneille, which enjoined them by the cardinal. They next fell about a dictionary of the French tongue, which after about fifty years pains in it, in order to settle the words and phrases to be used in writing, &c. was published in 1694, having in the mean while given occasion to some smart disputes with M. l'Abbé Furetiere, one of their own members.

Their history is written with great elegancy to the year 1652, by M. Pelisson; improved and continued to the year 1700, by M. l'Abbé d'Olivet: the same is given chronologically, by P. le Caseau.

ACADEMY, *Royal Spanish*, is an *academy* for cultivating the Castilian tongue, established at Madrid, on the model of the French *academy*. The design of this was laid by the duke d'Escalona, and approved of by the king in 1714, who declared himself protector thereof.—It consists of twenty-four *academists*, including the director and secretary.

Its device is a crucible on the fire, with this motto, *limpia, fija y da esplendor*; i. e. it purifies, fixes, and gives brightness; which same have embellished. Their object, as marked out by the royal declaration, is to cultivate and improve the national language; in order to which, they are to begin with choosing carefully such words and phrases, as have been used by the best Spanish writers; noting the low, unharmonious or obsolete ones, and compiling a dictionary, wherein these may be distinguished from the former, &c. by which means, adds this prince, it will clearly appear, that the Castilian tongue is inferior to none of those most esteemed in the world; and may be employed with advantage either in teaching the arts and sciences, or in expressing the most perfect Latin or Greek originals in exact translations. The number of members is limited to twenty-four; the duke d'Escalona to be director for life; but his successors chosen yearly. The secretary to be perpetual. The *academy* to have its own printer, not to put any thing to press without the permission of the council. For further encouragement, all privileges and immunities enjoyed by the domestic officers, actually in the king's service, and the royal palace, are granted the *academy*.

ACADEMIES *of Law*; as that famous one at Berytus, and that of the Sinenses at Bologna.

ACADEMIES *of Medals and Inscriptions*, was erected for the study and explanation of ancient monuments; and to enumerate great and memorable events to posterity, by ancient monuments, as medals, statues, inscriptions, &c. The *academy of Medals and Inscriptions* at Paris, was settled first by Mr. Colbert in 1663, for the study and explanation of ancient monuments, and perpetuating of great and memorable events, especially those of the French monarchy, by coins, reliefs, inscriptions, &c. The number of members at first was confined to four or five, but in 1701 was increased to forty; whereof ten to be honoraries, ten pensionaries, ten associates, and the same number of novices or elevez. The king nominates their president and vice-president yearly; but their secretary and treasurer are perpetual. The rest are chosen by the members themselves, agreeable to the conditions given them

them on that behalf. Their chief work is a kind of medallic history of the reign of Louis XIV. Beside which we have several volumes of their essays, under the title of Memoirs: and their history, written and continued by their secretaries. Their motto is *ingenia moti*.

ACADEMIES, *Medical*; as that of the Naturæ Curiosi in Germany; that founded at Palermo, in 1645; another at Venice, in 1701, which meets weekly in a hall over the grand hospital; another at Genoa, in 1715, in the house of M. le Clerc. The college of physicians at London is also by some ranked in the number of medical academies.

ACADEMY, *Mystical*; this consists of the managers and directors of the opera.

The French have also considerable academies in most of their great cities; as, at Montpellier, a royal academy of sciences, on the like footing as that at Paris, being, as it were, a counterpart thereof: at Thoulouse, an academy under the denomination of Lanternists: others at Nismes, Arles, &c.

ACADEMY *of Natural Curiosities*, in Germany, was first founded in 1652, by M. Bausch, a physician, and taken into the protection of the emperor Leopold.

This academy differs from all others, in that it has no fixed residence, or regular assemblies; instead whereof is a kind of bureau, or office, first established at Breslaw, afterwards removed to Nuremberg, where letters, observations, &c. from members and correspondents are taken in. The academy consists of a president, two adjuncts, or secretaries, and fifty-eight members. The colleagues, at their admission, oblige themselves to two things; first, to choose some subject out of the animal, vegetable, or mineral kingdom to handle, provided it had not been treated of by any colleague before; the second, to apply themselves to furnish materials for the annual Ephemerides. Each member to bear a symbol of the academy, viz. a gold ring, wherein, instead of a stone, is a book open, and on the face thereof an eye: on the other side the motto of the academy, *nunquam otiosus*, i. e. never idle. See the Military laws, &c. of this academy, with the names of the members, and the titles of its pieces, in Ephem. Germ. dec. 1, an. 1. & 2. Prof. and the continuation of the same in the prefaces and appendices to the ensuing volumes.

ACADEMY, *Noctule*; as that of Petersburgh.

ACADEMIES *of Painting, Sculpture, and Architecture*; as those celebrated ones anciently at Florence and Milan, called also *schools*; and that other at Bologna, lately incorporated into the new institute; to which may be added the academy of painting and sculpture at Paris and Vienna; another of sculpture at Rome.

ACADEMY *of Painting and Sculpture* at Paris was first projected by Le Brun, Stracni, Corneille, &c. for which they obtained an arret of council in 1663, and established in 1664 and 1665, under the cardinal Mazarine, first protector thereof; and the chancellor Seguier vice-protector. It consists, besides, of a director, a chancellor, four rectors, a treasurer, 12 professors, adjuncts to the rectors and professors; 6 counsellors; 2 secretary; a professor for anatomy, and another for geometry and perspective.

Persons are here admitted either in quality of painters or sculptors. The painters are admitted according to their respective talents; as being a distinction made between those who work in history, and those who only paint portraits, or landskapes, or beasts, or fruits, or flowers, or paint in miniature; or only design, or engrave, or carve, &c. An account of it has been published by Cochin, under the following title, Defcripti de l'Acad. Roy. de Peinture & Sculpt.

There is also a French academy of painting, sculpture, &c. at Rome, established by Louis XIV. wherein those who have won the annual prizes in the like academy at Paris, are received and entertained for three years, to give them an opportunity of perfecting themselves.

ACADEMY, *Diplomatic*, is composed of six persons, who meet on certain days each week at the Louvre, in the chamber where the papers relating to foreign affairs are lodged. Here they peruse such papers as are put in their hands, by order of the secretary for foreign affairs, who acquaints the King with the progress they make, and the capacities of each, that his majesty may employ them accordingly.

ACADEMIES *of Sciences*, chiefly denote those erected for improving natural and mathematical knowledge, otherwise called philosophical and physical academies; such as the *academy del cimento*, or *of experiments*, formed at Naples, in the house of Baptista Porta, about the year 1560, the first academy of the philosophical kind. It was succeeded by the

ACADEMY *of Lynxes*, founded at Rome by prince Frederic Cesi, towards the close of the same century; several of whose members rendered it famous by their discoveries: the celebrated Galileo Galilei was of the number.

Divers other academies contributed also to the advancement of these sciences; but it was by speculations, rather than by repeated experiments on the phenomena of nature: such were the *academy of Bellisians* at Rome, and that of Laurence de Medicis at Florence, in the fifteenth century; in the sixteenth, that of *Incogniti* at Padua, of *Vegni Inuti* at Rome, of *Ordinati* at Piacenza, and of *Umidi* at Florence. The last of these studied fire and pyrotechnia; the second, music; the fourth, poetry; the third, gardens and portraits; the fourth, mines and hydraulics. Add to these, that at Venice, called *Della Crusca*, founded by Frederic Badoaro, a noble Venetian; another in the same city, whereof Compagni, native of Feltro, appears to have been the chief; and that of *Ricovrati*, or la Concezione, whereof Bernardo Tasso, Sperone Speroni, Quarantotti, Paulus Aemilius, Julio Cesar Scaliger, and Fabio Cicali, celebrated philosophers, were the chief members.

The compositions of all these academies of the fifteenth century were good in their kind, but those of them comparable to those of the Lyncæi.

ACADEMY *del Cimento* made its appearance at Florence some years after the death of Torricelli, under the protection of prince Leopold, afterwards cardinal de Medicis: Redi was one of its chief members. Count Laurence Magalotti, secretary of this academy, published a volume of its experiments in 1677, under the title of Saggi di Naturali Esperienze; a copy of which being presented to the Royal Society, was translated into English by Mr. Waller, and published at London, in quarto.

ACADEMY *degl' Inquieti*, at Bologna, incorporated afterwards into that *delle Scienze* in the same city, followed the example of that *del Cimento*; their meetings were at the house of the abbot Antonio Scarpini. Here Gentilino Montanari, one of the chief members, made a succinct discourse on physical and mathematical subjects, part whereof was published in 1667, under the title of Pendarti Fisico-Matematici. This academy afterwards rose in the apartment of Lodovico Manfredi; and afterwards, in that of Jacob Sanuti, but never at a higher date, when its assemblies were held in the palace Magilli.

ACADEMY *of Researches*, in the kingdom of Naples, called *La Società Reale accademica di Napoli*, was founded about the year 1540, under the name of *Neocyrani*, and revived under that of *Secretorum* by Camillo Tuttano, about the year 1600. It was transformed from an academy of belles lettres into an academy of sciences, at the solicitation of the learned Don Gregorio Grimea; who being made president under the title of promotor-general thereof, in 1695, gave a new fit of regulations. He divided the *academicks* into several classes, viz. grammarians, rhetoricians, poets, historians, philosophers, physicians, mathematicians, lawyers, and divines, with a certain number of usuals and persons of quality. To be admitted a member, a man must have degrees in some faculty. The members are not allowed to take the title of *academicks*, in the beginning of their books, without a written permission from the president, which is not granted till the work has been examined by the censors of the academy. This permission is the greatest honour the academy can confer; since hereby they, as it were, adopt the work; and are answerable for it against all censures which may be made of it. The president or promotor himself is subject to this law. Add, that no academick is allowed to publish any thing against the writings of another, without leave from the society.

There have been several other *academies* of sciences in Italy, which have not subsisted long, for want of being supported by the princes. Such were at Naples that of the *Investiganti*, founded about the year 1679, by the Marquess d'Arena, Don Andrea Concubletto; and that which met in 1698, in the palace of the duke de Medina, Don Lewis della Cerda, viceroy of Naples. At Rome, that of *Fisico-Matematici*, which met in 1680, in the house of Sig. Ciampini: at Verona, that of *Filaleti*, founded the same year by Sig. Joseph Grezoli, which met in the house of the count Serenghi della Cuera: at Venice, that of *Filoleti*, founded the same year for the cultivation of physics and mathematics, and ended the year following: that of F. Francisco Lana, a Jesuit, of great skill in those sciences: lastly, that of *Fisici Critici*, at Sienna, founded in 1691, by Sig. Peter Maria Gabrielli. Some other academies still subsisting in Italy, equal with advantage the best of the former. One of the principal is the *academy of Filarmonici*, at Verona, supported by the Marquis Scipio Maffei, one of the most learned men in Italy. Though the members of this body apply themselves to the belles lettres, they do not neglect the sciences. The *academy of Ricovrati*, at Padua, still subsists with reputation; in it, learned discourses are held from time to time on physical subjects; such, for instance, is that which the celebrated Sig. Antonio Vallisnieri, first professor of physic in the university of that city, delivered here on the origin of springs, since printed. The like may be said of the *academy of the Muti de Reggio*, at Modena; to which the same Sig. Vallisnieri, a native of that city, presented an excellent discourse on the scale of created beings, since inserted in his History of the Generation

bertion [illegible] painted at Venice in 1711. [illegible]cie *academici* may also be ranked [illegible]med men, which of late years [illegible]ouse of Sig. Christino Marcello, [illegible]d great patron of learning. Among [illegible]e first rate, after the institute of [illegible]hat of the countess Dunnoyer, Clelia Gr[illegible]the most learned ladies of the age, [illegible]dethatic, his Literary History of It[illegible]inhabited an academy of experimental [illegible]plated at Milan; of which Sig. Vallisn[illegible]presiding, and had already drawn up [illegible]e likewise many other *academies* of [illegible]ucibus enumerates 530; of which the [illegible]arcely.

F. Mersenne is said to have given the first idea of a philosophical *academy* in France, towards the beginning of the seventeenth century, by the conferences of naturalists and mathematicians, occasionally held at his lodgings; at which Gassendi, Des Cartes, Hobbes, Roberval, Pascal, Blondel, and others, assisted. F. Mersenne proposed to each, certain problems to examine, or certain experiments to be made. These private assemblies were succeeded by more public ones, formed by Mr. Montmort and Mr. Thevenot, the celebrated traveller. The French example animated every Englishman of distinction and learning to erect a kind of philosophical *academy* at Oxford, towards the close of Cromwell's administration; which, after the Restoration, was erected by authority into a Royal Society. The English example in its turn animated the French. Lewis XIV. in 1666, assisted by the counsels of M. Colbert, founded an *academy* of sciences at Paris, called the

Academy, *Royal, of Sciences*, for the improvement of physics, mathematics, and chemistry. In the year 1699, it had as it were a female birth; the same prince, by a regulation dated the 26th of January, giving it a new form, and putting it on a new and more solemn footing. In virtue of that regulation, this *academy* was to be composed of four kinds of members, viz. *honorary*, *pensionary*, *associates*, and *scholars*. The first class to consist of ten persons; and the rest of twenty each.—The honorary *academists* to be all inhabitants of France; the pensionaries all to reside at Paris; eight of the associates allowed to consist of foreigners; and the scholars all to live at Paris.

The officers, to be a president, named every year by the king, out of the class of honorary *academists*; and a secretary and treasurer, to be perpetual.

Of the pensionaries, three to be geometricians, three astronomers, three mechanics, three anatomists, three chemists, three botanists; the remaining two, secretary and treasurer.—Of the twenty associates, two to apply themselves to geometry, two to botany, and two to chemistry.—The eleves to apply themselves to the same kind of science with the pensionaries they are attached to; and not to speak, except when called thereto by the president.—No regular or religious to be admitted, except into the class of honorary *academists*; nor any person to be admitted, either for associate or pensionary, of which known by some considerable printed work, some machine, or other discovery.—Further, no person to be allowed to make use of his quality of *academist*, in the title of any of his books, unless such book have been read to, and approved by the *academy*.

In the year 1716, the duke of Orleans, then regent, made an alteration in their constitution; augmenting the number of honoraries, and of associates capable of being foreigners, to twelve; admitting regulars among such associates; suppressing the class of eleves, and establishing, in lieu thereof, a new class of twelve adjuncts, in the six several kinds of sciences cultivated by the *academy*; and, lastly, appointing a vice-president, to be chosen yearly by the king, out of the honorary members; and a director, and sub-director, out of the pensionaries.

This *academy* has done great things for the service of learning, by the continuation of the MEMOIRS, by the sending persons to different parts of the world for making observations; but especially by the excellent writings they have published, either in a separate, or a joint capacity; particularly their MEMOIRS. Indeed they have an advantage over most *academies*, in being defrayed their expences, and even paid for care and attendance. Nevertheless, they have undergone some imputations; particularly that of plagiarism, in borrowing their neighbours inventions with what fetches, we do not know. They have the distribution of annual prizes. Their history to the year 1697 was written by Mr. Du Hamel; and since that time continued from year to year by Mr. Fontenelle, under the following titles: Du Hamel Historia Regiæ Academiæ Scientiarum, Paris, 4to. Histoire de l'Academie Royale des Sciences, avec les Memoires de Mathematique & de Physique tirez des Registres de l'Academie, Paris, 4to. Hist. de l'Acad. Roy. des Sciences depuis son Etablissement en 1666, jusqu'en 1699, en 13 tomes, 4to.

A new history, from the institution of the *academy*, to the period from whence Mr. de Fontenelle commences, has been formed; with a series of the works published under the name of this *academy*, during that first interval. Their motto *invenit & perfecit*.

Academy, *the Royal Society of Berlin* was founded by the late king Frederic of Prussia in 1700, on the model of that of England, excepting that besides natural knowledge it likewise comprehends the belles lettres. A new form, and a new set of statutes were given it in 1740; by which it is ordained, that the president shall be one of the counsellors of state, and nominated by the king. The members to be divided into four classes; the first, for professing physics, medicine, and chemistry; the second for mathematics, astronomy, and mechanics; the third, for the German language, and the history of the country; the fourth, for oriental learning, particularly as it may concern the propagation of the Gospel among infidels. Each class to elect a director for themselves, who shall hold his post for life. Their meeting to be in the castle called New Marshal; one class to meet every week in their turn. The members of any of the classes to have free admission into the assemblies of any of the rest. The great promoter of this institution was the celebrated M. Leibnitz, who accordingly was made the first director. The *academy* has published several volumes of its transactions in Latin, under the title of Miscellanea Berolinensia. This *academy* has since been renewed; and several volumes of its transactions published in French, under the title of Histoire de l'Academie Royale des Sciences & Belles Lettres, à Berlin. There are other *academical* institutions at Berlin, and other parts of the North; several of which having distinguished themselves by their journals, ephemerides, &c. the reader will find some account of them under the article JOURNAL.

Academy *of Petersburgh* was founded, or rather projected, by the late czar, Peter the Great, and happily executed by the munificence of the czarina, Catherine, his wife, and successor, on the model nearly of the *academy* of Paris, whereof the czar was a member. Hither that prince invited learned men from all parts of Europe. The *academy* held its first public meeting in December, 1725, in the presence of the duke of Holstein, and a large appearance of persons of distinction. The ordinary assemblies are held twice a week, and public or solemn ones thrice in the year; wherein an account is given of what has been done in the private ones. The building, apparatus, &c. of this *academy* are extraordinary. They have a fine library, an observatory, &c. In effect, it partakes much of what we call an UNIVERSITY; having regular professors in the several faculties, who read lectures as in our schools. Several volumes of the works of this *academy*, under the title of Commentarii Academiæ Scientiarum Imperial. Petropolit. have been published; besides several mathematical pieces, composed by particular members of it. Their motto is *paulatim*.

Academy, *Royal, of Sciences*, at Stockholm, was instituted in 1739, and has since that time to 1783, by quarterly publications, given 42 volumes of transactions in 8vo. in Swedish. See SOCIETY.

Academy *of Sciences*, called *the Institute of Bologna*, was founded by count Marsigli, in 1712, for the cultivating of physics, mathematics, medicine, chemistry, and natural history. Its history is written by M. de Lemeri, from memoirs furnished by the founder himself.

For a further account of similar institutions, see SOCIETY.

Academy, is also used among us as a kind of collegiate school or seminary; where youth are instructed in the liberal arts and sciences in a private way; now indeed it is used for all kinds of schools.

Frederic I. king of Prussia, established an *academy* in Berlin in 1705, for the education of the young nobility of the court, suitable to their extractions. The expence of the students was very moderate, the king having undertaken to pay the extraordinaries. This illustrious school, which was then called the *Academy of Princes*, has now lost much of its ancient splendor.

The Romans had a kind of military *academies*, established in all the cities of Italy, under the name of *Campi Martii*. Here the youth were exercised to be trained for war at the public expence. The Greeks, beside *academies* of this kind, had military *academies*, called *Pallæ*, who taught all the higher objects of war. See GYMNASIUM.

We have two royal *academies* of this kind; one at Portsmouth, for teaching navigation, drawing, &c. which may be called a naval or maritime *academy*; and another at Woolwich, where youth are taught fortification, gunnery, and such branches of the mathematics as are necessary to qualify them for engineers.

The non-conformist ministers, &c. are bred up in private *academies*, as not approving the common university edica-

education. The principal of their *academies* are those in London, Dissenting, and Warrington.

ACADEMY is likewise a name given to a riding school, where young gentlemen are taught the great horse, and other suitable exercise; as fencing, &c. See MANEGE.

ACADEMY is also used in speaking of the schools of the Jews; i. e. those seminaries where the rabbins, or doctors, instruct the youth of their nation in the Hebrew tongue, explain to them the Talmud, teach them the Cabbala, &c.

ACADEMY, or ACADEMY *Figure*, in *Painting*, is a drawing, or design made after a model, with a crayon, or pencil. Or the copy of such a draught.

ACÆNA, *ακαινα*, in *Antiquity*, a Grecian decempeda, or ten-foot rod, used in measuring of their lands. Bertrin. Syntag. de Comitiibus, &c. p. 373. Rectol. Geog. l. ii. c. 2. Scalmas. ad Solin. p. 282.

ACAIABA, in *Botany*, a name by which some authors have called the tree which produces the cashew nut: the avadou of other writers. Plin.

ACAJOU, in *Botany*, the name of a genus of plants, the characters of which are these: the empalement is of one leaf erect, and six-toothed; the segments: the flower is also of one leaf, having a short tube, and cut into five parts at the top: the stamina are as long as the petals, and crowned with small summits: in the centre is a round germen, supporting an awl-shaped style, crowned with an acute stigma: the germen becomes a large oval fleshy fruit, having a large kidney-shaped nut growing to its apex. Miller.

There is only one known species of this genus, viz. the tree which produces the cashew nut, or West Indian ANACARDIUM.

Of the juice of this fruit they make a drink, which, duly fermented, intoxicates like wine. The Indians eat the nuts, slightly roasted, dipped in water, or wine, and sprinkled with salt, as a provocative to exercy. The juice is said to take away warts, and cure a madness. From the fleshy fruit or covering of the two shells, the Indians extract an oil, used by painters, to give their colours a lasting block, and to preserve wood from putrefaction.

ACALEPHE, a name given by Linnæus to a certain tribe of fish of which is very tender. Leaves us a few animals mentioned by Neander, and a few animals, mentioned by Gesner.

ACALYPHA, in *Botany*, the name of a genus of plants, of the *decandria trigynia* class, called by Boerhaave, and others, *ricinus*, *q. v.*

The characters are these: the male and female flowers are diffused, but they are produced on the same plants; the male ones usually standing immediately over the female ones, both without petals; the male flowers have an empalement, composed of three roundish concave leaves; the female also have a three-leaved empalement, in the centre of which is a round germen with three styles, which, when the flowers decay, turns to a roundish vessel divided into three cells by deep furrows, each containing one large round seed. Miller reckons there are Linnæus four species.

ACALCOSE, in

ACAMATOS, among *Physicians*, means that disposition of a body, which is easily distant from friction and exertion.

ACANACEOUS, *See* ACANTHACEOUS.

ACANAPHORA, in *Botany*, a name given by some to the common knapweed or poca, a common wild plant. See CENTAURY.

ACANOR, a particular sort of chemical furnace. See FURNACE.

ACANTHA, in a general sense, a spine or prickle, chiefly of plants of the thorny kind.

The word is formed from *ακη*, *point*, and *ανθος*, *flower*.

ACANTHA, in a more particular sense, denotes a spine, or part of certain fishes, as the echinus marinus, or hedge-hog, the fish, the thorn-back, a species of the genus, so peculiarly called a *thorn*, from the two prickles on its back. Rondelet. de Piscib. lib. viii. c. 2.

ACANTHA, among *Surgeons*, is applied to the head or point of those instruments of the VULSELLA or the forceps, formerly so called, but now called the FORCIPES *dentati*.

ACANTHABOLUS, a surgeon's instrument, wherewith to extract foreign bodies, which by the sharpness of the points have penetrated, and severed the parts of the body.

The word is compounded of *ακανθα*, a *thorn*; and *βαλλω*, to *cast away*.

The *acanthabolus* is the same with the instrument which is otherwise called *capreas*. Its chief use is for extracting fishbones, or the like, sticking in the œsophagus; as also the fragments of weapons, bones, hair, &c. remaining in wounds. Its figure resembles that of a pair of pincers; sometimes it is also made crooked, for more commodious application to the fauces. Celsus, lib. vii. c. 3.

ACANTHAS of Ægina, is also sometimes used for an instrument, wherewith people pull out the hairs from their eyebrows.

ACANTHACEOUS, among *Botanists*, a term applied to a class of plants, popularly known under the name of the THISTLE *kind*.

ACANTHALZUCA, *the same as echinopus, or the* THISTLE.

ACANTHE, in the *Materia Medica* of the ancients, a name given to the plant we now call the ARTICHOKE.

ACANTHE *Arabica*, in *Botany*, a name given by some of the Greek writers to a plant called *acanthe*, and by the Arabian physicians *acacia*. It is a prickly plant, whose roots were somewhat like those of the asparagus, and composed of several kinds of gums, one of a bitter taste. It was brought for medicinal use from the East Indies, and some parts of Arabia, but was the root of the *amomum* of Avicenna and others.

ACANTHAS, in *Ichthyology*, a name given by some authors to the 6th, the skin of which is used by our artificers in polishing, and called by them simply fish-skin. See GALEUS.

ACANTHICE, *mastich*, among ancient *Naturalists*, a kind of gum, yielded by the herb helxine. Gesner explains it by *spinalis multifida*. Plin. Hist. Nat. Lib. xxiv. c. 19. Hard. Not.

See *Distaff*-THISTLE.

ACANTHINE, *acanthina*, denotes a thing relating to, or resembling the herb ACANTHUS.

In this sense, we read of *acanthina opificiosa*, *acanthine garments*, of which we have two different explications. Some understand by it a kind of embroidery, wrought in imitation of the Egyptian *acanthine* dress, whose small turnips are much interlaced. Others will have it a peculiar kind of silken stuff, made of the lanugo, or down of a plant of the thistle kind, growing in Sicily and the East. Plin. Hist. Nat. Lib. xix. c. 19. Hard. Not.

ACANTHITE, a name used by some writers for BASTARD wood.

ACANTHOS, among *Naturalists*, a plant of the thorn, or rather of the thistle kind: wanne down, being cleansed from the prickles, was manufactured into a kind of stuff, not unlike silk. Plin. ubi supra.

ACANTHIS, in *Ornithology*. See GOLDFINCH.

ACANTHOPTERYGII, in *Natural History*, a term used to express one of the general classes or families of fishes; the character of which is, that all the rays of the *fins* are bony, and some of them prickly at the extremities.

The word is derived from *ακανθα*, a *thorn*, or *prickle*, and *πτερυξ*, a *fin*.

Under this class are contained seventeen GENERA; viz. the *coracinus*, *chætodon*, *sciæna*, *scarus*, *labrus*, *sparus*, *lobotes*, *zeus*, *sparus*, *chætodon*, *mugil*, *gasterosteus*, *xiphias*, *trichiurus*, and *echeneis*.

ACANTHUS, in *Botany*. See BEAR'S-BREECH.

The ancients have not only called the herb bear's breech by this name, but also a thorny tree growing in Egypt. An accurate examination of the ancient writers will, however, shew very plainly, that they meant two very different vegetables under this name: the *acanthus* of Virgil and the Egyptian *acanthus* of Theophrastus, being two wholly different plants. Virgil mentions the *acanthus* as being an ever-green plant, and producing berries, or a small round fruit, *baccas semper frondentis acanthi*, are his words: and Theophrastus tells us, that his Egyptian *acanthus* is a prickly tree, and bears pods like those of beans. The Greek sculptors adorned their works with the figure of the latter; as the Gothic did with that of the former, whom they represented not only in their capitals, but also in other ornaments. It is plain, that the *acanthus* of Theophrastus is the *acacia*, a tree, from some species of which we have the gum arabic now in use; and the *acanthus* of Virgil, mentioned in this place, seems to be the Cyrenian *lotus*, which Herodotus says is like the Egyptian *acanthus*.

ACANTHUS, in *Architecture*, an ornament in the Corinthian and Composite orders: being the representation of the leaves of an acanthaceous plant, in the capitals thereof. See *Tab. Architect. fig. 21.*

ACANUS, a species of thistle, called *acanus Theophrasti*. See CARDUUS.

ACAPATLI, in *Botany*, a name used by some authors for the plant which produces the long pepper, used in medicine. De Last. Ind. Occ. p. 231.

ACAPNOS, *ακαπνος*, a name of the CAMPANULA, or MARSH-WORT; also of dry wood.

ACARA, in *Ichthyology*, the name of a fish caught in the fresh waters in the Brasils, and esteemed a very delicate and well-tasted one. It seldom exceeds three or four inches in length, and has a high back like the BRACEM. Its mouth is small, and its jaws rough like a file. It has one long back-fin, which is supported by a great number of slight and prickly rays, and reaches to the tail. Its scales are large; its back is of a glossy brown; its sides and belly white; its tail is not forked. It has a large black spot on the middle of each side, and another near the tail. Its fins are all brown. Margrave. Brasil.

ACARAAYA, in *Ichthyology*, the name of a fish caught on the Brasilian shores, and by some called also GARANNA. It grows to three feet in length, and is of the shape of our carp. Its lower jaw is furnished with an even range of sharp teeth, like little needles. Its upper jaw has two very long ones, and besides these, a multitude of other very short ones. Its eyes are large, and their iris red. Its tail is broad, and a little forked. Its scales are of a moderate

moderate [illegible] silver hue, with an admixture of purple [illegible] the under part of its head, are whitish [illegible] as all of a fine pale red, except those are white, with a slight edge of red. [illegible] Brasil, both sizes and salted. Margrave.

ACARA [illegible]gy, the name of a fish found in the wells [illegible] some other parts of the world. It is a [illegible] remarkable animal. It is of a flatted bo[illegible] not thick. It is usually of about ei[illegible] breadth long, and about four broad. I[illegible], but very small, scarce admitting th[illegible]le finger. In the fore-part of the mu[illegible] and below, there are triangular and flat[illegible] on each side, just below the eyes, there are [illegible], which serve in the place of gills; a[illegible] of the back, directly behind the eyes, [illegible] fine slender pointed horns, which fingers nearly erect, but bending a little backward; this is of a cylindrical shape, and four fingers breadth long. It has no scales, but a smooth skin, and is of a mixed greyish and brownish colour. It feeds on sea-weeds; and its flesh is not eatable. Margrave.

ACARAPEBA, in *Ichthyology*, the name of an American fish, called also by some *bersone*. It has a somewhat broad and flat body, covered with large scales of a fine silver whiteness. It grows to a foot in length, and to four or five fingers in breadth. It has a large mouth, but without teeth; and its tail is forked. It has one long black fin, the anterior rays, or naves, of which are rigid and prickly, the hind naves soft and flexile. The fins are all like the rest of the body, of a pure white. The fish seems a kind of SPARUS. Margrave.

ACARAPUNIMA, in *Ichthyology*, the name of a Brasilian fish, of the CARANX kind, and seeming of the same species with the *caranxus* of the Mediterranean. Ray.

ACARARIYAMBA, in *Ichthyology*, the name of a fish caught in the Brasilian seas, of an oblong figure, resembling the MULLETS, and growing to two feet or more in length. Its mouth and teeth are very small. It has one long fin on the back, running very nearly to the tail, which is supported by rigid and prickly rays. Its tail terminates in two oblique horns. Its scales are large, and of a purplish colour, with a fine admixture of blue; and along the middle of each side there runs, from the gills to the tail, a very broad and beautiful gold-coloured line. Its back, down to this line, is variegated also with small gold-coloured spots; and the sides under the line are very beautifully variegated with small and fine longitudinal, but short gold-coloured lines, of a somewhat paler colour than the broad one. Its belly is white, and its fins yellow. Margrave and Willughby.

ACARAPUCU, in *Ichthyology*, the name of a Brasilian fish, caught in the fresh waters, and growing to eighteen inches in length. It is of a rounded body; and its mouth is small and not protuberant. It has lips, which it can hide, or suffer to appear at pleasure, and has no teeth. Its tail is long and forked; its scales are of a silvery hue. On the back it has a fine golden gloss, shining in the whitish rays; and on the sides five or six large blue spots. Its back and side fins are of a pale blue, as is also the tail: the belly fins are yellowish. It is a well-tasted fish. Margrave.

ACARAUNA, in *Ichthyology*, an American fish, of which there are two species; the one called *acarauna*, without any addition; and the other the *acarauna quadrata*, or square *acarauna*; and by our sailors, the *sole-fish*.

The *acarauna*, simply so called, grows to about four or five inches long, and is considerably broad and flat. It is covered with small blackish scales; its tail is large and forked. It has two fins under the gills, two more under the belly, and a long one running all along the back, and another answering it from the anus to the tail. Its mouth is small and narrow, and its teeth very small. Its eyes are but small; and on each side near the tail, it has an extremely sharp thorn, or prickle: these it can draw in at pleasure into its sides, and occasionally throw them out to annoy other fishes.

The *acarauna quadrata*, or square *acarauna*, or *sole-fish*, is much of the same size with the former species. It is frequently preferred to the sublimer of the curious, and is found there, of a pale brown, with its tail and the fore-part of the body of a pale yellow, or straw colour. It is covered with scales, furnished with slight parallel lines, except that the anterior part of its head is covered with a naked, but rough skin. The top of the head rises into an acute angle; the forehead is flat; and the eyes round and large, and placed high. Its mouth is very small; and its teeth are very slender, and stand close together. The upper jaw has on each side four sharp thorns growing from it, and the lower two very large and sharp ones, bending downward, and in shape and structure resembling a cock's spur, and from these there runs up a row of small thorns to the eye. Willughby, Hist. Pisc.

ACARI, or ACARUS, in *Natural History*, an animalcule bred in wax; said by Aristotle to be the least object of human sight.

ACARI, or ACARUS, is also used for a kind of vermin lodged under the cutis, where preying on the parts, it excites an itching, and raises pimples.

A German physician has traced their origin: he finds the *acari* arise from milk-mites turning flesh and four. Their seat is chiefly in the hands or feet, rarely in the arms or legs. Linlov. in Ephem. Germ. dec. 10. p. 109. See ITCH.

ACARUS is also used by some *Naturalists* as the classical name of the lice of animals, which are indeed of as many various genera as the animals on which they breed. In the Linnæan system, it is a genus of *aptera*, with eight feet, two eyes at the sides of the head, and two jointed tentacula, comprehending thirty-five species.

ACARNA, in *Botany*, a name by which Theophrastus, and some other writers, express the common ARTICHOKE. Mem. Vaillant gives the name *acarna* to one of the genera of the *cynarocephalous*, or artichoak-headed class of plants.

ACARNAN, in *Ichthyology*, the name of a small sea-fish very common in the Mediterranean, and brought to market among the *rubellios*, or RED MULLETS, and called by the fishermen by the name *fragolino*, or *glareolino*. It very much resembles the erythrinus in shape; but as that is of a fine red, this, on the contrary, is of a silvery white. Its mouth is moderately large; its teeth slender and pointed; and its eyes large, having fine yellow irises. Its fins are white, but have each a black spot at their origin. It seems doubtful whether this be really any way different from the erythrinus, except in colour, which alone is not distinction sufficient to make a species. Rondelet.

ACARON, the wild MYRTLE.

ACARTUM, red lead; called also *azemaphor*.

ACARUS. See ACARI.

ACATALECTIC, ACATALECTICUS, in the *Ancient Poetry*, a term applicable to such VERSES as have all their FEET and SYLLABLES; and are in no wise lame or defective at the end.

The word comes from *κατα* and *λήγω*, *to cease* or *end*; whence *καταλεκτικος*, *which wants something at the end*; and the privative *α* being prefixed *ακαταλεκτικος*, *which wants nothing at the end*. See CATALECTIC.

In the following strophe of Horace, the two first verses are *acatalectic*, and the last *catalectic*.

Soracte nivis specta, grata vice
Veris & Favoni:
Trahuntque siccas machinæ carinas——

ACATALEPSIA, ACATALEPSY, in *Philosophy*, an impossibility of a thing's being conceived or comprehended. The word is compounded of the privative *α*, and *καταλαμβανω*, *deprehendo*, *to find out*.

Scepticism is synonymous with incomprehensibility.

ACATALUS, a JUNIPER *berry*.

ACATASTOS, *incertus*, in a physical term, applied to irregular fevers, whose paroxysms are uncertain, and which are indicated by frequent changes in the urine. It is likewise applied to those shivering fits in fevers, which have no constant return, and to turbid urine, that deposits no regular sediment.

ACATERY, ACCATRY, in the king's household, a kind of check betwixt the CLERKS of the kitchen, and the PURVEYORS.

ACATHISTUS, *acathistus*, in an ecclesiastical sense, a solemn hymn, or vigil, anciently sung in the Greek church, on the Saturday of the fifth week in Lent, in honour of the Virgin, for having thrice delivered Constantinople from the invasions of barbarous nations.

It was called *acathistus*, i. e. *without sitting*, because it was celebrated standing: the people stood all night, singing the praises of their deliverer.

The same name is also given to the day wherein it was performed, which is called the fifth *acathistus*.

ACATIUM, in the ancient *Navigation*, a kind of boat or pinnace used for military purposes.

The *acatium* was a species of those called *actuaria naves*. Each had an oar wrought with nine. It was sometimes made use of in battle: Strabo represents it as a kind of privateer, or pirate sloop.

ACAULIS, in *Botany*, a term applied to certain plants, the flowers of which have no stalk or pedicle to support them, but rest immediately on the ground: of this kind are the carline thistle, and some others.

ACAULOSE, or ACAULOUS, is applied, by *Botanists*, to those plants which have no proper stem or CAULIS. Ray.

ACBAR, in *Natural History*, a name given by the people of the Philippine islands to a bird, very like our common hen, which is very frequently wild among them. It lives on rice, and other vegetables, and does a great deal of mischief; but is shot wanded, and does not fly well, so that it is easily destroyed.

ACBAR, the name of an idol of enormous size, which the Arabians are said formerly to have worshipped. It was with difficulty that Mahomet restrained them from this species of idolatry. Hyde's Diff. vol. i. p. 257.

ACCADEMIA, among *Mechanics*, fignifies a concert.

ACCALIA, in *Antiquity*, folemn feaſts, held in honour of Acca Laurentia, nurſe, or foſter-mother of Romulus. Theſe were otherwiſe called *Larentalia*.—To the ſame Acca is alſo attributed the inſtitution of the FRATRES ARVALES. Varro, de Ling. Lat. & Scalig. Comment. in Varro.

ACCAPITARE, ACCAPTARE, ACAPTARE, in ancient *Law*-books and records, the act of becoming vaſſal of a lord, or of yielding homage and obedience to him.

The word is compounded of the Latin *ad*, *to*, and *caput*, *head*; by reaſon vaſſals own their lords for their head. Whence alſo the lords are ſometimes called *domini capitales*; as thoſe who command in an army are called *capitanei*, *capitanii*, and in old French, *chefs-taines*, *chefteins*, in reſpect of their ſoldiers.

ACCAPITIUM, a ſum of money paid to a vaſſal, upon his admiſſion to a FEUD.

The word is alſo written *accapitium*, *accapitentum*, *acceptio*, *acceptatio*, and *acceptegium*.

ACCAPITUM, in our ancient *Law*-books, ſignifies RELIEF due to the chief lord.

ACCARY. See ACATERY.

ACCATUM, the ſame as *accetum*, or AURICHALCUM.

ACCAZDIR, denotes fir.

ACCEDAS *ad Curiam*, an original writ, which lies for removing ſuits in any court baron, except the county court, into the king's court; upon apprehenſion of partiality or falſe judgment in the other.

A like writ lies for him who has received falſe judgment in the county court, wherein it is called *de falſo judicio*.

An *Accedas ad Curiam* lies alſo for juſtice delayed, as well as falſely given; and is a ſpecies of the writ RECORDARI.

ACCEDAS *ad Vicecomitem*, is a writ directed to the coroner, commanding him to deliver a writ to the ſheriff, who having a PONE delivered to him, ſuppreſſes it.

ACCELERATION, in *Mechanics*, the increaſe of velocity in a moving body.

Accelerated motion is that which continually receives freſh acceſſions of velocity, and is either equally or unequally *accelerated*.

Acceleration ſtands directly oppoſed to *retardation*, which denotes a diminution of velocity.

ACCELERATION is chiefly uſed, in *Phyſics*, in reſpect of falling bodies, i. e. of heavy bodies tending towards the centre of the earth by the force of GRAVITY.

That natural bodies are *accelerated* in their deſcent is evident from various conſiderations, both *a priori* and *poſteriori*.—Thus, we actually find, that the greater height a body falls from, the greater impreſſion it makes, and the more vehemently does it ſtrike the ſubject plane, or other obſtacle.

Various are the ſyſtems and opinions which philoſophers have produced to account for this *acceleration*. Some attribute it to the preſſure of the air: the farther, ſay they, a body falls, the greater load of atmoſphere is of conſequence incumbent on it; and the preſſure of a fluid is in proportion to the perpendicular altitude of the column thereof.—Add, that the whole body of the fluid preſſing in innumerable right lines, which all meet in a point, viz. the centre, that point, by the meeting of thoſe lines, ſuſtains, as it were, the preſſure of the whole maſs: conſequently, the nearer a body approaches to it, the effect or preſſure of more united lines muſt it ſuſtain.

But what overturns this account, is, that as the preſſure of the air downwards increaſes ſo, by the known laws of ſtatics, does the reſiſtance, or the force wherewith the ſame fluid tends to repel, or drive the body upwards again. Others inſiſt, that the incumbent air is the groſſer and more vaporous, the nearer the earth; and filled with more heterogeneous particles, which are not ſtrictly elaſtic air; and hence, ſay they, a deſcending body, meeting continually with leſs reſiſtance from the elaſticity of the air, and having the ſame force of gravity ſtill acting on it, muſt neceſſarily be *accelerated*. Hobbes (Philoſ. Probl. cap. 1. p. 2.) attributes *acceleration* to a new impreſſion of the ſame which makes bodies fall; which, on his principles, is alſo the air. As part of this mounts, part alſo muſt deſcend; for reaſons drawn from the motion of the earth, which is compounded of two motions, one circular, the other progreſſive; conſequently the air aſcends, and circulates at once. As the body, in its fall, receives a new preſſure in every point of its deſcent, its motion, he ſays, muſt needs be accelerated.

But what overturns all accounts where the air or atmoſphere is concerned, is, that the *acceleration* holds in *vacuo*, and even more regularly than in air. See VACUUM.

The Peripatetic account is worſe than this: the motion of heavy bodies downwards, ſay they, ariſes from an intrinſic principle, which makes them tend to the centre, as their proper ſeat, or element, where they would be at reſt: hence, add they, the nearer a body approaches thereto, the more is their motion accelerated.

The Gaſſendiſts, on the other hand, ſuppoſe that the earth emits a ſort of attractive effluvia, or inviſible threads, whereof continually aſcend and deſcend, which threads, proceeding like radii from a common centre, diverge the more, the farther they go: ſo that the nearer a heavy body is to the centre, the more of theſe magnetic threads it receives; and hence the more ſwift motion *accelerated*. But this is refuted by an eaſy experiment: for if a ball be let fall out of the loweſt window of a high tower, and alſo out of the higheſt, the *acceleration* will be the ſame in both caſes, notwithſtanding the greater vicinity to the centre in the one, than in the other caſe.

The Carteſians account for *acceleration*, from the repeated pulſes of a ſubtil etherial matter, which is continually acting on the falling body, and impelling it downwards.

After all, the immediate cauſe of *acceleration* is nothing myſterious; the principle of GRAVITATION, which determines the body to deſcend, determining it to be *accelerated* by a neceſſary conſequence.

Suppoſe a body let fall from on high: the primary cauſe of its beginning to deſcend, is doubtleſs the power of gravity; but when once the deſcent is commenced, that ſtate becomes in ſome meaſure natural to the body; ſo that if left to itſelf, it would perſevere in it for ever, even though the firſt cauſe ſhould ceaſe: as we ſee in a ſtone caſt with the hand, which continues to move, after it is left by the cauſe that gave it motion.

But, beſide the propenſity to deſcend, impreſſed by the firſt cauſe, and which of itſelf were ſufficient to continue the ſame degree of motion once begun, *in infinito*; there is a conſtant acceſſion of ſubſequent efforts of the ſame principle, gravity, which continues to act on the body already in motion, in the ſame manner as if it were at reſt. Here, then, being a double cauſe of motion; and both acting in the ſame direction, viz. directly towards the centre of the earth; the motion they jointly produce muſt neceſſarily be greater than that of any one of them.—And the velocity thus increaſed having the ſame cauſe of increaſe ſtill perſiſting, the deſcent muſt neceſſarily be continually *accelerated*.

For, ſuppoſing gravity, whatever it be, to act uniformly on all bodies, at equal diſtances from the earth's centre; and that the time in which a heavy body falls on the earth be divided into equal parts infinitely ſmall; let this gravity incline the body towards the earth's centre, while it moves in the firſt infinitely ſmall part of the time of its deſcent; if after this, the action of gravity be ſuppoſed to ceaſe, the body would proceed uniformly on towards the earth's centre, with a velocity equal to the force of the firſt impreſſion.

But now, ſince the action of gravity is here ſuppoſed ſtill to continue; in the ſecond moment of time, the body will receive a new impulſe downwards, equal to what it received at firſt; and thus its velocity will be double of what it was in the firſt moment: in the third moment it will be triple; in the fourth quadruple, and ſo on continually: for the impreſſion made in one moment is not at all altered by what is made in another; but the two are, as it were, aggregated, and brought into one ſum.

Wherefore, ſince the particles of time are ſuppoſed infinitely ſmall, and all equal to one another; the *impetus* acquired by the falling body will be every where, as the times from the beginning of the deſcent.—And hence, ſince the quantity of matter in the body given continues the ſame, the velocity will be as the time in which it is acquired.

Further, the ſpace paſſed over by a moving body in a given time, and with a given velocity, may be conſidered as a rectangle made by the time and the velocity.—Suppoſe *A* (*Tab.* IV. *Mechan. fig.* 64.) a heavy body deſcending, and let AB repreſent the time of its deſcent; which line ſuppoſe divided into any number of equal parts, AC, CE, EG, &c. repreſenting the ſeveral ſucceſſive moments of the given time.—Let the body deſcend through the firſt of thoſe diviſions, AC, with a certain equable velocity ariſing from the propoſed degree of gravity; this velocity will be repreſented by AD; and the ſpace paſſed over, by the rectangle CAD.

Now, as the action of gravity in the firſt moment produced the velocity AD, in the body before at reſt; in the ſecond moment, the ſame will produce, in the body ſo moving, a double velocity, CF; in the third moment, to the velocity CF will be added a further degree, which together therewith will make the velocity EH, which is triple of the firſt, and ſo of the reſt. So that in the whole time AB, the body will have acquired a velocity

BK

BK … the divisions of the line, e.g. AC CE … the spaces gone through will be the … CD, EF, &c. So that in the … space described by the moveable … rectangles, I, e, to the desired … Suppose, if the accessions of velocity only … given points of time, as C, in E, … degree of motion should continue … accessions of acceleration came up.—I … of time were supposed less, e.g. … tures of the figure would be pro… it would approach so much … If they were infinitely small, … velocity were supposed to be … every point of time, as is really … thus successively produced will … ABE, &c. 65 1/2—Here, the whole time AE consisting of the little portions of time … and the area of the triangle ABE, of … the spaces answering to … triangles answering to … the whole area or triangle ex… the space moved through in the whole time AB; … the little triangles BIK, &c. the spaces gone … the divisions of time I, &c.

But these triangles being similar, their areas are to one another, as the squares of their homologous sides AB, … &c. and consequently, the spaces moved are to … as the squares of the times.

Hence we may easily infer the great law of *acceleration*, viz. "That a descending body, uniformly *accelerated*, de… "scribes, in the whole time of its descent, a space which "is just half of what it would have described in the "same time, with the *acquired* velocity it has acquired "at the end of its fall." For, the whole space the falling body has moved through in the time AB, we have already shewn, will be represented by the triangle ABC; and the space the same body would move through in the same time, with the velocity BI, will be represented by the rectangle BIHF.—But the triangle is known to be equal to just half the rectangle.—Therefore, the space moved is just half of what the body would have moved with the velocity acquired at the end of the fall.

Hence we infer, 1. that the space moved with the last acquired velocity BI, is half the time AB, is equal to that really moved by the falling body in the whole time AB.

2. If a falling body describe any given length in a given time, in double that time it will describe four times that length; in three the time, nine times, &c. and universally, if the times be in arithmetical proportion, 1, 2, 3, 4, &c. the spaces described will be, 1, 4, 9, 16, &c.

3. The spaces described by a falling body in a series of equal moments or intervals of time, will be as the uneven numbers 1, 3, 5, 7, 9, &c. And hence the velocities acquired in falling are as the times; the spaces will also be as the squares of the velocities; and both times and velocities in a subduplicate ratio of the spaces.

The motion of a body ascending, or impelled upwards, is diminished or retarded from the same principle of gravity acting in a contrary direction, in the same manner, as a falling body is *accelerated*. See RETARDATION.

A body, thus projected upwards, tires till it has loft all its motion: which it does in the same time that a body falling would have acquired a velocity equal to that wherewith the body was thrown up.

Hence, the same body thrown up, will rife to the same height from which falling, it would have acquired the velocity wherewith it was thrown up.

And hence, the heights which bodies thrown up with different velocities do afcend to, are to one another as the squares of those velocities.

ACCELERATION *of bodies on inclined planes.*—The same general law obtains here, as in bodies falling perpendicularly: the effect of the plane is to make the motion flower; but the inclination being every where equable, the retardation arising therefrom will proceed equally in all parts, at the beginning and the ending of the motion. —The particular laws, fee under Inclined Plane.

ACCELERATION *of the motion of projectiles.*—The motion of projectiles bodies is *accelerated* in their defcent, but in a less ratio than that of bodies falling perpendicularly. See the laws of this motion under PROJECTILE.

ACCELERATION *of the motion of projectiles.* See PROJECTILE.

ACCELERATION *of the motion of compreffed bodies*, in expanding or leffening themselves. See DILATATION.

That the motion of compreffed air, expanding itself by its elafticity to its former dimensions, is *accelerated*, is evident from various considerations.

ACCELERATION is alfo applied in the ancient aftronomy, in respect of the fixed ftars.—Thus, *acceleration* was the difference between the revolution of the *primum mobile*, and the fixed revolution; which was computed at 3 minutes, and 56 seconds.

ACCELERATION *of the Moon*, is a term used to express the increase of the moon's mean motion from the fun, compared with the diurnal motion of the earth; fo that it is now a little fwifter than it was formerly. Dr. Halley was the firft who made this difcovery; and he was led to it by comparing the ancient eclipses obferved at Babylon, with thofe obferved by Albatenius in the ninth century, and fome of his own time. He was not able to afcertain the quantity of this *acceleration*, becaufe the longitudes of Bagdat, Alexandria, and Aleppo, where the obfervations were made, had not been accurately determined. But fince his time the longitude of Alexandria has been afcertained by Chazelles; and Babylon, according to Ptolemy's account, lies 30° eaft from Alexandria. From thefe data, Mr. Dunthorne compared feveral ancient and modern eclipses, with the calculations of them by his own tables, and hereby verified Dr. Halley's opinion; for he found, that the fame tables repreſent the moon's place more backward than her true place in ancient eclipses, and more forward than her true place in later eclipses; and thereby fully inferred, that her motion in ancient times was flower, in later times quicker than the tables give it. But he did not content himself with merely afcertaining the fact. In proceeding to determine the quantity of the *acceleration*, and by means of the moſt ancient eclipſe, of which any authentic account remains, obferved at Babylon, in the year before Chriſt 721, he concluded, that the obferved beginning of this eclipſe was not above an hour and three quarters before the beginning by the tables; and therefore the moon's true place could precede her place by computation but little more than 30′ of a degree at that time. Admitting the *acceleration* to be uniform, and the aggregate of it as the fquare of the time, it will be at the rate of about 10″ in 200 years. Phil. Trans. N° 218. N° 492, or vol. xlvi. p. 161.

Dr. Long attributes the *acceleration* above delcribed, to one or more of theſe caufes; viz. 1. the annual and diurnal motion of the earth continuing the fame, the moon is really carried round the earth with a greater velocity than heretofore is; 2. the diurnal motion of the earth, and the periodical revolution of the moon continuing the fame, the annual motion of the earth round the fun is a little retarded; which makes the fun's apparent motion in the ecliptic a little flower than formerly, and, conſequently, the moon in paſſing from any conjunction with the fun, fpends lefs time before fhe again overtakes the fun, and forms a fubfequent conjunction: in both theſe cafes, the motion of the moon from the fun is really *accelerated*, and the fynodical month actually fhortened: or, 3. the annual motion of the earth, and the periodical revolution of the moon continuing the fame, the rotation of the earth round its axis is a little retarded; fo this cafe, days, hours, minutes, feconds, &c. by which all periods of time muſt be meaſured, are of a longer duration; and conſequently the fynodical month will appear to be fhortened, though it really contains the fame quantity of abſolute time as it always did. If the quantity of matter in the body of the fun be leſſened by the particles of light continually ſtreaming from it, the motion of the earth round the fun may become flower; if the earth increaſes in bulk, the motion of the moon round the earth may be quickened thereby. Aſtronomy, vol. ii. p. 236.

ACCELERATOR, in *Anatomy*, a muſcle in the penis, whoſe office is to expedite the diſcharge of the urine, and the ſemen.

This is more peculiarly called *accelerator urinæ*: ſome make two muſcles of it, and give them the denomination *acceleratores*, or *acceleratorii muſculi*.

It *ariſes* tendinous from the upper and fore-part of the urethra, but ſoon grows fleſhy, paſſes under the os pubis, and circumpaſſes the bulb of the cavernous body of the urethra.—Both ſides of this muſcle meet in a middle line, correſponding to the ſeam in the ſkin over it; and ſometimes unite, the ſpace of two inches; after which it ſeparates two ſeveral elongations, which become thin tendons at their terminations on the cavernous bodies of the penis. Its upper part covering the bulb, when in action, ſqueezes the veins which paſs through it from the glans, in order to the formation of the erection. By the repeated contraction of this upper part, the blood in the bulb is preſſed forwards the glans; and thereby aſſiſts the erection.

The two elongations compreſs the channel of the urethra, and ſo force out the remained feed, or urine; whence the muſcle takes its name.

ACCENDENTES, or ACCENDERES, in *Eccleſiaſtical Writers*, a lower order of miniſters in the church of Rome, whoſe office is to light, trim, and trim the candles, or tapers. Spelman.

The

The *accendentes* are much the same with those otherwise called *acrilythi* and *cerariorii*.

ACCENDONES, or ACCENDERS, in *Roman Antiquity*, a kind of GLADIATORS, whose office was to excite and animate the combatants, during the engagement.

ACCENSI, in *Antiquity*, an inferior order of officers, appointed to attend the Roman magistrates, somewhat in the manner of ushers, serjeants, or tip-staves, among us. They were thus called from *accenso, to send for*; one part of their office being to call assemblies of the people, summon parties to appear before the judges, &c.

ACCENSI also denote a kind of supernumerary soldiers in the Roman armies; whose office was to attend the motions of their principals, and supply the places of those who were killed or disabled by their wounds.

They were thus denominated, *quia accenebantur, or ad ærsum afficiebantur*: Vegetius calls them *supernumerarii legionum*: Cato calls them *ferentarii*, because they furnished those engaged in battle with weapons, drink, &c. Though Nonius suggests another reason of that appellation, viz. because they fought with stones, slings, and weapons, *quæ ferrentur*, such as are thrown, not carried in the hand. They were sometimes also called *velites*, and *velati*, because they fought clothed, but not in armour; sometimes *adventitii* and *subsidiarii*; sometimes *rorarii*. The *accensi*, Livy observes, were placed in the rear of the army, because no great matter was expected from them: they were taken out of the fifth class of citizens. Festus in voc. *Ferentarii*. Salmas. de re Milit. Rom. c. 15.

ACCENSI was also an appellation given to a kind of assistants, appointed by the tribune to assist each centurion and decurion. In which sense, *accensus* is synonymous with *optio*.—In an ancient inscription, given by a Tyree, we meet with ACCENSUS EQUITUM ROMANORUM; an office no where else heard of; that author suspects it for a corruption, and instead thereof reads A CENSIBUS. Ant. Erud. Etrusc. tom. 1. p. 200.

ACCENSION, ACCENDING, in *Physics*, the act of kindling, or setting a body on fire.

The word is formed of the Latin *accendere, to kindle*; a compound of *ad*, to; and *candere, to glow*. Though some grammarians suspect the primitive significations of *accendere*, to have been, *to render famous*.

Accension, on other occasions, is called INFLAMMATION, IGNITION, CONFLAGRATION, &c.

Accension stands opposed to EXTINCTION.

Chemists furnish us with various instances of the *accension* of cold liquors by bare mixture: as of the acid spirits of minerals, and the essential oils of plants.

ACCENT, in its primitive sense, an affection of the voice, which gives each syllable in a word its due pitch, in respect of height or lowness.

The word is originally Latin, *accentus*, a compound of *ad*, to and *cano*, to sing. In this sense, *accent* is synonymous with the Greek προσῳδία, the Latin *tone*, or *tenor*, and the Hebrew מְתֶג *geresh*, *tenor*.

The *accent*, properly, only respects high and low, or acute and grave.—Though the modern grammarians use it also in respect to loud and soft, long and short; but this confounds *accent* with *quantity*.

The difference between the two may be conceived from that which we observe between the beat of a drum, and the sound of a trumpet. The former expresses every thing belonging to quantity and time, and may be heard as long as there is a motion in the sound, though it nothing like accent.

ACCENT is also used in grammar, for a character placed over a syllable, to mark the acuity or gravity of tone to be pronounced in a higher or lower tone: and to regulate the inflections of the voice in reading. It is distinguished from *quantity*, as the former regards the tone of the voice, the latter the length of it.

We reckon three grammatical accents in ordinary use, all borrowed from the Greeks, viz. the *acute accent*, which shews when the tone of the voice is to be raised.

In modern writing it is a little slope or *virgule*, placed over the vowel, a little sloping or inclined in its descent, from right to left, as ´.—It is the ordinary mark either in English or Latin; the French indeed retain it; but only to mark the close or masculine *e*.

The *grave accent*, when the note or tone of the voice is to be depressed, and is figured thus (`).

The *circumflex accent*, which is compounded of both the acute and the grave; it points out a kind of undulation of the voice, and is expressed thus (ˆ or ~).

But if it be true, that the whole system of pronunciation turns on three *accents*, it is no less true, that each of these three admits of several degrees. The acute *accent*, for instance, may be either higher or lower; may be simply acute, or very acute; and the like holds of the grave and circumflex. So that each of the three common *accents* is, as it were, a genus, including divers particular species; though the ancient grammarians have not thought fit to give particular names and figures to all their differences. Vossius de Arte Gram. Accent. Gree. 1725, 12mo.

Words which have no accents are called *anarthra*.

The Hebrews have a grammatical, a rhetorical, and a musical *accent*; though the first and last seem, in effect, to be the same; both being comprised under the general name of *toni accentes*, because they give the proper tone to syllables: as the rhetorical *accents* are said to be *emphases*, inasmuch as they tend to make the pronunciation more sweet and agreeable.

There are four euphonic *accents*, and twenty-five tonic; however, authors are not agreed as to the number; of which some are placed above, and others below the syllables: the Hebrew *accents* serving not only to regulate the risings and fallings of the voice, but also to distinguish the sections, periods, and members of periods, in a discourse; and to answer the same purposes with the points in other languages. These *accents* are divided into *emperors*, *kings*, *dukes*, &c. each bearing a rule answerable to the importance of the distinction it marks.—Their emperor rules over a whole period, and terminates the sense completely; answering to our point.—Their king divers to our colon; and their duke to our comma. The king, however, occasionally becomes a duke, and the duke a king, as the phrases are more or less short.—It must be noted, by the way, that the management and combination of these *accents* differs in Hebrew poetry from what it is in prose.

The use of the tonic, or grammatical *accents*, has been much controverted; some holding that they differ with the sense, while others maintain that they are only intended to regulate the reading, or singing after the manner that the Jews sing, rather than read, the scriptures in their synagogues. The truth seems here to lie between the two opinions. For though we are inclined to think, that the primary intention of these *accents* was to direct the singing; yet the singing seems also to have been regulated according to the sense: so that the *accents* might serve not only to guide the singing, but also to point out the distinctions.—Though it must be confessed, that many of these distinctions are so subtle and inconsiderable; nor can the modern writers, or the editors of old ones, agree in opinion on this subject; some of them making twice as many of these distinctions as others.

The *Hebrew accents*, in effect, have something common with those of the Greeks and Latins; and something peculiar to themselves. What they have in common, is, that they mark the tone; shewing how the voice is to be raised and sunk, on certain syllables. What they have peculiar is, that they do the office of the points in other languages. See ATHNACH, &c.

It is certain the ancient Hebrews were not acquainted with these *accents*; for that at best, they are not *pure divine*.—The opinion which prevails amongst the learned, is, that they were invented about the sixth century, by the Jewish doctors of the school of Tiberias, called the Masclorets.

The learned Hennin affirms them to be of Arabic invention; and to have been adopted and transferred thence into the Hebrew by the Masorets; especially by the celebrated Rabbi Ben Ascher, who flourished in the middle of the sixth century; on occasion of the emperor Justinian's prohibiting the reading of their traditions in their synagogues. He adds, that they were first brought to their degree of perfection by Rabbi Juda Ben David Chiug, a native of Fez, in the eleventh century.—It is indeed credible, the Jews might borrow their points from the Arabs: but how they should have their *accents* from them, is hard to conceive, the Arabic language having no such thing as *accents*, properly so called.

As in the Greek *accents*, now seen both in manuscript and printed books, there has been no less dispute about their antiquity and use, than about those of the Hebrews.—Isaac Vossius, in an express treatise De Accentibus Græcis, endeavours to prove them of modern invention; affirming that they anciently had nothing of this kind, but only a few notes in their poetry, which were invented by Aristophanes the Grammarian, about the time of Ptolemy Philopater; and that these were of musical rather than grammatical use, serving as aids in the singing of their poems; and very different from those introduced afterwards.

This appears from inscriptions as well as manuscripts, some of which, till 170 years before Christ, have either accent, spirit, apostrophus, or iota, subscribed.—He adds, that Aristarchus, a disciple of Aristophanes, improved on his master's art; but that all they both did, was only designed to facilitate youth in the making of verses.—The same Vossius shews from several ancient grammarians, that the manner of writing the Greek *accents* in those days was quite different from those now used in our books.

Hen. Christ. Noldius thinks, that *accents* were the invention of the Greeks, about nine hundred years ago; and that they were used in poetry: that they were intended to ascertain the pronunciation of the Greek, and to keep out the barbarisms which was then breaking in upon them; that the *accents* and *points* of Aristophanes were perfectly agreeable to the genuine Greek pronunciation, and that the modern ones of the Arabs deface it. Wetstein, Greek professor at Basil, in a learned dissertation, endeavours to prove the Greek *accents* of an older standing.—He owns that they were not always formed in the same manner by the ancients; but thinks that difference owing to the different pronunciation which obtained in the several parts of Greece.

He brings several reasons *a priori* for the use of *accents*, even in the earliest days; as that then they wrote all in capital letters equidistant from each other, without any distinction either of words, or phrases; so that without *accents* they could scarce be intelligible: and that *accents* were necessary to distinguish ambiguous words, and to point out their proper meaning; and this sentiment he confirms from a dispute on a passage in Homer, mentioned by Aristotle in his Poetics, chap. v. Accordingly, he observes that the Syrians, who have tonic, but no distinctive *accents*, have yet in some certain points, placed either below or above the words, to shew their mood, tense, person, or sense. See farther in his Dissertatio Epistolaris de Accentuum Græcorum Antiquitate & Usu. Basil, 1686.

The use of *accents*, to prevent ambiguities, is most remarkably perceived in some eastern languages, particularly the Siamese and Chinese. The Chinese only reckon four accents; for which the missionaries use the following marks, *ā, á, ă, à*; to which they have added a fifth, thus *a*. They make a kind of modulation, wherein prolonging the duration of the sound of the vowel they vary the tone, raising and falling it by a certain pitch of voice: to that their talking is a sort of music or singing. The same sound *pa*, according to the *accent* affixt to it, signifies *God*, *a vault*, *covetous*, *stupidity*, and *a song*.—If they deviate ever so little from the *accent*, they tax quite a contrary thing than what was intended. Thus, meaning to compliment the person you are talking to with the title Sir, you call him a beast with the same word, only a little varied in the tone. Spizel. de Re Liter. Sinens. p. 106. Bulling. Differt. de Litt. Sinens. p. 308. Le Compte, Nouv. Mem. sur la Chine, tom. i. p. 270.

The Siamese are also obliged to sing rather than talk. Their alphabet begins with six characters, all only equivalent to K, but differently *accented*. For though in the pronunciation the *accents* are naturally on the vowels, yet they have some to diversify such of their consonants as are in other respects the same. De la Loubere de Royaume de Siam, tom. ii. § 8.

As minutely as the *accents* of words have been studied, the *accents* of sentences seem to have been strictly overlooked: yet it may be observed, that all mankind lower the voice at the end of a period, elevate it in interrogations, and the like. See Bacon. de Augmentis Scient. lib. vi. cap. 1. Elem. Crit. vol. ii.

ACCENT is also applied, not very properly, to the characters which mark the quantities of syllables, or the time the voice is to dwell on them.

The spurious *accents* answer to the characters of time in music; as crochets, quavers, &c.—The genuine *accents* rather answer to the musical notes, *fa*, *la*, &c.

Such are the *long accent*, which shews that the voice is to stop on the vowel, and is expressed thus (^); and the *short accent*, which shews that the time of pronunciation ought to be short, and is marked thus (˘).

Some even rank the hyphen, diæresis, and apostrophe, among *accents*.

ACCENT also denotes a certain inflection of voice; or a peculiar tone, and manner of pronunciation, contracted from the country, or province, where a person was bred. In this sense, we say, the Welsh tone or *accent*, the northern *accent*, the Gascoign *accent*, Norman *accent*, &c.

ACCENT is also a tone or modulation of the voice, frequently used as a mark of the intention of the speaker, and giving a good or evil signification to his words.

One may give offence with the softest and most soothing words imaginable, by a proper management of the *accent* and manner of pronouncing them.—The *accent* frequently gives a contrary sense to what the words themselves naturally imported.

ACCENT, in *Musick*, is a modulation of the voice, to express a passion.

Every bar or measure is divided into *accented* and *unaccented* parts.

The *accented* parts are the principal; being those intended chiefly to move and affect; as is no there the spirit of the music depends.

The beginning and middle, or the beginning of the first half of the bar, and of the latter half of it, in common time; and the beginning of the three notes in triple time, are always the *accented* parts of the measures.

In common time, the first and third crotchet of the bar are on the *accented* part of the measure.—In triple time, where the notes always go by three and three, that which is in the middle of every three is always *unaccented*; the first and last *accented*. But the *accent* in the first is to much stronger, that in many cases the last is accounted as if it had no *accent*.

The harmony is always to be full and void of discords in the *accented* parts of the measure. In the *unaccented* parts this is not so absolutely necessary; discords have passing without any great offence to the ear.

ACCENT, in *Poetry*. See RHYME.

ACCEPTANCE, the act of receiving or admitting.

Acceptance, among *Civilians*, is the consurrence of the will, or choice of the donee, which renders the act complete; and without which the donor may revoke his gift at pleasure.

In beneficial matters, the canonists hold, that the *acceptance* should be signed at the same time with the resignation, *nisi ex intervallo*.

ACCEPTANCE, in *Common Law*, denotes a tacit agreement to a preceding act, which might have been defeated and avoided were it not for such *acceptance* had.—If a man and his wife, seised of land in the right of the wife, make a joint lease, or feoffment by deed, reserving rent; the man dying, and the wife receiving the rent; such receipt is deemed an *acceptance*, and shall make the lease good so that the shall be barred from bringing the writ, CUI *in* VITA.

So if a lessee for the term of twenty years, accept a lease of the same land for ten years: by the lessee's *acceptance* of the new lease, the term of twenty years is determined in law. 2 Roll. Abr. 469.

ACCEPTANCE, in *Commerce*, is particularly used in respect of bills of exchange.—To *accept a Bill of exchange*, is to sign or subscribe it; and thereby become principal debtor of the sum contained therein; with an obligation to pay or discharge it at the time prefixed.

The *acceptance* is usually performed by him on whom the BILL is drawn; upon its being presented to him by the person on whose behalf it was drawn, or by some other by his order.

A small matter amounts to an *acceptance*, so that there be a right understanding between both parties; as, "Leave your bill with me, and I will accept it;" or, "call for it to-morrow, and it shall be accepted." This obliges as effectually by the custom of merchants, and according to law, as if the party had actually subscribed, or signed it, which is usually done.

But should a man say, "Leave your bill with me; I will look over my accounts and books between the drawer and me, and call to-morrow, and accordingly the bill shall be accepted." This shall not amount to a complete *acceptance*; for this mention of his books and accounts was really intended to give him an opportunity of examining if there were effects in his hands to answer; without which perhaps he would not accept the same; and so it was ruled by the lord chief justice Hale, at Guildhall, London.

A bill may be accepted for part; because the party, upon whom the same was drawn, had no more effects in his hands; which being usually so, there must be a protest, in case for the whole sum, over and above for the residue; however, after payment of such part there must be a protest for the remainder.

Bills payable at sight are not to be *accepted*, as being to be acquitted at the presenting; or in defect of payment, to be protested.—In bills drawn for a certain number of days after sight, the *acceptance* must be dated; because the time is to be accounted therefrom.—The form of this *acceptance* is, *accepted such a day*; and then the signature.

Bills drawn, payable on a day named, or at USANCE, or double usance, need not be dated; usance being reckoned from the date of the bill itself.—On these it is sufficient to write, *accepted*, and the signature.

If the bearer of a bill be contented with an *acceptance* to pay in twenty days after sight, where, in the usance, only eight days are expected, he runs the risk of the twelve additional days: so that if the acceptor fail, he may immediately against the drawer. And if the bearer accepts himself to receive a less sum than is expressed in part, he is to stand the chance of the rest.

ACCEPTATION, in *Grammar*, the SIGNIFICATION of a word; or the sense wherein it is taken and received.

Thus we say:

Such a word has several *acceptations*. In its first and most natural *acceptation*, it denotes, &c.

ACCEPTILATION, in the *Civil Law*, an acquittance given without receiving any money, or a declaration of the creditor in favour of the debtor, signifying, that he

be is satisfied for his debt, and forgives all farther claim, or demand; though in reality no payment has been made.

ACCEPTOR of a bill of exchange, the person who accepts the bill.

The *acceptor*, who is usually the person on whom the bill is drawn, becomes personal debtor by the acceptance: and is obliged to pay it, though the drawer fail before it becomes due.

ACCESS, in a general sense, signifies the approach of a thing towards another.

In which sense, *access* stands opposed to *recess*.

We sometimes say, the *access* of bodies, the *access* of the moon, the sun, planets, &c. but more frequently, the approach of bodies, the appulse of the moon, the rising of the sun, &c. Geometricians speak of a line called the curve of equal *access*, or approach.

ACCESS, in a more particular sense, denotes entrance, or admission.

We say, such a person has *access* to the prince: the *access* on that side was very difficult, by reason of rocks, &c.

ACCESS, in *Medicine*, denotes a fit, or return of some periodical disease.

We say an *access* of the gout, but especially of an ague, an intermitting fever, an epilepsy, &c. an *access* of madness: sometimes also a preternatural *watch*, a cold *access*, &c. *Access* is frequently confounded with *paroxysm*: but they are different things; an *access* being frequently the beginning or first onset of a disease, a PAROXYSM the height of it.

ACCESSIBLE, something that may be approached, or that access may be had to.

Such a place, a fortress, is *accessible* from the seaward; i. e. the passage to it is practicable. See FORTIFICATION.

ACCESSION, in a general sense, is the act of approaching, or going to a place, person, or thing. It is more particularly used for the act whereby a thing is joined or united to something existing before.

ACCESSION is also used for the act of engaging, and becoming a party, to a treaty before concluded between other powers; on the same footing and conditions as if originally comprehended in the treaty itself: such as

The *accession* of the States General to the treaty of Hanover; of the Czarina to the treaty of Vienna, &c.

ACCESSION, in the language of the Conclave, is a method of electing a pope, by procuring for some candidate two-thirds of the voices, upon which the rest are enrolled by way of *accession*.

ACCESSION, in the Civil Law, denotes a method of acquiring property in certain things, by virtue of their connection with other things, which already belong to us.

Accession is effected divers ways, from whence arise several species of it, *simple* and *mixt*; *natural* and *artificial*; *discrete* and *concrete accession*.

ACCESSORY, or ACCESSARY, something that accedes, or is added to another more considerable thing.

In which sense, the word stands opposed to PRINCIPAL.

ACCESSORY, or ACCESSARY, in *Common Law*, is chiefly used for a person guilty of a felonious offence, not principally, but by participation; as, by advice, command, or concealment.

There are two kinds of *accessories*, *before* the fact, and *after* it.—The first is he who commands, or procures another to commit felony, and is not present himself: for if he be present, he is a principal.

The *second* is he who receives, assists, or comforts any man that has done murder, or felony, whereof he has knowledge. A man may also be *accessory* to an *accessory*, by aiding, receiving, &c. an *accessory* in felony.

An *accessory* in felony shall have judgment of life and member, as well as the principal, who did the felony: but not till the principal be first attainted, and convicted, or outlawed thereon.—Where the *principal* is pardoned without attainder, the *accessory* cannot be arraigned; it being a maxim in law, *that he who is principal, may plead accessory*. But if the principal be pardoned, or have his clergy after attainder, the *accessory* shall be arraigned. 4 Rep. W. 3. M. cap. 4. And by the 1 Anne, cap. 9. it is enacted, that where the principal is convicted of treason, or stands mute, or challenges above twenty of the jury, it shall be lawful to proceed against the *accessory* in the same manner as if the *principal* had been attainted: and notwithstanding such *principal* shall be admitted to his clergy, pardoned, or delivered before attainder. In some cases also if the *principal* cannot be taken, then the *accessory* may be prosecuted for a misdemeanor, and punished by fine, imprisonment, &c. Stat. ibid. See Stat. 5 Anne, cap. 31. In the lowest and highest offences there are no *accessories*, but all are *principals*, as in riots, routs, forcible entries, and other trespasses, which are the lowest offences.—So also in the highest offence, which is, according to our law, high treason, there are no *accessories*. Cok. Littles. 71.

Accessaries, in petty treason, murder, and in felonies of several kinds, are not to have their clergy.—There can be no *accessory* before the fact in manslaughter; because that is sudden and unprepensed.

ACCESSORY by Statute, is such a one as abets, advises, aids, or receives one that commits an offence, which is made felony by statute.

ACCESSORY *nervi*, ACCESSORIUS *Willisii*, or *Par* ACCESSORIUS, in *Anatomy*, a pair of nerves, which, arising from the medulla in the vertebræ of the neck, ascend, and enter the skull, and pass out of it again, with the par vagum, wrapped up in the same common integument, and after quitting them, are distributed into the muscles of the neck, and shoulders. See *Tab. Anat. (Osteol.) fig.* 50. lit. t.

In the ascent towards the head, they receive branches from each of the first five pair of cervical nerves, near their rise from the medulla; and send forth twigs to the muscles of the larynx, gula, &c.—Uniting with a branch of the intercostal, they form the plexus ganglioformis.

ACCESSORY, among *Painters*, an epithet given to such parts of a history-piece, as serve chiefly for ornament, and might have been wholly left out: such as vases, armour, &c.

ACCIDENCE, ACCIDENTIA, a name chiefly used for a little book, containing the first elements, or rudiments of the Latin tongue.

ACCIDENS, in *Philosophy*. See ACCIDENT.

Per ACCIDENS, is frequently used among *Philosophers* to denote what does not follow from the nature of a thing, but from some accidental qualities thereof, in which sense it stands opposed to PER *se*, which denotes the nature and essence of a thing.

Thus fire is said to burn *per se*, as considered as fire, and not *per accidens*; but a piece of iron, though red-hot, only burns *per accidens*, by a quality *accidental* to it, and not considered as iron.

ACCIDENT, ACCIDENS, in *Philosophy*, something additional, or superadded, to a SUBSTANCE; or not essentially belonging thereto, but capable, indifferently, either of being or not being in it, without the destruction thereof. The schoolmen distinguish three kinds of *accidents*; *verbal*, *predicable*, and *predicamental*.

ACCIDENT, *Verbal*, *Accidens verbale*, stands opposed to essence; and in this sense, the words to a thing, though substances themselves, are denominated *accidents* thereof. Thus, the thumbs a man has on, though real substances, yet, as they are not essential, but adventitious or accessory to his person, are *accidents*.

ACCIDENT, *Predicable*, *Accidens prædicabile*, is used in opposition to *proper*.—Such is any common quality; as whiteness, heat, learning, or the like.

Thus a man may be sick or well; and a wall white or black; yet the one be still a man, and the other a wall.

These are called in the schools *predicable accidents*; because usually laid down and explained in the doctrine of predicables.

ACCIDENT, *Predicable*, may either be taken in the ABSTRACT, as whiteness, learning; or in the CONCRETE, white, learned.

If taken in the *abstract*, as is done by Porphyry, the *accident* is defined as above, that which may either be present, or absent, without the destruction of its subject.

If it be taken in the *concrete*; *accident* is usually defined by the schoolmen, to be something capable of being predicated contingently, of many, in respect of quality.—As learning, which may probably be predicated of you, him, &c.

ACCIDENT, *Predicamental*, *Accidens prædicamentale*, is a mode or modification of some creating substance, inhering or depending thereon, so as not to be capable of subsisting without the same.

In this sense, *accident* is opposed to *substance*.—Whence, as substance is defined a thing that subsists in itself, and the *substratum of accidents*; so an *accident* is said to be that *cujus esse est inesse*: and therefore Aristotle who usually calls substances simply ens, entities, beings; commonly calls *accidents*, *entia ens*, entities of entity; requiring some substance wherein to reside, as their subjects of inhesion.

ACCIDENT, then, has an immediate and essential dependence on its substance; both as to its production, its continuation, and its effects: it arises or is deduced from its subject, is preserved or subsisted by it; and can only be affected by what affects, or affects, the subject.

The old schoolmen, however, will not have *accidents* to be mere modes of matter, but entities really distinct from it; and, in some cases, separable from all matter.—But the union of real *accidents*, and qualities, is now exploded. Aristotle and the Peripatetics make nine kinds or classes of *predicamental accidents*: others contract them into a less number.

ACCIDENT, *Absolute*, is a term used in the Romish theology for a predicamental *accident*, which subsists, or may possibly subsist, at least miraculously, and by some supernatural power, without a subject.

Such

Such, they contend, were the *accidents* of the bread and wine in the eucharist, &c. as the colour, flavour, figure, &c. thereof, which remain after the substances they belonged to are changed into other substances of flesh.

The Cartesians, universally, combat the notion of *absolute accidents*; it being their doctrine, that the essence of matter consists in extension; and that *accidents* are only modifications thereof, in no wife distinct from it: an *accident* therefore without a subject must be a contradiction.—And hence Cartesianism is branded as contrary to the Roman catholic faith.

Various expedients have been invented by the Cartesians, to account for transubstantiation, &c. without the hypothesis of *absolute accidents*.—Some hold that the usual impressions are made on the sense by the immediate agency of God; and without any thing remaining of the former nature. Others allege the whole to heterogeneous matters contained in the pores of the bread, &c. which remaining unaltered by the transubstantiation, produce the same sensations as the bread produced.

ACCIDENT, in the popular sense of the word, signifies a contingent effect; or something produced casually, and without any foreknowledge or destination thereof in the agent that produced it.

ACCIDENT, in *Heraldry*, is no additional note, or mark, in a coat-armour, not necessarily forming therein; but capable either of being retained, or omitted, without altering the essence of the armour. Such are ABATEMENTS, DIFFERENCES, and TINCTURE.

ACCIDENT, among *Puritans*, is sometimes used for what is more generally called SYMPTOM.

ACCIDENTS, in *Astrology*, denote the most extraordinary occurrences in the course of a man's life; such are a remarkable influence of good fortune, a signal deliverance, a great sickness, &c.

ACCIDENTAL, something that partakes of the nature of an *accident*; or, what is not essential to the subject, but indifferent.

Thus, whiteness is *accidental* to marble; and heat, to iron.

ACCIDENTAL *Colours*, by Mr. Buffon, are those which depend upon the affections of the eye, in contradistinction to such as belong to the object itself. The impressions made upon the eye by looking fixedly on objects of a particular colour are various, according to the single colour, or assemblage of colours, in the object, and they continue for some time after the eye is withdrawn, and give a false colouring to other objects which are viewed during their continuance. M. Buffon has endeavoured to trace the method in which these *accidental* colours have with those that are natural, in a variety of instances. The subject has likewise been considered by M. de la Hire, and M. Epinus; and M. d'Arcy has contrived a machine for measuring the duration of the above mentioned impressions on the eye, and he inferred, in the result of several trials, that the effect of the action of light on the eye continued about eight thirds of a minute. See Ac. Par. 1743. Dillo, 1765. Nov. Com. Petrop. v. 10. And for an abstract, Dr. Priestley's Hist. & present Discoveries relating to Vision, &c. p. 631.

ACCIDENTAL *Point*, in PERSPECTIVE, is a point in the horizontal line, whose lines parallel to one another, though not perpendicular to the picture, or representation, meet.

ACCIDENTAL *Dignities* and *Impotence*, in *Astrology*, are certain casual dispositions, and affections, of the planets, whereby they are supposed to be either strengthened, or weakened, by their being in such a house of the figure.

ACCIPENSER, or ACIPENSER, in the Linnæan system of *Zoology*, the name of a genus of fish, of the order of *cartilagines*, and class of *amphibia*. This genus comprehends the sturgeon, &c. Its distinguishing characters are, that the mouth is retractile, and without teeth; and the gills have only one hole or aperture on each side.

The species of this genus are three, the STURGEON, the *Acipenser Ruthenus* and the HUSO, or huge-fish.

There have been many disputes, whether the huso or sturgeon be the same fish with the *exocetus*, or not, and what was the difference between the *acipenser* and *huso* of the ancients; but the whole seems to have been this, that the Romans called the sturgeon *acipenser*, when they had it fresh, and caught in their own neighbourhood, but *huso*, when it was brought to them in pickle from the Grecian ports. Rays Ichthyography.

ACCIPESIUS, in *Ichthyology*, a name given by Athenæus and others of the Greek writers, to the sturgeon, called by others *acipenser*. See ACCIPENSER.

ACCIPITER, in *Ichthyology*, a name given by Gesner, and some others, to the fish called by others the *aculeus* and *horrens*. It is a species of the *trigla*, and is distinguished by Artedi, by the name of the *trigla*, with the head a little *aculeated*, and with a singular fin, placed near the pectoral fins.

ACCIPITRES, the *Hawks*, in the Linnæan system of *Zoology*, the name of one whole order of birds; the distinguishing character of which, is, their having a hooked or crooked beak. Of this order there are four genera, the *vultur*, *falco*, *strix*, and *lanius*, and seventy eight species. See VULTURE, OWL, FALCON, &c. See HAWK.

ACCIPITRINA, in *Botany*, a name by which some authors have expressed the hawk-weed, and others the lix-weed or *pilosella hieracium*. Gen. Emac.

ACCISMUS, denotes a feigned refusal of something which a person earnestly desires. The word is Latin, or rather Greek *accismos*; supposed to be formed from *Accis*, the name of a foolish old woman, famous in antiquity for an affection of this kind.

Accismus is sometimes considered as a virtue, sometimes as a vice, which Augustus and Tiberius practised with great success.

Cromwell's refusal of the crown of England may be brought as an instance of an *accismus*. It is used in rhetoric, as a figure of irony.

ACCLAMATION, a confused noise, or shout of joy, by which the public expresses their applause, esteem, or approbation on any thing.

Acclamation, in a more proper sense, denotes a certain *formula* of words, uttered with extraordinary vehemence, and in a peculiar tone, somewhat resembling a song frequent in the ancient assemblies.

Acclamations were usually accompanied with applauses, with which they are sometimes confounded, though they ought to be distinguished; as

Acclamation was given by the voice, applause by the hands; besides, *acclamation* was also bestowed on persons absent, applause only on those present. *Acclamation* was also given by women, whereas applause seems to have been confined to men.

Acclamations are of divers kinds; *civil, judicial, military, nuptial, funereal, synodal, scholastic, theatrical*, &c.

Bishops, and other ecclesiastical officers, were elected by the *acclamations* of the people. We meet with loud *acclamations*, musical and rhythmical *acclamations*, *acclamations* of joy and respect, and even of reproach and contumely. The former, wherein words of happy omen were used, were also called *faustæ* or *bonæ voces*, or good wishes: the latter, *execrationes* or *imprecationes*. *Acclamations* at first practised in the theatre, and pulling hence into the senate, were, in process of time, received into the acts of councils, and the ordinary assemblies of the church. But their principal use has always been at the solemn entries of princes, and heroes; where they are usually attended with good wishes, prayers, vows, &c. Antiquity has handed down to us several forms of *acclamations*; the Hebrews used to cry, Hosanna; the Greeks, Ἄξιος ὁσίως ἄξιος ὁσίως, *worthy, worthy*.—The Romans to their princes, generals, &c. *Dii te nobis servent; vestra salus, nostra gaudia: the Gods preserve you for us; your safety, our joy.*

The *acclamations* of the army were generally *Imperator, et Salve imperator*. Schlamm. de Acclam. Veter. Gentium, 1663. Phil. Lat. Act. tom. 6. p. 12. Petav. de Acclam. & Theol. lib. 3. Exposit. Animad. Lex. Mill. tom. 1. p. 6. Bingham Orig. Eccles. lib. 14. c. 1. vol. 4.

ACCLAMATION is also applied among the *Antiquaries* to certain medals or coins on the reverse of which the people are represented expressing their joy for some considerable event.

In this sense, *acclamation* is distinguished from the vows in that latter, *acclamation* is offered to God; among the vows given to princes, as is practised on other occasions, but were not. Cardinals, princes, victors, and ambassadors, are elected by *acclamation*.

The members thus chosen assume the title *Accadie acclamatæ*, indirectly somewhat inferior to the rest. Giorn. de Letter. d'Ital. tom. 21. p. 437.

ACCLAMATION, in *Rhetoric*, is a figure of speech, thus called by the Latins, by the Greeks ἐπιφώνημα.

ACCLIVITY, the steepness, or slope, of a line [illegible] inclined to the horizon; [illegible] opposite.

The ascent of a hill is an acclivity; the declivity is a descent.

ACCOLA, in general terms, denotes a [illegible] gave its name to the [illegible]

The word is compounded of *ad*, [illegible] *colo*, [illegible] *habito*, &c. [illegible] *accolæ* [illegible] from place the distinguishing character of [illegible] this, that they come from elsewhere: *Accolæ dicuntur qui ex alio nascuntur*, by which they stand opposed to *indigenæ*.—According to the rule:

Ex alio patriam, populum sibi sumit uterque.

ACCOLADE, a ceremony anciently used in the conferring of knighthood.

The word literally denotes an embrace, or hugging; being formed of *ad*, *to*; and *col*, or *collum*, *neck*.

Antiquaries are not agreed, wherein the *accolade* properly consisted

reconciled. The generality suppose it to be the embrace, or kiss, which princes ancientlie gave the new knight, as a token of their affection.—Whence the word *accolade*, q. d. a clapping, or taking round the neck. A very impersonous author will rather have it to be a blow on the chine of the neck, given on the same occasion. Faucher seems to reconcile the two opinions; he supposes it to be the kiss; but withal, imagines the kiss to be intended as a stroke on the cheek. *Est hoc hominis ad se fugandum.*—The ceremony being only an imitation of that practised among the Romans, in the manumission of their slaves, where it is known a blow was given, Skinner. Casseneuve. Orig. Franc. Colomb. Theat. d'Honneur.

As for the *accolade*, or blow, John of Salisbury allures us, it was in use among the ancient Normans: by this it was that William the Conqueror conferred the honour of knighthood on his son Henry.

At first, it was given with the naked fist; thus Lambertus Ardensis, describing the manner in which Baldric, count de Guines, was created knight by Thomas à Becket, says, *eidem comiti in femoris modum clitoris et sinistre sui militis pollice apposito, et manum ictu dire ictus.* But this was afterwards changed into a blow with the flat of the sword, on the shoulder of the knight.

Salmonet, and after him the continuators of Morery, mention an order in England, called knights of the *accolade*; so called from the manner of their creation. The order here meant is that of knights bachelors, or *equites aurati*. But the name, if ever, is now no longer known among us.

ACCOLÉE is sometimes used as synonymous with ACCOLADE.

Accolée is also used in *Heraldry*, in divers senses: when two things are joined together, as two shields divided at the flanks, they are said to be *accolée*.

Accolée is also used in speaking of lions, dogs, and other animals, which have collars, or crowns about their necks; as the lion in the arms of the name of Ogilvy.

English heralds ordinarily say, *collared*, or *gorged* with an open crown, instead of *accolée*.

Others use the term *accolée*, when two keys, bugeons, maces, swords, &c. are ranged, behind the shield. Nisbet's Essay on Armor.

ACCOMMODATION, in *Philosophy*, the application of one thing, by analogy, to another.

To know a thing by *accommodation*, is to know it by the idea of a similar thing referred thereto.

ACCOMMODATION, is also used in *Theology*: thus, a prophecy of scripture is said to be fulfilled properly, as when a thing foretold comes to pass; and improperly, or by way of *accommodation*, when an event happens to any place or people, like to what fell out some time before to another.—This method of explaining scripture by *accommodation*, serves as a key for solving some of the greatest difficulties relating to the prophecies.

The primitive church accommodated multitudes of Jewish, and even heathen ceremonies and practices to Christian purposes; but the Jews had before done the same by the Gentiles: some will even have circumcision, the tabernacle, brazen serpent, &c. to have been originally of Egyptian use, and only accommodated by Moses to the purposes of Judaism. Baurin's Dissert. Old Test. tom. i. p. 500. Spencer de Leg. Hebr. Dis. I. lib. iii. p. 32. Middleton's Letters from Rome.

ACCOMMODATION, in *Law*, is also used for an amicable agreement or compounding, between two contending parties.—Thus we say, the process is grown so intricate and perplexed, that there is no hope of getting out of it but by an *accommodation*.

These *accommodations* are frequently effected by means of compromise, and arbitration.

ACCOMPANYMENT, something attending or added as a circumstance to another; either by way of ornament, or for the sake of harmony, or the like.

ACCOMPANYMENT, in *Music*, denotes the instruments which accompany a voice to sustain it, as well as to make the music to be more full.

The *accompanyment* is used in recitative, as well as in song; on the stage as well as in the choir, &c. The ancients had likewise their accompanyments on the theatre; they often used different kinds of instruments to accompany the actors, from those which accompanied the actors in the orchestra.

The *accompanyment*, among the moderns, is frequently a different part or melody, from the song it accompanies. It is disputed whether it was so among the ancients.—The organists sometimes apply the word to several pipes which they occasionally touch to accompany the treble; as the flutes, flute, &c.

ACCOMPANYMENTS, in *Heraldry*, are all such things as are applied about the shield by way of ornaments; as the helm, mantlings, supporters, &c.

A thing is also said to be *accompanied*, when there are several bearings, or figures, about some principal one; as a fesse, bend, pale, chevron, or the like.

ACCOMPLICE, one that has a hand in a business; or is privy to the same design or crime with another. See ACCESSORY.

The word is compounded of *ad*, *to*, *cum*, *together*, and *plico*, *to fold*.

By the law of Scotland, the *accomplice* can only be prosecuted after the conviction of the principal offender; unless the accession of the *accomplice* is immediate, in *ipsa actu*, so as in effect to render them *correi*.

By the general rule, the *accomplice* suffers the same punishment with the *principal* offender. Yet if he be remarkably less guilty, justice will not permit equal punishment. The council of Spain, and several other ecclesiastical statutes, expressly prohibit the revealing of *accomplices*.

ACCOMPLISHMENT, the entire execution, atchievement, or fulfilling of something proposed, or undertaken.

ACCOMPLISHMENT, in *Theology*, is principally used in speaking of events foretold by the Jewish prophets, in the Old Testament, and fulfilled under the New.

Dr. Sykes has a particular inquiry into the meaning of those words often by the evangelist: that it might be fulfilled, or accomplished, which was spoke by the prophets; where he shews, that the *implevit*, *fulfilled*, does not necessarily refer to a prediction of a future event, *accomplished*, but is frequently a mere accommodation of words borrowed from some other matter, and accommodated to the present occasion. Grotius suggested the opinion to him.

ACCOMPLISHMENT is more particularly used for the acquirement of some branch of learning, useful art, polite exercise, &c.

ACCOMPT. See ACCOUNT.

ACCORD, in *Music*, is more usually called CONCORD.

The word is formed, according to some, from the Latin *ad*, *to*, and *cor*, the *heart*; but others, with greater probability, derive it from the French *accorder*, a *string*, or *cord*, on account of the agreeable union between the sounds of two strings struck at the same time. Whence also some of the consonants in music come to be called *tetrachord*, *hexachord*, &c. which are a fourth, and a sixth.

ACCORD, in *Law*, is a verbal agreement between two, at the least, to satisfy an offence that the one hath committed against the other; whether it be a trespass, or the like; for which the one agrees to make, and the other to accept, a certain satisfaction.—This, if executed, becomes a good bar in law to any suit to be brought for the same matter.

Accord with satisfaction, is a good plea in personal actions, where damages only are to be recovered; and in all actions which suppose a wrong to be done, where a *capias* and *exigent* lay at the common Law, in trespass and ejectment, detinue, &c. So in an appeal of *Murder*. But in real actions it is not a good plea. 4 Rep. 1. 9. 10. 9 Rep. 77.

ACCOUNT, or ACCOMPT, in *Arithmetic*, a *calculus*, or computation of the number of certain things, or computation of time, &c.

The word is compounded of *ad*, *to*, and *computus*, a *computation*.

There are various ways of *accounting*; as by cumeration, or telling one by one; and by the rules of arithmetic, addition, subtraction, &c.

We *account* time by years, months, &c. The Greeks accounted it by olympiads. The Romans, by indictions, lustres, &c. We account distances by miles, leagues, &c.

ACCOUNT is also used in respect of a COMPANY or society, when two or more persons have received or disbursed money for each other; or when one has been done by their order or COMMISSION.

ACCOUNTS, or ACCOUNTS, is also used collectively, for the several books or registers which merchants keep of their affairs and negociations.

There are divers kinds of *accounts* among merchants, as *personal*, *real*, *imaginary*, *general*, *particular accounts*, &c.

ACCOUNTS, *personal*, are those which discover what each person, or subject, with whom a man has dealings on credit, owes to, or has owing to him.

ACCOUNTS, *real*, are those whereby a dealer discovers what effects are on hand at any time, and what is gained or lost on each.

Every *account* is distinguished into two parts, for which two opposite pages are assigned of one folio or opening; the name of the person with whom a man has *account* being written on the top of each, with the word debtor on the left-hand, and creditor on the right.

ACCOUNT *personal*, is to contain on the debtor side what the person owes me, and the payments I make to him; and on the creditor side, all that I owe to him, and the payments he makes of his debts to me.

ACCOUNT, *real*, must contain on the debtor side the quantity and value of what was upon hand at the beginning

of the *account*, and all afterwards received, with the coſts and charges thereof; and on the credit ſide, the quantity and value of what is diſpoſed of or any way taken out of it, with the returns made by it.

ACCOUNTS, *imaginary*, are then brought in to make a balance between credit and debt, and in caſes where the real and perſonal *accounts* will not fit the articles belonging to them make, as they uſually do, ſuch balance.

The chief of theſe is the *account of profit and loſs*; on the debtor ſide of which are entered all loſſes, and on the creditor ſide all gains. Such alſo is the *ſtock account*, &c.

ACCOUNTS, *ſundry*, when one *account* is balanced by ſundry, i. e. when one debtor or creditor for a ſum, and ſundry *accounts* creditors or debtors for the parts of the ſum; it is entered under the head of to, or by, *ſundry accounts*.

ACCOUNTS, *general*, are thoſe where all the goods of the ſame name are put into one *account*.

ACCOUNTS, *particular*, are thoſe where each ſpecies, or ſubdiviſion of things under the ſame name, have their ſeparate *account*.

ACCOUNT, *open*, is uſed for an account not liquidated or ſettled.

ACCOUNT *in hand*, is a ſund of money, which merchants, or others, place in the common caſh of a bank, to be in readineſs for the payment of bills of exchange, or promiſſory notes, purchaſes, and other debts contracted in the courſe of buſineſs.

ACCOUNT, *current*, amounts to the ſame with an open *account*.

ACCOUNT, *opening an*, with any one, ſignifies the placing him, for the firſt time, in the great book. This is done by writing his name, ſurname, and place of reſidence, in large characters, and afterwards charging him with articles, either of debtor or creditor, as affairs turn up. When an *account* is opened with any perſon in the great book, his name is at the ſame time to be entered in the index or alphabet book, with the page wherein his *account* is to be found.

ACCOUNT, *placing a ſum to*, is to enter down in the great book the ſeveral particulars for which a perſon becomes either debtor or creditor.

ACCOUNT, *examining an*, is the reading it exactly over, pointing the ſeveral articles, and verifying the computation, in order to find whether there be any error, and whether the ſum total, or the balance, be juſt.

ACCOUNT, *caſting up*, or *cloſing an*, is the ſtating and ſettling of it, to find the balance: this is called alſo *balancing* or *ſettling an account*.

Accounts are *cloſed* in the great book, on two occaſions: the firſt, when it is required to terminate an affair entirely, either with debtors or creditors, in order to learn what is due. The ſecond, when it is neceſſary to carry on the *account* to another page of the ſame book, or to a new book, for want of room.

ACCOUNT, *balance of an*, is the ſum by which the debt exceeds the credit, or *vice verſa*, upon ſtating or ſettling of it.

ACCOUNT *of ſales*, is an *account* given by one merchant to another, or by a factor to his principal, of the diſpoſal, charges, commiſſion, and net proceeds of certain merchandize, ſent for the proper, or company, *account* of him, who conſigned the ſame to ſuch factor or vender. When the like *account* is inland or domeſtic, the ſame is tranſmitted in the current money of that country wherein the buſineſs is tranſacted. As from a Blackwell-hall factor to the clothiers in the country, or from the warehouſemen in town, who deal by commiſſion for the country manufacturers, as hop-factors, drugget and duty factors, and the like.

ACCOUNT, *money of*, is an arbitrary ſpecies, contrived for the facilitating, and expediting the taking, and keeping of *accounts*. Such are pounds ſterling in England; livres and ſols in France; rouppes in India; milreis in Portugal.

ACCOUNTS, *books of*, of merchants and tradeſmen, are conſidered as a ſort of private inſtruments, and in the civil law, and law of merchants, are allowed to make a half proof. The reaſon is, that merchants are often under a neceſſity of dealing on truſt without note or writing. Hence the ſuppletory oath of the merchant, with his book of *accounts*, is admitted abroad as a full proof againſt his chapman. But in England this is under ſome limitation. See Stat. 7 Jac. I. cap. 12. which confines this ſpecies of proof to ſuch tranſactions as have happened within one year before the action brought; unleſs between merchant and merchant, in the uſual intercourſe of trade.

ACCOUNT, or ACCOMPT, in a legal ſenſe, is a particular detail or enumeration, delivered to a court, a judge, or other proper officer or perſon, of what a man has received or expended on the behalf of another, whoſe affairs he had the management of.

In the EXCHEQUER, there is a particular office in the exchequer, are entered the ſtates of all the *accounts* concerning the king's revenues; for cuſtoms, excile, ſubſidies, &c.

The great *accounts*, as thoſe of the mint, wardrobe, navy, tunnage, &c. are called *imp. of account*.

All *accounts* which paſs the remembrancer's office are brought to the office of the clerk of the PIPE. See TALLY and AUDITOR.

ACCOUNT, in *Common Law*, denotes a writ or action which lies againſt a perſon, who by his office ought to give an *account*, but refuſes.

A writ or action of *account* properly lies only againſt bailiffs, receivers, and guardians in SOCAGE; though others are alſo brought in as a ſecondary intendment.

By 4 and 5 Anne, actions of *account* may be brought againſt the executors and adminiſtrators of guardians, bailiffs, receivers, &c. and by one joint-tenant, &c. againſt the other, his executors and adminiſtrators, as bailiff, for receiving more than his ſhare: however, actions of *account* are now very ſeldom uſed; the moſt ready and effectual way of ſetting matters of *account* being by bill in a court of equity.

ACCOUNTS, *chamber of*, in the French polity, is a ſovereign court of great antiquity, where the *accounts* relating to the king's revenue are delivered in, and regiſtered. This anſwers pretty nearly to the court of exchequer in England.

There are preſidents of *accounts*, maſters of *accounts*, correctors of *accounts*, &c.

ACCOUNTANT, or ACCOMPTANT, a perſon, or officer, appointed to keep, or make up the *accounts* of a company, office, exam, or the like.

Thus there are *accountants* in the cuſtom-houſe, the excile, &c. See CHANCERY, COUNTING-*Houſe*, BOOK-*Keeping*.

ACCOUTREMENT, an ancient term uſed for an habiliment; or a part of the apparatus and furniture of a ſoldier, knight, or even of a gentleman.

The word is formed from the ancient German, *keiſer*; whence *cuiras*, a name uſed in ſome cathedrals in France, e. g. at Bayeux, for the ſacriſtan, or officer, who has the care of furniſhing, and ſetting out, the altar, in the churches called in German *keiſer*, *weſener*.

ACCRETION, in *Phyſics*, the growth or increaſe of an organical body, by the acceſſion of new parts. Alſo a growing together, as of the fingers to one another.

The word is compounded of *ad*, *to*, and *creſcere*, *to grow*. *Accretion* is of two kinds; the one conſiſting in an external appoſition of new matter.

This is what we otherwiſe call, *intuſſuſception*; and it is thus ſtones, ſhells, &c. are ſuppoſed to grow.

The other is by ſome fluid matter received into proper veſſels, and gradually brought to adhere, or grow to the ſides thereof. This is what we call *intuſſuſception*; and it is thus that plants and animals are nouriſhed.

ACCRETION, in the *Civil Law*, denotes the union or acceſſion of a thing vague or vacant, to another already occupied, or diſpoſed of.

A legacy given to two perſons jointly, *tam re quam verbis*, falls wholly to him that ſurvives the teſtator, by right of *accretion*. ALLUVION is another ſpecies of *accretion*.

ACCROCHE, in *Heraldry*, denotes a thing being hooked into another. Court's Herald.

ACCROCHING, in old *Law* books, the act of encroaching or uſurping on another's right; and particularly the attempt to exerciſe royal power, which was a very vague charge, and led to a multitude of conſtructive treaſons. Theſe are limited and defined by Stat. 25 Edw. III. cap. 2. The word is originally French, *accrocher*, which ſignifies to faſten a thing by a hook.

ACCRUE, or ACCRUE, in *Law*, is underſtood, of a part that accedes to, or follows the property of, another part or perſon.

ACCUBATION, a poſture of the body, between ſitting and lying.

The word is compounded of *ad*, *to*, and *cubo*, *I lie down*. *Accubitores*, or *incubitores*, was the uſual poſture of the Greeks and Romans; whence we find the words particularly uſed for the lying, or rather, as we call it, lying down to meat.

The Greeks introduced this poſture. The Romans, during the frugal ages of the republic, were [illegible] But no luxury got footing, this poſture [illegible] at leaſt by the men; for as to women [illegible] indecency in them to lie down among [illegible] alone is this poſture was got over. But [illegible] lie down, nor ſervants, nor ſoldiers, [illegible] meaner condition; but took their [illegible] poſture left independent.

The Roman manner of diſpoſing themſelves [illegible] this a low round table was placed in the [illegible] or three ſofas, and about this uſually three [illegible] only two beds, or couches; according to the [illegible] whole, it was called *triclinium*, or *triclinium*.

covered with a ſort of bed-cloaths, richer or [illegible] according to the quality of the perſon, and furn[illegible]

quilts and pillows, that the guests might lie the more commodiously. There were ordinarily three persons on each bed; to crowd more was esteemed sordid. In eating they lay down on their left sides, with their heads resting on their pillows, or rather on their elbows. The first lay at the head of the bed, with his feet extended behind the back of the second; the second lay with the back of his head towards the navel of the first, only separated by a pillow, his feet behind the back of the third and so of the third, or fourth. The middle place was esteemed the most honourable. Before they came to table, they changed their cloaths, putting on what they called *synthesin toga*, the dining garment, and pulled off their shoes, to prevent soiling the bed. Pasch. Lex. Ant.

ACCUBITOR, an ancient officer of the emperor of Constantinople; whose business was to lie near the emperor. The *accubitor* was the head of the youths of the bedchamber, and had the cubicularius and procubitor under him.

ACCUMULATION, the act of heaping, or amassing several things together.

The word is originally compounded of *ad*, *to*, and *cumulus*, *heap*.

ACCUMULATION, in a *legal* sense, denotes a concurrence of several titles to the same thing; as, when a person claims lands, a benefice, or the like, in virtue of several titles, or pretensions of different kinds; e. g. by death, by resignation, &c. Or it denotes a concurrence of several circumstances to the proof of one fact: thus, we read of *accumulative* treason; which is, where a fact is not treason in itself, but becomes so by an *accumulation* of circumstances.

The earl of Strafford was condemned of *accumulative* treason; none of the facts alledged against him amounting singly to treason. But his attainder was reversed by 13 & 14 Car. II. cap. 29.

ACCUMULATION, in the ancient *Agriculture*, denotes the operation of covering up the roots of trees, by throwing on them the earth that had been before dug from them; in which sense, *accumulation* stands opposed to ABLAQUATION.

ACCUMULATION *of arms*, *cumulatio armorum*, in *Heraldry*, is what the moderns call QUARTERING of arms. Niffet.

ACCUMULATION *of degrees*, in an *University*, is used for the taking of several degrees together, and with fewer exercises, or nearer to each other, than the ordinary rules allow of.

ACCURSED, something that lies under a curse, or sentence of EXCOMMUNICATION.

The Jewish idiom, *accursed* and crucified were synonymous. Among them, every one was accounted *accursed*, who died on a tree.

This serves to explain the difficult passage in Rom. ix. 3 where the apostle Paul wishes himself *accursed after the manner of Christ*, i. e. crucified, if happily he might by such a death save his countrymen. The preposition *ana* here made use of, is used in the same sense, 2 Tim. i. 3. where it obviously signifies *after the manner of*.

ACCUSATIO, among *Physicians*, is a word of the same import as INDICATIO.

ACCUSATION, Accusatio, in the *Civil Law*, the inventing of a criminal action against any person, either in one's own name, or that of the public.

The word is compounded of *ad*, *to*, and *causari*, *to plead*. By the Roman law, there was no public *accuser*, for public crimes: every private person, whether interested in the crime, or not, might *accuse*, and profecute the *accused* to punishment, or absolution.

But the *accusation* of private crimes was never received but from the mouths of those who were immediately interested in them. Thus none but the husband could accuse his wife of adultery.

Indeed, it was not properly an *accusation*, except in public crimes; in private ones, it was called simply ACTION, or intenting an action, *instituere actionem*, or *actum*.

Cato, who was esteemed the most innocent person of his age, had been *accused* forty-two times, and absolved as often.

When the accused *accuses* the accuser, it is called *recrimination*, which is not admitted till the *accused* has been first purged.

The ancient Roman lawyers distinguished between *pollicitatio*, *delatio*, and *accusatio*: for first, leave was desired to bring a charge against one, which was called *postulare*; then he against whom the charge was laid, was brought before the judge, which was called *deferre*, or *nomina deferre*; lastly, the charge was drawn up, and preferred, which was properly the *accusatio*. Voss. Etym. Lat.

The *accusation* properly commenced, according to Pedianus, when the *reus*, or party charged, being interrogated, denied he was guilty of the crime, and subscribed his name to the *delatio* made by his opponent. Calv. Lex. Jur. p. 17. By the cruel laws of the INQUISITION, the *accused* is forced to accuse himself of the crime objected to him. There are three ways of entering an information in the tribunal of the inquisition. The first, by way of inquisition, when a private person, applying to the inquisitor, declares he will neither be *denunciator*, nor *accuser*, but that common fame gives out, that such and such a person is a *heretic*: the second, by way of *accusation*, when the informer takes on him the office of *accuser*, which rarely happens; because, in this case, the *accuser* is obliged to prove, and exposes himself to the *ius talionis*, in case his information prove false. The last, and most usual way, is by *denunciation*, that is, by naming those who know the fact.

It has formerly been the custom in some parts of Europe, where the *accusation* was very heavy, either to decide it by combat, or at least make the *accused* purge himself by oath; which, however, was not admitted, excepting a certain number of his neighbours and acquaintance swore together with him.

In the French *Laws*, none but the *procureur general*, or his deputies, can form an *accusation*, except for high treason, and coining, where *accusation* is open to every body. In other crimes, private persons can only act the part of denouncers, and demand reparation for the offence, with damages.

Writers on politics treat of the benefit and the inconveniences of public *accusations*. Various arguments are alledged, both for the encouragement and the discouragement of *accusation* against great men. Nothing, according to Machiavel, tends more to the preservation of a state, than frequent *accusations* of persons trusted with the administration of public affairs. This, accordingly, was strictly observed by the Romans. In the instances of Camillus, accused of corruption by Manlius Capitolinus, *Sec. Accusations*, however, in the judgment of the same author are not more beneficial than calumnies are pernicious; which is also confirmed by the practice of the Romans. Manlius, not being able to make good his charge against Camillus, was cast into prison. Machi. de Repub. l. i. c. 7. p. 35.

ACCUSATIVE, in *Grammar*, the fourth case of nouns that are declined.

Its use may be conceived from this, that all verbs which express actions that pass from the agent, as to *beat*, &c. must have subjects to receive those actions: for, if I beat, I must beat something; so that such verb evidently requires after it a noun, or name, to be the object of the action expressed. Hence, in all languages, which have cases, the nouns have a termination, which they call *accusative*; as *amo Deum*, *I love God*.

In English, we have nothing to distinguish this case from the *nominative*; but as we ordinarily place words in their natural order, it is easily discovered; the *nominative* constantly preceding, and the *accusative* following the verb. Thus, when we say, the prince loves the princess, and the princess loves the prince; the prince is the *nominative* in the first, and the *accusative* in the last; and the princess the *nominative* in the first, and the *accusative* in the second.

ACENTETUM, or Acentra, in *Natural History*, a name given by the ancients to the purest and finest kind of rock crystal. They used the crystal in many ways, sometimes engraving on it, and sometimes forming it into vases and cups, which were held next in value to the *murrhina vasa* of those times. The crystal they obtained from the mines of Cyprus was much esteemed, but often faulty in particular parts, having knots, cracks, and foulnesses, which they called faits, in the midst of the large pieces. Pliny tells us, that when it was used for engraving on, the artist could conceal all those blemishes among the strokes of his work; but when it was to be framed into cups and precious vases, they always chose the *acentetum*, that is, the pure crystal, which had no flaws nor blemishes.

ACEPHALI, or Acephalita, frequently occurs in *Ecclesiastical History*, as the denomination of divers sects: particularly,

1. Of those who in the affair of the council of Ephesus, refused to follow either St. Cyril, or John of Antioch.

2. Of certain Christians of the fifth century, who at first followed Peter Mongus; but afterwards abandoned him, upon his subscribing the council of Chalcedon; being generally of the opinion of Eutyches, that there was only one nature in Christ.

3. Of the adherents of Severus of Antioch; and of all in general who refused to admit the council of Chalcedon.

ACEPHALUS, or Acephalous, something that wants a head.

The word is compounded of the privative *a*, and κεφαλη, *caput*, *head*.

Pliny represents the Blemmyes as a headless, or *cacephalous* nation.

But though the existence of a nation of *acephali* be

warranted, naturalists furnish several instances of individuals born without heads, by some *lusus* or aberration of nature. Wepfer gives a catalogue of such *acephalous* births from Shenckius, Licetus, Paræus, Wolfius, Mauriceau, &c.

Acephalous worms, or what are supposed such, are frequent. The *lumbricus latus*, or joint-worm, was long taken to be *acephalous*: the first who gave it a head was Tulpius, and after him Fehr; the former even makes it *hexapus*, or two-headed.

The levellers in the reign of Henry I. were called *acephali*. This word, in our ancient Law-books, is also used for those poor people who had no proper lord; as holding nothing in fee, either of king, bishop, baron, or other feudal lord.

ACEPHALOUS *cloth*. See CLOTH.

ACEPHALUS is also used in *Poetry*, for a verse which is lame or defective, by wanting a beginning.

Some also give the name acephalus to all verses which begin with a Choit, instead of a long syllable.

ACER, in *Botany*. See MAPLE.

ACERATOS, ἄκερως, from α negative and κερας, or κερατιον, *to mix, unmould, unincrustate*. It is applied sometimes to the humours of the body by Hippocrates. Paulus Ægineta mentions a plaister under this name, but probably means ἀκηρατος. See ACERUTUS.

ACERB, ACERBUS, a compound taste, consisting of sour, with the addition of a degree of roughness, and astringency. Such is the taste of pears, grapes, and most other fruits before they are ripe.

Physicians usually make *acerb* an intermediate flavour between acid, austere, and bitter. All matters which come under this denomination are astringent.

ACERIDES, ἀκηριδες, from α negative, and κηρος, *wax*. Bodies made without wax are thus called.

ACERINA, in *Ichthyology*, a name given by Pliny and other of the old *Naturalists*, to the fish we at this time call the *pinna*, and which is the *pinnophylax* also in England the *wolf*. It is a genuine species of ESOCUS, and is distinguished by Aretius from all the other fish of that genus, by having the back-fin single, and the head cavernous.

ACEROSUS, is an epithet, denoting the brownest and coarsest sort of bread, made of flour not separated from the bran.

ACERRA, in *Antiquity*, a kind of altar, erected near the bed of a person deceased. It was much used among the Romans; and the friends and families daily burnt incense on it, till the time of the burial.

By the laws of the *Twelve Tables*, the erecting of *acerræ* was prohibited.

The *acerra* also signified a little pot, wherein the incense and perfumes were put, to be burnt on the altars of the gods, and before the dead.

The *acerra* appears to have been the same with what was otherwise called *thuribulum*, and *pyxis*: some have also confounded it with the *patera*, in which libations were offered.

We find mention of *acerræ* in the ancient church. The Jews had also their *acerræ*, in our version rendered *censers*; and the Romanists still retain them under the name of *incense pots*.

In Roman writers, we frequently meet with *acerra plena*, a full *acerra*; to understand which it is to be observed, that people were obliged to offer incense in proportion to their estate and condition; the rich in larger quantities, the poor only a few grains: the former poured out *acerræ* full on the altar; the latter took out two or three pits with their fingers. Pitis. Lex. Ant. Bellon de Funeral. l. 3.

ACESCENT, a word used to denote any thing which is turning sour, or *acid*, or which is slightly *acid*. It is only applied properly to denote the first of these two meanings. The second may be better expressed, by either of the words *acidulous*, or *subacid*.

ACETA, ἄκητα, sour-sale diffempers.

ACESTIDES, thus the chimneys of furnaces where brass was made, were called; contrived narrow at top, on purpose to receive the fumes of the melting metals, and collect them, that CADMIA might be produced in greater quantities.

ACESTIS, ἀκεστις, a different sort of CHRYSOCOLLA, made of Cyprian verdigrise, the ooze of children, and wine.

ACESTRIDES, female physicians; midwives were so called among the Greeks.

ACETABULUM, in *Antiquity*, a little vase, or cup, used at table to serve up things proper for sauce, or seasoning: much after the manner of our salts and vinegarets.

Hence Agricola, in his treatise of Roman measures, takes the name to have been formed from *acetum*, *vinegar*; as supposing it principally destined to serve vinegar in.

ACETABULUM also denotes a Roman MEASURE, used both for liquid and dry things, chiefly in medicine.

The *acetabulum* contained a *cyathus*, and a half, as is proved by Agricola, from two verses of Fannius; who, speaking of the *cyathus*, says, it weighs ten drachms; and the *acetabulum*, or *acetabulum*, fifteen, or about one eighth of a pint.

Bis quinque libræ fiabunt drachmæ, si appendere tentes:
Octobolus fiet, si quinque addantur ad illas.

Binet, in his Treatise of Weights and Measures, prefixed to his Translation of Pliny, makes the *acetabulum* of oil weigh two ounces and two scruples; the *acetabulum* of wine, two ounces, two drachms, a grain, and a third of a grain; and the *acetabulum* of honey, three ounces, three drachms, a scruple, and two *siliques*.

ACETABULUM, in *Anatomy*, is used for a deep cavity, in certain bones, appointed for the reception of the large heads of other bones, in order to their articulation. See *Tab. Anat. (Osteol.) fig.* 12. *lit. b.* Thus the cavity of the ischium, or huckle-bone, which receives the head of the thigh bone, is called *acetabulum*, and sometime *cotyle*, or *cavitas*.

The *acetabulum* is lined, and capped round with a cartilage, whose vicular margin is called *supercilium*. In its bottom lies a large mucilaginous gland.

ACETABULUM is also used, by *Anatomists*, in the same sense with COTYLEDON.

It signifies also a glandular substance, found in the placenta of some animals.

ACETABULUM, in *Botany*, the name of a genus of sea-plants, whose seed leaves formed in the shape of a bason, and rising a foot of inverted cone.

ACETARIA. See SALLET.

ACETARY is used for an inner part in the structure of certain fruits; thus called from the fourness of its taste.

The *acetary* of a pear is a globular part, lying within the cavities or chaos, and surrounding the core. It is of the same substance with the parenchyma or pulp, only that the bladders of which it consists are smaller, and rounder than those of the PARENCHYMA: from whence however it seems to be derived. Whence it is sometimes also called, the *inner parenchyma*.

The quince also has an *acetary*, resembling, though less than, that of a pear.

ACETIFICATION is used by some *Chemists* to denote the action or operation whereby vinegar is made.

Acetification is a branch or species of fermentation, arising by exposing vinous liquors in open vessels, and a warm place, which turns them acid.

Acetification chiefly differs from the fermentation whereby wine is made, in this, that the latter is effected by a gentler heat, sufficient only to raise, and rarefy the inflammable parts; whereas, in *acetification*, there is what is sufficient to raise and rarefy the saline parts; which is the precise point wherein *acetification* consists.

ACETOSA, in *Botany*. See SORREL.

ACETOSELLA, in *Botany*. See *Wood* SORREL.

ACETOUS *acetosus*, is the same as VINEGAR.

ACETOUS *fermentation*, is that fermentation by which vinegar is produced.

ACETOUS *ether*, is an ÆTHER made by means of vinegar.

ACETUM, in *Medicine*, &c. the same with vinegar; the properties, uses, and preparations whereof, see under the article VINEGAR.

The word is pure Latin, formed of *acere*, *to be sharp*.

There are several mediciues in the shops, whereof this liquor is the basis; as,

ACETUM *distillatum*, distilled vinegar, chiefly used in preparations for distillation and precipitation.

ACETUM *fortius*, spirit of vinegar, made by drenching copper things with distilled vinegar, then evaporating it till the fumes of the vinegar cannot be fired; the saturation and evaporation to be again repeated, till the menstruum be saturated; which being then distilled, the spirit comes over. Its qualities and uses are much the same with those of the distilled vinegar, only it is more powerful.

ACETUM *scyllinum*, vinegar of squills; that is, vinegar infused in vinegar forty or fifty days: the mixture then pressed out, and the vinegar preserved. It is used by way of embrocation on the head and the pit of the stomach.

After the like manner are made *acetum* [illegible] *per se*, or other; *acetum absinthii*, vinegar of wormwood; *acetum foliorum*, vinegar of [illegible].

The German dispensatories abound with [illegible] gars; chiefly against pestilential [illegible] are not used among us. Our dispensatories [illegible] some of them, as the *acetum theriacale* [illegible] it is never prescribed.

ACETUM *thebaicum*, is made of distilled vinegar, the addition of some alkaline, or volatile [illegible].

ACETUM *philosophorum*, a finer kind of [illegible] dissolving a little butter of antimony in a great deal of

ACETUM *Ecarinum*, in *Chemistry*, a diſtilled vinegar, rectified with the help of verdigriſe. It is made by diſſolving the common verdigriſe in fine diſtilled vinegar, then evaporating the ſolution, and recovering the verdigriſe again in form of cryſtals; and from this, by a proper degree of fire, diſtilling with a recent an acid ſpirit, which is the richeſt acid that can by any art be prepared from vinegar. Boulduc's Chem. p. 148.

ACETUM *Portabile*. See VINEGAR.

ACHAC, in *Ornithology*, the name given by the people of the Philippine iſlands, to a bird common there. It is of the ſize of a common hen; its belly, breaſt, and neck, are of a pale brown, and its back of a duſky reddiſh colour; its wings are extremely beautiful, being principally of a greeniſh blue colour; the tail is white, ſtars and conſtinually in motion; the eyes are black, and the beak is thick and ſtrong, and is of a black colour, and obtuſe figure; the legs are reddiſh, and the claws black; when it makes any noiſe, it ſeems to utter the word *achi, achi*, very often repeated. It lives principally about the cultivated parts of the iſlands, and feeds on rice, and other vegetables, being properly of the partridge kind.

ACHALALACUIL, in *Ornithology*, the name of an American bird, deſcribed by Nieremberg, and remarkable for a chain or ring of ſilvery whiteneſs round its neck. It is of the ſize of a pigeon, its beak is ſharp, and three fingers breadth long, and its head is ornamented with a very long creſt, of a bluiſh black colour. The belly and under-ſide of the wings are white, and the back and outſide of the wings are of the colour of the creſt, of a bluiſh black, and variegated with white ſpots; the tail is partly black and partly blue. It is common about the lakes and rivers of Mexico, and feeds on ſmall fiſh. Ray.

ACHAMELLA, in *Botany*. See ACHILLEA.

ACHANDES, in *Ichthyology*, a name given by ſome to the REMORA.

ACHANE, ACANE, an ancient Perſian corn meaſure, containing 45 Attic *medimni*.

ACHAOVA, in the *Materia Medica* of the ancients, the name of an herb much celebrated in many diſtempers; but we are not aſſured at preſent, what is the plant that it truly belongs to. Some have eſteemed it, what is called in Egypt ochove, an herb nearly reſembling chamomile, but lower, and with broader leaves, approaching to thoſe of feverfew, and of a faint, but not diſagreeable ſmell.

Avicenna ſeems however to have meant a different plant by this name, and probably the herb we call MARUM Syriacum. Ajp.

ACHARISTON, from *a*, *without*, and χαρις, *favour*; under this name Galen deſcribes ſome compoſitions of ſingular efficacy, which cured ſo quickly, that they were undervalued; as the Greek name implies.

ACHAT, in our Law French, ſignifies a contract, or bargain; eſpecially in the way of purchaſe.

Purveyors were by act of parliament 36 Edw. III. ordained to be thenceforward called *achaters*.

ACHATES, *in Natural Hiſtory*, the ſtone properly called AGAT, *lapis ſyrtis*, &c.

ACHE, or ACH, a painful ailment in any part of the body. *Aches* may be either rheumatic, or rheumatic, owing to violent pains of the tile. See HEAD-*Ach*, &c.

ACHE, in ſome old authors, a name given to the plant called *ſmyrnium oluſatrum*, or *pes aſininus*; in Engliſh ALEXANDERS.

ACHEMENIS, an herb mentioned by Pliny; ſuppoſed by the ancients to have the property of exciting terror.

ACHERNER, or ACHARNER, in *Aſtronomy*, a ſtar of the firſt magnitude in the ſouthern extremity of the conſtellation ERIDANUS, but inviſible in our latitude.

ACHERON, a meaſure of corn, ſuppoſed to be the ſame with an quarter or eight buſhels. The monks of Peterborough had an allowance weekly of twelve *acherons de frumento*, and eight *acherons de ſiligine*, and ſix *de pulſe*, and fifteen *acherons de fabis*, &c. Ignotian.

ACHETA, in *Natural Hiſtory*, a name by which the ancients called the largeſt ſpecies of CICADA, the nymphs of which they uſed to eat, and eſteemed an excellent food: the ſmaller kinds, which ſeems to have been our middling ſort (for we have three kinds) they called TETTIGONIA.

ACHIA, a kind of cane which grows in the Eaſt Indies, and is pickled there while green, with ſtrong vinegar and pepper, together with ſome other ſpice and ingredients.

ACHIAR, is a Malayan word, ſignifying all ſorts of fruits and roots pickled with vinegar and ſpice. The Dutch export from Batavia all ſorts of *achiar*. The name is applied to whatever the *achiar* is made of; as *bamboo*, *cane*, &c.

ACHILENUS, or ACHAENUS, in *Natural Hiſtory*, a word uſed by the ancients to expreſs a ſtag or deer, in the ſecond year's age. In the firſt it was called *nebrus*, in the third *dicervus*, and always after that *cervus*.

ACHICOLUM, is uſed to expreſs the *fornix*, *thalus*, or *ſudatorium* of the ancient baths; which was a hot room where they uſed to ſweat. It is alſo called *archibalus*.

ACHILLEA, in the *Materia Medica* of the ancients, a name given to the gum, which we at this time know by that of *ſanguis draconis*, or DRAGON'S-BLOOD.

The ancient Greeks called this *draconthes*; and the uſe of that word for the mineral which we now call cinnabar, was only becauſe of its being of the ſame fine red colour with this gum. Avicenna treating of the *achillea* ſays, it is otherwiſe called *ſanguis draconis*, and deſcribes it as a red gum, univerſally known in his time.

ACHILLEA, in the Linnæan ſyſtem of *Botany*, a genus of the *ſyngeneſia polygamia ſuperflua* claſs of plants, the common calyx of which is ovated, and imbricated with oval, acute, connivent ſquamæ; the compound flower is radiated; the hermaphrodite florets are numerous and tubulous; the female florets are ligulated; and the proper hermaphrodite ones funnel-ſhaped; there is no pericarpium, and the ſeed is ſingle, oval, and naked. There are twenty-one ſpecies. See YARROW.

ACHILLEA *Lutea*. See ACHEATUM.

ACHILLEA *Mytulina*. See JACOBEA.

The ancient *Botaniſts* gave the name *achillea* to a plant which is ſaid to be the ſame with our milfoil-ſeam, from Achilles, who having been the diſciple of Chiron, firſt brought it into uſe for the cure of wounds and ulcers.

ACHILLEA *Gallica*, a name given to mountain rag-wort, or corn MARYGOLD.

ACHILLEIS, or ACHILLEID, a celebrated poem of Statius, of the epic kind, wherein he propoſed to deliver the whole life and actions of Achilles.

It only takes in his infancy, the poet being prevented from proceeding by death.

It is a point controverted among the critics, whether the whole life of a hero, e. g. of Achilles, be a proper ſubject of an EPIC poem?

ACHILLES, a name which the ſchools give to the principal argument alledged by each ſect of philoſophers in behalf of their ſyſtem.

In this ſenſe, we ſay, this is his *Achilles*: that is, his maſter-proof; alluding to the ſtrength and impotence of Achilles among the Greeks.

Zeno's argument againſt MOTION, is peculiarly termed *Achilles*.—That philoſopher made a compariſon between the ſwiftneſs of *Achilles*, and the ſlowneſs of a tortoiſe: arguing, that, if the tortoiſe were one mile before *Achilles*, and in the ſame ſpace of time that *Achilles* ran the firſt mile, the tortoiſe ran the ſecond mile, and ſo on; *Achilles* muſt for ever be behind the tortoiſe, yet he would never overtake it. But this ſophiſm is eaſily ſolved, by expreſſing the whole relative diſtance run by the tortoiſe before *Achilles* overtook him, by the following ſeries, $1 + \frac{1}{10} + \frac{1}{100}$, &c. the ſum of which is $1\frac{1}{9}$ of a mile; and the diſtance run by *Achilles* is one mile more: ſo that when *Achilles* had run $1\frac{1}{9}$ of a mile, he would have overtaken the tortoiſe.

ACHILLES, *Tendon of*, CHORDA *Achillis*, in a large TENDON, formed by the union of the tendons of the four extenſor muſcles of the FOOT.

It is ſo called, becauſe the fatal wound, whereby Achilles is ſaid to have been ſlain, was given there.

ACHIOTE, in *Botany*, a name given by ſome authors to the *orucu*, or *orniſtu*, called *orleana*, and *orellana*, by other writers. See next Art.

ACHIOTTE, a red drug from America, uſed in dying, and in the preparation of chocolate.

The word is Braſilian, where it properly ſignifies the tree from whence this matter is procured. Ray writes it *achiote*. *Achaua* is the name with what the French frequently call ROUCOU, and the Dutch *orleane*. It has been commonly eſteemed a kind of *argilla* or earth; but later obſervers find it a flower, or ſeed of a tree, which grows chiefly in very hot countries, as Yucatan, or Campeche, and Guatimala. It is about the ſize of a plum-tree, only more tufted; its branches being longer than the trunk. The fruit is incloſed in a rind like a cheſnut, except that it is of an oval figure. It begins to open croſs-ways from the middle to the top, and ſubdivides into four parts: having, in the middle, a beautiful carnation-coloured flower. The tree has no leaves; but inſtead thereof ſhoots out filaments like thoſe of ſaffron, only bigger and longer. Between theſe grow little ſoft vermilion-coloured grains, about the ſize of pepper-corns; which the Indians, ſeparating from the filaments, bake in cakes of about half a pound each; in which form the drug is brought into Europe.

The poor people uſe *achiotte* inſtead of ſaffron; it is uſed as marygolds are, to give a yellow colour to cheeſe, in Glouceſterſhire, and others mix as an ingredient in chocolate, during the grinding of the cocoa, the quantity of two drams to a pound, to give it a reddiſh colour, &c. though this practice was formerly more frequent than at preſent; the opinion of its being an earth, which

even Mr. Ray fell into, having discredited its use. Some also use it to dye wax of a vermilion colour. Physicians hold it a good cordial, and a preservative against retention of urine. It is made, as we make STARCH.

According to Savary, to procure the *achnite*, they shake out the grains in an earthen vessel, soak and then wash them in several repeated warm waters, till they have discharged all their vermilion colour; after which letting the water stand to settle, the *fecula* at the bottom are taken and formed into little cakes and balls; which, when pure, and not adulterated either with red earth, or fine brick dust, are highly valued. Some also use fire to boil the *achnite*, and give it a farther consistence.

ACHIROPOETOS, a name given by ancient writers to certain miraculous pictures of Christ and the Virgin, supposed to have been made without hands.

The most celebrated of these is the picture of Christ, preserved in the church of St. John Lateran at Rome; said to have been begun by St. Luke, but finished by the ministry of angels.

The word is Greek, and derived from α, *without*, χειρ, *hand*, and ποιεω, *to make*. Du-Cange.

ACHLIS. See MACHLIS.

ACHLYS, in *Medicine*, a darkness or dimness of sight, arising from a small *cicatricula* on the pupil, occasioned by a superficial ulcer on the *uvea*.

The word is Greek, and literally signifies a kind of cloud. In a metaphorical sense, *achlys* also denotes a disorder of the womb; answering to what Latin writers call *suffocatio uteri*.

ACHLYS, in *Mythology*, is applied by some Greek authors to the first Being, who existed before the creation of the world, or chaos, and of the gods.

ACHNE has various significations: sometimes it denotes lint, at other times chaff, or froth of the sea. Hippocrates uses it to denote a white mucilage, observable in the eyes of patients who have fevers; and also a white mucus in the fauces, thrown up from the lungs.

ACHOR, in *Medicine*, the third species or degree of a TINEA, or scald-head.

Achor is a sort of small running ulcer on the face and head, chiefly of children while they suck; by which the skin is broke into a number of little holes, out of which issues a vifcid humour, like *lobur*, whence its name.

Achor differs from the *favus* and TINEA only in the degree of virulence. It is called *favus* when the perforations are large, and the *favus*, when they are like thefe which are made by moths in cloth.

Writers of medical obfervations afford divers anomalous inftances of *achores*, viz. fome are found even in aged people; others on the feet; others refembling the venereal difeafe; others which difappeared upon cutting the hair and returned on its growing anew; others followed by a thickneſs of hearing; others by panics; and others by a *gutta ſerena*. Thefe drying up has ſometimes been followed by a fever, their repulſion forward by an epilepſy.

ACHOR, in *Mythology*, the god of flies to whom, according to Pliny, the inhabitants of Cyrene ſacrificed, in order to obtain deliverance from thefe inſects, and the diſorders occaſioned by them.

ACHRAS, in *Botany*. See SAPOTA.

ACHROMATIC, in *Optics*, a term, ſays M. Des Landes, firſt introduced into his *aſtronomy*, to denote TELESCOPES of a new invention, contrived to remedy *aberrations* in colours. The word is compoſed of the privative α, and χρωμα, *colour*. See ABERRATION and TELESCOPE.

ACHRONICAL, in *Aſtronomy*. See ACRONYCHAL.

ACHTELING, a meaſure for liquids uſed in Germany.

Thirty-two *achtelings* make a *viertel*; four *fellens*, or *fuitres* make an *achtelling*.

ACHTENDEELING, or ACHTELIEN, a meaſure for grain uſed in ſome parts of Holland.

ACHY, a ſpecies of CASSIA that grows in Arabia.

ACHYRANTHES, in *Botany*, a ſpecies of the *pentandria monogynia* claſs: its characters are, that the calyx is five-leaved, it has no corolla, the ſtigma is bifid, and the ſeeds ſingle. There are ten ſpecies.

ACHYRONIA, in *Botany*, a name given by Van Royen, to a genus of plants of the papilionaceous kind, called by Linnæus APALATHUS.

ACHYROPHORUS, in *Botany*, the name of a genus of plants of the ſame character with the HYPOCHÆRIS.

ACIA, a term in the Roman *Surgery*, concerning the meaning of which phyſicians, and commentators, are much divided. Celſus, ſpeaking of the healing of wounds, either by ſuture, or the fibula, ſays, each is beſt effected by means of a ſoft *acia*, not too much twiſted, that it may fit the eaſier on the body.

Boerhaave will have the *acia* to be the *ſcar* of the fibula, or that part which is pinched. In which view *acia mollis* only imported, that it was not ſet ſo as to pinch too much.

ACIOCCA, an herb that grows in Peru, and is ſometimes uſed inſtead of the herb *paraguay*, of which it is ſaid to have all the properties.

ACICULÆ, in *Natural Hiſtory*, ſmall ſpikes, or prickles in form of needles, with which nature has armed ſeveral creatures. See *Tab. of Fiſhes*, N° 2. *Tab. of Teſtaceous and Cruſtaceous Animals*, N° 13. *Tab.* II. of *Quadrupeds*, N° 19.

ACIDS derive their name from the word *acere*, to be *ſharp*; which expreſſes one quality by which they are diſtinguiſhed, viz. their ſour taſte. They form one of the general claſſes, into which ſimple ſalts are divided, and are the moſt ſimple of all ſaline ſubſtances. If they were ſeparated from water, to which they have a ſtrong affinity, and from all other ſubſtances not neceſſary to their ſaline eſſence, they would appear under a concrete or ſolid form; but the contact of the air, which is fouled with watery vapours, is ſufficient to diſſolve them, and therefore they are always in a fluid ſtate. On this account it is not eaſy to aſcertain the quantity of *acid* in *acid* liquors. Homberg made ſeveral experiments to this purpoſe, by combining *acid* liquors with ſalt of tartar, ſo as to form neutral ſalts; imagining that the weight gained by this alkali from its union with *acids*, or the difference between the weight of the ſalt of tartar and the neutral ſalt produced, was equal to the weight of real *acid* contained in the quantity of *acid* liquor employed. But as he did not conſider that the air expelled from ſalt of tartar, during its combination with *acids*, makes a very conſiderable part of the weight of that alkali, the inferences from his experiments are not juſt; and the real quantity of *acid* contained in an *acid* liquor, is ſo much more than the quantity inferred by him, as the whole weight of the alkali air diſengaged from the ſalt of tartar. *Acid* ſalts are all found to be volatile; by which they are diſtinguiſhed from the reſt, which are either fixed, or have an urinous, inſtead of an *acid* taſte.

Some chemical philoſophers have even made it very probable that it is the *acid*, which is the ſaline part, or principle, in all ſalts. They conſider it as a ſubtile penetrating ſubſtance, diffuſed through the ſeveral parts of the globe; which, according to the different matters it happens to be united with, produces different kinds of bodies. Of this ſentiment is Sir Iſaac Newton. 'In decompounding ſulphur, ſays that author, we get an *acid* 'ſalt of the ſame nature with oil of ſulphur *per campanam*; which ſame *acid*, abounding in the bowels of the 'earth, unites ſometimes with earth, and thus makes '*alum*; ſometimes with earth and *bitumen*, and thus 'compounds ſulphur.' In reality, all our native ſalts, though without any mixture from art, are yet found to be real mixtures; and their compoſition and decompoſitions are eaſily made.

Acids poſſeſs ſeveral common properties, beſides the ſharpneſs or ſourneſs of their taſte. They are readily united with water; and from this union, a new compound fluid is formed, whoſe ſpecific gravity differs from the mean gravity of its component parts. They may be likewiſe combined with ſpirits of wine, and form a very volatile ſubſtance, which chemiſts have denominated *æther*. They may alſo be combined with abſorbent earths, with alkaline ſalts, with metallic ſubſtances, with phlogiſton, and with oils; and in the proceſs of uniting with them, diſcharge all or part of the fixable air which they contain. The combination with alkaline ſubſtances occaſions a violent effervescence, and produces neutral ſalts. They diſſolve the aſhes of vegetables, and the ſolid parts of animals. All ſolutions, the metallic ones excepted, deſtroy the acrimony of the diſſolving *acid*, and the menſtruum loſes its diſſolving power.

Acids likewiſe, for the moſt part, agree in changing into red the blue colours of vegetable juices, and in heightening the colour of thoſe that are red. But this property is not common to all *acids*; for the volatile ſulphureous *acid* deſtroys thoſe colours. Nor is it peculiar to *acids*; for *alum*, a neutral ſalt, produces the ſame effect. *Acids* reſiſt fermentation; they are not ſo eaſily frozen as water, and they generate cold, when poured upon ice. M. Homberg explains the actions of *acids* on alkalies, and accounts for the great number of little bubbles, and the heat produced thereby in the following manner. The matter of light, which he ſuppoſes to be the chief principle, ſulphur, and to poſſeſs the whole extenſion of the univerſe, is kept in a perpetual motion by the ſeveral impulſes which the ſun, and fixed ſtars, give it. This motion, happening on ſome occaſions to [illegible] may be retarded again, and augmented by the approach of flame, which this author ſuppoſes to be only matter capable of giving motion to light. Light cannot proceed in its motions without continually ſtriking againſt the ſolid bodies, and paſſing through the porous ones which it meets with.

Suppoſe, now, *acids* to be little, ſolid, pointed bodies, ſwimming at liberty in an aqueous fluid, and kept in continual motion by the repeated impulſes of the matter of light; and alkalies to be ſpongious bodies, whoſe pores

pores have formerly been filled with the points of *acids*, and which still retain the dents or impressions thereof, and are ready to receive the like points again: It is easy to conceive, that if some of these porous alkalies float in the same liquor wherein the solid *acids* float, these latter, being impelled by the matter of light, will enter the cavities of the former; and that they will do it the more readily, if the motion of the impelling light has been accelerated by external heat.

The introduction of *acids* into the pores of alkalies is, to all appearance, effected with great velocity and friction; in as much as it produces so considerable a degree of heat; and as the pores of the alkalies were before filled with an aereal matter, which is now expelled by the points of the *acids*, that air is put in motion, and produces the bubbles, which are so much the more sensible, as the heat accompanying the action is the greater. Homberg's Essai du Sel Principe.

Sir Isaac Newton accounts for the effects of *acids*, by the great principle of attraction. See AFFINITY.

Acids differ considerably from each other with regard to their strength, their resolvent power, and the changes produced in them by the bodies on which they act.

Acids seem, from their universality, to be of the greatest use in the oeconomy of the world. The air, earth, and sea abound with them. It is observed, that the air is most replete with *acid*, when the wind blows from the north and east, and when the weather is serene; a fact which, according to Hoffman, is confirmed by the observations of those who are concerned in nitre works: from whence we may conclude, that the *aerial acid* is instrumental to the production of cold in the air. The analogy between *acids* and *cold*, and between alkalies and heat, is very remarkable. *Heat* and alkalies promote the putrefaction of dead bodies; or, in other words, destroy the cohesion of their parts: on the contrary, *acids* and *cold* preserve them from putrefaction, by preserving the cohesion of their component parts.

Acids are distributed into three general classes, according to the substances from which they are extracted; viz. *animal*, *mineral*, and *vegetable acids*. Nevertheless, it is the opinion of Stahl, and of other eminent chemists, that there is but one primitive *acid*; and that all the other *acids* are only different modifications or combinations of it.

ACID, *aerial*, a name given by Mr. Bergman of Upsal to fixed air, because he found that this species of air had an *acid* quality, by its changing the blue juice of tournesole into red; and the fact was farther verified by Mr. Hey, and Mr. Bewley; the latter of whom has proved, by a series of experiments, that fixed air does not owe its acidity entirely to the nature of the substances from which it is extracted, as Sig. Landriani, and some foreign philosophers, imagine; but that it is an original *acid sui generis*, expelled from the substances with which it is combined by the force of fire, or by the power of a superior *acid*; but Dr. Priestley rather apprehends, that it is a modification of the nitrous *acid*. See AIR, *fixed*.

ACID *of Amber* is supposed by Dr. Monro to be an *acid sui generis*, and extracted from salt of *amber*. Phil. Transf. vol. lxvii. p. i. N° 40.

ACIDS, *animal*, are those which have been lately discovered in certain *animal* substances; as butter, fat, blood, ants, and flies.

M. Homberg first ascertained the existence of a latent *animal acid*, and he has proposed two ways of procuring it. One way is, by concentrating the phlegm which arises first in the common distillation of *animal* substances for their volatile salt and oil. The residuum of this phlegmatic liquor, when it has been redistilled with a gentle heat, till only a small portion is left, will yield an *acid*; which he has sometimes concentrated so far, that it seemed to be as strong as common vinegar.

The other method of collecting this *acid* is, by mixing earthy matters with the animal subject as fish, and urging the distillation after all the alkaline salt and oil have arisen. The *acid* is at length forced out by the great vehemence of fire. Whether this acid be any other than part of the *vegetable acid* derived from plants in the ordinary way of food and nutrition, or of the *acid* of the *marine* salt which *animal* substances possess, must be determined by future experiments and observations. But it is certain that they differ in the same circumstances as the *vegetable acid* do from *mineral acids*.

Dr. Lister has long since observed, that insects which are furnished with stings, as bees, wasps, and hornets, discharge, when irritated, an *acid* juice; but none yield it in a greater quantity as ants. Ants in their *chrysalis*, or nymph state, have no *acid*; but if a stick be thrust into an ant hill, they will discharge a fluid, which has an ant taste and smell; and which will make the blue flowers of succory, borrage, &c. red. And this *acid* obtained, either by distillation, or by throwing the living animals into water, till it is sufficiently impregnated with it, will, with lead, make a peculiar sort of *saccharum saturni*, which on distillation will give back the *acid* in its own form again. M. Margraaf has demonstrated, by some late experiments, that it bears no analogy either to the *marine* or *vitriolic acid*; because it does not precipitate silver, lead, or mercury, from the *nitrous acid*, nor quicksilime from the *marine*. He concludes upon the whole, that this *acid* much resembles that of vinegar, though in some respects it is different.

ACIDS, *Concrete*, are saline solid substances, which have the properties of *acids*; such are crystals of tartar, essential salts of vegetables, the volatile *acid* salt of amber, and of some other bituminous, and the flowers of benjamin.

ACID, *Fluor*, is a new *mineral acid*, so called from the name which the chemists have given to the substance from which it is extracted. This substance is of the same kind with the Derbyshire *spar*. The *acid* is expelled from it by oil of vitriol; and as it was discovered by Mr. Scheele a Swede, it is often distinguished by the name of the Swedish *acid*. Mr. Scheele supposed, that *acid* and water were the constituent parts of the fossil from which it was produced. Mr. Boulanger apprehends, that this new *acid* is only the *acid* of salt combined with an earthy substance. But Dr. Priestley, in the result of his experiments, has proved, that the *fluor acid* is the *acid* of vitriol, charged with so much phlogiston as is necessary to its taking the form of air, and also with much of the earthy matter of the spar. Experiments and Observations on different kinds of Air, vol. ii. p. 188.

ACIDS *Fluor* sometimes denote those *acids*, which are always in a fluid state; such are the volatile, vitriolic, nitrous, marine *acids*, and those which are obtained by distillation from vegetable and animal substances.

ACID, *Marine*, is one of the three *mineral acids*; so called, because it is generally obtained from sea salt; though it may be likewise extracted from fal gem, or fossile salts, and from the salt of saline fountains and pits. This *acid* is stronger than any of those of the *vegetable* and *animal* kingdom; but weaker than the *vitriolic* or the *nitrous*. It is never found pure, but always combined with an alkali, so as to form a neutral salt. As it is more volatile than the other *mineral acids*, it cannot be so easily combined with phlogiston, though many facts sufficiently ascertain the practicability of such a combination. This species of *acid* is supposed by the chemists to be an offspring of the *vitriolic acid*, and to consist of this *acid* combined with an inflammable and a mercurial principle. Becher ascribes its peculiar properties to a principle, which he calls mercurial earth; but Stahl rejects this part of his theory; and expresses a wish, that the existence of the mercurial earth could be as well ascertained as the existence of phlogiston.

The *marine acid* easily dissolves zinc, iron, and copper; it acts with great difficulty on tin, and scarcely acts at all in its liquid state on silver, mercury, lead, or regulus of antimony. It dissolves gold by the help of the *nitrous acid*; and by a modern discovery, gold and platina are rendered soluble in this menstruum, either by previous solution in aqua regia and precipitation from that menstruum, by means of an alkali, or by a previous calcination with tin and other imperfect metals.

Some of the most remarkable phenomena attending the combination of *marine acid* with metallic substances, are the following: it dissolves those substances with less heat and effervescence, and with fewer vapours than *nitrous acid* does. It forms with all the metals, which it dissolves, excepting iron and copper, salts capable of crystallization. The metals with which it contracts the strongest union, are those to which it unites with the greatest difficulty. *Marine acid* volatilizes either wholly or in part, the metals with which it is united; and forms with those metallic substances to which it most firmly adheres, such as mercury, regulus of antimony, silver, and lead, metallic salts, much more corrosive than those formed by the *vitriolic* or *nitrous acids*. Homberg indeed found, that *marine acid* of itself corrodes glass more than any other *acid*.

This *acid* can only be obtained by means of an intermediate substance sufficiently powerful to disengage it from the native fixed *alkali*, which is the basis of common salt. *Vitriolic acid* is the most proper for this purpose.

ACIDS, *Mineral*, are one of the general classes into which *acids* are distributed. They derive their name from the *mineral* substances from which they are procured; and they are subdivided into the *marine*, *nitrous*, and *vitriolic* ACIDS. With respect to their general characters, they are more simple, less volatile, more susceptible of concentration, and stronger than the *acids* obtained from *animals* or *vegetables*.

ACID, *Nitrous*, is the most simined, and the least frequent in the earth, of all the *mineral acids*. It is seldom met with in any combination, but in the neutral salt, from which

which it derives its name. The concentrated *aluminous acid* is weaker and much more volatile than the *vitriolic*. In this state it strongly attracts the moisture of the air, and when mixed with water, occasions a great heat and ebullition. M. Beaumé observes, that while they are mixing, the liquor assumes a blue or deep green colour, though the vapours at the same time retain their original yellowish red. It fulminates, when ignited, on the contact of any inflammable matter; and burns into flame, when mixed with distilled and expressed oils. It is of a yellowish red flame-colour, emits vapours of the same colour, and possesses a peculiar taste and smell. The *nitrous acid* contains phlogiston, and yet takes it with avidity from most other substances. By means of this property, the substances into which it enters, burn without the assistance of common air.

This *acid* is one of the most powerful menstruums in chemistry; not that it is stronger than either the *vitriolic* or *marine*, but on account of the facility, quickness, and activity, with which it dissolves most substances. It corrodes and dissolves all metallic bodies, except gold and platina; and Dr. Brandt has found, that by particular management it can dissolve gold. But its action is most vehement on those metals which contain most inflammable matter, as zinc and iron. This *acid* combined with fixed vegetable alkali forms nitre; with marine or fossil alkali, it forms a neutral salt, which shoots into cubical crystals, hence called *nitrum cubicum*; with volatile alkali, it produces the *nitrous sal ammoniacum*. *Nitrous acid* easily dissolves all calcareous and absorbent earths. It is easily combined with oils, and with *spirits of wine*.

This *acid*, which is sometimes called spirit of nitre, may be procured by mixing two parts of dry and powdered clay with one part of nitre, and distilling the composition in a reverberatory furnace, with a gradual heat. Clay is very proper for decomposing nitre, because it contains a *vitriolic acid*. Martial vitriol is used for producing smoaking spirit of nitre; and pure *vitriolic acid* is made use of in distilling Glauber's smoaking spirit of nitre.

ACID, *Phosphoric*. See PHOSPHORUS.

ACID *of Sugar*. See SUGAR.

ACID, *Vague*, a general term used by some chemists for the *vitriolic acid*.

This mixing with fossil oil, *petroleum*, *oleum terræ*, or the like, constitutes the various sorts of native fossil transparent sulphurs; uniting with iron-metals, it forms cumbar, antimony and other fossils, both solid and fluid; uniting with metals, it forms divers kinds of vitriols; with calcareous earths, different stones; and lastly with *spirituous* which is the matrix of vitriol, calcined in a wood fire, it produces common sulphur. See ACIDS.

ACIDS, *Vegetable*, are those which are procured from vegetable substances. Such as the juices of *sour fruits*, *sour wine*, or vinegar; crystals of tartar; all the essential *acid*, concrete salts, procured by crystallization from the expressed juices of plants; and lastly, all the *acids* obtained from *vegetable* substances in analysing them by distillation. They differ from *mineral acids* in being less simple, less fixed, less subservient of concentration, and weaker.

ACID, *Vitriolic*, in the third species of the *mineral acids*; and was formerly obtained from martial vitriol. This *acid* is copiously diffused through the earth, the waters of the ocean, and the atmosphere, and is supposed by some to be the basis of all the other *acids*. It abounds most in the mineral kingdom, combined with various other bodies. Its specific gravity, when it is highly concentrated, is more than double that of water. M. Hellot obtained some, concentrated to such a degree as to become solid and crystalline. This *acid* being likewise more fixed than water, admits a much greater degree of heat. It very freely imbibes moisture, and acquires hereby a very considerable increase of weight. It dissolves the *æther* of vegetable and calcareous earths; and when combined with the latter forms a matter called *selenites*, resembling salt in its appearance, but differing from it in taste and solubility. It may be likewise combined with alkalies, both vegetable, fixed, and fossile. This *acid* also acts upon all metallic substances by means of their phlogiston, and dissolves them with a moderate effervescence and heat; and by discharging part of the inflammable principle, coalesces them more or less, according to their nature, and the manner of making the solution. This *acid*, when strongly concentrated, will act powerfully on oils; and being distilled together with spirits of wine, yields *æther*. The *vitriolic acid* is more simple and powerful than the *nitrous* and *marine acids*, separates them from the alkalies to which they are united, and substitutes itself in their places. This *acid* may be procured by collecting the vapour of burning sulphur, confined by means of a glass bell, and received into the vapour of water.

ACIDS, *Volatile*, are those which are more *volatile* than other *acids*: such is the *volatile vitriolic*, or sulphureous *acid*, which is only the common *vitriolic* ACID combined with phlogiston. Those who are desirous of farther information concerning the subject of *acids* in general, and the several classes and species of them above enumerated, may consult Neumann's Works, translated by Dr. Lewis, and Macquer's Dictionary of Chemistry, Engl. Transl.

ACIDS, in the *Materia Medica*, denote such medicines as are possessed of an *acid* quality: as vinegar, spirit of vitriol, &c.

ACIDS and *alkalies* have been considered by some chemists as the two *arbitræ* of nature, the great instruments whereby all things were effected; and the causes not only of natural, but preternatural *diseases* and cures. This hypothesis we chiefly owe to Tachenius, a German chemist, and a follower of Helmont's system, who published two books to shew, that all natural things are composed of *alkali* and *acid*. The *acid*, which was generated in the air from the sun, and contained in it the hidden seeds of all things, associated the *alkali* to itself; and from hence, as a passive subject, arose the *ens*, or forms of things. He was followed by Swalve, and his doctrine has been since defended by others, but combated and refuted by Bohnius, Boyle, Bertrand, Pitcairn, Hoffman, &c.

Some have pretended to correct and improve this hypothesis of *acid* and *alkali*, by making *acid* and *oleid* the causes of all diseases, and fluid *alkali* the instrument of all cures. Act. Erud. Lipf. an. 1689.

In reality, though the terms *acid* and *alkali* be new, notions much resembling those already recited may be met with in ancient writers, who frequently ascribe the origin of many diseases to unnatural sour and corrosive juices in the body.

ACIDS, Mr. Boyle observes, not only disturb the body while they continue *acid*, but in many cases create distempers, wherein they shall seem the remedies.

Helmont asserts, that no *acid* can be lodged naturally in any part of the body, except the stomach; that if it extend farther, it becomes unnatural, infects the sweet and balsamic juices, and proves the cause of most diseases.

To correct the redundancy of *acids* in the stomach, all *alkalines*, or urinary salts, both fixed, as of wormwood, tostany, cardous; and volatile, as spirit of sal ammoniac, spirit and salt of hartshorn, scurvy-grass, &c. are recommended. Under corrections also come all fixed, earthy, or metallic concretes, which absorb the *acid*, as iron, saccharum saturni, antimony, and all oils and fat things, which obtund and incrassate the parts of *acids*, as spirits of wine, oil of cloves, &c.

The medicinal qualities of *acids* are much disputed by many physicians. Some alledge that they are hurtful in coughs, and most of them, the juice of lemons excepted, in diseases of the breast. A large dose of such as are very concentrated, taken internally, would prove a very corrosive poison. However, *acids*, properly administered, are excellent cooling and aperitive medicines, fit to quench thirst, and to lessen the acrimony of the bile; these being powerful *antiseptics*, are esteemed good in all putrid and malignant diseases; nor are they less efficacious in inflammatory and feverish cases. However, great care ought to be taken not to administer them in too large quantities as to corrode the bowels, or to coagulate the blood. *Acids* are also commended in the plague, and as *styptics*. Thus vinegar not only serves to stop hæmorrhages, but being sprinkled upon a red-hot tile or iron, corrects the putrefaction of the air.

ACIDITY, ACIDITAS, the quality which constitutes or denominates a body *acid*; or that sensation of sharpness and sourness which one experiences upon the taste.

ACIDULÆ, in *Natural History*, a species of mineral waters, distinguished by a latent acidity in their nature. When they are accompanied with heat, they are called *acidulæ*; but if heat be added to their brisk spirit, they are denominated *thermæ*.

Acidulæ are native waters, impregnated with particles of some acid mineral, as vitriol, alum, nitre, or salt; and as Dr. Seip of Pyrmont first discovered, in 1736, and Dr. Brownrigg of Whitehaven farther evinced, with a considerable quantity of fixed air, formerly known by the name of their *spirits*, or *menstrua*, to which they owe their brisk sparkling quality. Phil. Trans. Abr. [illegible] p. 659. and Phil. Trans. vol. lx. p. 2[illegible] For Dr. Priestley's method of making artificial [illegible] kind, see the article PYRMONT.

The physicians also frequently include chalybeate, aluminous, or ferruginous, waters, under the [illegible] Their virtues depend, in general, on the [illegible] ingredients in their composition. A general [illegible] mineral waters may be made either by [illegible] which will discover both the quantity of solid matter contained in the water, and by subsequent trials, the particular nature of it; or by distillation, whence it may be known, whether the water contains any volatile matter, saline or bituminous; or again, by the mixture of certain liquors.

liquors. The most common for this purpose, are the infusion of galls, syrup of violets, *el. tart. per deliq. tinct. argenti. sal alk. vol. tinct. sulph. vol. spir.* and *aqua fortis*. But for a minute and more accurate investigation, the materials are more numerous, and the *apparatus* more considerable. The *operator* should be provided with scales and weights, an hydrostatic balance, different sorts of glasses and cements, a thermometer, a hand-pump, microscopes, crucibles, &c.

A small quantity of the infusion of *galls* will discovers whether the water be impregnated with iron. If it contains a coarse ochre, the colour struck by the *galls* is very dark; the finer iron produces an inky purple; but the finest, such as the Pyrmont water contains, gives an azure blue. A dram of *syrup of violets*, mixed with a small wine-glass of the mineral water, will produce a green colour, if there be any alkaline salt, or alum, in it; though Dr. Rutty says, that if the spirit be new, alum will turn it red. This green colour is also observed, when a solution of iron is met with; with an acid, the syrup produces a red.

Ol. tart. per deliq. dropped into a small quantity of the water to be examined, discovers earthy matter, by precipitating it in the form of a white cloud: if a whitish cloud rises to the top, and the water be clear underneath, the quantity of earthy matter is very little. This oil precipitates the contents of all hard waters. If it meets with a solution of mercurial particles, it discovers them by producing a yellow colour: and it ferments with acids.

Tinct. argenti, if made with pure *aqua fortis*, is the most delicate addition for discovering sea salt in water, which it joins with, and falls in a milky cloud.

Sal alk. vol. precipitates the contents of hard water, and discovers mercury, or any of its preparations, by turning the liquor whitish, and coagulating part of it. It discovers copper, by producing a blue colour.

Tinct. sulph. vol. discovers lead in water, by turning it into a dusky brown colour. Any readily determines whether the water be hard or soft, by dissolving in it, if hard, the *soap* curdles, but if soft, forms with it an homogeneous mixture, and with a little agitation a froth is raised. *Aqua fortis* turns the water into a green colour, if it contains a solution of copper. After all, Dr. Lewis observes, that he can recollect but two instances, in which simple mixture affords any degree of certainty; blue colour from copper and volatile alkali, and the bluish or purple from iron, and some astringents. See Hoffman de Acidulis, &c. Shaw's Improvements on Mineral Waters, in his Chemical Works, and Neumann's Works, with Dr. Lewis's Additions, p. 252.

ACIDULATED, any thing wherein acid juices have been put, in order to give it a coolness, and brisknefs.

ACIDULOUS denotes a thing that is slightly *acid*; it is synonymous with the word *sub-acid*.

ACIDUM, *æthereum, aluminosum, catholicum, primigenium, sulphureum*, are all different names for SPIRIT of *vitriol*.

ACIDUM *Pingue*, a name first given by M. Meyer, and afterwards adopted by M. Crans, and some other German chemists, to a certain caustic *acid*, which magnesia, limestone, or any calcareous earth, meets with in the fire, and attracts, losing at the same time a considerable portion of water: and by means of which it is *neutralized*, rendered *inactive* and unctuous balsamics, and deprived of the property of effervescing with acids. M. Meyer supposes, that this substance nearly approaches to that of fire and of light; that by the aid of this *acid* lime unites with oil, dissolves sulphur, &c. that it enters very abundantly into the composition of vegetables and animals; that it is this which escapes from charcoal when burning, which increases the weight of metallic *calces*, and in general answers the various purposes in nature, which the English philosophers, Hales, Black, Macbride, Priestley, and others, have ascribed to fixed air. See AIR, *fixed*.

This new doctrine was attacked, and the English system defended, in the year 1769, by M. Jacquin, a professor at Vienna; but before this period it had made a very rapid progress in Germany: it was adopted by many chemists of reputation, and taught publicly in their schools. In 1770, M. Crans, physician to the king of Prussia, published a reply to M. Jacquin's, in which he discovers a very serious attachment to the *acidum pingue* of M. Meyer. See Lavoisier's Essays Physical and Chemical, vol. i.

ACIDUM *Pingue* system. See AETHER, and SPIRIT *Motherof Turpentine*.

ACINACES, in *Antiquity*, a kind of cutlass or scimitar, in use among the Persians.

ACINARIA, in *Botany*, a name given by some to the marsh cranberries, or *vaccinia palustria*.

ACINI, in *Botany*, small grains, or berries, growing in bunches. After the manner of grapes; also the stones or seeds of grapes. The berries of the *elder, privet, ivy*, &c. are called this kind, and so called.

Anatomists have called some glands, of a similar formation, *acini glandulosi*.—See *Tab. Anat. (Sabloch.) fig. 4. lit. bb.*

ACINIFORMIS *Tunica*, the same with the TUNICA UVEA of the eye. It is also called *acinosa tunica*.

ACINODENDRON, in *Botany*, the name given by Burman, in his Thesaurus, to a genus of plants, afterwards called MELASTOMA, belonging, in the Linnean system, to the genus *thymus*, and to the class and order *didynamia gymnospermia*.

ACINOS, stone, or wild BASIL.

ACINUS properly signifies the grape. See ACINI. It is also the name of the STAPHYLOMA.

ACIPENSER, in *Ichthyology*. See ACCIPENSER.

ACITLI, in *Ornithology*, the common Mexican name for the great crested diver, common to Europe and America, and most usually called by authors, the LEBUS *cristatus*, water-hare. Ray.

ACKNOWLEDGMENT. *Money*, a sum, paid in some parts of England, by tenants, on the death of their landlords, as an *acknowledgment* of their new lords.

ACLIDES, in the Roman *Military art*, a kind of missive weapon, having a thong fixed to it, by which, after casting it out of the hand, it might be drawn back again. Servius describes the *aclides* as full of spicula, or cramponets. It was full of barbs, and so would do mischief both where it struck and in the withdrawing. Each warrior seems to have been furnished with two. Vell. Exam. Aquin. Lex. Mil. tom. 1. p. 14. Pitis. Lex. Ant. tom. I. p. 17.

ACLOWA, in *Botany*, the name of a plant common in Guinea, and used by the natives to cure the itch. They rub it on the body, as we do our unguents. Pyrard accounts it a kind of *solanum*, and has named it the *Guinea superficie solatro* with leaves like the gum-tragacanth shrub. Phil. *Trans.* N° 232.

ACME, the height or top of any thing.

The word is Greek, signifies point, and is more especially used to denote the *height* or utmost vehemence, of a distemper.

Accordingly some *inflamma-writers* divide *difeases* into four dates or periods.

1. *Acme*, the beginning, or first attack.—2. *Anabasis*, the growth.—3. *Acme*, the height.—And, 4. *Paracme*, which is the declension of the distemper.

ACMELLA, in *Botany*, a plant which grows in the island of Ceylon, of which there are three species noted by botanists. It is commended in nephritic disorders, but very rarely used. It is also called ACMELLA.

ACNE is a name given to a small pimple, or hard tubercle, on the face.

ACNIDA, in *Botany*, a genus of the *dioecia pentandria* class, in the Linnean system. Its characters are, that it has male and female flowers; the calyx of the former is five-leaved, that of the latter compofed of two leaves; neither have any corolla; the styles are five, and the seed is single, covered by a membranous calyx. There is one species.

ACO, a name given to a fish found in the Mediterranean, called also ACQUA, SARACHUS, and SARACHINUS.

ACOEMETÆ, or ACOEMETI, formed of the privative *a*, and *κοιμαω*, *to sleep*, or *sleep to no*, a name given to certain monks in the ancient church, who flourished, particularly, in the East, and who were thus called because they had divine service performed, without interruption, in their churches.

These monks divided themselves into three bodies, each of which exchanged in their turns, and relieved the others: so that their churches were never silent, night nor day. The STUDITES were also sometimes called *acoemetæ*.

There is a kind of *acoemeta* still subsisting in the Romish church: the religions of the Holy Sacrament coming properly enough under that denomination; because they keep up a perpetual adoration; some or other of them praying before the sacrament, day and night.

ACOLCHICHI, in *Ornithology*, the Mexican name for a bird, described by Nieremberg under the name of the PYRROPHTHALMUS *Indianus*.

ACOLIN, in *Ornithology*, the name of a bird of the partridge kind, common in the Spanish West Indies. It is no larger than a starling; its legs and feet are of a pale greenish colour, and its toes very long. Its beak is yellow, and somewhat long; its head finely tufted; and its breast and belly are white; its sides are spotted with brown; and its back and tail of a dusky yellowish brown; its tail is very short, and both that and the back have some black spots, and some narrow streaks of white. It frequents the sides of lakes, and is supposed to feed on fish, worms, and other insects, which are found about watery places. It is a tolerably well tasted bird.

ACOLUTHI, or ACOLYTHI, compounded of the privative *a*, and *κελευθος, via, way*; as still persisting in their way, or course, in *Antiquity*, a term applied to such persons as were steady and immoveable in their resolutions.

For this reason, the Stoics were called *acolutes*, because nothing could shake or alter their resolves.

Among the *Ecclesiastical Writers*, the term *acolythus*, or *acolythist*, is peculiarly applied to those young people, who, in the primitive times, assisted to the ministry; and, for that purpose, continually attended the bishops: which assiduity occasioned their being distinguished by this appellation.

In the Romish church, *acolythi* were of longer continuance; but their functions were different from those of their first institution. They were such as had only received the first of the four lesser orders, whose business was to light the tapers, carry the candlesticks, the incense-pot, and prepare the wine and water.

At Rome there were three kinds of *acolythi*; viz. *palatini*, who waited on the pope; *stationarii*, who served in churches; and *regionarii*, who, together with the deacons, officiated in other parts of the city.

ACOLUTHI, or *acolythi*, was also a title in the Grecian empire given to the captain or commander of the VARANGI, a body of guards appointed for the security of the emperor's palace.

ACOLYTHIA, in the Greek Church, denotes the office, or order of divine service.

The same name is also given to the prayers, ceremonies, hymns, and the like, whereof the Greek service is composed.

ACON, an instrument used in the ancient exercises, like the *missus*.

ACON gave name to an ancient order of knighthood, who were afterwards united to the knights *Hospitallers*.

ACONCORNA, in *Botany*, a name given by the natives of Guinea to a plant, growing wild with them, and in great esteem for its virtues in the small pox. They give an infusion of it in wine. The leaves of this plant are opake, and as thick as those of the phillerea; they grow in pairs, and stand on short footstalks; they are small at each end, and broad in the middle; and the largest of them are about three inches in length, and an inch and quarter in breadth in the middle. They somewhat resemble those of our bay. They are of a dusky colour on the upper side, and of a pale green underneath.

ACONE, in the *Natural History* of the ancients, the name of a stone used as a whetstone, and for several other purposes; but more usually known among the Romans by the name CUPREUM. It signifies also a mortar for the purpose of levigation.

ACONITE, MONKSHOOD, in *Botany*, a plant famous among the ancients, both in quality of a poison, and a remedy. *Aconitum* is said, by some, to take its name from Aconæ, a city in Bithynia, where it grew in great abundance: though it is also found in other places, particularly the mountains about Trent, &c.

The flower is of the polypetalous anomalous kind, consisting of five irregular leaves, and somewhat resembling a man's head, with a hood or helmet on it. The upper petal seems to perform the office of a hood or helmet; the two lower leaves represent that part of the helmet which receives the lower jaw, and the two wings seem adapted to the upper part of the face, or the temples. From the centre of the flower there arise two pistils, shaped like feet, and reclined into the hollow of the upper petal or hood, as is also the pistil, which finally becomes a fruit, composed of several membranaceous vagine collected into the head, and usually containing angular and wrinkled seeds.

The antient botanists give the name *aconite* to several plants, of different kinds.—One species they call *lycoctonum*, *venefica*, *wolf's-bane*, or *wolfsbane*, *aconitum*, *aconitum*, *dog's-bane*, from its effects: of these they had likewise three divisions; as the *napellus*, thus called a *napo*, because its root resembled the turnep-kind: another called *anthora*, q. d. *anti-thora*, good against disorders caused by the *thora*, another kind of *aconite*.

Dioscorides only makes two kinds of *aconite*; the first the same with the *thelyphonum*, the second the proper *aconite*. In Matthiolus's time appears to have been but one species of *aconite*, which resembled the *thelyphonum* in its virtue and effects, but differed from it in leaf, colour, soil, root, &c. Mr. Tournefort, however, enumerates twenty-one species of *aconite*.

The stalk of *aconite* is held extremely caustic and acrimonious, in virtue whereof they produce mortal convulsions, or inflammations, which end in mortifications. The ancients were so much afraid of these effects, that they were afraid to touch the plants; and hence a thousand superstitious precautions, about the manner of gathering them.—That some are, however, held of service in malignant fevers, by some; and, accordingly, make an ingredient in some orvietans, and other alexipharmic compositions.

The ancients used this plant against the sting of the scorpion, which is said to be deadened by the touch of the *aconite*, and restored to its vigour by that of hellebore.—Theophrastus relates, that there was a way of preparing it, in those days, so as it should only destroy at the end of one or two years.—Arrows dipt in its juice are said to prove mortal, wherever they wound.—The Indians used *aconite*, corrected in cows urine, with good success against fevers.

Some compare the poison of the *aconite* to that of the RAPELLUS. Others term to make it of the same kind with that of the SALAMANDER. Dr. Mead will have it to agree with the CICUTA. It is the root alone that is harmful; for its leaves and fruit are said to be innocent.

The English call this plant WOLF'S*bane*, from the Anglo-Saxon *wulfs-bane*.

ACONITI, *arenæ*, is an appellation given to some of the ancient ATHLETÆ, but differently interpreted. Mercurialis understands it of those who only anointed their bodies with oil, but did not smear themselves over with dust, as was the usual practice. Mr. Burette will have it to signify those who conquered easily without dust, q. d. *arenæ*, *nunquam*, *sine little trouble*.

ACONTON signifies not plaistered, and is a name given to vessels not lined within.

ACONTIAS, a name used by some authors for a sort of COMET, or METEOR, whose head appears round, or oblong, and its tail very long, and slender, resembling a javelin.

It takes its denomination from a serpent thus called, frequent in Calabria and Sicily; where it is also named *jaculator* from *jaculor*, *to dart*, *or throw*, by reason of its flying at passengers like an arrow; in order to which, it winds itself up a tree, to spring thence with the greater violence. For the like reason the Greeks call it *acontias*, of *ακοντιον*, *a dart or arrow*.

It differs from the XEPHIAS, in that it is longer, and more like a dart; and the other is thicker and broader in the middle.

ACONTIAS, in *Zoology*, the name of a species of serpent, called also JACULUM, or the dart-snake, from its manner of vibrating its body in the manner of a dart. Bellonius found one of these in the island of Rhodes, which he describes in this manner: it is about three handbreadth long, and of the thickness of one's little finger. Its colour is a milky grey on the back, variegated with small black spots, like to many eyes; and on the belly it is perfectly white. The neck is wholly black, and from that two milk-white fillets run all the way along the back to the tail: the black spots also are each surrounded with a small circle of white. It is found in Egypt and Lybia, and in the islands of the Mediterranean. It is also called *vipsheras* and *cenchrites*. Ray.

ACONTIUM, in *Ancient Writers*, a kind of Grecian dart, or javelin, somewhat resembling the Roman PILUM.

ACOPA, in *Botany*, a name given by Dioscorides, and some other authors, to the TRIFOLIUM *palustre*, or buck-bean.

ACOPA, in *Medicine*, is also used to denote remedies against the ill consequences proceeding from lassitude, occasioned by too violent labour, exercise, or the like; such as tensions, pains in the bones, &c. These are also proper on many other occasions, some being of a warm, others of a mollifying nature. The name is also applied to the soft strains made use of for tumours, &c.

The word is derived from α privative, and κοπος, *weariness*.

ACOPUS, or ACOPUM, *see* ACOPA.

ACOPOS, a plant mentioned by Pliny, said to be the same with the ANAGYRIS of Dioscorides, which Gerard says is the bean-trefoil; it signifies also LABURNUM.

ACOR signifies *sourness* or *acrimony*.

ACORDINA among Indian tumps.

ACORI, or CALAMUS ODORATUS, in *Natural History*. The true *acori* is very scarce; some, however, is found on the coasts of Africa, particularly from Rio del Re to the river of the Cameroons. This cocoa is part of the merchandize which the Dutch trade for with the Cameroones: that of the kingdom of Benin is also very much esteemed. It grows in form of a tree on a rocky [illegible] also a name for the greater GALANGAL [illegible]

ACORN, in *Natural History* and *Agriculture*, [illegible] fruit or mast of the oak kind.

The *acorn*, according to Dr. Grew, is the [illegible] with this only difference, that besides the [illegible] it has only a leathern or parchment cover, [illegible] shell. And hence it is, that whereas the kernel [illegible] is sweet, that of an *acorn* is of a very rough [illegible] austere parts of the tap, which is not [illegible] off into the shell, being here moulded by the kernel [illegible]

Writers on husbandry give rules concerning seminaries or nurseries of *acorns*, the propagating, sowing, or planting of *acorns*.

For timber, those *acorns* are to be chosen as feed, which are most solid and heavy, not those which are biggest. See SEEDS.

In the Phil. Trans. vol. lviii. N° 11. an. 1768. p. 75. there is a curious and important memoir by John Ellis, esq. containing a method of preserving *acorns* in bee's wax for a whole year, in a state fit for vegetation, whereby other seeds may be preserved in like manner; and such as are valuable may be brought over from the East Indies, to plant for the benefit of the American colonies.

Acorns were the food of the first ages; but when corn was found out, *acorns* were neglected. They are of little use in our days, but to fatten hogs, and other cattle, and poultry. Yet among the Spaniards the *acorn*, *glans Iberica*, is said to have long remained a delicacy, and to have been served up in the nature of a dessert.

In dearths *acorns* have been sometimes dried, ground into meal, and baked into bread.

The inhabitants of Chio held out a long siege, without other food. But they are said to breed head-achs and ventosities, and to be hard of digestion. A decoction of *acorns* is reputed good against dysenteries and colics. A pessary of them is said to be good in immoderate fluxes of the menses.

ACORN, in *Sea-Language*, denotes a little ornamental piece of wood in the shape of a cone, fixed on the top of the spindle on the mast head, above the vane, to keep it from coming off the spindle in a whirlwind, or when the ship leans much upon one side under sail.

ACORUS, a medicinal plant, of the flag kind; frequently confounded by the ancients, and also by the modern speculatists, with the CALAMUS *aromaticus*. It pertains to the class of *hexandria monogynia*, in the Linnæan system. They are distinguished by this, that from the middle of some of the leaves of the latter, there arises a long ish cluster of an infinity of little flowers, the thickness of the little finger, and resembling *mouse-tail*, or long pepper. —The other is the common flag-flower.

It is only the root of the ACORUS that is used in physic; and it is this we usually call *acorus*.—The *calamus aromaticus* is brought from Lithuania and Tartary; it is knotty, reddish without, and white within; as thick as the little finger, and half a foot long.

It is spicy and bitterish; and used in cephalic and stomachic compositions.—It is also an ingredient in the THERIACA *Andromachi*. Its principal use is in obstructions of the menses, spleen, and liver; in the colic, &c.

Some rank *galangals* are a species of *acorus*.

ACORUS *adulterinus*, or *vulgaris*, in the *Materia Medica*, the name of the root of the IRIS *lutea palustris*, or common yellow *water-flag-flower*.

ACOS, in *Medicine*, signifies a remedy.

ACOUSMATICS, from ἀκουω, *to hear*, an appellation given to such among the disciples of Pythagoras, as were still under five years probation.

The *acousmatics* are sometimes also called by Latin writers, *acustici*. The *acusmatici* stood opposed to the *mathematici*, who were those initiated into the secrets of science; and the *acousmatic* philosophy, to the *mathematic*.

Some have denied the appellation of Pythagoreans to be due to the *acousmatics*, because many of these had their learning not immediately from Pythagoras, but from Hippasus, who, according to some, was of Crotona, but according to others, of Metapontum.

ACOUSTICS, ACOUSTICA, the doctrine, or theory of hearing, or of sounds.

The word is formed of the Greek ακουω, *audio*, *to hear*. *Arnobius* is the same with what we otherwise call PHONICS.

ACOUSTICS, ACOUSTICA, or ACOUSTIC *Medicines*, are remedies against the imperfections and disorders of the EAR; or of the sense of HEARING.

ACOUSTIC is particularly applied to *instruments* used by those who are of dull hearing, to supply that defect.

Dr Hooke says, it is by no means impossible to hear the lowest whisper that can be made, to the distance of a furlong; and that he knows a way of hearing any person speak through a thousand three feet thick.

ACOUSTIC *Nerve*. See ADDITORY *Nerve*.

ACOUSTIC *Vessels*. In the ancient theatres there were a kind of earthen vessels, made of brass, shaped, as some have said, in the bell-fashion, which being of all tones within the pitch of the voice, or even of instruments, rendered the sounds more audible, so that the actors could be heard through all parts of the theatres, which were even 400 feet in diameter. Vitruvius.

ACOUSTIC *Duct*, is applied to the external passage of the ear; called also MEATUS *auditorius*.

ACQUEST, or ACQUIST, is understood in a legal sense, of goods, or effects, not descended or held by inheritance; but acquired either by purchase, or donation.

The word is formed of the verb *acquirir*, from *acquirere*, *to acquire*, or *get*.

The French laws make a great difference between *acquests* and hereditary effects. The civil law allows none. See HEIR.

ACQUEST is also popularly used for conquest, or a place acquired by the sword.

ACQUIETANDIS *Pignis*, a writ of justices lying for a surety against the creditor that refuses to acquit him after the debt is paid.

ACQUIETARE, in ancient *Law-Books*, signifies to discharge, or pay the debts of a person deceased; as the heir those of his father, &c.

ACQUISITION, the act of procuring a right or title to the enjoyment, or property of a thing.

ACQUISITION is also sometimes used for an ACQUEST.

ACQUITTAL, a discharge, deliverance, or setting free of a person from the guilt or suspicion of an offence.

Acquittal is of two kinds: in *law*, and in *fact*.—When two are appealed and indicted of felony, one as principal, the other as accessary; the principal being discharged, the accessary is, by consequence, also freed: in which case, as the accessary is *acquitted by law*, so is the principal in *fact*.

ACQUITTAL is also used, where there is a lord MESNE, and tenant, and the tenant holds land of the mesne, and the mesne holds over the lord paramount: here, the mesne ought to acquit the tenant of all services claimed by any other for the same lands; the tenant being to do service to the mesne only, and not to divers lords for one parcel of land.

ACQUITTANCE, or QUITTANCE, a release, or discharge in writing, of a sum of money, or other duty, which ought to be paid, or done.

The verb *acquit*, the participle *acquitted*, and the noun *acquittal*, do all figurly a discharge from an offence objected.—In which sense we meet with *acquitted* by proclamation.

ACRASIA, *acrasia*, is used by some writers in physic, for the excess or predominancy of one quality above another; either in a mixture, or in the constitution of a human body. The word is used by Hippocrates, and other Greek *medicinal* writers, to express excess of any kind, intemperance and imbecility.

ACRAL, an Arabic word, signifying either SATURNALIA or FUROR *uterinus*.

ACRAS, or rather *Achras*, the wild *pear*. See SAPOTA.

ACRATISMA, in *Antiquity*, a breakfast among the old Greeks, consisting of a morsel of bread soaked in pure unmixed wine.

ACRATOMEL. See MELIKRUM.

ACRATOS, from α negative, and κερανυμι, *I mix*, *simple*, unmixed. This is very often used by Hippocrates, and applied to excretions of different sorts, and is always of very bad portage. Thus, in the consumption, he observes, that in all painful disorders of the pleura and lungs, the spittle should appear mixed and yellow; and that it is a dangerous symptom if it be all yellow, without any mixture. And immediately after he tells us, that if the spittle be so unmixed, as to appear black, it is a very bad presage.

ACRE is used in the dominions of the Mogul, in regard to his revenues, for the sum of 100,000 rupees: eight rupees being equal to about one pound sterling.

ACRE, a quantity of land, containing four square ROODS, or 160 square POLES, or PERCHES.

The word perhaps is formed from the Saxon *aecer*, or German *acker*, *field*, of the Latin *ager*. Salmasius derives it from *acra*, used for *acaina*, a land measure among the ancients, containing 10 feet.

By the custom of countries the perch differs in quantity, and of consequence, the acres of land: it is commonly but 16½ feet; but in Staffordshire it is 24 feet. According to the stat. 34 Hen. VIII. concerning the sowing of flax, it is declared, that 160 perches make an *acre*; and the ordinance of *measuring lands*, 35 Edw. I. agrees with this account. The word *acre* formerly meant any open ground or field; as Cattle-*acre*, Weal-*acre*, &c. and not a determined quantity of land.

Also *acre*, or *acre-fight*, is an old sort of duel, fought by single combatants, English and Scotch, between the frontiers of their kingdoms, with sword and lance; and this duelling was also called camp-fight, and the combatants, champions, from the open field, that was the stage of trial.

Acre also by computation is 10 square chains, of 22 yards each, that is, 4840 square yards. And a mile being 1760 yards square, a mile square will be found to contain 640 *acres*.

The Scotch *acre* contains four Scotch roods, and bears proportion

proportion to that of the English by statute, as 100,000 to 78,694, regard being had to the difference between the Scotch and English foot.

The French *acre, arpent*, contains 13 English *acres*, or 342350 square English feet, wherein the English *acre* contains only 43,560.—The Strasburg *acre* is about half an English *acre*.—The Welch *acre* contains commonly two English ones.—The Irish *acre* is equal to one *acre*, two roods, nineteen perches and $\frac{1}{10}$, English.

Houghton gives a table of the number of *acres* to a house in each county of South Britain, which is found to vary in the English counties, from 31 *acres*, the proportion in Middlesex, and 17$\frac{1}{2}$ in Surry, to 40 *acres* in Southampton. In the Welch counties, from 51 *acres*, as it is found in Flintshire, to 193, as in Merionethshire. Houghton.

Dr. Grew attempts to ascertain the number of *acres* in England, which, according to him, amounts to 46 millions and 80,000. Phil. Trans. N° 332, p. 266, seq. or Abr. vol. iv. p. 430.

Sir William Petty reckons but 28 millions; others 29 millions. And by an account of the number of *acres* in each county, supposed to be taken from some old register, the number of *acres* in England amounted only to 30$\frac{1}{2}$ millions. But Dr. Grew shews, that this is too little. The United Provinces are said to contain 4,382,000 *acres*: the province of Holland but one million of *acres*; and was thought formerly to contain 2,400,000 souls. But by the more accurate computations of Mr. Kersseboom, that province does not contain one million of souls. If England were as well peopled in proportion, it would contain 46 millions of inhabitants; that is, perhaps, about seven or eight times as many as it now contains.

By a Statute of 31 Eliz. it is ordained, that if any man erect a new cottage, he shall add four *acres* of land to it. See POLITICAL *Arithmetic* and SURVEYING.

ACRE-*Tax*, a tax laid upon land at so much per *acre*.—In some places this is called *acre-rent*.

Impositions on lands in the Great Level are to be raised by a proportionable *acre-tax*, 20 Car. II. cap. 8.—An *acre-tax* of 3*s.* 6*d.* *per acre*, for draining Hatfield-level. 13 Geo. I. cap. 18.

ACREMP, a term sometimes used in ancient law-books, for ten acres.

ACRIBEIA, a term purely Greek, ἀκρίβεια, literally denoting an exquisite or delicate accuracy; it is sometimes used in our language for want of a word of equal significancy.

ACRID, in *Natural History*, denotes any thing sharp or pungent to the taste.

Ancient *Naturalists* distinguish two kinds of *acrid* tastes: the first proceeding from hot and dry, as that of pepper; the second from hot and moist, as that of garlic.

Acrid, according to Grew, properly belongs to the class of compound tastes. It is not simply sour or pungent; there being bodies not *acrid*, which yet are pungent, e. g. *acuta*; nor is it simply hot, for there are many hot bodies which are not *acrid*, as the roots of celandy, yarrow, and contrayerva.—The characteristic, therefore, of *acrids* consists in pungency joined with heat.

Acrid bodies, by the pungency and tenuity of their parts, incide, digest, heat, open, attenuate, purge, excite appetite, &c. They intimate the skin, when chewed produce saliva, and when inhaled sneezing.

The eating of *acrid* food with their nutritious, is particularly used by the Greeks *Atrophagi*.

Acrid things are hurtful to the head and eyes, and contrary to bilious temperaments; but advantageous to pituitous ones.

Acrids may be divided into classes, according as they yield their acrimony. 1. By distillation. 2. By infusion. 3. Neither by infusion nor distillation.

In leucophlegmatic habits they are powerful expectorants, deobstruents, diuretics, and emmenagogues. Their virtue frequently depends on the trouble which they give to the stomach.

ACRIDOPHAGI, in the ancient *Geography*, a nation, or people, said to have fed on locusts.

The word is compounded of ἀκρὶς, *locust*, and φαγεῖν, *to eat*. The *Acridophagi* are represented as a people of Ethiopia, inhabiting near the deserts. In the spring they made provision of a large kind of locusts, which they salted, and kept for their ordinary food all the year; they lived to forty years of age, then died, as it said, of a sort of winged worms generated in their bodies. See S. Jerom against Jovinian, lib. ii. and on St. John, cap. 4. Isidor. Hisp. lib. xiv. cap. 4. and 29. and Strabo, lib. xvi.—Pliny also speaks of *Acridophagi* in Parthia: and S. Jerom. in Libya.

Though the circumstances of these people be fabulous, yet may the *Acridophagi* be true; and to this day they are said to eat locusts in some parts of the East. This is confirmed by the accounts of the Danish mission, in Niebuhr's Description de l'Arabie, p. 156, &c. seq. And hence St. John the Baptist is said to have lived on locusts, and wild honey, Matth. chap. iii. ver. 4.

Yet is the rendering ἀκρὶς, by locusts, as the English translators have done, much controverted.—Isidor. Pelusiota, in his 123d epistle, speaking of this food of St. John, says, it was not animals, but the tops of herbs; and even charges those who understood the word otherwise with ignorance; but St. Augustine, Beda, Ludolphus, and others, are of a different opinion. Accordingly the Jesuits of Antwerp reject, with contempt the opinion of the Ebionites, who for ἀκρὶς put ἐγκρὶς, a delicious slice, prepared of honey and oil; that of some other innovators, who read ἀκρὰς, or ἀκρὰδας, *fig-trees*; and that of Beza, who reads ἀκρὶδας, *wild pears*.

ACRIFOLIUM signifies any prickly-leaved plant.

ACRIMONY, that quality in things which renders them ACRID to the taste.

Acrimony imports much the same with *asperity*, or sharpness; and expresses a quality in bodies, by which they corrode, destroy, or dissolve mixts.

Salts are only caustic in virtue of their *acrimony*. The *acrimony* of the bile is supposed the cause of divers disorders; and a catarrh is believed to be a defluxion of *acrimonious* humour.

The British water is recommended by Dr. Randolph for tempering the bad effects of *acrimonious* blood. This he mentions as its first and principal virtue. See his Enquiry into the Medicinal Virtues of Bristol Water, 8vo. 1750.

ACRIS signifies a locust, the top of a mountain, and the extremities of fractured bones.

ACRIVIOLA, see NASTURTIUM *Indicum*, for which it is a name.

ACROAMATIC, in a more general sense, denotes a thing sublime, profound, or abstruse. In which sense it stands opposed to *exoteric*.

We by *exoteric* philosophy, *acroamatic* theology, an *acroamatic* method, *acroamatic* interpretation, &c.

There are few sects, or professions, that have not two ways of teaching, if not two sorts of doctrine, an *acroamatic* for adepts and proficients; and an *exoteric* for novices. We find traces of this among the heathen as well as Christian divines, philosophers, and chemists. Hence the ceremonies of initiations, and arbitrations, the discipline of secrecy; and hence also the origin of fables, enigmas, parables, symbols, &c.

ACROAMATIC is sometimes also used in a more general sense for any thing kept secret, or remote from popular use. In which sense Reimman gives the title *Bibliotheca Acroamatica*, to a description of the MSS. of the library of Vienna; abridged from the full commentaries of Lambecius and Nesselius.

ACROAMATICI, a denomination given the disciples, or followers of Aristotle, &c. who were admitted into the secrets of the inner or *acroamatic* philosophy.

ACROATICS, a name given to Aristotle's lectures in the more difficult and nice parts of philosophy; to which none but his disciples and intimate friends were admitted, whereas the *exoterics* were public or open to all: but there are other differences. The *acroatics* were set apart for the higher and more abstruse subjects; the *exoteric* were employed in rhetorical and civil speculations. Again, the *acroatics* were more subtile and exact, evidence and demonstration being here aimed at; the *exoterics* chiefly aimed at the probable and plausible. The former were the subject of the morning exercises in the lyceum, the latter of the evening: and that the former were prohibited, whereas the *acroatics* were kept secret, being either entirely concealed, or if they were published, it was in such obscure terms, that few but his own disciples would be the wiser for them. Hence, when Alexander complained of his preceptor for publishing his *acroatics*, and thus revealing what should have been reserved to his disciples; Aristotle answered, that they were made public and not public, for that none who had not heard them explained by the author, true sure, would understand them. Gell. lib. ii. cap. 25. Plut. in Alex. Stobæe's Hist. Phil.

The word is formed from ἀκροάομαι, *to hear*.

ACROBATICA, or ACROBATICUM, from ἄκρος, *high*, and βαίνω, *I go*, an ancient engine, whereby people were raised aloft, that they might more conveniently shoot them.

The *acrobatica* among the Greeks [illegible] the same with what they call *pensiones* among the Romans. Some authors are divided as to the office of the [illegible]urs, Vitruvius and Barbaro take it to be [illegible] were by it lowly raised by the besiegers, high [illegible] walls, and discover the state of things [illegible]. Rellius rather supposes it a kind of [illegible] or cradle contrived for sailing painters, [illegible] other workmen, to the tops of towers, [illegible] suspect that it might have been used for [illegible] Vitruvius 2. Aquinas.

ACROCHIRISMUS, *ακροχειρισμος*, among the *Ancients*, a kind of gymnastic exercise, wherein the two parties contended only with their hands and fingers, without cloſing, or engaging the other parts of the body.

The word is alſo written *acrochiriſis*, and *acrochiria*: it is originally Greek, formed from *ακρος*, the part employed in this combat, which ſome would needleſly reſtrain to the tips of the fingers: though the etymon does not make this neceſſary.

Some make this a diſtinct exerciſe from wreſtling, and ſuppoſe it to have given the denomination *acrochiriſtæ* to a peculiar ſet of *athletæ* who profeſſed it. Others with more probability conſider it as only a ſpecies, or branch of wreſtling; ſome will have it to have been properly only a prelude to a wreſtling bout, wherewith the *athletæ* began to try each other's ſtrength, and bring their arms into play. This exerciſe made part of the *pancratium*. Pauſanias ſpeaks of a famous *pancratiaſt*, named Soſtratus, who got the ſurname of *Acrochiriſtes*, or *Acrochiriſtes*, from his having overcome all his antagoniſts at the *acrochiriſmus*.—It appears to have been in uſe in the age of Hippocrates, who aſcribes to it a virtue of extenuating the reſt of the body, and making the arms fleſhy.

ACROCHORDON, a painful ſpecies of WART, very preminent and pendulous, having a large head with a ſmall pedicle, or baſe.

Theſe are alſo called *porcine warts*, or *hanging warts*, and ſtand diſtinguiſhed from *ſcaffy warts*, or *myrmecia*. Others deſcribe the *acrochordon*, as a harder, rougher ſort of wart, growing under the cuticle, very callous, and uſually of the ſame colour with the ſkin; ſmall at bottom, and bigger upwards, but rarely exceeding the ſize of a bean.

ACROCOLIA, *ακροκωλια*, from *ακρος*, *extreme*, and *κωλον*, *a limb*. Theſe are the extremities of animals, which are uſed in food, as the feet of calves, ſwine, ſheep, oxen, or lambs; and of the broths of which, jellies are made. They are recommended by Hippocrates as a proper food, where there is a tendency to a dropſy. They are in general recommended as ſtrengtheners for weak people

ACROCORION, in *Botany*, a name uſed by ſome authors for the ſeveral ſpecies of the ſpring crocuſes.

ACROE, in *Botany*, the name given by the natives of Guinea to a kind of ſhrub, which they uſe in wine, as a reſtorative and analeptic. It is of the trifoliate kind, and has ſomewhat of the appearance of the coralloidens, but is not prickly; the middle or end leaf ſtands on a pedicle of an inch long, the other two leaves have no pedicles at all. Phil. Tranſ. N° 232.

ACROMION, ACROMIUM, in *Anatomy*, the upper proceſs of the SCAPULA, or ſhoulder-blade.

The word is derived from *ακρος*, *higheſt*, and *ωμος*, *ſhoulder*, q. d. the extremity of the ſhoulder.

Some have thought the *acromion* of a nature different from other bones; becauſe during infancy, it appears no more than a cartilage, which oſſifies by little and little, and about the age of twenty years becomes hard and firm, like a common bone.

ACROMONOGRAMMATICUM, from *ακρομονος* and *γραμμα*, *letter*, among poets, denotes a kind of poem, or compoſition, wherein each ſubſequent verſe commences with the letter with which the verſe preceding terminates.

ACROMPHALION, from *ακρος*, *extremus*, and *ομφαλος*, the *navel*; the tip of the navel.

ACRON, *ακρον*, in *Medicine*, ſignifies that which is moſt excellent in its kind.

ACRON, in *Botany*, among the *Ancients*, was uſed to ſignify the *capitulum*, *top*, or *flower* of plants of the thiſtle kind.

ACRONYCHAL, ACRONICHUS, in *Aſtronomy*, is applied to the RISING of a ſtar or other point, above the horizon, when the ſun ſets; or its SETTING when the ſun riſes.

The *acronychal* is one of the three poetical riſings and ſettings of the ſtars; and ſtands diſtinguiſhed from COSMICAL and HELIACAL.

Among ancient writers, a ſtar was properly ſaid to be *acronychal*, or to riſe *acronychally*, which roſe in the evening when the ſun was ſet. Greek writers, it is true, uſe the term *ακρονυχιος* indifferently, in ſpeaking either of evening or morning, by reaſon both are conſidered as *ακρα τα νυκτος*, *the extremities of the night*. And hence, among them we find *acronychal* applied to the riſing and ſetting of the ſtars, either in the morning or evening. But the ancients were more diſtinct, and by the *acronychal* riſe rather meant the firſt beginning or approach of night, than the end or period of it; and accordingly among them, the ſtars which roſe in the evening, not thoſe in the morning, were ſaid to riſe *acronychally*.

This word is ſometimes ignorantly ſpelt *achronical*, or *acronichal*, from a miſtaken notion of its being derived from *α*, and *χρονος*, *time*.

ACRONYCHAL is likewiſe an appellation more peculiarly given to the ſuperior planets, Saturn, Jupiter, Mars, when they were come to the meridian of midnight.

ACRONYCTÆ, ſtars riſing in the twilight, about ſun-ſetting.

ACROPATHOS ſignifies literally a diſeaſe at the top or ſuperior part.

ACROPOSTHIA, *ακροποσθια*, or *ακροποσθιον*, from *ακρος*, *extreme*, and *πωσθη*, the prepuce, or ſkin, which covers the glans of the penis, denotes the extremity of the prepuce, that which is cut off in circumciſion.

ACROSPELOS, a name given to the wild-oat graſs, or BROMOS.

ACROSPIRE, in *Natural Hiſtory*, &c. the ſame with PLUMULE.

ACROSPIRED, or ACROSPIRED, is uſed in reſpect of barley; which, in the operation of making MALT, is apt, after coming, or ſprouting, at the lower or root-end, to become *acroſpired*, i. e. to ſprout alſo at the upper or blade-end.

By 6 Geo. I. cap. 21. *Malt-makers* are forbid to wet or water their malt when on the floor, or couch; or to permit it to *acroſpire*.

ACROSTIC, a kind of poetical compoſition, the verſes whereof are diſpoſed in ſuch manner, as that the initial letters make up ſome perſon's name, title, motto, or the like. The word is derived from the Greek *ακρος*, *ſummus*, that which is at one of the extremes; and *στιχος*, *verſus*.

There are alſo *acroſtics*, where the name or title is made up by the initial letters of the middle words, or the laſt of the final ones.—And others which go backwards; beginning with the firſt letter of the laſt verſe, and proceeding upwards. Some refiners in this trifling way, have even gone to PENTACROSTICS; where the name is to be repeated five times.

ACROSTIC is alſo an appellation given by ſome authors to two ancient epigrams in the firſt book of the Anthology; the one in honour of Bacchus, the other of Apollo. Each conſiſts of 25 verſes, the firſt whereof is the propoſition, or argument of the whole, and the other 24 compoſed of four epithets, beginning each with the ſame letter, and thus following in the order of the 24 letters of the Greek alphabet: ſo that the firſt of the 24 comprehends four epithets beginning with *α*; the ſecond as many, with *β*; and ſo of the reſt to *ω*; which makes 96 epithets for each god.

Among *Eccleſiaſtical writers*, *acroſtics* denote the ends of verſes of pſalms, which the people ſang by way of chorus, or reſponſe, to the *præcentor*, or leader of the pſalm. This was called ſinging *acroſtics*, *acroſtichis*, which was a ſpecies of pſalmody uſual in the ancient church.

Acroſtic, in this ſenſe, amounts to the ſame with *hypopſalma*, *anapſalma*, *antelutium*, and *epkymnian*, which are all terms of the ſame ſignification.

Though an *acroſtic* properly ſignifies the beginning of a verſe, yet it is ſometimes alſo uſed for the end and cloſe of it; as by the author of the Conſtitutions, when he orders one to ſing the hymns of David, and the people to ſing after him the *acroſtics*, or ends of the verſes.

It does not, however, denote preciſely the end of the verſe, but ſomething added to the end of a pſalm, or ſomething frequently repeated in the courſe of a pſalm, anſwering to our *gloria patri*.

Some pretend to find *acroſtics* in the Pſalms, particularly in thoſe called ABECEDARIAN Pſalms.

ACROSTICHUM, *forked fern*, in the Linnæan ſyſtem of *Botany*, the name of a genus of capillary plants, belonging to the *cryptogamia filices* claſs, the character of which is, that the fructifications are not diſpoſed in any regular manner on the leaves, as in moſt of the other capillary plants: but they are ſo placed as to form a heap, covering the whole underſide of the leaf: Linnæus enumerates twenty-nine ſpecies.

ACROSTOLIUM, in *Antiquity*, an ornament of the prow, or foreſcaſtle of a ſhip, chiefly of war; ſometimes ſhaped like a buckler, a helmet, or an animal, but more frequently turned circular or ſpiral. The ancients had divers decorations or additional parts to their ſhips, called by a general name *παρασημα*; thoſe on the prow were more particularly called *ακρα*, of which the extreme part alone was denominated *acroſtolium*.

To the *acroſtolia* may be referred the *anſerculus*, mentioned by Bayfius; and all thoſe poliſhed fleel pieces reſembling a duck's neck, uſed by the Venetians at the heads of their gondolas.

The *acroſtolia* were torn from vanquiſhed ſhips, and faſtened to the conqueror's, as a ſignal of victory. We frequently find them repreſented on the reverſes of ancient medals. An *acroſtolium* is alſo ſeen in the famous ſculpture of the *apotheoſis* of Homer.

ACROTELEUTIC, from *ακρος* and *τελος*, *end*, among *Eccleſiaſtical Writers*, denotes the end of a verſe or pſalm; or ſomething added thereto to be ſung by the people.

In which sense *acrostichic* amounts to the same with *acrostic*, *hypopsalma*, *diapsalma*, *epode*, &c.

The *gloria patri* is by some writers called the *acrostichic* to the psalms; because always used to be repeated by the people at the end of each.

Hence the word *acrostichic* is sometimes also used as synonymous with DOXOLOGY.

ACROTERIA, or ACROTERS, in *Architecture*, little pedestals, usually without bases, anciently placed at the middle, and the two extremes, of PEDIMENTS; and serving also to support statues.

The word in its original signifies the [ακρον] extremity of any body; as the tips of a rock, &c.

Those at the extremes ought to be half the height of the TYMPANUM; and that in the middle, according to Vitruvius, should be one eighth part more.

ACROTERIA sometimes also signify figures, whether of *flame*, or *metal*, placed as ornaments, or crownings, on the tops of temples or other buildings.

Sometimes they also denote those sharp PINNACLES, or spiry battlements, which stand in ranges about flat buildings with rails and balusters.

ACROTERIA, among ancient *Physicians*, were used to denote the great extremities of the body, as the head, hands, and feet.

The *acroteria* growing cold in acute distempers, is held a prognostic of death; as indicating a decay of the vital flame, either by reason of a coagulation of the blood, or too great a consumption of it before.

Aristotle also uses *acroteria*, for the tips or extreme parts of the fingers, covered by the nails; sometimes also for the eminences of the bones.

ACROTERIASM, among ancient *Physicians*, the act of cutting off the extreme parts of the body, when putrefied, by a law; i. e. the amputation of any extremity.

ACROTHYMIA, in *Surgery*, the name of a large tumor in the flesh, rising in the shape of a wart, though sometimes depressed and flat, called THYMUS. Heister. See NÆVUS.

ACT, ACTUS, in *Physics*, an effective exercise, or application of some power, or faculty.

In this sense, *act* stands opposed to power, *potentia*, which is only the capacity of *acting*, not the exertion of that capacity.

Though the word *act*, properly and primarily, be only applicable where the power might exist without being drawn forth into *act*; yet the schoolmen extend it further; defining it by the presence of any power or perfection, even though it could not be absent.

In which sense, God himself is held to be a most pure *act*; by reason his perfections are always and necessarily present. And thus, form is called an *act*; inasmuch as the presence hereof completes the power and perfection of matter.—VOLM. fay some, is MATTER reduced into *act*. Even existence is termed an *act*; because, when this is given to a being, nothing farther is wanted. The Greeks sometimes call *act*, ενεργεια, a term denoting an actual possession of perfection, by the Latins usually rendered *perfectibilitas*.

Metaphysicians give various divisions of *act*; viz. into *infinite*, as the *act* of creating; and *finite*, as the *act* of moving.—*Transient*, or those exercised in other beings, as heating; and *immanent*, which remain in their own subject, as thinking.

ACT, in *Logic*, is particularly underflood of an operation of the human mind.

Thus to discern, examine, and judge, are *acts* of the understanding; to affirm and chuse, are *acts* of the will.

There are voluntary *acts*, and spontaneous ones, which seem produced without the privity, or participation of the soul.

ACT, in a *legal* sense, is an instrument, or other matter in writing; of use to declare, or justify the truth of a thing.

In which sense, records, decrees, sentences, reports, certificates, &c. are called *acts*, authentic *acts*, solemn *acts*, &c. See DEED.

ACTS also denote the deliberations and resolutions of an assembly, senate, council, or convocation; taken down by *clerks*, notaries, actuaries, or the like, and entered in a register.

ACTS *of the senate*, *acta senatus*, among the Romans, were minutes of what passed, and was debated in the senate-house.

These were also called *commentarii*, and by a Greek name ὑπομνηματα. They had their origin in the consulship of Julius Cæsar, who ordered them both to be kept and published. The keeping of them was continued under Augustus, but the publication was abrogated. Afterwards all writings, relating to the decrees or sentences of the judges, or what passed and was done before them, or by their authority, in any cause, were all called by the name ACTA. In which sense we read of civil *acts*, criminal *acts*, intervenient *acts*, ACTA *civilia*, *criminalia*, *intervenientia*, &c.

ACTS *of the people*, *acta populi*, among the Romans, were journals or registers of the daily occurrences, as assemblies, trials, executions, buildings, births, marriages, deaths, &c. of illustrious persons, and the like.

These were otherwise called *acta publica*, and *acta diurna*, or simply *acta*.

The *acta* only differed from annals, in that only the greater and more important matters were in the latter, and those of less note in the former. Tacitus Annal.

Their origin is attributed to Julius Cæsar, who first ordered the keeping and making public the acts of the people; some trace them higher, to Servius Tullius, who, to discover the number of persons, born, dead, and alive, ordered that the neat of kin, upon a birth, should put a certain piece of money into the treasury of *Juno Lucina*; upon a death, into that of *Venus Libitina*: the like was also to be done upon assuming the *toga virilis*, &c. Under Marcus Antoninus, this was carried farther; persons were obliged to notify the birth of their children, with their names, and surnames, the day, consul, and whether legitimate, or spurious, to the præfects of the *ærarium Saturni*, to be entered in the public *acts*. Though before this time the births of persons of quality appear to have been thus registered. Suetonius. Pitiſc. Lex.

ACTS, *Public*. The knowledge of public *acts* has been erected into a peculiar science, called the *diplomatic*, of great importance to an hiſtorian, ſtateſman, chronologer, and even critic. The preſervation of them was the firſt occaſion of erecting libraries.

The ſtyle of *acts* is generally barbarous Latin. Authors are divided as to the rules of judging of their genuineneſs, and even whether there be any certain rules at all. F. Germon will have the greater part of the *acts* of former ages to be ſpurious. Fontanini aſſerts, that the number of forged *acts* now extant is very ſmall. It is certain there were ſevere puniſhments inflicted on the forgers and falſifiers of *acts*.

The chief of the Engliſh *acts*, or public records, are publiſhed by Rymer, under the title of *Fœdera*, and continued by Sanderſon: an extract whereof has been given in French by Rapin, and tranſlated into Engliſh, under the title of *Acta Regia*. Great commendations have been given this work, and ſome exceptions made to it: as that there are many ſpurious *acts*, as well as errors in it: ſome have even charged it with falſifications.

The public *acts* of France ſell into the hands of the Engliſh after the battle of Poitiers, and are commonly ſaid to have been carried by them out of the country. But the tradition is not ſupported by any ſufficient teſtimony, and has even been ſhewn by M. Bruſſel to be falſe.

ACTS *of council*. Theſe differed from canons, in that the latter contained only the reſults, or the laws and regulations agreed on, and drawn up in form; whereas the *acts* included the preceding debates, motions, &c.

In the firſt collections of councils, only the bare canons were delivered. Afterwards they began to give the *acts* as well as the canons.

Hence we have two kinds of ſynodical collections: one containing all the *acts*, or tranſactions, relating to matters of faith and doctrine; the other, containing only the canons relating to diſcipline, is called the book of CANONS.

ACTS *of parliament* are particularly denominated *Statutes*.

The *acts* of the Royal Society are called *Tranſactions*; thoſe of the Royal Academy of Sciences at Paris, *Mémoires*; thoſe of the ſcientics at Leipſic, &c. ſimply *acts*, ACTA *eruditorum*, &c.

The edicts and declarations of the council of the Roman emperors, were called conſiſtory *acts*, ACTA *conſiſtorii*.

ACTS, *Clerk of the*, is an officer of the navy. See CLERK.

ACTS are alſo matters of fact tranſmitted to poſterity in certain authentic books, and memoirs.

In which ſenſe we ſay, the ACTS of the *Apoſtles*, ACTS of the *Martyrs*, &c.

ACTS *of the Apoſtles*, a canonical book of the New Teſtament, which contains great part of the lives of St. Peter and St. Paul: commencing at the Aſcenſion of our Saviour, and continued down to St. Paul's arrival at Rome, after his appeal to Cæſar, comprehending in all about thirty years. St. Luke has been generally taken for the author of this book, and his principal deſign in writing it was to obviate the falſe ACTS, and falſe hiſtories, which began to be diſperſed up and down the world. The exact time of his writing it is not known; but it muſt have been at leaſt two years after St. Paul's arrival at Rome, becauſe it informs us that St. Paul dwelt two whole years in his own hired houſe: perhaps he wrote while he remained with St. Paul, during the [illegible] imprisonment.

There are alſo ſpurious ACTS of the Apoſtles, [illegible] in Hebrew by one Abdias; tranſlated into Greek by [illegible] diſciple Eutropius; and thence into Latin, by Julius Africanus,

The book called *Acts* of Pilate, relating to Jesus, is a falſe and ſuppoſititious relation of our Saviour's trial before Pilate; impiouſly framed by the enemies of Chriſtianity; and filled with the groſſeſt blaſphemy.—The emperor Maximin, by a ſolemn edict, ordered it to be ſent into all the provinces of the empire; and injoined the ſchool-maſters to teach and explain it to their ſcholars, and make them learn it by heart.

The piece was written with ſo much careleſſneſs or ignorance, that our Saviour's death was therein referred to the 4th conſulate of Tiberius, that is, to the 7th of his empire; which is eleven years before our Saviour's paſſion, and five before Pilate was made governor of Judea. See Euſebius, lib. ix. cap. 4. and 6. Ruffin, lib. i. cap. 5, &c.

The true and genuine *acts* of Pilate were ſent by him to Tiberius, who reported them to the ſenate; but they were rejected by that aſſembly, becauſe not immediately addreſſed to them: as is teſtified by Tertullian, in his Apol. cap. 5. and Juſtin. Hiſt. lib. ii. cap. 2.

ACT, in the univerſities, a theſis maintained in public by a candidate for a degree; or, to ſhew the capacity and proficiency of a ſtudent in the UNIVERSITY.

The candidates for a degree of bachelor and maſter of arts are to hold philoſophy *acts*; thoſe for bachelor of divinity are to keep divinity *acts*, &c.

At Oxford, the time when the maſters or doctors complete their degrees, is alſo called the ACT; which is held with great ſolemnity: at Cambridge they call it the *commencement*.

ACT *of faith*, AUTO *da fe*, in the Romiſh church, is a ſolemn day held by the INQUISITION, for the puniſhment of hereſies, and the abſolution of the innocent accuſed.

They uſually contrive the *auto* to fall on ſome great feſtival, that the execution may paſs with the more awe and regard: at leaſt it is always on a Sunday.

The *auto da fe* may be called the laſt act of the inquiſitorial tragedy; it is a kind of goal-delivery, appointed as oft as a competent number of priſoners in the inquiſition are convicted of hereſy; either by their own voluntary, or extorted confeſſion; or on the evidence of certain witneſſes. The proceſs is thus: in the morning, they are brought into a great hall, where they have certain habits put on, which they are to wear in the proceſſion. The proceſſion is led up by Dominican friars, after which come the penitents, ſome with ſan benitoes, and ſome without, according to the nature of their crimes; being all in black coats without ſleeves, and bare-footed, with a wax candle in their hands. Theſe are followed by the penitents who have narrowly eſcaped being burnt, who over their black coats have flames painted, with their points turned downwards, *fuego revuelto*. Next come the negative, and relapſed, who are to be burnt, having flames on their habit pointing upwards; after theſe come ſuch as profeſs doctrines contrary to the faith of Rome, who, beſides flames pointing upwards, have their picture painted on their breaſts, with dogs, ſerpents, and devils, all open-mouthed about it. Each priſoner is attended with a familiar of the inquiſition, and thoſe to be burnt have alſo a Jeſuit on each hand, who are continually preaching to them to abjure. After the priſoners, comes a troop of familiars on horſe-back, and after them the inquiſitors, and other officers of the court, on mules; laſt of all, the inquiſitor general on a white horſe, led by two men with black hats and green hat-bands.

A ſcaffold is erected in the Terreiro de Paio, big enough for two or three thouſand people; at one end of which are the priſoners, at the other the *inquiſitors*. After a ſermon made up of encomiums of the inquiſition, and invectives againſt hereſies, a prieſt aſcends a deſk near the middle of the ſcaffold, and having taken the aſſurances of the penitents, reciles the final ſentence of thoſe who are to be put to death; and delivers them to the ſecular arm, earneſtly beſeeching at the ſame time the ſecular power not to touch their blood, or put their lives in danger.

The priſoners being thus in the hands of the civil magiſtrate, are preſently loaded with chains, and carried firſt to the ſecular goal, and from thence in an hour or two brought before the civil judge, who, after aſking in what religion they intend to die, pronounces ſentence, on ſuch as declare they die in the communion of the church of Rome, that they ſhall be firſt ſtrangled, and then burnt to aſhes; on ſuch as die in any other faith, that they be burnt alive.

Both are immediately carried to the Ribera, the place of execution, where there are as many ſtakes ſet up, as there are priſoners to be burnt, with a quantity of dry furze about them. The ſtakes of the profeſſed, that is, ſuch as perſiſt in their hereſy, are about four yards high, having a ſmall board towards the top for the priſoner to be ſeated on. The negative and relapſed, being firſt ſtrangled and burnt, the profeſſed mount their ſtakes by a ladder; and the Jeſuits, after ſeveral repeated exhortations to be reconciled to the church, part with them, telling them they leave them to the devil, who is ſtanding at their elbow to receive their ſouls, and carry them with him into the flames of hell. On this a great ſhout is raiſed, and the cry is, let the dogs *hearts be made*, which is done by thruſting flaming furze, faſtened to long poles, againſt their faces, till their faces are burnt to a coal, which is accompanied with the loudeſt acclamamations of joy. At laſt, fire is ſet to the furze at the bottom of the ſtake, over which the profeſſed are chained ſo high, that the top of the flame ſeldom reaches higher than the ſeat they ſit on, ſo that they rather ſeem roaſted than burnt. There cannot be a more lamentable ſpectacle; the ſufferers continually crying out while they are able, *miſericordia per amor de dios*: yet it is beheld by all ſexes, and ages, with tranſports of joy and ſatisfaction. Geddes's Miſc. Tracts, vol. i. p. 442. Limb. Hiſt. Inq. lib. iv.

ACTS, in *Poetry*, are certain diviſions, or principal parts, in a dramatic poem, contrived to give a reſpite, or breathing-time, both to the actors and ſpectators.

In the interval, between the *acts*, the ſtage remains empty, and without any action viſible to the ſpectators; though it is ſuppoſed all the while there is one paſſing out of ſight. It is not, however, purely for the ſake of the reſpite, that theſe *acts* are obſerved; but to give affairs a greater degree of probability, and render the intrigue more affecting. For the ſpectator who ſees the action prepared that is to paſs in the interval, cannot forbear acting, in his imagination, the part of the abſent actors; by which means, he is the more agreeably ſurpriſed when a new *act* coming upon the ſtage, he ſees the effects of that action, which before he could but gueſs at.

To this it may be added, that authors contrive to have the moſt dry and difficult part of the drama tranſacted between the *acts*, that the ſpectators may have no notion of theſe, excepting what their fancy preſents them with at a diſtance; and that nothing may appear upon the ſtage but what is natural, probable, and entertaining.

The ancient Greek poets were unacquainted with this diviſion of a play into *acts*: though their epiſodes, or choruſes, ſerved almoſt the ſame purpoſe.

It is true, they conſidered their pieces as conſiſting of certain parts or diviſions, which they called *protaſis*, *epitaſis*, *catataſis*, and *cataſtrophe*: but there were no real diviſions or interruptions anſwering to them in the repreſentation.

The Romans firſt introduced *acts* into the drama; and in Horace's time, the five acts were grown into a law, as appears by the verſe,

Neu brevior quinto, neu ſit productior, actus.

This law ſtands unrepealed to this day; though it ſeems to draw its force from the authority of Horace, rather than that of reaſon, or nature.—All plays are held irregular that have either more, or fewer than five acts.

Some indeed have aſſerted, that every juſt action conſiſts of five diſtinct parts: and have undertaken to mark out the preciſe ſtate of the action, which each of the five *acts* ought to bear.

The firſt, they ſay, is to propoſe the matter or argument of the fable, and to ſhew the principal characters.—The ſecond, to bring the affair or buſineſs upon the carpet.—The third, to furniſh obſtacles and difficulties.—The fourth either points a remedy for theſe difficulties, or finds new ones in the attempt.—The fifth puts an end to all by a diſcovery.

Be this as it will, it is certain, on the principles of that great maſter of the drama, Ariſtotle, we may have a juſt and regular play, though only divided into three *acts*.

Theſe *acts* are ſubdivided into SCENES.

ACTÆA, in *Botany*, the name whereby Linnæus diſtinguiſhes the *cimicifugas* of Tournefort. *See* CIMICIFUGA.

The calyx is four-leaved; the fruit is a ſingle oval berry, and the ſeed ſemiorbiculated. There are two ſpecies.

ACTE, the *elder*. *See* ELDER-*tree*.

ACTIAN *Games*, *Ludi* ACTIACI, ſolemn games, inſtituted, or, according to ſome, only reſtored, by Auguſtus, in memory of the victory at Actium.

Strephanus, and ſome others, will have them held every third year; but the more common opinion is that of Strabo, who ſays, they only returned every fifth, and were celebrated in honour of Apollo, ſince ſurnamed *Actius*. By the way it is a groſs overſight in ſome authors, to imagine that Virgil inſinuates them to have been inſtituted by Æneas; from that paſſage Æn. III. v. 280.

Actiaque Iliacis celebramus littora ludis.

It is true, the poet there alludes to the *Actian* games; but he only does it by way of compliment to Auguſtus, to attribute that to the hero from whom he deſcended, which

which was done by the emperor himself, as is observed by Servius.

ACTIAN *Years*, *anni* ACTIACI, were a series of YEARS, commencing from the æra of the battle of Actium; called the æra of Augustus. See EPOCHA.

ACTINE, *actine*, in *Botany*, a name of the herb RUNEAS, or NAPUS.

ACTINIA, in the *History of Insects*, a genus of sea-animals, of the order of the *zoomorthora*, naturally of a cylindric shape, but of variable figure; the *tentacula* are very numerous, and are ranged in several series about the mouth, which is placed at one of the extremities of the body; these are in a continual vibratory motion, and by that means draw small animals into its mouth for food. The whole animal is equally thick in all parts, and is about half an inch long; its tail is divided into three parts, or terminated, as it were, by three points: it is of a pale flesh-colour, except the *tentacula*, which have a beautiful variety of colours. It lodges itself in little cavities of rocks, and of the larger sea-plants, of the stony kind; and is found on the coasts of the American islands, of various species; differing from each other in figure, colour, &c. In the Linnæan system, this is a genus of the *mollusca* order of worms, including five species. See ANEMONIES.

ACTION, in a general sense, denotes the operation of a power. The idea of *action* is so familiar to us, that a definition may as easily obscure as explain it.—Some schoolmen, however, attempt to express its nature by 'a manifestation of the power or energy of a substance; made either within, or without it.'—Thus, say they, when the mind *acts*, what does it more than perceive a vital power exerting itself; as, in reality, the several *actions* of the mind are no other than so many indications of its vitality.

It is a point controverted among the schoolmen, whether or not *action*, thus taken, be a thing distinct both from the agent, and the term, or effects. The *midists* stand for the affirmative, and the *nominalists* assert the negative. These latter observe, that the *action* may be considered two ways, *entitatively* and *connotatively*.

ACTION *entitatively* taken, is what we call a CAUSE, or what may act.

ACTION, *connotatively* considered, is the same cause, only considered as acting, or connoting the effect it produces. Now, say they, a cause may be without any *action*, connotatively taken, i. e. it may be considered as not producing an effect; but it cannot be without it entitatively, for that would be to be without itself. Hence they conclude that the cause differs from the action connotatively, not entitatively taken; and the agent is the cause of the *action*, considered connotatively, not entitatively.

Actions are divided, with respect to their principle, into UNIVOCAL, where the effect is of the same kind with the cause; as the production of man by man; and EQUIVOCAL, where it is different, as the supposed production of frogs by the sun.—And again into VITAL, as nutrition, respiration, the *actions* of the heart, &c. and NOT-VITAL; as beating.

With respect to their subject, *actions* are divided into IMMANENT; which are received within the agent that produced them: as are vital *actions*, cogitation, &c.—And TRANSIENT, which pass into another.

In respect of duration, *actions* are again divided into INSTANTANEOUS, where the whole effect is produced in the same moment; as the creation of light: and SUCCESSIVE, where the effect is produced by degrees; as corruption, fermentation, putrefaction, dissolution, &c. The Cartesians resolve all physical *action* into metaphysical. Bodies according to them, do not act on one another; the *action* all comes immediately from the Deity; the motions of bodies, which seem to be the cause, being only the occasions thereof. See *Occasional* CAUSE.

It is one of the laws of nature, that *action*, and reaction, are always equal, and contrary to each other.

For the *actions of powers*, &c. see POWER, WEIGHT, MOTION, RESISTANCE, and FRICTION.

For the laws of the *action of fluids*, &c. see FLUID and *Specific* GRAVITY.

ACTION, in *Physics*, the *actions* or functions of the body, each part of which has an action peculiar to itself. They are divided by the writers of institutes, into the *vital*, *animal*, and *natural*. The *vital* are such as are essential to the subsistence of the individual; such are the motion of the heart and lungs, the secretion of spirits in the cerebellum, on which the motions of the heart and lungs depend; and the circulation of the blood and fluids in their proper vessels. *Pulsation* and *respiration* are the external signs of life.

The *natural* actions are such as are necessary to the continuance of the animal, but not so immediately, but that it may subsist some time under a suspension of them: as the digestion of the aliment, and its conversion into blood.

Under *animal actions* are comprehended those which constitute the senses of touch, taste, smell, vision, hearing, perception, imagination, memory, judgment, ratiocination, affections of the mind, and voluntary motion; without any, or all of which, it is impossible for an animal to live.

In the year 1752, Dr. White published an ingenious performance, under the title of an Essay on the vital and other voluntary Motions of Animals, 8vo. and in the same year Dr. Simpson also published a book on Vital and Animal Actions, 8vo.

ACTION also, in *Physics* and *Mechanics*, denotes the action of bodies on each other by pressure.

If a body be urged by equal and contrary actions or pressures, it will remain at rest. But if one of these pressures be greater than its opposite, motion will ensue towards the parts least pressed.

It is to be observed, that the *actions* of bodies on each other, in a space that is carried uniformly forward, are the same as if the space were at rest; and any powers or motions that act upon all bodies, so as to produce equal velocities in them in the same, or in parallel right lines, have no effect on the mutual *actions*, or relative motions. Thus the motions of bodies aboard a ship, that is carried steadily and uniformly forward, are performed in the same manner as if the ship was at rest. The motion of the earth round its axis has no effect on the *actions* of bodies and agents at its surface, but so far as it is not uniform and rectilineal. In general the actions of bodies upon each other, depend not upon their *absolute*, but *relative* motion.

ACTION, *Quantity of*, in *Mechanics*, is used for the product of the mass of a body, by its velocity.

When a body is transported from one place to another, the *action* is the greater, in proportion to the mass, and to the velocity or rapidity of the motion. See MOMENTUM.

Mons. de Maupertuis lays it down as a general principle, that, 'whenever any changes happen in nature, the quantity of *action* necessary to produce this change is always 'the least possible.' And this, he says, is a law indicating the highest wisdom.

From this general principle, and the common rule for finding a *maximum* by fluxions, he deduces the known laws of percussion, for hard and elastic bodies, and even the laws of rest, as he calls them; that is the equilibrium, or equipollency of pressures.

This ingenious author seems to think that the laws of motion, thus deduced, afford a stronger proof for the existence of God, or of a first intelligent cause, than the other arguments commonly alleged, and deduced from the order of nature. But we apprehend, that few metaphysicians will be of his opinion. The proof of a God from the order of nature, seems to depend upon two principles: 1. That there is an order in nature. 2. That this order is contingent. For if this order was not contingent, but absolutely necessary, as Spinoza, and other atheists pretend, it seems, that no sufficient reason, from the order of nature, could be assigned for the existence of a first intelligent cause. Now, Mons. de Maupertuis not having established the contingency of this principle of the *maximum* of *action*, his argument seems defective in this respect, not to mention others.

M. Euler has demonstrated, that in the trajectories described by bodies urged by central forces, the velocity multiplied by the element of the curve is always a *minimum*. Mons. Maupertuis looks on this as an application of his principle to the motion of the planets. Mem. de l'Acad. de Berlin, 1746, tom. ii. p. 290.

ACTION, in *Ethics*, or *moral* ACTION, is a voluntary motion, of a creature capable of distinguishing good and evil; whose *effects*, therefore, may be justly imputed to the agent. See MORAL.

A *moral action* may be more fully defined to be whatever a man, considered as endued with the powers of understanding and willing, with respect to the end he ought to aim at, and the rule he is to regard in acting, resolves, thinks, does, or even omits to do; in such a manner as to become accountable for what is thus done or omitted, and the consequences thereof.

The foundation, then, of the morality of *actions*, is, that they are done knowingly and voluntarily.

All moral *actions* may be divided, with respect to the rule, into GOOD and EVIL.

ACTION, in *Oratory*, is an accommodation of the person of the orator to his subject; or, a management of the voice and gesture, suited to the matter spoken, or delivered.

Action makes one of the greatest branches or divisions of rhetoric, as usually taught. The ancients usually call it *pronunciation*.

Action is a collateral or secondary method of expressing our ideas: and is susceptible of a kind of eloquence as well

well as the primary.—It is an address to the external senses; which it endeavours to move, and bring into its party by a well-contented motion and modulation: at the same time that the reason and understanding are attacked by force of argument. Accordingly, Tully very pertinently calls it *sermo corporis, the discourse of the body*; and *corporis eloquentia, the eloquence of the body*.—The Roman mimes and pantomimes, we read, had such a copia in this kind, such a compass even of mute *action*, that voice and language seemed useless to them: they could make themselves understood to people of all nations; and Roscius, the comedian, is particularly famed, as being able to express any sentence by his gestures, as significantly and various as Cicero with all his oratory. Quintilian gives us a system of the rules of *action*; taken not only from the writings of the ancient orators, but from the best examples of the forum.

What we usually attribute to eloquence, was really the effect of the *action* only, as some of the greatest masters in that way have frankly acknowledged.—Demosthenes expressly calls it, 'the beginning, the middle, and the 'end of the orator's office;' and Cicero professes, that 'it is not of so much importance what the orator says, 'as how he says it.'

After all, it is a point that will bear being controverted, whether *action* ought to be practised, and encouraged at all? A thing that has so much command over mankind, it is certain, must be very dangerous; since it is as capable of being turned to our disadvantage as to our advantage. It is putting a weapon in the hands of another, which, if he pleases, he may make use of to subdue and enslave us; and accordingly, history is full of the pernicious uses made of it.—For this reason, eloquence and *action* are generally discouraged in the modern policy; and both the bar, and the pulpit, are brought to a more frigid way of delivery.

Perhaps the foundation of all *action* may be vicious and immoral.—Voice and gesture, we know, will affect brutes; not as they have reason, but as they have passions: so far as these are used in a discourse, therefore, it does not regard an address to all of men, more than it would a herd of quadrupeds: that is, their whole effort is spent, not on the rational faculties, which are out of the question, but on the animal ones, which alone they endeavour to possess and actuate, independently of reason.—Nay, more, our reason, and the judgment itself, are intended to be studied and inclined by them; *action* being only used as an indirect way of coming at the reason, where a direct and immediate one was wanting; i. e. where the judgment cannot be taken by the proper means, argument, it is to be taken indirectly by circuition, and stratagem.

The natural order of things, then, is here inverted; our reason, which should go before, and direct our passions, is dragged after them: instead of coolly considering, and taking cognizance of things; and according to what we perceive therein, raising ourselves to the passions of *grief*, indignation, or the like, we are attacked the other way; the impression is to be carried backwards, by virtue of the natural connection there is between the reason and the passions: and thus the helm, the principle of our actions, is taken out of our own hand, and given to another. See PASSION.

The case is much the same here as in sensation and imagination: the natural and regular way of arriving at the knowledge of objects is by sense: an impression begun there is transmitted to the imagination, where the image is produced, similar to that which first struck on the organ.—But the process is sometimes inverted: in hypochondriac, lunatic, and other delitious cases, the image is first excited in the imagination; and the impression thereof communicated back to the organs of sense: by which means objects are seen, which have no existence.

Upon the whole, *action* does not tend to give the mind any information about the subject that is discussed; nor is it designed to convey any arguments or ideas which the simple use of language would not convey. But is it not that which we should form our judgments upon? And can any thing help us to form a just judgment, beside that which in some way or other enlightens and convinces our understanding? When Cicero made Cæsar tremble, turn pale, and let fall his papers, he did not apprise him of any new guilt which Cæsar did not know of: the effect had no dependence on Cæsar's understanding; nor was it any thing more than might have been produced by the unmeaning sounds of a musical instrument duly applied. However, *action* may be useful in awakening and fixing the attention, provided that it be accompanied with sensible argument and address. See GESTURE.

ACTION, in a *theatrical* sense, is nearly the same with that among orators; with this difference, that the actor adapts his *action* to an assumed character, whereas the orator is supposed, in reality, to feel the passion which his *action* expresses, whether joy, or grief, &c.

ACTION, in *Poetry*, is an event, either real or imaginary, which makes the subject of an epic, or dramatic poem. The *action* of a poem coincides nearly with the fable thereof; it being the usual practice, not to take any real transaction of the history, but to feign or invent one; or at least to alter the historical fact, so as to render it in good measure fictitious.

F. Bossu has two chapters, *Of real actions*, the recitals whereof are fables; and *Of feigned actions*, the recitals whereof are historical.

The critics lay down four qualifications, as necessary to the epic and tragic *action*; the first, UNITY; the second, INTEGRITY; the third, IMPORTANCE; and the fourth, DURATION; to which some add a fifth, viz. CONTINUITY.

This unity is not only to exist in the first draught, or model of the fable; but in the whole epiloditzed *action*.

In order to the integrity of the *action*, it is necessary, according to Aristotle, that it have a beginning, middle, and end.—If the three parts of a whole seem to be generally denoted by the words, *beginning, middle*, and *end*, Bossu interprets them more expressly, thus: the causes and designs of a man's doing an *action* are the beginning; the effects of those causes, and the difficulties met withal in the execution of those designs, are the middle of it; and the unravelling and extricating of those difficulties, is the end of the *action*.

The poet, says Bossu, should to begin his *action*, that, on one hand, nothing should be farther wanting for the understanding of what he afterwards delivers; and, on the other, that what thus begins require after it a necessary consequence. The end is to be conducted after the like manner, only with the two conditions transposed; so that nothing be expected after it, and that what ends the poem be a necessary consequence of something that went before it. Lastly, the beginning is to be joined to the end by a middle, which is the effect of something that went before it, and the cause of what follows.

In the causes of an *action*, one may observe two opposite designs; the first and principal is that of the hero: the second comprehends all the designs of those who oppose the pretensions of the hero. Those oppolite causes do all produce oppolite effects, viz. the endeavours of the hero to accomplish his design, and the endeavours of those who are against it.—As the causes and designs are the beginning of the *action*, so those contrary endeavours are the middle of it, and form a difficulty, plot, or intrigue, which makes the greatest part of the poem: and the solution or clearing up of this difficulty makes the unravelling.

The unravelling of the plot, or intrigue, may happen two ways; either with a discovery, or without.

The several effects which the unravelling produces, and the different states to which it reduces the persons, divide the *action* into so many kinds.—If it change the fortune of the principal person, it is said to be with a peripetia; and the *action* is denominated *implex*, or mixed: if there be no peripetia, but the unravelling be a mere passing from trouble to repose, the *action* is simple.

For the duration of the epic *action*, Aristotle observes, it is not so limited as that of the tragic *action*: the latter is confined to a natural day; but the epopea, according to that critic, has no fixed time.—In effect, tragedy being full of passion, and consequently of violence, which cannot be supposed to last long, requires a shorter time; and the epic poem, being for the habits which proceed more slowly, requires a longer time, either for them to take hold, or to be rooted up; and hence the difference between the epic and dramatic *action*, in point of duration. Bossu says it down as a rule, that the more vehement the manners of the principal personages are, the less time ought the *action* to last: accordingly, the *action* of the Iliad, containing the wrath of Achilles, &c. holds but forty-seven days; whereas that of the Odyssey, where prudence is the reigning quality, lasts eight years and a half, and that of the Æneid, where the prevailing characters of the hero is piety and mildness, nearly seven years. As to the importance of the epic *action*, there are two ways of providing for it; the first, by the dignity and importance of the persons. This way alone Homer makes use of; there being, otherwise, nothing great and important in his models, but what might have happened to ordinary persons.—The second, by the importance of the *action* itself; such as the establishment, or downfall of a religion, or a state; which is Virgil's *action*, and in which he has much the advantage of Homer.

Bossu mentions a third way of making the *action* important, viz. by giving a higher idea of the personages than what the readers conceive of all that is great among men.—This is done by comparing the characters of the poem with those of the present time.

ACTION is also used in *Painting* and *Sculpture*, for the posture of a figure, or the *action* it is supposed to be in; expressed by the disposition of the body, or the passion appearing in the face.

ACTION *of the Mouth*, in the *Manege*, denotes the agitation of a horse's tongue, and mandible, or his champing on the bit; discoverable by a white, ropy foam.—This, with the masters, passes for a sign of health, vigour, and mettle.

ACTION, in the *Military Art*, is an engagement between two armies, or between different bodies of troops belonging to them. This term is likewise used to signify some memorable act done by an officer, or commander of a body of troops.

ACTION, in *Law*, is a right of demanding, and pursuing in a court of judicature, what is any man's due.

Or, *action* is any kind of PROCESS which a person enters for the recovery of his right. See CAUSE.

Actions are divided, by Justinian, into two general kinds; *real*, or those against the thing; and *personal*, or those against the person.—For whoever brings an *action*, either does it against one obnoxious to him, in respect either of contract or of offence; in which case it is *action* against the person, which requires the party to do, or give something: or, he does it against one not obnoxious, yet with whom a controversy is risen touching some matter; as, if Caius hold a field, which Julius claims as his property, and brings his *action* for the same. See the Institut. lib iv. tit. 4. where the principal *actions*, introduced by the Roman law, are summarily explained.

In common law, from the two classes of *real* and *personal actions*, arises a third, called a *mixed action*; which regards both the *person* and the *thing*.

ACTION, *real*, is that whereby the defendant claims title to lands or tenements, rents, or commons, in fee-simple, fee-tail, or for life.

But *real actions*, formerly so numerous and considerable, as writs of right, of entry, &c. with their appendages, as *grand cape*, *petit cape*, receipt, view, aid-prayer, voucher, counter-plea of voucher, counter-plea of warranty, and recovery of value, are now much out of use; by reason of the usual admixture of personal matters therewith, which change them into *mixed actions*.

ACTION, *personal*, is that which one man hath against another, on account of a contract for money or goods; or of an offence done by him, or some other person, for whose fact he is answerable.

ACTION, *mixed*, is that laid indifferently for the *thing* detained, or against the *person* of the detainer; being thus called, because it has a mixed respect, both to the *thing*, and to the *person*.

Others better define it, a suit given by law to recover the thing demanded, and damages for the wrong done.

Such is, assise of *novel disseisin*, which, if the disseisor make a feoffment to another, the disseisee shall have against the disseisor, and the feoffee, or other tenant, to recover not only the land, but damages also. And the like in *action* of waste, *Dower unde nihil*, &c. See ASSISE.

Actions are also divided into CIVIL and PENAL.

ACTION, *civil*, is that which only tends to the recovery of what, by reason of a contract, or other like cause, is a man's due.—As, if a person by *action* seek to recover a sum of money formerly lent, &c.

ACTION, *penal*, aims at some penalty upon the party sued, either corporeal or pecuniary.

Such is the *Actio Legis Aquiliæ*, in the *Civil Law*; and with us, the next friends of a man feloniously slain, or wounded, shall pursue the law against the offender, and bring him to condign punishment.

ACTION is also distinguished, as it lies for the recovery either of the simple value of the thing challenged; or of the double, treble, quadruple, &c.

Thus, a *Decies tantum* lies against embracers; and against jurors that take money for their verdict, of either, or both parties.

To this class also belong all *actions* on a statute that punishes an offence by restitution, or fine, proportionable to the transgression.

Action, again, is divided into *prejudicial*, called also *preparatory*, and *principal*.

ACTION, *prejudicial*, is that which arises from some question, or doubtful point in the *principal* one.

As, if a man sue his younger brother, for land descended from his father; and it be objected, he is a bastard; this point of bastardy must be tried, before the cause can proceed: whence the *action* is termed *prejudicialis, quia prius judicanda*.

ACTION, again, is either *ancestrel*, or *possessory*.—*Ancestrel action*, is that which we have by some right descending from our ancestor.—*Possessory*, sometimes also called *personal action*, is that which hath its beginning in and from ourselves.

ACTION, *upon the Case*, *Actio super causam*, is a general *action*, given for the redress of a wrong done any man without force, and not especially provided for by law.

This, of all *actions*, is now most in use.—Where there arises an occasion of suit, that has neither fit name, nor certain form already prescribed; the clerks of the chancery, anciently, conceived a proper form of *action* for the thing in question: which was called an *action upon the case*, by the civilians, *Actio in factum*.

ACTION *upon the Statute*, *Actio super Statutum*, is a writ of *action*, brought against a man, upon an offence against a STATUTE, whereby an *action* is given that did not lie before.

Thus, where one commits perjury, to the prejudice of another, he who is damaged shall have a writ upon the statute, and a cause accordingly.

ACTION, *popular*, only differs from an *action* upon the statute, in that, where the statute gives the suit or *action* to the party grieved, or otherwise to one single person certain, it is called *action* upon the statute; and where the authority is given by the statute to every one that will sue for, it is an *action popular*.

Action is also divided into *perpetual* and *temporal*.

ACTION, *perpetual*, is that whose force is not determined by any period or term of time.

Of this kind were all civil *actions* among the ancient Romans; viz. such as arose from laws, decrees of the senate, and constitutions of the emperors; whereas *actions* granted by the prætor died within the year.

We have also *perpetual* and *temporary actions* now in England; all being perpetual, which are not expressly limited.

Divers statutes give *actions*, on condition they be pursued within the time prescribed.—Thus, the statute of 1 Edw. VI. gives *action* for three years after the offences committed, and no longer; and the statute of 7 Hen. VIII. cap. 3. does the like for four years: and that of 31 Eliz. cap. 5. for one year and no more.

But, as by the civil law no *actions* were so perpetual, but that by time they might be prescribed against; so, in our law, though *actions* be called *perpetual*, in comparison of those that are expressly limited by statute; yet is there a means to prescribe against real *actions*, after five years, by a fine levied, or a recovery suffered. See PRESCRIPTION.

Again, *actions* are either *local*, as ejectment, waste, &c. which must be brought in the county where the land lies; or *transitory*, such as debt, detinue, &c. which may be brought in any county.

ACTION *of a writ*, is when a person pleads some matter whereby he shews, that the plaintiff had no just cause to have the writ he brought, though it be possible he might have another writ or *action* for the same matter.—Such plea is called, a *plea to the action of the* WRIT.

When by the plea it appears, that the plaintiff has no cause of any *action* for the thing demanded, it is called a *plea to the action*.

ACTION, in affairs of *Commerce*, or ACTION of a COMPANY, is a part or share in the company's stock or CAPITAL, which consists of a number of such *actions*.

Actions in France and Holland amount to the same with *shares*, or *subscriptions*, in England.

Thus, the capital of a company, which has three hundred *actions* of a thousand livres each, consists of three hundred thousand livres. Hence a person is said to have four or six *actions* in such company, if he hath contributed to the capital, and be interested in it for four or six thousand livres.

A proprietor cannot have a deliberate vote in the assemblies of a company, unless he has a certain number of *actions*, fixed by the letters patent of its establishment; nor can he be a director, unless he has a still greater number of *actions*.

ACTION also denotes an obligation or instrument, which the directors of such companies deliver to those who pay money into their stock. See BANK and ACTIONARY.

Actions are always rising and falling, according as the company's credit gains or loses. The smallest whisper of an approaching war or peace, true or false, shall frequently occasion a considerable alteration in it. In the year 1710, the French company of the West, since called the India Company, arrived at such an immense degree of credit, that in six months time its *actions* rose to eighteen hundred *per cent.* a degree of temporary credit which no other company ever attained.

In 1672, the *actions* of the Dutch East India Company were at six hundred and fifty *per cent.* and they were never known to be higher.—But the war with France then coming on, they fell 250 *per cent.* in a few months. After the peace of Nimeguen, they rose again; and in 1718 were 600 *per cent.*

The French have three kinds of *actions*.—*Simple*, which are intitled to a share in all, both the profits and losses of

the company.—*Ventures*, intitled only to a profit of two *per cent.* fare; for which the king is security.—And *interested actions*, which claim the two *per cent.* secured by the king; and are also to share the excess of the dividend with the simple *actions*.

There were several other kinds of *actions* introduced by the brokers, in the busy days of the *Rue Quinquimpoix*; but they have since sunk into oblivion: these were called mother *actions*, daughter, grand-mother, grand-daughter, *actions*, &c.

To *melt* or *liquidate* an *action*, is to sell, or turn it into money, &c.

To *feed* an *action*, is to pay exactly when they become due, the several sums subscribed to the stock of the company, according to the several orders of council, made for the creation of the new *actions*.

ACTIONARY, or ACTIONIST, a term frequent in foreign news-papers: denoting the proprietor of an *action*, or share in a company's stock.

ACTIVE, ACTIVUS, something that communicates motion or action to another.

In this sense, the word stands opposed to *passive*.

Thus we say, an *active* cause, *active* principles, &c.

The quantity of motion in the world, Sir Isaac Newton shews, must be always decreasing, in virtue of the *vis inertiæ*, &c. So that there is a necessity for certain *active* principles to recruit it: such he takes the cause of gravity to be, and the cause of fermentation. Adding, that we see but little motion in the universe, except what is owing to these *active* principles.

ACTIVE *principles*, in *Chemistry*, are those which are supposed to act of themselves, and do not need to be put to action by others.

Salt, sulphur, and mercury, are usually considered by the chemists as *active principles*; and phlegm and earth as passive ones.

M. Homberg, and some late chemists after him, only make one *active principle*, viz. sulphur, or fire; which they take to be the source or principle of all the motion and action of the universe.

The term *active principles*, says Dr. Quincy, has been used to express certain divisions of matter, that are, by some particular modifications, comparatively *active*, in respect of others: such are spirits, oil, and salt, whose parts are better fitted for motion than those of earth and water: but with how much impropriety, will easily appear.

For, in a strict sense, all motion in matter is rather passion; and there is no *active principle*, unless we thus call the known powers of gravitation, attraction, and repulsion, on which the Newtonian philosophy is founded: so that let bodies exist under what modification soever, there can be no alteration made of these universal properties.—Hence, the division of matter into what, for distinction sake, may be called *spirit*, does not give it any properties inconsistent with this general law.

ACTIVE, in *Grammar*, denotes a word having a signification that serves to explain or denote an action.

Thus we say, a verb *active*, a conjugation *active*, &c. or an *active* participle.

ACTIVE *Verbs*, are such as do not only signify doing, or acting, but have also nouns following them, to be the subject of the action or impression.

Thus *to love*, *to teach*, are verbs *active*; because we can say, *to love a thing*, *to teach a man*.

Verbs *neuter* also denote an action, but are distinguished from verbs *active* in that they cannot have a noun following them. Such are *to sleep*, *to go*, &c.

Some grammarians, however, make three kinds of verbs *active*: the *transitive*, where the action passes into a subject different from the agent; *reflected*, where the action returns upon the agent; and *reciprocal*, where the action turns mutually upon two agents who produced it.

ACTIVITY, the power of acting, or the active faculty.

The *activity* of fire exceeds all imagination.—The *activity* of an acid, a poison, &c.—Bodies according to Sir Isaac Newton, derive their *activity* from the principle of ATTRACTION.

ACTIVITY *of a body*, *the sphere of*, is the space which surrounds it, so far as its efficacy or virtue extends to produce any sensible effect.

ACTON *Water*, a purging water of a well in a town near London, noted for the pungency of its salt. Its colour is whitish, its taste is sweetish, with a mixture of the same bitter which is in the EPSOM *water*. Its salt is not quite so soft, and is more calcareous than that of the Epsom water, being more of the nature of the salt of lime: it is however more nitrous than the other. A quantity of it being boiled high, and mixed with a solution of sublimate in pure water, throws down a yellow sediment. It strikes a deep red or purple with the tincture of logwood in brandy, as is usual with nitrous salts. It does not precipitate silver out of the spirit of nitre, as common salt does; a pint and a half of the water yield forty-eight grains of salt. See Allen's History of Purging Waters.

ACTOR, one that acts in the *drama*, one who represents some person or character, upon the theatre.

The drama, in its original, only consisted of a simple chorus, who sung hymns in honour of Bacchus: to that the primitive actors were no more than singing-men. Thespis was the first who took upon him to introduce a person or *actor*, who was to ease the chorus, by reciting the adventures of some of the heroes. Thus came the recitation, or declamation in use.

Æschylus, finding a single person tiresome, thought to entertain the audience more agreeably by the introduction of a second person, who should converse and make dialogue with the first. He likewise dressed his *actors* a little more decently than they had been before, and put on them the BUSKIN.

Sophocles, finding the two persons of Æschylus too few for the variety of incidents, added a third; and here the Greeks stopped; at least, we do not find, in any of their tragedies, above three persons in the same scene: though, in their comedies they took a greater liberty.

The moderns have brought a much greater number of *actors* upon the stage. This heightens the trouble and distress that should reign there, and makes a diversity, in which the spectator is sure to be interested.

Horace speaks of a kind of secondary *actors*, in his time, whose business was to imitate the first; and lessen themselves to become better foils to their principals. The proper business of these subaltern *actors* is unknown to us.

ACTOR, among *Civilians*, the proctor or advocate in civil courts or causes: as *actor ecclesiæ* has been sometimes used for the advocate of the church; *actor dominicus* for the lord's attorney; *actor villæ*, the steward, or head bailiff of a village.

ACTRESS, ACTRIX, a female who *acts*, or does the office of an *actor*.

Actresses, or women actors, were unknown to the ancients, among whom men *always* performed the part of women; and hence one reason for the use of masks among them. Mem. Acad. Inscrip. tom. vii. p. 188.

Actresses are said not to have been introduced on the English stage till after the restoration of king Charles II. who has been charged with contributing to the corruption of our manners, by importing this usage from thence. But this can be but partly true: the queen of James I. acted a part in a pastoral; and Prynn, in his Histriomastix, speaks of women actors in his time as whores; which was one occasion of the severe prosecution brought against him for that book. Whitlock, Mem. 1632. Wood's Athen. Oxon. tom. ii. p. 434.

ACTUAL, something that is real and effective; or that exists truly and absolutely.

In *Philosophy*, we say, *actual* heat, or cold; in opposition to *virtual* or *potential*.

Actual heat, considered actively, is the act of producing heat: passively taken, it is the quality whereby a body is denominated *hot*.—Virtual or potential heat, actively taken, is the power or faculty of producing heat; passively taken, it should be the power or faculty of being heated, or of receiving *actual heat*.

In medicinal language, *actual* is also opposed to *potential*, and is applied to any thing endued with a quality which operates by an immediate power inherent in it. For example: a red-hot iron, or fire, is called an *actual* cautery, in contradistinction from cauteries, which have a power of producing the same effects on animal solids, as *actual* fire; and which are called *potential* cauteries or caustics. Boiling water is *actually* hot, and brandy is *potentially* hot.

Actual sin is that committed knowingly, by a person arrived at years of discretion.

Original sin, in *Theology*, is that which, according to some divines, we contract by descent, as being the children of Adam.

ACTUARIÆ *naves*, in *Antiquity*, a sort of long ships, thus denominated as being particularly contrived for swiftness and expedition: they answer to what the French call *brigantines*.

Cicero, in an epistle to Atticus, calls a ship *decem scalmorum*, of ten banks of rowers, *actuariola*.

ACTUARIUS, or ACTUARIUS, primarily denotes a notary, or officer appointed to write down the acts or proceedings of a court, assembly, or the like.

In the Eastern empire, the *actuarii* were properly officers who kept the military accounts, received the corn from the *susceptores*, or store-keepers, and distributed it to the soldiers. These acted as a kind of brokers with the soldiers; made bargains with them for receiving their pay before it became due: for which there were fixed rates. Aquin. Pitiſc. and Du-Cange.

ACTUARIUS was also a title of dignity, in the court of Constantinople, peculiar to physicians. Du-Cange.

From

From an appellative, the word has become a proper name of a celebrated Greek physician, author of a treatise still extant, on urines. *Fabr. Bibli. Græc.* tom. xii. p. 635.

ACTUARIUS, or ACTUARY, also means the clerk who registered the acts and constitutions of the convocation.

ACTUATE, to bring into act, or put a thing in action. Thus an agent is said, by the schoolmen, to *actuate* a power, when it produces an act in a subject.—And thus the mind may be said to *actuate* the body.

ACTUATIO, *actuation*, signifies the change wrought on a medicine, or any thing else taken into the body, by the vital heat, which is necessary to make it act, and produce its effect.

ACTUS, in the ancient *Agriculture*, the length of one furrow; or as far as a plough goes before it turns. Plin. lib. xviii. cap. 3.

In English it may be rendered by a furlong.—It is also used as a determinate measure, when it contains 120 Roman feet. Virruvius.

ACTUS *minimus*, was 120 feet in length, and 4 in breadth; being equal to the SEXTANS, or sixth part of the JUGERUM, or ACRE.

ACTUS *major*, called also *actus quadratus*, was the square of 120 feet, or 14,400, being the *semis*, or half of the JUGERUM.—This was also denominated *actus*, and *actus*. Varro de Re Rust. lib. i. cap. 10.

ACUANITES, ACUANITÆ, in *Ecclesiastical History*, called more frequently MANICHEES.

They took the name from Acua, a disciple of Thomas, one of the twelve apostles. Bib. Univ. tom. xxiv. p. 330.

ACUBENE, in *Astronomy*, a name given by some to a Star on the southern claw of CANCER.

ACUHYAILI, in *Zoology*, the name of a very large serpent, of a poisonous quality, in America, more usually known by its name of CUCUACCU, or CUPAENDA.

ACUITION, in *Grammar, Prosody, and Medicine*. See ACUTION.

ACULEATE, ACULEATED, something that has ACULEI, or prickles.

Naturalists divide fishes into those with *aculeated*, and non-*aculeated* fishes. Phil. Transf. N° 314.

ACULEATUS *lapis*, in *Lithology*, a name given by some to the PUCHYUS *marinus lapis*, a small prickly West India fish. Willughby. See STICKLE-BACK.

ACULEI, among *Botanists, &c.* denote the prickles or spines of plants of the thorny kind.

The word is Latin, formed *from acus, a needle*.

Among *Zoologists, authors* is also used for the sting of a bee, scorpion, or the like.

The word *aculeus* is also used for certain parts of the ECHINI *marini*. See *Tab. of Fishes, Class* 10.

ACULEI *pinnarum*. See PINNÆ.

ACULEOSA, a name of the CARDUUS *polyacanthos*.

ACULER, in the *Manege*, is used for the motion of a horse, when in working upon volts he does not go far enough forward, at every time or motion, so that his shoulders embrace or take in too little ground, and his croup comes too near the centre of the volt. Horses are naturally inclined to this fault in making demi-volts.

ACUMEN, *acumen*, in the *Ancient Music*, was used to signify a sound produced by the *intension*, or raising of the voice.

Acumen differs from *intension*, as the *effect* from the *cause*. Aristoxen. p. 10, &c. Ed. Methom.

ACUMINA, among the ancients, denoted a kind of military ensign, or surprise, supposed to have been taken from the points or edges of darts, javelins, swords, or other weapons, viz. by examining whether they were bright or foul, sharp or blunted.

ACUPUNCTURE, or ACUPUNCTURATION, a method of curing many diseases, by pricking several parts of the body with a needle, or instrument of that form.

This is practised every day by the Chinese and Japanese and other nations in that part of the world. They perform the operation with a large gold or silver needle, which they strike into the several parts of the body, either with their hand, or with a hammer made on purpose. It is extremely surprising that so severe and desperate an operation should be practised so much by a people otherwise judicious, and that too in the head and breast, as well as in the abdomen, arms, legs, thighs, and many other parts of the body, nay even in the abdomen of women with child, when the foetus is restless.

Surgeons are furnished with *bridges*, wherein all the places in the body proper for the needle are designed by marks. M. Ten Ryne was an eye-witness of the use of this puncture on a soldier, who being afflicted with violent disorders of the stomach, and frequent vomitings at sea, suddenly relieved himself by pricking a thumb's breadth deep into four different places about the region of his EPIGASTRIUM. Ten. Ryn. Diss. de Acupunct. &c. Phil. Transf. N° 188 p. 731, &c.

We sometimes also find mention of an *acupuncture* practised in Europe; but this amounts to no more than the perforating or opening a part, e. g. the cornea, with the point of a needle; which has been done with good success, for the cure of an *hypophthalmia* and *hypopyon*.

It is chiefly used in diseases of the head and lower belly: it is applied to the head in head-achs, lethargies, convulsions, epilepsies, diseases of the eyes, &c. To the abdomen in colics, dysenteries, want of appetite, hysterical disorders, suppers, pains of the belly and joints, obstructions of the liver and spleen, &c.

ACURON, a name given to the ACUS.

ACUS, in *Ichthyology*, the name of a long and slender sea fish, of which there are two species, a larger and a smaller.

The larger is often a cubit long, and not thicker than a finger; its snout is long, tubular, and not fit all the way up, but only open at the end; its eyes are prominent. From the head to the anus it is of an hexagonal figure, and from the anus to the tail it is square. The anus is nearly in the middle of the body, and near it is a long longitudinal fissure for the eggs of the female. In all these respects, it very much resembles the hippocampus. It has two fins at the gills, and another on the back; these are all very small, and the tail in particular, scarce discernible, unless when the fish is alive and in motion. Its tail is a small single fin. It has a hard variegated skin, and has so little flesh about it, that it is not regarded at eatable. It is common in the Mediterranean, and is called by the Venetian fishermen, *bisso*, that is, the viper-fish. Its mouth is of a strange figure, opening onward at the end of the snout. See *Tab.* III. *of Fishes*, N° 25. Rondelet.

ACUS signifies also, with other authors, the *belone* or *pelphis*, called in English the GAR-fish, and by some the STURN-fish. The two distinct kinds understood by this two general term, are distinguished by the names of the authors who first named them; the TOBACCO-pipe fish, or that with the tubular nose, being called the *acus* of Aristotle; and the GAR-fish, or that with the horizontal open mouth, the *acus* of Oppian.

This last is in shape somewhat like the former, being very long and slender, with a round back, and a flat belly. Its nose or snout is very long, pointed and sharp, and its head flat. The back is of a greenish colour, and the sides and belly of a silvery white. The head is of a bluish green, and there is an obscurely purple dotted line which runs all along the back. The under jaw is longer than the upper, and both are thick-set with sharp teeth. It has only one back fin, and its tail is forked. Willughby. See Phil. Transf. vol. lxiii. part i. N° 21. from which it appears, that though the ACUS *maxima squamosa* be a fish that is a stranger to our seas, yet its *exuviæ* are common here. Bellonius has described another species of this fish, which is scaly, and has broader teeth, and is considerably larger than the common one, which either has no scales, or extremely minute ones. Its dotted lines on the back are said by some to be a single row of scales; and the author affirms, that the fish has no other. See LACERTUS.

ACUS is also used by some authors for the ASMODYTES, or *sand-eel*; a small EEL caught in the Indies. Willughby.

ACUS also signifies chaff.

ACUS *pastoris*, a name of the SCANDIX.

ACUS *rapistra*, a name of the GERANIUM *moschatum*.

ACUTE, *sharp*, something that terminates in a point, or edge; disposed either for piercing or cutting.

In this sense the word usually stands opposed to *obtuse*.

ACUTE *angle*, in *Geometry*, is that which is less than a right angle; or which does not *subtend* 90 degrees.

Such is the angle ACB (*Tab. Geometry, fig.* 68.)

ACUTE-*angled triangle*, is that whose three angles are all *acute*; called also an *oxygonous triangle*.

Such is the triangle ACB (*Tab. Geometry, fig.* 68.)

ACUTE-*angular section* of a cone, is used by the ancient *Geometricians* for the ELLIPSIS.

ACUTE-*angled cone*. See CONE.

ACUTE, in *Music*, is understood of a sound, or tone, which is sharp, shrill, or high, in respect of some other.

In which sense the word stands opposed to *grave*; and both these properties of sound depend on the quickness or slowness of the vibrations by which they are produced.

Sounds considered as *acute*, and *grave*, that is, in the relation of gravity and *acuteness*, constitute what we call *tone*, the foundation of all HARMONY.

ACUTE *accent*, in *Grammar*. See ACCENT.

ACUTE *disease*. See DISEASE.

ACUTELLA, in *Botany*, a name used by some to express the common ARGOVES, or KEST-HARROW, a small prickly plant, with red or white flowers and famous for its spreading and tough root. Gor. Emac. Ind. 2.

ACUTIATOR, in writers of the barbarous ages, denotes a person that whets, or grinds cutting instruments: called

called alſo in ancient gloſſaries, *acuter*, *acuarius*, *famiarius*, *cobarius*, &c. Du-Cange.

In the ancient armies there were *acuſtatores*, a kind of ſmiths, retained for whetting or keeping the arms ſharp. Again.

ACUITION, or ACUITION, in a general ſenſe, the ſame with acuating or ſharpening.

ACUITION, in *Grammar*, denotes the pronouncings or marking a ſyllable with an acute ACCENT.

ACUITION, or *acuition*, in *Medicine* and *Chemiſtry*, is uſed for ſharpening or increaſing the force of any medicine.

ACYROLOGIA, denotes an improper acceptation, or expreſſion, wherein a word or phraſe is uſed in ſome unuſual or oblique ſenſe, hardly reducible to the rules of language. The word is compounded of ἀκυρος, *improper*, and λογος, *ſermo*.

Such, e. gr. is the word *ſpera*, ſometimes uſed in Roman writers for *uxor*.

The *acyrologia* bears a near affinity to the *catachreſis*, inſomuch that divers terms and expreſſions, alledged as inſtances of the latter, are by others brought as examples of the former.

AD *hoſtias*, in *Antiquity*, is underſtood of a kind of puniſhment of criminals, condemned to be thrown to wild beaſts. The term was alſo applied to a ſort of gladiators hired to fight with wild beaſts.

Theſe are otherwiſe called *hoſtiarii*. Calv. Lex. Jur. p. 36.

AD *extra*, a term uſed among *School Divines*, in ſpeaking of the external operations of the Godhead.

Acts or operations *ad extra*, are properly thoſe whoſe term or effect is not within the divine eſſence; by which they ſtand oppoſed to operations *ad intra*. Creation, preſervation, regeneration, converſion, renovation, &c. are actions of God *ad extra*.

AD *intra*, among *School Divines*, is underſtood of thoſe acts of the Divine Being, whoſe term and effect is within his own eſſence. In which ſenſe acts or operations *ad intra*, ſtand oppoſed to thoſe *ad extra*.

AD *hominem*, among *Logicians*, is underſtood of a kind of ARGUMENT drawn from the belief or principles of thoſe we argue with, and which of conſequence muſt be concluſive to them, though otherwiſe diſbelieved by us; or, it is where a diſputant quits his own language and ſyſtem, and borrows that of his opponent to convince him, by turning his own prejudices or errors againſt himſelf.

This the ſchoolmen call *argumentum ad hominem*.

AD *libitum*, in ſometimes uſed in *Muſic*, for *je piace*, *at diſcretion*.

AD *ludos*, in *Antiquity*, a Roman ſentence, whereby criminals were condemned to entertain the people, either by fighting with beaſts, or with each other, and thus executing juſtice on themſelves. Kennet. Rom. Ant.

AD *metallia*, in *Antiquity*, the puniſhment of being doomed to work in the mines. Criminals condemned to this, were called *metallici*.

It were to be wiſhed that puniſhments of this kind could be ſubſtituted in lieu of our frequent executions; which are as repugnant to the principles of humanity as to thoſe of ſound policy.

AD *quidditici*, among ſchoolmen, include the relations, analogies, agreements, diſagreements, ſimilitudes, and diſſimilitudes of things.

Ad quiddities are properly thoſe attributes of things, which anſwer to the queſtion, *ad quid? to what?* By which they differ from mere QUIDDITIES, which anſwer to the queſtion, *quid ſit? what is it?* The latter enquire what things are in themſelves; the former what they are, *ad alia*. Herb. De Verit. p. 233.

AD *valorem*, is uſed in ſpeaking of the duties, or cuſtoms, paid for certain commodities, ſome things are rated by the weight, meaſure, tale, or the like; others pay *ad valorem*, according to the value or worth, ſworn to by the owner.

ADAGE, ADAGIUM, a proverb, or popular ſaying.

Eraſmus has made a large and valuable collection of Greek and Roman *adages*, from their poets, orators, philoſophers, &c.

Adage, proverb, and parœmia, are the ſame thing; but they differ from *gnome*, *ſentence*, and *apophthegm*.

ADAGIO, in *Muſic*, one of the words uſed by the Italians to denote a degree or diſtinction of time.

Adagio expreſſes a ſlow time; the ſloweſt of any except grave. Uſed ſubſtantively, it ſignifies a ſlow movement. Sometimes this word is repeated, as *adagio*, *adagio*, to denote a ſtill greater retardation in the time of the muſic.

ADAL, in the ſenſe of Paracelſus, ſignifies that part of plants, in which their medicinal virtue conſiſts; or the pure and active parts of plants, ſeparate from the impure and inert.

ADALIDES, in the Spaniſh policy, are officers of juſtice, for matters touching the military forces.

In the laws of king Alphonſus, the *adalides* are ſpoken of, as officers appointed to guide and direct the marching of the forces in time of war.—Lopez repreſents them as a ſort of judges, who take cognizance of the differences ariſing upon excurſions, the diſtribution of plunder, &c.

ADAMANT, ADAMAS, in *Natural Hiſtory*, &c. an ancient name for a precious ſtone, by us called a DIAMOND. *Adamas* is uſed by ſome ancient *Naturaliſts*, for the ſpume or *ſcoria* of gold; which is caſt away, as not being malleable. This is particularly called ἀχρυσος ἀδαμαντα, and is miſtaken by Pliny for a gem of that name.

ADAMANT is alſo uſed for a ſpecies of iron, denoting the hardeſt, or higheſt tempered part thereof.

This is ſometimes called the *adamantine* part of iron.

Mr. Boyle more particularly gives the denomination *adamas lucidus*, to a diamond in his poſſeſſion, which had the faculty of ſhining in the dark; a property ſince diſcovered in many others, at leaſt when excited by friction. Vide Boyle, Phil. Work. Abr. tom. i. p. 494. Id. tom. iii. p. 155.

ADAMANT is ſometimes alſo uſed for the MAGNET, or load-ſtone.

In which ſenſe Skinner thinks it may be beſt derived from the French *aimant*, which ſignifies the ſame.

ADAMANTII, in *Church Hiſtory*, a name given by ſome Chriſtian hiſtorians to the followers of Origen, ſurnamed *Adamantius*, becauſe of his unwearied pains in reading and writing; or the ſtrength and acuteneſs of his reaſoning, according to ſome; or rather, as Heumon ſays, whoſe name was *Adamantius*: however, Euſebius ſays, this was a common name given to Origen, without aſſigning any reaſon for it. Euſ. lib. vi. cap. 14.

ADAMAS, in *Aſtrology*, a name given to the moon.

ADAMI *pomum*, in *Anatomy*, a protuberance in the fore-part of the throat.

Some fancy it thus called upon a ſtrange conceit, that a piece of the forbidden apple, which Adam eat, ſtuck by the way, and was the occaſion of it.

In reality, it is only the convex part of the firſt cartilage of the *larynx*, called *ſcutiformis*.

The name, Adam's apple, is alſo given to a kind of fruit frequent in Italy, reſembling a lemon, ſaid to be a good remedy againſt the itch.

ADAMIC *earth*, is a name ſome have given to common clay; called alſo *terra ſuica*, *rubella*, and *lutum*. Woodw. Meth. Foſ. p. 4.

The occaſion of the name we ſuppoſe to be, that this is taken for the *adamah*, or ruddy earth, of which the firſt man was formed.

This appellation was likewiſe given to the mud depoſited by ſea-water, which is a ſediment of the moſt ſlimy and unctuous parts contained in it.

ADAMITES, ADAMITÆ, a ſect who took upon them to imitate the nakedneſs of Adam: as if man had been reinſtated in his original innocence.

The critics explain the name Adam, אדם, from whence the term ariſes, variouſly; ſome *by earth*, others by *red*, others by *acquieſcence*.

Prodicus was their author, according to the account given by Theodoret; though according to Tertullian and Clement of Alexandria, the followers of Prodicus were never called by this name. Epiphanius is the firſt writer who ſpeaks of the *Adamites*, and he places them towards the end of the ſecond century.—They were, in reality, a branch ſprung out of the CARPOCRATIANS and BASILIDIANS.

This ſect is ſaid to have ſtarted up afreſh in the fifteenth century, under Picard, their leader; who pretended to re-eſtabliſh the law of nature, which, according to him, conſiſted in two things, viz. community of women, and nakedneſs.—Theſe laſt walked naked in the public places; whereas the former only put off their cloaths in their aſſemblies.

An ingenious writer, viz. Beauſobre, has ſhewn that the *Adamitiſm*, i. e. the nakedneſs of theſe people, is a mere calumny, forged by their adverſaries, the Cataſtines and Papiſts, at the time when the Vaudois firſt appeared in the country.

Jovet and Moreri ſpeak of *Adamites* in England; and indeed the Romaniſts and Reformed mutually reproach each other with having *Adamites* among them.

ADAMITES, in *Church Hiſtory*, a name given by ſome writers to the firſt patriarchs, the ſons or deſcendants of Adam by Seth. In which ſenſe *Adamites* amount to the ſame with *Sethites*, and ſtand diſtinguiſhed from *Cainites*. There are divers traditions concerning the quarrels, wars, &c. between the *Adamites* and the *Cainites*.

ADAMITES, *Præ*. See PRE-ADAMITES.

ADAMITUM and *Adamites*, the hardeſt white ſtones, and ſtones in the bladder. The former, Paracelſus ſays, are a ſpecies of TARTAR.

ADAMAS, *Adam*, this is uſed in an *alchymiſtical* ſenſe, to ſignify the philoſophers ſtone, which they call an animal, and ſay it has carried its invisible *Eve* in its body, ever ſince the moment they were united by the creator.

ADAR, in the Hebrew *Chronology*, the twelfth month of

their ecclesiastical year, and the sixth of their civil year. It contains only nine and twenty days, and answers to our February, and sometimes enters into the month of March, according to the course of the moon. On the seventh and thirteenth days of this month the Jews observe two fasts; the former on account of the death of Moses, and the latter called that of Esther, in commemoration of the affair of Haman. The feast of *purim* is celebrated on the fourteenth day. Esther ix. 17.

ADARCE, in the *Materia Medica* of the ancients, a faltish humour concreting about the stalks of reeds, and other vegetable matter, in form of incrustations.

The ancients speak of *adarce*, as chiefly produced in Cappadocia and Galatia, though we also read of it in Italy; and of a native kind produced in Indian reeds, much as sugar in the cane.

Its colour is like that of the fine powder of the Assian stone, or *sarcophagus*, and its substance all lax and porous, much like the bastard sponge; so that it might be called the bastard sponge of the marshes.

It is a *topic* adapted to rub and scour the skin in a leprosy, sun-burning, tetters, freckles, and such like blemishes, being on the whole of an acrimonious quality. Dr. Plott describes it in his Natural History of Oxfordshire. Tho' some have supposed the incrustations, often seen about our springs, to be the same with the *adarce* of the Greek physicians; this seems a mistake, as these incrustations possess none of the virtues or properties of that substance; it being principally composed of sea-salt, of which those contain no particle, being merely a mixture of earth and spar.

ADARCON, *adarconum*, an ancient coin mentioned in Scripture, usually of gold, derived, as some think, from those gold pieces coined by Darius, called *Darycos*.

Hesius makes the *adarcon* only equal to the Attic *drachma*; but bishop Cumberland, after the scholiasts of Aristophanes and Harpocration, twice as much.

ADARIGES, a name for SAL *ammoniac*.

ADARME, in *Commerce*, a small Spanish weight used through their American provinces, equal to the fifteenth part or an ounce.

Stephanus renders it in English by a dram.

ADARNECH, a name for OXYMEL.

ADARTICULATION, is used, by some physicians, for *ἀρθρωσις*, by others, for *διαρθρωσις*. See ARTHRODIA, and DIARTHROSIS.

ADATAIS, or ADATYS, a muslin or cotton cloth, very fine and clear, of which the piece is ten French ells long, and three quarters broad. This muslin comes from the East Indies, and the finest from Bengal.

ADCHER, in the *Materia Medica*, a name given by Avicenna and Serapion to the SCAMMONY, or camel's hay. This seems to have been, at that time, the common Arabian name of this drug; but Garcias tells us, that in his time the Arabs called it *adher*.

It is to be observed, however, that the Arabians have not confined this word to the SCAMMONY alone, but express by it all the kinds of *resins*. Thus, Avicenna tells us, that the *adcher* is of two kinds, the one bearing no fruit, the other bearing a hard black fruit: this plainly belongs not to the *scammony*, but the common *resin*, of which Dioscorides has, in the same manner, described two kinds, thus differing from one another.

ADCORDABILES *denarii*, in ancient *Law-books*, denote money paid by the vassal to his lord, in the nature of a fine, upon the selling or exchanging of a FEUD.

The word is formed from *accordare*, to *agree*.

ADCRESCENTES, in the Roman *Empire*, the same with ACCENSI.

ADDAC, in *Natural History*, the name by which the Africans call the common ANTELOPE. See GAZELLA.

ADDEPHAGIA, in *Medicine*, a term used by some physicians, to denote a greediness in children, whereby they load themselves with new food, before the old is digested. This is sometimes also written corruptly, *adephagia*.

The word is compounded of *ad*, *much*, and *φαγω*, *I eat*. Some use *addephagia* in a more extensive sense, for voraciousness in general, so as to comprehend the BULIMIA, PICA, and MALACIA.

ADDER, in *Natural History*, a venomous reptile of the serpent kind, more usually called a VIPER.

ADDER is also sometimes confounded with *asp*; thus the deaf *adder*, spoken of in the English Bible, is not properly the *adder*, but the *asp*. Calmet.

The *adder* differs from the snake, in that the former is much shorter for its bigness, especially his tail below the vent; that it is marked on the back with black lines or spots, which the snake wants; that its belly is blackish, and of one colour, whereas the snake's is particoloured, of a pale yellow and blue; that it never grows to the bigness which some snakes attain to; and lastly, that it is *ovoviparous*, whereas the snake is *ovoparous*.

ADDER, *Sea*, the English name of a species of SYNGNATHUS, with a round body, and no pectoral or tail fins.

ADDER, *Water*, in *Zoology*, a name given to the NATRIX.

ADDER-BOLTS. See DRAGON-FLIES.

ADDER-STUNG, is used in respect of cattle when stung with any kind of venomous reptiles; as adders, scorpions, &c. or bit by a hedge-hog, or thrive.

For the cure of such bites, some use an ointment made of dragon's blood, with a little barley-meal, and the whites of eggs.

ADDER'S-TONGUE, in *Botany*, a medicinal plant, so called either from its resembling or its curing the bite of a viper.

It is more commonly called *ophioglossum*.

No part of the fructification of this plant is visible, except the fruit. This is an oblong, double, or distichous capsule, divided by a great number of transverse articulations, into many cells, each of which when mature, opens transversely, and is found to contain a great number of small seeds of a fubovate figure.

Caspar Bauhine describes what he calls three species of this plant.

Tournefort makes eight species of OPHIOGLOSSUM, which are only the varieties of the common European kind, mentioned above.

This is a spring plant, and is only to be found in April and May. It is not uncommon in wet meadows, and is easily distinguished among other spring plants by its spike, or tongue.

It is esteemed one of the best vulnerary herbs this country produces; but it is more in use among the common people than in the shops. They give its juice internally, and use the herb bruised, or an ointment prepared from it, with lard, or May-butter, externally, as the same time. Farriers, &c. prepare an ointment of this herb, called ADDER'S *tongue ointment*, used as a remedy against the bots of venomous beasts. Phil. Transf. vol. xlix. part ii. N° 112.

ADDEVISORY. See HISTORY.

ADDEXTRATORES, or ADDUCTORII, in the court of Rome denote the pope's SQUIRE-bearers.

Some suppose them thus called, on account of their walking at the popes right hand, when he rides to visit the churches.

ADDICE, see ADZE.

ADDICO, see ADDICTIO.

ADDICTI, in *Antiquity*, insolvent persons, or those who being sentenced to pay a debt, but unable to do it, were adjudged to a kind of temporary servitude to the creditor. In this sense, *addicti* were a species of *servi*; from whom, however, they differed in this, that a slave, when discharged, became a *libertus*; whereas an *addictus* became *ingenuus*. Again, a slave could not be discharged without the consent of his master; whereas the *addictus* was discharged of course, when his debt was satisfied. Pitiſc. Lex. Ant. & Calv. Lex Jur.

ADDICTIO, ADJUDICATION, in the Roman law, a transferring, or passing over goods to another; whether by sentence of a court, or in the way of sale to him that bids most for them.

The word stands opposed to *abdictio*, or ABDICATION. It is formed of *addico* one of the stated words used by the Roman judges, when they allowed the delivery of the thing or person to whom judgement had passed.

Hence, goods thus adjudged by the prætor, to the right owner, were called *bona addicta*; and the debtors delivered up, in like manner to their creditors, to work out their debt, were called *servi addicti*.

ADDICTIO *in diem*, denotes the adjudging of a thing to a person for a certain price; unless by such a day the owner or some other person, give more for it.

ADDITAMENT, ADDITAMENTUM, a thing added to another. It signifies the same as EPIBLEMA.

Additaments, in *Physic* and *Chemistry*, are things superadded to the ordinary ingredients of any compolition.

ADDITION, the act of joining one thing to another, or of augmenting a thing, by the accession of others.

ADDITION is also used for the thing added with itself.

ADDITION, in *Arithmetic*, is the first of the four fundamental rules, or operations, of that art.

Addition consists in finding the amount of several numbers, or quantities, several added one to another. Or *addition* is the invention of a number, from two or more homogeneous ones given, which is equal to the given numbers taken jointly, or together.

The number, thus found, is called the *sum*, or aggregate of the numbers given.

The character of *addition* is +, which we usually express by *plus*. Thus 3+4 denotes the sum of 3 and 4; and is read 3 *plus* 4.

The *addition* of simple numbers is easy. Thus it is readily perceived that 7 and 9, or 7+9, make 16; and 31+25 make 56.

In longer or compounded numbers, the business is performed by writing the given numbers in a row downwards; homogeneous under homogeneous, i. e. units under units, tens under tens, &c. and singly collecting the sums of the respective columns.

To do this, we begin at the bottom of the outmost row or column to the right; and if the amount of this column

lumn do not exceed 9, we write it down at the foot of the same column: if it doth exceed 9, the excess is only to be written down, and the rest reserved to be carried to the next row, and added thereto; as being of the same kind or denomination.

Suppose, e. gr. the numbers 1357 and 172 were given to be added: write either of them, v. gr. 172, under the other 1357; so as the units of the one, viz. 2, stand under the units of the other, viz. 7; and the other numbers of the one, under the correspondent ones of the other, viz. the place of tens under tens, as 7 under 5; and that of hundreds, viz. 1, under the place of hundreds of the other,

1357
172
1529

3. Then, beginning, say 2 and 7 make 9; which write underneath; also 7 and 5 make 12; the last of which two numbers, viz. 2, is to be written, and the other one reserved in your mind to be added to the next row, 1 and 3: then say, 1 and 1 make 2, which added to 3 make 5: this write underneath, and there will remain only 1, the first figure of the upper row of numbers, which also must be writ underneath; and thus you have the whole sum, viz. 1529. The same method will extend to any number of sums, which are required to be united in one.

ADDITION *of numbers of different denominations*, for instance, of pounds, shillings, and pence, is performed by adding or summing up each denomination by itself, always beginning with the lowest; and if, after the *addition*, there be enough to make one of the next higher denomination, for instance, pence enough to make one or more shillings, they must be added to the figures of that denomination, that is, to the shillings; only reserving the odd remaining pence to be put down in the place of pence. And the same rule is to be observed in shillings with regard to pounds.

For an instance, 5 pence and 9 pence make 14 pence; now in 14 there is once 12, or a shilling, and two remaining pence; the pence set down, and 1 shilling to be added to the next column, which consists of shillings. Then 1 and 8 and 2 and 5 make 16: the 6 put down, and carry the 1 to the column of tens; 1 and 1 and 1 make three tens of shillings, or 30 shillings: in 30 shillings there is once 20 shillings, or a pound, and 10 over; write 1 in the column of tens of shillings, and carry 1 to the columns of pounds; and continue the *addition* of pounds, according to the former rules.

l.	s.	d.
120	15	9
65	12	5
9	8	0
195	16	2

So, half of an even sum of shillings will be carried to the pounds; and the odd one (where it so happens) set under the tens of the shillings.

ADDITION *of Decimals*, is performed after the same manner as that of whole numbers; as may be seen in the following example:

630.953
51.0807
306.27
987.3037

ADDITION *of Vulgar Fractions*, see under FRACTION.

ADDITION *of Ratios* is used by some authors in the same sense with COMPOSITION of RATIOS, which see.

ADDITION *in Algebra*, or the ADDITION *of Species*, is performed by connecting the quantities to be added, by their proper signs; and also by uniting into one sum, those that can be so united. See QUANTITY, SPECIES, &c. Thus a and b make $a+b$; a and $-b$ make $a-b$; $-a$ and $-b$ make $-a-b$; $7a$ and $9a$ make $7a+9a$; $-a\sqrt{ac}$ and $b\sqrt{ac}$ make $-a\sqrt{ac}+b\sqrt{ac}$, or $b\sqrt{ac}-a\sqrt{ac}$; for the order in which they are written, makes no alteration in their value.

But, particularly, 1. Affirmative quantities of the same species, or kind, are united by adding the prefixed numbers whereby the species are multiplied.

Thus, $7a+9a$ make $16a$. And $11bc+15c$ make $26bc$.

Also $\frac{a}{5}+\frac{a}{5}$ make $\frac{8a}{5}$; and $2\sqrt{ac}+7\sqrt{ac}$ make $9\sqrt{ac}$; $b\sqrt{ab-2x}+7\sqrt{ab-2x}$ make $13\sqrt{ab-2x}$. And in like manner $6\sqrt{3}+7\sqrt{3}$ make $13\sqrt{3}$. Again $a\sqrt{ac}+b\sqrt{ac}$ make $a+b\sqrt{ac}$, by adding together a and b. As numbers multiplying $\sqrt{ac}$. And so $\frac{2a+3\sqrt{3ax-x^2}}{a+x}+\frac{3a\sqrt{3ax-x^2}}{a+x}$ make $\frac{5a+3\sqrt{3ax-x^2}}{a+x}$, since $2a+3a$ and $3a$ make $5a+3a$.

2. Affirmative fractions, which have the same denominator, are added together by adding their numerators.

Thus $\frac{1}{4}+\frac{2}{4}$ make $\frac{3}{4}$, and $\frac{2ax}{b}+\frac{3ax}{b}$ make $\frac{5ax}{b}$; and thus $\frac{8a\sqrt{cx}}{2a+\sqrt{cx}}+\frac{17a\sqrt{cx}}{2a+\sqrt{cx}}$ make $\frac{25a\sqrt{cx}}{2a+\sqrt{cx}}$ and $\frac{aa}{c}+\frac{ba}{c}$ make $\frac{aa+ba}{c}$.

3. Negative quantities are added after the same manner as affirmative. See NEGATIVE.

Thus, -2 and -3 make -5; $-\frac{4ax}{b}$ and $-\frac{11ax}{b}$ make $-\frac{15ax}{b}$; $-a\sqrt{ax}$ and $-b\sqrt{ax}$ make $-a-b\sqrt{ax}$.

When a negative quantity is to be added to an affirmative one, the affirmative must be diminished by the negative one.

Thus, 3 and -2 make 1; $\frac{11ax}{b}$ and $-\frac{4ax}{b}$ make $\frac{7ax}{b}$; $-a\sqrt{ax}$ and $b\sqrt{ax}$ make $b-a\sqrt{ax}$.

And note, that when the negative quantity is greater than the affirmative, the aggregate sum will be negative. Thus, 2 and -3 make -1; $-\frac{11ax}{b}$ and $\frac{4ax}{b}$ make $-\frac{7ax}{b}$; and $2\sqrt{ax}$ and $-7\sqrt{ax}$ make $-5\sqrt{ax}$.

ADDITION *of irrational Quantities*.—If they be of different denominations, reduce them to the same denomination; and if they be then commensurable, add the rational quantities without the vinculum; and to their sum prefix the radical sign.—The rest as in the addition of rationals.

Thus, we shall find $\sqrt{8}+\sqrt{18}=2\sqrt{2}+3\sqrt{2}=5\sqrt{2}=\sqrt{50}$. On the contrary, $\sqrt{7}$ and $\sqrt{5}$ being incommensurable, their sum will be $\sqrt{7}+\sqrt{5}$.

ADDITION, in *Law*, is that name, or title, which is given to a man over and above his proper name, and surname; to shew of what estate, degree, or mystery he is; and of what town, village, or country.

Additions of Estate, or quality, are yeoman, gentleman, esquire, and such like.

Additions of Degree, are those we call names of dignity; as knight, lord, earl, marquis, and duke.

Additions of Mystery, are such as scrivener, painter, mason, and the like. See CHORCHILL.

Additions of Place are, of Thame, of Dale, of Woodstock.—Where a man hath houshold in two places, he shall be said to dwell in both; so that his *addition* in either may suffice. Knave was anciently a regular *addition*.

By stat. 1 Hen. V. cap. 5. it was ordained, that in such suits or actions where process of outlawry lies; such *addition* should be made to the name of the defendant, to shew his estate, mystery, and place where he dwells; and that the writs, not having such *additions*, shall abate, if the defendant take exception thereto; but not by the office of the court.—The reason of this ordinance was, that one man might not be troubled with the outlawry of another; but by reason of the certain *addition*, every person might bear his own burden.

If one be of the degree of a duke, earl, &c. he shall have the *addition* of the most worthy dignity. 2 Inst. 669.

Such titles, however, are not properly *additions*, but names of dignity. The title of knight or baronet, is part of the party's name, and ought to be rightly set; but the titles of esquire, gentleman, or yeoman, &c. being no part of the name, but *additions*, as people please to call them, may be used, or not used, or if varied, it is not material. 1 Lill. 34.

An earl of Ireland is not an *addition* of honour here in England; but such a person must be written by his Christian and surname, with the addition of esquire only; and the sons of English noblemen, although they have given them titles of nobility, in respect to their families, if you sue them, they must be named by their Christian and surnames, with the addition of esquire; as—such-a-one, esquire, commonly called lord A, &c. 2 Inst. 596, 666.

No *addition* is necessary, where process of outlawry doth not lie. 1 Salk 5. If a city be a county of itself wherein are several parishes, *addition* thereof, as *de Londini*, is sufficient; but *addition* of a parish not in a city, must mention the county, or it will not be good. 1 Danv. 237.

ADDITION, in *Music*.—The note or mark of *addition* is a dot placed on the right side of a note, to signify, that the time of the sound of such note, is to be lengthened half as much more, as it would otherwise be.

A note of *addition* amounts to the same with what is by some old English authors called *prick of perfection*.

Thus a semibreve, when marked with a dot, is to be as long as three minims; the minim, with the like dot, to be as long as three crotchets; the crotchet as three quavers, &c. See CHARACTER.

ADDITIONS, in *Heraldry*, denote a kind of bearings, in coats of arms, wherein are placed rewards, or additional marks of honour.

In which sense, *additions* stand opposed to ABATEMENTS, or DIMINUTIONS. See DIFFERENCE.

Additions resemble, but differ from ordinaries. To the

claſs of *additions* belong a bordure, quarter, canton, gyron, pile, flaſquet, hauncheo, voiders, ermine, and an inueſcutcheon gules, called alſo an *eſcutcheon of pretence*. On any of theſe may an *addition* of honour be placed, according to the pleaſure of the prince, or the fancy of the herald; which reward deſcends to none of the family, except the perſon's own direct line. In this manner the arms of a kingdom have been ſometimes given, by way of *addition*, to a private ſubject.

ADDITIONS, in *Diſtilling*, a name given to ſuch things as are added to the waſh, or liquor, while in a ſtate of fermentation, in order to prove the vinoſity of the ſpirit, procure a larger quantity of it, or give it a particular flavour.

All things of whatever kind, thus added in the time of fermentation, are called by thoſe of the buſineſs, who ſpeak moſt intelligently, *additions*; but many confound them with things of a very different nature, under the name of FERMENTS.

The *additions* uſed in the diſtillery, may be reduced to four general heads. 1. *Salts*, 2. *Acids*, 3. *Aromatics*, and 4. *Oils*. A little tartar, nitre, or common ſalt finely powdered, may be added to the liquor while fermenting, eſpecially in the beginning of the operation; or in their ſtead a little of the vegetable, or finer mineral acids, may be dropped in at different times, when found neceſſary. Theſe are of great uſe, eſpecially in the fermenting ſolutions of treacle, honey, and the like ſweet and rich vegetable juices, which either wholly want an acid in themſelves, or have it in too ſmall a proportion, or have been robbed or diveſted of it. The proper acids for this purpoſe are, the juice of Seville oranges, or lemons, or the ſpirit of ſulphur, or Glauber's ſpirit of ſalt, or, what is greatly preferable to all theſe, a particular aqueous ſolution of tartar, a ſucceſſaneum for which may be ramaſinds, or the *lobs* of ſome very acid fruits, or the *mother ſubſtantia vini*. On this foundation ſtands that ingenious practice of uſing a ſuitable proportion of the ſtill bottoms, or the remaining waſh, in the ſubſequent brewing.

After the ſame manner, a very conſiderable quantity of any eſſential vegetable oil, may by proper management be converted into a ſurpriſingly large quantity of inflammable ſpirit; but great care in this caſe muſt be had not to drop it in too faſt, nor too much at a time; this might damp the fermentation; and, indeed, the adding a large quantity of oil at once, in the common way of ſtopping the fermentation at any point required.

The beſt method of all, of introducing the oil, ſo as to avoid all inconvenience, is to reduce it firſt to an eſſentiaccharum, by grinding it in a mortar, with a due quantity of fine ſugar in powder. The oil thus added, with its particles diſunited, and in form of powder, will readily mix with the liquor, and immediately ferment with it.

A large proportion of rectified ſpirit, or of any other ſpirit, may, by prudent management, be alſo introduced into the fermenting liquor; and this will always come back with a large addition to the quantity of ſpirit, that would otherwiſe have riſen from the diſtillation. Shaw.

ADDITIVE, denotes ſomething to be added to another.

Geometricians ſpeak of *additive ratios*; aſtronomers of *additive equations*, &c.

ADDITIVE *ratio* is uſed, by ſome writers, for that whoſe terms are diſpoſed to addition, that is, to compoſition, in oppoſition to *ſubſtractive ratio*, whoſe terms are diſpoſed to ſubtraction, i. e. to diviſion. Phil. Tranſ. N° 257. Suppoſe the line *ac* divided in the points *b* and *c*.

a *b* *c*

the ratio between *ab* and *bc* is *additive*: becauſe the terms *ab* and *bc* compoſe the whole *ac*. But the ratio between *ac* and *bc* is ſubtractive, becauſe *ac* and *bc* differ by the line *ab*.

ADDITIVE *equations*, in *Aſtronomy*, thoſe which are to be added to the ſun's mean ANOMALY, in order to find the true one. V. Hiſt. Acad. Roy. des Scienc. 1720. p. 218.

ADDOUBORS, in *Law*. See REDUBORS.

ADDRESS, in a general ſenſe, is uſed for ſkill and good management, and of late has been adopted from the French, and is uſed in genteel phraſe; and alſo in *Commerce*, as ſynonymous with directions to a perſon or place. The word is formed of the French verb *addreſſer*, *to direct any thing to a perſon*.

ADDRESS, means alſo a diſcourſe preſented to the king, in the name of a conſiderable body of his people; to expreſs or notify their ſentiments of joy, ſatisfaction, or the like, on ſome extraordinary occaſion.

We ſay the words *adreſs*, the common *addreſs*. — *Addreſſes* were firſt ſet on foot under the adminiſtration of Oliver Cromwell. — At Paris, their office of intelligence is called *bureau d'adreſſe*.

ADDUCENT *Muſcles*, or ADDUCTORS, are thoſe which bring forward, cloſe, or draw together, the parts of the body whereto they are annexed.

The word is compounded of *ad*, *to*, and *ducere*, *to draw*, or *bring*.

Adductors, or *adductors*, ſtand oppoſed to *abducent*, or *abductors*.

ADDUCTION, in *Anatomy*, the motion, or action, of the ADDUCENT muſcles. See ADDUCTOR.

ADDUCTOR *oculi*, a muſcle of the eye; ſo called becauſe it inclines its pupil towards the noſe.

It is alſo called *obliquus*; becauſe it directs the eye toward the cup in drinking.

ADDUCTOR *pollicis*, is a muſcle of the thumb which ariſes tendinous, and aſcends obliquely towards a broad termination, at the ſuperior part of the firſt bone of the thumb. — *See Tab. Anat. (Myol.) fig.* I. *n.* 31, *&* *fig.* VII. *n.* 7. — Its office is to bring the thumb near the forefinger.

This muſcle is called by Albinus, and the generality of writers, the *abductor indicis*, and by Winſlow, the *ſemi-interoſſeus indicis*.

ADDUCTOR *pollicis pedis*, called alſo *anitheuar*, is a muſcle of the great toe, which ariſes from the inferior part of the *os cuneiforme tertium*, and is inſerted into the internal part of the *oſſa ſeſſamoidea* of the great toe; which it draws nearer the reſt.

ADDUCTOR *auricis*, is a muſcle of the fore-finger, ariſing from the inſide of the bone of the thumb, and inſerted into the firſt bone of the fore-finger, which it draws towards the thumb.

ADDUCTOR *minimi digiti pedis*; the ſame as TRANSVERSALIS *pedis*.

ADDUCTOR *proſtatæ*, a name given by Santorini to a muſcle, which he alſo calls *levator proſtatæ*; and which Winſlow calls *proſtaticus ſuperior*. Albinus, from its office, has very properly called it *compreſſor proſtatæ*.

ADDUCTOR *brachii* ſerves to draw the arm toward the trunk of the body; though Winſlow finds its office more complicated, and that it acts in concurrence with the flexors and extenſors, in bending and extending the arm.

ADEB, in *Commerce*, the name of a large Egyptian weight uſed principally for rice, and conſiſting of two hundred and ten okes, each of three rotoles, a weight of about two drams leſs than the Engliſh pound. But this is no certain weight: for at Roſetta the *adeb* is only one hundred and fifty okes. Pococke, Egypt.

ADEC ſignifies ſour milk.

ADECTOS, an epithet applied to a medicine that allays the ſenſe of pain, or the uneaſineſs created by ſtimulants.

ADEL-*fiſh*, a name given by ſome nations to the *lavaretus*, or *albula nobilis*.

Theſe are generally treated of by authors as two different kinds of fiſh. But Artedi contends, that they are the ſame ſpecies, and diſtinguiſhes them by the name of the *eregenus*, with the upper jaw flat, and longer than the under; and with fourteen rays in the back-fin.

ADELING. See ATHELING.

ADELPHIANI, in *Church Hiſtory*, a ſect ſo called from their leader *Adelphius*.

They were ſingular in this, that they kept the Sabbath as a faſt.

ADELSCALC, in *Ancient Cuſtoms*, denotes the ſervant of the king.

The word is alſo written *adelſcalche*, and *adelſcalcus*. It is compounded of the German *adel*, or *edle*, *noble*, and *ſcalc*, *ſervant*. Among the Bavarians, *adelſcalci* appear to have been the ſame with royal *thanes* among the Saxons, and theſe called *miniſtri regis* in ancient charters.

ADEMPTION, ADEMPTIO, in the *Civil Law*, the REVOCATION of a grant, donation, or the like.

The *redemption* of a legacy may be either expreſs; as when the teſtator declares in form, that he revokes what he had bequeathed; or *tacit*, as when he only revokes it indirectly or implicitly. See RECISION.

Thus if A by will gives his daughter M 1000*l.* to be firſt paid after his death, before a ſhare out of the dividend of his eſtate; and afterward, on her marriage, an agreement be made for what the ſhould have out of A's eſtate, that it ſhould be only 1200*l.* which ſhould be in full of what was intended thereout; this agreement is an *ademption* of the legacy.

ADEN, a gland. See GLAND.

ADENANTHERA, in *Botany*, the name of a genus of plants belonging to the claſs of *decandria monogynia*, the characters of which are theſe: the perianthium is very ſmall, and is compoſed only of one leaf divided into five ſegments at the edge; the flower conſiſts of five petals, and is of a campanulated form; the petals are pointed and ſeſſile, and they turn inwards, and are hollowed underneath; the ſtamina are ten erect tubulated

filamants,

filaments, a little shorter than the flower; and the antheræ are roundish and incumbent, and bear on their exterior apex a globofe glandule. The germen of the piſtil is oblong and gibbous on the back in the lower part. The ſtyle is tubulated, and of the length of the ſtamina, and the ſtigma is ſimple. The fruit is a long compreſſed pod, in which are ſeveral round ſeeds.

ADENOGRAPHY, that branch of *Anatomy* which deſcribes the glands, and the glandular parts of the body.

The word is compounded of *ἀδὴν*, *gland*, and *γράφω*, *I deſcribe*.

Adenography is the ſame with what ſome others call *adenology*, or the adenological part of *Anatomy*.

ADENOS, a kind of cotton, otherwiſe called marine cotton. It comes from Aleppo by the way of Marſeilles, where it pays 20 *per cent.* duty, according to the TARIFF of the year 1760. Its valuation, by the ſame *tariff*, is of 76 livres 16 ſols.

ADENOSUS *obſtruſio*, in *Medicine*, a crude hard tubercle, difficult of diſcuſſion, and reſembling the appearance of a gland.

ADEPS, among *Phyſicians*, FAT. This is an animal oil, ſecreted from the blood, and contained in the *membrana adipoſa*, or, as Boerhaave calls it, the *membrana celluloſa*; which is not a ſingle membrane, but a *congeries* of a great number of membranous *lamineæ*, joined irregularly to each other at different diſtances, ſo as to form numerous interſtices of different capacities, which communicate with each other. Theſe interſtices have been named *cellulæ*, and the ſubſtance made up of them, the cellulous ſubſtance.

Theſe cellular interſtices are ſo many little bags or ſatchels, filled with an unctuous or oily juice, more or leſs liquid, which is called *fat*; the different conſiſtence of which depends not only on that of the oily ſubſtance, but on the *quæ*, extent, and ſubdiviſion of the cells.

Neumann diviſes *fats*, from their conſiſtence, into three kinds: the firſt, called *pinguedo*, is *ſoft* and thin, and becomes liquid in a very ſmall heat; ſuch as that which we meet with in birds, reptiles, and fiſhes (the very large fiſhes excepted). The ſecond is thick, liquefies leſs readily, and is denominated *axungia*. The third is mere hard and firm; when taken from the animal it is called *adeps*, and when freed from the ſkins, &c. *ſeſum*. The two laſt kinds of *fat* are chiefly found in quadrupeds.

In ſome parts of the body, the fat ſerves for a cuſhion, pillow, or mattreſs; as on the *cornea*, where the *lamineæ* and cells are very numerous. In other parts this membrane has few or no *lamineæ*, and conſequently little or no fat: as on the forehead, elbows, &c.

In the young *fœtus* there is ſcarce any *fat*; but in the older *fœtus*, *fat* begins to appear. When the child is born, and for ſome years after, it hath much *fat* immediately beneath the ſkin; in men, the *fat* is moſt abundantly ſpread on the *glutei* muſcles.

Fats taken freely as food are difficult of digeſtion; relax and weaken the tone of the ſtomach and interſtines, and are ſuppoſed likewiſe to render the juices tenacious, and to increaſe the bile.

The medical virtues of *fats*, as manifeſted by experience, are ſuch as ariſe from their uſe in external applications, for ſoftening and ſuppling, for abating pains and ſpaſms, and for promoting maturation. Thoſe that are principally uſed are the *fat of vipers*, *hog's lard*, and *mutton ſuet*.

ADEPTS, ADEPTI, a denomination given to the proficients in *Alchemy*; particularly to thoſe who pretend to the ſecrets of the philoſopher's ſtone, and the univerſal medicine.

The word is formed from the verb *adipiſci*, *to obtain*.

Ripley, Lully, Parſeellus, Helmont, Hollandus, Sendivogius, &c. are the principal among the *adepts*.

It is a fort of tradition among the *alchemiſts*, that there are always twelve *adepts*; and that their places are immediately ſupplied by others, whenever any of the fraternity die.

The term *adept* is ſometimes more generally applied to thoſe who are proficients in any kind of ſcience.

ADEQUATE, ADEQUATUS, ſomething equal to, or co-extended with, another; and filling the whole meaſure and capacity thereof.

In this ſenſe the word ſtands oppoſed to INADEQUATE.

ADEQUATE, or total, in *Logic*, is applied to the objects of ſciences. The *adequate* object of a ſcience includes the *material* and *formal* object: the *material* object of a ſcience, is that part which is common to it with other ſciences; the formal is that which is peculiar to itſelf.

ADEQUATE *ideas*, or *notions*, in *Metaphyſics*, are ſuch images or conceptions of an object, as perfectly repreſent it, or anſwer to all the parts and properties of it.

M. Leibnitz defines an *adequate notion* to be that, of whoſe ſeveral characters we have diſtinct ideas.—Thus, a circle being defined a figure bounded by a curve line which returns into itſelf, and whoſe points are all equally diſtant from a certain intermediate point therein; our notion of a circle is *adequate*, if we have diſtinct ideas of all theſe circumſtances, viz. a curve returning upon itſelf, a middle point, an equality of diſtance, &c.

All SIMPLE ideas are *adequate* and perfect; and the faculty be what it will, that excites them, repreſents them entire.

The ideas of modes are likewiſe *adequate*, or perfect; except of thoſe modes which occaſionally become ſubſtances; for when we ſpeak of modes ſeparately exiſting, we only conſider them ſeparate from the ſubſtance by way of abſtraction.

All abſtract ideas are alſo *adequate* and perfect; ſince they repreſent all that part of the object which we then conſider.—Thus, the idea of roundneſs is perfect, or *adequate*, becauſe it offers to the mind all that is in roundneſs, in general.

Of the ſame kind are all ideas, of which we know no original, or external object really exiſting out of the mind, by occaſion of which they were excited in us, and of which we think theſe the images. Thus, when a dog is before us, it is the external object without us which raiſes the idea in our mind; but the idea of an animal, in general, has no external object to excite it: it is created by the mind itſelf, and muſt of neceſſity be *adequate* or perfect.

On the contrary, the ideas of all ſubſtances are *inadequate* and imperfect, which are not formed at the pleaſure of the mind, but gathered from certain properties which experience diſcovers in them.

This is evident, becauſe our knowledge of ſubſtance is very defective; and we are only acquainted with ſome of their properties: thus, we know, that ſilver is white, that it is malleable, that it melts, &c. but we do not know what farther properties it may have; and we are wholly ignorant of the inward texture of the particles, whereof it conſiſts.—Our idea of ſilver, therefore, not repreſenting to the mind all the properties of ſilver, is *inadequate* and imperfect.

ADERAIMIN, ſee ALDERAIMIN.

ADES, or HADES, *ᾅδης*, from *a* and *ἰδεῖν*, denotes the inviſible ſtate. In the heathen mythology, it comprehends all thoſe regions that lie beyond the river Styx, viz. Erebus, Tartarus, and Elyſium. See HELL.

ADESSENARII, a name given to thoſe who hold that Jeſus Chriſt is really preſent in the euchariſt; but in a manner different from what the Romaniſts hold. From the Latin verb *adeſſe*, *to be preſent*.

The *Adeſſenarii*, called alſo *Impanatores*, are divided into four different opinions touching the point.—Some hold that the body of Jeſus Chriſt is in the bread; others, that it is about the bread; others, that it is with the bread; and laſtly, others, that it is under the bread. See IMPANATION.

ADFECTED *equation* is that where the unknown quantity is found in two or more different degrees, or powers. E. gr. $x^3 - px^2 + qx = r^3$; where there are three different powers of *x*, viz. x^3, x^2 and x^1. See EQUATION.

ADFILIATION, ADFILIATIO, is uſed to ſignify a Gothic cuſtom: where a perſon remarrying, who has children by a former bed, renders them capable of inheriting equally with the common children of both parties.

This is done by agreement, and is otherwiſe called, by ſome, *adoptio per matrimonium*.

This cuſtom is ſtill retained in Germany, under the name *einkindſchafft*, and *unio prolium*.

But the learned Hemeccius obſerves, that the *unio prolium* is not an ADOPTION. Elem. Jurid. Germ. tom. 1. ſect. 72.

ADHATODA, in *Botany*, the Malabar nut. See JUSTICIA.

Tournefort enumerates four ſpecies of this plant, which by Houſton and Linnæus is called JUSTICIA; but the above name is given to it in the Zeylanic tongue, from its virtue of expelling the dead *fœtus*, which it ſignifies. See *Tab.* VIII. *of Botany, Claſs* 5.

ADHESION, ADHERENCE, in *Phyſics*, the ſtate of two bodies which are joined or faſtened to each other, either by the mutual impreſſion of their own parts; or the compreſſion of external bodies. See COHESION.

The word is compounded of *ad*, *to*, and *hæreo*, *to ſtick*.

Anatomiſts ſometimes obſerve prophyſes, or *adhæſions* of the lungs to the ſide of the thorax, the pleura, and diaphragm, which give occaſion to various diſorders.

We alſo find of *adhæſions* of the *dura mater* to the cranium; of the ſtone to the bladder; though ſome combat this laſt as a chimera; at leaſt the inſtances of it appear to be rare.

We have alſo ſeveral caſes of *adhæſions* of the inteſtines, mentioned in the Philoſophical Tranſactions, Number 481.

The *adhæſions* of two poliſhed planes, and two hemiſpheres,

spheres, are phenomena urged in behalf of the weight and pressure of the ATMOSPHERE.

The argument drawn from the *adhesion* of two polished planes, urged in behalf of the weight and pressure of the atmosphere, might be objected to, as this pressure is not sufficient to produce the effect, and that polished bodies will adhere very strongly, even in an exhausted receiver. However, it is certain, that the air contributes in part to this *adhesion*.

Dr. Desaguliers has given experiments of the *adhesion* of leaden bullets to each other: the cause of which is resolved into the principle of ATTRACTION. Phil. Trans. N° 383.

ADHESION, in *Logic*. The schoolmen distinguish two kinds of *certitude*; the one of *speculation*, which arises from the evidence of the thing; and the other of *adhesion*, or attachment, which does not depend on the evidence, but on the importance of the matter, and the interest we have in its truth.

ADHESION, or ADHERENCE, is also used for the persisting in a former opinion or resolution.—After the free conference between the two houses, concerning the bill for preventing occasional conformity, when the lords retired and it came to the final vote of *adhering*, they were so equally divided, that in three questions put on different heads, the *adhering* was carrying but by one vote in every one, and by a different person each time. The commons therefore *adhered*; and thus the bill was lost.

ADHIL, in *Astronomy*, a star, of the sixth magnitude, upon the garment of ANDROMEDA, under the last star in her foot.

ADHOA, in *Ancient Customs*, denotes what we otherwise call RELIEF.

In which sense we sometimes also find the word written *adoha*, *adhoamentum*, and *adhoamentum*. Du-Cange.

ADJACENT, or ADJOINING, something *situate near*, or aside of another; of *ad*, *to*, and *jacere*, *to lie*.

ADIANTUM, *Maidenhair*, in *Botany*, the name of a genus of plants, the characters of which are these: the flowers are not discovered; the seeds are contained in spherical capsules, placed in the sinuses and complications of the leaves, and surrounded each with an elastic ring, which contracting, bursts the capsule, and scatters abroad the minute seeds: to this it is to be added, that the leaves of the maidenhairs have all one general appearance, by which they are easily distinguished at sight, from the other plants of the same kind. See *Tab.* X. of *Botany Class* 26.

Tournefort enumerates twenty species of this plant.

In the Linnæan system of *Botany*, the general character of the *adiantæ* is, their having the fructifications in form of oval spots, disposed in clusters under the reflected tops of the leaves; and they are classed with the *cryptogamia filices*.

The *adiantum* is esteemed a great pectoral, and gives name to a syrup much in use for that intention. It is also said to be a remover of obstructions, both of the kidneys and the menses, though little used in those intentions. Its essence is by some commended in hypochondriac and hysteric complaints.

ADIANTUM *aureum*, called also *muscus capillaris*, *polytrichum durum medium*, C. B. *polytrichum maius*, *vel primum*, *polytrichum aquifolii rotundum*, &c. in English, *golden maiden-hair*, is of the moss kind. It grows in heathy and boggy ground. It is a good sudorific, and its infusion drunk hot is recommended against pleurisies. Cæsalpinus gives a relation of this plant rising spontaneously out of the ruins of a town burnt down in Germany; as the *erisimum vulgare* did from the ruins of London.

The various species of this plant abound with a neutral saponaceous quality, approaching to nitre; with their mucilage they impart all their virtue to boiling water. The best preparation, therefore, of the plant, is a strong infusion made with boiling water, and sweetened with liquorice-root. The French make a syrup of the *adiantum verum*, and flavour it with orange-flower water; and a syrup is made in America of the *adiantum Canadense*, with maple sugar. Our confectioners prepare a syrup of it, which they sell under the name of *capillaire*. These syrups are esteemed in disorders of the breast: as they allay tickling coughs from defluxion of thin rheum, and assist the expectoration of phlegm.

ADIAPHORISTS, ADIAPHORISTÆ, or ADIAPHORITES, a name given in the fifteenth century to the moderate LUTHERANS, who adhered to the sentiments of Melancthon; and afterwards to those who subscribed the *interim* of Charles V.

The word is compounded of the privative *a*, and *διαφορος* *different*.

ADIAPHOROUS, ADIAPHORUS, is a name given by Mr. Boyle to a kind of spirit distilled from tartar, and some other vegetable bodies; and which is neither acid, vinous, nor urinous; but in many respects different from any other sort of spirit.

ADIAPNEUSTIA, from *a*, *δια*, and *πνεω*, *I breathe*, signifies defective perspiration, from dense pores, &c.

ADIAPTOTOS, the Greek word signifies *firm*; but it is a name given by physicians to a remedy for the colic, which is stone-parsley, henbane-seed, white pepper, &c. made into an electuary.

ADIARRHOEA, from *a*, *δια*, and *ῥεω*, *I flow*, in *Medicine*, signifies a total suppression of all the necessary evacuations.

ADICE, see NETTLE.

ADJECTIVE, in *Grammar*, a kind of noun joined with a substantive, either expressed or implied, to shew its qualities, or accidents.

The word is formed of the Latin *adjicere*, *to add to*; as designed to be added to a substantive, without which it has no precise signification.

Father Buffier defines *adjectives* in a manner somewhat different from other grammarians.—Nouns, according to him, are substantives, when the objects which they represent are considered simply, and in themselves, without any regard to their qualities; on the contrary, they are *adjectives*, when they express the quality of an object. Thus, when I say, simply, *a heart*, the word *heart* is a substantive, because none of its qualities are expressed; but when I say, *a generous heart*, the word *generous* is an *adjective*; because it adds a quality, or attribute, to the heart. *Adjectives*, then, appear to be nothing else but modificatives.

In effect, the end of an *adjective* being only to express the quality of an object; if that quality be the object itself whereof we speak, it becomes a substantive; e. gr. If I say, *this book is good*; *good* here is an adjective: but if I say, *good is always to be chosen*, it is evident *good* is the subject I speak of, and consequently *good*, there, is the substantive.

On the contrary, it often happens in other languages, and sometimes in our own, that a substantive becomes an *adjective*; as, for instance, in these words: *the king, here as he is, remembers he is a man*; where the word *here*, though ordinarily a substantive, is apparently an *adjective*. From this idea of an *adjective*, it appears that many of the nouns, which, in the common grammars, are accounted substantives, are really *adjectives*, and *vice versa*: grammar in this, and a thousand other instances, depending upon custom.

ADJECTIVES, in *Logic*, are divided into four kinds; the *nominal*, the *verbal*, the *numeral*, and the *pro-nominal*. The *nominal* are those which distinguish certain species by some inherent and permanent quality, which arises either from the nature of the thing, or from its form or situation; such as *good*, *black*, *round*, *external*, &c. The *verbal*, are those which denote some accidental or adventitious quality, which appears to be the effect of an action which passes, or has passed, in the thing under consideration; such as *rampant*, *domineering*, *carefling*, *embellished*, &c. *Numeral adjectives* are those which rank any subject in numerical order, as, *first*, *second*, *last*, &c. *Pro-nominal* are those which do not concern either species, action, or arrangement, but are merely indications of individuality; these *adjectives* are either *personal*, as *mine*, *thine*, &c. or they have a vague and indeterminate meaning, such as *some*, *any*, *many*, &c. or lastly, they serve the purpose of mere indication, such as, *this*, *that*, *such*, &c.

Verbal and *nominal adjectives*, are also called CONCRETES. Some distinguish *adjectives* into *physical* and *metaphysical*; the former being used to distinguish physical essences, in consequence of the immediate impressions they make upon us; the latter to denote those which are metaphysical and abstracted, in consequence of some operation of our minds with regard to them.

AD INQUIRENDUM, a judicial writ, commanding inquiry to be made of any thing touching a cause depending in the king's court, for the better execution of justice; as of bastardy, or the like. Reg. Judic.

ADJOINING is particularly used for the associating of a person to another; or appointing him a colleague, or ADJUNCT.

ADJOURNMENT, in *Law*, the putting off a COURT, or meeting; and appointing it to be kept at another time or place.

The word is formed of the Latin *ad*, *to*; and the French *jour*, *day*, q. d. another day.

In which sense, we meet with the phrase *adjournment in eyre*, for an appointment of a day when the justices in eyre intend to sit again.

Adjournments in parliament differ from *prorogations*.

And each house has the privilege of *adjourning* itself.

ADIPOSUS, fat, or fatty. The word is chiefly used in *Anatomy*, as an epithet of certain cells, ducts, membranes, and

and vesicle, *e. g.* MEMBRANA & VASA *adipofa*, CELLULÆ *adipofæ*, DUCTUS *adipofi*, &c. See ADEPS.

ADIPSON, from the privative *a*, and *δίψα*, *thirſt*; a name given by Hippocrates to oxymel; who ſays alſo that the *peiſſana*, by its glutinouſneſs, prevents or cures thirſt. Medicines adminiſtered for allaying thirſt are called by this name.

ADIPSOS, ſignifies the Egyptian palm-tree. Liquorice, and a pill, or catapotium, compoſed by Aſclepiades, and mentioned by Galen.

ADIRATUS, a price or value ſet upon things ſtolen or loſt, as a recompence to the owner.

ADIRIGE, ſingifies *ſal ammoniacum*.

ADIT, in a general ſenſe, denotes the approach to, or entrance of any thing.

The word is originally Latin, *aditus*, formed from *adire*, *to go to*.

In which ſenſe, we meet with *adit* of a houſe, *adit* of a theatre, of the circus, &c.

ADIT *of a* MINE, the hole, or aperture, whereby it is entered and dug, and by which the water and ores are carried away.

Adit of a mine amounts to the ſame with *gallery*, or *drift*, and is diſtinguiſhed from AIR-*ſhaft*. Phil. Tranſ. N° 69.

The *adit* is uſually made on the ſide of a hill, towards the bottom thereof, about 40 5. or 6 feet high, and 8 wide, in form of an arch; ſometimes cut in the rock, and ſometimes ſupported with timber, ſo conducted, as that the ſole or bottom of the *adit* may anſwer to the bottom of the ſhaft, only ſomewhat lower, that the water may have a ſufficient current to paſs away, without the uſe of the pump.

Damps and the impurity of the air are the great impediments againſt driving *adits* above 20 or 30 fathoms, by reaſon of the neceſſity, in this caſe, of letting down air-ſhafts from the day to meet the *adit*, which are often very expenſive, both on account of the great depth of mines, and the hardneſs of the mineral ſtrata to be cut through. The beſt remedy againſt this is that practiſed in the coal-mines near Liege, where they work their *adits* without air-ſhafts: the manner of which is deſcribed by ſir Robert Moray. Vide Phil. Tranſ. N° 5.

Adit of a mine, is ſometimes uſed for the AIR-*ſhaft* itſelf, being a hole driven perpendicularly from the ſurface or the earth into ſome part of a mine, to give entrance to the air.

In this ſenſe we ſometimes find it improperly written *addit*. Phil. Tranſ. N° 200.

To draw off the ſtanding water in winter, in deep mines, they drive up an *adit*, or AIR-*ſhaft*, upon which the air diſengages itſelf from the water, when it begins to run, with ſuch violence, as produces a noiſe equal to the burſting of a cannon, dathes every thing in the way againſt the ſides of the mine, and looſens the very rocks at a diſtance. Ibid. N° 26.

ADIT *in ſhips*, in *Antiquity*, was a ſpace in the upper part, where the ſhip was wideſt, at which people entered, anciently called *apea*.

ADITS *of a theatre*, *aditus theatri*, in *Antiquity*, were doors on the ſtairs, whereby perſons entered from the outer porticos, and deſcended into the ſeats.

ADJUDGING, in *Law*, the act of paſſing a determinate ſentence in behalf of a perſon.

ADJUDICATION, the act of adjudging the property of a thing to a perſon by a legal ſentence, decree, or judgment.

ADJUDICATION is more particularly uſed for the addition, or conſigning a thing ſold by auction, or the like to the higheſt bidder.

ADJUNCT, ADJUNCTUM, in *Philoſophy*, ſomething joined or ſuperadded to a being from without. See ADJUNCTION.

Or, an *adjunct* is an additament or acceſſion to a thing, not eſſentially belonging to it, but only accidental thereto.

There are two kinds of *adjuncts*; the one a ſubſtance (whether ſpirit or body) accidentally ſuperadded to another, as its ſubject.—Such is water in a ſponge, or veſſel, and ſuch is the ſoul in the body.

The ſecond an attribute or mode, accidentally likewiſe ſuperadded to a ſubſtance, whether body or ſpirit.—Such is figure in a body, knowledge in the mind, &c.

Some divide *adjuncts* into *abſolute*; which agree to the whole things, without limitation: thus, paſſions are *abſolute adjuncts*, of a man:—and *limited*, which only agree to their ſubject in reſpect of ſome certain parts thereof: thus, man only thinks, conſidered as to his mind; only grows, as to his body, &c.

In ethics, we uſually reckon ſeven *adjuncts*, popularly, called *circumſtances*; *quis*, *quid*, *ubi*, *quibus auxiliis*, *cur*, *quomodo*, *quando*.

ADJUNCTS, in *Rhetoric* and *Grammar*, are certain words or things added to others; to amplify the diſcourſe, or augment its force.

Such are adjectives, attributes, and epithets, which are added to ſubſtantives, ſubjects, &c. to expreſs their nature, qualities, accidents, &c.

Arguments drawn from *adjuncts*, are ſupplements or enforcements of the proof ariſing from the circumſtances of the fact.

ADJUNCT is alſo uſed in civil concerns, for a COLLEAGUE, or fellow-officer, aſſociated to another, to aſſiſt him in his miniſtry.

ADJUNCT *gods*, or ADJUNCTS *of the gods*, in *Mythology*, among the Romans, were a kind of inferior deities, added as aſſiſtants to the principal ones, to eaſe them in their functions.

Thus, to Mars was adjoined Bellona and Nemeſis; to Neptune, Salacia; to Vulcan, the Cabiri; to the Good Genius, the Lares: to the Evil, the Lemures, &c.

ADJUNCTS, or ADJUNCTS, in the *Royal Academy of Sciences at Paris*, denote a claſs of members, attached to the purſuits of particular ſciences. See ACADEMY.

ADJUNCTION, the act of joining, or adding, of one thing to another.

All *adjunction* implies a ſubordination.—The *adjunct* is for the ſake of a thing it is joined to, not contrary-wiſe; as the cloaths for the man, not the man for the cloaths.—Whatever is part of a thing cannot fail to be an *adjunct* of it.

There are various ſpecies of *adjunction*; viz. by *adheſion*, by *appoſition*, *adjacency*, *incubation*, *incubation*, *impoſition*, *affuſion*, &c.

ADJURA REGIS, is a writ that lies for the king's clerk againſt him who endeavoured to eject him, to the prejudice of the king's title in right of his crown.

ADJURATION, a part of exorciſm, wherein the deviſ is commanded, in the name of God, to depart out of the body of the poſſeſſed, or to declare ſomething.

ADJUTAGE. See AJUTAGE.

ADJUTANT, in the *Military Art*, an officer in the army, whoſe buſineſs is to aid and aſſiſt the major.

Adjutant is the ſame that we otherwiſe call *aid-major*.

In the cavalry, each regiment has an *adjutant*, and in the infantry, each battalion.

The *adjutant* receives the orders every night from the brigade-major, which, after he has carried to the colonel, he delivers out to the ſerjeants. Where detachments are to be made, he gives the number each company muſt furniſh, and aſſigns the hour and place of rendezvous. He alſo places the guards, receives and diſtributes ammunition to the companies, and by the major's orders regulates the price of bread, beer, &c. See *Adjutant-*GENERAL.

ADJUTANT is ſometimes alſo uſed by the French for an *aid de camp*.

The word is formed of the Latin *adjutare*, *to aſſiſt*.

ADJUTANT, among the *Jeſuits*. The general of the Jeſuits had a ſelect number of fathers of that order reſiding with him, under the denomination of *adjutants-general*; who had each their ſeveral province, or country, under their care, as France, England, &c. Their buſineſs was to inform the father-general of the occurrences of ſtate in ſuch countries; to which end, each of them had their correſpondents, delegated *viſitarics*, viſitors, regents, provincials, &c. See JESUITS.

ADJUTORIUM, in *Anatomy*, the *humerus*, or ſhoulder-bone.

It is thus called from *adjutare*, *to help*.

Some authors uſe this word for a medicine intended only as auxiliary, or ſubſervient to another of greater efficacy: in particular, after a due uſe of internals, for an external remedy applied to a part affected, to aſſiſt in, and complete the cure.

ADLE *egg*, that which is not fecundified by the cock's tread.

Adle eggs is the ſame with that which is otherwiſe called a *ſubventaneous* one.

Addle eggs, after incubation, are found to contain a ſhapeleſs, globoſe, aſh-coloured body, not unlike a *mola*. Phil. Tranſ. N° 87.

ADLEGATION, in the *Public Law* of the German empire, a right claimed by the ſtates of the empire of aſſigning plenipotentiaries, in public treaties and negociations, to thoſe of the emperor, for the tranſacting of matters which relate to the empire in general.

In which ſenſe *adlegation*, differs from *legation*, which is the right of ſending ambaſſadors on a perſon's own account.

Several princes and ſtates of the empire enjoy the right of *legation*, who have not that of *adlegation*, and *vice verſa*. The biſhops, for inſtance, have the right of *adlegation* in the treaties which concern the common intereſt, but

but no right of *legation* for their own private affairs. The like had the duke of Mantua.

The emperor allows the princes of Germany the privilege of *legation*, but disputes that of *allegation*. They challenge it as belonging to them *jure regni*, which they enjoy in common with the emperor himself. Lodwig has a discourse on the subject, wherein the controverfy is treated at large.

ADLOCUTION, ADLOCUTIO, in *Antiquity*, is chiefly underſtood of ſpeeches made by Roman generals to their armies, to encourage them before a battle. We frequently find theſe *adlocutions* expreſſed on medals, by the abbreviature ADLOCVT. COH.

The general is ſometimes repreſented as placed on a tribunal; often on a bank or mount of turf, with the cohorts ranged orderly round him, in *manipulis* and *turmis*. The uſual formula in *adlocution* was, *fortis eſſet ac fidus*. Pitiſc. Lex. Ant. tom. i. p. 27. Walk. on Coin. p. i. c. 10.

ADMANUENSES, in *Ancient Law Books*, denote perſons who ſwore by laying their hands on the book. Du-Cange.

The word is compounded of the Latin *ad*, *to*, and *manus*, *hand*.

In which ſenſe, *admanuenſes* amount to the ſame with laymen, and ſtand oppoſed to clerks, who were forbid to ſweat on the book, their word being to be reputed as their oath: whence they were alſo denominated *ſine ſigno*.

ADMEASUREMENT, ADMENSURATIO, in *Law*, a writ which lies for the bringing thoſe to reaſon, or mediocrity, who uſurp more of any thing than their ſhare. This writ lies in two caſes: termed,

ADMEASUREMENT *of dower*, *Admenſuratio dotis*, where the widow of the deceaſed holds more from the heir, or his guardian, on account of her dower, than of right belongs to her. And,

ADMEASUREMENT *of paſture*, *Admenſuratio paſturæ*; this lies between thoſe who have COMMON of paſtures appendant to their freehold, or common by vicinage, in caſe any of them ſurcharge the common with more cattle than they ought.

ADMINICLE, or ADMINICULE, ADMINICULUM, a term uſed in ſome ancient ſtatutes, for aid, help, or ſupport. Stat. 1 Edw. IV. cap. 1.

ADMINICULATOR, in *Eccleſiaſtical Writers*, denotes an ancient officer of the church, whoſe buſineſs was to defend the cauſe of widows, orphans, and others deſtitute of help. The *adminiculator* is the ſame with what is otherwiſe called ADVOCATE of the poor. Du-Cange.

ADMINICULES, among *Antiquaries*, are applied to the attributes, or ornaments wherewith Juno and ſome other figures are repreſented on medals.

ADMINICULUM, in the French *Juriſprudence*, ſignifies the beginning of a proof; an imperfect proof; or a circumſtance or conjecture, tending to form or fortify a proof.

ADMINISTRATION imports the government or direction of affairs; and particularly the exerciſe of diſtributive juſtice.

Indolent princes conſide the *adminiſtration* of public affairs to their miniſters.—Civil wars are uſually raiſed on pretence of *mal-adminiſtration*, or of abuſes committed in the exerciſe of juſtice, &c.

The two criterions of a good *adminiſtration* in England, according to Trenchard, are, the keeping the nation out of foreign broils, and paying off the public debts; the latter of which depends on the former.

ADMINISTRATION, in the Engliſh *Law*, ſignifies the act, or office, of an adminiſtrator, in managing and diſpoſing of a man's goods, or eſtate, that died inteſtate, or without any will; with an intent to give an account thereof. In this caſe, inſtruments, or powers, called letters of *adminiſtration*, are taken out in the prerogative court.

Theſe letters muſt be granted, 1. to the huſband of the wife's goods and chattels; 2. to the wife, of the huſband's goods and chattels; 3. if there is no huſband or wife, to the children, ſons or daughters; 4. if there be no children alive, to the father or mother; 5. then to a brother or ſiſter of the whole blood, or of the half blood, (who for this purpoſe, are of equal degree with the whole blood); 6. and if there are none ſuch, to the next of kin, or neither, unto be couſin; 7. then to a creditor of the deceaſed; 8. and for want of all theſe, to any other perſon, at the diſcretion of the ordinary; or the ordinary may grant to a ſtranger letters of *adminiſtration cum teſtamento annexo*, or gather up the goods of the deceaſed by, or may take them into his own hands to pay the deceaſed's debts, in ſuch order as an executor or adminiſtrator ought to pay them. But it is ſaid he or the ſtranger, who hath letters *ad colligendum*, cannot ſell them, without making themſelves executors of their own wrong, and action lies only againſt the ordinary, &c. Wood's Inſt. 333.

By ſtat. 21 Hen. VIII. widows, and next of kin, are to be appointed adminiſtrator, and a mother is to have *adminiſtration* of goods of a child, before a brother or ſiſter, &c. But an *adminiſtration* may be granted to the father before a widow; and a reſiduary legatee ought to be preferred before the widow in an *adminiſtration cum teſtamento annexo*. 3 Salk. 21.

On granting *adminiſtration*, bonds with ſureties are to be taken for the adminiſtrator, to make and exhibit an inventory of the goods of the deceaſed, to render a juſt account thereof, and to make a diſtribution of the ſurpluſage after debts paid, according to law, &c. Stat. 22 and 23 Car. II. cap. 10. See ADMINISTRATOR, EXECUTOR, INTESTATE, KINDRED.

ADMINISTRATION is ſometimes alſo uſed for the direction of the affairs of a minor, a pupil, a lunatic, or the like.

ADMINISTRATION is alſo uſed in reſpect of eccleſiaſtical functions; as when a perſon has the *adminiſtration* of the ſacraments, &c.—*Adminiſtration* of the euchariſt is [illegible] perſons excommunicate.

[illegible] matters they diſtinguiſh two kinds of *adminiſtration*, *temporal*, which relates to the temporalities of [illegible], *dioceſe*, &c. and *ſpiritual*, to which belong the [illegible] of excommunicating, &c.

ADMINISTRATION, in *Anatomy*, is uſed for the manner of exerciſing the parts of the body, particularly the MUSCLES. In which ſenſe, *adminiſtration* is ſynonymous with *exciſion*, *excerſe*, &c.

Anatomical *adminiſtrations* are not to be learned by oral precept, but require ocular inſpection.—Galen, Harvey, and others, have diſcourſes expreſs under the title of anatomical *adminiſtrations*.

ADMINISTRATION, in *Commerce*, is alſo uſed for a Spaniſh ſtaple at Calao in Peru, a city on the coaſts of the South Sea, where all ſhips, allowed to trade on the coaſt, are obliged to unload their European goods, and pay certain duties.

ADMINISTRATOR, in *Law*, he to whom the ordinary commits the *adminiſtration* of the goods of a perſon deceaſed, in default of an executor.

An action lies for, or againſt an *adminiſtrator*, as for, or againſt an executor; and he ſhall be accountable to the value of the goods of the deceaſed, and no further:—unleſs there be waſte, or other abuſe chargeable on him. If the *adminiſtrator* die, his executors are not *adminiſtrators*; but the court is to grant a new adminiſtration.—If a ſtranger, who is neither *adminiſtrator*, nor executor, take the goods of the deceaſed, and adminiſter, he ſhall be charged, and ſued as an executor, not as an *adminiſtrator*.

The origin of *adminiſtrators* is derived from the civil law. Their eſtabliſhment in England is owing to a ſtatute made in the thirty-firſt year of Edward III. Till then, no office of this kind was known, beſide that of executor: in caſe of a want of which, the ordinary had the diſpoſal of goods of perſons inteſtate, &c.

There are divers ſorts of *adminiſtrators*.

Adminiſtrator durante minore ætate, is where an infant is entitled to adminiſtration of the goods of an inteſtate; in which caſe adminiſtration is granted to another, until he is of the age of twenty-one years. Though where the infant is made executor, ſuch adminiſtration, during his minority, ceaſes at his coming to the age of ſeventeen. 5 Rep. 29. 6 Rep. 27.

Adminiſtrator cum teſtamento annexo, is one to whom adminiſtration, with the will annexed, is granted, upon an executor's refuſal to prove the teſtament, or upon his dying before the probate. 1 Inſt. 113.

Adminiſtrator de bonis non, &c. is one to whom adminiſtration is granted of the goods of a teſtator remaining unadminiſtered, by reaſon of his executors dying inteſtate. 2 Roll. Abr. 907. There is alſo

Adminiſtrator pendente lite; and *durante abſentia extra regnum*.

If a woman have goods thus committed to her charge, or adminiſtration, ſhe is called *adminiſtratrix*; and is accountable, &c. in like manner as an *adminiſtrator*.

ADMINISTRATOR is alſo uſed for the advocate of a church.

ADMINISTRATOR is alſo uſed for a perſon appointed to receive, manage, and diſtribute the revenues of an hoſpital, or religious houſe.

ADMINISTRATOR, is alſo uſed for a prince who enjoys the revenues of a ſecularized biſhoprick.

Yet this title does not hold univerſally: the king of England, as elector of Brunſwick-Lunenburg, for inſtance, is not called *adminiſtrator*, but duke of Bremen and Verden; and the king of Pruſſia is not *adminiſtrator*, but duke of Magdeburg, and prince of Halberſtadt.

ADMINISTRATOR is alſo uſed for the regent or protector

of a kingdom, during the minority of its proper prince, or even a vacancy of the throne.

The pope pretends to the *administration* of the empire, during a vacancy, by censure, or suspension.

ADMINISTRATOR is sometimes used for the president of a province.

ADMINISTRATRIX; see ADMINISTRATOR.

ADMIRAL, ADMIRALIUS, ADMIRALLUS, a great officer, who commands the naval forces of a kingdom or state, and takes cognizance by himself, or officers appointed by him, of all maritime causes.

Authors are divided about the origin and denomination of this important officer, whom we find established, with some variation, in most kingdoms that border on the sea. Du Cange asserts or, that the Sicilians were the first, and the Genoese the next after them, who gave the denomination *admiral* to the commanders of their naval armaments; and that they took it from the Saracen, or Arabic *amir*, a general name for any commanding officer. —The first *admiral* we read of in English history was under Edward I. But the first title of *admiral* of England conferred upon a subject, was given by patent of Rich. II. to the earl of Arundel and Surry in 1385.

ADMIRAL *of England, the lord high*, in some ancient records called *capitaneus marinarum*, is judge, or president, of the court of admiralty.

He takes cognizance, by himself, his lieutenant, or deputies, of all crimes committed on the sea, or the coast thereof; and all the civil and marine transactions relating thereto: as also of what is done in all great ships, riding in any great river, beneath the bridges thereof next the sea.

Anciently, the *admiral* had also jurisdiction in all causes of merchants and mariners; not only on the sea, but in all foreign parts.—We have had no *high admiral* for some years: the office being put in COMMISSION, or under the administration of the lords *commissioners of the admiralty*.

ADMIRAL is also used for the commander in chief of a single fleet, or SQUADRON; and is distinguished by a flag displayed at his main-top-mast-head.

Thus, we say, the *admiral* of the *red*, the *admiral* of the *white*, and *admiral* of the *blue*. See NAVY and SQUADRON.

The term *admiral* is also applied to all flag-officers; in which sense it includes *vice-admirals*, and *rear-admirals*.

ADMIRAL, *Rear*, is the *admiral* of the third, and last squadron of the royal fleet, and carries his flag at the mizen-top-mast-head.

ADMIRAL, *Vice*, is one of the three principal officers of the royal navy; who commands the second squadron, and has his flag set up at the fore-top-mast-head.

ADMIRAL, *Vice*, is also an officer appointed by the *lord high admiral*, in divers parts of the kingdom, with judges and marshals subordinate to him; for the exercising of jurisdiction in maritime affairs, within his respective limits. There are upwards of twenty *vice-admirals*. From their decisions and sentences, appeal lies to the court of *admiralty* in London.

There are also *admirals of the galleys*.

Monstrelet makes mention of an *admiral of the archers*, or cross-bowmen. See ARBALET.

ADMIRAL is likewise the name of the principal vessel of a fleet, on board of which is the *admiral*.

When two ships of war, bearing the same colours, meet in the same port, that which arrived first, has the title and prerogative of *admiral*; and the other, though of greater strength and rate, shall only be accounted *vice-admiral*.—It is pretty much the same with the vessels in the cod and whale fishery. That which arrives first, in any harbour or creek of Newfoundland, takes the title and quality of *admiral*, which it retains during the whole fishing season.—Such ship may secure to herself as much beech, or flakes, or both, as are necessary for the number of boats she shall use, with an overplus of one boat only more than she uses. —The master of the second ship is *vice-admiral*; and the master of the third, *rear-admiral*. See FISHERY.

ADMIRAL'S *Court*, or the *High Court of Admiralty*. See COURT *of* ADMIRALTY.

ADMIRAL, in *Conchology*, the name given by authors to a very beautiful, and very precious shell, of the *cauda* kind. See *Tab. of Shells*, N° 10.

Of these the curious reckon four species. 1. The grand-*admiral*. 2. The *vice-admiral*. 3. The orange-*admiral*. And, 4. The *extra-admiral*.

The first of these is the most esteemed, and a single shell has been sold, in Holland, for five hundred florins. It is of a very elegant and bright white enamel, and is variegated with bands of yellow, representing in some degree the colours of the flags of a man of war at sea; hence it obtained its name. It is of a very curious shape, and formed with particular elegance about the head; the shoulder being exerted. There runs along the centre of the large yellow band in this shell, a fine denticulated line, which is its distinguishing character.

The *vice-admiral* is an elegant shell, but its head is less beautifully wrought than in the *admiral*, and its broad band wants the dentated line, so remarkable in that.

The orange *admiral* has more yellow than either of the others.

The *extra-admiral* has the same bands with these, but they run one into another, and form a more mixed clouding.

ADMIRATION, in *Ethics*; see PASSIONS.

ADMIRATION, in *Grammar*, a note or character, intimating something worthy to be admired, or wondered at.—It is expressed thus (!) See CHARACTER.

ADMISSION, ADMISSIO, in the *Ecclesiastical Law*, an act whereby a bishop, upon examination, *admits* or allows a clerk to be able, or competently qualified for the office; which is done by the formula *admitto te habilem*.

All persons are to have an episcopal ordination before they are admitted to any parsonage or benefice; and if any shall presume to be admitted, not having such ordination, &c. he shall forfeit 100*l*. STAT. 14 Car. II.

No person is to be admitted into a benefice with cure of 30*l*. *per ann.* in the king's books, unless he is a bachelor in divinity at least, or a preacher lawfully allowed by some bishop, &c.

ADMITTENDO *Clericum*, is a writ granted to him who hath removed his right of presentation against the bishop in the common pleas.

ADMITTENDO *in Socium*, is a writ for the association of certain persons to JUSTICES of ASSIZE formerly appointed.

ADMONITION, in *Ecclesiastical Affairs*, a part of discipline much used in the ancient church. It was the first act, or step, towards the punishment, or expulsion of delinquents. In case of private offences, it was performed according to the evangelical rule, privately; in case of public offence, openly before the church. If either of those took effect, for the recovery of the fallen person, all farther proceedings, in the way of censure, ceased: if they did not, recourse was had to EXCOMMUNICATION. Bing. Orig. Eccles. tom. ii. lib. 16. cap. 2. § 6. p. 31. Calv. Inst. lib. iv. cap. 12. § 2.

By the ancient canons, nine monitories or admonitions, at due distance, are required before excommunication.

ADMONITION is also used, in *writers of the barbarous age*, for the CITATION, or summoning a person to appear in a court of justice. See SUMMONS, &c.

ADMONITIO FURTIVA, a military punishment, among the Romans, resembling, in some respects, our whipping or lashing, but performed with a vine-branch. Stehlerman Diss. de Pœn. Mil. Rom. cap. 12.

ADMORTIZATION, among *French writers*, the act of reducing lands to MORTMAIN.

ADNATA, in *Anatomy*, a thick white membrane, investing the ball of the eye; and making the outermost coat thereof: called also *tunica conjunctiva*, or *communis*.

It is the *tunica adnata* that makes what we commonly call the *white* of the EYE; whence it is also called the ALBUGINEA.

The *adnata* springs from the *periosteum*, and grows to the exterior part of the *tunica cornea*, forming in concert the white eye both to the *cuphoræ*, and the adjacent bones, and thus keep it fast in the *orbita*; whence it is also called *conjunctiva*.

To leave room for the visible species to pass through it, a little round aperture is left in the fore-part, called the *sight*, through which the RAIS and PUPILLA appear.

The *adnata* abounds with veins and arteries, which, though ordinarily not visible, are conspicuous in opthalmies, which are properly inflammations of this part. The academists *Naturæ Curiosi* give the history of a dropsy of the *adnata*, and its cure. Ephem. Germ. Dec. 3. An. 3. Obs. 3. p. 4.

ADNATA, or ADNASCENTIA, among *Gardeners*, denote those off-sets, which by a new germination under the earth, proceed from the lily, narcissus, hyacinth, and other flowers, and afterwards grow to true roots. The French call them *cayeux*, *filets*.

ADNATA is also a term used for such things as grow upon animal or vegetable bodies, either inseparably, as hair, wool, horns, &c. or accidentally, as the several epithical plants.

ADNOUN, ADNOMEN, or ADNAME, is used by some *Grammarians* to express what we most usually call an ADJECTIVE.

ADOCTO, *q. d.* to the eighth number; a term used by some ancient philosophers, to denote the highest, or superlative degree; because, in their way of distinguishing qualities, they reckoned no degree above the eighth.

ADOLESCENS signifies the iron bars that support the fire in a grate or furnace.

ADOLESCENCE, ADOLESCENTIA, the state of growing youth; or that period of a person's age commencing from his infancy, and terminating at his full stature or manhood.

The word is formed of the Latin *adolescere*, *to grow*.

The state of *adolescence* lasts so long as the fibres continue to grow, either in magnitude or firmness.

It is commonly computed to be between 15 and 25, or

even 30 years of age; though in different constitutions in this climate very different.—The Romans usually reckoned it from 12 to 25 in boys; and 10 or 12 in girls, &c.—And yet, among their writers, *puberes* and *adolescentes* are frequently used indifferently, for any person under 25 years. The fibres, being arrived at a degree of firmness and tension sufficient to sustain the parts, no longer yield and give way to the efforts of the nutritious matter, to extend them: so that their farther accretion is stopped from the very law of their nutrition.

ADONAI, one of the names of God in Scripture: this word signifies properly *my lords*, in the plural number, as *Adon* signifies *my lord*, in the singular number. The Jews, who either out of respect, or superstition, do not pronounce the name of *Jehovah*, read *Adonai* in the room of it, as often as they meet with *Jehovah* in the Hebrew text. But the ancient Jews were not so nice; there is no law which forbids them to pronounce the name of God. Calmet.

ADONIA, in *Antiquity*, solemn feasts, in honour of Venus, and in memory of her beloved Adonis.

They were begun by the women, who imitated the cries and lamentations of Venus, for the death of her paramour.—When they were weary of lamenting his death, they changed their note, and sung his praise, and made rejoicings, as if he were raised to life again: or rather, according to Meursius, these two offices made two annual feasts, which were held at different times of the year, the one six months after the other; Adonis being supposed to pass half the year with Proserpine, and half with Venus. The *Adonia* were observed with great solemnity by many nations, Greeks, Phœnicians, Lycians, Syrians, Egyptians, &c. To these the prophet Ezekiel is supposed to refer, chap. viii. ver. 14. Bishop Patrick takes their origin from the slaughter of the first-born in the time of Moses. Patrick, Comm. ad loc.

The *Adonia* were otherwise called *Salambo*. The abbé Banier has a memoir on the history of the *adonia*. Mem. Acad. Inscript. tom. iv.

ADONIC, in *Poetry*, denotes a short kind of verse, consisting of a dactyl and a spondee, or a trochee. As *vare mecum*.

It takes its name from Adonis, as having been originally used in the Threnæ, or lamentations for that favourite.

The chief use of the *Adonic* verse is at the end of each strophe of Sapphic verses; or among Asiclepiadic anapæsts in the ancient tragedy. But we meet with *Adonics* by themselves without Sapphics, as alfo Sapphics without *Adonics*. See an instance of *Adonic* verses in Boethius, de Consol. Philof. lib. i. p. 67. Comm. poet. &c.

ADONIDES, in *Botany*, are those writers, who have given histories, or catalogues of the plants cultivated in some particular place. Lemonon.

ADONION, among the *Ancient Botanists*, a species of *fothernwood*, according to Gesnerus, which also to be set in pots, and served as an ornament for gardens.

ADONIS, in *Ichthyology*, the name of a small fish, of the anguilliform kind, of a cylindric shape, and about six inches long: it is of a gold colour, mixt with a greenish hue in some parts, and in others with a reddish. It has, on each side, a white straight line running from the gills to the tail. Its gills are remarkably small, and many have supposed thence that it had none. It is remarkable for sleeping on the surface of the water, and near the shores; and Rondeletius affirms, that he has seen them sleeping upon the dry rocks.

Mr. Ray suspects this fish, which is also called *catostoma*, to be the same with the ERYTHRINUS of Bellonius, or the GOTTORUGINE.

ADONIS *fea*; see PHEASANT'S *eye*.

ADONIS *potio*, an ancient beverage or drink made of wine, mixed with the flour of roasted barley, the same with what was otherwise called CYCEON.

ADONISTS, a sect or party, among *Divines* and *Critics*, who maintain, that the Hebrew points ordinarily annexed to the consonants of the word Jehovah, are not the natural points belonging to that word, nor express the true pronunciation of it, but are the vowel-points belonging to the words *Adonai* and *Elohim*, applied to the consonants of the ineffable name Jehovah; to warn the readers, that instead of the word Jehovah, which the Jews were forbid to pronounce, and the true pronunciation of which had been long unknown to them, they are always to read *Adonai*. They are opposed to *Jehovists*, of whom the principal are Drusius, Capellus, Buxtorf, Alting, and Reland, who has published a collection of their writings on this subject.

ADOPTER, in *Chemistry*, see RECEIVER.

ADOPTIANI, in *Church History*, a sect in the eighth century, whose distinguishing tenet was, that Christ, as to his human nature, was not the proper, or natural, but only the adoptive son of God.

ADOPTION, ADOPTIO, an act by which any one takes another into his family, owns him for his son, and appoints him his heir.

The word is derived from *adoptare*, whence the Latin historians *adoptare*, to make a knight.

The custom of *adopting* was very familiar among the ancient Romans, who had an express formula for it.—They still learnt it from the Greeks, among whom it was called θεσις, *positio*.

As *adoption* was a sort of imitation of nature, intended for the comfort of those who had no children, eunuchs were not allowed to *adopt*; as being under an actual impotency of begetting children.

Neither was it lawful for a young man to *adopt* an elder; because that would have been contrary to the order of nature; but it was even required, that the person who *adopted*, should be eighteen years older than his adoptive son, that there might at least appear a probability of his being the natural father.

The Romans had two forms of *adoption*; the one before the people, the other in an assembly of the people, in the times of the [illegible] commonwealth, and afterwards by a rescript of the [illegible]

In the [illegible] father addressed himself to the [illegible] emancipated his son, resigned [illegible] him, and constituted he should be [illegible] family of the adopter.

The manner of *adoption* was practised, where the [illegible] *adopted* was already free; and this was called *arrogation*.

The person *adopted* changed all his names; assuming the praenomen, name, and surname, of the person who *adopted* him.

Besides the *formalities* prescribed by the Roman law, divers other methods have taken place; which have given denominations to divers species of *adoption*, among the Gothic nations, in different ages. As,

ADOPTION *by arms*, was when a prince made a present of arms to a person, in consideration of his merit and valour.—Thus it was that the king of the Heruli was *adopted* by Theodoric; Athalaric by the emperor Justinian; and Cosroes, prince of the king of Persia, by the emperor Justin.

This method of *adoption*, practised in Germany, was called *barbarous*, by way of opposition to the Roman custom.

The obligation here laid on the *adoptive* son, was to protect and defend the father from injuries, affronts, &c.—And hence the ceremony of dubbing knights took its origin as well as name. Selden, Tit. of Hon. p. 865.

ADOPTION *by baptism*, is that spiritual affinity which is contracted by god-fathers and god-children in the ceremony of baptism.

This kind of *adoption* was introduced into the Greek church, and came afterwards into use among the ancient Franks, as appears by the Capitulars of Charlemagne.

In reality, the god-father was so far considered as *adoptive* father, that his god-children were supposed to be entitled to a share in the inheritance of his estate. Du Cange.

ADOPTION *by hair*, *adoptio per capillum*, or *crines*, was performed by cutting off the hair of a person, and giving it to the *adoptive* father. It was thus that pope John VIII. *adopted* Boson king of Arles; which, perhaps, is the only instance in history of *adoption*, in the order of ecclesiastics; a law that probibits by its nature, not daring to give children to those in whom it would be thought a crime to beget any.

ADOPTION *by matrimony*, is the taking the children of a wife or husband, by a former marriage, into the condition of proper or natural children; and admitting them to inherit on the same footing with those of the present marriage. This is a practice peculiar to the Germans; among whom, it is more particularly known by the name of *sonnenschorr*; among their writers in Latin, by that of *sonnesium*, or *sonnium of stirpes*. But the more accurate writers observe, that this is no *adoption*. See AUTIGNATION.

ADOPTION *by testament*, that performed by appointing a person heir by will, on condition of his assuming the name, arms, &c. of the *adopter*.

Of which kind, we meet with divers instances in the Roman history.

Adoption was allowed among the Greeks to such as had no issue of their own; excepting those who were not *sui juris*, *viz.* *sons under power*, *i. e.* slaves, women, madmen, infants, or persons under twenty years of age; who being incapable of taking wife, or managing their own estates, were not allowed to adopt heirs to them. Foreigners being incapable of inheriting at Athens, if any such were *adopted*, it was necessary first to make them free of the city. The ceremony of *adoption* being over, the *adopted* had his name inrolled in the tribe and ward of his new father; for which entry a peculiar term was allotted, viz. the festival of [illegible]

To prevent ruin and inconsiderate *adoption*, the Lacedæmonians had a law, that *adoption* should be transacted, or at least confirmed, in the presence of their kings. The children *adopted* were invested with all the privileges, and obliged to perform all the duties, of natural children; and being thus provided for in another family, ceased to have any claim of inheritance, or kindred, in the family which they had left, unless they still renounced their *adoption*; which, by the laws of Solon, they were not allowed to do, unless they had first begotten children, to bear the name of the person who had *adopted* them: thus providing against the ruin of families, which would otherwise have been extinguished by the desertion of those who had been *adopted* to preserve them. If the children *adopted* happened to die without children, the inheritance could not be alienated from the family into which they had been *adopted*, but returned to the relations of the *adopter*. It should seem, that by the Athenian law, a person, after having *adopted* another, was not allowed to marry, without permission from the magistrate: in effect, there are instances of persons, who being ill used by their *adoptive* children, petitioned for such leave. However this be, it is certain some men married after they had *adopted* sons in other cases, if they begat legitimate children, their estate were equally shared between the begotten and *adopted*.

Among the Turks, by the law of Mahomet, *adoption* is an impediment of marriage. The ceremony of *adoption* is performed by obliging the person *adopted* to pass through the shirt of the *adopter*. Hence, among that people, to *adopt* is expressed by the phrase, *to draw another through one's shirt*. It is said that something like this has also been observed among the Hebrews; where the prophet Elijah *adopted* Elisha for his son and successor, and communicated to him the gift of prophecy, by letting fall his cloke, or mantle, on him.

But *adoption*, properly so called, does not appear to have been practised among the ancient Jews.

Adoption is now in most countries abolished, though it has been said to subsist in some provinces of France.

ADOPTION is also used, in *Theology*, for a several act of God's free grace; whereby those that are regenerate by faith, are admitted into his household, and instiled to a share in the inheritance of the kingdom of heaven.

ADOPTION is sometimes also used, in speaking of the ancient clergy, who had a custom of taking a maid or widow into their houses, under the denomination of an *adoptive* or spiritual sister, or niece. Du Cange.

ADOPTION is also used in speaking of the admission of persons into certain hospitals, particularly that of Lyons; the administrators whereof have all the power and rights of parents over the children admitted.

ADOPTION is also used for the reception of a new academy into the body of an old one.

In which sense, *adoption* amounts to much the same with *incorporation*.

The French academy of Marseilles was *adopted* by that of Paris; on which account, we find a volume of speeches extant, made by several members of the academy of Marseilles, deputed to return thanks to that of Paris, for the honour.

In a sense, not unlike this, *adoption* is also applied by the Greeks, to the admitting a monk, or brother, into a monastic community; sometimes called spiritual *adoption*.

ADOPTIVE, ADOPTIVUS, or ADOPTITIUS, denotes a person *adopted* by another.

Adoptive children, among the Romans, were on the same footing with natural ones; for which reason, they were either to be instituted *heirs*, or expressly disinherited; otherwise the testament was null.

The emperor Adrian preferred *adoptive* children to natural ones; because we choose the former, but are obliged to take the latter at random.

M. Menage has published a book of elegies, or verses, addressed to him; which he calls *Liber Adoptivus*, an *adoptive book*; and adds it to his other works.—Heinsius, and Furstemburg of Munster, have likewise published *adoptive* books.

ADOPTIVE, in *Ecclesiastical Writers* we find *adoptive* women, or sisters, *adoptivæ famulæ, or sorores*, used for those handmaids of the ancient clergy, otherwise called *subintroductæ*.

ADOPTIVE *arms* are those which a person enjoys by the gift or concession of another; and to which he was not otherwise entitled. They stand contradistinguished from arms of *alliance*.

ADOPTIVE is also used to express a thing borrowed or taken from another. In which sense we sometimes meet with *adoptive time*, by way of opposition to natural time; and *adoptive gods*, by way of contradistinction to domestic ones. The Romans, notwithstanding the number of their domestic, had their *adoptive* gods, taken chiefly from the Egyptians: such were Isis, Osiris, Anubis, Apis, Harpocrates, and Canopus.

ADOPTIVI, in *Church History*. See ADOPTIANI.

ADOR signifies a species of corn called SPELTS and RYE.

ADORATION, the act of rendering divine honours; or of addressing God, or a being, as supposing it a god. See WORSHIP.

The word is compounded of *ad*, *to*, and *os*, *mouth*; and literally signifies to apply the hands to the mouth; *manum ad os admovere*, q. d. *to kiss the hand*; this being, in the eastern countries, one of the great marks of respect and submission.

The ceremony of *adoration* among the ancient Romans was thus: the devotee having his head covered, applied his right hand to his lips, the fore-finger resting on the thumb, which was erect, and thus bowing his head, turned himself round from left to right. The kiss thus given was called *osculum labratum*; for ordinarily they were afraid to touch the images of their gods themselves with their profane lips. Sometimes, however, they would kiss their feet, or even knees, it being held an incivility to touch their mouths; to this the altar pulled at some distance. Others pretend, that they first kissed not the hand, and afterwards drew it back to their lips; but it rather appears, that the contrary order was observed. Satan, however, and Hercules, were *adored* with the head bare; whence the worship of the last was called *infamous perceptions*, and *nuda sacraments*, as departing from the Roman customary method, which was to sacrifice and adore with the face veiled, and the clothes drawn up to the ears, to prevent any interruption in the ceremony, by the sight of unlucky objects.

Sometimes also prostration, or falling on the face, and sometimes kneeling, were practised: sometimes they turned towards the sun, and sometimes to the east.

Other circumstances of *adoration* were the putting crowns, garlands, and the like, on the statues or images *adored*; falling down by them; praying to them, in soft trembling murmurs, to be favourable, *favens nibi*.

The Romans practised *adoration* at sacrifices, and other solemnities, in passing by temples, altars, groves, &c. at the sight of statues, images, or the like, whether of stone or wood, wherein any thing of divinity was supposed to reside. Usually there were images of the gods placed at the gates of cities, for those who went in, or out, to pay their respects to.

The Greeks, instead of turning about to the right hand, after the Roman manner, thought it more religious to turn to the left.

In the symbols of Pythagoras, *adoration* is enjoined to be performed in a sitting posture, genuflexion being then unknown.

The Jewish manner of *adoration* was by prostration, bowing and kneeling. Pinchon has a discourse express on the form of the Jewish *adoration*. The Christians adopted the Grecian rather than the Roman method, and *adored* always uncovered. The ordinary posture of the ancient Christians was kneeling, but on Sundays, standing. In this they conformed to the heathens, that a peculiar regard was had to the east, to which point they ordinarily directed their prayers; which occasioned a belief among the heathens, as if they *adored* the sun. Something of this usage is still retained, as appears by the position of our churches. A modern author has discovered an error of the builders in this respect, many of our ancient churches being found to vary several degrees from the true east and west. Plato's Hist. Stuff. chap. iv. § 55. p. 362.

ADORATION is also used for certain extraordinary civil honours, *or respects*, which resemble those paid to the Deity, yet are given to men.

We read of *adorations* paid to kings, princes, emperors, popes, bishops, abbots, &c. *Adorations* paid to the people, to the person. *Adoration* by kneeling, by falling prostrate, kissing feet, hand, garment, &c.

The Persian manner of *adoration*, introduced by Cyrus, was by binding the knee, and falling on the face at the prince's feet, striking the earth with the forehead, and kissing the ground. The ceremony, which the Greeks called *apyrexia*, Conon refused to perform to Artaxerxes, and Callisthenes to Alexander the Great, as reputing it impious and unlawful.

The *adoration* performed to the Roman and Grecian emperors, consisted in bowing, or kneeling at the prince's feet, laying hold of his purple robe, and privately withdrawing the hand, and clapping it to the lips. Some attribute the origin of this practice to Constantius. They were only persons of some rank or dignity that were invited to the honour. Paris kneeling before the emperor to deliver a petition, was also called *adoration*.

It is particularly said of Diocletian, that he had gems fastened to his shoes, that divine honours might be more willingly paid him, by kissing his feet. The like usage was afterwards adopted by the popes, and is observed to this

ADORATION is also used, in the court of Rome, for the ceremony of kissing the pope's feet.

These prelates finding a vehement disposition in the people to fall down before them, and kiss their feet, procured crucifixes to be fastened on their slippers; by which stratagem, the *adoration* intended for the pope's person, is supposed to be transferred to Christ. Divers acts of this *adoration* we find offered even by princes to the pope.

We are told, that in the ancient church the same ceremony was practised to all bishops; people kissed their feet, and saluted them with the phrase *osculor te, I adore thee.*

The practice of *adoration* may be said to be still subsisting in England, in the ceremony of kissing the king's, or queen's hand, and in serving them at table, both being performed kneeling.

ADORATION is also particularly used for the ceremony of *omnigo*, or paying homage to a new elected pope.

Adoration properly is paid only to the pope, when placed on the altar, in which posture the cardinals, conclavists alone, are admitted to kiss his feet. The people are afterwards admitted to do the like at St. Peter's church; the ceremony is described at large by Guicciardin.

ADORATION is also used for a method of electing a pope without scrutiny, or voting.—In the election by *adoration*, the cardinals rush hastily, as if agitated by some fright, and fall impetuously to the *adoration* of some one among them, and proclaim him pope.

In the election by scrutiny, *adoration* is the last thing, as it follows the election; as in the other it is the electa itself, or rather supersedes the election.

ADORATION is more particularly used for kissing one's hand in the presence of another, as a token of reverence.

The Jews *adored* by kissing their hands, and bowing down their heads; whence in their language *kissing* is properly used for *adoration*. Calmet.

ADORATION is also used among Roman writers, for a high species of applause given to persons, who had spoken or performed well in public. The method of expressing it was, by rising, putting both hands to their mouth, and then returning them towards the person intended to be honoured.

ADORATION is of divers kinds and qualities; *supreme* and *subordinate*; *absolute* and *limited*; *direct* and *indirect*; *relative* and *terminal*; *internal* and *external*; *secret* and *open*.

ADORATION, *external*, coincides with what is otherwise called *ritual worship*.

ADORATION, *internal*, coincides with spiritual *adoration*, called also *mental* or *true* in spirit and truth.

ADORATION, *latria*, that performed in public, with stated ceremonies prescribed by authority, in opposition to private, or tacit, or implicit *adoration*.

ADORATION, *supreme*, the highest degree of religious honour or worship rendered to a being, as supposing him the supreme God; in opposition to subordinate worship given to inferior beings.

ADORATION, *absolute*, that rendered immediately to a being in consideration of his own essential perfections, and terminating in himself. This coincides with immediate *adoration*, and stands opposed to relative or mediate *adoration*. Cicarius has an express dissertation on the *adoration* of the Father by the Son.

ADORATION, *relative*, is that worship paid to an object, as belonging to, or representative of another.

In which sense the Romanists profess to adore the cross, not simply or immediately, which they allow would be idolatry, but in respect of Jesus Christ, whom they suppose to be on it. The Jesuits in China carry an image of Christ under their cassocks, and to this refer mentally the public *adorations* they offer to Confucius. Vid. Father Le Comte, &c.

ADORATION, *perpetual*, is a kind of society or association of devout persons, established in Romish countries, who take their turns to pray before the eucharist, regularly relieving each other, so that the service never ceases day nor night.

The members of the perpetual *adoration* answer to the ACOEMETÆ in the eastern church.

We find societies under this denomination in France, Germany, Italy, &c.

ADORATION, *Turkish*, is a term used in the laws of king Canute, for that performed after the heathen manner, who *adored* idols.

The Thracians *adored* the winds, on account of the terrible effects produced by them; the same was adopted by most of the other nations, Persians, Greeks, Romans, &c.

The Englishmen *adored* tortoises, as something peculiarly sacred; several people *adored* weapons, and instruments of war. The Scythians, &c. *adored* swords, the Romans axes, the Arabs flames, the Indians *adored* vipers, the Polygonite and Cataddeite the fetus the latter of which nations is also said to *adore* the cross. The Blanes, a Peruvian people, in the island of Puna, anciently *adored* a huge emerald, of the bigness of an ostrich's egg, by offering to it other emeralds of a less size. All which the priests kept for their own use; the doctrine, as Garcilasso observes, being founded on their avarice.

The Persians chiefly paid their *adoration* to the sun and fire, some say also to rivers, the wind, &c. The motive of *adoring* the sun was the benefits they received from that glorious luminary, which, of all created lubsistances, has double of the best price for such homage; the institution of the fire-worship is usually referred to Zoroaster. The retainers to it are called GUEBRES; by the Persians, Ghebr Arabs, Parsis, Parsees, Parsoth.

Dr. Hyde reduces the Persian fire-worship to a subordinate kind of honour, to service, which he calls *syncdulia*, defending that people from any charge of *latreia*, or idolatry of fire. A late traveller into those parts, Gemelli Carreri, does the same.

The Greeks and Romans also *adored* fire under the name of VESTA. Pliny mentions the method of *adoring* lightnings, which was by popisma, or gentle clappings of the hands.

The Jews have been charged by heathens with *adoring* the vine, the head, &c. By Christians, with *adoring* the [illegible] a charge which one of their rabbies [illegible], has been at the pains to remove.

[illegible] golden calf, into which they fell in [illegible] seems to have been borrowed, like many [illegible] ceremonies, from the Egyptians.

The Egyptians are said to have paid *adoration* to divers animals, plants, fishes, &c. the crocodile, the ibis, onions, &c. But those were only symbolical, or relative acts of homage; they *adored* the sun in a more peculiar manner, under the name of Osiris.

It is disputed, whether the Chinese pay divine or only civil honours to the statues of Confucius, and their ancestors. That people, however, appear to *adore* heaven; whence the inscription in all their temples, and which even the Christians are said to have retained in their churches, *king tien*, i. e. *adora heaven*.

The Indians are said to *adore* the devil. Some charge the same on the Bramins.

ADOREA, in *Roman Antiquity*, a word used in different senses; sometimes for all manner of grain, sometimes for a kind of cakes made of fine flour, and offered in sacrifice; and finally for a dole or distribution of corn, as a reward for some service; whence by metonymy it is put for praise or rewards in general.

ADOS signifies water, in which iron-hot iron has been extinguished.

ADOSCULATION is used, by some *Naturalists*, for a species of copulation or impregnation, by mere external contact between the genital parts of the two sexes, without intromission.

Such is that of plants, by the falling of the *farina fœcundans* on the pistil, or uterus.

Divers kinds of birds and fishes are also impregnated by *adosculation*. Grew Anat. of Plants, chap. v. §9.

ADOSSE'E is used, in *Heraldry*, to denote two figures or bearings, placed back to back.

The arms of the duchy of Bar are two barr *adossées*.

ADOXA, in *Botany*, a name given by Linnæus to the genus of plants, called by other writers MOSCHATELLINA. They are ranked among the *octandria tetragynia*.

ADPERCEPTION, in the Leibnitian style, denotes the act whereby the mind becomes conscious to itself of a perception.

AD PONDUS *Omnium*, to the weight of the whole; an abbreviation among *Physicians*, &c. signifying, that the last prescribed ingredient is to weigh as much as all the others put together.

ADQUISITUS, in some *Ancient Latin Writers of Music*, is used for the note, or chord, which the Greeks called *προσλαμβανόμενος*. See DIAGRAM.

AD QUOD *Damnum*, a writ directed to the sheriff, commanding him to inquire what hurt may befal the king by granting a fair, or market, or any town or place.

The form writ also obtains for an inquiry to be made of what the king, or other person, may suffer, by granting lands in fee-simple to a convent, chapter, or other body politic; by reason such land falls into MORTMAIN.

The writ *Ad quod damnum* is also had for the turning and changing of ancient highways; which may not be done without the king's licence obtained by this writ, or inquisition found that such change will not be detrimental to the public. Vaugh. Rep. 341. Ways turned without this authority are not esteemed highways, so as to oblige the inhabitants of the hundred to make amends for robberies; nor have the subjects an interest therein to justify going there. 3 Cro. 207. If any one change a highway without the authority, he may stop the way at his pleasure. Dav. for the Prince 8 and 9 W. III. case. As for enlarging of highways by order of justices of peace, &c. Where any common way shall be enlarged after a writ of *ad quod damnum* executed, any person

grieved by such enclosure, may complain to the justices at the next quarter sessions; but if no such complaint or appeal be made, then the inquisition and return, recorded by the clerk of the peace, shall be for ever binding. 8 and 9 W. III.

ADRACHNE, in *Botany*, the strawberry-bay. It grows plentifully in the island of Candy, on the hills of Leuce, and in other places among the rocks, more like a shrub than a tree. It flowers and bears fruit twice in the year, as does the arbutus strawberry-tree. It is also called *adracla*, and ANDRACHNE.

ADRACLA, another name for the preceding shrub. See ANDRACHNE.

ADRAGANTH, see TRAGACANTH; the same as gum *dragant*.

ADRAM, a name given to SAL gem.

ADRASTEA, or ADRASTIA, in *Antiquity*, an epithet given to the goddess Nemesis, or Revenge.

It was taken from king Adrastus, who first erected a temple to that deity.

ADRASTIA *certamina*, in *Antiquity*, a kind of Pythian games, instituted by Adrastus king of Argos, in the year of the world 2700, in honour of Apollo, at Sicyon.

These are to be distinguished from the Pythian games celebrated at Delphi.

ADRIANISTS, a branch of *Anabaptists*, the disciples of Adrian Hamstedius, in the sixteenth century, who taught first in Zealand, and afterwards in England.

The *Adrianists*, besides the common dogma of anabaptism, are said to have had some peculiar notions relating to the person of Christ. Theodoret mentions a more ancient sect of this name, who were followers of Simon Magus.

ADRIFT; a vessel broke from her moorings, and driven by the wind or waves, is said to be *adrift*.

ADRIUNE, in *Botany*, a name given by the Arabian writers to the plant known at this time by the name of *cyclamen*, or sow-bread.

ADROBOLON, another name for the Indian BDELLIUM.

ADROGATION, in *Antiquity*, a species of adoption, whereby a person who was capable of choosing for himself, was admitted by another into the relation of a son.

The word is compounded of *ad*, *to*, and *rogare*, *to ask*; on account of a question put in the ceremony of it, whether the adopter would take such a person for his son; and another to the adoptive, whether he consented to become such a person's son?

ADROP, among *Alchemists*, denotes either that precise matter, as lead, out of which the mercury is to be extracted for the philosophers stone; or it denotes the philosophers stone itself, inasmuch as this is also called *saturn* and *plumbum*, or lead, *azar*, *azante*, and *lapis ipse*.

ADROTERON; see ALICA.

ADSAMAR, See URINE.

ADSCRIPTS is used by some *Mathematicians*, for the natural tangent, called also, by Vieta, *prosines*.

ADSIDELA, in *Antiquity*, a table at which the flamens sat, when they offered sacrifice.

ADSIGNIFICATION, among *Schoolmen*, the act of noting or signifying any thing, with the addition of the time when it happened.

ADSTRICTION, among *Physicians*, is used to denote the too great rigidity and closeness of the emunctories of the body; particularly the pores of the skin: also to signify the styptic quality of medicines. See ASTRINGENTS.

AD TERMINUM *qui præterit*, is a writ of entry, which lies where a man, having leased lands or tenements for term of life, or years, is, after the term expired, held from them by the tenant, or other stranger, who enjoys the same, and deforceth the lessor.—The same writ also lies for the lessor's heir.

ADVANCE, in *Commerce*, denotes money paid before goods are delivered, work done, or business performed. To pay a note of hand, or bill by *advance*, is to pay the value before it becomes due, in which case it is usual to allow a discount for the time it is paid advanced.

ADUAR, a kind of ambulatory village, wherein Arab families inhabit, in a sort of tents, moveable on occasion, as forage and provisions suit. Some also write the word *adowar*, and *adouard*. There are reckoned thirty thousand *aduars* in the kingdom of Algiers.

ADVANCE-FOSSE, or DITCH, in *Fortification*, denotes a ditch of water round the *esplanade*, or GLACIS of a place; to prevent its being surprized by the besiegers. See FOSSE.

ADVANCE-GUARD, or VAN-GUARD, in the *Military Art*, is the first line, or division of an army ranged, or marching in battle-array; or that part of it which is next the enemy, or which marches first toward them.

The whole body of an army is divided into *advance-guard*, *arrear-guard*, and *main-body*.

The word is sometimes also applied to a small party of horse, viz. 15, or 20, commanded by a lieutenant, beyond, and in sight of the main-guard.

ADVANCER, among *Hunters*, is one of the starts or branches of a buck's attire, between the back antler and the palm.

ADVENT, ADVENTUS, in the calendar, the time immediately preceding Christmas; anciently employed in pious preparation for the *adventus*, or coming on, of the feast of the Nativity.

Advent includes four Sundays, or weeks; commencing either from the Sunday which falls on St. Andrew's day, or that next before or after it, i. e. from the Sunday which falls between the 27th of November, and the third of December inclusive.—But it is to be noted, this rule has not always obtained.—In the Ambrosian office, there are six weeks marked for *Advent*, and St. Gregory, in his Sacramentary, allows five.

The first week of *Advent*, in our way of reckoning, is that wherein it begins; but it was anciently otherwise; the week NEXT Christmas being reputed the first; and the numeration carried backwards.

Great austerity was practised in the ancient church during this season.—At first they fasted three days a week; but they were afterwards obliged to fast every day; whence the season is frequently called in ancient writers, *Lent*, and *Quadragesimæ S. Martini*.

The courts of justice were at one time all shut.

ADVENT is also one of the times from the beginning whereof, to the end of the octaves of the Epiphany, the solemnizing of MARRIAGE is forbid, without express licence.

ADVENTITIA *cœna*, in *Antiquity*, an entertainment made by the friend of a person who had been travelling, by way of welcome at his return. This was otherwise called *cœna adventoria*. Pitiscus.

ADVENTITIOUS, something accruing or befalling a person, or thing, from without.

Thus, *adventitious* matter is such matter as doth not properly belong to any body, but is casually joined to it.

ADVENTITIOUS, in the *Civil Law*, is applied to such goods as fall to a man, either by mere fortune, or by the liberality of a stranger, or by collateral, not direct succession.

In this sense, the word stands opposed to *profectitious*; by which are signified such goods as descend in a direct line, from father to son.

ADVENTITIOUS *fossils*, are foreign or extraneous ones, found incorporated with others, to which they do not properly belong. Such as sea-shells, &c.

AD VENTREM *inspiciendum*, in *Law*. See VENTRE *inspiciendo*.

ADVENTURE, an extraordinary and surprising enterprize, or accident, either real, or fictitious.

The word is French, and literally denotes an event, or accident.

Novels, romances, &c. are chiefly taken up in relating the *adventures* of cavaliers, lovers, &c.

ADVENTURE, in *Commerce*, a bill of *adventure* is a writing signed by a merchant, attesting that the property of goods shipped, or sent away in his name, belongs to another, the *adventure* or chance whereof the said person is to stand, with a covenant to account to him for the produce of it.

ADVENTURER, see MINE-*adventurer*.

ADVENTURERS is particularly used for an ancient company of merchants and traders, erected for the discovery of lands, territories, trades, &c. unknown.

The society of *adventurers* had its rise in Burgundy, and its first establishment from John duke of Brabant, in 1296; being since known by the name of the *Brotherhood of St. Thomas à Becket*. It was afterwards translated into England, and successively confirmed by Edward III. and IV. Richard III. Henry IV. V. VI. and VII. who gave it the appellation of MERCHANT-*adventurers*; by Henry VIII. and queen Elizabeth, who in 1564 formed it into an English corporation; and by succeeding kings.

By our statutes, *adventurers* making settlements in any part of America belonging to the enemy, may obtain a charter from the king. Stat. 13 Geo. II. c. 4. sect. 13.

ADVERB, ADVERBIUM, in *Grammar*, a particle joined to a verb, adjective, or participle, to explain their manner of acting or suffering; or to mark some circumstance or quality signified by them.

The word is formed from the preposition, *ad*, *to*, and *verbum*, *a verb*; and signifies literally a word joined to a verb, to shew how, when or where, one is, does or suffers; as, the boy paints *neatly*, writes *ill*; the house stands *there*, &c.

Not that the *adverb* is confined purely to the verbs; but because that is its most ordinary use. Whence it becomes so denominated κατ' ἐξοχην. We frequently find it joined to adjectives, and sometimes even to substantives, particularly where those substantives signify an attribute, or quality of the thing spoken of; v. gr. he is *very* sick; he is *truly* king.

An *adverb* is likewise joined sometimes to another *adverb*, to modify its meaning; v. gr. *very devoutly*, &c. Whence

some grammarians choose rather to call *adverbs* modificatives; comprising under this one general term, *adverbs*, conjunctions, prepositions, and even adjectives.

Adverbs are very numerous; but they may be reduced under the general classes of *adverbs* of time, of place, of order, of quantity, of quality, of manner, of interrogation, of affirmation, of denegation, of diminution, of doubting, of exception, and of comparison.

Adverbs are denominated by Mr. Harris attributes of attributes, or attributives of the second order. Hermes, p. 192.

ADVERBIAL, something relating to *adverb*. We say an *adverbial* phrase, *adverbial* expression, &c.

ADVERBIAL *numbers* are sometimes used to denote once, twice, thrice, &c.

ADVERSARIA, among the *Ancients*, was used for a book of accounts, like our journal or day-book.

Hence, ADVERSARIA is sometimes also used among us for a *common place-book*.

Adversaria amounts to the same with *epistlographia*, *excerpta*, or *memoriale*; and stands opposed to *codex*; the former being for occasional matters which were taken down hastily, from which they were afterwards transcribed into the latter, in a fair regular manner, for standing use. Morhof. Polyhist. lib. iii. cap. 1.

ADVERSARIA is also a title given to divers books, containing collections of miscellaneous observations, remarks, &c.

In which sense, *adversaria* amounts to much the same with *variæ lectiones*, *variæ observationes*, *commentarii*, *lectiones antiquæ*, *loci communes*, *genialis dies*, *vespertæ*, *noctes*, *miscellaneæ*, &c.

ADVERSARIA is also used for a commentary on some text or writing.

This was so called, because the notes were written on the *adverse* or opposite page.

ADVERSARY. See ANTAGONIST.

The word is formed of the Latin preposition *adversus*, *against*, and *vertere*, *to turn*.

ADVERSATIVE, in *Grammar*.—A particle *adversative*, is that which expresses some difference, or opposition between what goes before, and what follows.

Thus, in the phrase, *he loves knowledge*, but *has no application*; the word *but* is an *adversative* conjunction: between which and a disjunctive one there is this difference, that the first sense may hold good, without the second opposed to it, which is otherwise in regard to *disjunctive* conjunctions.

Adversatives of this kind may be called *absolute*: beside these, there are several others recited by Harris; such as *adversatives of comparison*, expressed by the words *than* and *as*, which mark not only opposition, but that equality or excess which arises among subjects from their being compared: such likewise are *adversatives adequate*, and *inadequate*, the former of which is expressed by the word *unless*, and the latter by *although*. Hermes, p. 254, &c.

ADVERSATOR, in *Antiquity*, a servant sent to wait his master's returning from supper, and attend him home. The rich had servants in this quality, to apprize them of any danger.

ADVERTISEMENT, an intelligence or information given to persons interested in an affair.

The word is formed from *advertere*, *to consider*.

ADVERTISEMENT in more particularly used for a brief account of articles of private concern, inserted in the daily, or other public papers.

By the statute of 25 Geo. II. cap. 36. and 28 Geo. II. cap. 19. the penalty of 50*l.* is inflicted on persons advertising a reward, with no questions to be asked, for the return of things lost or stolen; and likewise on the printer. See STAMP-*duties*.

ADVICE-*boat*, a small vessel employed to carry expresses or orders with dispatch.

ADULT, ADULTUS, one who is arrived at years of discretion, and entered upon manhood, or the age of ADOLESCENCY; and is old enough to have understanding and discernment.

The word is formed from the verb *adolescere*, *to grow up*. There is a notable difference between the proportions of *infants* and *adults*.—A man, M. Dodart observes, formed like a *fœtus*, would be a monster, and would scarce be acknowledged for one of the species.—The Anabaptists confer the sacrament of baptism upon none but ADULTS. We find many things in authors concerning the diseases, the regimen, the diet, &c. of *adults*.—The Chinese have a peculiar ritual of *adults*.

ADULT is also used in *Civil Law*, for a youth between fourteen and twenty-five years of age.

In which sense *adult* is synonymous with *juvenis*, *adolescens*, or *adolescentes*.

ADULT *places*, a modern author observes, differ from immature ones, in that they contain more oil, and less salt; and the same he judges will hold of men; but this requires farther examination. Terenzoni ap. Giorn. de Lett. Ital. tom. xxix. p. 317, &c.

ADULTERATION, in a general sense, the act of corrupting, or debasing a thing that was pure, by some improper admixture.

The word is Latin, formed of the verb *adulterare*, *to corrupt*, by mingling something foreign to any substance. We have laws against the *adulteration* of coffee, tea, tobacco, snuff, wine, beer, bread, wax, hair-powder, &c. See Stat. 13 W. III. cap. 5.—11 Geo. I. cap. 30.—1 Geo. I. cap. 46.—1 W. and M. cap. 34.—23 El. cap. 8.—10 Ann. cap. 26.—3 Geo. III. cap. 11.

For the method of detecting *adulteration* of liquors, see ESSAY, PROOF, &c.

ADULTERATION *of coin* properly imports the making, or calling of a wrong metal, or with too base or too much alloy.

Adulterations of coins are effected divers ways, as, by forging another stamp, or inscription; by mixing impurer metals with the gold or silver: most properly, by making use of a wrong metal, or an undue alloy, or too great an admixture of the baser metals with gold, or silver. Counterfeiting the stamp, or clipping and lessening the [illegible] are not to properly come under the denomination of

[illegible] rules and methods, both of *adulterating* and [illegible] *adulterated* metals, &c.

Adulterating is somewhat less extensive than *debasing*, which includes diminishing, clipping, &c.

To *adulterate* or debase the current coin, is a capital crime in all nations.—The ancients punished it with great severity: among the Egyptians both hands were cut off; and by the civil law, the offender was thrown to wild beasts. The emperor Tacitus enacted, that counterfeiting the coin should be capital; and under Constantine it was made treason, as it is also among us. The *adulterating* of gems is a curious art, and the methods of detecting it no less useful. Nichols Lapid. p. 18.

ADULTERATION, in *Pharmacy*, denotes a fraudulent corruption of drugs, or medicines, by substituting ingredients of less value, for the sake of greater gain.

This practice the dealers in all the parts of medicine are but too well acquainted with. Pharmaceutical authors give numerous instances of *adulterations*, both in simple and compound medicines.

ADULTERESS, a woman who commits *adultery*. See ADULTERY.

ADULTERINE, in a general sense, denotes any thing which has been adulterated, or that is spurious, or counterfeited; and it is thus applied to a fraudulent balance, to debased and counterfeit coins, to a false key, and to suppositious writings.

ADULTERINE, in the *Civil Law*, is particularly applied to a child issued from an adulterous amour, or commerce.

Adulterine children are more odious than the illegitimate offspring of single persons.—The Roman law even refuses them the title of natural children; as if nature disowned them.

Adulterine children are not easily dispensed with for admission to orders. Those are not deemed *adulterine*, who are begotten of a woman openly married, through ignorance of a former wife being alive.

By a decree of the parliament of Paris, *adulterine* children are declared not legitimated by the subsequent marriage of the parties, even though a papal dispensation be had for such marriage, wherein is a clause of legitimation.

ADULTERINE *marriages*, in St. Augustine's sense, denote second marriages, contracted after a divorce.

ADULTERY, ADULTERIUM, (in *Ancient Law Books* called ADOWETRY) a crime committed by married persons, against the faith pledged to each other in marriage, by having carnal commerce with some other; or even by a person not married, who has the same intercourse with another that is.

Moralists and canonists, and divines, have distinguished several species of *adultery*; as,

ADULTERY, *manifest*, that wherein the parties are caught *in the fact*, or as, some express it, *res in re*.

On such occasions, strangers, or people not interested in the family, have been allowed to accuse, and prosecute women for *adultery*, either if committed during a husband's long absence, or although his connivance.

ADULTERY, *secret* or *feint*, that kept concealed from the knowledge of the world, and only divulged to a confessor, or the like.—In the canon law this is most favourably dealt with; persons were admitted to penance for this, and absolved, who were refused it for the open kind. Du-Cange.

ADULTERY, *presumptive*, that which is only discovered or inferred from certain light, or indications. Such are the parties being found in bed together *nudos cum nudis*.

ADULTERY, *interpretative*, or *reputed*, denotes an act [illegible] though not properly included under the denomination

yet is reputed as equivalent to it, and punished as such. Thus mixed marriages between Christians and Jews, *e. g.* between a Christian man and a Jewish woman, are put by the laws of Arcadius and Honorius, on the footing of *adultery*.

So also second marriages are called by some, as Athenagoras, and St. Ambrose, an honourable or better sort of *adulteries*.

ADULTERY, *improper*, includes other extraordinary cases and species; such are the commerce with a woman only espoused, not actually married; with a married woman, who lives as a common whore; with a married woman, taking her for single; with a putative wife, or concubine, taking her for a real wife; and with a nun, who by her vows is deemed espoused.

ADULTERY, *figurative*, that intended only to represent, or prefigure another fact, or convey some other instruction. This coincides with typical, or allegorical *adultery*, and stands opposed to actual. So the *adultery* of Mars and Venus is turned into an allegory by naturalists, moralists, alchemists, &c.

ADULTERY, *single*, is that where only one of the parties is married, in contradistinction from double *adultery*, which is, where both parties are married.

ADULTERY, *incestuous*, that wherein the parties are related within the third degree of consanguinity.

ADULTERY, *licit*, that not prohibited by any express or known law.

It has been disputed whether *adultery* be *malum in se*, or only *malum prohibitum*, i. e. evil in itself, or only rendered evil, by virtue of positive laws and prohibitions. St. Ambrose and some others have maintained, that *adultery* was not criminal before the Mosaic law. Hobbes de Civ. cap. 6. § 16. Budd. Inst. lib. ii. cap. 4.

It has been controverted, whether *adultery* may be lawfully committed in war, with the enemies wives? The answer is in the negative, and the authorized practice of civilized nations is agreeable to this. It has also been a famous question, whether it be lawful for a woman to commit *adultery* with the consent of her husband, and for the procuring some great good to him? St. Austin apparently allows of it; at least, does not condemn it. De Serm. Dom. in Mont. lib. i. cap. 16. § 49. & De Civ. Dei, lib. xvi. cap. 25.

It has likewise been a dispute, whether it be lawful for one of the parties married to commit *adultery*, with the consent of the other, for the sake of having children? Of which we have instances in Abraham, who, on this account, conversed with Hagar: and likewise among the Greeks and Romans.

Pollman, a German professor, has a dissertation on the husband's right to alienate his wife's body to another's use.

ADULTERY, *illicit*, that which is expressly contrary to some obligatory law: such, according to the generality of casuists, is all *adultery*, proper, improper, single, double, open, and occult; because of a natural baseness or turpitude in the thing, as well as its being a violation of conjugal faith, and injury to our neighbour.

In effect, punishments have been annexed to *adultery* in most ages and nations, though of different degrees of severity. In many it has been capital, in others venial, and attended only with slight pecuniary mulcts. Some of the penalties are serious, and even cruel; others of a jocose and humorous kind.

Among the Egyptians, *adultery* by consent, was punished in the man, by a thousand lashes, given with rods: and in the woman, with the loss of her nose. Nevertheless *adulteries* were not unfrequent among the Egyptians.

The Grecian laws express great indignation against *adultery*. In the earlier times of Athens, the punishment of *adultery* seems to have been arbitrary. In other parts of Greece, *adultery* was severely punished.

In the later times of Greece, it was ordered by Draco, that he who catched an *adulterer* in the fact, might impose on him any arbitrary punishment; and this law was confirmed by Solon. Nevertheless it appears to have been highly impolitic, as it gave full scope to private revenge, instead of leaving the punishment to the state.

It was by the Grecian law farther ordained, that if any one was injuriously confined upon suspicion of *adultery*, he should make his complaint by appeal to the *Thesmothetæ*, which, if they found justifiable, he should be acquitted, and his fetters discharged from their hair; but in case he were found guilty, the judges were to inflict on him what punishment they would, death only excepted; and the offender was obliged to procure friends to be responsible for his future chastity.

There were other remarkable punishments for *adulterers* among the Grecians; such, particularly, as putting out their eyes. And the Locrians observed this custom in later ages, being compelled to the observance of it by Zaleucus, their lawgiver, whose rigour in executing this law is very remarkable; for having caught his son in *adultery*, he resolved to deprive him of his sight, and remained a long time inexorable, notwithstanding the whole city was willing to remit the punishment, and requested him to spare the youth. At length, unable to resist the people's importunity, he mitigated his sentence, and suffered one of his son's eyes, by causing one of his own to be put out; by this glorious act setting a memorable example both of *justice* and of *mercy*.

At Gortyn in Crete, they punished *adultery* after another manner; they were covered with wool, an emblem of the softness and effeminacy of their disposition, and in that dress they were carried through the city to the magistrate's house, who sentenced them to ignominy, whereby they were in a manner deprived of all their privileges, and their share in administering the public business.

The Spartans, indeed, may in one sense be said to have tolerated *adultery*, since they laughed at those who thought the violation of the marriage-bed an unsupportable affront: they allowed other men the liberty of embracing their wives, which freedom they took with others in their turn. Nay even strangers, as well as citizens of Sparta, were allowed the same freedom with their wives. Yet we find that their kings were exempt from this custom, that the royal blood might be preserved untainted, and the government remain in the same lineal descent.

But notwithstanding this liberty, which was founded on mutual consent, they accounted all other *adulteries* the most heinous crime in the world; and while they adhered to their ancient laws, they were wholly strangers to them. See Potter's Arch. lib. iv. cap. 12.

Plutarch tells us, that if any person discovered his sister or daughter, while unmarried, in this crime, he was allowed by Solon's laws, to sell her for a slave. *Adulteresses* were never after permitted to adorn themselves with fine cloaths; and in case they appeared to do so, were liable to have them torn off by any that met them, and likewise be beaten. The same liberty was permitted to any that found them in the temples, which were thought to be polluted by the admission of persons so infamous and detestable. Lastly, their husbands, though willing, were forbidden to cohabit any longer with them, upon pain of *ignominy*, *arrears*; but persons who prostituted women, were adjudged to die.

There are various conjectures concerning the ancient punishment of *adultery* among the Romans.

By a law of Romulus, to which Plutarch makes mention, a man had the liberty of turning away his wife, either for poisoning his children, counterfeiting his private keys, or for *adultery*. Though some maintain that it was made capital, by a law of Romulus, and again by the Twelve Tables. Others, that it was first made capital by Augustus; and others, not before the emperor Constantine. The truth is, the punishment in ancient times was very various, much being left to the discretion of the husband and parents of the *adulterous* wife, who exercised it differently, rather with the silence and countenance of the magistrate, than any formal authority from him. Thus we are told the wife's father was allowed to kill both parties when caught in the fact, provided he did it immediately, killed both together, and, as it were, with one blow. The same power ordinarily was not indulged the husband, except the crime were committed with some mean, or infamous person; though, in other cases, if his rage carried him to put them to death, he was not punished as a murderer. On many occasions, however, revenge was not carried so far, but mutilating, cutting off the ears, noses, &c. were deemed sufficient. The punishment allotted by the *lex Julia* was not, as many have imagined, death; but rather banishment, or deportation, being intermixed fire and water: though Octavius appears, in several instances, to have gone beyond his own law, and to have put *adulterers* to death. But though the Julian law left the accusation of *adultery* open to every body, yet strangers were seldom suffered to prosecute, where the husband made no complaint. But where the husband made a trade of his wife's infamy, or having seen her shame with his own eyes, patiently suffered the affront: in these cases, *adultery* became a crime of public concern; and the Julian law provides a punishment for such husbands as *will* as their wives.

Under Martinus *adulterers* were burnt at a stake. Constantine, it is said by Nonnius and others, first by law made the crime capital. Under Constantius and Constans, *adulterers* were burnt, or sewed in sacks, and thrown into the sea. Under Leo and Marcian, the penalty was abated to perpetual punishment, or cutting off the nose.

By the civil law, as altered by Justinian, who, at the instance of his wife Theodora, mitigated the severity of the *lex Julia*, *adultery* is punished with whipping, and shutting up in a convent for two years; during which time, if the husband does not condemn to take her back again, she is shaven, and shut up for life.—This is called *authenticating*, as having been established by an authentic.

In France, however, the whipping is omitted, that the husband may be the less averse to the taking her back within the two years.

Under Theodosius women convicted of this crime were punished after a very singular manner, viz. by a public constupration; being locked up in a narrow cell, and forced to admit all the men to their embraces that would offer themselves. This custom was again abolished by the same prince.

It is controverted whether, among the Romans, *adultery* was allowed to be compounded?

By an edict of the emperor Antoninus, the husband was not allowed to bring an action of *adultery* against his wife, unless he himself were innocent; the reason given for it is very natural, *per iniquum enim videtur esse ut judicium vir & uxore exigat, quam ipse non exhibeat.*

By the Jewish law, *adultery* was punished by death in both parties, where they were both married, or only the woman. The Jews had a particular method of trying, or rather purging an *adulteress*, or a woman suspected of the crime, by making her drink the bitter waters of jealousy; which, if she were guilty, made her swell.

Among the Mingrelians, *adultery* is punished with the forfeiture of a hog, which is usually eaten in good friendship between the gallant, the adulteress, and the cuckold. Chardin. Voy. tom. i. p. 47.

In some parts of the Indies, it is said, any man's wife is permitted to prostitute herself to him who will give an elephant for the use of her; and it is reputed no small glory to her, to have been rated so high. Montague's Eff. lib. iii. cap. iv.

Adultery is said to be so frequent in Ceylon, that not a woman but practises it, notwithstanding its being punishable with death. Bibl. Univ. tom. xxiii. p. 237.

Among the Japanese, and divers other nations, *adultery* is only penal in the women. Among the Abyssinians, the crime of the husband is said to be only punished on the innocent wife. In the Marian Islands, on the contrary, the woman is not punishable for *adultery*; but if the man go astray, he pays severely: the wife and her relations waste his lands, turn him out of his house, &c. Among the Chinese there is reason to conclude, that *adultery* is not capital; for it is said that fond parents will make a contract for their daughters future husbands, to allow them the indulgence of a gallant.

In Spain, they punished *adultery* in men by cutting off that part which had been the instrument of the crime.

In Poland, before Christianity was established, they punished *adultery* and fornication in a very particular manner: the criminal they carried to the market-place, and there fastened him by the testicles with a nail; laying a razor within his reach, and leaving him under a necessity, either of doing justice upon himself, or of perishing in that condition.

By the old law of Scotland, notorious or double *adultery* is punished by death; single *adultery* by banishment, fining, &c. though by the opinion of some Scotch lawyers, it may be punished by death.

The Saxons formerly burnt the *adulteress*, and over her ashes erected a gibbet, whereon the *adulterer* was hanged. In this kingdom, likewise, *adultery* by the ancient laws was severely punished. King Edmund the Saxon ordered *adultery* to be punished in the same manner as homicide; and Canute the Dane, ordered that a man who committed *adultery* should be banished, and that the woman should have her nose and ears cut off. In the time of Henry I. it was punished with the loss of eyes and genitals. Lib. Hen. I. cap. 12. Doomsday, tit. Cestre. Civit.

Adultery at present is only punished by fine and penance in the spiritual court; or by an action of common law for damages. Though some of our law-books speak of *adultery* as a thing temporal against the peace. As to the *adulteress*, by our law, she undergoes no temporal punishment whatever, except the loss of her dower; and she does not lose even that, if her husband is weak enough to be reconciled to her, and cohabit with her after the offence committed. 13 Ed. I. cap. 34.

But it is to be observed, that *adulteresses* are such either by the *Canon*, or *Civil law*.

According to the former, a woman is an *adulteress*, who either being herself married converses carnally with another man; or being single herself, converses with a man that is married.

According to the latter, she is not an *adulteress*, if she be not herself in the married state, though she converses with a man that is. The crime, in this case, was more properly called *stuprum* than *adulterium*.

Hence, among the Romans, the word *adultera*, *adulteress*, differed from *pellex*, which denoted a single woman, who cohabited with a married man; and *pellex* differed from *concubina*, which signified her who had only intercourse with an unmarried man. The former was reputed infamous, and the latter innocent.

It is much disputed, whether *adultery* dissolves the bond of matrimony, and be a sufficient cause of divorce, so that the parties may marry again. This was allowed in the ancient church, and is still continued in the Greek, as well as the Lutheran and Calvinist churches. Romanists, however, disallow of it, and the council of Trent even anathematized those who maintain it; though the canon of anathematization was mitigated in deference to the republic of Venice, in some of whose dominions, as Zant, Cephalonia, &c. the contrary usage obtains.

The ecclesiastical courts in England so far agree with the papists, that they only grant a divorce *à mensa & thoro*, in case of *adultery*; so that a complete divorce, to enable the party to marry again, cannot be had without an act of parliament.

By a council of Nantes, marriage was declared dissolved by *adultery*, but the innocent party was not allowed second marriage. In after-times, leave was given to the innocent party alone; and afterwards the same was allowed the criminal party.

ADULTERY is also used in *Ancient Customs*, for the punishment, or fine imposed for that offence, or the privilege of punishing for it.

[illegible] *adulterium* amounts to the same with what the Saxons called *legerwita*.

ADULTERY is sometimes used, in a more extensive sense, for any species of impurity, or crime, against the virtue of chastity; and in this sense divines understand the seventh commandment.

ADULTERY is also used, especially in scripture, for idolatry, or departing from the true God, to the worship of a false one.

ADULTERY is also used, in *Ecclesiastical Writers*, for a person's invading, or intruding into a bishoprick, during the former bishop's life. The reason of the appellation is, that a bishop is supposed to contract a kind of spiritual marriage with his church.

The translation of a bishop from one see to another was also reputed a species of *adultery*; on the supposition of its being a kind of second marriage, which, in those days, was esteemed a degree of *adultery*. This conclusion was founded on that text of St. Paul, *Let a bishop be the husband of one wife*, by a false construction of church for wife, and of bishop for husband. Du-Cange.

ADULTERY is also used, in *Ancient Naturalists*, for the act of ingrafting one plant upon another.

In which sense, Pliny speaks of the *adulteries* of trees, *arborum adulteria*, which he represents as contrary to nature, and a piece of luxury, or needless refinement.

ADULTERY is also used by some fanciful *Astronomers* and *Astrologers*, for an eclipse of the sun, or moon, happening in an unusual, and, as they suppose, irregular manner: as in the case of horizontal eclipses, where, though the sun and moon be diametrically opposite, yet they appear as if both above the horizon at the same time.

ADVOCARIA, in *Middle Age Writers*, a tax paid the lord for his protection; sometimes also called *salvamentum*.

ADVOCATE, ADVOCATUS, among the Romans, a person skilled in their law, and who undertook the defence of causes at the bar.

The word is compounded of *ad*, *to*, and *vocare*, *to call*; q d *I call to my aid or defence*.

The Roman *advocates* answered to one part of the office of a barrister among us, viz. the pleading part: for as to the giving counsel, they never meddled with it; that being the business of the *jurisconsulti*.

The Romans in the first ages of their state, held the profession of an *advocate* in great honour; and the seats of their bar were crouded with senators and consuls; they, whose voices commanded the people, thinking it an honour to be employed in defending them.

They were styled, *comites*, *honorati*, *clarissimi*, and even *patroni*; as if their CLIENTS were not less obliged to them, than freed-men to their masters. See PATRON.

The bar was not at that time venal.—Those who aspired to honours and offices, took this way of gaining an interest in the people, and always pleaded *gratis*.

But no sooner were luxury and corruption brought into the commonwealth, than the bar became a shaare in them.—Then it was that the senators let out their voices for pay, and zeal and eloquence were sold to the highest bidder.—To put a stop to this abuse, the tribune Cincius procured a law to be passed, called from him *Lex Cincia*, whereby the *advocates* were forbid to take any money of their clients.—Feed. Bruneus has published an ample comment upon this law.

It had before this been prohibited the *advocates* to take any presents or gratuities for their pleading.—The emperor Augustus added a penalty to it: notwithstanding which, the *advocates* played their parts so well, that the emperor Claudius thought it an extraordinary circumstance when he obliged them not to take above eight great sesterces, which

which are equivalent to 64 pounds sterling, or upwards, for pleading each cause.

ADVOCATE is ſtill uſed in countries, and courts, where the civil law obtains, for thoſe who plead and defend the cauſes of clients truſted to them.

In Scotland they have a college, *or Faculty of Advocates*, 180 in number, appointed to plead in all actions before the lords of ſeſſion.—They have a dean, treaſurer, clerks, examinators, and a curator of their library.

By the articles of the Union, none are to be named ordinary lords of ſeſſion, except thoſe who have been *advocates*, or principal clerks of ſeſſion for five years, &c.

In France, they have two kinds of *advocates*, viz. pleading *advocates*, *avocats plaidants*; and conſiel *advocates*, *avocats conſultants*.

This diſtinction was formed with a view to the two branches among the Romans, *actuali*, and *juris-conſulti*.—Yet there is this difference, that the function of the *juris-conſulti*, who only gave their advice, was of a different kind from that of the *advocati*; being a ſort of private and perpetual magiſtrature, principally under the firſt emperors; and the *advocati* never became *juriſconſulti*. Whereas, on the other hand, in France, ſince the *advocates* have attained to reputation, and expedience enough at the bar, they quit ſo buſy a province, and become a kind of chamber-counſel.—They have alſo their *advocate* general, and king's *advocat*, *avocat du roy*.

ADVOCATE, *lord*, in Scotland, one of the officers of ſtate, whoſe buſineſs is to give his advice about the enabling and executing of laws; to defend the king's right and intereſt in all publick meetings; to proſecute all capital crimes before the juſticiary; and to concur in all purſuits before ſovereign courts for breaches of the peace; and alſo in all matters wherein the king, or his donator, has intereſt.—He intents no proceſſes of treaſon, except by warrant of privy-council.

The *lord advocate* is ſometimes an ordinary lord of ſeſſion; in which caſe, he only pleads in the king's cauſes; otherwiſe, he is at liberty to plead in all cauſes.

ADVOCATE *of a city*, or *town*, is a magiſtrate eſtabliſhed in ſeveral places of Germany, for the adminiſtration of juſtice in that city, in the emperor's name. See ADVOWEE.

ADVOCATE is more particularly uſed in *Church Hiſtory*, for a perſon appointed to defend the rights and revenues of a church, or religious houſe.

The word *advocatus*, or *advocare*, is ſtill retained, for what we uſually call the *patron*, or him who has the advowion, or right of preſentation, in his own name.

The abbeys and monaſteries had alſo all their *advocati*, or *advocatus*. See ADMINICULATOR.

There are ſeveral other kinds of *advocates*; as,

ADVOCATE, *conſiſtorial*, is an officer of the court of Rome, whoſe buſineſs it is to plead on the oppoſitions made to the PROVISIONS of benefices in that court. There are ten of theſe in number.

ADVOCATES, *elective*, thoſe choſen by the abbot, biſhop, or chapter, a particular licence being had from the king, or prince, for that purpoſe. The elections were originally made in the preſence of the count of the province.

ADVOCATES, *feudal*. Theſe were of the military kind, who, to make them more zealous for the intereſt of the church, had lands granted them in fee, which they held of the church, and did homage, and took an oath of fidelity to the biſhop or abbot. Theſe were to lead the vaſſals of the church to war, not only in private quarrels of the church itſelf, but in military expeditions for the king's ſervice, in which they were the ſtandard-bearers of their churches.

ADVOCATE, *fiſcal*, *fiſci* ADVOCATUS, was an officer inſtituted by the emperor Adrian, to defend the cauſe and intereſts of the FISCUS, or private treaſury, in the ſeveral tribunals where that might be concerned.

ADVOCATES, *juridical*, in the *Middle Age*, were thoſe who from attending cauſes in the court of the comes, or count of the province, became judges themſelves, and held courts of their vaſſals thrice a year, under the name of the *tria placita generalia*.

In conſideration of this farther ſervice, they had a particular allowance of one third part of all fines, or mulcts, impoſed on defaulters, &c. which was called *tertia bannorum pars*, *tertius denarius*, *tertia pars compoſitionum*, *tertia pars legum*, or *emendarum*, &c.; beſides a proportion of diet for themſelves and ſervants.

ADVOCATES, *matricular*, were the advocates of the mother, or cathedral churches.

ADVOCATES, *military*, thoſe appointed for the defence of the church, rather by arms and authority, than by pleading and eloquence.

Theſe were introduced in the times of confuſion, when every perſon was obliged to maintain their own property by force; biſhops and abbots not being permitted to bear arms, and the ſcholaſtic or gowned *advocates* being equally unacquainted with them, recourſe was had to knights, noblemen, ſoldiers, or even to princes.

ADVOCATES, *nominative*, thoſe appointed by a king, or pope. Sometimes the churches petitioned kings, &c. to appoint them an *advocate*; at other times, this was done of their own accord. By ſome regulations, no perſon was capable of being elected *advocate*, unleſs he had an eſtate in land in the ſame county.

ADVOCATES, *regular*, thoſe duly formed and qualified for the profeſſion, by a proper courſe of ſtudy, the requiſite oath, ſubſcription, licence, &c.

ADVOCATES, *ſubordinate*, thoſe appointed by other ſuperior ones acting under them, and accountable to them.

There were divers reaſons for the creation of theſe ſubordinate *advocates*: as, the ſuperior quality of the principal *advocate*, his being detained in war, or being employed in other affairs: but chiefly, the too great diſtance of ſome of the church lands, and their lying in the dominions of foreign princes.

ADVOCATES, *ſupreme* or *ſovereign*, were thoſe who had the authority in chief, but acted by deputies or ſubordinate *advocates*. Theſe were alſo called principal, greater, and ſometimes general *advocates*. Such in many caſes were kings, &c. when either they had been choſen *advocati*, or became ſuch by being founders, or endowers of churches.—Princes had alſo another title to *advocateſhip*, ſome of them pretending to be *advocati nati* of the churches within their dominions.

ADVOCATIA, in the *Feudal Law*, the procuration of ſome public buſineſs, committed by a ſuperior to his ſubſtitute.

ADVOCATIA is alſo uſed for the patronage and protection of a church, college, monaſtery, and the like.

In which ſenſe it amounts to the ſame with ADVOWSON.

ADVOCATIA is alſo uſed for the protection or defence of the perſons, eſtates, &c.

ADVOCATION, ADVOCATIO, in the *Civil Law*, the act of calling another to our aid, relief, or defence.

ADVOCATION, *letters of*, in the law of Scotland, thoſe granted by the lords of ſeſſion, upon complaint of a perſon ſued before an incompetent judge. By theſe letters, the lords of ſeſſion *advocate*, that is, call that cauſe from the incompetent judge to themſelves.

If, after letters of *advocation* are intimated to that judge, he yet proceeds, his decree will be null, as given *contra mandatum*. Mackenzie, Inſt.

ADVOCATIONE *Decimarum*, a writ which lies for the claim of the fourth part, or upward, of the tithes that belong to any church. Reg. Orig. 29.

ADVOCATURA, in *Writers of the Middle and Barbarous Age*, denotes an inferior kind of juriſdiction, exerciſed by advocates within the diſtricts of their reſpective churches, &c. The word is ſometimes uſed as ſynonymous with ADVOCATIO. Du-Cange.

ADVOWEE, in *ancient Cuſtoms*, and *Law Books*, denotes the advocate of a church, religious houſe, or the like.

The word is otherwiſe written *avowee*, *advouee*, and *avowee*; ſometimes *advour*; being derived from *avower*, *to own*, or *acknowledge*.

There are *advowees* of cathedrals, abbies, monaſteries, &c. Thus Charlemagne had the title of *advowee* of St. Peter's; king Hugh, of St. Riquier; and Bolandus mentions ſome letters of pope Nicholas, by which he conſtituted king Edward the Confeſſor, and his ſucceſſors, *advowees* of the monaſtery at Weſtminſter, and of all the churches in England.

The *advowees* were the guardians, protectors, and adminiſtrators of the temporal concerns of the churches, &c. and under their authority were paſſed all contracts which related to them.

It appears alſo, from the moſt ancient charters, that the donations made to churches were conferred on the perſons of the *advowees*.—They always pleaded the cauſes of the churches in court, and diſtributed juſtice for them, in the places under their juriſdiction.—They alſo commanded the forces furniſhed by their monaſteries, &c. for the war; and even were their champions, and ſometimes maintained duels for them.

This office is ſaid to have been firſt introduced in the fourth century, in the time of Sylveſter; though the Benedictines do not fix its origin before the eighth century.

By degrees, men of the firſt rank were brought into it, as it was found neceſſary, either to defend with arms, or to protect with power and authority. In ſome monaſteries they were only called *conſervators*; but theſe, without name, had all the function of *advowees*.

There were alſo ſometimes ſeveral *ſub-advowees*, or ſub-advocates, in each monaſtery, who aſſiſted inſtead of the *advowees* themſelves; which, however, proved the

ruin of monasteries; those inferior officers running into great abuses.

Hence also, husbands, tutors, and every person in general, who took upon him the defence of another, were denominated *advowees*; or advocates. Hence several cities had their *advowees*; which were established long after the ecclesiastical ones, and doubtless from their example.—Thus, we read in history of the *advowees* of Augsburg, of Arras, &c.

The VIDAMES assumed the quality of *advowees*; and hence it is, that several historians of the eighth century confound the two functions together.

Hence also it is, that several secular lords in Germany bear mitres for their crests, as having anciently been *advowees* of the great churches.

Spelman distinguishes two kinds of ecclesiastical *advowees*.—The one of causes, or processes, *advocati causarum*; the other of territory, or lands, *advocati fuli*.

The former were nominated by the king, and were usually lawyers, who undertook to plead the causes of the monasteries.

The other, which still subsist, and are sometimes called by their primitive name, *advowees*, though more usually PATRONS, were hereditary, as being the founders and endowers of churches, &c. or their heirs.

Women were sometimes *advowees*, *advocatissæ*. And, in effect the canon law mentions some who had this title, and who had the same right of presentation, &c. in their churches, which the *advowees* themselves had.

In a stat. 25 Edw. III. we meet with *advowee paramount*, for the highest patron; that is, the king.

There are also *advowees* of countries and provinces.—In a charter of the year 1187, Berthold duke of Zeringhen, is called *advowee* of Thuringia; and in the Nothia of the Belgic churches, published by Miræus, the count of Louvain is styled count and *advowee* of Brabant.—In the eleventh and twelfth centuries, we also meet with the *advowees* of Alsatia, Suabia, &c.

ADVOWING, or AVOWING, ADVOCARE, in *Law*; see AVOWRY.

ADVOWSON, ADVOCATIO, the quality or office of an *advowee*, or advocate.

ADVOWSON, or ADVOUZEN, in *Common Law*, signifies a right to present to a vacant benefice.

Advowson is so called, because the right of presenting to the church was first gained by such as were founders, benefactors, or maintainers of the church, viz. *rationa fundationis*, as where the ancestor was founder of the church; or *rationa dotationis*, where he endowed the church; or *rationa fundi*, as where he gave the soil whereupon the church was built: and therefore they were called *advocati*. They were also called *patroni*, and thereupon the *advowson* is called *jus patronatus*. 1 Inst. 119. Flets, lib. v. cap. 14.

Though the nomination of fit persons to officiate in every diocese was originally in the bishop, yet they were content to let the founders of churches have the nomination of the persons to the churches so founded, reserving to themselves a right to judge of the fitness of the persons so nominated. Gibs. 2 ed. 756.

Advowsons are of two kinds. 1. *Advowson in gross*, is a right subsisting in itself, belonging to a person, and not adhering to any manor or lands as parcels thereof. 2. *Advowson appendant*, which depends on a manor, as appurtenant to it.—This Kitchen calls an *incident*, which may be separated from its subject.

Advowsons formerly were most of them appendant to manors, and the patrons were parochial patrons: the lordship of the manor, and patronage of the church, were seldom in different hands, until *advowsons* were given to religious houses. But of late times the lordship of the manor, and *advowson* of the church, have been divided.

Advowsons are also *presentative*, *collative*, or *donative*: *presentative*, where the patron presents or offers his clerk to the bishop of the diocese, to be instituted in his church: *collative*, where the benefice is given by the bishop, as original patron thereof, or by means of a right he has acquired by *lapse*: *donative*, as where the king, or other patron does, by a single donation in writing, put the clerk in possession, without *presentation*, *institution*, or *induction*.

Sometimes, anciently, the patron had the sole nomination of the prelate, abbot, or prior; either by investiture (i. e. delivery of a pastoral staff) or by direct presentation to the diocesan; and if a free election was left to the religious, yet a *congé d'elire*, or licence of election, was first to be obtained of the patron, and the person elected was confirmed by him.

If the founder's family became extinct, the patronage of the convent went to the lord of the manor.—Unless the several colleges in the universities be restrained in the number of *advowsons* they may receive; it is argued they will in time acquire such a stock, as to frustrate the design of their foundation (which is the education of youth), by creating too great a succession of fellows; so that there will not be in the colleges a sufficient number of persons of competent age, knowledge, and experience, to instruct and form the minds of the youth.—In some colleges the number of *advowsons* is said to be already two thirds, or more, of the number of fellows.—It is objected, on the other side, that the succession of fellows may be too slow, as well as too quick; whereby persons well qualified may be detained so long in colleges, as not to have strength and activity enough left for the discharge of parochial functions.

Colleges holding more *advowsons* in number than a moiety of the fellows, are not capable of purchasing more. Grants of *advowsons* by papists are void. 9 Geo. II. c. 36. § 5. 11 Geo. II. c. 17. § 5.

Advowsons are temporal inheritances, and lay fees; they may be granted by deed or will, and are assets in the hands of heirs and executors.

Presentations to *advowsons*, for money, or other reward, are void. 13 Eliz. cap. 6. See Burn's Eccl. Law. vol. i.

ADVOWTRY. See ADULTERY.

ADUST, ADUSTUS, among *Physicians*, &c. is applied to such humours, as by long heat become of a hot and fiery nature.

The word is formed of the Latin *adurere*, *to burn*.

Such as choler is supposed to be.—Melancholy is usually considered as black, and *adust* bile.

Blood is said to be *adust*, when by reason of some extraordinary heat, its more subtile parts are all evaporated, leaving the grosser, with all the impurities therein, half terrified.

ADUSTION, among *Physicians*, is used for an inflammation of the parts about the brain, and its membranes, attended with a hollowness of the *sinciput* and eyes, a pale colour, and dryness of the body; in which case the yolk of an egg, with oil of roses, applied by way of cataplasm is recommended, as are the leaves of turnsol, the parings of a gourd, the pulp of a pompion, applied in the same manner with oil of roses.

ADY, in *Natural History*, a name given to the palm-tree of the island of St. Thomas. It is a tall tree with a thick, bare, upright stem, growing single on its root, of a thin light timber, and full of juice. The head of this tree shoots into a vast number of branches, which being cut off, or an incision being made therein, afford a great quantity of sweet juice, which fermenting, supplies the place of wine, among the Indians.

The fruit of this tree is called by the Portuguese *carpeces*, and *carisses*; and by the black natives ABANGA. This fruit is of the size and shape of a lemon, and contains a kernel, which is good to eat. The fruit itself is eat roasted, and the raw kernels are often mixed with mandioc meal. These kernels are supposed very cordial. An oil is also prepared from this fruit, which answers the purpose of oil, or butter, in Europe.

This oil is also used for annointing stiff and contracted parts of the body. Ray.

ADYNAMIA, in *Medicine*, debility, weakness from sickness.

It is formed of the privative *a*, and *δυναμις*, *strength*.

ADYNAMON, among *Ancient Physicians*, a kind of weak factitious wine, prepared from must boiled down with water; to be given to patients, to whom genuine wine might be hurtful.

ADYTUM, a secret or retired place in the Pagan temples, where oracles were given, and into which none but the priests were admitted.

The word originally signifies inaccessible; being compounded of *a. not*, and *δυω*, or *δυνω*, *to enter*.

The *Sanctum Sanctorum* of the temple of Solomon was of the nature of the Pagan *adytum*, none but the high priest being admitted into it, and he but once a year.

ADZE, or ADDICE, a cutting tool, of the axe kind; having its blade made thin, and arching; and its edge at right angles to the handle; chiefly used for taking thin chips off timber or boards, and for paring away certain irregularities which the axe cannot come at.

The *adze* is used by carpenters, but more by coopers, as being convenient for cutting the hollow sides of boards, &c. It is ground from a hole on its inside to its outer edge; so that, when it is blunt, they cannot conveniently grind it, without taking its helve out of the eye.

AE, or Æ, a diphthong, or double vowel, compounded of A and E.

Authors are by no means agreed as to the use of the *æ* in English words.—Some, out of regard to *etymology*, insist on its being retained in all words, particularly technical ones, borrowed from the Greek and Latin; while others, from a consideration that it is no proper diphthong in our language, its sound being no other than that of the simple *e*, contend, that it ought to be entirely disused; and, in fact, the simple *e* has of late been adopted,

adopted, inſtead of the Roman *æ*; as in the word *equator*, &c.

ÆACEA, in *Antiquity*, ſolemn feaſts and combats, celebrated in Ægina, in honour of Æacus, who had been their king, and who, on account of his ſingular juſtice upon earth, was ſuppoſed to have a commiſſion given him, to be a prince or judge, whoſe office it was to preſide over Elyſium, or the region of bliſs.

ÆCHMALOTARCHA, in *Antiquity*, a Greek term, ſignifying the chief, or leader of the Jewiſh captives in Babylonia. The Jews, who refuſed to follow Zorobbabel, and return with him to Jeruſalem, after the Babyloniſh captivity, created an *æchmalotarch* to govern them.—Not that the Jews themſelves called them by this name, as ſome authors have aſſerted; for that people ſpoke Hebrew, or Chaldee, not Greek. But Origen, and others, who wrote in the Greek tongue, rendered the Hebrew name ראשגלות *roſch galuth*, q. d. *chief of the captivity*, by a Greek name of the like import ἀχμαλωταρχος, formed from ἀχμαλωτος, *captive*; of ἀιχμη, *point*, *ſpear*, or *war*; and ἀρχων, *commander*, *chief*.

However, the Jews ſeemed to have had officers of this kind before the return from Babylon; witneſs the hiſtory of Suſannah; the two elders, who condemned her, being ſuppoſed to have been *æchmalotarchæ* that year.—The Jewiſh writers aſſure us, that the *æchmalotarchæ* were only to be choſen out of the tribe of Judah.

The eaſtern Jews had their princes of the captivity, as the weſtern Jews their patriarchs. The Jews are ſtill ſaid to have an *æchmalotarcho* at Babylon, but without the authority of the ancient one. Bainage Hiſt. Jews, and Prideaux's Connection.

ÆDES, in *Antiquity*, a chapel or inferior kind of temple, diſtinguiſhed by this, that it was not conſecrated by the augurs, as thoſe properly called TEMPLES were.

Such was *the ærarium*, or treaſury; called *Ædes Saturni*.

ÆDILE, ÆDILIS, in *Antiquity*, a Roman magiſtrate, veſted with divers functions, chiefly that of ſuperintending the buildings, both public and private; as baths, aqueducts, roads, bridges, cauſeways, &c.

The word is formed of *ædes*, *temple*, or *houſe*; on account of their having the care of temples, houſes, &c.

The *ædiles* at Rome correſpond to what the Greeks called *agoranomi*, and *aſtynomi*; they differed from *œconami* and *arcarii*, who were rather receivers of the revenues; alſo from *legiſlæ*, *curatores* & *patres civitatis*.

To the *ædiles* belonged the inſpection of the weights and meaſures. They fixed the rate of proviſions, and took care the people ſuffered no exactions. The inquiry and cognizance of debauchees, and diſorders in public houſes, likewiſe belonged to them; they were alſo to reviſe comedies; and it belonged to them to treat the people with grand games and ſpectacles, at their own expence. They were likewiſe to attend on the tribunes of the people.

To the *ædiles* alſo belonged the cuſtody of the plebiſcita, and the cenſure and examination of books. They had the power, on certain occaſions, of iſſuing edicts; and, by degrees, they procured to themſelves a conſiderable juriſdiction, the cognizance of various cauſes, &c.—This office ruined numbers, by its expenſiveneſs; ſo that, in Auguſtus's time, even many ſenators declined it, on that account.

All theſe functions, which rendered the *ædiles* ſo conſiderable, belonged at firſt to the *ædiles* of the people, *ædiles plebis*, or *minores*: theſe were only two in number, and were firſt created in the ſame year as the tribunes: for the tribunes, finding themſelves oppreſſed with the multiplicity of affairs, demanded of the ſenate to have officers, with whom they might intruſt matters of leſs importance; and, accordingly, two *ædiles* were created; and hence it was, that the *ædiles* were elected every year, at the ſame aſſembly as the tribunes. But theſe plebeian *ædiles* having refuſed, on a ſignal occaſion, to treat the people with ſhews, as pleading themſelves unable to ſupport the expence thereof; the patricians made an offer to do it, provided they would admit them to the honours of the *edilate*.

On this occaſion, there were two new *ædiles* created, of the number of the patricians, in the year of Rome 388; they were called *ædiles curules*, or *majores*; as having a right to ſit on a CURULE chair, enriched with ivory, when they gave audience; whereas the plebeian *ædiles* only ſat on benches.

Beſides that the *curule ædiles* ſhared all the ordinary functions with the plebeian, their chief employ was, to procure the celebration of the grand Roman games, and to exhibit comedies, ſhews of gladiators, &c. to the people; and they were alſo appointed judges in all cauſes relating to the ſelling or changing of eſtates.

To eaſe theſe four firſt *ædiles*, Cæſar created a new kind, called *ædiles cereales*, as being deputed chiefly to take care of the corn, which was called *donum Cereris*, for the heathens honoured Ceres as the goddeſs who preſided over corn, and attributed to her the invention of agriculture. Theſe *ædiles cereales* were alſo taken out of the order of patricians. In the municipal cities there were *ædiles*, with the ſame authority as at Rome.

We alſo read of an *ædilis alimentarius*, expreſſed in abbreviature by *Ædil. alim.* whoſe buſineſs ſeems to have been to provide diet for thoſe who were maintained at the public charge, though others aſſign him a different office.

In ancient inſcriptions we alſo meet with *ædile* of the camp, *ædilis caſtrorum*.

ÆDILATE, ÆDILATUS, in *Antiquity*, the dignity or magiſtracy of the Roman ÆDILES.

This is otherwiſe called *ædilitas*, *ædility*. In inſcriptions we find it repreſented by the abbreviature ÆD.

ÆDILITIUM *ædilitium*, among the Romans, was that whereby a remedy was given a buyer, in caſe a vicious, or unſound beaſt, or ſlave, was ſold him. It was called *ædilitium*, becauſe the preventing of frauds in ſales and contracts belonged eſpecially to the curule *ædiles*.

ÆDITUUS, in *Antiquity*, the keeper of a ſacred manſion, who had the care of the offerings and ornaments of the deity to whom it was peculiarly devoted.

The word is compounded of *ædes*, and *tueor*, *I defend*; q. d. *a tumbis ædibus*; originally it was written *æditumus*.

The *ædituus* is the ſame with what Scævola calls *Hierophylax*, the Latins ſometimes *ædilis*, and the Greeks νεωκορος; anſwering to the ſexton among us.

The *æditui*, among the Romans, were officers of diſtinction, being the depoſitaries not only of the treaſure, but of the public acts, or records.—The *æditui* had their ſeveral cells, near the temples, the cuſtody of which was committed to them. Struv. Ant. Rom.

The female deities had a woman officer of the ſame kind, under the denomination *æditua*.

ÆDOIA, the ſame as PUDENDA.

ÆGAGROPILA, or ÆGAGROPILUS, in *Natural Hiſtory*, a ball generated in the ſtomach of the *rupicapra*, or *chamois goat*, hard on the outſide, and conſiſting of a ſubſtance like hair. See BALLS, and HAIR-*Balls*.

The word is Greek, from αιγαγρος, the *rupicapra*, or rock-goat; and πιλος, a *ball*. The *ægagropila* is ſometimes called *bezoar Germanicum*, or the German bezoard.

ÆGELETHRON, in *Botany*, is a name uſed by ſome authors for the common *mercurialis*, or Engliſh mercury, an eatable wild herb.

ÆGIAS, in *Ancient Greek Phyſicians*, denotes a white ſpeck on the pupil of the eye, occaſioning a dimneſs of ſight, either ariſing from an excrementitious humour, or from the relicts of the *cicatricula* of an ulcer on the part.

This is the ſame with what others write *ægis* and *ægilia*.

ÆGIDES, a diſorder of the eyes mentioned by Hippocrates. It ſignifies ſmall white cicatrices in the eye, cauſed by an afflux of corroſive humour. See ALBUGO.

ÆGIDION, a name given to a *collyrium* for inflammations and defluctions of the eyes. It is alſo called *ægagropiſpha*.

ÆGILOPS, is a tumor, or rather ulcer, in the great angle of the eye; either with, or without, an inflammation.

The word is compounded of αιξ, *goat*, and ωψ, *eye*; as goats are ſuppoſed extremely liable to this diſtemper. Authors frequently uſe the words *ægilops*, *anchilops*, and *fiſtula lachrymalis*, promiſcuouſly; but the more accurate, after Ægineta, make a difference.—The tumor, before it becomes ulcerous, is properly called *anchilops*; and, after it is got into the lachrymal paſſages, and has rendered the *os lachrymale* carious, *fiſtula lachrymalis*.

If the *ægilops* be accompanied with an inflammation, it is ſuppoſed to take its riſe from the abundance of blood, which a plethoric habit diſcharges on the corner of the eye.—If it be without an inflammation, it is ſuppoſed to proceed from a viſcous pituitous humour, thrown upon this part. The method of cure is the ſame as that of the *ophthalmia*. But before it has reached the lachrymal paſſages, it is managed like other ulcers.

If the *ægilops* be neglected, it burſts, and degenerates in a FISTULA, which eats into the bone.

ÆGILOPS is alſo a name given to a kind of oat, called alſo *tenuis*, and by the Latins *TRITUCA*, the flour of which, mixed with honey, has been reputed a remedy for this diſeaſe.

The *ægilops* ſignifies alſo *avena ſphæritis*, the wild oat, common among corn, called BROMUS; a decoction of the root of which kills worms. See OAT.

The *ægilops* is a genus of the *polygamia monœcia* claſs of plants; the corolla of the hermaphrodite flower conſiſts of a bivalve glume, terminated by a double or triple

triple arista or awn; the seed is single and oblong; the corolla of the male flower is also a bivalve, aristated glume, as in the hermaphrodite flower.

ÆGILOPS is also used for the *holm* OAK, with great acorns; the CERRUS *mas minore glande, quercus calyce echinato, glande majore, arcuato: echinum, aspis montanum, cerrus latinorum.*

At Venice they make cups of the acorns of this tree; which is also used, as we do oak-bark, to dress leather. The cup of this acorn is an inch and half in diameter, and somewhat less in depth. The cups are also used, instead of galls, to dye woollen cloth black.

ÆGINETA, in *Botany*, the name given by Linnæus to a genus of plants, belonging to the class of *didynamia angiospermia*; the characters of which are these; the cup is an oval, inflated, and coloured spatha; it is univalve, and opens longitudinally near the top. The flower consists of one petal. Its base is large, round, and inflated. The tube is short, cylindric, and open; and the mouth is small, but expanded, and turns back at the edge. The stamina are four crooked filaments; two of them are of the length of the flower, and the other two a little shorter. The antheræ are oblong, and stand close to one another at their tops. The germen of the pistil is oval; the style is subulated, and of the length of the stamina; and the stigma is large, round, and bending. The Hortus Malabaricus is the only work in which we have a description of the plant.

ÆGIPAN, in *Antiquity*, a denomination given to Pan, and the Fauns.

The ancients also give the name *ægipans* to a sort of monsters mentioned by Pliny, Solinus, and Pomp. Mela. Salmasius, in his notes on Solinus, takes *ægipan* to have signified the same, in Libya, with *fauni* among the Romans.

Vossius rejects the opinion, and shews, that the *ægipans* had not faces like men, as the sylvans had, but like goats. In effect, the whole upper part of the body resembled that animal, and as to the lower, they painted it with a fish's tail. The monster represented on some medals of Augustus, by antiquaries called *Capricornus*, appears to be the true *ægipan*.

The word is derived from *αιξ, a goat*; Pan being represented with the horns, feet, and legs of that animal.

ÆGIS, in the *Ancient Mythology*, a name given to the shield or buckler of Jupiter and Pallas.

The goat Amalthea, which had suckled Jove, being dead, that god is said to have covered his buckler with the skin thereof; whence the appellation *ægis*, from *αιξ αιγος, she-goat.*

Jupiter, afterwards restoring the beast to life again, covered it with a new skin, and placed it among the stars. As to his buckler, he made a present of it to Minerva; whence that goddess's buckler is also called *ægis.*

Minerva, having killed the Gorgon Medusa, nailed her head in the middle of the *ægis*, which henceforth had the faculty of converting into stone all those who looked thereon; as Medusa herself had done during her life.

Others take the *ægis* not to have been a buckler, but a cuirass, or breast-plate; and it is certain, the *ægis* of Pallas, described by Virgil, *Æn.* lib. viii. ver. 435, must have been a cuirass; since that poet says expressly, that Medusa's head was on the breast of the goddess. But the *ægis* of Jupiter, mentioned a little higher, ver. 354, seems to have been a buckler; the words

Cum sæpe nigrantem
Ægida concuteret dextra,

agreeing very well to a buckler; but not at all to a cuirass, or breast-plate.

Servius makes the same distinction on the two passages of Virgil; for on verse 354, he takes the *ægis* for the buckler of Jupiter, made, as above-mentioned, of the skin of the goat Amalthea: and on verse 435, he describes the *ægis* as the armour which covers the breast; and which, in speaking of men, is called *cuirass* and *ægis*, in speaking of the gods. Many authors have overlooked these distinctions for want of going to the sources.

ÆGLEFINUS, in *Ichthyology*, a name given, by the generality of authors, to the haddock, called by others *the eane*, or ASELLUS *antiquorum*. It is a well known fish, and seems of a middle nature between the cod and the whiting.

ÆGLEUS, in *Botany*, a term of distinction for the white chamæleon-thistle. It is derived from the Greek αιγλεως of Galen; by which word he distinguishes the white chamæleon, which was an efculent and medicinal plant, from the *orobanche*, or *ægyptiaca*, which was what we call the black chamæleon-thistle, and was esteemed poisonous.

ÆGOBOLIUM, in *Antiquity*, the sacrifice of a goat offered to Cybele.

The *ægobolium* was an expiatory sacrifice, which bore a near resemblance to the *taurobolium* and *criobolium*, and seems to have been sometimes joined with them.

ÆGOCEPHALUS, in *Ornithology*, the name by which the generality of authors call the bird, known in England by the name of the GODWIT, or in some places the *fleet-FLOVER*, the *yarwhip*, or *yarwip*. Ray.

ÆGOCERAS, a name given to FENUGREEK, and also to *houcras*, because of its corniculated fruit, the word originally signifying *goat's-horn*.

ÆGOLETHRON, a plant described by Pliny; which appears to be the same with what Tournefort describes under the name of *chamærhododendros pontica maxima mespili folio, flore luteo.* The ancients attribute dangerous qualities to it.

ÆGOMANTIA, in *Antiquity*, a species of divination performed by means of a goat.

ÆGONYCHUS, in *Natural History*, a name mentioned by Pliny, as a synonym of the *helicis mucronum*, or GROMWELL.

It had this name given it, by the Greek writers, from the words *αιγος, the goat's*, or *αιγος ονυξ, the goat's hoof.*

The ancients had another name for this plant, of the same sort or origin, which was *cynoglossum*; by this they expressed its being like the exterior part of the human nails on the fingers. The hardness and scaly nature of the seeds gave the idea of the resemblance of a nail, or hoof.

ÆGOPHTHALMUS, *the goat's eye-stone*, a name given, by some authors, to those pieces of agat, or other semipellucid gems, which have circular spots in them resembling the eyes of that animal in colour, and in their round figure.

ÆGOPODIUM, GOUT-WEED, in *Botany*, a genus of the *pentandria digynia* class of plants; the general corolla whereof is uniform; the single flowers consist each of five oval, concave, and nearly equal petals; the fruit is naked, ovato-oblong, striated, and separated into two parts; the seeds are two, ovato-oblong and striated, convex on one side and plain on the other.

ÆGOPOGON, in *Botany*, a name used by Tragus, and some others, to express the *common* MEADOW-WART, or ULMARIA.

ÆGREFINUS. See ÆGLEFINUS.

ÆGRITUDO *bovina*. See BOVINA *affectio*.

ÆGYPTIACA signifies the PAPYRUS.

ÆGYPTIACUM, in *Medicine*, a name given to divers unguents of the detergent, or corrosive kind.

We meet with a *black*, a *red*, a *white*, a *simple*, a *compound*, and a *magistral Ægyptiacum*.

The simple Ægyptiacum, which is that usually found in our shops, is a composition of verdigrise, vinegar, and honey, boiled to a consistence: the prescription is Mesue's. —It is usually supposed to take its name from its dusky colour, wherein it resembles that of the natives of Ægypt. —It is improperly called an unguent; as there is no oil, or rather fat, in it. Some chuse to call it *mel Ægyptiacum*. It is chiefly used in eating off rotten flesh, and cleansing foul ulcers; particularly venereal ones in the throat, &c. It also destroys those cancerous excrescences apt to grow in children's mouths.

The German dispensaries have another composition called *Ægyptiacum compositum magistrale*, or *Helianum*, wherein treacle, mithridate, camphor, &c. are ingredients.

White *Ægyptiacum* is a composition of lily roots mixed up with aromatics; it is mentioned by Hippocrates, and is the same with what other ancients call *ciconium*. It was used by the ladies of those days to smear over their faces, to preserve their complexions.

Hippocrates also speaks of another unguent under the same name, composed of the flowers of the Egyptian thorn.

Farriers make a red, as well as black kind, of much the same ingredients, only with some differences in the proportions; used especially to soften the hoofs of a horse, when too hard.

ÆGYPTILLA, in *Natural History*, the name of a stone described by the ancients, and said, by some authors, to have the remarkable quality of giving water the colour and taste of wine.

ÆGYPTION, the name of a topic used by the ancients in uterine disorders.

ÆGYPTIUM *pharmacum ad aures*. Actius Tetrab. ii. Serm. 2. cap. 83. speaks of this as excellent for clearing foetid ulcers of the ears, which he says it cures, though the patient were born with them.

ÆHOITULLA, in *Zoology*, the name of an East Indian species of serpent, found frequently in the island of Ceylon; it is a very long and slender snake, sometimes wholly of a fine green, sometimes green and white, and lives principally on trees, and among bushes. Ray.

ÆICHRYSON is a name given to the ACEDIA *major*, called also *aizoides*.

ÆNAUTÆ

ÆINAUTÆ, *in Antiquity*, senators of Miletus, who held their deliberations on board a ship, far from shore, and till matters were resolved upon, never returned to land. The word is Greek, αειναυται; q. d. *semper nautæ, always mariners*. Plut. in Quæst. Rom.

ÆLQUAPPE, in *Ichthyology*, the common name, among the German nations, of a fish of the MUSTELA kind, the viviparous eelpout, called by Schonefeldt *mustela vivipara*, and in some places *aelpute*, *aelmoder*, and *aelmutter*. It is usually of a foot long or more. Its skin is perfectly smooth, and the colour of its back and head a brownish yellow, marked with blotches of black; the colour of the back grows paler on the sides, and on the belly is whitish. It has four gills on a side, and the head is shaped like that of the eel; the back-fin reaches the whole length of the body, terminating near the tail. The belly-fin begins at the anus, and reaches to the extremity of the fish, ending in a fine, slender, and somewhat reddish tail. Besides these, it has two pair of fins, one at the bottom of the gills, which are somewhat broad, and the other very fine and slender under the throat. The young of this species are often found alive, to the number of three hundred in one individual: they are found of two fingers breadth long, and live some time after they are taken out.

ÆIZOON, αειζωον, from αει, *always*, and ζωον, *life*, is a name given to *Sempervivum*, SEDUM, HOUSELEEK.

ÆLUROPO, a name given to a syrup made of the herb *cats foot*, which is a species of GNAPHALIUM.

ÆLURUS, in *Mythology*, the god of the cats; he is represented by the ancient Egyptians, sometimes as a cat, sometimes as a man with a cat's head.

AEM, AM, or AME, a liquid measure used in most parts of Germany; but different in different towns; the *aem* commonly contains 20 verrils, or 80 masses: that of Heidelbergh is equal to 48 masses; and that of Wirtembergh to 160 masses. See AAM.

ÆMOBOLIC M, in *Antiquity*, the blood of a bull, or ram, offered in the sacrifices called, *taurobolia* and *criobolia*.

In which sense the word occurs in ancient inscriptions. Reinesius and Vandale take it for a corruption, and alter it to RHOBOLIUM. M. de Boze defends the *amobolium*.

ÆNEATORES, in *Antiquity*, the musicians in an army; including those who played trumpets, horns, *litui*, *buccinæ*, &c.

The word is formed from *æneus*, on account of the brazen instruments used by them.

ÆNIGMA, a proposition put in obscure, ambiguous, and generally contradictory terms, to puzzle, or exercise the wit, in finding out its meaning; or, an obscure discourse, covering some common and well known thing, under remote and uncommon terms.

The word is formed of αινιττομαι, *obscuré innuere, to hint a thing darkly*; of αινος, *an obscure speech, discourse*.

The Latins sometimes call it *scirpus*, *scipus*, or *scrupus*. The populace with us name it *riddle*; from the Belgic *raedan*, or the Saxon *areathan*, *to interpret*.

Fran. Junius defines an *anigma* to be an obscure parable, or allegory; and makes two kinds: the one *genuine*, rendering the sentence more intricate and knotty, by a multitude of words; the other lesser, consisting of only one or two remote words, or allusions; as in Isaiah, ch. xi. 1. where Jesus Christ is called צמח, *surculus*, *rod*, or *branch*.

Fa. Bouhours, in the memoirs of Trevoux, defines an *anigma*, a discourse, or painting, including some hidden meaning, which is proposed to be guessed.

ÆNIGMATA, *painted*, are representations of the works of nature, or art, concealed under human figures, drawn from history, or fable. Thus Jesus Christ, in the middle of the doctors, represents the Bible, &c.

A *verbal anigma* is a witty, artful, and abstruse description of any thing.

The use of *anigmas* was very great among the Egyptians. Gale thinks, they might borrow their custom from the Hebrews, among whom, it is certain, *anigmas* were not less in use. Witness Samson's riddle, Judg. xiv. 12, 13. *I will now put forth a riddle to you*, חידה. i. e. according to Vatable, an *anigmatical problem*: the LXX. render it, αρρεσιαν. Solomon is said to have been particularly skilful in the solution of *anigmas*. Joseph. Antiq. lib. v. cap. 2. Clemens assures us, that the Egyptians placed *sphinges* before their temples; to intimate that the doctrines of God and religion were *anigmatical*, and obscure. See HIEROGLYPHIC.

Some represent the *anigma* as the same with *gryphus*: but the more exact writers make a distinction; though wherein the difference lies is not agreed on. Some make it consist in this, that the *anigma* properly imports something merry or jocose, and *gryphus* a subject more grave and profound. Others reduce the difference to this, that in the *gryphus* there is something captious, and capable of leading into a snare, which is not found in the *anigma*.

The REBUS is also ranked by some in the number of *anigmas*.

In a general sense, every dark saying, every difficult question, every parable, may pass for an *anigma*. Hence obscure laws are called *anigmata juris*.

The alchemists are great dealers in the anigmatic language, their processes for the philosophers stone being generally wrapped up in riddles; e. gr. *Hoc ex more et fastione circulum, inde quadrangulum, hinc triangulum, sic circulum et habebis lapidem philosophorum*. Barchusen has published an explication of the riddles of chemists, alchemists, physicians, &c.

Among the *anigmas* of chemists, that called the Sibylline *anigma* is famous, of which we had a copy in a MS. of Stephanus Alexandrinus.

Στιβη γραμματ' εχ', τετρασυλλαβος εἰμι, τελευτα
Αι τριες αι πρωται δυ γραμματ' ἐχουσι τελειαι,
Ἡ δευτερη Ν τελευτα, κ. τ. λειπει δε τρια τα πεντε.
Το σωστον δ' ἀριθμει τεσσαρακοντα δυο Κ. ἑπτα.
Και τριες τριες διαδυο και Ρ' τριας. Τωδε δε τοις αριθμοις
Οκτω ἀριστος ἐστι τις σωμ' ἐμοι ἐνθεος.

Thus translated by M. Leibnitz.

Literulis nascor quadrisyllabus ipse reverti:
Syllaba habet binas, nisi quod tenet ultima ternas.
Vocales quatuor, quinis non propria vox est.
Bis septem vicibus numerum centuria totum
Ingreditur, decadisque novem, tum bis tria. Si me
Noveris, bine salvus ad sacra nostra potes.

Stephanus gives a mystical solution of this *anigma*. Moret will have it signify the name Jehovah, which, according to him, comprehends the number 1696, abating one, the number contained in the *anigma*. Brentius maintains that the whole sum amounts to 1711, and that it represents the word φωτογραφος. The generality understand it of the word arsenic, or ΑΡΣΕΝΙΚΟΝ. M. Leibnitz gives a very artful solution of it in this sense, by only supposing the A to stand for a thousand, and I for unity, as we sometimes find them used by grammarians. F. Menestrier has attempted to reduce the composition and resolution of *anigmas* to a kind of art, with fixed rules, and principles, which he calls the philosophy of *anigmatic* images.

ÆNIGMA. The *subject* of an *anigma* should be something easily conceived, and generally known.

ÆSIGMAS, *the form of*, consists in the words, which, whether they be in prose or verse, contain either some description, a question, or a prosopopœia. The last kind are the most pleasing, inasmuch as they give life and action to things, which otherwise have them not. To make an *anigma*, therefore, two things are to be pitched on, which bear some resemblance to each other; as the sun, and a monarch; or a ship, and a house; and on this resemblance is to be raised a superstructure of contrarieties to amuse and perplex. It is easier to find great subjects for *anigmas* in figures than in words, inasmuch as painting attracts the eyes, and excites the attention to discover the sense. The subjects of *anigmas*, in painting, are to be taken either from history or fable; the composition here is a kind of metamorphosis, wherein, e. g. human figures are changed into trees, and rivers into metals. This conversion, however, does not depend merely on caprice; there must be something of suitableness, and even erudition, to authorize it. Thus the battle of Constantine against Maxentius may be taken for the subject of an *anigma*, to represent the game at chess: the sign which appeared in the heavens with the words, *in hoc signo vinces*, may properly enough represent the secret of this game, which consists in saving the king. It is much easier to turn *mythology* into *anigmas*, than *history*. Accordingly several have imagined, that the conquest of the golden fleece was no other than the transmutation of metals; and that the fable of Circe was the art of chemistry in *anigma*.

ÆSIGMAS of pure invention are a kind of *poetry*, and more subtile than those drawn from mythology; since here the matter itself is to be created: instead of adopting some history or received fable, something probable is feigned, the chief action whereof is known, e. g. a shipwreck, a conflagration, an amphitheatre, or the like. It is essential to *anigmas*, that the history or fable, under which they are presented, be known to every body; otherwise it will comprehend two *anigmas* instead of one; the first of the history or fable, the second of the sense it is to be taken in. Another essential rule of the *anigma* is, that it only admits of one sense. Every *anigma* which is susceptive of different interpretations, all equally natural, is so far imperfect.

ÆNIGMATICAL, something that relates to, or partakes of the nature of *anigmas*.

The philosophy of the DRUIDS was altogether *anigmatical*. The ancient sages in general affected an *anigmatical* way

of writing, to conceal their doctrines from the populace. The Romans in Nero's time were obliged to have recourse to the like method, though for different reasons. The *ænigmatical* characters of the Egyptians were a species of HIEROGLYPHICS, consisting of such as bore no natural resemblance to the things they represented. Such was the beetle, used to express the sun; the serpent, to represent the stars.

We read of an *ænigmatical* medal presented by the Huguenots to Henry III. Schott has published an explication of an *ænigmatical* coin of the emperor Augustus, concerning which *antiquaries* have been long divided.

ÆNIGMATOGRAPHER, or ÆNIGMATIST, a maker or explainer of *ænigmas*.

Hardouin, Vander Hardt, &c. are great *ænigmatists*.

ÆNIGMATOGRAPHY, ÆNIGMATOGRAPHIA, the art of making and resolving, or of collecting ÆNIGMAS.

The word is compounded of αἴνιγμα, and γράφειν, *to describe*.

Ænigmatography, otherwise called *ænigmatology*, may be divided into general and particular. The first gives rules concerning the nature, kinds, composition, and use of *ænigmas*; the second considers the *ænigmas* in particular sciences, or languages, Greek, Latin, Hebrew, philological, philosophical, theological, &c.

Nic. Reusner has a treatise, under the title of *Ænigmatographia*.

ÆNITTOLOGIUS, in *Poetry*, a kind of verse, consisting of two *dactyls*, and three *trochæi*. Such is,

Pralia dira placent truci juventæ.

ÆOLIC, or ÆOLIAN, in *Grammar*, denotes one of the five dialects of the Greek tongue.

It was first used in Bœotia; whence it passed into Æolia, and was that which Sappho and Alcæus wrote in.

The *Æolic* dialect generally throws out the aspirate or sharp spirit, and agrees in so many things with the DORIC dialect, that the two are usually confounded together.

The *Æolic digamma* is a name given to the letter F, which the Æolians used to prefix to words beginning with vowels, as ϝοῖνος, *for wine*; also to insert between vowels, as ϝέϝοι, *for ovis*.

ÆOLIC *verse*, *carmen Æolicum*, a kind of measure, consisting first of an *iambic*, or *spondee*, then of two *anapests*, divided by a syllable, and lastly, a syllable common.

This is otherwise called *eulogic*, and, from the chief poets who used it, *Archilochian* and *Pindaric*.

Its type is — ⏑ ⏑ | — ⏑ ⏑ | — ⏑ —

E. gr. *O festiferi conditor orbis.*

ÆOLIPILE, ÆOLIPILA, an hydraulic instrument, consisting of a hollow metalline ball, with a slender neck, or pipe, arising from it. This, being filled with water, and thus exposed to the fire, produces a vehement blast of wind.

This instrument, Des Cartes, and others, have made use of, to account for the natural cause, and generation, of wind.—And hence its name, *Æolipila*, q. d. *pila Æoli*, *Æolus's ball*; or *Aolis ventos*, *the gusts of Æolus*; Æolus being reputed the god of the winds.

Sometimes the neck is made to screw into the ball, which is the most commodious way; because then the cavity may the more readily be filled with water. If there be no screw, it may be filled thus:—Heat the ball red-hot, and throw it into a vessel of water; the water will run in at the small hole, and fill about two thirds of the cavity.

If, after this, the *Æolipile* be laid on, or before the fire, so that the water and vessel become very much heated: the water being rarefied into a kind of momentary air, will be forced out with a very great noise and violence; but it will be by fits, and not with a constant and uniform blast. Great care should be taken that the aperture of the pipe be not stopped, when the instrument is put on the fire, otherwise the *Æolipile* will burst with a vast explosion, and may occasion great mischief.

These phenomena the reader will be easily enabled to solve, from what is shewn under the articles, AIR, WATER, and RAREFACTION.

The air or vapour issuing out of the *Æolipile* is found sensibly hot near the orifice; but, at a farther distance, cold; like what we observe of our own breath: the cause of which is controverted.—The Corpuscularians account for it hence; that the FIRE contained in the rarefied vapour, though sufficient to be felt near the orifice, disengages itself in the progress of the stream, and becomes insensible ere it be arrived at the journey's end.—The mechanical philosophers, on the other hand, hold, that the vapour, at its exit from the ball, is endued with that peculiar species of circular motion which constitutes the quality HEAT; and that the farther it recedes therefrom, the more is this motion destroyed, by the reaction of the contiguous air; till the heat, at length, becomes insensible.

Chauvin suggests some farther uses of the *Æolipile*.—1. He thinks it might be applied, instead of a bellows, to blow the fire, where a very intense heat is required. Dr. Lewis condemns substituting the *Æolipile* instead of a bellows, and says, that upon trial he always found that instead of exciting, it extinguished the fire. Com. Phil. Techn. p. 21.—2. If a trumpet, horn, or other sonorous instrument, were fitted to its neck, it might be made to yield music. 3. If the neck were turned perpendicularly upwards, and prolonged by a tube or hollow cylinder fitted to it, and a hollow ball laid on the orifice of the tube, the ball would be blown up, and kept fluctuating, or playing up and down, as in the stream of a FOUNTAIN. And, 4. It might serve to scent or fumigate a room, if filled with perfumed, instead of common water. An *Æolipile* has been sometimes placed in a chimney, where it can be heated, the vapour of which serves to drive the smoak up the chimney.

Dr. Plott gives an instance where the *Æolipile* is actually used to blow the fire: the lord of the manor of Ellington is bound by his tenure to drive a goose every New-year's day three times round the hall of the lord of Hilton, while Jack of Hilton (a brazen figure having the structure of an *Æolipile*) blows the fire.

In Italy it is said, that the *Æolipile* is commonly made use of to cure smoaky chimnies; for being hung over the fire, the blast arising from it carries up the loitering smoak along with it.

F. Mersennus, and some others, have made use of this machine to measure the gravity and degree of rarefaction of the air. But this method is liable to considerable objections.

Some late authors have discovered a still more extraordinary use, to which the frauds of the heathen priesthood applied the *Æolipile*, viz. the working of sham miracles. Besides Jack of Hilton, which had been an ancient Saxon image, or idol, Mr. Weber shews, that *Pluster*, a celebrated German idol, is also of the *Æolipile* kind: and in virtue thereof, could do noble feats; being filled with a fluid, and thus set on the fire, it would be covered with sweat; and as the heat increased, would at length burst out into flames.

ÆOLUS, in the *Heathen Theology*, the god of the winds, painted with swoln cheeks, like one who with main force endeavoured to blow a blast; also with two wings on his shoulders, and a high-coloured fiery countenance.

ÆOLUS also, in *Mechanics*, denotes a portable machine, not long since invented by Mr. Tidd, for refreshing and changing the air in rooms.

This machine is adapted in its dimensions to supply the place of a square of glass in a sash-window, and is executed in so small a compass, as to project but a little way from the sash, and in so neat a manner, says the inventor, as to be an elegant ornament to the place where it is fixed. It works without the least noise, requires no attendance, and occasions neither trouble nor expence to keep it in order. It throws in only such a quantity of air as is agreeable; and leaves off working, of its own accord, whenever the door or window is opened.

ÆOLUS's *Harp*, an instrument so named, from its producing an agreeable melody, merely by the action of the wind.—It is thus constructed.—Let a box be made of as thin deal as possible, (*Tab.* II. *Miscellany*, *fig.* 18.) of the exact length answering to the width of the window in which it is intended to be placed; five or six inches deep, and seven or eight inches wide. Let there be glued upon it at *aa*, two pieces of wainscot about half an inch high, and a quarter of an inch thick, to serve as bridges for the strings; and within side, at each end, under *bb*, glue two pieces of beech, about an inch square, of length equal to the width of the box, which are to sustain the pegs. Into these fix as many pins, such as are used in a harpsichord, as there are to be strings in the instrument, half at one end, and half at the other, at equal distances. It now remains to string it with small catgut, or blue first fiddle-strings, fixing one end to a small brass pin, as at *cc*, (*fig.* 19.) and twisting the other round the opposite pin at *dd*.

When these strings are tuned unison, and the instrument placed with the strings outward, in the window to which it is fitted, it will, provided the air blows on that window, give a sound like a distant choir, increasing or decreasing, according to the strength of the wind.

The holes in the middle only represent sound-holes; the thinner the top is, the better will the instrument perform. Mr. Thompson, in a note to his celebrated Ode on this instrument, ascribes the invention of it to Mr. Oswald; whereas it was known to Kircher above a hundred years ago; and the method of constructing and using it is described by him in a book intitled, Magia Phonotactica & Phonurgia.

ÆON, AION, *ævum*; literally signifies the duration of a thing.

Some

Some have affixed another IDEA to the word *æon*; in order to which, they have made uſe of the philoſophy of Plato, giving reality to the ideas which that philoſopher had imagined in God: and even perſonifying them, and feigning them diſtinct from God, and to have been produced by him; ſome male, others female. See PLATONISM.

Theſe ideas they call *æons*; of an aſſembly whereof they compoſe their deity, calling it πληρωμα, a Greek word ſignifying *fulneſs*.

Simon Magus is ſaid to have been the firſt inventor of theſe *æons*, which were afterwards brought to perfection by Valentinus; who, refining on thoſe who preceded him in this way, produced a long genealogy of *æons*, to the number of 30. The firſt, and moſt perfect, he particularly denominates Πρωτος, *Proon*, that is, *pre-exiſtent*; beſide other names, the moſt uſual whereof was that of *Bythos*, Βυθος, *depth*.

This *Bythos*, he ſays, continued long alone with ΕΝΝΟΙΑ, *Ennœa*, *Thought*; whom Valentinus alſo called Χαρις, *Grace*, and Σιγη, *Silence*. At length *Bythos*, with *Sige*, produced *Nous*, Νους, *Underſtanding*; and Αληθεια, *Truth*, her ſiſter. *Nous* begat two *æons*; *Logos*, λογος, *Word*; and *Zoe*, Ζωη, *Life*; which begot two others; *Anthropos*, Ανθρωπος, *Man*; and ΕΚΚΛΗΣΙΑ, *Church*. And theſe eight *æons* were the chief of all the reſt.

The *Word* Λογος, and *Life*, Ζωη, begat ten other *æons*; *Man* and the *Church*, begat twelve more; among whom were, the *Paracliete*, *Faith*, *Hope*, *Charity*, the *Perfect*, Τελειος, and *Wiſdom*, Σοφια. And thus were thirty *æons* made up; which, all together, made the *Pleroma*, Πληρωμα, or *ſpiritual and intellectual plenitude*. See GNOSTICS.

Æon alſo ſignifies ſpinal marrow.

Æon likewiſe, in the *Phœnician Theology*, was the firſt created woman.

ÆORA, in the *Medical Writings of the Ancients*, is uſed for geſtation; which ſort of exerciſe was often preſcribed by the phyſicians of thoſe days. Other exerciſes conſiſted principally in the motion of the body; but in the *æora* the limbs were at reſt, while the body was carried about and moved from place to place, in ſuch a manner as the phyſician preſcribed. It had therefore the advantages of exerciſe, without the fatigue of it.

This exerciſe was promoted ſeveral ways: ſometimes the patient was laid in a ſort of hammoc, ſupported by ropes, and moved backward and forward; ſometimes his bed run nimbly on its feet. And beſide theſe, the ſeveral ways of travelling were accounted ſpecies of the *æora*, whether in the liter, in a boat or ſhip, or on even ground in a chariot.

Aſclepiades was the firſt who brought geſtation into practice, which was uſed as a means to recover ſtrength after a fever, &c.

ÆRA, in *Chronology*, a fixed point of time, from whence to begin a computation of the years enſuing.

The word is ſometimes alſo written in ancient authors, *era*. Its origin is conteſted, though it is generally allowed to have had its riſe in Spain. Scaliger ſuppoſes it formed from A. ER. A. the notæ or abbreviatures of the words, *annus erat Auguſti*, occaſioned by the Spaniards beginning their computation from the time their country came under the dominion of Auguſtus, or that of their receiving the Roman calendar. This opinion, however ingenious, is rejected by Scaliger, not only on account that in the ancient abbreviatures *A* never ſtood for *annus*, unleſs when preceded by *V* for *vivus*; and that it ſeems improbable they ſhould put ER for *erat*, and the letter A, without any diſcrimination, both for *annus* and *Auguſtus*. Voſſius nevertheleſs favours the conjecture, and judges it at leaſt as probable, as either that of Iſidore, who derives *æra* from *æs*, the tribute-money, wherewith Auguſtus taxed the world: or that of Scaliger himſelf, who deduces it likewiſe from *æs*, though in a different manner. *Æs*, he obſerves, was uſed among the ancients for an *article*, or *item*, in an account; and hence it came alſo to ſtand for a ſum or number itſelf. From the plural *æra*, came by corruption *ara*, *arum*, in the ſingular; much as *Oſtia*, *Oſtium*, the name of a place, from *Oſtia*, *the mouths of the Tyber*.

ÆRA amounts to the ſame with EPOCHA; though ſome authors make a difference between them; but wherein it conſiſts, they do not agree. A late critic aſſigns this difference, that in ſtrictneſs of ſpeech, *epocha* is that fixed point where an *æra* made uſe of commences. Thus the 26th of February, 747 (abating fifty ſeven days) before the Chriſtian *æra*, may be ſaid to be the *epocha* of the *æra* of Nabonaſſar. Within this *æra* other *epochas* may be noted; as that of the death of Auguſtus, that of the death of Alexander, &c. But theſe cannot properly be called *epochæ* of the *æra* of Nabonaſſar. Bibl. Germ. tom. 5, p. 172. Vallemont makes another diſference, viz. that an *epocha* is a point fixed by chronologers, and an *æra* a like point, only fixed by the popular uſage of a country, or nation. Perhaps it might not be amiſs, if chronologers would keep to this difference; but it is certain moſt of them hitherto uſe the two words promiſcuouſly. The particular *æras* are mentioned under EPOCHA.

ÆRA, *Spaniſh*, otherwiſe called the year of Cæſar, was introduced after the ſecond diviſion of the Roman provinces, between Auguſtus, Anthony, and Lepidus, in the year of Rome 714, the 4676th year of the Julian period, and the 38th year before Chriſt. In the 447th year of this *æra*, the Alani, the Vandals, Suevi, &c. entered Spain. We find frequent mention of it in the Spaniſh affairs; their councils, and other public acts, being all dated according to it. Some ſay it was aboliſhed under Peter IV. king of Arragon, in the year of Chriſt 1358; and the Chriſtian *æra* ſubſtituted in its place. Mariana obſerves, that it ceaſed in the year of Chriſt 1383, under John I. king of Caſtile. The like was afterwards done in Portugal.

If to the year of the Spaniſh *æra* we add the number 4675, the ſum is the Julian year; or if from the ſame year we ſubtract 38, the remainder is the year of the Chriſtian *æra*. Struuchius.

ÆRA, *Chriſtian*. It is generally allowed by chronologers, that the computation of time from the birth of Chriſt was not introduced till the ſixth century, in the reign of Juſtinian, and is commonly aſcribed to Dionyſius Exiguus. This computation then came in uſe in deeds, &c. before which time either the Olympiads, the year of Rome, or that of the reign of the emperors, were uſed for thoſe ends.

ÆRA is alſo uſed, in ſome writers of the barbarous age, for any *year*.

In which ſenſe, we meet with *entering down the æra*, the *eleven hundred and eighth æra*, &c.

ÆRA ſignifies alſo *cuticle* or *darnel*.

ÆRARIUM, the public treaſury of the Roman ſtate.

The temple of Saturn at Rome, being the great treaſury of the ſtate, was firſt called *ærarium*; from *æs*, *æris*, *copper*; that being the only money in uſe before the year of Rome 485, when the ſilver began to be coined.

It was firſt erected under Auguſtus, and maintained by a yearly voluntary contribution; but that proving inſufficient, the twentieth part of all legacies and inheritances, except of ſuch as fell to the next of kin, or to the poor, were conſigned to this treaſury.

For the cuſtody hereof, three of the emperor's life-guard were conſtituted *præfecti ærarii*.

ÆRARIUM differs from *fiſcus*, as the firſt contained the public money, the ſecond that of the prince. Yet the two are ſometimes uſed indiſcriminately for each other. Calv. Lex. Jur.

ÆRARIUM *ſanctius* was an appendage to the former, added on occaſion of the growth of the Roman ſtate, when there was not room enough for lodging all the public monies, and the public acts, which were depoſited with it.

It was called *ſanctius*, becauſe placed in an inner and ſafer part of the temple; or becauſe in it was lodged the *aurum vicefimarium*, or twentieth, which was kept as a fund, or reſerve, for extreme neceſſity of the ſtate. On which account it was alſo called *ærarium vicefimarium*.

ÆRARIUM *Iliſtiæ*, or of *Juno Lucina*, was erected by Servius Tullius, ſixth king of the Romans, and compoſed of money paid in by parents, for the birth of each child. Dion. Hal. lib. iv.

ÆRARIUM *privatum*, or the privy-purſe, contained the money and effects which the prince was maſter of before his acceſſion to the empire. This was under the care of the COMES *rerum privatarum*.—We meet alſo with *ærarium juventutis*, *Veneris*, *libitinæ*, and other leſſer treaſuries, *æraria minora*, in the provinces.

ÆRARIUS, in *Antiquity*, an officer inſtituted by Alexander Severus, for the diſtribution of the money given in largeſſes to the ſoldiery, or people. Piſc. Lex. Ant.

ÆRARIUS was alſo uſed for a perſon whoſe name was ſtruck out by the cenſors from the *album*, or liſt of his century, and was only conſidered as a citizen ſo far as to make him ſubject to pay taxes, *æra*, without being entitled to any privileges, or advantages, from the common-wealth. Liv. dec. iii. lib. 9.

Hence the phraſes, *ærarium facere*, *inter ærarios referre*, *ærarios cenſere*, &c.—Not only plebeians, to whom ſome have reſtrained it, but alſo knights and ſenators were ſubject to this kind of degradation.

The *ærarii* were incapable of making a will, of inheriting, of voting in aſſemblies, of enjoying any poſt of honour or profit; in effect, were only ſubject to the burdens, without the benefits of ſociety; yet they retained their freedom, and were not reduced to the condition of ſlaves. To be made an *ærarius* was a puniſhment inflicted for ſome offence, and required one degree more ſevere than to be expelled a tribe, *tribu movere*.

ÆRARIUS is alſo uſed for a perſon employed in coining or working braſs.

Theſe are ſometimes called *ærarii fuſores*: at other times, *æratius* is diſtinguiſhed from *fuſor*; the former anſwering to what we now call copper-ſmiths, the latter to founders.

ÆRARIUS is alſo applied to a ſoldier, who receives pay.

ÆRATA *aqua*. See ZIMENT-*water*.

ÆREOLUS, anſwering to the Greek χαλκοῦς, was a weight, according to Diodorus and Suidas equal to $\frac{1}{5}$th, and according to others equal to $\frac{1}{8}$th of the OBOLUS, which was 9 $\frac{1}{2}$ grains.

AERIAL, AERIUS, ſomething that conſiſts of, or has relation to air.

The Eſſeni, the moſt refined and rational ſect among the Jews, held that the human ſoul conſiſted of an *aerial* ſubſtance.

And the Roſicrucians, and other viſionaries, fill the atmoſphere with *aerial* inhabitants.

AERIAL *perſpective*, is that which repreſents bodies weakened and diminiſhed, in proportion to their diſtance from the eye.

Aerial perſpective chiefly reſpects the colours of objects, whoſe force and luſtre it takes off more, or leſs, to make them appear as if more, or leſs, remote.

It is founded on this, that the longer the column of air an object is ſeen through, the more feebly do the viſual rays emitted from it affect the eye.

AERIANS, AERIANI, in *Antiquity*, a religious ſect denominated from Aerius, an Armenian prieſt of the fourth century.

The *Aerians* had much the ſame ſentiments, in reſpect of the Trinity, as the Arians; beſide which, they condemned prayers for the dead, ſtated faſts, the celebration of Eaſter, and other rites of the ſame nature; and they held that there is no difference between prieſts and biſhops, but that the prieſthood and epiſcopate are abſolutely one and the ſame order, or dignity: an opinion ſince ſtrenuouſly aſſerted by many modern divines.

Aerius built his doctrine chiefly on ſome paſſages in St. Paul; and, among others, that in the Firſt Epiſtle to Timothy, chap. iv. ver. 14. where that apoſtle exhorts him not to neglect *the gift he had received by the laying on of the hands of the preſbytery*. Here, obſerves Aerius, is no mention of biſhops; but Timothy evidently received his ordination from the preſbyters or prieſts.

Epiphanius zealouſly maintains the ſuperiority of biſhops, againſt the Aerians.—The word *preſbytery*, uſed by St. Paul, he obſerves, includes both biſhops and prieſts; the whole ſenate, or aſſembly, of the eccleſiaſtics of the place.

ÆRICA, or ERICA, in *Natural Hiſtory*, a name given by Gaza, and others, to the common bering.

ÆRIRUSA, the ancient name for the ſky-coloured JASPER.

ÆRITIS is a name given to what is more commonly called ANAGALLIS.

AEROGRAPHY, from ἀηρ, *air*, and γραφω, *I deſcribe*; a deſcription of the air, or atmoſphere, its limits, dimenſions, properties, &c.

This amounts to much the ſame with *aerology*, unleſs we ſuppoſe the latter to enter into the rational, and the former to confine itſelf to a deſcription of the more obvious affections thereof.

AEROLOGY, from ἀηρ, and λογος, *diſcourſe*, the doctrine or ſcience of the air, and its phenomena, its properties, good and bad qualities, &c.

AEROLOGY, called alſo the *aerological*, makes a part of the regimen of health, or the branch of medicine called by ſome *diætetics*, or the NON-NATURALS, which treats of air, its properties and uſe in the animal economy, and its efficacy in preſerving and reſtoring health.

AEROMANCY, AEROMANTIA, an ancient ſpecies of divination, performed by the means of the air, and phenomena happening therein.

The word is compounded of ἀηρ, *air*, and μαντεια, *divination*.

AEROMANCY included the buſineſs of AUGURY, and *auſpices*; the rules of prediction from uncommon winds, ſtorms, ſhowers, and other prodigies.

Modern authors ſpeak of a more rational *aeromancy*, meaning by it, the art of foretelling the changes and variations in the air and weather, winds, ſtorms, and the like.

Moſtof advances conſiderations for reducing *aeromancy* to a certainty, by means of a regular ſeries of meteorological obſervations. But though many ſuch have been inſtituted with great care in many parts, this art has hitherto made a very ſmall progreſs. Of this kind is Huxham's book De Aere.

Barometers, thermometers, hygrometers, and anemometers are of conſiderable uſe in this kind of *aeromancy*.

Mizoldus has publiſhed a body of rules for foretelling ſtorms, &c. drawn partly from vulgar obſervation, and the experience of mariners, partly from aſtrological conſiderations, under the title of AEROMANTIA.

ÆROMELI, a name given to HONEY, and alſo to MANNA. See DYSOMELI.

AEROMETRY, AEROMETRIA, the art of meaſuring the AIR, its powers and properties.

The word is compounded of ἀηρ, *air*, and μετρεω, *to meaſure*.

Aerometry includes the laws of the motion, gravitation, preſſure, elaſticity, rarefaction, condenſation, &c. of the atmoſpherical fluid.

The word *aerometry* is but little uſed: in lieu hereof, we commonly call this branch of philoſophy, PNEUMATICS.

C. Wolfius, profeſſor of mathematics at Hall, having reduced many of the affections of this fluid to geometrical demonſtration, firſt publiſhed Elements of *Aerometry*, at Leipſic, 1709, in High Dutch, and afterwards more largely in Latin.—Thus is the doctrine of the air incorporated into the mathematical ſciences.

AERONAUTICA, from ἀηρ, and ναυτικος, derived from ναυς, *ſhip*; the pretended art of ſailing in a veſſel through the air, or atmoſphere, ſuſtained as a ſhip in the ſea.

AEROPHYLACEA, in *Natural Hiſtory*, denotes ſubterraneous receptacles of air or wind.

The word is compounded of ἀηρ, *air*, and φυλακη, *cuſtodia*, *keeping*.—In which ſenſe *aerophylacea* ſtands contradiſtinguiſhed from *hydrophylacea*, *pyrophylacea*, &c.

Kircher ſpeaks much of *aerophylacea*, or huge caverns, replete with air, diſpoſed under ground, from whence, through numerous occult paſſages, that element is conveyed either to ſubterraneous receptacles of water, which are hereby raiſed into ſprings or rivers, or into the funds of ſubterraneous fire, which are hereby fed and kept alive for the preparation of metals, minerals, and the like.

AEROSIS, among the *Ancient Phyſicians*, denotes the act whereby the blood is attenuated and converted into an *aura*, for the ſupport of the vital ſpirits, and the maintenance of the flame of life.

AEROSTATICA, from ἀηρ, and στατικος, from ιστημι, *ſtatuo*; is uſed by ſome authors for the ſcience called by others AEROMETRY.

AEROSTATICA is properly the doctrine of the weight, preſſure, and balance of the AIR and ATMOSPHERE.

ÆRUGINOUS, ſomething partaking of, or like to, the ruſt of copper.

Authors do not ſeem perfectly agreed about the colour to be expreſſed by this word, ſome expreſſing by it green, others brown.

ÆRUGO denotes RUST, eſpecially that of copper.

Grew will have the TURCOIS-*ſtone* to be only a kind of petrified *æruge*.

Naturaliſts ſpeak of two kinds of *æruge*, one *native*, and the other *factitious*.

ÆRUGO, *nativa*, is only the ſuperficial particles of the metal diſſolved, and intimately mixed with acid ſalts; in which form it is ordinarily found in copper-mines, and other moiſt places.

ÆRUGO, *artificialis*, is what we more vulgarly call VERDIGRISE.

One ſpecies of *natural æruge* is a greeniſh marcaſite, like the drops of iron; it is found in copper-mines, but is of no uſe. There is alſo, on ſome mountains in Moravia, a ſort of green grains like ſand, that is of a graſs green, when uſed in painting. It is called the Hungarian, *mountain*, or *ſea* VERDIGRISE.

ÆRUGO *roſtilis*, is a ruſt formed on copper, by hanging a plate of it over the ſtrongeſt vinegar for ten days, without ſuffering it to touch it.

ÆRUGO *ſalis*, in *Natural Hiſtory*, a name given by Pliny, and ſeveral other ancient authors, to a reddiſh ſlimy matter, ſeparated from the Egyptian ſalt, called NATRUM, in purifying it. We find this matter remain in the filter, on diſſolving and filtering the Egyptian nitre, at this time; it ſeems to be a mixture of a bituminous matter, and a red earth, which had mixed themſelves among the cakes of the ſalt, during the time of their concreting from the water.

ÆRUSCATORES, in *Antiquity*, a kind of ſharping ſtrollers, who got their living by tricks, telling fortunes, and the like, much like modern gypſies. Alſo oppreſſive taxgatherers.

The word is formed from *æruſcari*, *to beg*, *whine*, &c.

The *Galli*, or prieſts of Cybele, were called *æruſcatores magnæ matris*, on account of their begging, or collecting alms in the ſtreets. To which end they had little bells, whereby to draw people's attention to them, much like ſome orders of mendicants abroad.

AERY, or AIRY, in ſpeaking of hawks, eagles, or the like, anſwers to the NEST of other birds.

ÆS, in *Antiquity*, has various ſignifications; but it properly denotes *braſs* or *copper*; and as copper was the firſt metal uſed in comage by the Romans, the word *æs* was

uſed

used in their language to ſignify money in general. It likewiſe denoted a particular coin made of that metal.

Æs cadarium, or *caſt* BRASS, otherwiſe called *æs ſtarium*, or *pot* BRASS, is a ſpecies of *braſs* mentioned by Pliny, which was not capable of being hammered. This is likewiſe a term uſed by the German *mineraliſts*, for a ſubſtance which ſometimes occurs to thoſe who work upon COBALT, and is uſed for making the fine blue colour called SMALT.

Æs candidum, among the *Ancients*, was different from that which we call *white* BRASS; it is a purer and whiter kind of metal, found, it is ſaid, under the veins of ſilver, ſomewhat analogous to Venetian TALC. They had probably a method of making COPPER *white* as well as *yellow*, equal, if not ſuperior, to that now in uſe. The phraſes of *orichalcum album* in Virgil, and of λευκὸν χαλκὸν, among the Greeks, ſtrictly ſignify *white* BRASS.

Æs Corinthium, a precious metallic compoſition, of a much finer colour than common braſs, and for its beauty little inferior to gold. Pliny ſays, that this was an accidental mixture of metals at the ſack and conflagration of Corinth by L. Mummius, 146 years before Chriſt; when the gold, ſilver, and braſs ſtatues, and all metallic ſubſtances, melting and mingling together, formed this maſs. But ſome refiners, who have ſtrictly examined this metal, find no gold in it; a circumſtance which, if true, ſuggeſts one reaſon, among others, for concluding, that this account is fabulous. However, the fable has been interpreted by ſome to ſignify, that the art of making COPPER into BRASS was firſt diſcovered by the Corinthians, who found the CALAMINE ſtone on the plains of Peloponneſus, or at leaſt that they brought this art to perfection.

Æs corusorium is uſed by Pliny to denote BRASS worked into thin plates.

Æs Cyprium was a kind of COPPER produced in the iſland of Cyprus.

Æs flavum, *yellow copper*. All the Roman authors have mentioned the method of making BRASS with *calamine* and *copper*; but their fineſt kind, which they called *oricholcum*, or *aurichalcum*, they diſtinguiſhed from the inferior ſorts, which had only the name of *æs flavum*.

Æs grave denoted money among the Romans, which was paid by weight, and not by tale. In this ſenſe it is uſed by Buddæus and Scaliger.

But others by *æs grave* underſtand large pieces of copper coined, containing, for inſtance, an *as*, or pound of that metal, ſuch as we find current in Sweden. Theſe they aſſert bore the title *æs grave*, till ſuch time as they were reduced to a ſmaller ſtandard.—Gronovius, on the contrary, maintains that the *as*, or pound weight, did not acquire the appellation, *æs grave*, till after their reduction. Phil. Tranſ. N° 19.

Kuſter rejects all theſe opinions, and aſſerts, that the expreſſion is uſed to denote any kind of copper-money, compared with gold or ſilver; which, with regard to the bulk and ſize of the pieces, was much lighter, though of greater value.

But this ſyſtem, however plauſible, is rejected by ſeveral learned men, particularly Periſonius, and Mr. Ward. The former has a diſſertation on the ſubject, wherein the opinion of Gronovius is farther examined and defended.

Æs hepaticon was of a ſilveriſh colour, and probably what the moderns call BRONZE; though ſome confound it with the *æs Corinthium*.

Æs pauperum is a name given to *copper ore*, diveſted of its ſilver, when it contains any.

Æs rude, that unſhaped, or not faſhioned for any particular purpoſe.—Some will have this to be the ſame with *æs grave*.—The money during the firſt ages of Rome was all of this kind.

Others, by *æs rude*, underſtand metal unſtamped; in oppoſition to *æs ſignatum*, that ſtamped, or coined.

Æs uſtum, among *Chemiſts*, is the ſame with what ſome called *æs Veneris*, or ſaffron of Venus; others *æs crematum*.

If good, it is of an iron grey on the outſide, of a reddiſh grey within; and if two pieces are rubbed together, a vermillion red is produced; it muſt alſo be brittle, and glittering when broken.

There are various ways of preparing *æs uſtum*: the moſt frequent is, by expoſing the plates to a reverberatory, or a potter's furnace, ſo long, till they will crumble into a powder. Another is, by heating a long ſlip of copper in a vehement fire, till it ſparkles, then pulling it ſuddenly out, and applying a piece of ſulphur on it; this immediately liquefies the copper, which drops down into a veſſel of cold water, placed to receive it. A third is, by cutting thin plates of copper, which are put into a crucible with ſulphur and ſalt, *ſtratum ſuper ſtratum*, and ſet in a hot charcoal fire, until the ſulphur be conſumed. A fourth is, by ſteeping the metal in a ſolution of ſalt, or ſtrong vinegar; then ſtratifying it with ſulphur, as above. After this, it is put in vinegar impregnated with ſal ammoniac. The like is repeated till the plates are conſumed. The vinegar being diſtilled from it, what remains is *æs uſtum*.

Æs uſtum is very drying and deterſive, and, on that account, mixed with plaſters and unguents, for drying up fiſtulous ulcers, and the imbibing acrimonious humours, or ſanies. It alſo ſerves to eat off dead fleſh; to which end, it is ſaid, they heat it red hot in the furnace nine times, and quench it as often in linſeed oil. It is then called SAFFRON of COPPER. But it is apt to render the bones carious. It is likewiſe uſed for colouring glaſs.

Æs uxorium, in *Antiquity*, a ſum paid, by bachelors, as a penalty for living ſingle to old age.

This tax for not marrying ſeems to have been firſt impoſed in the year of Rome 350, under the cenſorſhip of M. Furius Camillus, and M. Poſthumius.

At the *cenſus*, or review of the people, each perſon was aſked, *Et tu ex anima ſententia uxorem habes liberum quærendorum cauſſâ?* He who had no wife, was thereupon fined after a certain rate, called *æs uxorium*.

Æs; *flos* ÆRIS, called by the Greeks, ἀνθος χαλκου (ſometimes confounded by moderns with *chalcanthum*) is prepared of COPPER melted, and removed into other furnaces, wherein being expoſed to a farther and greater heat, and vehemently agitated by bellows, it depoſits an infinite number of ſmall ſcales like millet grains, which being ſeparated by lotion, make the *flos æris*. The cold water is poured on the copper, as it runs out of the furnace into the receiver.

Æs; *ſquama* ÆRIS properly denotes flakes of that metal ſtruck off by the hammer, in the operations of the forge, &c. Theſe, from the Cyprian copper-works, are called *Heliti*.

Æs; *per Æs & libram* was a *formula* in the Roman law, whereby purchaſes and ſales were ratified.

Originally the phraſe ſeems to have been only uſed in ſpeaking of things ſold by weight, or by the ſcales; but it afterwards was uſed on other occaſions. Hence even in ADOPTIONS, as there was a kind of imaginary purchaſe, the formula thereof expreſſed, that the perſon adopted was bought *per æs & libram*.

ÆSALON, in *Ornithology*, the name of a ſpecies of hawk of the long-winged kind, called, in Engliſh, the MERLIN. It is the ſmalleſt of all the hawk-kind uſed in the diverſion of hawking. It is of about the ſize of the black-bird. Its beak is blue, and its eyes hazel; it has a wreath of whitiſh yellow feathers behind its head; its chin is white, and its back and wings of a duſky blackiſh brown. Its larger wing-feathers are black, with brown ſpots; and its tail long, and variegated with tranſverſe ſtreaks of black and whitiſh brown; its breaſt and belly are of a whitiſh brown, variegated with blackiſh brown ſpots; its legs are long and yellow. It feeds on partridges and other birds. Ray.

ÆSCH, in *Ichthyology*, a name by which ſome have called the grayling, or tumbler, a fiſh of the truttaceous kind, called in Latin THYMALLUS. Willughby.

ÆSCHNA, in *Natural Hiſtory*, the name of a ſpecies of water-fly, of an aſh-colour, with four wings, and a long body, hairy near the tail.

ÆSCHYNOMENE, in *Botany*, a genus of the *diadelphia decandria* claſs of plants, the corolla of which is papilionaceous: the fruit conſiſts of a long compreſſo-plane, articulated, unilocular pod, containing a ſingle kidney-ſhaped ſeed. See SENSITIVE *Plant*.

ÆSCHYNOMENOUS *plants*, among *Botaniſts*, are thoſe popularly called SENSITIVE PLANTS.

ÆSCULAPII *anguis*, in *Zoology*, the name of a harmleſs ſpecies of ſerpent, common in Spain and Italy, called alſo PARRA.

ÆSCULAPIUS, the ancient name for the conſtellation OPHIUCUS.

ÆSCULUS, *horſe-cheſnut*, in *Botany*, a genus of the *heptandria monogynia* claſs. See CHESTNUT.

ÆSNECY, in *Law*, priority of age, among coparceners.

ÆSPING, in *Zoology*, a ſpecies of COLUBER.

ÆSTHPHARA, incineration, or burning of the fleſh, or any other part of the body.

ÆSTIMATIO *Capitis*, in our ancient law-books. See WERE and WERELADE.

King Athelſtan, in a great aſſembly held at Exeter, declared what mulcts were to be paid *pro æſtimatione capitis*, for offence committed againſt ſeveral perſons according to their degrees: the *eſtimation* of the king's head to be 30000 thrymſes; of an archbiſhop, or ſatrapa, or prince, 15000; of a biſhop, or a ſenator, 8000; of a prieſt, or a thane, 2000, &c.

ÆSTIVAL, or ESTIVAL, of or belonging to ſummer.

Thus, we ſay, the *æſtival* SOLSTICE, &c. in oppoſition to *brumal*.

ÆSTIVAL *point* is that whereby the ſun's aſcent above the equator is determined.

ÆSTIVAL *signs* are those extended from the summer solstitial point, i. e. the sun's greatest declination northward, to the intersection of the ecliptic and equinoctial southward, including Cancer, Leo, Virgo.

ÆSTRUS, a name given to particular species of THERIACLE.

ÆSTUARY, ÆSTUARIUM, in *Geography*, an ARM of the SEA, running up a good way into the land.

Such is Bristol channel, many of the firths of Scotland, &c. See BAY.

ÆSTUARY is sometimes also used in pharmacy, for a vapour-bath, *balneum vaporosum*.

ÆSTUARY, in the *Ancient Baths*, was applied to the occult passages, or openings from the *hypocaustum*, or stove, penetrating into the chambers. Pitiſc. Lex. Ant.

ÆSYMNETIC *monarchy*, among *Ancient Writers on Government*, denotes a limited elective monarchy. Arift. Polit. 10. The word is formed from *αισυμναω, regno, I govern.*—An *æſymnetic* ſtate ſtands oppoſed to a barbaric, or hereditary one.

ÆTATE *probanda*, in *Law*, a writ that lay to enquire whether the king's tenant, holding in chief by chivalry, were of full age to receive his lands into his own hands. It was directed to the eſcheator of the county; but is now diſuſed, ſince wards and liveries are taken away by the ſtatute Car. II. Reg. Orig. 294.

ÆTHALE, in *Natural Hiſtory*, a name given by ſome writers to the *cadmia fornacum*, or TUTTY.

It had this name from its being the concreted ſoot, or vapour of the *lapis calaminaris*, and copper, melted together, in the making of braſs.

ÆTHER, in *Phyſiology*, is uſually underſtood of a thin, ſubtile matter, or medium, much finer and rarer than air; which, commencing from the limits of our atmoſphere, poſſeſſes the whole heavenly ſpace.

The word is ſuppoſed to be formed from the verb, *æthuo, to burn, to flame*; ſome of the ancients, particularly Anaxagoras, ſuppoſing it of the nature of fire.

The philoſophers cannot conceive that the largeſt part of the creation ſhould be perfectly void; and therefore fill it with a ſpecies of matter under the denomination of *æther*.—But they vary extremely as to the nature and character of this *æther*.—Some conceive it is a body *ſui generis*, appointed only to fill up the vacuities between the heavenly bodies; and therefore confined to the regions above our atmoſphere.—Others ſuppoſem it of ſo ſubtile and penetrating a nature, as to pervade the air, and other bodies; and poſſeſs the pores and ſpaces even thereof.—Others deny the exiſtence of any ſuch ſpecific matter; and think the air itſelf, by the immenſe tenuity and expanſion it is ſuppoſed capable of, may diffuſe itſelf through the interſtellar ſpaces, and be the only matter found in them.

In effect, *æther* being no object of our ſenſe, but the mere work of imagination, introduced only for the ſake of hypotheſis, or to ſolve ſome phenomenon, real or imaginary, authors take the liberty to modify it how they pleaſe.—Some ſuppoſe it of an elementary nature, like other bodies, and only diſtinguiſhed by its tenuity, and the other affections reſulting from it; which is the philoſophical *æther*.—Others will have it of another ſpecies, and not elementary; but rather a ſort of fifth element, of a pure, more refined, and ſpirituous nature than the ſubſtances about our earth; and void of the common properties of matter, as gravity, &c.—Such is the ancient idea of *æther, or æthereal matter*.

The term *æther*, being thus embarraſſed with a variety of ideas, and arbitrarily applied to ſo many different things, the later philoſophers chooſe to let it alide; and accordingly the Carteſians uſe the term *materia ſubtilis*, which is their *æther*; and Sir Iſaac Newton ſometimes a *ſubtile ſpirit*, as in the cloſe of his Principles; and ſometimes a *ſubtile or æthereal medium*, as in his Optics.

The truth is, there are abundance of conſiderations, which ſeem to evince the exiſtence of ſome matter in the air, much finer than the air itſelf. There is an unknown ſomething, which remains behind, when the air is taken away; as appears from certain effects which we ſee produced *in vacuo*.—Heat, Sir Iſaac Newton obſerves, is communicated through a vacuum, almoſt as readily as through air: but ſuch communication cannot be without ſome interſtitial body, to act as a medium. And ſuch body muſt be ſubtile enough to penetrate the pores of glaſs; and may be very well concluded to penetrate thoſe of all other bodies; and conſequently be diffuſed through all the parts of ſpace, and anſwers to the full character of an *æther*.

The exiſtence of ſuch an æthereal medium being ſettled, that author proceeds to its properties; inferring it to be not only rarer and more fluid than air, but exceedingly more elaſtic and active: in virtue of which properties, he ſhews, that a great part of the phenomena of nature may be produced by it.—To the weight, e. g. of this medium he attributes gravitation, or the weight of all other bodies; and to its elaſticity, the elaſtic force of the air, and of nervous fibres, and the emiſſion, refraction, reflection, and other phenomena of light: as alſo ſenſation, muſcular motion, &c.—In ſhort, this ſame matter ſeems the *primum mobile*, the firſt ſource or ſpring of phyſical action in the modern ſyſtem.

The Carteſian *æther* is ſuppoſed not only to pervade, but adequately to fill all the vacuities of bodies; and thus to make an abſolute *plenum* in the univerſe. See MATERIA *ſubtilis*.

But Sir Iſaac Newton overturns this opinion, from divers conſiderations; by ſhewing that the celeſtial ſpaces are void of all ſenſible reſiſtance: for, hence it follows, that the matter contained in them muſt be immenſely rare, becauſe the reſiſtance of bodies is chiefly as their denſity; ſo that if the heavens were thus adequately filled with a medium or matter, how ſubtle ſoever, they would reſiſt the motion of the planets and comets much more than quickſilver or gold.

Some repreſent the *æther* as 7200 times more rare than air. Others make it more denſe than gold itſelf. See farther concerning the exiſtence of *æther*, Boyl. Philoſ. Works abr. tom. ii. p. 404. Vater, Phyſ. Exper. cap. 2. p. 72, &c. In fluidity, circulation, elaſticity, &c. Vater, ib. 77, ſeq. Verdries, p. 2. cap. 3. ſect. 1, p. 203. Hook, Poſth. Works, p. 171. In being the *primum mobile*, or ſource of all motion, Verdries, p. 6. ſect. 3. p. 307. In influence on the air, Hook, ib. p. 380. Impediment to the moon's motion, Id. ib. p. 191. In being the cauſe of the planetary motions, Gloria. de Letters d'Ital. tom. x. p. 6, ſeq. Of colours and refrangibility, &c. ib. tom. xxii. p. 132. Of ſound, ib. tom. ix. p. 315. and Mem. Acad. Scienc. Ann. 1720, p. 50. Philoſ. Tranſ. N° 102. p. 15.

ÆTHER, in *Chemiſtry*, called alſo *æthereal ſpirits* of Frobenius, *alcaheſted ſpirit of vitriol*, *acidum vitrioli dulcoſum*, by Pott, and *liquor anodynus mineralis*, by Hoffman, is a very ſubtile and penetrating fluid, produced by diſtillation from a mixture of rectified ſpirit of wine and the vitriolic acid. M. Macquer ſuppoſes, that, as ſpirit of wine conſiſts chiefly of an oil, exquiſitely attenuated by fermentation, and intimately combined with water, *æther* is no other than this ſubtilized oil, extricated by the vitriolic acid; which acid, having a ſtrong affinity or attraction to water, abſorbs the watery element of the ſpirit, and thus ſets the oily one at liberty.

Æther is the lighteſt, moſt volatile, and moſt inflammable of all known liquors; it ſwims upon the moſt highly rectified ſpirit of wine, as oil does upon water, and if dropped on a warm hand, it inſtantly exhales, diffuſing a penetrating fragrance, and leaving no moiſture behind. It takes fire on the approach of a candle, and goes off in a flaſh like lightning. As it is the moſt volatile and evaporable of all known liquors, it produces a proportionable degree of cold; inſomuch that M. Beaumé has made the mercury of Reaumur's thermometer ſink to 40 degrees below the freezing point, by applying ſirens ſoaked in *æther* to the ball containing the mercury.

Æther does not eaſily mix with water; *ten* parts of water being neceſſary to diſſolve *one* part of *æther*. It diſcovers a remarkable attraction to gold, though it has no effect on other metals. *Æther*, mixed with a ſolution of gold made in acids, imbibes the gold from the acid, keeps it perfectly diſſolved and ſuſpended, and becomes of a yellow colour. This property renders it of great uſe in extracting gold from other metals, and in aſcertaining the ſmalleſt portions of it in liquids. Thus we may likewiſe very expeditiouſly obtain a tincture of gold, or *aurum potabile*.

Æther has been ſucceſsfully employed in medicine. Dr. Morris recites ſeveral inſtances, in which he has applied it externally as a remedy for headaches, for the toothach, and for rheumatic complaints; and he has likewiſe preſcribed it internally for the hooping-cough, and in hyſterical caſes; and he apprehends, that it may be adminiſtered in large quantities with ſafety, and prove a uſeful medicine in a *typus* or lethargy. He has given the following ſafe, eaſy, and certain proceſs, for preparing it.

Take of rectified ſpirit of wine, three pounds; put it into a two gallon ſtone bottle; and to it by two ounces at a time, allowing the interval of a quarter of an hour between each addition, three pounds and ſix ounces of the ſtrong vitriolic acid; let the mixture digeſt without heat for the ſpace of a night: in the morning, decant it from one veſſel to another three or four times; convey it through a glaſs funnel, and long tube, into a retort, capable of containing three times the quantity; place it in an iron pot, with an inch of ſand at bottom; add more ſand round the retort, to the height of the mixture; ſet it over a quick fire; fave a large receiver to the retort, having a pin-hole in the luting, unleſs the receiver is perforated; continue the fire till an ebullition, accompanied with large bubbles, is obſerved in the mixture;

ture; then remove the fire entirely: the heat of the sand will be sufficient to complete the distillation of the *æther*. The distilled liquor must then be put into a clean retort, with two or three ounces of fixed alkaline salt; about half the liquor should be drawn off, by a very gentle heat, into a large receiver; and this being shaken with an equal quantity of pump water, the pure *æther* will rise immediately to the top. See Med. Obs. and Inq. vol. ii. p. 177.

The nature and use of this substance were very little known to the ancient chemists. Mr. Boyle, and sir Isaac Newton, indeed, were not entirely unacquainted with it; but it first began to excite general attention, in consequence of some experiments of Frobenius, the feigned name of a German chemist, published in the Philosophical Transactions for the year 1730; and it was by him denominated *æther*. See Phil. Trans. abr. vol. viii. p. 744. vol. iv. p. 373, 570.

Æther, though originally obtained from spirit of wine, by means of the vitriolic acid, has since been produced by means of the other acids; and it has been found, that the acid of vinegar is essentially fitter to produce *æther*, than the vitriolic acid. The first discovery of this kind of *æther* was made by the count de Lauraguais.

The marine acid unites with vinous spirits very slowly and with great difficulty. Processes for this purpose have been discovered by the marquis de Courtanvaux, M Beaumé, and M. le Baron de Bormes. The marquis employed the *smoaking spirit of Libavius*; but M. de Bormes made use of *zinc*, as a medium of concentrating the marine acid. M. Navier, in a process communicated to the Academy of Sciences in 1742, shews how to procure *æther* by means of spirit of nitre and spirit of wine, without distillation. He directs to mix them together in a bottle, which is to be exactly closed and left at rest, till the *æther* is formed, and collected like an oil upon the surface of the liquor. Other methods have been since published by M. Rouelle, and M. Beaumé.

See more on this subject in Macquer's Dictionary of Chemistry, under the article ETHER. See *Ætherial* SPIRITS.

ÆTHERIA *Herba*, is a name given to RUNGO.

ÆTHERIAL, ÆTHEREUS, something that belongs to, or partakes of the nature of *æther*.

Thus, we say, the *ætherial* space, *ætherial* regions, &c.—Some of the ancients divided the universe, with respect to the matter contained in it, into *elementary* and *ætherial*. Under *æther*, or the *ætherial* world, was included all that space above the uppermost element, viz. fire. This they supposed to be perfectly homogeneous, incorruptible, unchangeable, &c. See CORRUPTION.

The ancient Platonists and Pythagoreans suppose different bodies united with the human soul, viz. the gross, or material one; a finer aerial one; and, thirdly, the finest of all, which they call *ætherial*, celestial, &c. Cudworth Intell. Syst. c. 4.

The Chaldees placed an *ætherial* world between the *empyreum* and the region of the fixed stars. Beside which, they sometimes also speak of a second *ætherial* world, meaning by it the starry orb; and a third *ætherial* world, by which is meant the planetary region. Stanley Hist. Phil. p. 1046.

ÆTHERIAL *phosphorus*, is a name generally given, by Bernoulli, to that otherwise called mercurial, or barometrical PHOSPHORUS.

ÆTHERIAL *oil*, is a fine, subtle, ESSENTIAL OIL, approaching nearly to the nature of a spirit.

Thus, the pure liquor rising next after the spirit, in the distillation of turpentine, is called the *ætherial oil of turpentine*.

Some chemists distinguish two principles of NITRE; the one a volatile urinous salt, resembling spirit of nitre; the other, an *ætherial oil*, or sulphur, partaking of the nature of spirit of wine.

ÆTHEREAL *Heaven*. See HEAVEN.

ÆTHIOPIAN *crown*, in *Natural History*, the name of a shell-fish, of the genus of the *strombus*, or *lambis globosa*. It is of a brown colour, but differs from the common kinds of this genus, by having the top, or back, dentated, so as to represent a crown.

ÆTHIOPIS, signifies *Ethiopian clary*; a decoction of its roots is commended in pleurisies and rheumatisms.

ÆTHIOPS *mineral*, a preparation of mercury, usually made by grinding equal quantities of crude quicksilver and flower of sulphur, in a stone or iron mortar, till they become incorporated into a black powder.

It is prescribed for the worms, and all crudities and acrimony of the humours: and is reputed infallible against the itch, and other cutaneous diseases.

A new preparation of *æthiops* is given by Cruger a German physician, which is white and fair; and on that account, called *æthiops mineralis sanguine rubi albatum* in opposition to which, he calls the dark, or vulgar kind, *æthiops cum fuerore fuc.*

Authors are not agreed as to the merits of *æthiops mineral*. Cheyne, and many more, commend it highly. Boerhaave, on the contrary, and some others, reject it as useless.

ÆTHIOPS *alkali*, in *Pharmacy*, quicksilver rubbed with a double quantity of crabs-eyes, or of sugar-candy, till it is extinguished. This has been taken by some without any sensible effect; yet a very small quantity of it has raised a high salivation in others. Quicksilver extinguished in prunes, has operated much the same way. It is the same as *mere. alkalizat.*

ÆTHIOPS *antimonialis*, is prepared by fluxing equal parts of antimony and sea-salt, in a crucible, for an hour; the matter is then left to cool, and the *scoria* are obtained by breaking the crucible; equal parts of the regulus thus made, and of mercury rubbed together, till they are incorporated, will give the composition of this name. Different preparations of the same kind have been prescribed, and highly commended by some physicians, in venereal and scrophulous disorders.

ÆTHIOPS *martialis*, is a preparation first introduced into medicine by M. Lemery, junior, and is made in the following manner. Put filings of steel into an unglazed earthen vessel, with water enough to rise four inches above the filings: stir it every day, and supply water as it exhales, so as to keep the filings always covered: and continue to do this till a powder of an inky blackness be produced, which powder is called *martial æthiops*.

ÆTHIOPS *vegetabilis*. The sea-weed, burnt in the open air, and reduced into a black powder, is called *vegetable æthiops*. It is sometimes used to remove scrophulous swellings. See WRACK.

ÆTHOLICES, in *Physic*, derived from *æstus, to inflame*, is a name given to superficial pustules, or boils, in the skin, occasioned by heat.

ÆTHUSA, in *Botany*, lesser hemlock, or *fool's parsley*, a genus of the *pentandria digynia* class. See HEMLOCK.

ÆTHYIA, in *Ornithology*, a name by which the old authors have called one of the web-footed fowls, seeming to be the EUPHEMIA of Crete, or the common ANAS, or ANSER-SILLI.

ÆTIANS, ÆTIANI, in *Church History*, a sect or branch of ARIANS, so called from their leader Aetius, in the fourth century.

The *Aetiani* were of the stricter kind of Arians, who held that the Son and Holy Ghost are in every respect dissimilar to the Father.

Whence also they are called *Anomæi* and *Heteroufiani*; sometimes *pure Arians*.

ÆTIOLOGICAL, something that assigns the cause of an effect or appearance.

ÆTIOLOGY, in *Medicine*, *a rational*, or discourse of the cause of a disease. The word is compounded of *æτια, cause*, and *λογος, discourse*. In this sense we say, the *ætiology* of the small pox, of the *hydrophobia*, of the gout, the dropsy, &c.

ÆTIOLOGY is used for a figure in *Rhetoric*, whereby, in relating an event, we assign also the cause of it. In which sense, *ætiology* differs from *color*, as the former assigns the true cause, the latter only a feigned or specious one.

The sceptics were professed opponents of all *ætiology*, or argumentation from causes.

ÆTITES, or *eagle-stone*, in *Natural History*, a flinty or crustated stone, hollow within, and containing a *nucleus*, which, on shaking, rattles within. It was formerly in repute for several extraordinary *magical*, as well as *medical* powers; such as preventing abortion, discovering thieves, and other ridiculous properties.

The word is formed from *αετος, eagle*; the popular tradition being, that it is found in the eagle's nest, whither it is supposed to be carried while the female sits, to prevent her eggs from being rotten.

The LAPIS *ætites* is found in several parts near TEPHOUX in France; one can scarce dig a few feet, without finding considerable strata or beds, of the coarser or ferruginous kind.—They are originally soft, and of the colour of yellow ochre.

But the finest and most valued of all the eagle-stones, are accidental flakes of one or other of our common PEBBLES. These are so far from being a peculiar species of fossil, though usually accounted such, that they are not determinately of any one species of pebble. That, however, which most usually furnishes them, is the brown coutered pebble, with whitish, bluish, and brown crusts. The plain history of this remarkable fossil is this: the central *nucleus* of many species of pebbles, peculiarly of this, is coarser than the rest of the stone, that is, it is made up of more earth and less crystal; the natural consequence of which must be, that being of a more loose and rare texture, it is in drying more apt to shrink than such masses as are composed of a harder and purer matter. The central *nucleus* in this species is also surrounded with a whitish crust, of a more loose texture, and more subject to shrink in drying than even the *nu-*

cleus itſelf; and being compoſed of more earth and leſs cryſtal, is alſo more friable and ſoft. The outer circles of this ſtone are of a much harder ſubſtance. Whenever the earthy matter in the *nucleus*, and firſt cruſt of this pebble, a little exceeds its juſt proportion, the conſequence will be, that the ſtone will become an *aetites*: for the *nucleus* ſhrinking and contracting itſelf to a ſmall ſize on the evaporation of its fluid matter, muſt ſeparate itſelf from its firſt cruſt, and that alſo ſhrinking, muſt be drawn backward toward the other cruſts; whence the cavity will become larger between that and the *nucleus*, and conſequently, the *nucleus* will rattle in it when the ſtone is ſhaken. The pebble in this ſtate having been afterwards rolled about by waters, the *nucleus* has by rolling broken to pieces all the inner cruſt, and is uſually found in the hollow of the ſtone, buried in a large quantity of a whitiſh powder.

Theſe eagle-ſtones are not uncommon in our gravel-pits, but being by their hollowneſs rendered leſs ſtrong than the ſolid pebbles, we frequently find them broken. Hill.

The *aetites* is alſo known by the names *enteocium*, *echites*, *lapis aquilae*, *ovodialis*, *aquileius*, & *lapis pregnans*; ſome rank it under the claſs of precious ſtones, to which it has no title. Some think it may come properly enough under that of figured ſtones.

ÆTNA ſalt, SAL *Ætnæ*, a name given by ſome authors to the *ſal ammoniac* which is found on the ſurface and ſides of the openings of *Ætna*, and other burning mountains after their eruptions; and ſometimes on the ſurface of the ferruginous matter which they throw out. This ſalt makes a very various appearance in many caſes; it is ſometimes found in large and thick cakes, ſometimes only in form of a thin powder, ſcattered over the ſurface of the earth and ſtones. Some of this ſalt is yellow, ſome white, and ſome greeniſh.

This ſalt is a CONCRETE of nitre, ſulphur, and vitriol, burnt and ſublimed together; Boetii found once a vaſt quantity of this ſalt on mount *Ætna*, and tried many experiments on it; from whence he concluded, that this SALT is ſo far from occaſioning the exploſions of that mountain, as ſome have ſuppoſed, that it does not exiſt in it, but is formed during the burning. Phil. Tranſ. N° 100.

AFDELLES, in *Ichthyology*, a name given by the Cretans to the fiſh called at Rome, *dentellina* and *nigurella*. It is the *julis* of authors, and, according to the Artedian ſyſtem, is a ſpecies of the LABRUS. Artedi diſtinguiſhes it from the others, by the name of the *palmar labrus*, with variegated ſides, and two large teeth in the upper jaw.

AFEA, a weight uſed on the Gold Coaſt of Guinea. It is equal to an ounce, and the half of it is called *eggeba*. Moſt of the Blacks on the gold coaſt give theſe names to thoſe weights.

AFFATOMIA, in *Ancient Law*, a kind of donation made by thruſting a wand into the perſon's boſom, to whom it was made. Du-Cange.

AFFECTIO *lovina*, is a diſeaſe incident to cattle, occaſioned by a little WORM, bred between the fleſh and the ſkin; which works its way over all parts of the body.

AFFECTION, in a proper ſenſe, denotes an ATTRIBUTE, peculiar to ſome ſubject, and ariſing from the very idea or eſſence of it.

The word is formed from *afficere*, *to affect*; the SUBJECT being here ſuppoſed in ſome meaſure *affected*, or acted on, by the thing attributed to it.

In this ſenſe, *affection* is ſynonymous with *property*, or with what the ſchoolmen call *proprium quarto modo*.

Philoſophers are divided as to the doctrine and diviſion of *affections*; according to Ariſtotle, they are either *ſubordinating*, or *ſubordinated*; under the firſt of which comes only *mode*; and under the ſecond, *finiteneſs*, *place*, and *time*. The generality of Peripatetics divide *affections* into *internal*, as motion and finiteneſs; and *external*, as place and time. According to Sperlingius, *affections* are better divided into *ſimple* or *united*, and *disjunct* or *ſeparate*: under the firſt come *quantity*, *quality*, *place*, and *time*; under the ſecond, *motion*, and *reſt*.

Sperlingius then ſeems to reject finiteneſs from the number of *affections*; and Ariſtotle, and the Peripatetics, *quantity* and *quality*: but the difference is not irreconcilable; ſince Sperlingius does not deny body to be finite, nor Ariſtotle, and his followers, that it has *quantum* and *quale*. Only they have not made peculiar heads and titles for theſe.

Affections are alſo diſtinguiſhed into thoſe of *body*, and thoſe of mind.

AFFECTIONS *of body*, are certain modifications of it; occaſioned or induced by motion; in virtue of which, a body comes to be ſo and ſo diſpoſed.

The *affections of body* are ſometimes ſubdivided into *primary* and *ſecondary*.

AFFECTIONS, *primary*, are thoſe which ariſe either from the idea of matter, as quantity and figure; or from that of form, as quality and power; or from both together, as motion, place, and time.

AFFECTIONS, *ſecondary*, or *derivative*, are thoſe which ariſe from ſome of the primary; e. gr. from quantity, as diviſibility, continuity, contiguity, finity, impenetrability, from *figure*, as regularity and irregularity; from *quality*, as health, ſtrength, &c.

AFFECTIONS *of mind*, are what we more uſually call PASSIONS.

AFFECTIONS, *mechanical*. See MECHANICAL *affections*.

AFFECTION, in *Phyſiology*, is ſometimes uſed to expreſs that impreſſion which is made on our minds by ſubjects either within us, or without us; but *affection* more commonly denotes that lively ſenſe of pleaſure, or of averſion, which we feel from certain objects. Thus a picture repreſenting beings ſhocking to nature, is ſaid to *affect* us diſagreeably; and thus the relation of a generous or heroic action is ſaid to *affect* us agreeably.

AFFECTION is more peculiarly uſed, in *Medicine*, for a morbid, or preternatural ſtate of the body, or ſome of its parts. Thus we ſay, an HYPOCHONDRIACAL, an HYSTERICAL *affection*. And in like manner, ſuch a part of the body is *affected*, i. e. indiſpoſed, or ſeized with a DISEASE. The ſick are frequently miſtaken as to the place *affected*, by reaſon of the conſent between the ſeveral parts, which often makes a diſorder in one part to be felt in another.

AFFERORS, AFFERATORES, in *Law*, perſons appointed in court-leets, and other places, upon oath, to ſettle and moderate the FINES of ſuch as have committed faults arbitrarily puniſhable, or which have no expreſs penalty ſet down by ſtatute. See Stat. 25 Edw. III. cap. 7.

The word is formed, according to Cowel, of the French *affier*, to *affirm*; by reaſon thoſe appointed to this office do affirm, upon their oaths, what penalty they think, in conſcience, the offender hath deſerved. Others better derive it from *afferurer*, a word in the cuſtomary of Normandy, rendered by the Latin interpreters, *taxare*, *to ſet the price of a thing*; as *aſſimare*, *indicere*, &c.—Kitchin joins the three words as *ſynonyma*; *affidati*, *averantatores*, *afferores*.

AFFERI, in *Law*. See AVERIA.

AFFETTUOSO, or *Con* AFFETTO, in the *Italian Muſic*, is uſed to denote that kind of muſic, which muſt be performed in a very tender, moving, and affecting manner; and for that reaſon rather ſlow than faſt.

AFFIANCE, in *Law*, the plighting of troth between a man and a woman, upon an agreement of marriage to be had between them.

AFFIDATIO *Dominorum*, ſignifies an oath taken by the lords in parliament: thus called in the Rot. Parl. Hen. VI.

AFFIDATUS, or AFFIDIATUS, in our *Law Books*, denotes a tenant by FEALTY.

Affidati are not properly vaſſals, but *quaſi* vaſſals, or perſons who vow fealty to, and put themſelves under the protection of another.

In this ſenſe they amount to the ſame with what are otherwiſe called *commendati*, and *recommendati*.

AFFIDAVIT, an OATH, in writing, ſworn before ſome perſon who hath authority to take ſuch oath; and made uſe of, and read in court, upon motions; though not allowed upon trials.

In the court of chancery is an *Affidavit-office*, under the direction of a *Maſter of* CHANCERY.

AFFILIATION, AFFILIATIO, in *Middle Age Writers*, the ſame with adoption.

Among the ancient Gauls, *affiliation* was a ſort of adoption only practiſed among the great.—It was performed with military ceremonies: the father preſented a battle-axe to the perſon he was to adopt for his ſon, as an intimation that he was to preſerve the effects he thus called him to ſucceed to, by arms.

AFFINAGE is ſometimes uſed, in *Ancient Law Books*, for the refining of metals.

AFFINITY properly imports a relation contracted between one of two parties married, and the kindred of the other party.

The word is originally Latin, compounded of *ad*, *to*, and *finis*, *boundary*, *limit*; by reaſon, as the lawyer ſays, that one of the families here approaches to the bounds of the other: *Quod duæ cognationes per nuptias copulantur, & altera ad alterius cognationem finem accedit*. Or, as another expreſſes it, *Quod uterinſque cognationis fines in unum locum conferuntur*.

In which ſenſe the word ſtands contradiſtinguiſhed from *conſanguinity*, which is a relation by blood.

In the Moſaical LAW there are ſeveral degrees of *affinity* wherein marriage is expreſly prohibited, which yet ſeem not at all prohibited by the law of nature.

The *Canoniſts* diſtinguiſh three ſpecies of *affinity*.—The *firſt*, that contracted between the huſband and the relations

tions by blood of his wife; and between the wife and the relations by blood of her husband.

The *second*, between the husband and those related to his wife by marriage; and the wife, and those so related to her husband.

The *third*, between the husband and the relations of his wife's relations; and the wife, and the relations of her husband's relations.

By the fourth council of Lateran, held in 1213, it was decreed, that none but the first kind was any real *affinity*; the rest being mere refinements, which ought to be set aside.

The degrees are reckoned after the same manner in *affinity*, as in *consanguinity*; and therefore differently in the *Canon Law* from what they are in the *Civil Law*.

Whatever line or degree of consanguinity the kindred of one of the parties married are in, they are in the same line and degree of *affinity* to the other. And again, in whatever line or degree of *affinity* persons are, in the first kind, they are in the same in the second and third kinds of *affinity*. Hence arise what we may call a direct and collateral, an ascending and descending line of *affinity*.

The Romanists talk of a *spiritual affinity*, contracted by the sacrament of baptism and confirmation. In that church, a god-father may not marry with his god-daughter, without a dispensation.

Affinity does not found any real kinship; it is no more than a kind of fiction, introduced on account of the close relation between husband and wife. It is even said to cease, when the cause of it ceases. Hence a woman who is not capable of being a witness for her husband's brother, during his life-time, is allowed for a witness, when a widow, by reason the *affinity* is dissolved. Yet with regard to the contracting marriage, *affinity* is not dissolved by death, though it be in every thing else.

The degrees and terms of *affinity* are chiefly, father-in-law, i. e. husband's or wife's father, in Latin *socer*; step-father, i. e. mother's husband, *vitricus*; mother-in-law, i. e. husband or wife's mother, *socra*; step-mother, i. e. father's wife, *noverca*; son-in-law, *gener*; daughter-in-law, *nurus*; step-daughter, i. e husband's or wife's daughter by another marriage, *privigna*; step-son, i. e. husband's or wife's son by a former marriage, *privignus*; which two last, considered in relation to each other, are called *comprivigni*; son-in-law, i. e daughter's husband; brother-in-law, i. e husband's brother or sister's husband, *levir*; wife's brother, brother's wife; sister-in-law, i. e. husband or wife's sister. Calv. Lex. Jur.

AFFINITY, in the *Civil Law*, is divided into *civil*, that between free persons; and *servile*, that between slaves.

AFFINITY, *legitimate*, is that contracted by a proper and legal matrimony; or, between slaves, by *contubernium*.

AFFINITY, *illegitimate*, that contracted out of legal marriage.

Affinity may be contracted by an unlawful commerce: thus a person who has impregnated two sisters, is prohibited marrying either of them; thus an *affinity* may commence between husband and wife, by his lying with her sister.

AFFINITY, *true*, is that subsisting while the marriage between the two parties subsists.

AFFINITY, *quasi*, that subsisting either after the dissolution of the marriage, as between a husband, and his wife's daughter, begot by another after her being divorced from him; or before the marriage is solemnized, as that between a father and a daughter, only espoused, or betrothed to his son.

AFFINITY is also used figuratively, for a conformity, or agreement, between one thing and another.

In which sense, the word stands opposed to diversity, variety, opposition, &c.

Bishop Wilkins gives tables, wherein things are classed according to their *affinities*. Vide Real Charact. p. ii. p. 22.

Henckelius has a treatise on the *affinity* between *vegetables* and *minerals*.

AFFINITY, is more particularly used in speaking of the relation or similitude between LANGUAGES, occasioned by their being derived from the same source.

We use also *affinity* of words, sounds, &c.

AFFINITY, in *Chemistry*, is a term which corresponds to *attraction* in the mechanical philosophy, and denotes the tendency which the constituent parts of bodies have to unite, and the power by which they adhere when united. It is sometimes called *elective attraction*, or the *power of combination*.

AFFINITY, *simple*, is either that power of mutual union, which subsists between the integrant and homogeneous parts of the same body, more properly called *attraction of cohesion*; or that which produces the union and adherence of the heterogeneous parts of two different bodies, from which results a new compound body, whose properties are different from those of the two principles whereby it is formed: e. g. two bodies, each by itself very easily fusible in fire, as lead and sulphur, shall form a compound very difficult of fusion: and two which cannot separately be made to melt at all, as pure clay and chalk, can melt with ease when joined together. This is sometimes denominated

AFFINITY *of composition*; though this term is more generally applied to the powers of union, which are discoverable in a *number* of heterogeneous bodies, whose dissimilar parts are blended together. Chemical union, and the properties thence resulting, are exempt from all known mechanism; nor can the united bodies be separated by any mechanical force. But a third body may have a stronger *affinity* to either of the component matters than they have to one another; in which case, on presenting to the compound this third body, the former union is broken, and one of the first bodies coalesces with the third, while the other is detached and separated.

And the result of the combination will be very various, according to the nature and number of the substances employed.

M. Geoffroy, and M. Gellert, have given tables of the different degrees of *affinity*, between most of the bodies employed in *chemistry*, combined in various ways; whereby we may foretel the result of any mixture, what will be the issue of the combat, which will surmount, and which give way to the other.

Some objections to these tables, with illustrations of them, are given in the Mem. Acad. Scienc. for the year 1720, p. 24. and in the Hist. p. 42. and likewise in an appendix to the English edition of Macquer's Chem. Dict. See also the tables, with two additional columns, in that of M. Geoffroy, by Dr. Black.

A TABLE OF THE SOLUTIONS OF BODIES, BY MR. GELLERT.

1. Siliceous Earth	2. Flours	3. Clay	4. Earth Gypseous	5. Earth Calcareous	6. Fixed Alkali	7. Volatile Alkali	8. Acetous Acid	9. Marine Acid	10. Nitrous Acid	11. Vitriolic Acid	12. Aqua Regia	13. Nitre	14. Sulphur	15. Hepar of Sulphur	16. Cobalt	17. Arsenic	18. Reg. of Antim.	19. Glass of Antim.	20. Bismuth	21. Zinc	22. Lead	23. Tin	24. Iron	25. Copper	26. Silver	27. Mercury	28. Glass
Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim.	Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim. Clay Earth Calcareous Earth Gypseous	Vitriolic Acid Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim. Gypseous Earth Calcareous Earth	Acids Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antimony	Vitriolic Acid Nitrous Acid Marine Acid Acetous Acid Hepar of Sulphur Fixed Alkali Borax Calx of Lead Calx of Antim.	Phlogist. Vitriolic Acid Nitrous Acid Marine Acid Vegetable Acids Zinc Iron Copper Lead Tin Reg. of Antim. Cobalt Arsenic Bismuth	Phlogist. Vitriolic Acid Nitrous Acid Marine Acid Acetous Acid Zinc Iron Copper Bismuth Mercury Silver Gold	Phlogist. Zinc Iron Copper Tin Lead Bismuth	Phlogist. Zinc Iron Copper Tin Lead Bismuth Reg. of Antim. Mercury Arsenic	Phlogist. Zinc Iron Cobalt Copper Bismuth Lead Mercury Reg. of Antim. Silver Arsenic Tin	Phlogist. Zinc Iron Copper Silver Tin Lead Bismuth Reg. of Antim. Mercury Arsenic	Phlogist. Zinc Iron Cobalt Copper Tin Arsenic Bismuth Mercury Lead Reg. of Antim. Gold	Phlogist. Zinc Iron Copper Arsenic Lead Tin Reg. of Antim. Cobalt Bismuth	Iron Copper Tin Lead Silver Bismuth Reg. of Antim. Mercury Arsenic Cobalt	Gold Silver Iron Copper Lead Tin Reg. of Antim. Bismuth Zinc Cobalt	Copper Iron Tin Zinc Reg. of Antim. Bismuth Lead Silver Arsenic (partly)	Zinc Iron Copper Tin Lead Silver Gold Reg. of Antim.	Zinc Iron Copper Tin Lead Silver Bismuth Gold	Zinc Copper Tin Lead Iron Silver	Iron Copper Tin Lead Silver Gold	Copper Iron Silver Gold Tin Lead (partly)	Silver Gold Tin Copper	Iron Copper Silver Gold	Gold Silver Copper	Gold Silver	Gold	Gold Silver Bismuth Zinc Tin Lead Copper Reg. of Antim.	Calx of Lead Calx of Cobalt Calx of R. of Antim. Calx of Gold Calx of Silver Calx of Copper Calx of Iron Calx of Bismuth Calx of Zinc Calx of Mercury

BODIES NOT SOLUBLE BY THE SUBSTANCES PLACED AT THE HEAD OF THE COLUMNS IMMEDIATELY ABOVE THEM.

[illegible] Earth	Siliceous Earth	Siliceous Earth Calcareous Earth	Siliceous Earth	Gold Silver		Gold Silver Tin Mercury	Gold Silver (partly by the dry way)	Gold	Gold	Silver	Gold Silver	Gold Zinc				Bismuth		Bismuth	Zinc		Iron					Iron Cobalt	

Dr. BLACK's SUPPLEMENT.

A TABLE of AFFINITIES between several SUBSTANCES, by Mr. GEOFFROY.

1. Acid Spirits	2. Marine Acid	3. Nitrous Acid	4. Vitriolic Acid	5. Absorbent Earth	6. Fixed Alkali	7. Volatile Alkali	8. Metallic Substances	9. Sulphur	10. Mercury	11. Lead	12. Copper	13. Silver	14. Iron	Regulus of Antimony	Water	Acids	Fixed Air
Fixed Alkali	Tin	Iron	Palogiston	Vitriolic Acid	Vitriolic Acid	Vitriolic Acid	Marine Acid	Fixed Alkali	Gold	Silver	Mercury	Lead	Reg. of Antim.	Iron	Spirit of Wine	Fixed Alkali	Calcareous Earth
Volatile Alkali	Regulus of Antimony	Copper	Fixed Alkali	Nitrous Acid	Nitrous Acid	Nitrous Acid	Vitriolic Acid	Iron	Silver	Copper	Lapis Calaminaris	Copper	Silver Copper Lead	Silver Copper Lead	Neutral Salts	Calcareous Earth	Fixed Alkali
Absorbent Earths	Copper	Lead	Volatile Alkali	Marine Acid	Marine Acid	Marine Acid	Nitrous Acid	Copper	Lead							Volatile Alkali	Magnesia
Metallic Substances	Silver	Mercury	Absorbent Earths		Acetous Acid		Acetous Acid	Lead	Copper							Magnesia	Volatile Alkali
	Mercury	Silver	Iron		Sulphur			Silver	Zinc								
			Copper					Reg. of Antim.	Reg. of Antim.								
			Silver					Mercury									
	Gold							Gold									

These tables, though in many respects inaccurate and defective, may be of considerable use. Each of them consists of a number of columns. At the head of each column is placed the substance, the *affinities* of which are to be compared with the several substances placed below it in the same column; and they are disposed in the order of their strongest *affinities*.

It is likewise to be observed, that any substance in any of these columns may be separated from the substance at the head of that column, by any of the intervening substances. For a farther explication of the nature and use, as well as the defects of these tables, consult the Dictionary above cited.

AFFION, is a name given by the Arabians to opium; and also to an electary, in which opium is an ingredient.

AFFIRMATION, *affirmatio*, in *Logic*, a positive proposition, alledging the truth or reality of something.

Affirmation is defined, by the *Logicians*, an act whereby we attribute one idea to another; as supposing it to belong, or agree thereto.—As when, conceiving perfection to agree to the Deity, we say, *God is perfect*.

This, on other occasions, is called ENUNCIATION, PROPOSITION, COMPOSITION, and JUDGING.

AFFIRMATION, in *Law*, signifies the ratifying or confirming a former law, or judgment.

We say, to *affirm* a judgment: the house of lords, on an appeal, *affirmed* the lord chancellor's decree.

AFFIRMATION is also used in *Grammar*, by some refiners upon that art, for what is usually called a VERB; because the office of that part of speech is to express what we *affirm* or attribute to any subject.

AFFIRMATION is also used for a solemn form of attesting the truth, allowed to be used by the QUAKERS, instead of an oath, which they hold absolutely unlawful to take. See the form of the *affirmation*, &c. under the article QUAKER.

AFFIRMATION is of divers kinds, tacit, by words, by a nod, or gesture, &c.

In a civil law sense, *affirmation* may be divided into *simple*, which is that from which no obligation arises; and *qualified*, which infers an obligation.

The requisites of this latter are, that it be, 1. deliberate and free; 2. sincere; 3. certain and specific; 4. clear and perspicuous.

AFFIRMATIVE, in *Logic*. See AFFIRMATION.

There are universal *affirmative* propositions; and such, usually, are the first of SYLLOGISMS.

In *Algebra* we have also *affirmative* or positive QUANTITIES, which have their appropriated CHARACTERS.

AFFIRMATIVE *sign*, or character. See CHARACTER.

AFFIR-

AFFIRMATIVE, in *Grammar*. Authors diſtinguiſh *affirmative* particles; ſuch is, *yes*.

The term *affirmative* is ſometimes alſo uſed *ſubſtantively*. Thus we ſay, the *affirmative* is the more probable ſide of the queſtion: there were ſo many votes, or voices, for the *affirmative*.

AFFIRMATIVE is particularly applied, in the Roman INQUISITION, to ſuch heretics as own the errors and opinions with which they are charged; and maintain them in their examination with firmneſs and reſolution.

AFFIX, in *Grammar*, a particle added at the cloſe of a word, either to diverſify its form, or alter its ſignification. In which ſenſe, *affix* is the ſame with *ſuffix*; though *affix* is ſometimes, but leſs properly, applied more generally, ſo as to include prefix particles.

The word is Latin, *affixus*, compounded of *ad* and *figo*, *I fix*.

We meet with *affixes* in the Saxon, the German, and other northern languages; but more eſpecially in the Hebrew, and other oriental tongues.

The Hebrew *affixes* are ſingle ſyllables, frequently ſingle letters, ſubjoined to nouns and verbs; and contribute not a little to the brevity of that language.

The oriental languages are much the ſame as to the RADICALS; and differ chiefly from each other as to *affixes* and PREFIXES. Mem. Acad. Inſcrip. tom. ix. p. 334.

AFFLATUS literally denotes a blaſt of wind, breath, or vapour, ſtriking with force againſt another body. It ſometimes affects the body with a diſeaſe, which is a ſpecies of the *eryſipelas*.

The word is formed from *ad* and *flare*, *to blow*.

Naturaliſts ſometimes ſpeak of the *afflatus* of ſerpents.

Tully uſes the word *figuratively*, for a divine INSPIRATION. In which ſenſe, he aſcribes all great and eminent accompliſhments to a divine *afflatus*.

AFFLICTION is not itſelf, in propriety of medical ſpeech, a diſeaſe, but it produces many; for whatever excites envy, anger, or hatred, produces diſeaſes from tenſe fibres; as whatever excites fear, grief, joy, or delight, begets diſeaſes from relaxation.

Many chronical diſeaſes, particularly the *phthiſis*, ſpring *from affliction*. For a very remarkable hiſtory of the effect of *affliction*, ſee Hiſt. de l'Acad. Roy. des Scienc. an. 1732.

AFFLUX, in *Electricity*, is oppoſed to *efflux*; and both terms were uſed by the abbé Nollet, and alſo by Dr. Watſon, previous to the diſcovery of poſitive and negative electrics. They apprehended, that in all electrical operations, there was both an *efflux* of electrical matter to the globe and the conductor, and likewiſe an *efflux* of the ſame matter from them. Dr. Watſon ſoon corrected this miſtaken opinion; but the abbé Nollet was more tenacious; and he was confirmed in his attachment to this favourite theory by obſerving, that bodies not inſulated, plunged in electric atmoſpheres, ſhewed ſigns of electricity; not perceiving, that the electricity of ſuch bodies was in its nature and effects different from, and directly oppoſite to that of the electrified body, in the atmoſphere of which they were involved. See ELECTRICITY.

AFFORAGE, in the French *Coſtoms*, a duty paid to the lord of a diſtrict, for permiſſion to ſell wine, or other liquors, within his ſeignory.

Affurage is alſo uſed for the rate or price of proviſions laid and fixed, by the proveſt, or ſheriff, of Paris.

AFFORCEMENT, *afforciamentum*, in ſome ancient charters, denotes a FORTRESS, or work of FORTIFICATION and DEFENCE.

The word is derived from the barbarous Latin *afforciare*, *to ſtrengthen, confirm*.

AFFORESTING, *afforeſtatio*, the turning ground into FOREST.

In this ſenſe, the word ſtands oppoſed to DISAFFORESTING.

The Conqueror, and his ſucceſſors, continued *afforeſting* the lands of the ſubject, for many reigns; till the grievance became ſo notorious, that the people of all degrees and denominations were brought to ſue for relief; which was at length obtained, and commiſſions were granted to ſurvey and perambulate the foreſt, and ſeparate all the new *afforeſted* lands, and re-convert them to the uſes of their proprietors, under the name and quality of PURLIEU or *pourpris lend*.

AFFRANCHISEMENT. See MANUMISSION.

AFFRAY, in *Law*, is derived from the French word *effroyer*, *to affright*, and it formerly meant no more; as where perſons appeared with armour, or weapons not uſually worn, to the terror of others. Stat. 2 Edw. III. cap. 3. But it now implies a ſkirmiſh or fighting between two or more, and there muſt be a ſtroke given or offered, or a weapon drawn, otherwiſe it is not an affray. 3 Inſt. 158. It is inquirable in the court-leet, and puniſhable by juſtices of peace in their ſeſſions, by fine and impriſonment; and it differs from ASSAULT, in that it is a wrong to the public; whereas aſſault is of a private nature. Lamb. lib. ii. A conſtable, or private perſon, may ſeize offenders where they are aſſembled in a tumultuous manner. 3 Inſt. 158. H. P. C. 135.

AFFREIGHTMENT, or AFFRETAMENT, AFFRETAMENTUM, in *Law*, ſignifies the FREIGHT of a ſhip.

The word is formed from the French *fret*, which expreſſes the ſame thing.

AFFRONTÉ, in *Heraldry*, is underſtood of animals borne in an ESCUTCHEON as facing, or with their heads turned towards each other. This is otherwiſe called *confronté*; and ſtands oppoſed to *adoſſé*.

The word is French, and literally ſignifies the ſame. It is compounded of *ad*, *to*, and *front*, *forehead*.

AFFUAGE, *affuagium*, in *Antient Cuſtoms*, a right of cutting fuel-wood in a foreſt, or the like, for maintaining family fire. De-Cange.

The word is derived from *affuer*, q. d. *affocare*, *to make a fire*, of *ad* and *focus*.

AFFUSION, the act of pouring ſome fluid ſubſtance on another body.

Dr. Grew gives ſeveral experiments of the luctation ariſing from the *affuſion* of divers menſtruums on all ſorts of bodies.

Divines and church hiſtorians ſpeak of BAPTISM *by affuſion*, which amounts to much the ſame with what we now call ſprinkling.

AFLOAT, a ſhip is ſaid to be *afloat*, when ſhe is buoyed up by the water from the ground.

AFOBA, in *Botany*, a name given, by the natives of Guinea, to a kind of plant, of the genus of the *phaſeolus*, or kidney-bean. They uſe it pounded and mixed with oil, to cure the itch, and other cutaneous ſouleſſes. It is more hairy than the common kinds, and its leaves are very ſmall. Phil. Tranſ. N° 232.

AFRA *avis*, in *Natural Hiſtory*. See PINTADO.

AFRICAN *company*. See the article COMPANY.

AFRICANUS *flos*. Gerard mentions four ſpecies of this flower; Miller enumerates and deſcribes thirteen; but they are of no repute in medicine.

AFRICTA denotes a kind of wafers, which the ancients uſed in their ſacrifices. Arnob. lib. vii.

AFSLAGERS, perſons appointed by the burgo-maſters of Amſterdam, to preſide over the public ſales made in that city. They muſt always have a clerk of the ſecretary's office with them, to take an account of the ſale. They correſpond to our BROKERS, or AUCTIONEERS.

AFT, behind, or near the ſtern of the ſhip.

AFTER-BIRTH, among *Midwives*, the coat, or membranes, wherein the FOETUS is incloſed *in utero*.

It is thus called, becauſe it comes away ſome time after the *foetus*; by way of a ſecond birth, or DELIVERY.

Phyſicians uſually call it the SECUNDINE. It alſo includes the *placenta uterina*, popularly called the *womb-cake*.

In brutes it is denominated the HEAM, or *cleaning*. See Collect. Acad. P. E. tom. iii. p. 464.

Authors ſpeak of a ſtrange kind of *after-birth*, of the mole-kind, frequent among Dutch women, where it is called *ſloyger*, q. d. *lieth*, by naturaliſts *mola volutilis*. The ſkeleton of one of theſe is deſcribed and repreſented by Thomas Bartholine, Ephem. Germ. dec. 1. ann. 2. obſ. 160. p. 255.

The *after-births* of ripe children are brought away more eaſily than thoſe of abortions. See Medic. Eſſ. Edinb. vol. ii. p. 212.

AFTER-*math*, among *Huſbandmen*, the after-graſs, or ſecond mowings of graſs; or elſe graſs or ſtubble cut after corn.

AFTER-*noon*, the latter half of the artificial day, or that ſpace between noon and night.

The ancient Romans dedicated their *afternoons* to diverſion, as their forenoons to buſineſs; and their uſual diverſions were the game called *pila*, and other exerciſes of the body, eſpecially walking, or riding. Theſe laſted till the eighth or ninth hour, anſwering to our three o'clock, which was the time for the baths. After bathing, they anointed and perfumed themſelves; and, about the tenth hour, went to *cœna*, *ſupper*, about three hours before ſun-ſet; which done, the day was ended at the public ſpectacles, theatrical, or amphitheatrical ſports; with muſic, ſinging, and the like.

AFTER-*ſails* uſually comprehend all thoſe which are extended on the mizen-maſt, and on the ſtays, between the mizen and main-maſts.

AFTER-*pains*, are pains felt in the loins, the groin, &c. after the birth is brought away.

They ſeem to ariſe from a diſtention of the ligaments of the *uterus* in time of DELIVERY, and are ſeldom dangerous, unleſs aggravated by a detention of the *ichia*.—To prevent them, oil of ſweet-almonds, ſpermaceti, ſyrup of *capillus Veneris*, &c. are uſually preſcribed.

AFTER-*swarms*, in speaking of bees, are secondary or posterior swarms, frequently found to quit the hives within a fortnight after the first.

Butler tells us, that the *after-swarms* differ from the prime, in that the latter are directed by the vulgar, or crowd of bees, whose only rule is the fullness of the hive; whereas the former are appointed by the ruling bees, and indicated by a noise or call, which these make for the space of two or three days, as it were to give warning to the common herd to prepare for a march. Within eight or ten days after the prime swarm is gone, if the princess next in order find a competent number fledged and ready, she begins to tune her treble voice, in a mournful and begging note, as if she prayed the queen-mother to let them go; to which voice, if she vouchsafe a reply, by tuning her base to the other's treble, it marks her consent: in consequence of which, within a day or two after, if the weather allow, the new swarm appears. If the *prime* swarm be broken, the *after* will both call and swarm the sooner, perhaps the next day; in which a third, sometimes a fourth, succeeds in the same season; but all usually within a fortnight after the prime swarm. See SWARM.

AFTO, in *Botany*, a name given by the natives of Guinea to a plant of the *erysimum* kind, which they grind to powder, and take as snuff, to cure the head-ach. Petiver has called this plant the woody and woolly *erysimum*, or hedge-mustard, of the coasts of Guinea. Phil. Trans. N° 232.

AGA, in the language of the Moguls, &c. signifies a great man, lord, or commander.

In this last sense, the term is also used among the Turks: thus, the *aga* of the janizaries is their colonel; and is the only person who is allowed to appear before the grand seignor, without his arms across his breast, in the posture of a slave. The *capi aga* is the captain of the gate of the seraglio.

The title *aga* is also given, by way of courtesy, to several persons of distinction, though not in any office, or command, to entitle them to it; as to the eunuchs of the seraglio.

The chief officers under the KHAN of Tartary are called by this name. And among the Algerines, we read of *agas* chosen from among the *beluk bashis* (the first rank of military officers), and sent to govern in chief the towns and garrisons of that state.

On some occasions, in lieu of *aga*, they say, *agassi*, or *agassi*. Thus the *aga*, or governor of the pages, is called *capi agassi*; and the *aga* or general of the horse, *spahilar agassi*.

AGA *Orientalium*, signifies the Spanish milk-thistle.

AGAI, see AGIO.

AGALACTIA, in *Physic*, signifies a deficiency of milk in a mother, who is therefore called by Hippocrates ἀγάλακτος.

AGALLOCHUM, a medicinal wood imported from the East Indies, usually in small bits, of a very fragrant scent. The word is derived from the verb ἀγαλλομαι, *I boast*, in allusion to the excellency of its odour.

AGALLOCHUM is otherwise called *lignum aloes* and *xylaloe*, q. d. *aloe-wood*, not that it is produced from the common aloe-plant, which yields the inspissated juice of that name. It is the produce of a tree of a very different kind, growing in the East Indies, particularly Sumatra and Cochinchina. Some call it likewise LIGNUM *paradisi*. It yields a concrete oil. See its chemical history in Neumann's Works, p. 420.

It is of a blueish purple colour, marked with veins and spots, very heavy and bitter; when burnt it yields drops of an astringent liquor, and a sweet aromatic fume. It is hot and drying, and esteemed a great strengthener of the nerves in general, but particularly of the head and stomach.

The various names and accounts given of the *agallochum* are so very different, as well as the specimens of it common in our shops, that it does not seem to be properly known amongst us.

AGALMATA, in *Antiquity*, originally denoted the ornaments of temples and statues; but came afterwards to be popularly used for the statues and temples themselves.

AGAPES, or AGAPÆ, in *Church History*, a kind of religious festival, celebrated, in the ancient church, to keep up a harmony and concord among its members.

The word is formed of the Greek ἀγαπη, *love*.

In the primitive days the *agapes* were held without scandal, or offence; but, in after times, the heathens began to tax them with impurity.—This gave occasion to a reformation of the *agapæ*.

The kiss of charity, with which the ceremony used to end, was no longer given between different sexes; and it was expressly forbidden to have any beds, or couches, for the conveniency of those who would be disposed to eat more at their ease. Notwithstanding these precautions, the abuses committed in them became so notorious, that the holding of them (in churches at least) was solemnly condemned, at the council of Carthage, in the year 397.

Some authors imagine the *agapæ* to have been, not a commemoration of our Saviour, but a custom borrowed from the heathens: *Mos vero ille, ut referunt*, says Sedulius, on the XIth chapter of the epistle to the Corinth. *de Gentili adhuc superstitione venisse*. And Faustus, the Manichee, is represented, by St Augustine, as reproaching the Christians with converting the heathen sacrifices into *agapæ*.

AGAPE signifies also an afternoon, or evening's meal.

AGAPETÆ, in *Ecclesiastical History*, a name given to certain virgins and widows, who, in the ancient church, associated themselves with, and attended on, ecclesiastics, out of a motive of piety and charity.

In the primitive days there were women instituted DEACONESSES; who, devoting themselves to the service of the church, took up their abode with the ministers, and assisted them in their functions.

In the fervour of the primitive piety, there was nothing scandalous in these societies; but they afterwards degenerated into libertinism: insomuch, that St. Jerom asks, with indignation, *unde agapetarum pestis in ecclesias introiit?* This gave occasion to councils to suppress them.—St. Athanasius mentions a priest, named Leontius, who, to remove all occasions of suspicion, offered to mutilate himself, to preserve his beloved companion.

AGAPIS *lapis*, in *Natural History*, a name given by ancient writers, to a stone of a dusky yellow, or the colour of a hon's skin; it was held in great esteem in many nations, on account of its supposed virtues, as an anodyne and vulnerary.

AGARENI, or AGARENIANS, a name given by some to the followers of the religion of Mahomet.

The word is derived from Agar, or Hagar, handmaid of Abraham, and mother of Ishmael; and properly denotes the Arabs, called also Ishmaelites, and more lately Saracens.

AGARIC, in *Pharmacy*, a kind of fungous excrescence, growing on the trunks and large branches of several trees; but, chiefly, on the larch-tree, and upon some kinds of oak, when old and decayed. Three fourths of it consist of a resinous subitance, and the remainder is a slimy mucilaginous earthy matter, so tenacious, as scarcely, by any method, to be dissolved by water. It comes forth on the tree in the beginning of the spring, and continues to increase till autumn. The best is easily cut with a knife, friable betwixt the fingers, and has no hard, or gritty, or coloured veins. It has no pedicle, and is internally of a simple uniform structure throughout its whole substance. *Agaric* is an ingredient in the *theriaca Andromachi*, where it is admitted in quality of a cordial; though its cardiac virtue is excepted to as much as its purgative.

Agaric was a purge in much esteem among the ancients, but has deservedly fallen into distrepute of later years, as it occasions unsupportable nausea.

Tournefort enumerates eighteen species of *agaric*. Tournef. Inst. 562. But it is more generally divided into three kinds; the *male*, the *female*, and that called *false*, or *spurious agaric*.

The *male agaric*, otherwise called the common or heavy *agaric*, is of a yellowish colour, and pretty solid. It is commonly used in dying black, and is reckoned among the *not-colouring* drugs, which the dyers of the best woollen cloth and serges are obliged to use in France.

It is called a *not-colouring* drug, because it can produce no colour of itself, without being mixed with other ingredients.

The *female agaric* is the most esteemed, because it is much used in medicine. To be good it ought to be white, large, light, and brittle, so as to be easily pulverised; of a lively and penetrating scent, and of a bitter taste. This was thought efficacious as a dyptic to restrain not only venal, but arterial haemorrhages, without the use of ligatures. Its reputation, however, did not long subsist; and after repeated trial, the surgeons of London were obliged to discontinue it as inefficacious and unsafe. See Neale on the use of *Agaric*.

The *false*, or *bastard agaric*, or *oak agaric*, is that which grows on those trees. It is commonly reddish, and very heavy, and is very little esteemed, which probably occasioned its being called the *false agaric*. The druggists look only upon that which grows upon the *laurel-tree* to be the right sort.

Agaric is brought from different places; the best comes from the Levant; that which comes from Savoy and Dauphiny being less esteemed. Holland also supplies some, but that is reckoned the worst; because it is grated, and whitened at top with chalk. By a chemical solution it passes almost wholly into oil; it yields no volatile salt, but abounds with a sort of flaky earth, and acid phlegm; as to texture, it seems much to resemble COLOCYNTH.

The *agaric* is either *brute*, *cleansed*, or in *trochiscks*.

AGARIC, *brute*, is juſt as it was taken from the tree, without any other preparation than what it has received from nature.

AGARIC, *cleanſed*, is that, which being cleared and purified from all its filth and imperfections, is fit for immediate uſe.

AGARIC in *trochiſcs*, is commonly the female ſort, finely pulveriſed, incorporated with ſome liquid, and made into a maſs, of which cakes of different ſizes and figures are formed, which are dried in the air and ſhade, without coming near the fire.

AGARIC—There is alſo another ſort of *agaric*, which is called *mineral agaric*. This is a kind of ſtone, which is found in the cliffs of rocks, in different parts of Germany. It is very white and light, whence it is called milk of the moon. It is alſo named *marrow of ſtone*, or *lithomagra*; and others called it *ſteomagra*. Some tell us that the calcination of this ſtone is performed by the vapours of the metals within the rocks where it is found. This *agaric* is ſcarcely uſed at all, except in medicine. See LAC *lunæ*.

It is uſed internally againſt hæmorrhages, the ſtrangury, gravel, and eſpecially dyſenteries; externally, to dry and heal old ulcers, ſtop defluxions of the eyes, &c. See the chemical hiſtory of the *agaric* of the larch tree, &c. Neumann's Works, p. 349.

AGARICUS, in the Linnæan ſyſtem of *Botany*, called *tumenta* by Dillenius, the term uſed to expreſs that genus of fungules belonging to the *cryptogamia fungi*, which have no pedicle, but grow to trees, &c. by one ſide, and are therefore called horizontal fungules, and are lamellated underneath: by this laſt character they are diſtinguiſhed from the *boleti* of Linnæus, which are thoſe horizontal fungules which are porous underneath.

AGASYLLIS, in the *Materia Medica*, a name given by ſome of the ancient Greek writers, to gum ammoniac; and by Dioſcorides to the tree which produced that gum. By their deſcriptions of this medicine, it appears not to have been the ſame which we know by this name.

AGAT, in *Natural Hiſtory*, a precious ſtone, partly tranſparent, and partly opake; uſually diverſified with variety of colours, veins, ſpots, &c. and ſometimes exhibiting figures, or appearances of natural objects.

The word is ſometimes alſo written *achat*; by the Greeks and Latins, *achates*, and *achates*; a denomination taken from that of a river in Sicily, on the banks of which it was firſt found.

Agats are compoſed of cryſtal, debaſed by a large quantity of earth, and not formed, either by repeated incruſtations round a central *nucleus*, or made up of plates laid evenly on one another, but are merely the effect of one ſimple concretion, and variegated only by the diſpoſition which the fluid they were formed in gave to their differently coloured veins, or matters.

Theſe are a very numerous genus of foſſils, and ſubject to great variegations in their colours. They are, however, arranged in ſome order, according to the different colours of their ground.

Of thoſe of a *white ground*, there are three ſpecies: 1. The DENDRACHATES, or *Mocca-ſtone*. 2. The dull milky-looking *agat*. 3. The lead-coloured *agats*, called the BIAS-ACHATES, by the ancients.

Of the *agats* with a *reddiſh ground*, there are four ſpecies: 1. An impure one of a fleſh coloured white. 2. The ſecond or the red-grounded *agat*, is that ſpecies of a pure blood-colour, called HÆMACHATES, or the *bloody agat*, by the ancients. 3. The third is the clouded and ſpotted *agat*, of a pale fleſh-colour, called the *cornelian agat*, or SARDACHATES, by the ancients. 4. And the fourth, the red lead coloured one, variegated with yellow, called the *coral agat*, or CORALLO-ACHATES, by the ancients.

Of the *agats* with a *yellowiſh ground*, there are only two known ſpecies: 1. The one of the colour of yellow wax, called *cerachates* by the ancients. 2. The other a very elegant ſtone, of a yellow ground, variegated with white, black, and green; called the *lemina*, and LEONTEBERES, by the ancients.

Laſtly, of the *agats*, with a *greeniſh ground*, there is only one known ſpecies, which was the JASPACHATES of the ancients.

Some have attributed great medicinal and imaginary virtues to the *agat*.

Oriental *agats* are ſaid to be all brought from the river Gambay.

A mine of *agats* was lately diſcovered in Tranſylvania, of divers colours, ſome of a large ſize, weighing ſeveral pounds. *Agats* have been diſtinguiſhed by other names than thoſe before mentioned. Thus we find

AGAT, *vermilion*, that of a deep vermilion-colour.

AGAT, *white ringed*, *achates* PERILEUCOS, diſtinguiſhed by black and white circles. Pliny mentions this under the denomination of *onux-ſtone*.

AGAT, *white*, LEUCACHATES, that altogether white, or at leaſt diverſified with white ſtrokes, being frequently ſemi-tranſparent, and bearing a reſemblance to the white of an egg.

AGAT, *various*, or *tranſparent*, of a thin ſtone-blue colour.

AGAT, *leopardine*, *achates* PARDALIOS, that ſpotted like the ſkin of a leopard. This is otherwiſe called *pandalion*, *pantachates*.

AGAT, *ſapphirine*, that of a ſky-blue colour, tranſparent; ſometimes found with *lapis lazuli*, and called alſo *ſapphiro-achates*.

AGAT, *luminated*, diſtinguiſhed by divers colours, as white, black, yellow, brown, placed over each other, at equal diſtances.

AGATS are alſo divided, with regard to the objects repreſented on them, into

ACAT, *arboreſcent*, DENDRACHATES, and DENDRITIS. This ſeems to be the ſame with what ſome authors call the *achates*, with roſemary in the middle; and others, *achates*, with little branches of black leaves.

AGAT, *horned*, CERACHATES, is ſaid by ſome to be that which, by lines and ſpots, repreſents the figure of a horn.

AGAT, *aphrodiſion*, *achates* APHRODISIUS, is a term given by Veliſchius to an *agat* in his cuſtody, of a fleſh-colour, on one ſide of which appears a half-moon, in great perfection, repreſented by a milky ſemicircle; on the other ſide, the phaſes of Veſper, or the evening ſtar; whence the denomination *aphrodiſius*.

AGAT, *crinid*, repreſenting human hair.

AGAT, *ariſtmetical*, repreſenting the numbers 4191; 191. Scitala, Muſ. 81

AGAT, *aſtronomical*, repreſenting the hemiſphere, with its ſeveral orbs, and the earth in the middle. To which head may be alſo referred an *agat* mentioned by Borrichius, repreſenting the five orbs in great perfection. Act. Hafn. 1677.

AGAT, *Elementary*, conſiſting of four colours; blue, ſuppoſed to expreſs water; white, the air; red, the fire; and brown, the earth.

AGATS, *anthropomorphous*, thoſe wherein the figures of men or women are expreſſed. Such is that mentioned by Kircher, repreſenting a heroine armed: with many others of the *anthropomorphous* kind.

To the claſs of *anthropomorphous agats*, may alſo be referred an *agat* in the library of Franefort, repreſenting the heart, lungs, and part of the veins of man. But the moſt celebrated of this kind, is that of Pyrrhus, repreſenting the nine Muſes with their attributes, and Apollo in the middle playing upon the harp. Plin. lib. xxxvii. cap. 3. Hardouin, Not.

AGATS, *leucophthalmous*, thoſe repreſenting the figures of eyes. Such is that mentioned by Veliſchius, which he calls *emmatia*, or *omphophthalmus*; or thoſe by Cardan and others, repreſenting the eyes of birds, fiſhes, wolves, called *hyophthalmi*; of goats, *aegophthalmi*; of oxen, *boophthalmi*. Among the more curious, we meet with Tiberius *agat*, *achates Tiberianus*, a name given by ſome to the famous *agat* in the treaſury of the French king's chapel, repreſenting the *apotheoſis* of Auguſtus, and the ſeries and portraits of the family of Tiberius and Julia, with divers foreign nations ſubdued in war; concerning which, many different explications and conjectures have been advanced by the learned.

AGAT, *Iſiac*, *achates Iſiacus annularis*, is a curious antique *agate* at Rome, ſo called, as repreſenting the head of Iſis, and being ſet in a ring.

AGATS are alſo divided with regard to the affinities they bear to other ſtones: hence the *jaſpachates*, *ſardachates*, &c. We find alſo *onychates*, between an *onyx* and an *agat*, compoſed net of zones, or bulls, but of plates perſpicuous and aſh-coloured. Grew. Muſ. Reg. Soc. p. iii. p. 289.

AGAT, *orientat ſardonyx*, of an oval figure, and a white colour, in the middle of which appears a body of water, which, upon ſhaking, is perceived to move. This ſpecies is otherwiſe called *oculus, ovum ſolis, oculus paragaunorum, oculus cryſtallinus, aſtites gemmata*, &c. and may be referred to the MYTES kind.

To this kind may alſo be referred the *agat* of Chili, which has cryſtals ſeen in it; and another called *beryllochates*, containing pieces of beryl.

The ANTACHATES is that which in burning yields a ſmell of myrrh. This, though mentioned by Pliny among *agats*, ſeems rather to belong to the head of ambers, or bitumens. Others write it *anochates*; others, *ſaſſachates*.

Authors alſo ſpeak of Roman *agats*, Egyptian *agats*.

The ancients mention a red *agat*, ſpotted with points of gold, found in Candia.

Agat has always been eſteemed for ſeals; as being a ſtone that no wax will ſtick to.

The gold wire drawers burniſh their gold with an *agat*; whence the inſtrument made uſe of on that occaſion, is alſo called an *agat*.

Mr. Boyle takes *agats* to have been formed of ſeparate beds, or ſtrata of fine clay or earth, brought by a petrifying liquor to coagulate into a ſtone. The ſame author obſerves, that the fire will purge away the colours of *agat*. He alſo mentions an *agat* with a movcable ſpot or cloud in it.

See farther concerning the hiſtory of *agats*, Nicolſ. Lapid. cap. 26. p. 133. Grew, Muſ. p. 287. The figures of *agats*, Mercat. Alelloth. p. 375. Their ſtructure, Woodward, Nat. Hiſt. Engl. Foſſ. tom. ii. p. 16. Experiments on them in the burning-glaſs, Giorn. de Letter. d'Ital. tom. viii. The commerce and manufacture of *agats*, Hought. Coll. tom. ii. The counterfeiting of *agats* in glaſs, Neri, Art of Glaſs, lib. ii. cap. 37.

AGATS may be ſtained artificially, by a ſolution of ſilver in ſpirits of nitre, and afterwards expoſing the ſtone, for ſome hours, to the ſun. This operation ſucceeds beſt in whitiſh *agats*. See on this ſubject of ſtaining *agats*, Dr. Lewis's Com. P. Tech. p. 438, & ſeq.

But it is to be obſerved, that no art has hitherto been able to imitate the fineneſs and beauty of the vegetable repreſentations, formed by nature, in ſome *agats*; ſuch as are commonly called DENDRITES. And though art ſhould attain to ſuch a perfect imitation of nature in this caſe, as to deceive the eye, yet might the difference be otherwiſe diſcovered.

For if an *agat* be coloured by art, it will loſe a great part of its colour, by heating it; and this colour may again be reſtored, by adding the ſolution of ſilver in ſpirit of nitre. Again, by putting a little aqua fortis, or ſpirit of nitre, on the ſuſpected *agat*, without expoſing it to the ſun, the artificial colours will diſappear in a night's time; and this colour may again be reſtored, by expoſing the ſtone to the ſun for ſome days. Vide Du Fay, in Mem. Acad. Scienc. 1728.

But Monſ. de la Condamine has ſince obſerved, that even natural *agats*, which, by the fineneſs of the lines repreſented upon them, were beyond all ſuſpicion of art, yet ſuffered a great change in their colours, by the application of aqua fortis. Vide Hiſt. Acad. Scienc. 1733. p. 35, 36. Edit. Amſt.

Agats, and other ſtones, may be ſtained black, by applying to them a ſolution of copper in aqua fortis, and making them red-hot in a crucible. To imitate Mocha ſtones, moiſten the ſmooth ſurface of the *agat* with a ſolution of copper, and on the middle of it ſet an iron nail upright on its head; this abſorbs the acid from the copper, and the copper makes ramifications, which, after the ſtone is carefully waſhed, may be rendered of a black colour, by a red heat. Theſe vegetations are not fixed in the ſtone, which ought therefore to be covered with a plate of cryſtal glaſs.

Becearia obſerves, that the electric ſparks will not be conducted by the ſurface of poliſhed *agat*; and Mr. Boſe has ſhewn that the *agat* was very early known to poſſeſs electrical powers.

AGAT, among *Antiquaries*, denotes a ſtone of this kind, engraven by art.

In which ſenſe, *agats* make a ſpecies of *antique gems*; in the workmanſhip whereof, we find eminent proofs of the greateſt ſkill and dexterity of the ancient ſculptors. Several *agats* of exquiſite beauty are preſerved in the cabinets of the curious. The facts, or hiſtories, repreſented in *antique agats*, with how much addreſs ſoever conducted, are become, at this diſtance of time, many of them obſcure and dubious, and their explication difficult enough; whence divers miſtakes have been committed, and numerous conjectures and diſputes raiſed. Hiſt. Acad. R. Inſcr. tom. i.

AGATHA. *See* ACHATES.

AGATHODÆMON, a beneficent GENIUS, or DÆMON. The word is compounded of ἀγαθὸς, *good*, and δαίμων, *dæmon*.

Among ancient writers, *agathodæmon* is a denomination given to a kind of ſerpents, bred up and revered by the Egyptians, from an opinion of ſome ſanctity reſiding in them.

They are alſo called *dracones*, or *draconculi*, and fabuloufly deſcribed as having wings.—They appear to be the ſame with thoſe otherwiſe called SIRENES. Lamprid. in Heliog. cap. xxviii. Caſaub. Not. in Suet. ed. 2. Bochart. Hiero, p. ii. lib. iii. cap. 14.

AGATY, the name of a Malabar tree, bearing a fruit in taſte and ſhape like the kidney-bean. Ray's Hiſt.

AGAVE, a genus of the *hexandria monogynia* claſs, a name given to the common American aloe. The characters are: the flower has no empalement, is funnel-ſhaped, and of one leaf, which is cut at the brim into ſix equal ſegments; the oblong germen is ſituated below the flower, upon which reſts the ſlender ſtyle, which is extended for a conſiderable length beyond the petals, and is crowned by a three-cornered ſtigma; this is attended by ſix erect ſtamina, of the ſame length, crowned by narrow ſummits; after the flower is paſt, the germen becomes an oblong three-cornered ſeed-veſſel, having three cells, which are filled with flat ſeeds. Miller reckons eight and Linnæus four ſpecies of this plant. The common great American aloe generally riſes upwards of twenty feet, and branches on every ſide in the ſhape of a pyramid. When this plant flowers it makes a beautiful appearance; and if it is protected from the cold in autumn, a ſucceſſion of new flowers will be produced for near three months, in favourable ſeaſons. It has been a common error, that this plant doth not flower till it is a hundred years old; the truth is, that its flowering depends on the growth of the plant; ſo that in hot countries it will flower in a few years; but in colder climates, the growth is ſlower, and the flowering leſs frequent.

AGAUPE, in *Botany*, a name uſed by ſome authors for the common white *water* LILY.

AGE, properly denotes the natural duration of the LIFE of man.

The ordinary *age* of mankind has been occaſionally varied, in ſuch manner as to afford a fine inſtance of the wiſdom of Providence. Dr. Woodward holds, that the ages to which men arrive, are proportioned to the number of their lacteals.

AGE is alſo uſed, in *Chronology*, for a CENTURY; or a ſyſtem, or a period of a hundred years.

In which ſenſe, *age* amounts to much the ſame with *ſeculum*, and differs from *generation*.

AGE is alſo underſtood of a certain ſtate or portion of the ordinary life of man; which is divided into four different *ages*; *viz. infancy, youth, manhood*, and *old age*.

Infancy, or childhood, *puerities*, extends as far as the fourteenth year.

Youth, adoleſcence, or the *age* of puberty, commences at fourteen, and ends at about twenty-five.

Manhood, or the virile *age*, terminates at fifty.

Old age, *ſenectus*, ſucceeds, which is the laſt: though ſome divide this into two; calling it *decrepit age* after ſeventy-five. *See* LONGEVITY.

AGE, in *Horſemanſhip*, makes a conſiderable point of knowledge; the horſe being an animal that remarkably ſhews the progreſs of his years, by correſpondent alterations in his body.

We have characteriſtics from his teeth, hoofs, coat, tail, and eyes.

The firſt year he has his foal's teeth, which are only grinders and gatherers: the ſecond, the four foremoſt change, and appear browner and bigger than the reſt: the third, he changes his teeth next to theſe; leaving no apparent foal's teeth, but two on each ſide above, and two below: the fourth year, the teeth next to theſe are changed, and no foal's teeth are left, but one on each ſide above, and below: at five years, his foremoſt teeth are all changed, and the tuſhes on each ſide are complete: thoſe which come in the places of the laſt foal's teeth, being hollow, and having a little black ſpeck in the midſt; which is called the *mark in a horſe's mouth*: this continues till eight years of *age*.—At ſix years, he puts out new tuſhes; near which appears a little circle of young fleſh, at the bottom of the tuſh; the tuſhes, withal, being white, ſmall, ſhort, and ſharp.—At ſeven years, their teeth are all at their growth, and the mark in the mouth appears very plain.—At eight all his teeth are full, ſmooth, and plain, and the mark ſcarce diſcernible; the tuſhes looking yellowiſh.—At nine, the foremoſt teeth ſhew longer, yellower, and fouler, than before; and the tuſhes become bluntiſh.—At ten, no holes are felt on the inſide of the upper tuſhes; which till then are very ſenſible: add, that the temples begin to be crooked and hollow.—At eleven years his teeth are very long, yellow, black, and foul; but he will cut even, and his teeth ſtand directly oppoſite to one another.—At twelve, the upper teeth hang over the nether.—At thirteen, the tuſhes are worn cloſe to his chops, if he has been much ridden; otherwiſe they will be black, foul, and long.

2. As to the hoof.—If it be ſmooth, moiſt, hollow, and well ſounding, it is a ſign of youth: on the contrary, if rugged, and as it were ſeamed, one ſeam over another, and withal dry, foul, and ruſty, it is a mark of old *age*.

3. For the tail.—Taking him by the ſtern thereof, cloſe at the ſetting on to the buttock, and griping it between the finger and thumb; if a joint be felt to ſtick out more than the reſt, the bigneſs of a nut, the horſe is under ten: but if the joints be all plain, he may be fifteen.

4. The eyes being round, full, and ſtaring, the pits that are over them filled, ſmooth, and even with his temples, and no wrinkles to be ſeen, either under or above, are marks of youth.

5. The ſkin being plucked up in any part betwixt the finger and thumb, and let go again; if it return ſuddenly to

its place, and remain without wrinkles, he may be believed to be young.

6. A dark-coloured horſe, growing griſly above the eye-brows, or under the main; or a whitiſh horſe, growing meanelled, either with white or black, all over; may be infallibly concluded extremely aged.

Laſtly, a horſe being young, the BARS of his mouth are ſoft and ſhallow; otherwiſe they are deep, and feel hard and rough.

AGE, in HUNTING, is an article of conſequence.—Deer, and other beaſts of game, have different denominations, according to their *age*.

The *age* of a hart, &c. is chiefly judged of by the furniture of his head.

The firſt HEAD, called, in fallow deer, *broches*, and, in red deer, *prickets*, does not come till the ſecond year of their *age*: the next year, they bear four or ſix ſmall branches; the fourth year, eight or ten; the fifth, ten or twelve; the ſixth, fourteen or ſixteen; the ſeventh year they bear their heads beamed, branched, and ſumed, as much as ever they will be. The huntſmen have ſeveral other marks, whereby to know an old hart without ſeeing him; as, the ſlot, entries, abatures, foils, fewmets, gate, and fraying poſts.

AGE *of neat cattle*, viz. the *ox*, *cow*, and *bull*, is known by their teeth and horns. At the end of ten months they ſhed their firſt fore-teeth, which are replaced by others, larger, but not ſo white; and in three years all the inciſive teeth are renewed. Theſe teeth are at firſt equal, long, and pretty white; but as the animals advance in years, they wear, become unequal and black. They alſo ſhed their horns at the end of three years; and theſe alſo are replaced by other horns, which, like the ſecond teeth, continue. The growth of theſe horns is not uniform; at firſt, or in the fourth year of the animal's age, two ſmall pointed horns make their appearance, neatly formed, ſmooth, and toward the head terminated by a kind of button. In the following year this button moves from the head, being impelled by a horny cylinder, which lengthening in the ſame manner, is alſo terminated by another button, and ſo on; for theſe horns continue growing as long as the animal lives. Theſe buttons become annular joints, which are eaſily diſtinguiſhed in the horn, and by means of which the age of the animal may be eaſily known; counting three years for the point of the horn, and one for each of the joints. Buffon.

AGE *of ſheep*. Theſe animals in their ſecond year have two broad teeth; in their third year they have four broad teeth before; in their fourth year ſix broad teeth; and in their fifth year eight of the ſame kind; after which their age cannot certainly be known, in this way.—But the age of the ram, and horned ſheep, may be always known by their horns, which ſhew themſelves in the firſt year, and often at the birth, and continue to grow a ring annually to the laſt period of their lives. Ellis and Buffon.

AGE *of goats* is known by the ſame tokens as that of the ſheep.

AGE *of the moon*, in *Aſtronomy*, is underſtood of the number of days elapſed ſince the laſt conjunction, or new moon; called alſo her QUARTER. The method for diſcovering her age, is mentioned under the article MOON.

AGE, in *Chronology* and *Antiquity*, is alſo uſed in ſpeaking of the time paſſed ſince the creation of the world.

The ſeveral ages of the world may be reduced to three grand epochas, viz. the *age* of the law of nature, called by the Jews the *void age*, from Adam to Moſes.—The *age* of the Jewiſh law, from Moſes to Chriſt.—And the *age* of grace, from Chriſt to the preſent year. See INCARNATION and EPOCHA.

The Romans diſtinguiſhed the time that preceded them into three *ages*: the *obſcure* or *uncertain age*, which reached down as low as Ogyges king of Attica; in whoſe reign the deluge happened in Greece.—The *fabulous*, or *heroic age*, which ended at the firſt Olympiad; and the *hiſtorical age*, which commenced at the building of Rome.

Among the poets, the four *ages* of the world are, the *golden*, the *ſilver*, the *brazen*, and the *iron age*. See the Metamorphoſis of Ovid, lib. i. or rather Heſiod, in his poem, Ἔργα καὶ ἡμέραι, *Opera & Dies*, ver. 108, &c. He is the firſt that has deſcribed theſe four *ages*.

The Eaſt Indians alſo reckon four *ages* ſince the beginning.—The firſt, which they repreſent as a ſort of golden *age*, laſted, according to them, 1728000 years: in this the god Brahma was born, and the men were all giants; their manners were innocent: they were exempt from diſeaſes, and lived 400 years.—In the ſecond *age*, which laſted 1296000, their rajas were born: vice now crept into the world; men's lives were fallen to 300 years, and their ſize retrenched proportionally.—Under the third *age*, which laſted 864000 years, vice being more increaſed, men only attained to 200 years.—The laſt *age* is that wherein we now live, of which 4027213 years are already gone; and the life of man ſunk to one fourth of its original duration.

By the Roman law we find different *ages* aſcertained for different purpoſes: as,

AGE, *conſular*, or that wherein a perſon might regularly hold the conſulſhip, was the forty-third year, ſo that he might ſue for it in the forty-ſecond. Where it is to be obſerved, that it was not neceſſary either of thoſe years ſhould be expired, but only begun; beſides, that men of extraordinary merits towards the republic, were in this matter exempt from the ordinary laws. Hence Corvinus was conſul at twenty-three years, Scipio Æmilianus at thirty-ſix, and Pompey at thirty-five: others broke through the laws by violence, as C. Marius the younger, and Octavius Cæſar, who procured themſelves to be made CONSULS, before twenty years of *age*. Macchiav. Diſc. in Liv. lib. i. cap. 60. p. 210.

AGE, *judiciary*, or that wherein a perſon was capable of ſitting as judge, was not always the ſame: for by the *Lex Servilia Glaucia*, none were allowed to be choſen under thirty years of *age*, or above ſixty. By ſome other laws that *age* ſeems to have been limited to thirty-five, but reduced afterwards by Auguſtus to thirty; though Pitiſcus ſuppoſes a miſtake here in the text; and that, inſtead of thirty-five and thirty, it ought to be read twenty-five and twenty. Lex. Ant. tom. i.

AGE, *military*, or that wherein the Romans were obliged to enter themſelves in the army, was at ſeventeen years; at forty-five, they might demand their diſmiſſion. Aquin. Lex. Milit. tom. i.

Among the Lombards, the *age* of entry was between eighteen and nineteen; among the Saxons thirteen.

AGE *for holding offices in the city*, as quæſtor, ædile, tribune of the people, &c. is not determined by the annal-laws of Villius, but appears to have been the twenty-ſeventh year. For it was neceſſary that the perſon who claimed any urban employment, had firſt ſerved ten years without interruption in the army, commencing from the ſeventeenth year. Though ſome think the queſtorſhip might have been held at twenty-five years. Polyb. lib. vi. cap. 17.

AGE, *prætorian*, or that wherein a perſon might ſolicit for the prætorſhip, was at forty; two years earlier than the *age* required for conſul.

AGE, *legitimate*, denotes the age of twenty-five, ſo called, as ſome imagine, becauſe youth were then by law allowed to take the direction of their affairs into their own hands. Briſſ. Select. Aut. ex Jur. Civ. lib. iii. c. 2.

AGE, *diſpenſation of*, *ætatis venia*, is a right which a perſon obtained from the prince, or ſovereign, of ſetting aſide a tutor or curator, and taking the adminiſtration of his affairs into his own hands, before the legitimate *age*. Calv. Lex. Jur.

AGE, *adoptive*, called alſo *plena pubertas*, requires the adoptor to be eighteen years older than the perſon adopted, that there may appear a probability of his being a natural child. Pitiſc. Lex Ant. See ADOPTION.

We likewiſe read of other *ages*; as,

AGE, *rocky* or *ſtony*, in ſome ancient northern monuments, correſponds to the *brazen age* of Heſiod, and the Greeks; being called *rocky*, on account of Noah's Ark, which reſted on mount Ararat.

AGE, *aſhen*, the fourth *age* of the northern poets; ſo called from a Gothic king, Madenis, or Manus, who, on account of his great ſtrength, was ſaid to be made of aſh; or becauſe in his time people began to make uſe of weapons made of that wood. Phil. Tranſ. N° 301.

AGE, *hiſtorical*, that which commenced from the firſt Olympiad, in the year of the world 3228, and ſtill continues. This diviſion, it is to be obſerved, only holds good with regard to the Greeks and Romans, who had no hiſtories earlier than the firſt Olympiad. The Jews, Egyptians, Phœnicians, Chaldees; not to ſay the Indians and Chineſe, who pretend to much earlier monuments, will not be concluded by it. Bibl. Un. tom. i. p. 246.

AGE, *preſent*, among Jewiſh *Writers*, frequently denotes all the ſpace of time before the Meſſiah, in contradiſtinction from *future age*, or *age to come*, the time after the coming of the Meſſiah.

AGE, *middle*, denotes the ſpace of time commencing from Conſtantine, and ending at the taking of Conſtantinople by the Turks, in the fifteenth century.

A late author chooſes rather to date the middle *age* from the diviſion of the empire made by Theodoſius, at the cloſe of the fourth century, and extend it to the time of the emperor Maximilian I. at the beginning of the fifteenth century, when the empire was firſt divided into circles. But this ſeems more accommodated to the ſtate of Germany in particular, than of Europe in general.

The middle is by ſome denominated the barbarous *age*, and the latter part of it, the loweſt *age*. Some divide it into

AGE, *non-academical*, the ſpace or time from the ſixth to the

the ninth century, during which ſchools or academies were loſt in Europe.

AGE, *academical*, from the ninth century, when ſchools were reſtored, and univerſities eſtabliſhed, chiefly by the care of Charlemagne.

AGE, *military*, or *millenary*, *ſeculum militiarum*, or *millenarium*, on *Medals*, denotes the laſt year of a *millennium*, or thouſandth year.

Several medals of the emperor Philip, ſtruck in the thouſandth year from the building of Rome, have this legend.

AGE, *aureus*, on ancient *medals*, denotes the beginning or firſt year of a new *ſeculum*, or century of years.

AGE is alſo uſed among ancient poets for the ſpace of thirty years.

In which ſenſe, *age* amounts to much the ſame with generation. Neſtor is ſaid to have lived three *ages*, at the time when he was ninety.

AGE is differently conſidered by naturaliſts from what it is by lawyers; and even in each of thoſe profeſſions we find various ſyſtems and diviſions of *age*.

AGE *of medals*. See MEDAL.

AGE, in *Law*, is particularly underſtood of a certain ſtate or time in life, wherein a perſon is qualified for certain offices of civil ſociety, which before, for want of years and diſcretion, he was incapable of.

By the common law, there are two principal *ages* in a man: at fourteen, he is at the *age of diſcretion*; at twenty-one years, at *full age*.

With reſpect to a woman, there were anciently ſix *ages* obſerved: at ſeven years, her father might diſtrain the tenants of his manor for aid to marry her: for at thoſe years ſhe may conſent to matrimony.—At nine years old ſhe is dowable; for then, or within half a year after, ſhe is ſaid to be able *promereri dotem, & virum ſuſtinere*.—At twelve years ſhe is able finally to ratify, and confirm her former conſent to matrimony.—At fourteen, ſhe may take her lands into her own hands; and ſhould be out of ward, if ſhe were at this *age* at her anceſtor's death.—At ſixteen, ſhe ſhould be out of ward, though at the death of her anceſtor ſhe was under fourteen: the reaſon is, that then ſhe might take a huſband able to perform knight's ſervice.—At twenty-one years, ſhe may alienate lands and tenements.

As for a man: the *age* of twelve years binds to appearance before the ſheriff and coroner, for enquiry after robberies; 52 Hen. III. 14. at the *age* of fourteen he may chuſe his own guardian, and claim his lands held in ſocage. Though Bracton limits this to fifteen years; with whom Glanville agrees.—At fourteen a man may conſent to marriage, as a woman at twelve.—At that *age*, likewiſe, he may diſpoſe of perſonal eſtate by will, though not of lands until twenty-one: at fourteen alſo perſons may be witneſſes, though in ſome caſes they have been admitted much younger. 2 Hawk. 434. Perſons under fourteen are not in general puniſhable for crimes; but they muſt anſwer for any treſpaſs. 1 Inſt. 247.—At fifteen he ought to be ſworn to the peace, an. 24 Edw. I. ſtat. 3.—At ſeventeen he may be an executor.—At the *age* of twenty-one, a man was obliged to be a knight, if he had twenty pounds land per annum in fee, or for term of life, anno 1 Edw. II. ſtat. 1. But this ſtatute is repealed, 10 Car. I. cap. 20.—The ſame *age* alſo enables him to make contracts and manage his own eſtate; which, till that time, he cannot do with ſecurity of thoſe who deal with him.

The *age* of twenty-four years enabled a man to enter into an order of religion, without conſent of parents, anno 4 Hen. IV. cap. 17. At thirty, he may be a biſhop. Though the *age* of twenty-one is the full *age* of either man or woman, yet they may under that *age* contract for neceſſaries ſuitable to their quality, and it ſhall bind them. If either man or woman do any act before the time preſcribed by law, they may retract it when they come to the proper *age*; but if they do not, they are ſuppoſed to ratify it, and it ſhall be deemed valid. Thus if a man marry before fourteen, or a woman before twelve, they may either agree or diſagree to the marriage, when they attain thoſe reſpective *ages*. But the *age* of marriage has undergone divers modifications: in princes it is allowed earlier than in private perſons; in ſome countries, than in others. In Perſia girls are married at nine, boys only at thirteen; in Holland, males are not allowed to marry without conſent of parents or curators, before twenty-five; girls not before twenty; the Romans choſe to mary their wives young, for the advantage of having them innocent and tractable. Others declaim againſt premature marriages. Some have pretended to limit the other extreme of marriageable *age* to forty-five; but this too will be variable in different conſtitutions. We meet with inſtances of generation from ſixty to one hundred and four, or even one hundred and twenty-one years of *age*. Plott, Nat. Hiſt. Staff. chap. viii. § 3.

Various methods have been in uſe for determining this *age*. One ſect of ancient Roman lawyers, called Caſſiani, fixed it by the ſtate of the body, which Juſtinian, and others after him, ſuppoſe to have been done by ſearch, or inſpection of the genital parts, at leaſt in the male ſex; for as to the female, it is pretended the twelfth year was the only guide, though others alledge that the eruption of the menſes ſerved inſtead of it. The Proculiani, on the contrary, determined the puberty of males, by the expiration of the fourteenth year. Jaſolenus took a middle courſe, and made uſe of both methods.

The *Canon* or *Eccleſiaſtical Law* alſo notes divers *ages*, viz. of baptiſm; of ordination to prieſthood, which is not to be before twenty-four; and to epiſcopacy.

AGE is alſo uſed for the duration of vegetable matters. In which ſenſe, we ſay the *age* of roots, of leaves, of corn, of wine, &c.

Trees after a certain *age* waſte. An oak at a hundred years old ceaſes to grow. The uſual rule for judging of the *age* of wood, is by the number of circles which appear in the ſubſtance of a trunk, or ſtock, cut perpendicularly, each circle being ſuppoſed the growth of a year: though ſome reject this method as precarious, alledging, that a ſimple circle is ſometimes the produce of ſeveral years; beſides that, after a certain *age*, no new circles are formed. Phil. Tranſ. N° 43. Act. Erud. Lipſ. 1713.

AGE is alſo uſed for the duration of things inanimate, and even factitious.

In which ſenſe we ſay, the *age* of a houſe, of a country, a ſtate, a commonwealth, or the like.

AGE *prier, attatem precari*, a petition, or motion made in court, by one in his minority, having an action brought againſt him for lands coming to him by deſcent; requeſting that the action may reſt till he come to full *age*.—This the court, in moſt caſes, ought to grant.—But minors, as purchaſers, ſhall not have it: nor intent of aſſize, dower, or partition; though they may in debt. Hob. 342. D. Alv. 259.

It is otherwiſe in the *Civil Law*; which obliges children in their minority to anſwer to their TUTORS or CURATORS. See PAROL *Demurrer*.

AGED *of the mountain*, is a title or denomination given to the chief or prince of the people called ASSASSINS.

AGEM, in *Botany*, is a name given to the Perſian LILAC.

AGEMA, in the *Ancient Military Art*, a kind of ſoldiery, chiefly in the Macedonian armies.

The word is Greek, and literally denotes vehemence; to expreſs the ſtrength and eagerneſs of this corps.

Some will rather have *agema* to have denoted a certain number of picked men, anſwering to a legion among the Romans, which is authorized by a paſſage in Livy; Arrian, on the contrary, ſpeaks of the *agema*, as a wing of horſe; not but the term is alſo applied to foot.

AGEMOGLANS, or AZAMOGLANS, children of tribute raiſed every third year by the Grand Signior, among the Chriſtians whom he tolerates in his dominions.

The word, in its original, ſignifies a barbarian's child; that is, a child not a Turk.—It is compounded of two Arabic words, 1. ⊐⊐N. *agem*, which among the Turks ſignifies as much as *barbarous* among the Greeks; the former people dividing the world into Arabs or Turks, and *agem*; as the latter into Grecians and *barbarians*. 2. ⊐⊐⊐, *child*.

The commiſſioners appointed for this levy take them by force even out of the houſes of Chriſtians; always claiming one in three, and pitching upon ſuch as ſeem the handſomeſt, and promiſe to be the moſt ſerviceable.

Theſe are immediately conveyed to Gallipoli or Conſtantinople; where they are firſt circumciſed, then inſtructed in the Mahometan faith, taught the Turkiſh language, and the exerciſes of war, till ſuch time as they become of age to bear arms: and out of theſe the order of JANIZARIES is formed.

Such as are not judged proper for the army, they employ in the loweſt and moſt ſervile offices of the ſeraglio; as in the kitchen, ſtables, &c.

The *agemoglans*, only differ from the *ichoglans*, as the former are bred up for the lower, and the latter reſerved for the higher offices of the empire.

AGENDA, in a general ſenſe, denotes things to be done or performed, in conſequence of a man's duty.

The word is Latin, formed from *agere, to do*; and divines ſpeak of the *agenda* of a Chriſtian, meaning the things to be practiſed, by way of contradiſtinction from *credenda*, or the things to be believed; the former imports the articles of obedience, the latter of faith.

AGENDA is alſo uſed for a book containing notes, or memorandums of things neceſſary to be done.

In which ſenſe, *agenda* amounts to much the ſame with table-book, &c. An anonymous French author has publiſhed the *agenda* of a man of the world, containing

maxims or rules, proper for the conduct of life. Tablettes de l'Homme de Cofmop. 1715.

AGENDA is more particularly uſed, among *Eccleſiaſtical Writers*, for the ſervice, or office of the church. We meet with *agenda matutina & veſpertina*, *morning and evening prayers*: *agenda diei*, *the office of the day*, whether feaſt or faſt day; *agenda mortuorum*, called alſo ſimply *agenda*, *the ſervice for the dead*.

AGENDA is alſo applied to certain church-books, compiled by public authority, preſcribing the order and manner to be obſerved by the miniſters and people, in the principal ceremonies and devotions of the church.

In which ſenſe, *agenda* amounts to the ſame with what is otherwiſe called *ritual*, *liturgy*, *aceluthia*, *miſſal*, *formulary*, *directory*, &c.

AGENFRIDA, in *Ancient Cuſtoms*, denotes own lord, or one who has the abſolute property, and dominion of a thing.

The word is alſo written *agenfriga*, and *agenfrit*. It is derived from the Saxon *agen*, *own*, and *frea*, *lord*.

AGENHINE, in our *Old Writers*, ſignifies a gueſt that has lodged at an inn for three nights, after which time he is accounted one of the family; and if he offended the king's peace, his hoſt was anſwerable for him. It is alſo written HUGENINE and HOGENHINE.

AGENT, AGENS, in *Phyſics*, that whereby a thing is done, or effected; or that which has a power whereby it acts on another; or by its action induces ſome change in it. The word *agent* is uſed promiſcuouſly with EFFICIENT; and in contradiſtinction to PATIENT.

The ſchoolmen divide *agents* into *natural* and *free*.

AGENTS, *natural* or *phyſical*, are thoſe immediately determined by the Author of nature, to produce one ſort of effect: with an inability to produce the contrary.

AGENTS, *natural*, again, are ſubdivided into *animated*, which are ſuch as produce effects of the ſame kind and denomination with the *agents* themſelves; and *equivocal*, whoſe effects are of a different kind, &c. from the *agents*.

The ſchoolmen aſcribe the following circumſtances neceſſary to the being of an *agent*; viz. that it be contiguous to the object, diſtinct from it, have a power over it, a ſphere of activity, and a proportion, or rate of acting.

AGENT, *free*, or *voluntary*, is that which may equally do any thing, or its oppoſite; as acting not from any predetermination, but from choice.—Such is the mind ſuppoſed to be; which has a ſpontaneous power of chooſing or refuſing.

It is a celebrated queſtion among *philoſophers* and *divines*, whether man be a free, or a neceſſary *agent*? It may be thus ſtated; man is a neceſſary *agent*, if all his actions are ſo determined by the cauſe preceding each action, that no one poſſible action could poſſibly not have come to paſs, or have been otherwiſe than it was; nor one future action can poſſibly not come to paſs, or be otherwiſe than it ſhall be. On the contrary, man is a free *agent*, if he be able at any time, in certain circumſtances, to do different things; or, in other words, if he is not ever unavoidably determined in every point of time, by the circumſtances he is in, to do that one thing he does, and not poſſibly to do any other.

Which of theſe two definitions agrees to man, is a queſtion of fact to be determined by what we experience in ourſelves, with regard to the operations of our own minds. See LIBERTY, NECESSITY, and WILL.

The term *agent* evidently implies a power of ſelf-determination; and the epithet *neceſſary*, applied to *agent*, forms a ſolecism both in ſenſe and language. Price's Review, &c. p. 315. &c.

AGENT is more particularly uſed for the miniſter of a prince, or ſtate, at another court.

In which ſenſe, *agents* are commonly reputed a ſpecies of public miniſters, or AMBASSADORS; but they differ eſſentially, as *agents* are not inveſted with any repreſentative character, although intruſted with the affairs and intereſts of their princes. See ENVOY.

AGENT is alſo uſed for a perſon entruſted with the management of affairs, either of a corporation, or a private perſon.—In which ſenſe, the word coincides with *deputy*, *procurator*, *ſyndic*, *factor*, &c.

Among the officers in the EXCHEQUER, there are four *agents* for taxes.

AGENTS *of bank and exchange* are public officers, eſtabliſhed in the trading cities of France, to negociate matters between merchants, relating to bills of exchange, and the buying and ſelling of goods. The ſame with thoſe who, among us, are called EXCHANGE-BROKERS.

AGENTS *of the victualling office*, are officers under the commiſſioners, appointed to buy, and contract for proviſions, &c. Some of theſe are ſettled in the ports, where they have much the ſame office and authority as the commiſſioners at London.

AGENT-*victualler* is uſed in the ſame ſenſe.

AGENT is more particularly uſed in *Medicine*, for a being which has motion within itſelf.

In which ſenſe it ſtands oppoſed to patient, which receives motion from another; thus medicines are conſidered as *agents*, or as acting on the body, by way of contradiſtinction from aliments, which are ſuppoſed rather to be acted on, than to act.

AGENT *and patient*, in *Common Law*, is where a perſon does, or gives, ſomething to himſelf; ſo that he is at the ſame time both the doer or giver, and the receiver or party it is done to.—Such is a woman, when ſhe endows herſelf part of her huſband's inheritance.

AGENT, in *Chemiſtry*, is ſometimes attributed to menſtrua, or ſuch bodies as in mixture have the greateſt ſhare of activity and motion.

That internal *agent* in man, whereby all the vital motions neceſſary to the preſervation and reſtoration of the body are managed, is by ſome called *nature*; by others *archæus*, *calidum innatum*, animal ſoul, vital ſpirit; or principle, &c.

AGENT is ſometimes alſo uſed in *Chemiſtry*, for what we more uſually call *inſtrument*.

In which ſenſe, fire, water, air, earth, and menſtrua, are chemical *agents*.

AGENTES *in rebus*, one of the ranks of officers, in the court of the Conſtantinopolitan emperors, whoſe buſineſs was to collect and convey the corn both for the army and houſhold; carry letters and meſſages from court to all parts of the empire; reguiate couriers, and their vehicles; to make frequent journeys and expeditions through the provinces; inſpect any motions, diſturbances, machinations tending that way, and give early notice thereof to the emperor. Aquin. Lex. Mil. tom. i. Piaſc. Lex. Ant. tom. i. Calv. Lex. Jur.

The *agentes in rebus*, are by ſome made ſynonymous with our poſt-maſters, but their function was of great extent. They correſpond to what the Greeks call *ἀγγαροι*, and the Latins, *veredarii*.

There were divers orders or degrees of *agentes in rebus*, as, *tribuni*, *primiceriæ*, *ſenatores*, *ducenarii*, *biarchæ*, *circitores*, *equites*, *ternes*, &c. through all which they roſe *gradatim*. Their chief was denominated *princeps*, which was a poſt of great dignity, being reckoned on a level with that of proconſul.

The *princeps agentium in rebus*, reſided at Conſtantinople: others of them were ſettled in every part of the empire. They are alſo ſaid to have ſerved as interpreters.

AGEOMETRIA, a defect in point of GEOMETRY, or a deviation from the ſtrict principles and concluſions of that ſcience.

This is otherwiſe called *ageometreſia*.

Some have complained of the *ageometria* of the Scriptures in reſpect of the proportions of the *brazen* SEA, ARK, &c.

AGER *veſtigalis perpetui*, in *Roman Antiquity*, that whoſe property was granted to private perſons on the reſerve of a certain rent, or tribute.

AGER *veſtigalis publicus*, that whoſe property was reſerved to the public, and being let out to farm, the rents or profits accrued to the public treaſury.

AGER is alſo uſed for a certain portion or meaſure of land, anciently allowed in the diviſion of grounds to each citizen.

In the early days of the Roman ſtate, the *ager* was only two *jugera*, amounting to $1\frac{1}{4}$ Engliſh acre. After the expulſion of the kings, ſeven *jugera* were allowed a plebeian.—Under the conſulate of C. Licinius Stolo, in the year of Rome 376, a law was made to limit eſtates to 500 *jugera*, or 330 Engliſh acres. Under Julius Cæſar another AGRARIAN law was publiſhed, by which thoſe who enlarged their pittance of land, were to pay 50 *aurei* to the public.

AGER is alſo uſed, in *Middle Age Writers*, for what we now call an ACRE.

AGER *mineralium*, among *Chemiſts*, denotes the element of WATER; conſidered as the field, or ſoil, wherein MINERAL bodies have their firſt root, and from whence they ſhoot their branches upon the earth.

AGER *naturæ*, ſignifies the womb.

AGERATUM, in *Botany*, the name of a genus of plants, of the *ſyngeneſia polygamia æqualis* claſs; the characters of which are theſe: the flower is monopetalous, of the perſonated kind, and tubular in its lower part, and in the upper divided into two lips, the upper of which is bifid, and the lower divided into three ſegments; the piſtil ariſes from the cup, and finally becomes an oblong membranaceous fruit, divided into two cells, which contain a number of very fine ſeeds affixed to a placenta. There are three ſpecies.

AGERATUM, in the *Materia Medica*, an officinal plant, popularly called *maudlin*.

The word is compounded of the privative *a*, and *γηρας*, *old age*, on account of its flowers, which do not eaſily wither or grow old.

Ageratum

Ageratum bears a near resemblance to the costmary, from which it only differs, in that its flowers are formed into loose umbels; there are divers species of it. The officinal is called *ageratum foliis serratis*, C. B. or *ageratum luteum*, the ACHILLEA *ageratum* of Linnæus, and is the same with the *eupatorium mesues*, so called on account of its virtue, in diseases and obstructions of the liver.

Ageratum is of an astringent quality, and as such recommended by Riverius, and others, against incontinence of urine: Gesner has also discovered a bulk purgative power in its roots. But it is rarely prescribed in the present practice.

AGERATUS *lapis*, in the *Materia Medica of the Ancients*, the name of a stone mentioned by Galen and other writers; and said to be of the nature of the Phrygian stone, but more astringent: and as that was used in dying, this was in dressing of leather. We have no account of its external appearance, but probably it contained vitriol, and perhaps alum.

The great use of vitriol or copperas in the management of leather, is well known; and the stones which contain it, or pyrites, are every where common. The method used also in the preparation of the *Phrygian lapis*, which was the wetting and slightly calcining it, must be very proper to make the vitriol contained in this appear and exert itself in the working with it. This stone is used by shoemakers to polish women's shoes.

AGERIUM. See AGITAMENT.

AGES, signifies the palm, or hollow of the hand.

AGGADA, in *Jewish Antiquity*, an ingenious tale, or story, of which kind there are many in the Talmud.

There are several books extant among the Jews under this title. R. San Israel Ben Juda has published *Novellæ Aggadarum*, or new explanations of the stories and relations in the TALMUD, discovering the hidden meanings thereof.

AGGER, in *Ancient Latin Writers*, denotes the middle part of a military road, raised into a ridge, with a gentle slope on either side, to make a drain for the water, and keep the way dry.

AGGER is also used for the whole road, or military way.

Where high-ways were to be made in low grounds, as between two hills, the Romans used to raise them above the adjacent land, so as to make them of a level with the hills. These banks they called *aggeres*. Bergier mentions several in the *Gallia Belgica*, which were thus raised, ten, fifteen, or twenty feet above ground, and five or six leagues long.

They are sometimes also called *aggeres calcati*, and now generally known by the name *chaussées*, or CAUSEWAYS.

AGGER also denotes a work of fortification, used both for the defence and the attack of towns, camps, &c.

In which sense *agger* is the same with what was otherwise called *vallum*, and in later times *aggestum*, and among the modern, *lines*; sometimes *ravaliers*, *terrasses*, &c.

The *agger* was usually a bank, or elevation of earth, or other matter, bound and supported with timbers; having sometimes turrets on the top, wherein the workmen, engineers, and soldiery, were placed. It was also accompanied with a ditch, which served as its chief defence.

The usual materials, of which it was made, were earth, boughs, fascines, stakes, and even trunks of trees, ropes, &c, variously crossed, and interwoven somewhat in the figure of stars; whence they were called *stellati ages*. Where these were wanting, stones, bricks, tiles, supplied the office: on some occasions, arms, utensils, pack-saddles, were thrown in to fill up. What is more, we read of *aggers* formed of the carcasses of the slain; sometimes of dead bones mixed with lime; and even with the heads of slaughtered citizens. For want of due binding, or solid materials, *aggers* have sometimes tumbled down, with infinite mischief to the men.

The besiegers used to carry on a work of this kind nearer and nearer towards the place, till, at length, they even reached the wall. The methods taken, on the other side to defeat them, were by fire, especially if the *agger* were of wood; by sapping and undermining, if of earth; and in some cases by erecting a counter *agger*.

The height of the *agger* was frequently equal to that of the wall of the place. Cæsar tells us of one he made, which was thirty feet high, and three hundred and thirty feet broad. Besides the use of *aggers* before towns, the generals used to fortify their camps with such works; for want of this precaution divers armies have been surprised and ruined.

There are vast *aggers* made in towns, and places on the sea-side, fortified with towers, castles, &c. Those made by Cæsar and Pompey at Brundusium, are famous. Sometimes *aggers* were even built across arms of the sea, lakes, and morasses; as was done by Alexander before Tyre, and by M. Antony and Cassius.

The wall of Severus, in the north of England, may be considered as a grand *agger*, to which belong several lesser ones. Besides the principal *agger*, or *vallum*, on the brink of the ditch, Mr Horsley describes another *agger* on the south side of the former, about five paces distant from it, which he calls the south *agger*; and another larger *agger* on the north side of the ditch, called the north *agger*. This latter he conjectures to have served as a military way; the former, probably, was made for an inner defence, in case the enemy should beat them from any part of the principal *vallum*, or to protect the soldiers against any sudden attack from the provincial Britons.

AGGER *Tarquinii*, *Tarquin's agger*, was a famous fence built by Tarquinius Superbus, on the east side of Rome, to stop the incursions of the Latins, and other enemies, whereby the city might be infested.

AGGER is also used for the earth dug out of a trench, and thrown upon the bank of it.

In which sense, the chevalier Folard thinks the word to be understood, when used in the plural number, since we can hardly suppose they would raise a number of cavaliers, or terraces.

AGGER is also used for a bank, or wall, erected against the sea or some great river, to confine or keep it within bounds.

In which sense, *agger* amounts to the same with what the ancients called *tumulus* and *moles*; the Dutch, *dyke*; we, *dam*, *sea-wall*.

AGGER also denotes a heap of earth, raised over the graves of the ancients.

In which sense, it amounts to the same with *tumulus*; and is sometimes also called *aggestum*.

AGGLESTONE, otherwise called *stone-Borrow*, and vulgarly the *Devil's Night Cap*, is a remarkable monument of antiquity situated in the N. E. extremity of the isle of Purbeck. Its dimensions are 60 feet in circumference at the bottom, in the middle 80, and at or near the top 90; and it is computed to contain 407 tons of stone. The name seems to have been derived from the Saxon *hag*, or *hæg*, *hay*, and, *stan*, *stone*, which expresses its ancient use; as it was probably a rock-idol in the British age.

AGGLUTINANTS, AGGLUTINANTIA, in *Medicine*, a species of strengthening medicine, whose office and effect are to adhere to the solid parts of the body, and thus recruit, and supply the place of what is worn off, and wasted, in the animal actions.

Agglutinants are most of them of the glutinous kind, or such as easily form themselves into jellies, and gummy consistencies; whence the name *agglutinant*, which is formed of *ad*, *to*, and *gluten*, *glue*.

For the operation and use of *agglutinants*, see STRENGTHENERS.

The principal simples which come under this class, found in the shops, are isinglass, olibanum, gum Arabic, dragon's blood, cassia, sago, vermicelli, pulse, comfrey, plantain, &c.

AGGLUTINATIO *Pilorum*, a healing or reducing the hairs of the eye-lids, that grow inwards, to their natural order and situation. This may be done by mastic applied with a probe, which bends the hairs back into their proper order. Bitumen, the slime of a snail taken off with a needle, the juice of hawks weed, the liquor of agglutinants, or ammoniac, produce the same effect.

AGGLUTINATION, literally, denotes the act of joining or cementing two bodies together, by means of a proper *gluten*, or GLUE. See CEMENT.

In *Medicine*, the term is peculiarly used for the apposition or adherence of a new substance; or the giving a greater consistence to the animal fluids; to fit them the more for nourishment.

Some assign a difference between *agglutination* and *assimilation*; in that species of leprosy called *lepra*, there is an adhesion, or *agglutination* of the nutriment, but no *assimilation*. In the anasarcous dropsy, on the contrary, there is an *apposition*, without any *agglutination*: i. e. there is an afflux of new matter, or nourishment, but this is so thin and watery, that it wants the due stiffness and tenacity to make it bind.

Some will have *agglutination* to be effected by a *ferment*: others assert, that by reason of the glutinous quality of the chyle, a mere contact suffices to make it adhere to the parts.

AGGLUTINATION is used by some astronomers to denote the meeting of two or more stars in the same part of the ZODIAC.

AGGLUTINATION is more peculiarly understood of the seeming coalition of several stars, so as to form a NEBULOUS star.

AGGRAVATION, the act of augmenting a CRIME, or the PUNISHMENT thereof.

The word is compounded of *ad*, *to*; and *gravis*, *heavy*. *Aggravation*, in the Romish *Canon Law*, is particularly used

used for an *ecclesiastical* censure, threatening an EXCOMMUNICATION, after three admonitions used in vain.
From *aggravation* they proceed to *re-aggravation*; which is the last EXCOMMUNICATION.

AGGREGATÆ *glandulæ*; the small glands in the cellular, which is next to the villous coat of the intestines, are so called. But as these glands are not visible in an uninjected gut, many anatomists suspect them to be only little bits of separated wax.

AGGREGATE, the sum, or result of several things *aggregated* or added together.
The word is formed of *ad, to*; and *grex, gregis, a flock*. Natural bodies are *aggregates*, or assemblages of particles, or corpuscles, bound together by the principle of attraction. Bodies politic are likewise said to be *aggregate*; such as mayor and commonalty, dean and chapter, &c. in contradistinction to corporations *sole*; such as the king, a bishop, &c.

AGGREGATE, in general, signifies a body resulting from the union of others which are smaller, the whole sum of which combined is called the *aggregate*. It is particularly used by some modern *chemists* and *naturalists*, for a numerous collection of atoms, or minutest corpuscles, whether homogeneous or heterogeneous, joined together by contiguity, without regard to the quality of such atoms. In which sense, *aggregate* differs from MIXT, as the former supposes no particular situation or position, of the corpuscles, other than what arises from their proportion, and the relation they bear to the ambient bodies, among which the coalition is formed.
Aggregate also differs from *mixt*, as the latter is formed immediately out of the principles of matter, so firmly united, as that it is very difficult, if not impossible, to separate them. *Aggregate* again differs from *compound*, as the latter is formed out of *mixts*, and is easily dissolvable.
Aggregates, then, are the ultimate compounds, or the last effects of composition; they resolve into compounds as their next ingredients, these into mixts, and mixts into simples, or principles; though in strictness, *aggregates* may resolve also into mixts, and mixts into simples, inasmuch as they consist of heterogeneous parts.
This doctrine and distinction of *aggregates*, *mixts*, and *compounds*, is the foundation of the *chemical theory* of Becher and Stahl; the last of whom has traced it with great exactness. Hence has arisen a new doctrine of earths, metals, &c. which has since been illustrated and extended by the best modern chemists.

AGGREGATE, in *Botany*, is a term used to express those flowers, which are composed of parts or florets, so united by means either of the receptacle or calyx, that no one of them can be taken away without destroying the form of the whole. They are opposed to simple flowers, which have no such common part, and are usually divided into seven kinds, viz. the *aggregate*, properly so called, whose receptacle is dilated, and whose florets are supported by foot-stalks; such are the blue daisy, thrift, or sea-pink, &c. the *compound*; the *umbellate*; the *synopic*; the *amentaceous*; the *glumose*, and the *spadiceous*.

AGGREGATE *fund*. See FUND.

AGGREGATION, AGGREGATIO, in *Physics*, a species of UNION, whereby several things, which have no natural dependence, or connection with one another, are collected together, so as in some sense to constitute one. Thus, a heap of sand, or a mass of ruins, are bodies by *aggregation*.

AGGREGATION, in *Chemistry*. See AGGREGATE.

AGGREGATION is also used *figuratively*, for ASSOCIATION. We say, to be of a company, or community, by *aggregation*.—An *aggregation* of several doctors to the faculty of laws.—In Italy, *aggregations* are frequently made of houses, or families; by virtue whereof, they all bear the same name and arms.

AGGRESSOR, in *Law*, he, of two contending parties, who makes the assault or attack; or who began the quarrel, encounter, or difference.
In criminal matters, it is always first enquired who was the *aggressor*.

AGIADES, a kind of Turkish soldiery, employed in fortifying of camps, smoothing of roads, and the like offices. Du-Cange.

AGIAHALID, the name of an Egyptian tree, called also *lycis*, and *lycium*; it resembles the wild pear.

AGIASMA, from ἁγιάζω, *holy*, among *Ancient Writers*, is sometimes used for the whole church, sometimes for the more sacred part or *bema*, wherein mass was said. Du-Cange.

AGILD, or AGILDE, in our *Ancient Customs*, a person so vile, that whoever killed him was to pay no mulct for his death.
The word comes from the privative *a*, and the Saxon *gildan, to pay*.

AGILENSZ, in *Botany*, a name used, by some, for the common hazel.

AGILITY, AGILITAS, a light, and active habitude, or disposition of the members and parts, designed for motion.
Some define *agility*, the art or habit of directing our strength, i. e. of intending, or remitting it to advantage.
The improving of *agility* was one of the chief objects of the institutions of games and exercises. The *athletæ* made particular profession of the science of cultivating and improving *agility*.

AGILLARIUS, in *Ancient Law-books*, a heyward, or keeper of a herd of cattle in a common field.
The *agillarius*, or *heyward of a town*, or *village*, was to supervise the greater cattle, or common herd of beasts, and keep them within their due bounds; and was otherwise called *bubulcus*, q. d. *cow herd*, (whence the reproachful term *coward*)—If he were a cottager, or other servile tenant, he was exempted from the customary services, as being presumed to be always attending on his herd, as a shepherd on his flock, who had therefore the like privilege.
The *agillarius of the lord of a manor*, or a *religious house*, was an officer appointed to take care of the tillage and harvest-work, to pay the labourers, and see there were no incroachments made, or trespasses committed: the same in effect with what has been otherwise called *fieldman*, and *tilling-man*; and among us BAILIFF.

AGIO, in *Commerce*, an italian word signifying *aid*, is a term used, chiefly in Holland, and at Venice, for the difference between the value of bank money, and current money.
So that if a merchant who sells his merchandise, stipulated to be paid either 100 livres bank money, or 105 cash, or current money, in such case the *agio* is said to be 5 *per cent*.
The bank *agio* varies in almost every place. At Amsterdam it is usually from 3 to 5 *per cent*.; at Rome, near 25 *per* 1500; at Venice 20 *per cent*. fixed; at Genoa from 15 to 16 *per cent*.
AGIO is also used for the profit arising from discounting a note, bill, or the like.
AGIO is also used, though with some impropriety, for the rate of exchange of a sum negociated, whether to profit or loss. It is sometimes called AGAI.
AGIO *of assurance* is used, by some, for what we more usually call *police of* ASSURANCE.

AGIOSYMANDRUM, a wooden instrument used by the Greek and other churches, under the dominion of the Turks, to call together assemblies of the people.
The word is compounded of ἁγιος, *holy*, and σημαινω, *I signify*.
The *agiosymandrum* was introduced in the place of bells, which the Turks prohibited their Christian subjects the use of, lest they should make them subservient to sedition.

AGIS, a name for the THIGH. See FEMUR.

AGIST, in *Law*, signifies to take in and feed the cattle of strangers in the king's forest, and to gather up the money due for the same. Chart. de Foresta, 9 H. III. cap. 9.
The officers appointed for this purpose are called *agistors*, or *gistakers*, and are made by the king's letters patent: there are four of them in every forest, wherein the king hath any pannage. Manw. For. Laws, 8vo.
The time for this is fifteen days before Michaelmas, and as many after, when the running of the cattle cannot prejudice the game.

AGISTMENT, supposed to be formed of the French *gîte, a bed*, or lying place: though Kennet excepts to this etymon, and chooses rather to derive it from *ager*, the field, or feeding place for cattle; imagining *agistment* to have originally been the same with *agrarium, agerium*, or *agretum*, the profit of feeding cattle on such a piece of ground.
AGISTMENT, *agistamentum*, is where other men's cattle are taken into any ground, at a certain rate per week. It is so called, because the cattle are suffered *agistare*, that is, to be *levant* and *couchant* there; and many great farms are employed to this purpose. 2. Inst. 643. Our graziers call cattle, which they thus take in to keep, *gisements*; and to *rise*, or *joice*, the ground, is when the occupier thereof feeds it not with his own flock, but takes in the cattle of others, to *agist* or pasture it. *Agistment* is likewise the profit of such feeding in a ground or field; and extends to the depasturing of barren cattle of the owner, for which tythes shall be paid to the parson.
AGISTMENT is also used metaphorically for a charge, or burden, on any thing.
In this sense we meet with *terra ad custodiam maris agistata*, i. e. *charged with a tribute to keep out the sea*.—So *terræ agistatæ*, are lands whose owners are bound to keep up the sea-banks.
AGISTMENT, the duty and levy for repairing the banks and walls in Romney-marsh was particularly called *agistamentum*;

Stamentum; and the act of laying such a proportion of this duty on the several estates was called *agistatio*. Spelman.

AGISTOR, or AGISTATOR, see AGIST and AGISTMENT.

AGITATION, AGITATIO, properly signifies *shaking*; or reciprocal MOTION of a body.

The *prophets*, *quakers*, Pythian priestesses, &c. were subject to violent *agitations* of body. See INSPIRATION.

Among physiologists, the term is sometimes appropriated to that species of earthquake, called *tremor*, or *aritatio*.

Among the philosophers, it is chiefly used for an intestine commotion of the parts of any natural body.

Thus, fire is said to *agitate* the minute particles of bodies.—Fermentation, and effervescence, are attended with a brisk *agitation* of the particles.

Heat is supposed by some, to consist in the *agitation* of the parts of the hot body; and sound is produced by a tremulous *agitation*, excited first in the sonorous body, and communicated thence to the ambient air.

AGITATION is likewise used for a violent hurry or perturbation of spirits, occasioned by some predominant passion.

AGITATION is also used, in *Medicine*, for a species of exercise, popularly called *swinging*: and, in general, for any exercise which shakes the body.

Bartholine mentions fits of the tooth-ach, deafness, &c. removed by vehement *agitations* of the body; and they have been found of especial use for preventing and dissolving concretions.

Dr. Sydenham attributes the great benefits of riding to *agitation*, which is very efficacious in removing obstructions of the *viscera*. See ÆGRA.

Sanguification is in great measure effected by the *agitation* of the parts of the blood and chyle, in their continual circulation. DIGESTION itself is only supposed by some to be an insensible kind of *agitation*.

AGITATION *of beasts in the forest*, anciently signified the DRIFT of beasts in the forest.

AGITATIVE, something having power to agitate or shake another.

AGITATIVE *force of a pendulum*, is that which produces motion in it.

The *agitative force* of the pendulum arises from three things? 1. The power of gravity. 2. The weight fastened at the end of the rod. 3. The distance of that weight from the point of suspension; or, which amounts to the same thing, the length of the rod, or *pendulum*. Hist. Acad. Scien. 1714.

AGITATOR, in *Antiquity*, a *charioteer*; or he who drove or directed a chariot, or horses in a race.

In which sense, *agitator* amounts to the same with what the Romans called *auriga*, and we a coachman, driver, &c.

AGITATOR was more particularly used for him who drove in the public *circus* games in the *circus*.

The *agitators* were distinguished, by their habits, into *russati*, *albati*, *prasini*, and *veneti*, which gave rise and denomination to so many factions. Besides which, they had other marks, or ensigns of their family, corresponding to what we call arms.

The conquerors, besides the ordinary rewards, *bravia*, as crowns, &c. had statues erected to them in the circus; on the bases whereof, their titles, atchievements, &c. were inscribed; several of which are still found among ancient inscriptions, drawn in the following formulæ: *Vicit ſpigs, ſeptyigs, bigis, trigis, tot annis, ubique principia, duobus entraſſigis*, &c.

It has been disputed, whether the *agitators* were on the footing of mimes and pantomimes, and by law held infamous? Brisson. Select. ex Jur. Civ. Ant. lib. i. c. 10.

AGITATORS, *militarium*, *agitatores militarii*, were those who drove in the forum at Constantinople, a place adorned with statues, &c. after the manner of the circus at Rome, having a *milium*, or *miliarium*, in the middle.

AGITATORS, in our English affairs, were certain officers, created by the army in 1647, to take care of its interests. Cromwell leagued himself with the *agitators*, whom he found to have greater interest than the council of war.—The *agitators* undertook to make proposals relating to the reformation of religion, and the state.

AGLAIA, the name of the youngest of the three Graces, espoused to Vulcan.

AGLAOPHOTIS, in *Botany*, a name used, by some, for PIONY.

AGLECTS, AGLETS, or AGLEEDS, among *Florists*, the APICES, or pendants hanging on the tip-ends of CHIVES, or STAMINA; as in tulips, roses, spike-grass, &c.

AGLIA, among *Ancient Physicians*, a whitish cicatrix, or spot in the eye, formed by a congestion of humours.

AGLIBOLUS. The Palmyrenes worshipped the sun under this title.

AGLITHES, used by Hippocrates for a clove of garlick.

AGME, in *Surgery*, signifies a fracture.

AGMEN, in *Antiquity*, properly denotes a Roman army in march.

In which sense, it stands contradistinguished *from acies*, which denoted the army in battle array; though, on some occasions, we find the two words used indifferently for each other.

The Roman armies, in their marches, were divided into *primum agmen*, answering to our van-guard; *medium agmen*, our main-battle; and *poſtremum agmen*, the rear-guard.

The order of their march was thus: after the first signal with the trumpets, &c. the tents were taken down, and the baggage packed up; at the second signal the baggage was to be loaden on the horses and carriages; and at the third signal, they were to begin their march. First came the *extraordinarii*; then the auxiliaries of the first wing, with their baggage; these were followed by the legions. The cavalry marched either on each side, or behind.

AGMEN *pilatum*, that disposed in a narrow oblong form, or column; being withal close and compact; thus called, as resembling the figure of a *pila*, or *pier*. Vegetius compares it to that of a broach, or spit. This form was chiefly used in marching without their baggage, through bad ways and close countries.

AGMEN *quadratum*, that ranged somewhat in a square form; being the method ordinarily observed in the Roman armies. This was also called *agmen grave*, by the Greeks χαραγματος τρόπος. The three lines, or columns, in which the army usually marched, were considerably more in length, or breadth, than in depth: but as the baggage marched somewhat in the same order, the whole approached to the figure of a square.

AGMEN is also used for any number of persons, or even animals, moving or advancing in some regular order.

AGNACAT, *Scaligeri pyri* species. In a country of America, beyond the Terra de Labrador, toward the isthmus of Darien, there is a tree of the figure and size of a pear-tree, always covered with leaves, and of an extraordinary greenness and lustre. It bears a fruit also like a pear, but green even when it is ripe; the pulp is of the same colour, sweet, fat, and tastes like butter. It is a powerful promoter of venereal vigour. Ray's Hist.

AGNANTHUS, in *Botany*, the name given by Vaillant to a genus of plants, called afterwards CORNUTIA, by Plumier and Linnæus. It is of no medical use.

The word is formed of αγνος, *chaſte*, and ανθος, *a flower*.

AGNATI, in the *Roman Law*, the male descendants from the same father.

AGNATION, in the *Civil Law*, the kinship, or relation, between the descendants of the same father, being males, and issued only from males.

The word is formed from *ad*, *to*, and *naſci*, *to be born*. *Agnation* differs from *cognation*, as the latter is an universal name, under which the whole family, and even the *agnati* themselves, are contained; and *agnation*, a particular branch of *cognation*, which only includes the descendants in the male line. Again, *agnation* is properly only a civil name, as that of *gens*, or family; *cognation*, a natural name, or derived from blood.

By the law of the *Twelve Tables*, males and females succeed one another, according to the order of proximity, and without any regard to the sex: but the laws were afterwards changed in this respect, by the *Lex Voconia*; and women were excluded from the privileges of *agnation*, excepting such as were within the degree of consanguinity; i. e. excepting the sisters of him who died abintestate; and it was hence that the difference between *agnati* and *cognati* first took its rise.

But this difference was again abolished by Justinian (Inſt. 3. 10.) and the females were reinstated in the right of *agnation*; and all the descendants on the father's side, whether males or females, were appointed to succeed each other indiscriminately, according to the order of proximity.

Hence, *cognation* came to take in all the relations of the mother as well as father; and *agnation* to be restrained to those of the father alone.

Adoptive children enjoy the privileges of *agnation*; which was called *civil* in their respect, in opposition to the other, which was *natural*.

AGNEL, an ancient French gold coin, first struck under the reign of St. Louis, worth about twelve sols, six deniers. The *agnel* is also called sometimes *mouton d' or*, and *agnel d' or*. The denomination is supposed to have arisen from the figure of a lamb, or sheep, struck on one side.

AGNELET, an ancient French silver coin, first struck under Philip le Bel, worth about twenty sols.

AGNIFER is an appellation applied, by some *Ecclesiastical Writers*, to John the Baptist, and used in the same sense with *præcurſor*, or *forerunner*.

AGNIS; see INDICUM.

AGNINA *membrana*, the same as the AMNIOS.

AGNINA *lactuca*; see LACTUCA.

AGNOETÆ, in *Church History*, a sect of ancient heretics,

who maintained that Chriſt, conſidered as to his human nature, was ignorant of certain things, and particularly of the time of the day of judgment.

The word is formed of *ayvoεω*, *ignore*, *to be ignorant of*. Eulogius, patriarch of Alexandria, aſcribes this doctrine to certain ſolitaries in the neighbourhood of Jeruſalem, who, in defence hereof, alledged divers texts of the New Teſtament, and, among others, this of St. Mark, chap. xiii. ver. 32. *Of that day and hour knoweth no man; no not the angels who are in heaven, neither the Son, but the Father only.*

There ſeem to have been two kinds of *agnoetæ*, though they are uſually confounded.

AGNOIA, a word uſed by *Phyſicians*, when a perſon in a fever does not know his acquaintance. When a rigor accompanies this ſymptom, Hippocrates ſays it is dangerous.

AGNOMEN, in *Antiquity*, an epithet given to a perſon, either by way of praiſe, or diſpraiſe, or from ſome remarkable event, which became, as it were, an additional name, but peculiar to the perſon, and not deſcendible to his iſſue. Thus, one of the Scipios was named *Africanus*, and the other *Aſiaticus*, from the brave atchievements which the one performed in Africa, and the other in Aſia.

The *agnomen* was the third in order of the three Roman names.—Thus in Marcus Tullius Cicero, Marcus is the *prænomen*, Tullius the *nomen*, and Cicero the *agnomen*. Others think the *agnomen* to have been the fourth or honorary name, ſuperadded on account of ſome extraordinary action or virtue. Some imagine *agnomen* and *cognomen* to have been the ſame, as they generally are, except in caſes of ADOPTION.

It was a cuſtom among the Romans, for a perſon, when *adopted* into another family, to lay aſide all his other names, and only retain his family name, to which he added the *prænomen*, *nomen*, and *cognomen* of the adopter. Thus P. Cornelius Scipio, being adopted by Q. Cæcilius Metellus, laid aſide his *prænomen* PUBLIUS, and *nomen* CORNELIUS, and was called Q. Cæcilius Metellus Scipio.

AGNOS, in *Ichthyology*, a name given by Athenæus, and many other of the Greek writers, to that fiſh called *callyonymus*, or *uranoſcopus*. It is a ſpecies of the *trachinus*, and is diſtinguiſhed, by Artedi, from the reſt of that genus, by the name of the *trachinus*, with a great number of beards growing from the lower jaw.

AGNUS *Caſtus*, the *chaſte tree*, in *Botany*. Its characters are theſe: the empalement of the flower is cylindrical, and indented in five parts: the flower has one ringent petal, the brim plain, and divided into two lips, which are trifid, and the middle ſegment broadeſt in both. It has four hair-like ſtamina, two of them ſhorter than the other, terminated by moveable ſummits; and a roundiſh germen ſupporting a ſlender ſtyle, crowned by two awl-ſhaped ſpreading ſtigmas. The germen turns to a globular berry with four cells, each containing one oval ſeed. This plant was famous among the ancients as a ſpecific for the preſervation of chaſtity, and the preventing of all venereal deſires, poſſutions, &c.

The Greeks call it *ἀγνος*, *chaſte*; to which has ſince been added the reduplicative *caſtus*, v. d. *chaſte chaſte*.

The Athenian ladies, who made profeſſion of chaſtity, lay upon leaves of *agnus caſtus*, during the feaſt of Ceres. See CERRALIA.

This ſhrub is alſo called *agnon*, *vitex*, ſometimes *elæagnon*, *ſalix amerina*, *ſycon*, *lygus*.

There are divers ſpecies of it. Pliny mentions two, the *greater*, called alſo the *white* kind, and the *leſſer*, or *black*. Miller ſpeaks of four; only one of which, called VITEX *foliis anguſtioribus, canabis modo diſpoſitis*, is pretty common in Engliſh gardens; the reſt are rare. Its ſeed is round, about the bigneſs of pepper, and having a pungent aromatic taſte; whence the French ſometimes call it *wild pepper*. This ſeed is ſaid to be more effectual than rue, in hardneſs of the liver or ſpleen; it is of the ſize of a pepper-corn. It grows in waſte grounds, about the banks of rivers, and contains a great deal of ſalt and oil, but little phlegm. The oil of it is inſipid, and of a ſaffron colour, and is eaſily obtained by expreſſion. It is a native of Italy. The *agnus caſtus* is a ſpecies of VITEX in the Linnæan ſyſtem.

AGNUS *Dei*, in the *Romiſh Church*, denotes a cake of wax, ſtamped with the figure of a lamb, ſupporting the banner of the croſs, conſecrated in due form by the pope, to be diſtributed in preſents among the people, and ſuppoſed to have great virtues annexed to it.

The name literally ſignifies *Lamb of God*; this being ſuppoſed an image, or repreſentation of the Lamb of God, who took away the ſins of the world.

They cover it up with a piece of ſtuff, cut in form of a heart, and carry it very devoutly in their proceſſions.—The Romiſh prieſts, and religious, derive conſiderable pecuniary advantage from ſelling theſe *Agnus Dei*'s to ſome, and preſenting them to others. The pope provides a regular ſupply, by conſecrating once in ſeven years; they are diſtributed by the maſter of the wardrobe; and received by the cardinals, and other prelates, with great reverence, in their caps and mitres.—This ceremony they pretend to derive from an ancient cuſtom of the church, wherein part of the paſchal taper, conſecrated on Holy Thurſday, was diſtributed among the people, to perfume their houſes, fields, &c. in order to drive away devils, and to preſerve them from ſtorms and tempeſts. Other imaginary virtues are likewiſe attributed to them. See concerning the origin of *Agnus Dei's*, Jour. des Scav. tom. xxxi. p. 252. Mem. de Trev. ann. 1722 p. 2010. Their virtues, Act. Erud. Lipſ. Supp. tom. iv. p. 224. Their myſtic meanings, Du Pin, Bibl. Eccleſ. tom. xviii. p. 68. The order of conſecrating them, Magri, Notiz. de Vocab. Eccleſ. in voc.

Some authors alſo ſpeak of a kind of metalline *Agnus Dei's*, hung to chapelets, or pater-noſters.

The *Agnus Dei* is ſaid to have been firſt brought into the miſſal, by pope Sergius I.

The *Agnus Dei* is forbidden to be brought into England, under pain of incurring a *præmunire*. 13 Eliz. cap. 2.

AGNUS *Dei* is alſo a name popularly given to that part of the maſs, wherein the prieſt, ſtriking his breaſt three times, rehearſes, with a loud voice, a prayer beginning with the words *Agnus Dei*.

AGNUS *Scythicus*, in *Natural Hiſtory*, a kind of *zoophyte*, or plant-animal, ſaid to grow in Tartary, reſembling the figure and ſtructure of a lamb. See ZOOPHYTON.

The *Scythian lamb* is alſo called *agnus vegetabilis*, *agnus Tartaricus*, and by the people of the country, *boranetz*, *boranetz*, or *boranetz*.

The uſual account given of this extraordinary production is, that the Tartars ſow in their ground a ſeed reſembling that of melon, but leſs oblong; from whence ariſes a plant called by them *boranetz*, i. e. *lamb*, growing all moſt to the height of three feet, and having feet, hoofs, ears, and the whole head, excepting horns, reſembling that animal. In lieu of horns it has a peculiar ſort of hair, not unlike horns; it is covered with a fine thin ſkin, which being pulled off, is worn by the natives as a cover for the head. The pulp within reſembles that of the *gammarus*; and when wounded, a liquor ouzes out like blood. It lives as long as there is graſs and herbage around it; but when theſe are conſumed, it waſtes and dies. They add, that wolves are fond of it, while no other beaſts will feed on it.

Deuſingius ſeems to have been the firſt who ſuſpected this account to be fabulous; and Kempfer, when in the country, made diligent inquiry concerning it, but could hear of nothing like it.

As to the plants ſhewn under this denomination, in ſome repoſitories of rarities, they appear to be originally the roots, or ſtalks, of certain vegetables, probably of the capillary kind, covered with a woolly moſs, which naturally bearing reſemblance to the figure of a lamb, have been helped out and brought near to it by art, and the addition of new parts.

Sir Hans Sloane, and Breynius, give us the figures and deſcriptions of ſuch *boromerzes* in their collections. It is from theſe plants that the Indian moſs is gathered, famous for its uſe in ſtaunching blood. Breynius and Libavius have written expreſly on the *Agnus Scythicus*. Phil. Tranſ. N° 390, and N° 287.

AGOGA, in *Natural Hiſtory*, a ditch or drain for carrying off the water from a mine.

The word ſeems derived from *ἀγω*, *ductus*, of *ἀγω*, *duco*, *I draw*.

AGOGE, *ἀγωγη*, in the *Ancient Muſic*, a ſpecies of modulation, wherein the ſounds or notes proceed by continuous degrees of the ſcale, both riſing and falling. As when we ſing, re, mi, fa, ſol, la: la, ſol, fa, mi, re. *Agoge* anſwers to what the Latins call *ductus*, and the Italians *conducimento*, and *di grado*: it ſtands contradiſtinguiſhed from *ploce*, *petteia*, &c.

Agoge makes the firſt part of the *melopœia*, or art of modulating.

There are three ſpecies or caſes of this modulation; firſt when the ſounds follow each other from grave to acute, i. e. riſing as in ſinging, B C D E. This the Latins call *ductus rectus*, and the Italians *conducimento retto*.

The ſecond, when they go from acute to grave, i. e falling, as in the notes E D C B, called by the ancients *ductus reverſus*, and by the modern Italians *conducimento rivertante*.

The third, when they riſe by ſtats and fall by ſharps, as in D, E, F *ſharp*, G, or, *vice verſa*, as in G, F *natural*, E *flat*, D. This the ancients call *ductus circumvertens*, and the Italians *conducimento circonvertente*. Euclid Introd. Harm. p. 22. Ariſtid. Quintil. de Melop. lib. i. Mem. Acad. Inſcr. tom. vii. Malcom on Muſ. chap. xiv. ſect. 4.

AGOMPHIASIS, or GOMPHIASIS, a diſtemper of the teeth. It conſiſts in their being looſe in their ſockets.

AGON, in *Antiquity*, a diſpute or conteſt for the maſtery, either of ſome exerciſe of the body, or of the mind.

There were *agones* on certain days, in moſt of the ancient feaſts, and other ceremonies in honour of the gods, or heroes.

There were alſo *agones* eſtabliſhed expreſly, and not attached to any other ſolemnity.—Such was the *agon gymnicus*, at Athens; the *agon Nemæus*, inſtituted by the Argians in the 33d Olympiad; the *agon olympius*, inſtituted by Hercules, 430 years before the firſt Olympiad; the *agon Adrianalis*, inſtituted at Athens, by the emperor Adrian, called Παναθήναια, Παναθήναια, and Ὀλύμπια Ἀδριανεῖα.

The Romans had alſo *agones* inſtituted after the example of the Greeks: the emperor Aurelian eſtabliſhed the *agon ſolis*, *agon of the ſun*; and Dioclefian, the *agon capitolinus*, which was held every fourth year, after the manner of the Olympic games.—Hence the years, inſtead of *luſtro*, are ſometimes numbered by *agones*. The *agon ſeculaticus*, inſtituted at Puzzuoli by the emperor Antoninus Pius, and held every fifth year, was a ſacred combat, and the victors at it were called *hieronicæ*: they were to be received into the city, through a breach in the wall, made on purpoſe. The *agon muſicus* was that wherein either poets, or muſicians, diſputed for the prize; ſuch was that dedicated by Ptolemy to Apollo and the Muſes, with rewards aſſigned to the writers who gained the victory. Of this kind were alſo found in the Pythian, Nemæan, and Iſthmian games; alſo in the Olympic games, after Nero's time, who firſt introduced a muſical *agon* here; others were founded by the emperor Domitian, and others at Rome, Naples, Alba, &c. The *agon Neronianus* was a quinquennial combat, called alſo *Neronian*, from the name of its inſtitutor, who here bore away the prize for playing on the harp, *citharo*.

AGON is alſo uſed for a place near the Tyber, otherwiſe called *circus Flaminens*, wherein curule games and combats were celebrated.

AGON is alſo uſed by *Phyſicians*, for the ſtruggle of death.

AGON was alſo a miniſter of ſacrifice, whoſe buſineſs was to ſtrike the victim. The name is ſuppoſed to have been derived hence, that ſtanding ready to give the ſtroke, he aſked *agon*, or *agone? ſhall I ſtrike?*

The *agon* was alſo called *popa*, *cultrarius*, and *victimarius*.

AGONALES, in *Antiquity*, an epithet given to the SALII, conſecrated by Numa Pompilius to the god Mars, ſurnamed *Gradivus*.

They were alſo called *Quirinales*, from the *Mons Quirinalis*, where they officiated. Roſinus calls them *Agonenſes Salii*.

AGONALIA, in *Antiquity*, feaſts celebrated by the Romans, in honour of Janus; or, as ſome would have it, in honour of the god *Agonius*, whom the Romans uſed to invoke upon their undertaking any buſineſs of importance. They appear to have been held thrice in the year, viz. on the fifth of the ides of January, on the twelfth of the calends of June, and the third of the ides of December. Struv. Ant. Rom. c. 8.

AGONE. See HENBANE.

AGONISMA, in *Antiquity*, the palm or prize given the victor in a game or combat.

AGONISTARCHA, in *Antiquity*, ſeems to have been much the ſame with *agonotheta*; though ſome ſuggeſt a difference, making it the office of the former to preſide at, and direct the private exerciſes of the *athletæ*, which they went through by way of practice, before they made their appearance on the public theatres or amphitheatres.

AGONISTIC, *agoniſtica*, the ſcience of what relates to the combats, or *agones* of the ancients.

In which ſenſe, *agoniſtic* amounts to much the ſame with *athletic*, and makes a branch of *gymnaſtic*.

AGONISTIC, ἀγωνιστικὸν, is alſo uſed among *Ancient Phyſicians*, for cold ſpring-water.

The reaſon of the denomination is taken from the plentiful uſe of that element in the ſtate of an acute eryſipelaceous fever, wherein water was ſuppoſed to combat and ſtruggle with the febrile heat.

AGONISTICI, in *Antiquity*, a name given by Donatus to thoſe of his ſect, whom he ſent into the neighbouring places, fairs, markets, &c. to preach his doctrine; for which reaſon they were alſo called *circumitores*, *circelliones*, *cotropitæ*, *coropitæ*, and, at Rome, *montenſes*.

They were called *agoniſtici*, from *agon*, *combat*; becauſe they were ſent, as it were, to fight, and ſubdue the people to their opinion.

AGONIUM, in *Roman Antiquity*, was uſed for the day whereon the *rex ſacrorum* ſacrificed a victim. The ſame name was alſo given to the place wherein the games were anciently celebrated.

AGONOTHETA, AGONOTHETES, in *Antiquity*, a magiſtrate choſen among the Greeks, to preſide, and have the ſuperintendency of the ſacred games, or combats; to defray the expences thereof, and to adjudge the prizes to the conquerors.

The word is compounded of *agon*, *combat*, and θετης, *he who diſpoſes*.

Among the Romans, the like officer was denominated *deſignator*, and *munerarius*.

Middle-age writers uſually confound *agoniſtæ*, the combatants at the games, with the *agonotheta*, or preſidents of them.

The *agonotheta* had the immediate charge of the manner of life, diſcipline, and morals of the *athletæ*. They examined, and admitted, or expelled them the ſociety, or order. During the combats, the *agonotheta* were cloathed in purple, and rode in a triumphal manner through the circus, holding in their hands an ivory ſceptre, with an eagle on it.

Van Dale has an expreſs diſſertation on the *agonotheta*.

The name *agonotheta* is ſtill retained in ſchools and academies, for him who defrays the charge of the prizes diſtributed. The founders of prizes are perpetual *agonotheta*.

AGONOS, in *Phyſic*, a Greek word ſignifying *barren*. Hippocrates applies it to women who have no children, though they might have them, if the impediment were removed.

AGONUS, in *Ichthyology*, a name uſed by the generality of authors, for the fifth called by ſome *ſarachus*, by others *chalcis*, and by others *ſardella*.

It is in many particulars very like the *alauſa*, or ſhad, called the mother of herrings, but ſmaller, never arriving at more than a foot in length; and is always lean and lank in ſpring, and fat in autumn. But the diſtinctions between it and the *alauſa*, if real, are ſo very ſmall, that Mr. Ray, and many of the moſt accurate naturaliſts, have ſuſpected it the ſame fiſh, only in a different ſtate.

AGONY, AGONIA, denotes the extremity of pain, or a diſeaſe; when nature makes her laſt effort, or ſtruggle, to throw off the evil that oppreſſes her.

The word is formed from the Greek ἀγων, *certamen*, *combat*; this being a kind of ſtrife between life and death.

Much of the terror of death conſiſts in the pangs and convulſions wherewith the *agony* ſeems attended; though we have reaſon to believe, that the pain in ſuch caſes is ordinarily not extremely acute; a courſe of pain and ſickneſs having uſually ſtupified, and indiſpoſed the nerves for any quick ſenſations. However, various means have been thought of for mitigating the *agony* of death. Lord Bacon conſiders this as part of the province of a phyſician, and that not only when ſuch a mitigation may tend to a recovery, but alſo when there being no farther hopes of a recovery, it can only tend to make the paſſage out of life more calm and eaſy. Accordingly, he ranks *euthanaſia*, or the art of dying eaſily, among the *deſiderata* of ſcience; and does not even ſeem to diſapprove of the courſe Epicurus took for that end. De Augm. Sc. lib. iv. c. 4.

Opium has been applied for this purpoſe, with the applauſe of ſome, but the condemnation of more.

Baglivi promiſed a treatiſe expreſs, De Medicina Agonizantium, or the method of treating thoſe in the agonies of death. But perhaps one of the beſt recipes for this end, is that of Mr. Patin, viz. *abſtinence from all medicines*.

AGONYCLITÆ, or AGONYCLITES, in *Antiquity*, a ſect, in the ſeventh century, whoſe diſtinguiſhing principle it was, never to kneel, but to deliver all their prayers ſtanding. See GENUFLEXION.

The word is compounded of the private particle α, γόνυ, *knee*, and κλίνω, *to bend*.

AGORÆUS, in *Antiquity*, an appellation given to thoſe deities, who had ſtatues in the public markets, or *fora*.

The word is formed of ἀγορὰ, *market*.

AGORANOMUS, in *Antiquity*, a magiſtrate of Athens, eſtabliſhed for the maintenance of good order and policy in the markets, ſettling the prices of proviſions, excepting corn, and deciding diſputes relating to buying and ſelling, inſpecting the weights, meaſures, and the like.

The word is compounded of ἀγορὰ, *market*; and νομος, *law*.

The *agoranomus* among the Greeks was much the ſame with the *curule* ÆDILE among the Romans.

Ariſtotle diſtinguiſhes two kinds of magiſtrates, the *agoranomi*, who had the ſuperintendence of the markets; and the *aſtynomi*, who inſpected the buildings of the (ἀστυ) *cities*.

The *agoranomi*, at Athens, were ten in number, five belonging to the city, and as many to the Piræus; though others make them fifteen in all, of whom they aſſign ten to the city. To theſe a certain toll or tribute was paid, by all who brought any thing to ſell in the market.

AGOSTUS, in *Anatomy*, ſignifies the part of the arm from the fingers to the elbow; alſo the palm or hollow of the hand.

AGRA, a kind of ſweet-ſcented wood, found in the iſland of Hainan, on the coaſt of China.

AGRA-*Caramba*, is another sweet-scented wood, which also comes from the island of Hainan.

AGRARIÆ *flotiones*, in the *Ancient Military Art*, corps of guards posted in the fields, and in the open air.

AGRARIÆ *naves* was used for vessels placed to keep watch, or guard.

AGRARIAN, in a general sense, something relating to fields or lands.

The word is originally Latin, *agrarius*, formed of *ager*, *a field*.

AGRARIAN, in the Roman *Jurisprudence*, a denomination given to such laws as relate to the partition or distribution of lands.

There are fifteen or twenty *agrarian* laws; whereof the principal are, the *Lex Cassia*, in the year of Rome 268; the *Lex Licinia*, in 337; the *Lex Flaminia*, in 525; two Sempronian laws, in the year 620; the *Lex Apuleia*, in the year 653; the *Lex Barbia*; the *Lex Cornelia*, in 673; the *Lex Servilia*, in 690; the *Lex Flavia*; the *Lex Julia*, in the year 691; the *Lex Ælia Licinia*; the *Lex Livia*; the *Lex Mœnia*; the *Lex Roscia*, made after the taking of Carthage; the *Lex Flavia*, and the *Lex Titia*.

By the laws of Licinius, no Roman was allowed to occupy more than seven *jugera* of land; and by a similar law of Romulus, every Roman was limited to two *jugera*.

AGRARIAN *Law*, *Lex* AGRARIA, absolutely, and by way of eminence, so called, was a celebrated law, published by Spurius Cassius, about the year 268, for an equal division of the conquered lands among all the citizens, and for limiting the quantity of ground possessed by each person to a certain number of acres.—Those other two in the Digest, the one published by Cæsar, and the other by Nerva, only relate to the limits or boundaries of grounds; and have no relation to that of Spurius Cassius.

The Roman lands were of divers kinds, some conquered from the enemies, and not yet brought to the public account: others brought indeed to the public, but clandestinely usurped by private great men: lastly, others purchased with the public money, in order to be divided. *Agrarian* laws, either for dividing lands taken from the enemy or the public lands, or those purchased with the public money, were easily passed without disturbance; but those whereby private rich men were to be ousted of their lands, and the common people put in possession of what had been held by the nobility, were never attempted without great disturbances.

Several have pleaded for the necessity of *agrarian* laws among us. William Spigge, or, as some say, Fr. Osborne, has written expressly on this subject. See also the Supplement to Dr. Price's Observations on Reversionary Payments, &c. p. 381.

But the author who seems to have entered deepest into the nature and use of *agrarian* laws, is Harrington; he shews that the balance of property in a state cannot be fixed but by laws, and the laws whereby such a provision is made are *agrarian* laws. Now these are necessary to the stability of government, because governments will, according to the diverse balance of property, be of diverse or contrary natures, that is, monarchical, or popular. Thus monarchy requires of the standard of property, that it be vast or great; and of *agrarian* laws, that they hinder recess or diminution, at least in so much as is thereby entailed upon honour. But popular government requires, that the standard be moderate, and that its *agrarian* laws prevent accumulation.

This author thinks, that in a territory not exceeding England in revenue, if the balance be in more hands than three hundred, it is declining from monarchy; and if it be in fewer than five thousand hands, it is swerving from a commonwealth.

The same writer defines an equal *agrarian*, a perpetual law establishing and preserving the balance of dominion by such a distribution that no one man, or number of men, within the compass of the few or aristocracy, can come to overpower the whole people, by their possessions in lands.

He also observes, that the people of Rome, by striving for an *agrarian*, drove to save their liberty: and that commonwealth, through want of such a law, or the non-observance of it, came to ruin.

To the Grecian cities, the defect of an *agrarian* was supplied by *ostracism*.

In Venice, the council of ten, and the officers of pomp, restrain those who might be too powerful; and these two orders in a commonwealth, where the gentry have but small estates in land, are as much as needs be in lieu of an *agrarian*.

Some German republics have no more to supply the place of this law, than that estates descending are divided among the children.—And the same law would establish an *agrarian* in England.

Agrarian laws may be framed different ways, as by intailing the lands upon certain families, without power of alienation in any case, as in Israel and Lacedæmon: or, except with leave of the magistrate, as in Spain. But this, by making some families too secure, as those in possession, and others too despairing, as those not in possession, may make the whole people less industrious.

Therefore Harrington prefers a law regulating estates, so that no man shall have above two thousand pounds a year in land; and that the estates of those who exceed this proportion shall be divided in descending to their children, till the greater share do not exceed 2000*l. per annum*. This is the rule he lays down for his commonwealth of Oceana, by which he means his scheme for the government of England.

By this law, Harrington intended that the property of land in England, should never fall into fewer hands than 5000; as he computes the rents of this country to be ten millions. But if these rents, as is probable, amount now to twenty millions, it would follow that, by our author's rule, the land could never be in less than 10000 hands, which, according to his system, must effectually secure the liberties of the people.

It would exceed the limits of our design, to enter into the full detail of all the reasonings of this ingenious author, on the subject of *agrarian* laws; we therefore refer to his works. See also GOVERNMENT, PROPERTY, &c.

AGRARIUM. See AGISTMENT.

AGREDULA, is a name given to a species of the FROG.

AGREEMENT, AGREAMENTUM, in *Law*, a joining, or putting together, of two or more minds in any thing done or to be done.

Of this there may be three sorts.—The first an *agreement executed* at the beginning, mentioned in the statute of 25 Edw. III. cap. 3. which says, "That the goods "bought by forestallers, being thereof attainted, shall be "forfeited to the king; if the buyer thereof have made "*gree* with the seller:" where the word *gree*, otherwise called *agreement executed*, signifies payment for the things, or satisfaction.

The second is, an *agreement after an act*, that is, where one does an act, and another *agrees* or assents thereto, afterwards.—The third is, an *agreement executory*, which is, when both parties at one time are *agreed* that such a thing shall be done in time to come. It is called executory, because the thing is to be done afterwards.

Agreements are to be in writing, by stat. 29 Car. II. cap. 3. of *frauds* and *perjuries*.

AGRESSES, or AGRESSES, in *Heraldry*, the same as PELLETS.

AGRESTA, in *Medicine*, an unripe grape; otherwise called *omphax* and *vva acerba*, by the French *verjus*.

Agrestæ are held cooling, detersive, and astringent; they temper the acrimony of the bile, and cheer the heart. Eaten plentifully, they have been found to destroy worms.

AGRESTA is sometimes also applied to the juice of this fruit, more properly called *omphacium*.

AGRIA, a name given to HOLLY; and also to a malignant pustule, of which there are two sorts. The one is small, with a roughness, redness, and slight corrosion of the skin; it is of a round figure, its centre is smooth, and it spreads slowly. It is cured by rubbing it with fasting spittle. The other sort ulcerates with a violent redness and corrosion, so as to make the hair fall off; it is of an unequal form, and turns leprous. It is cured by poultices of PELLITORY *of the wall*.

AGRIÆ, in *Natural History*, an order of quadrupeds, which have no teeth, but have a very long cylindric tongue. Of this order there are only two known genera, the *myrmecophaga* and the *manis*.

AGRIAMPELOS, the *wild* VINE; and according to Gerard, the *black* BRIONY.

The word is formed of *ἄγριος*, *wild*, and *ἀμπελος*, *a vine*.

AGRICULTURE, the art of tilling or cultivating the earth, in order to render it fertile, and make it bear plants, trees, fruits, &c.

The word is formed of the Latin *ager*, *field*, and *cultura*, *tilling*, of *colere*, *to till*.

The principal and most general operations in *agriculture* are manuring, ploughing, fallowing, sowing, harrowing; as also, reaping and mowing. See the articles MANURE, PLOUGHING, SEMINATION, &c.

To the operations of *agriculture* do also belong the management of the productions of particular countries; as hops, hemp, vines, tobacco, saffron, liquorice, woad, &c.

To the same art belong, planting, transplanting, pruning, engrafting; the culture of forests, timber, copses, &c. See ENGRAFTING, PLANTING, PRUNING, TIMBER, TREE, &c.

Even gardening, or horticulture itself, is only a branch of *agriculture*. See GARDEN.

Agriculture, in its most extensive sense, besides tillage,

comprehends feeding and the management of cattle, and the rural ſports, hunting, fiſhing, &c. Some even include under it the buſineſs of mines, coal-pits, and other ſubterraneous matter.

Among the ancients, *agriculture* is frequently called *georgica*.

This art has been cultivated by many of the greateſt men among the ancients, and has been treated of by their moſt celebrated authors. The hiſtory of its riſe and progreſs may be eaſily traced from the firſt period of time; and it has been more or leſs the ſubject of attention in every age and nation of the world. The ancient patriarchs, though principally devoted to a paſtoral life, were not altogether ignorant of this art; and their deſcendants, as ſoon as they were ſettled in Paleſtine, conſidered it as a very honourable employment. From them it was tranſmitted to the Chaldeans and Egyptians, to the Phœnicians and Carthaginians; and it was in ſuch repute among the latter, that Mago, their famous general, wrote twenty-eight books on the ſubject, which were afterwards tranſlated into Latin by an expreſs decree of the Roman ſenate; and Servius obſerves, that theſe were adopted as a model by Virgil, when he wrote his Georgics. It has been ſaid, that *agriculture* was firſt introduced among the Europeans by Ceres, queen of Sicily, in memory whereof ſhe was placed among the principal divinities: a fable, which imports, that Sicily, famed for its fertility in corn, was the ſcene of conſiderable improvements. The firſt Greek writer on *agriculture* was Heſiod; and he was ſucceeded by Democritus of Abdera, Xenophon, Ariſtotle, Theophraſtus, and many others. It is well known, that this art was in very high reputation among the Romans; and that it was cultivated by their emperors, dictators, and conſuls. The firſt Latin treatiſe on the ſubject of *agriculture* was compoſed by M Cato, the cenſor; Varro likewiſe is the author of a very elaborate work on the ſame ſubject; Columella, in the reign of the emperor Claudius, wrote twelve books on huſbandry; and in the reign of Conſtantine IV. a new work, as ſome ſay, collected by himſelf from the beſt writers, was publiſhed under the title of Geoponics, with a view of reviving this art, which was now in a very declining ſtate.

In England, the firſt perſon who diſtinguiſhed himſelf by his attention to the practical part of huſbandry was Fitzherbert, who publiſhed two treatiſes on this ſubject: one intitled the Book of Huſbandry, in 1534; and the ſecond, called the Book of Surveying and Improvements, in 1539.

In 1600, the French made conſiderable efforts to revive huſbandry, and ſeveral large works appeared for this purpoſe. It was likewiſe induſtriouſly cultivated about the ſame period by the Flemings, who, portioning out their lands in ſmall tenements, and diſcovering ſeveral new ſorts of manure, brought the ſoil hereby to a proper degree of cleanlineſs, health, and ſweetneſs; ſo that they were able to raiſe the more delicate graſſes; ſuch as LUCERN, SAINTFOIN, &c.

The moſt conſiderable Engliſh writers, previous to the Reſtoration, were Sir Hugh Plate, who made many very important diſcoveries with reſpect to the nature and qualities of manure; Gab. Plattes, and S. Hartlib; and ſince that period, Evelyn, Nourſe, Mortimer, Bradley, Lawrence, Tull, Ellis, and Miller; not to mention many more among our contemporaries. The attention generally given to this art both at home and abroad, and the numerous ſocieties eſtabliſhed for encouraging improvements in the theory and practice of it, both in Europe and America, promiſe a degree of perfection, of which none in former ages could have had any conception.

In France, there are no leſs than thirteen ſocieties eſtabliſhed by royal ſanction, beſide many ſubordinate aſſociations, for promoting *agriculture*. It is likewiſe publicly taught in the Sweediſh, Daniſh, and German univerſities. The ſpirit and example of Linnæus and his diſciples have very much conduced to the progreſs of this important and uſeful art; and the emulation of improving has ſpread through moſt of the nations of Europe. In England, the Royal Society, and the Society of Arts, &c. in particular, have been ſignally uſeful in this reſpect; and the other aſſociations, which are now eſtabliſhed in many parts of the country, co-operate with them in forwarding their laudable deſign.

Among the Japaneſe, *agriculture* is in great repute; and among the Chineſe, it is diſtinguiſhed and encouraged by the court beyond all other ſciences. The emperor of China yearly, at the beginning of ſpring, goes to plough in perſon, attended by all the princes and grandees of the empire. The ceremony is performed with great ſolemnity; and is accompanied with a ſacrifice, which the emperor, as high prieſt, offers to Chang-Ti, to enſure a plentiful crop in favour of his people.

The reader will find a conciſe abſtract of the principal improvements in the various branches of *agriculture*, diſpoſed, in the courſe of this work, under their proper heads.

AGRIELÆA, the *wild* OLIVE.

AGRIFOLIUM, in *Botany*, the HOLLY-*tree*.

AGRIGINTINE *ſalt*, in *Natural Hiſtory*, a kind of eatable ſalt, famous among the ancients for its not crackling in the fire as common ſalt does. It might probably owe this quality to the fineneſs of the powder, in form of which it was generally uſed.

AGRIMONOIDES, in *Botany*, a ſpecies of AGRIMONY.

This plant flowers in April, and comes to perfection in May; and grows in ſome mountainous parts of Italy; it is ſometimes called PIMPINELLA *ſolis agrimoniæ*.

AGRIMONY, AGRIMONIA, in *Botany*, the name of a genus of plants, belonging to the claſs of *dodecandria digynia*; the characters of which are theſe; the flower is of the roſaceous kind, conſiſting of five petals, which are arranged in a circular form, indented at their extremity, and ſtand upon a cup, which finally becomes an oblong echinated fruit, containing two oblong ſeeds. In the centre ariſes a double ſtyle, reſting on the germen, attended by twelve ſtamina.

Miller reckons five ſpecies, viz. 1. The common *agrimony*. 2. The white *agrimony*. 3. The ſweet ſcented *agrimony*. 4. The eaſtern *agrimony*, with narrow pinnated leaves, which are ſharply ſerrated, and a thick root. 5. Three-leaved *agrimony*, with ſmooth fruit. Tournefort enumerates only the three firſt ſpecies; Linnæus includes the firſt, third, and fourth, under one ſpecies.

The firſt ſpecies of this genus is frequent in dry paſtures, by the ſide of hedges, and in woods, and flowers in June. The dried leaves make a very pleaſant infuſion, in the manner of tea; and are eſteemed a very proper medicine in obſtructions of the liver and ſpleen. It is celebrated in the jaundice, and in cachectic caſes; and is given in coughs and catarrhs, and in ſuppreſſions alſo of the menſes.

It uſed to be a very common ingredient in the baths of the ancients, prepared with the decoctions of detergent and emollient herbs.

Agrimony is otherwiſe called *eupatorium vulgare*, or *Græcorum*.

From Mr. Geoffroy's analyſis of *agrimony*, it appears, that this plant contains very little ſalt of the ammoniacal kind, ſince no concrete urinous ſalt is got from it, but the acid ſalt wherewith it abounds, joined with earths, forms a concrete reſembling tartar, or ſalt of coral combined with a large proportion of ſulphur.

Agrimony has a ſaline taſte, ſubaſtringent and acid; its juice turns the tincture of heliotropium to a faint red, ſo that its aſtringent and aperitive virtues ſeem both owing to the ſame auſtere ſalt. For though theſe effects ſeem contrary to one another, yet they often flow from one and the ſame principle, the ſtrengthening of the weak and lax fibres of the ſolid parts. Experience ſhews, ſays Geoffroy, that *agrimony* has the virtue, ſuppoſed to ariſe from its compoſition; for it is aſtringent, detergent, reſolvent, vulnerary, and aperient.

The country people uſe the common or eſſential *agrimony* bruiſed, or its juice, in contuſions, and freſh wounds. Emuller ſays, it reſolves ſwellings and inflammations of the *ſcrotum*; yet it is rarely found in ſhop-compoſitions, though frequently preſcribed by the ſurgeons, in diſcutient and vulnerary fomentations.

AGRIMONY, *ſweet-ſmelling*, *agrimonia odorata*, is by ſome preferred, for medicinal purpoſes, to the former, as being more grateful to infuſe for pectoral decoctions. It may be infuſed in water, or in whey; and is efficacious in diſeaſes from a lax habit.

AGRIMONY, *hemp*, *eupatorium*, in *Botany*, a genus of the *ſyngeneſia polygamia æqualis* claſs of plants. Its characters are theſe; it has a compound flower compoſed of hermaphrodite florets, included in one common ſcaly empalement, whoſe ſcales are narrow, erect, and unequal; and the florets have each five ſhort ſtamina. In the bottom is ſituated a ſmall germen, which becomes an oblong ſeed, crowned with down, ſitting in the empalement. There are ſeveral ſpecies.

The common *hemp agrimony* is recommended as an hepatic and vulnerary, and has been alſo uſed in catarrhs; but is at preſent very little known in the ſhops.

AGRIMONY, *water-hemp*, *bidens*, in *Botany*, belongs to the ſame claſs with the former. Its characters are theſe: it has a compound flower, the middle or diſk compoſed of hermaphrodite florets; theſe have five ſtamina, with an oblong germen. The female flowers which compoſe the border are naked, and are all ſucceeded by a ſingle angular obtuſe ſeed, having two or more briſtles or teeth. It grows in wet places, and flowers in Auguſt. Several ſpecies of this plant are common weeds; but there are five ſpecies cultivated in the gardens of the curious.

This herb is accounted hepatic and vulnerary.

AGRIOCARDAMUM; see CARDAMINE.

AGRIOCASTANUM, the fame as EARTH-NUT, popularly call *pig-nut*, and *arnut*.

AGRIOCINARA, in *Botany*, a name uſed by ſome authors for that ſpecies of wild ARTICHOAK, the root of which is uſed inſtead of the *coſtus nigra*.

AGRIOCOCCIMELA, or *prunus ſylveſtris*. See PLUM-*tree*.

AGRIOMELA, a name for the *crab* APPLE.

AGRIOMELANZANION, in the *Botanical Writings of the Ancients*, a word that has perplexed many of the later writers. The Arabian writers, Avicenna and Serapion, uſed the word *hedengian* for the fruit of the *pomum amoris*, a kind of eſculent nightſhade, or *ſolanum*, called by the old Greek writers, as Theophraſtus, &c. *ſtrychnos*, and only diſtinguiſhed from the other *ſtrychni*, or nightſhades, by its being deſcribed as wholeſome, not poiſonous. From this Arabic word *hedengian*, the Italians formed their word *melenzana*, and the late Greek writers their *melanzanion*, which they uſed as the name of the ſame fruit. This, when the plant was cultivated in gardens, was probably larger and fairer than when it grew wild; but, in this latter ſtate, was not leſs uſed, but was diſtinguiſhed by the term *agrionmelanzanion*. If the Greeks, who uſe this word, or the *melanzanion*, would have appropriated them to the *pomum amoris*, and diſtinguiſhed theſe from the other nightſhades, they would have done ſervice to the world.

AGRION ſignifies the PEUCEDANUM, called alſo *agriophyllon*.

AGRIOPHAGI, in *Antiquity*, a name given to thoſe who fed on wild beaſts.

The word is compounded of ἄγριος, *wild* and φαγω, *I eat*.

AGRIORIGANUM, in *Botany*, wild *marjoram*.

AGRIOSELINUM, in *Botany*, ſignifies *wild* PARSLEY.

AGRIPALMA, in *Botany*, a name given to MOTHERWORT.

AGRIPPA, a name applied, among the ancients, to children born in an unuſual or irregular manner; particularly ſuch as come with the feet foremoſt, inſtead of the head.

They were called *agrippæ*, according to Pliny, on account of their being (*ægre partu*) *born with difficulty*. Salmaſius derives it from the Greek ἀγρὸς, *venari*, and ἵππος, *equus*, q. d. *a hunter of horſes*.

Daventer has a particular chapter of *agrippæ*, or infants coming with their feet foremoſt, which, according to him, is one of the moſt convenient and ſafe ways for a mature birth.

Agrippa gives the denomination to an unguent. deſcribed in the *Antidotarium Nicolai*, and in ſeveral other diſpenſatories, ſuppoſed, by ſome, to have been invented by Agrippa king of Judæa, but, as others ſuſpect, by Julius Agrippa, a Roman phyſician.

AGRIPPINIANS, in *Church Hiſtory*, the followers of Agrippinus biſhop of Carthage, in the third century, who firſt introduced and defended the practice of *rebaptization*. Aſſud. Lex. Ant. Eccl. p. 465.

AGRIUM, in the *Materia Medica of the Ancients*, a name given to an impure ſort of *natrum*. The purer ſort of this ſalt they call *ſcimyologa*, and the coarſer and dirtier kind *agrium*. The former of theſe they had from Media, the latter from Thrace.

AGROM, a diſeaſe frequent in Bengal, and other parts of the Indies, wherein the tongue chaps and cleaves in ſeveral places, being alſo extremely rough, and ſometimes covered with white ſpots. The Indians are very fearful of this diſeaſe, which they attribute to extreme heat of the ſtomach.

Their remedy is, to chew the black-ſeeded baſilica, drink ſome chalybeated liquor, or the juice of large mint.

AGROSTEMA, in *Botany*, the name given by Linnæus to a genus of plants of the *decandria pentagynia* claſs, uſually confounded by other authors among the ſpecies of LYCHNIS.

The characters of the genus are theſe: the *perianthium* conſiſts of one leaf, which forms an oblong tube, of a coriaceous texture, and ribbed with ten *ſtriæ*; the limb of this, which is of the ſame length with the flower, is divided into five ſegments, which are ſlender and permanent; the flower conſiſts of five petals, the ungues of which are as long as the tube of the cup; the limb is obtuſe and expanded; and the ſtaminæ are ten ſubulated filaments affixed to the ungues of the flower; the *antheræ* are ſimple; the germen of the piſtil is oval; the ſtyles are capillary, and five in number; they are erect, and of the length of the ſtamina; the ſtigmata are ſimple; the fruit is an oblong capſule covered by the cup, and contains only one cell, in which are a number of ſpotted kidney-ſhaped ſeeds, in a looſe and free receptacle.

AGROSTIS, in the Linnæan ſyſtem of *Botany*, the name of a diſtinct genus of plants, of the *triandria digynia* claſs; the diſtinguiſhing characteriſtics of which are theſe: the calyx is a pointed bivalve glume, containing only one flower: the flower is made of two pointed valves, ſhorter than the calyx, and has one of the valves larger than the other, and terminated by a beard or awn; the ſtamina are three capillary filaments longer than the flower; the *antheræ* are ſplit at their ends; the germen of the piſtil is roundiſh; the ſtyles are two, reflex and hairy; and the ſtigmata are of a like ſtructure; the flower cloſely ſhuts in the ſeed, and does not open to let it fall out; the ſeed is ſingle, roundiſh, and pointed at each end.

Agroſtis is commonly uſed for the ſpecies of graſs called *quick-graſs*, or *couch-graſs*.

This plant is ſaid to diſſolve ſtones, eſpecially bilious ones, and hence to cure oxen and ſheep that feed upon it.

AGROSTOGRAPHIA, in *Phyſiology*, the *hiſtory* or deſcription of *gramens*, or plants of the graſſy kind.

The word is compounded of ἀγρωστις, *graſs*, and γραφω, *deſcription*.

AGROSTOGRAPHIA is alſo the title of a learned and laborious work of John Scheuchzer, containing an exact deſcription of about four hundred ſpecies of graſs; particularly dogs-tooth, *ſpergula*, *cyperoides*, ruſhes, &c. all diſpoſed in a new method; yet the *hiſtory* is far from being complete.

A-GROUND expreſſes the ſituation of a ſhip, whoſe bottom, or any part of it, reſts upon the ground.

AGRYPNIA, ἀγρυπνια, a privation of ſleep; otherwiſe called WATCHING, *waking*, *vigilia*, *pervigilium*, &c. In the Greek church, it is uſed for the vigil of any of the greater feaſt days, obſerved by the monks and clergy. Du-Cange.

AGUAGUIN, in *Botany*, the name of a ſhrub among the Africans, who eſteem it greatly as a balſamic and vulnerary. The leaves of this ſhrub reſemble thoſe of our common lilac; they grow alternately, and ſtand upon foot-ſtalks of half an inch long; and when held up to the light, they ſhew a fine texture of the ſmaller veins. Philoſ. Tranſ. N° 232.

AGUAPECACA, in *Ornithology*, the name of a Braſilian bird of the moor-hen kind. It is of the ſize of a pigeon, very long-legged, and has a beak like that of the gallinaceous kind. Its back, and the upper part of its wings, are brown, and in each wing they have a ſharp horn, or prickle, ſerving for their defence. Marcgrave.

AGUARA-QUIYA, in *Botany*, a Braſil plant, thought to be the *ſolanum vulgare*, or common night-ſhade, by Ray.

AGUARA-PONDA, in *Botany*, a plant otherwiſe called *viola ſpicata Braſiliana*. It grows to the height of a foot and a half, or more, with a ſmooth, round, green, and jointed ſtalk. At each joint come forth four, five, or more, narrow, ſerrated, pointed, green, and unequal leaves. The top of the ſtalk bears an ear a foot long, ſmooth, and covered with flowers of a fine violet azure, or the colour of our *viola martia*, conſiſting of five roundiſh leaves. The whole flower is not unlike the *viola martia*, and has ſomewhat of its ſmell. The root is ſtraight, of a moderate thickneſs, and ſhoots out into abundance of leſſer ones, and theſe again into fibrements.

There is another kind, diſtinguiſhed by the wideneſs of its ear of flowers, which repreſents a helmet of a green colour. It is marked with cubic pits, from whence proceed azure flowers. Ray.

AGUE, a periodical diſeaſe, of the fever kind, conſiſting in a cold ſhivering fit, ſucceeded by a hot one; and going off in a diaphoreſis, or ſweating.

If the coldneſs and ſhivering be inconſiderable, and only the hot fit felt, the diſeaſe is called an *intermitting fever*.

According to the periods or times of the returns of the fit, the diſeaſe is either a QUOTIDIAN, TERTIAN, or QUARTAN *ague*, or fever.

The cauſe of *agues* ſeems to be, an obſtructed perſpiration, or whatever, by overloading the juices, retards their motion, or occaſions a *lentor* in the blood.—The *cauſa proxima* ſeems to be a corruption of the humours of the body.—The ſymptoms are, heavineſs, and reaching; a weak, ſlow pulſe; coldneſs and ſhivering felt firſt in the joints, thence creeping over the whole body; pain in the loins, and an involuntary motion of the under jaw.

A vernal *ague* is eaſily cured; but an autumnal one is more obſtinate, eſpecially in aged and cachectical perſons; and, particularly, if complicated with a dropſy, peripneumony, &c.

When an *ague* proves fatal, it is uſually in the cold fit, through the oppreſſion of the ſpirits.

The cure is uſually begun with an emetic of *ipecacuanha*, an hour before the acceſs, and completed with the *cortex Peruvianus*, adminiſtered in the interval between two fits; and continued, at times, to prevent a relapſe.

We meet with divers other methods of curing *agues*, beſides that by the *cortex*; as by means of tea, which, taken an hour before the acceſs, is ſaid to remove the obſtruction,

tion, and correct the acidity; by *sal volatile*, which acts by attenuating the blood: in the island of Tino, by an infusion of flowers of little centaury. See Phil. Trans. N° 145.

Etmuller gives divers instances of *agues* cured by putting the patient in a fit of passion. Others have been effected by a fright, a fit of drunkenness, &c. 'Do we not often see *agues* cured by amulets and *periaptas*?' I myself, says Mr. Boyle, was cured of a violent quotidian by applying to my wrists a paste made of bay-salt, new hops, and blue currants, which has also relieved many others both of quotidians and tertians.' Phil. Works abr. tom. i. p. 80.

Lord Bacon says, 'It is often tried, that juices of stock-gillyflowers, rose-campion, garlick, and other things, applied to the wrists, and renewed, have cured long *agues*.' He likewise recommends in the heats of *agues*, to hold eggs of alabaster, and balls of crystal, in the hands.

Sir John Pringle accounts for them, by means of the principle of putrefaction. The heat of the body, he observes, varies little; and therefore the corruption produced in any of the humours must happen in a determinate time. If we suppose, that in the paroxysm, the more corrupted particles of the blood do not all pass off through the skin with the sweat, but that some part of them is discharged with the bile; their particles coming into the intestines, and being from thence taken up by the lacteals, and carried into the blood, may there act as a new ferment, and occasion a return of the fit. Thus the corruption of the bile may be the cause of the first fit, as well as of those that follow. He farther adds, that though all moist countries are subject to *agues* of some kind or other; yet if the moisture is pure, and the summers are not close and hot, they will mostly be regular tertian *agues*, and admit an easy cure. But if the moisture arises from long stagnating water, in which plants, fishes, and insects, die and rot, then the damps, being of a putrid nature, occasion not only more frequent, but more dangerous fevers, which more commonly appear in the form of quotidians, and double tertians, than that of single ones. Accordingly they are found to vary with the season, on which the degree of putrefaction in a great measure depends.

Though the bark be the most effectual remedy in this distemper, yet it has been known to cause worse disorders.

AGUE-*cake*, the popular name for a hard tumor on the left side of the belly, lower than the false ribs, said to be the effect of intermitting fevers.

AGUE-*tree* is a name given by some to SASSAFRAS, on account of its febrifuge virtue.

AGUGLIA, *see* OBELISK.

AGUGLIA is also the name given by the Italian fishermen to the ACUS of Oppian, called in English the GAR-FISH.

AGUILLANEUF, or AGUILLANEUS, a form of rejoicing used among the ancient Franks on the first day of the year.

The word is compounded of the French *à*, *to*, *gui*, *mistletoe*, and *l'an neuf*, i. e. *the new year*.

Its origin is traced from a druid ceremony: the priests used to go yearly in December, which with them was reputed a sacred month, to gather mistleto off the oak in great solemnity. The prophets marched in the front, singing hymns in honour of their deities; after these came a herald with a *caduceus* in his hand; these were followed by three druids a-breast, bearing the things necessary for sacrifice. Last of all came the chief, or arch-druid, accompanied with the train of people.

The chief druid climbing the oak, cut off the mistleto with a golden sickle, and the other druids received it in a white cloth. On the first day of the year it was distributed among the people, after having blessed and consecrated it by crying *au gui l'an neuf*, to proclaim the new year.

This cry is still continued in Picardy, with the addition of *planton*, *plantin*, to wish a plentiful year. In Burgundy, and some other parts, the children use the same word to beg a new year's gift.

Of later times the name *aguillaneuf* was also given to a sort of begging, practised in some dioceses, for church tapers, on a new year's day, by a troop of young people of both sexes, having a chief, &c. It was attended with divers ridiculous ceremonies, as dancing in the church, &c. which occasioned the synods to suppress it.

AGUILLES, or AUGUILLES, cotton cloth, manufactured at Aleppo.

AGUL, in *Botany*, a small shrub very prickly. Its leaves are longish, and resemble those of the knot-grass. It abounds with flowers of a reddish colour. These are succeeded by red husks. Its root is long, and of a purple colour.

This plant is otherwise called *alhagi mauroram*, by Rauwolf: it grows in Arabia, Persia, and Mesopotamia.

Manna is found on its leaves, as large as the grains of coriander, of the same taste and smell as ours, but it melts if the sun shines upon it. The leaves of this plant are purgative. Lemery.

AGURAH, in *Jewish Antiquity*, the twentieth part of an ancient silver SHEKEL.

The *agurah* is the same with what is otherwise called *gerah*, and *obolus*. The Septuagint translation renders it κέρας.

AGUSADURA, in *Ancient Customs*, a fee due from vassals to their lord, for sharpening their ploughing tackle.

Anciently the tenants in some manors were not allowed to have their rural implements sharpened by any but whom the lord appointed; for which an acknowledgment was to be paid, called *agusadura*, in some places *agusage*, which some take to be the same with what was otherwise called *reithege*, from the ancient French *reile*, a *plough-share*. Du-Cange.

AGUTI, in *Zoology*, the name of an American animal, much resembling the Guinea pig, as we call it, having the characters of the rat-kind, with the voice and hair of the hog.

The hairs are very hard, thick, and glossy, and are of a mixt colour, of a reddish and brown, with more or less black; those on the belly, however, are yellowish; its head and whiskers are like those of the rabbit-kind, but that the nose is sharper, and the upper chop longer than the under one, as in the hog-kind; the upper lip is split as in the hare, and the legs are naked, or have at the utmost only a few scattering hairs on them; the fore-feet have four toes, and the hinder ones six, and these are much longer than the fore-legs; its tail is very short, and its eyes prominent; its voice altogether resembles the grunting of a hog. It is a very voracious animal, devouring its food with extreme eagerness, and using its fore-feet for hands in the manner of the squirrel. It runs very swiftly, and is very expert at digging, so that it soon buries itself in the earth. When provoked, it raises all the hair of its back upright, and strikes the earth with its hinder feet. Ray.

AGUYI TREVA *Insulæ Mariguanæ*, in *Botany*, a plant mentioned by De Laet. It has the leaves of the orange-tree, only thinner, a dewy flower, a large fruit, with a greenish rind, which contains kernels like those of the pomegranate, thin, sweet, and not ill-tasted.

AGUYIGUEPA *ubi Brosimum*, in *Medicine*, the name given by many authors to the arrow-root, or *sagittaria alexipharmica* of the West Indies.

AGYEI, in *Antiquity*, a kind of obelisks consecrated to Apollo, and placed in the vestibules of houses, for their security.

The *agyei* were no other than huge stones, or perhaps sometimes timber, having either a circular or square basis, and terminating in a point at the top, sacred to Apollo, or, as some say, to Bacchus, as protector of the high-ways. Others will have them to have been erected to both those deities. Suidas & Pitiscus.

AGYNIANI, in *Church History*, a sect who condemned all use of flesh, and marriage, as not instituted by God, but introduced at the instigation of the devil.

The word is compounded of the private *a*, and γυνη, *woman*. They are sometimes also called *agynenses* and *agynii*; and are said to have appeared about the year 604.

AGYRTÆ, in *Antiquity*, a kind of strolling impostors running about the country, to pick up money by telling fortunes at rich men's doors, pretending to cure diseases, by charms, sacrifices, and other religious mysteries; also to expiate the crimes of their deceased ancestors, by virtue of certain odours and fumigations; to torment their enemies, by the use of magical verses, and the like. The word is formed of the verb αγυρω, *I congregate*; alluding to the practice of quacks, who gather a crowd about them. See ÆRUSCATORES.

AHALOTH, in the *Materia Medica*, a name used by some writers for the *lignum aloes*, or *aloes-wood*. It is the Hebrew name.

AHANIGER, in *Ichthyology*, a name given by Albertus, and others, to the fish called by authors ACUS *vulgaris*, and by us the GAR-FISH. The shape of this fish, which is very long and slender, has caused it to be confounded with the *syngnathus*, or tobacco-pipe fish, called also *acus*; but they differ extremely when examined; that being a true species of the *syngnathus*, and this of the ESOX or pike.

A-HEAD, refers to any object that lies immediately before a ship, or towards that point of the compass to which her stem is directed.

AHUCYATLI, in *Zoology*, the name of an American serpent, approaching to the nature of the hæmorrhous and rattle-snake, but larger than the former, and wanting the rattle of the latter; it is as fatal in the effect of its poison as any known species of serpent. Ray.

AHIUS,

AHIUS, see SALT-*fleur*.

AHMELLA, in *Botany*, is a species of *bidens*, or water-hemp agrimony. Its flowers are large, and resemble those of the marygold; they grow in large numbers on the tops of the stalk, and of the large branches, and are succeeded by oblong seeds, which have the same sort of points at one end with those of our common *bidens*, and all the other plants of that genus. The stalks are square, and the leaves stand in pairs, and are in shape like those of the common nettle. We have one species of it very common in all parts of England, about watry places; and easily known by its seeds, in autumn, sticking to the cloaths and stockings of people who go near the plant; by means of the three points at the end, which are sharp and bearded. It would be worth while to try whether these seeds possess virtues worthy notice in physic for at present they are neglected.

This plant, and the others of the same genus, are called by the name *beaux*, from the teeth or prickles at the ends of the seeds; but the word should be *bidens*, for these are three of them. Phil. Trans. N° 23.

AHOUAI, in *Botany*, the name of a genus of plants, called by Linnæus CRESSA.

The species of *ahouai*, mentioned by Mr. Tournefort, are these: 1. The *ahouai* of Theves, or the apple-leaved poisonous *ahouai*. And, 2. The narrow-leaved *ahouai*. By incision into the bark a milky liquor is produced, that smells like garlick.

AHULL denotes the situation of a ship, when all her sails are furled, on account of the violence of a storm, and when having lashed her helm to the lee side, the lies nearly with her side to the wind and sea, her head being somewhat inclined to the direction of the wind.

AIAIA, in *Ornithology*, the name of a Brasilian bird, of the *platea*, or spoonbill-kind, called by the Portuguese *colhereiro*. It is exactly of the same shape, and much of the same size with the European spoonbill, and its beak is in the very same manner broad at the end. It is of a pale, but very bright and shining flesh-colour, on the back and wings; the other parts of its body are perfectly white: it is common about the shores of rivers, and is held in very well tasted. Maregrave.

AJAX, in *Antiquity*, a furious kind of dance, in use among the Grecians; intended to represent the madness of that hero, after his defeat by Ulysses, to which the Greeks had given the preference in his contest for Achilles's arms.

Lucian in his treatise of dancing, speaks of dancing the *Ajax*. There was also an annual feast called *Aiantia*, *Aiantea* consecrated to that prince, and observed with great solemnity in the island of Salamis, as well as in Attica; where, in memory of the valour of Ajax, a bier was exposed, set out with a complete set of armour. Potter, Archæol.

AICHMATOTARCHA, see ÆCHMALOTARCHA.

AID, or AYDE, AUXILIUM, literally denotes the help, succour, or assistance, which any person lends another, when too weak to do, or avoid, something.

The word is French; formed, according to M. Menage, from the Italian *ajutare*, and that from the Latin *adjutare*, *to help*, or *assist*.

AID, or AYDE, in *Law*, is when a petition is made in court, for the calling in of help from another person interested in the matter in question; who, it is probable, may not only strengthen the party's cause who thus prays *his aid*, but also prevent a prejudice arising to his own right. This is called *aid prayer*; but this course of proceeding is now much disused.

A city, or corporation, holding a fee-farm of the king, may pray in *aid* of him, if any thing be demanded of them relating thereto.

The *aid prier* is sometimes also used in the king's behalf, to prevent any proceedings against him till his counsel be called, and heard what they have to say for avoiding the king's prejudice, or loss. Jenk. Cent. 64. Terms de Ley. 35. Stat. 4 Edw. I. and 14 Edw. III.

AID *de camp*, an officer in the army, whose business is to attend the general officers, and receive and carry their orders, as occasion requires.

When the king is in the field, he usually appoints young volunteers of quality to carry his orders, who are called the king's *aids de camp*.

AID *major*, or *adjutant*, is an officer, whose business is to ease the MAJOR of part of his duty; and to perform it all in his absence.

Some majors have several *aid majors*. Each troop of guards has but one major, who has two *aid majors* under him, or more, according as the business requires.

Every regiment of foot has as many *aid majors* as it contains battalions. When the battalion is drawn up, the *aid major's* post is on the left, beyond all the captains, and behind the lieutenant-colonel.

AID, AUXILIUM, in our *Ancient Customs*, denotes a subsidy or sum of money due to the lord, from his tenants, on certain occasions.

It differed from a *tax*, which is imposed at any time when wanted; whereas the *aid* could only be levied where it was customary, and where the particular occasion fell out.

Such was the *aid de relief*, due from the tenants in fee, upon the death of the lord next above, to his heir, towards the charge of a relief of the fee of the superior lord.

Such also was the *aid chevel*, or *capitale aid*, due by vassals, to the chief lord, or the king, of whom they held *in* CAPITE. Of this there are three kinds.

The first, of chivalry; or, as they call it, *pour faire fitz chevalier*, towards making his eldest son a knight, when arrived at the age of fifteen years: the second of marriage, or *pour file marier*, towards marrying his eldest daughter. Both these, with all charges incident thereto, are taken away by stat. 12 Car. II. c. 24. TYDDE, Survey, &c. Some will have them to have been first established in England by William the Conqueror, and afterwards transferred to Normandy; but the more common opinion is, that the Conqueror brought them with him. The third was of a ransom, due when the lord was taken prisoner by the enemy.

In some provinces there was a fourth kind of *aid*, due whenever the lord should undertake an expedition to the Holy Land.

We also read of *aids* paid the lord, when he was disposed to purchase any new land, or tenement. These were only granted once in his life. Also *aids* for the repairing, and fortifying of castles, seats, &c.

Aids were at first imposed by the lord, or king, at what rate he pleased, but by the statute of 3 Edw. I. a restraint was laid on common persons being lords, and they were tied down to a fixed proportion; and by a subsequent statute, the same rate was extended even to the king.

By the stat. 34 Edw. I. it is ordained that the king shall levy no *aid* or tax, without his parliament.

Aids seem to have been first established with a view to the clients and freedmen of ancient Rome, who made presents to their patron towards his daughter's fortune, as also on his birth day, and on other solemn occasions. Accordingly, Boutellier tells us, that in his time, these *aids* depended on the courtesy and good will of the vassals; for which reason they were called, *droits de complaisance*.

The bishops also received *aids* from their ecclesiastics, called *synodals*, and *procurations*. They were to be paid at the time of their consecration; or when they had a king to entertain; or when called by the pope to his court, or to a council; as also when they went to receive the *pallium*.

Add, that the archdeacons also exacted *aids* from the clergy of their jurisdiction. See PROCURATION.

Aids of feudal *aids* are still levied in Germany, &c. under the title of *collecta*.

AIDS are also used in matters of polity, for any extraordinary taxes, or impositions, occasionally levied by the king and parliament, upon the subjects, to support the charges of the government, when the ordinary revenue is deficient.

AID, *royal*, is a name frequently given to the land-tax.

AID, in *Theology*, the *aids* or assistances of divine favour, which are offered to man, have been the subject of much dispute betwixt Jansenists and Jesuits; for the composing whereof, a celebrated congregation was erected at Rome, under the title of congregation of *aids*, *congregatio de auxiliis*.

Some divines, after St. Augustine, distinguish two kinds of *aids*, viz. *sine quo*, and *quæ*.

Auxilium sine quo, that which the mind is at liberty either to use or refuse; such is supposed to have been the *aid* ministered to man in the state of innocency, while his mind and will were sound and upright.

Auxilium quo amounts to what is otherwise called efficacious grace, which surmounts and subdues the will: such, according to the Calvinists and Jansenists, is supposed to be the *aid* ministered by grace, in the present fallen state of human nature.

AIDS, in the *Manege*, are helps, or assistances, which some call cherishings, by which the horseman contributes towards the motion, or action, required of the horse; by a discreet use of the bridle, cavesson, spur, poinson, rod, calf of the leg, and voice; and also by a just and well-timed motion of the body.

Such a horse knows his *aids*, answers his *aids*, takes his *aids* with vigour, &c. The *aids* are made use of, to avoid the necessity of corrections. The same *aids*, given in a different manner, become corrections.

The *aids* used to make a horse go in ayre, are very different from those required in going upon the ground. Newcastle.

The inner heel, inner leg, and inner rein, are called *inner*

aids. The outer heel, outer leg, &c. are *outer aids*, See Berenger's Art of Horſemanſhip, vol. ii. p. 92, &c.

AIDS, in the *French Law*, denote a duty paid on all goods ſold and tranſported either out of, or into the kingdom. In this ſenſe, *aids* anſwer to what the Latins call *veſtigalia*, *a vehendis mercibus*, and are paid by all kinds of perſons, privileged or non-privileged; by which they diſſer from *tailles*, *taxes*, which are only paid by the peaſants, being a ſort of capitation, anſwering to what the Latins call *tributum*. The farm of the *aids* was formerly diſtinct from, but now united to, that of the *gabelles*, and other impoſts.

AIDS, *court of*, in France, is a ſovereign court, erected for the cognizance of matters relating to the taxes. Appeals come to this from the court of elections, where matters relating to the *taille* are firſt heard. The *court of aids* of a province is ſometimes ſeparated from the parliament of the province, and fixed in another city, as at Montpelier, Montauban, &c. There are twelve courts of *aids*, of which the principal is that at Paris.

AIEREBA, in *Ichthyology*, the name of a fiſh of the *paſſinacha marina* kind, but differing from all the others, in that the form of its body is regularly round, or oval, and its head placed far within the verge of its thin part. It is common in the weſtern ocean; but it is not much eſteemed for the table, being more looſe and flabby in its fleſh than the other kinds. Marcgrave.

AIGEIROS, a name ſometimes given to *black* POPLAR.

AIGHENDALE, a liquid meaſure in Lancaſhire, containing ſeven quarts.

AIGITHALUS, *aiγiθaλος*, in *Ornithology*, a name by which ſome of the old authors call the PARUS, or TITMOUSE.

AIGLETTE, in *Heraldry*. See EAGLET.

AIGRETTA, in *Ornithology*, a name uſed by ſome authors, as the name of a diſtinct ſpecies of heron, but ſeeming to be no other than a ſynonym of the GARZA *ſtavata*, or ARDEA *alba minor*, the ſmall white heron.

AIGUE *marine*, in *Natural Hiſtory*. See AQUA *Marina*.

AIGUISCE', AIGUISSE', or EGUISCE', in *Heraldry*, a term applied to a CROSS, when its four ends are ſharpened, but ſo as to terminate in obtuſe angles.

The croſs *aiguiſé* differs from the *croſs* FITCHE'E, in that the latter goes tapering by degrees to a ſharp point; whereas only the ends of the former are tapered.

AILE, or AIREL, in *Law*, a writ which lies where the grand-father, or great grand-father, called *beſaile*, was ſeiſed of lands or tenements in fee-ſimple, on the day he died; and a ſtranger abates or enters the ſame day, and diſpoſſeſſeth the heir or grand-child. See ABATEMENT.

The word is formed of the French *aieul*, *aval*, *grand-father*.

AILERONS, in *Natural Hiſtory*, petty-wings, a French term expreſſing two ſmall ſhelly ſubſtances, reſembling parts of wings, or young and juſt growing wings, and found in the two-winged flies, ſituated at the root of the larger wings. Reaumur.

The word is a diminutive of the French *aile*, *wing*.

AILES *vitrées*, in *Natural Hiſtory*, a French term uſed to expreſs the wings of a ſeries of inſects, which ſeem of a middle nature, between the fly and the butterfly kind, and are therefore called PAPILION *mouches* by theſe writers. The wings of theſe inſects are in part covered with duſt, or ſcales, and in part free from it, and tranſparent. In theſe free parts they look glaſſy; whence their name, ſignifying *glaſſy wings*.

AIPIMIXIRA, in *Ichthyology*, the name of an American fiſh, more uſually known by the name of PUDIANO. It is a ſmall fiſh, of the ſhape of a pearch, with a purple back, and yellow ſides and belly. Marcgrave.

AIR, AER, in *Phyſics*, a thin, fluid, elaſtic, tranſparent, ponderous, compreſſible, and dilatable body; ſurrounding the terraqueous globe to a conſiderable height.

Air was conſidered by ſome of the ancients as an *element*; but then, by *element*, they underſtood a different thing from what we do. See ELEMENTS.

It is certain, that *air*, taken in the popular ſenſe, is far from the ſimplicity of an *elementary* ſubſtance; though ſome of its properties and uſes in a ſtate of combination with various ſubſtances, from which it has been extricated by modern analyſis, may entitle it to this appellation. Hence *air* may be diſtinguiſhed into *proper* or *elementary*, and *vulgar* or *heterogeneous*.

AIR, *elementary*, or AIR *properly ſo called*, is a certain ſubtile, homogeneous, elaſtic matter; the baſis, or fundamental ingredient of the atmoſpherical *air*, and that which gives it the denomination.

In this ſenſe, it likewiſe enters into the compoſition of moſt, or perhaps all bodies, exiſting in them under a ſolid form, deprived of its elaſticity and moſt of its diſtinguiſhing properties, and ſerving as their cement, and the univerſal bond of nature; but capable, by certain proceſſes, of being diſengaged from them, recovering its elaſticity, and reſembling the *air* of our atmoſphere. See Hales's Vegetable Statics, chap. vi.

The peculiar nature of this *aerial* matter we know but little of; what authors have advanced concerning it being chiefly conjectural. We have no way of altogether ſeparating it from the other matters with which in its pureſt ſtate it is more or leſs combined, and conſequently no way of aſcertaining, with ſatisfactory evidence, its peculiar properties, abſtractedly from thoſe other bodies.

Dr. Hooke, and ſome others, maintain, that it is the ſame with the *æther*, or that fine, fluid, active matter diffuſed through the whole expanſe of the celeſtial regions which coincides with Sir I. Newton's *ſubtile medium*, or ſpirit. In this view it is ſuppoſed to be a body *ſui generis* ingenerable, incorruptible, immutable, preſent in all places, in all bodies.

Others, conſidering only its property of elaſticity, which they account its eſſential and conſtituent character, ſuppoſe it to be mechanically producible; and to be no other than the matter of other bodies ſo modified and altered, as to become permanently elaſtic. Sir Iſaac Newton obſerves that the particles of denſe, compact, and fixed ſubſtances, cohering by a ſtrong attractive force, are not ſeparable without a vehement heat, or perhaps not without fermentation; and ſuch bodies being at length rarefied by ſuch heat or fermentation, become true *permanent air*; and diſtinguiſhable from vapour, which is only *apparent* or *tranſient air*, as is evident from the experiment with the *antliple*. Optics, Qu. 31. p. 371. 372. ed. 3. See AIR, *atmoſpherical* and *fixed*.

AIR, *vulgar*, or *heterogeneous*, is a coalition of corpuſcles of various kinds, which together conſtitute one fluid maſs, wherein we live and move, and which we are continually receiving and expelling by reſpiration. The whole aſſemblage of this makes what we call the *atmoſphere*; where this *air*, or *atmoſphere*, terminates, there *æther* is ſuppoſed to commence; which is diſtinguiſhed from *air*, by its not making any ſenſible retraction of the rays of light, as *air* does.

Air, in this popular and extenſive meaning of the term, is acknowleged by Mr. Boyle to be the moſt heterogeneous body in the univerſe: Boerhaave ſhews it to be an univerſal chaos, or *colluvies*, of all kinds of created bodies. Beſide the matter of light or fire, which continually flows into it from the heavenly bodies, and probably the magnetic effluvia of the earth; whatever fire can volatiliſe is found in the air.

Hence, for inſtance, 1. The whole foſſil kingdom muſt neceſſarily be found in it: for all of that tribe, as ſalts, ſulphurs, ſtones, metals, &c. are convertible into fume, and thus capable of being rendered part of the *air*. Gold itſelf, the moſt fixed of all natural bodies, is found to adhere cloſe to the ſulphur in mines; and thus to be raiſed along with it. Mr. Boyle obſerves, that beſide the ſaline *effluvia* of the common ſort, ſuch as the nitrous vitriolic, marine, &c. there may be many compound kinds of ſalts in the *air*, which we have not on earth aſſiſting from different ſaline ſpirits, fortuitouſly meeting and mixing together. Thus, the glaſs windows of ancient buildings are ſometimes obſerved to be corroded, as if they had been worm-eaten; though none of the ſimple ſalts above mentioned have the faculty of corroding glaſs.

Sulphurs too muſt make a conſiderable ingredient of the *air*, on account of thoſe many volcanos, grottos, caverns, and other ſpiracles chiefly affording that mineral, diſperſed through the globe.

2. All the parts of the animal kingdom muſt alſo be in the *air*; for beſide the copious *effluvia* continually emitted from their bodies, by the vital heat, in the ordinary proceſs of perſpiration; by means of which an animal, in the courſe of its duration, impregnates the *air* with many times the quantity of its own body; we find that any animal when dead, being expoſed to the *air*, is in a certain time wholly incorporated with it.

3. As to vegetables, none of that claſs can be ſuppoſed wanting; ſince we know that all vegetables, by putrefaction, become volatile.

The aſſociations, ſeparations, attritions, diſſolutions, and other operations of one ſort of matter upon another, may likewiſe be conſidered as ſources of numerous other neutral, or anonymous bodies, unknown to us.

Air, in this general ſenſe, is one of the moſt conſiderable and univerſal agents in all nature; being concerned in the preſervation of life, and the production of moſt of the phenomena relating to our world. Its properties and effects, including a great part of the reſearches and diſcoveries of the modern philoſophers, have in a conſiderable degree been reduced to preciſe laws and demonſtrations; in which form they make a very extenſive

and important branch of the mixed mathematics, called PNEUMATICS.

AIR, *mechanical properties and effects of.* The moſt conſiderable of theſe are its *fluidity*, *weight*, and *elaſticity*.

I. *Fluidity.* That the *air* is a *fluid*, is evident from the eaſy paſſage it affords to bodies through it; as in the propagation of ſmells, and other *effluvia*, and the eaſy conveyance it affords to ſounds: for theſe, and ſimilar effects, prove it to be a body, whoſe parts give way to any force impreſſed, and, in yielding, are eaſily moved among themſelves; which is the definition of a *fluid*. Beſides, it is certain, that no degree of cold has ever yet been produced, natural or artificial, ſtrong enough to deprive it of its *fluidity*.

They who, with the Carteſians, make *fluidity* to conſiſt in a perpetual inteſtine motion of the parts, find that *air* anſwers alſo to that character: thus, in a darkened room, where the ſpecies of external objects are brought in by a ſingle ray, they appear in a continual fluctuation; and thus even the more accurate *thermometers* are obſerved never to remain a moment at reſt.

The cauſe of this *fluidity* of *air* is attributed by ſome later philoſophers to the fire intermixed with it; without which, they imagine, the atmoſphere would harden into a ſolid, impenetrable maſs. And hence, the greater the degree of fire, the more fluid, moveable, and pervious, is the *air*: and thus, as the degree of fire is continually varying, according to the circumſtances and poſition of the heavenly bodies, the *air* is kept in a continual reciprocation. See Buffon's Hiſt. Nat. Suppl. vol. i. Hence, in a great meaſure, it is ſaid, that on the tops of the higher mountains, the ſenſes of ſmelling, hearing, &c. are found very feeble. The increaſed rarity of the *air* at a conſiderable height may account for this effect; but the above hypotheſis is contradicted by the more ſenſible experience of cold: the *air* near the ſurface of the earth deriving greater heat from the *reflected* than from the direct rays of the ſun. See Mountains.

II. *Weight* or *gravity.* Galileo firſt diſcovered that *air* had weight, Dial. I. but the preſſure of the atmoſphere was obſerved by his diſciple Torricelli; and the variations of it depending on different heights, by M. Paſcal. That the *air* is heavy, follows from its being a body; weight being an eſſential property of matter. But we have many arguments to the ſame purpoſe from ſenſe, and experiment: thus, the hand, applied on the orifice of a veſſel empty of *air*, ſoon feels the load of the incumbent atmoſphere. Thus, glaſs veſſels, exhauſted of their *air*, are eaſily cruſhed to pieces by the weight of the *air* without. So, two ſmall hollow ſegments of a ſphere, four inches in diameter, exactly fitting each other, being emptied of *air*, are preſſed together with a force equal to 188 pounds, by the weight of the ambient *air*; and that they are kept together by the preſſure of the *air* is evident, by ſuſpending them in an exhauſted receiver, where they will ſeparate of themſelves. Farther, if a tube, cloſe at one end, be filled with mercury, and the other end immerged in a baſon of the ſame fluid, and thus erected, the mercury in the tube will be ſuſpended at the height of about thirty inches above the ſurface of that in the baſon. The reaſon of which ſuſpenſion is, that the mercury in the tube cannot fall lower, without falling that in the baſon; which being preſſed down by the weight of the incumbent atmoſphere, cannot give way, unleſs the weight of the mercury in the tube exceeds that of the *air* out of it. That this is the caſe, is evident; becauſe, if the whole *apparatus* be included in the receiver of an *air*-pump, the mercury will fall in proportion as the *air* is exhauſted; and on gradually letting in the *air* again, the mercury re-aſcends to its former height. This makes what is uſually called the *Torricellian experiment*.

To ſay no more, we can actually weigh *air*; for a veſſel, full even of common *air*, is found, by a very nice balance, to weigh more than when the *air* is exhauſted; a quart of *air* weighing about 17 grains; and the effect is proportionably more ſenſible, if the ſame veſſel be weighed full of condenſed *air* in a receiver void of *air*.

The weight of *air* is continually varying, according to the different degree of heat and cold, and the concurrence of other cauſes. Ricciolus eſtimates its weight to that of water, to be as 1 to 1000: Merſennus, as 1 to 1300, or 1 to 1356: Lana, as 1 to 640; Galileo only makes it as 1 to 400. Mr. Boyle, by a more accurate experiment, found it about London, as 1 to 938; and thinks, all things conſidered, the proportion of 1 to 1000 may be taken as a *medium*; for there is no fixing any preciſe *ratio*, ſince not only the *air*, but the water itſelf, is continually varying. Add, that experiments made in different places neceſſarily vary, on account of the different heights of the places, the ſeaſons of making the experiments, and the different denſities of *air* correſponding to theſe circumſtances. It muſt be added, however, that by experiments made ſince, before the Royal Society, the proportion of *air* to water was, firſt, found as 1 to 840; then, as 1 to 852; and a third time, as 1 to 860. Phil. Tranſ. N° 181. And laſtly, by a very ſimple and accurate experiment of Mr. Haukſbee, the proportion was ſettled, as 1 to 885. Phyſ. Mechan. Paper. But theſe experiments being all made in the ſummer months, when the barometer was 29½ inches high; Dr. Jurin thinks that at a *medium* between heat and cold, when the barometer is 30 inches high, the proportion between the two fluids may be taken as 1 to 870; which agrees with the obſervation of the honourable Mr. Cavendiſh, the thermometer being at 50°, and the barometer at 29½ inches. Phil. Tranſ. vol. lvi. p. 152.

Air, then, being heavy and fluid, the laws of its gravitation, or preſſure, may be inferred to be the ſame as in other fluids; and conſequently its preſſure muſt be as its perpendicular altitude. This is alſo confirmed by experiment. For removing the *Torricellian tube* to a more elevated place, where the incumbent column of *air* is ſhorter, a proportionably ſhorter column of mercury is ſuſtained. On this principle depend the ſtructure and uſe of the BAROMETER.

From hence alſo, it follows, that the *air*, like all other fluids, muſt preſs equally every way. This is confirmed by obſerving, that ſoft bodies ſuſtain this preſſure without any change of figure, and brittle bodies, without breaking; though the preſſure upon them be equal to that of a column of mercury thirty inches high, or a column of water of thirty-two feet. It is obvious, that no other cauſe can preſerve ſuch bodies unchanged, but the equable preſſure on all ſides, which reſiſts as much as it is reſiſted. And hence, upon removing or diminiſhing the preſſure on one ſide only, the effect of the preſſure is ſoon perceived on the other. For the quantity and effect of this preſſure of the atmoſphere on the human body, and on the ſurface of the earth, ſee ATMOSPHERE.

From the *gravity* of the *air*, conſidered in connection with its fluidity, ſeveral of its uſes and effects are deducible.

1. By means of its *weight*, &c. it cloſely inveſts the earth, with all the bodies upon it; and conſtringes and binds them down with a force amounting, according to the computation of M. Paſcal, to 2732 pounds weight upon every ſquare foot, or upwards of 15 pounds upon every inch ſquare. Hence it prevents, e. g. the arterial veſſels of plants and animals from being too much diſtended by the impetus of the circulating juices, or by the elaſtic force of the *air* ſo plentifully contained in the blood. Thus, we ſee, in the operation of cupping, that, upon a diminution of the preſſure of the *air*, the parts of the body grow tumid: which neceſſarily alters the manner of the circulation through the capillaries, &c.

The ſame cauſe hinders the juices from oozing and eſcaping through the pores of their containing veſſels: this is experienced by ſuch as travel up high mountains, who, in proportion as they aſcend, find themſelves more and more relaxed; and at length become ſubject to a ſpitting of blood, and other hemorrhages: becauſe the *air* doth not ſufficiently conſtringe the veſſels of the lungs. Similar effects are obſerved in animals that are incloſed under the receiver of the *air*-pump, who, as the *air* is taken from them, pant, ſwell, vomit, and diſcharge their urine and excrements. See VACUUM.

2. The *weight* of the *air* promotes the mixture of contiguous fluid bodies. Hence many ſolids, as oils and ſalts, which readily and ſpontaneouſly mix in *air*, remain, on the removal of it, in a ſtate of ſeparation.

3. This *gravity* of *air* does in ſome caſes determine the action of one body upon another.

And, 4. to the ſame principle are chiefly owing our winds, which are only *air* put in motion by ſome alteration in its *equilibrium*.

III. *Elaſticity*—or a power of yielding to an impreſſion by contracting its dimenſions: and, upon removing or diminiſhing the impreſſive cauſe, of returning to its former ſpace or figure. This *elaſtic* force has been long accounted the diſtinguiſhing property of *air*, the other properties hitherto enumerated being common to it with other fluids: though, from late experiments, it appears more than probable, that the capacity of being compreſſed and expanded is not peculiar to *air*. See WATER and COMPRESSION.

This property of *air* was firſt aſcertained by ſome experiments of lord Bacon, who, upon this principle, conſtructed his *nitrum calendare*, the firſt thermometer. Bacon. Nov. Organ. lib. ii. aph. 13.

Of this power we have numerous proofs. Thus, a blown bladder being ſqueezed in the hand, we find the included *air* ſenſibly reſiſt; ſo that upon ceaſing to compreſs, the cavities or impreſſions, made in its ſurface, are readily expanded again, and filled up.

On this property of *elaſticity*, the ſtructure and office of the *air*-pump depend.

Every particle of *air* always exerts this *niſus*, or endeavour to expand, and thus ſtrives againſt an equal endeavour of the ambient particles; whoſe reſiſtance, happening by no means to be weakened, it immediately diffuſes into an immenſe extent. Hence it is, that thin glaſs bubbles, or bladders, filled with *air*, and exactly cloſed, being included in the exhauſted receiver of an *air*-pump, burſt, by the force of the included *air*. So a bladder quite flaccid, containing only the ſmalleſt quantity of *air*, ſwells in the receiver, and appears quite full. The ſame effect is alſo found, by carrying the flaccid bladder to the top of a high mountain.

It has been queſtioned among philoſophers, whether this *elaſtic* power of the *air* is capable of being deſtroyed or diminiſhed. Mr. Boyle made ſeveral experiments, with a view to diſcover, how long *air*, brought to the greateſt degree of expanſion to which he could reduce it in his *air*-pump, would retain its ſpring; and could never obſerve any ſenſible diminution. Defaguliers found that *air*, after having been incloſed for half a year in a wind-gun, had loſt none of its *elaſticity*; and Roberval, after preſerving it in the ſame manner for ſixteen years, obſerved, that its expanſive projectile force was the ſame, as if it had been recently condenſed. Nevertheleſs, Mr. Haukſbee concludes, from a later experiment, that the ſpring of the *air* may be ſo diſturbed by a violent preſſure, as to require ſome time to return to its natural tone. Dr. Hales inferred, from a number of experiments, that the *elaſticity* of the *air* is capable of being impaired and diminiſhed by a variety of cauſes. See AIR, *fixed*.

The weight or preſſure of the *air*, it is obvious, has no dependence on its *elaſticity*; but would be the ſame, whether the *air* had ſuch a property or not. But the *air*, being *elaſtic*, is neceſſarily affected by the preſſure, which reduces it into ſuch a ſpace, as that the *elaſticity* which re-acts againſt the compreſſing weight, is equal to that weight.

In effect, the *law* of this *elaſticity* is, that it increaſes as the denſity of the *air* increaſes; and the denſity increaſes, as the force increaſes by which it is preſſed. Now, there muſt neceſſarily be a balance between the action and re-action; i. e. the *gravity* of the *air*, which tends to compreſs it, and the *elaſticity* of the *air*, which endeavours to expand it, muſt be equal.

Hence, the *elaſticity* increaſing, or diminiſhing, univerſally, as the denſity increaſes, or diminiſhes, i. e. as the diſtance between the particles diminiſhes, or increaſes, it is no matter whether the *air* be compreſſed, and retained in ſuch ſpace, by the weight of the atmoſphere, or by any other means; it muſt endeavour, in either caſe, to expand with the ſame force. And hence, if *air* near the earth be pent up in a veſſel, ſo as to cut off all communication with the external *air*, the preſſure of the incloſed *air* will be equal to the weight of the *atmoſphere*. Accordingly, we find *mercury* ſuſtained to the ſame height, by the *elaſtic* force of *air* incloſed in a glaſs veſſel, as by the whole *atmoſpherical* preſſure.

On the ſame principle *air* may be artificially condenſed; and hence the ſtructure of the WIND-*gun*.

The utmoſt limits to which *air*, of the denſity which it poſſeſſes at the ſurface of the earth, is capable of being compreſſed, have not been aſcertained. Mr. Boyle made it thirteen times more denſe; Dr. Halley ſays that he has ſeen it compreſſed ſo as to be ſo times denſer than in its natural ſtate, which is farther confirmed by M. Papin, and M. Huygens; Dr. Hales, by means of a preſs, condenſed it 38 times; and by forcing water in an iron ball or globe, into 1551 times leſs ſpace than in naturally occupies.

However Dr. Halley has aſſerted, in the Philoſophical Tranſactions, Abr. vol. ii. p. 17. that from the experiments made at London, and by the Academy del Cimento at Florence, it might be ſafely concluded, that no force whatever is able to reduce *air* into 800 times leſs ſpace than that which it naturally poſſeſſes on the ſurface of our earth. In anſwer to which, M. Amontons, in the Memoirs of the French Academy, maintains, that there is no aſſixing any bounds to its condenſation; that greater and greater weights will ſtill reduce it into leſs and leſs compaſs; that it is only *elaſtic* in virtue of the fire which it contains; and that as it is impoſſible ever abſolutely to drive all the fire out of it, it is impoſſible ever to make the utmoſt condenſation.

The dilatation of the *air*, by virtue of its *elaſtic* force, is found to be very ſurpriſing; and yet Dr. Wallis ſuggeſts, that we are far from knowing the utmoſt of which it is capable. In ſeveral experiments made by Mr. Boyle, it dilated firſt into 9 times its former ſpace; then into 31 times; then into 60; then into 150. Afterwards, it was brought to dilate into 8000 times its ſpace; then into 10000, and even at laſt into 13679 times its ſpace; and this altogether by its own expanſive force, without the help of fire.

On this depend the ſtructure and uſe of the MANOMETER. Hence, it appears, that the air we breathe near the ſurface of the earth is compreſſed by its own weight into at leaſt the 13679th part of the ſpace it would poſſeſs *in vacuo*. But if the ſame *air* be condenſed by art, the ſpace it will take up when moſt dilated, to that it poſſeſſes when condenſed, will be, according to the ſame author's experiments, as 550000 to 1.

We thence ſee how wild and erroneous the obſervation of Ariſtotle was, that *air*, rendered ten times rarer than before, changes its nature, and becomes fire.

M. Amontons, and others, we have already obſerved, attribute the rarefaction of the *air* wholly to the fire contained in it; and therefore, by increaſing the degree of heat, the degree of rarefaction may be carried ſtill farther than its ſpontaneous dilatation. Air is expanded $\frac{1}{3}$ of its bulk by boiling water. Hiſt. Acad. Sc. 1699.

Dr. Hales found that the *air* in a retort, when the bottom of the veſſel was juſt beginning to be red-hot, was expanded through twice its former ſpace, and in a white, or almoſt melting heat, it occupied thrice its former ſpace; but Mr. Robins found, that *air* was expanded by the heat of iron, juſt beginning to be white, to four times its former bulk.

On this principle depend the ſtructure and office of the THERMOMETER.

M. Amontons firſt diſcovered that *air* will expand, in proportion to its denſity, with the ſame degree of heat. On this foundation, the ingenious author has a diſcourſe, to prove 'that the ſpring and weight of the *air*, 'with a moderate degree of warmth, may enable it to 'produce even earthquakes, and other of the moſt ve'hement commotions of nature.'

According to the experiments of this author, and M. de la Hire, a column of *air* on the ſurface of the earth, 36 fathoms high, is equal in weight to three lines depth of mercury; and it is found, that equal quantities of *air* poſſeſs ſpaces reciprocally proportional to the weights with which they are preſſed: the weight of the *air*, therefore, which would fill the whole ſpace poſſeſſed by the terreſtrial globe, would be equal to a ſylinder of mercury, whoſe baſe is equal to the ſurface of the earth, and its height containing as many times three lines, as the atmoſpherical ſpace contains orbs equal in weight to 36 fathoms of that wherein the experiment was made.—Hence, taking the denſeſt of all bodies, *v. gr.* gold, whoſe gravity is about 14630 times greater than that of *air* in our orb, it is eaſy to compute, that this *air* would be reduced to the ſame denſity as gold, by the preſſure of a column of mercury 14630 times 28 inches high, i. e. 409640 inches, ſince the bulks of *air*, in that caſe, would be in the reciprocal ratio of the weights by which they are preſſed. Theſe 409640 inches, therefore, expreſs the height at which the barometer muſt ſtand, where the *air* would be as heavy as gold, and the number 3[illegible] lines, the thickneſs to which our column of 36 fathoms of *air* would be reduced in the ſame place.

Now, we know, that 43528 fathoms, which is the depth, where the above preſſure, and conſequent reduction take place, are only the 74th part of the ſemidiameter of the earth; and therefore, beyond that depth, whatever matter exiſts, it muſt be heavier than gold. It is not improbable, therefore, that the remaining ſphere of 6251538 fathoms diameter may be full of denſe *air*, heavier, by many degrees, than the heavieſt bodies which we know. Hence, again, as it is proved, the more *air* is compreſſed, the more does the ſame degree of fire increaſe the force of its ſpring, and render it capable of a proportionably greater effect; we may infer, that a degree of heat, which in our orb can only produce a moderate effect, may have a very violent one in ſuch lower orb; and that, as there may be many degrees of heat in nature, beyond that of boiling water, it is probable there may be ſome, whoſe violence, thus aſſiſted by the weight of the *air*, may be ſufficient to tear aſunder the ſolid globe. Mem. de l'Acad. an. 1703. For the true cauſe of earthquakes, ſee EARTHQUAKES.

This *elaſtic* property of *air* is ſuppoſed by many philoſophers to depend on the figure of its corpuſcles, which they ſuppoſe to be ramous; ſome maintain that they are ſo many minute *flocculi*, reſembling fleeces of wool; others conceive them rolled up like hoops, and curled like wires, or ſhavings of wood, or coiled like the ſprings of watches, and endeavouring to reſtore themſelves in virtue of their texture: ſo that to produce *air*, muſt be to produce ſuch a figure and diſpoſition of parts; and thoſe bodies only are proper ſubjects, which are ſuſceptible of ſuch diſpoſition; which ſhalds, from the ſmoothneſs, roundneſs, and ſlipperineſs of their parts, are not.

But

But Sir Isaac Newton (*Optics*, p. 371.) explains the matter otherwise; ſuch a texture, he thinks, by no means ſufficient to account for that vaſt power of *elaſticity* obſerved in *air*, which is capable of diffuſing into above a million of times more ſpace than it before poſſeſſed.—But, as all bodies are ſhewn to have an attractive and repelling power; and as both theſe are ſtronger in bodies, the denſer, more compact, and ſolid they are; hence it follows, that when by heat, or any other powerful agent, the attractive force is ſurmounted, and the particles of the body ſeparated ſo far as to be out of the ſphere of attraction; the repelling power commencing thence makes them recede from each other with a ſtrong force proportionable to that wherewith they before cohered; and thus they become permanent *air*. And he has proved, that particles, endeavouring to recede from each other with forces reciprocally proportional to the diſtance between their centres, will compoſe an *elaſtic* fluid, whoſe denſity ſhall be proportional to its compreſſion. Hence, ſays the ſame author, it is, that as the particles of permanent *air* are groſſer, and riſe from denſer bodies, than thoſe of tranſient *air*, or vapours, true *air* is more ponderous than vapour; and a moiſt atmoſphere is lighter than a dry one.

The *elaſtic* power of the *air* above illuſtrated and evinced, is the ſecond great ſource of the effects of this important fluid. By means of this, it inſinuates into the pores of bodies, poſſeſſing this prodigious faculty of expanding, which is ſo eaſily excited, that it muſt neceſſarily put the particles of bodies into which it inſinuates itſelf into perpetual oſcillations. Indeed, the degree of heat, and the *air*'s gravity and denſity, and conſequently its elaſticity and expanſion, never remaining the ſame for the leaſt ſpace of time, there muſt be an inceſſant vibration, or dilatation and contraction in all bodies.

We obſerve this reciprocation in ſeveral inſtances, particularly in plants, the *tracheæ*, or *air*-veſſels, of which do the office of lungs; for the contained *air* alternately expanding and contracting, as the heat increaſes or diminiſhes, by turns preſſes the veſſels, and eaſes them again; and thus promotes a circulation of their juices. See AIR-*veſſels*. Hence, we find, that no vegetation or germination will proceed *in vacuo*. Indeed beans have been obſerved to grow a little tumid therein; and this has led ſome to attribute that to vegetation, which was really owing to no other cauſe than the dilatation of the *air* within them. The *air* is very inſtrumental in the production and growth of vegetables, not only by invigorating their ſeveral juices, while in an *elaſtic* active ſtate, but, alſo, by greatly contributing in a fixed ſtate to the union and firm connexion of their ſeveral conſtituent parts.

From the ſame cauſe it is, that the *air* contained in bubbles of ice, by its continual action, burſts the ice; and thus glaſſes and other veſſels frequently crack, when their contained liquids are frozen. Thus, alſo, entire columns of marble ſometimes cleave in the winter time, from ſome little bubble of included *air*'s acquiring an increaſed elaſticity. From the ſame principle ariſe all PUTREFACTION and FERMENTATION; neither of which will proceed, even in the beſt diſpoſed ſubjects, *in vacuo*.

Since we find ſuch great quantities of *elaſtic air*, generated in the ſolution of animal and vegetable ſubſtances, a good deal muſt conſtantly ariſe from the diſſolution of theſe elements in the ſtomach and bowels, which is much promoted by it.

In reality, all natural corruption and alteration ſeem to depend on *air*; and metals, particularly gold, only ſeem to be durable and incorruptible, in virtue of their not being pervious to *air*.

AIR, *effects of the different ingredients of it.* *Air* not only acts by its common properties of *gravity* and *elaſticity*, but there are numerous other effects, ariſing from the peculiar ingredients of which it conſiſts.

Thus, 1. It not only diſſolves and attenuates bodies by its preſſure and attrition, but as a *chaos* containing all kinds of menſtrua, and conſequently poſſeſſing powers for diſſolving all bodies. It is known that iron and copper readily diſſolve, and become ruſty in *air*, unleſs well defended with oil. Boerhaave aſſures us that he has ſeen pillars of iron ſo reduced by *air*, that they might be crumbled to duſt between the fingers; and as for copper, it is converted by the *air*, into a ſubſtance much like the verdigriſe produced by vinegar.

Air. Boyle relates, that in the ſouthern Engliſh colonies the great guns ruſt ſo faſt, that, after lying in the *air* for a few years, large cakes of *ferugo martis* may be ſeparated from them. Acoſta adds, that in Peru the *air* diſſolves lead, and conſiderably increaſes its weight. Yet gold is generally eſteemed indiſſoluble by *air*; being never found to contract ruſt, though expoſed to it ever ſo long. The reaſon may be, that ſea ſalt, which is the only menſtruum capable of acting on gold, being very difficult to volatilize, there is but a ſmall proportion of it in the atmoſphere. In the laboratories of chemiſts, where *aqua regia* is prepared, the *air* becoming impregnated with an unuſual quantity of this ſalt, gold contracts a ruſt like other bodies.

Stones alſo undergo the changes incident to metals.—Thus, Purbeck ſtone, of which Saliſbury cathedral conſiſts, is obſerved gradually to become ſofter, and to moulder away in the *air*; and Mr. Boyle gives the ſame account of Blackington ſtone. He adds, that *air* may have a conſiderable operation on vitriol, even when a ſtrong fire could act no farther upon it. And he has found, that the fumes of a corroſive liquor work more ſuddenly and manifeſtly on a certain metal, when ſuſtained in the *air*, than the menſtruum itſelf did, which emitted fumes, on thoſe parts of the metal, which it covered; referring to the effects of the *efflutia* of vinegar on COPPER.

The diſſolving power of *air* is increaſed by heat, and by other cauſes. It combines with water; and, by acceſs of cold, depoſits part of the matter which was kept diſſolved in it, by a greater degree of heat. Hence the water, by being depoſited and condenſed upon any cold body, ſuch as glaſs, &c. in windows, forms fogs, and becomes viſible. *Air*, likewiſe, by means of its diſſolving power, accelerates EVAPORATION and DISTILLATION.

2. *Air* volatilizes fixed bodies. Thus, ſea-ſalt, being firſt calcined, then fuſed by the fire, and when fuſed expoſed to the *air* to liquify; when liquified ſet to dry, and then fuſed again, repeating the operation, will by degrees, be almoſt wholly evaporated; nothing but a little earth remaining. Helmont mentions it as an arcanum in chemiſtry, to render fixed ſalt of tartar volatile; but this is eaſily effected by *air* alone: for, if ſome of this ſalt be expoſed to the *air*, in a place replete with acid vapours, the ſalt draws the acid to itſelf, and, when ſaturated with it, is volatile.

3. *Air* alſo fixes volatile bodies. Thus, though ſpirit of nitre, or aqua fortis, readily evaporates by the fire; yet if there be any putrefied urine near the place, the volatile ſpirit will be fixed, and fall down in form of AQUA SECUNDA.

4. *Air* brings many quieſcent bodies into action; i. e. excites their latent powers. Thus, if an acid vapour be diffuſed through the *air*, all the bodies of which that is the proper menſtruum, being diſſolved by it, are brought into a ſtate proper for action.

In the various operations of chemiſtry, *air* is a very neceſſary and important agent; the reſult of particular proceſſes depending on its preſence or abſence, on its being open or cloſed. Thus, the parts of animals and vegetables can only be calcined in open *air*; in cloſe veſſels they never become any other than black coals. And theſe operations are effected by the changes to which the *air* is liable. Many inſtances might be alleged to this purpoſe. Let it ſuffice to obſerve, that it is very difficult to procure oil of ſulphur, *per campanum*, in a clear dry atmoſphere; but in a thick moiſt *air* it may be obtained with greater eaſe, and in larger quantities. So pure well-fermented wine, if it be carried to a place where the *air* is replenished with the fumes of new wine, then fermenting, it will begin to ferment afreſh.

The changes in the *air* ariſe from various cauſes, and are obſervable, not only in its mechanical properties, ſuch as gravity, denſity, &c. but in the ingredients that compoſe it. Thus, at Fahlun in Sweden, noted for copper-mines, the mineral exhalations affect the *air* in ſuch a manner, as to diſcolour the ſilver coin in purſes; and the ſame effluvia change the colour of braſs. In Carniola, Campania, &c. where are mines of ſulphur, the *air* ſometime becomes very unwholeſome, which occaſions frequent epidemic diſeaſes, &c.

The effluvia of animals alſo have their effect in varying the *air*; as is evident in contagious diſeaſes, plagues, murrains, and other mortalities, which are ſpread by an infected *air*.

The ſudden and fatal effect of noxious vapours has generally been ſuppoſed to be principally, if not wholly, owing to the loſs and waſte of the *vivifying ſpirit of air*. But Dr. Hales attributes this effect to the loſs of a conſiderable part of the *air*'s *elaſticity*, and to the groſſneſs and denſity of the vapours with which the *air* is charged. He found, by an experiment made on himſelf, that the lungs will not riſe and dilate as uſual, when they draw in ſuch noxious *air*, the *elaſticity* of which has been conſiderably diminiſhed. For having made a bladder very ſupple by wetting it, and then cutting off ſo much of the neck, as would make a hole wide enough to admit the biggeſt end of a large foſſet, to which the bladder was bound; and then having blown the bladder, he put the ſmall end of the foſſet into his mouth, and, at the ſame time, pinched his noſtrils ſo cloſe, that no *air* might paſs that way, and he could only breathe to and fro the *air* contained in the bladder, which, with the foſſet, contained ſeventy-four cubic inches. In leſs than half

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a minute, he found a considerable difficulty in breathing; and at the end of a minute, the bladder was become so flaccid, that he could not blow it above half full, with the greatest expiration which he could make; and at the same time, he could plainly perceive that his lungs were much fallen, in the same manner as when we breathe out of them all the *air* we can at once. Hence he concluded, that a considerable quantity of the *elasticity* of the *air* was destroyed; and that when the suffocating quality of the *air* was the greatest, it was with much difficulty that he could dilate his lungs in a very small degree. From this, and several other experiments, he inferred, that the life of animals is preserved rather by the elastic force of the *air* acting on their lungs, than by its vivifying spirit; and that candles and matches cease to burn, after having been confined in a small quantity of *air*; not because they have rendered the *air* effete by consuming its vivifying spirit, but because they have discharged a great quantity of acid fuliginous vapours, which partly destroy its elasticity, and retard the elastic motion of the remainder. He likewise found, that *air*, which passed through cloths dipped with vinegar, could be breathed to and fro as long again as the like quantity of *air*, which was not thus purified; so that sprinkling the decks of ships with vinegar may refresh the *air*; and this is confirmed by experience. But where the corruption of the *air* is much greater, as in close prisons, &c. nothing can be an adequate and effectual remedy but a VENTILATOR. He observed likewise, that *air* is not disqualified for respiration, merely by the additional moisture which it receives, but by some bad quality in that moisture. See his Statical Essays, vol. ii.

Dr. Priestley observes, that, when animals die upon being put into air, in which other animals have died, after breathing it as long as they could, it is plain, that the cause of their death is not the want of any *pabulum vitæ*, which has been supposed to be contained in the *air*; but because the *air* is impregnated with something stimulating to their lungs; for they almost always die in convulsions, and are sometimes affected so suddenly, that they are irrecoverable after a single inspiration. And he has found the same effect from any other kind of noxious *air*. He concludes, from subsequent experiments, that the *air* becomes phlogisticated in its passage through the lungs, by means of the blood. Experiments and Observations on Air, vol. i. p. 71. vol. ii. p. 31. vol. iii. p. 55. See *Air phlogisticated*, BLOOD, and RESPIRATION.

Vegetables likewise produce a change in the state of the *air*. Thus, when a great part of the clove-trees, which grow so plentifully in the island of Ternate, was felled at the solicitation of the Dutch, in order to heighten the value of that fruit, such a change ensued in the *air*, as shewed the salutary effects of the effluvia, or rather of the vegetation of those trees, and their blossoms; for the whole island, soon after they were cut down, being exceeding sickly. See *Air phlogisticated*.

The *air* is also liable to alterations from the season of the year. Thus, few subterraneous effluvia are emitted in the winter, because the pores are locked up by the frost, or covered by snow; the subterraneous heat being at work, and preparing a heat to be discharged in the ensuing spring. Again, from the winter solstice to the summer solstice, the sun's rays become more and more perpendicular, and consequently their impulse on the earth's surface more powerful; so that the glebe, or soil, is more and more relaxed, softened, and putrefied, till he arrives at the tropic; where, with the force of a chemical agent, he resolves the superficial parts of the earth into their constituent principles, water, oil, salt, &c. which are all swept away into the atmosphere.

The height and depth of the *air* produce a farther alteration; the exhalations not rising high enough, in any great quantity, to ascend above the tops of high mountains. Nor must drought and moisture be denied their share, in varying the state of the atmosphere; in Guinea, the heat, with the moisture, conduces so much to putrefaction, that the purest white sugars are often full of maggots; and their drugs soon lose their virtue; and many of them grow verminous: it is added, that in the island of St. Jago, they are obliged to expose their sweetmeats daily to the sun, in order to exhale the moisture contracted in the night, which would otherwise occasion them to putrefy.

On this principle depend the structure and use of the HYGROMETER.

For the refracting power of *air*, see REFRACTION.

After all, some of our more curious and penetrating naturalists have observed certain effects of *air*, which do not appear to follow from any of the properties, or materials, above recited. In this view, Mr. Boyle has conjectured a tenuity of subtleties about some unknown properties of the *air*. The phænomena of fire and flame *in vacuo*, seem, according to him, to argue some unknown vital substance diffused through the *air*, on account of which that fluid becomes so necessary to the subsistence of flame. Buffon supposes, that *air* is necessary to the subsistence of fire, because it is most adapted to acquire that expansive motion, which is the principal property of fire. On this account fire combines with *air*, in preference to any other substance, and in a more intimate manner, as being of a nature most nearly approaching to its own; and therefore *air* is the proper aliment and most powerful assistant of fire. Hist. Nat. Supps. vol. i.

But Dr. Priestley has deduced, from experiments, a much more rational explication of this matter. The *air* is a menstruum for the phlogiston emitted by burning bodies; which must cease to burn, when that menstruum is saturated with it. And he accounts in the same manner for the suffocation of animals in a confined space. When the phlogiston, emitted by burning bodies and breathing animals, can no longer be absorbed by the ambient *air*, both life and flame are extinguished. Exp. and Obs. &c. vol. i.

Dr. Priestley, improving upon the experiments and investigations of Boyle, Hales, Brownrigg, Black, Macbride, Cavendish, and others, has discovered many species of *air*, extracted by various processes from different kinds of substances; of which a summary account will be given in the following articles. See also his curious and valuable Experiments and Observations on different Kinds of Air, in five volumes. And for a compendium of the history of discoveries on this subject, Lavoisier's Essay's Physical and Chemical, vol. i. See also AIR, *fixed*.

AIR, *acid*, is a species of factitious *air*, which was first discovered by Mr. Cavendish; but its nature and properties were afterwards more fully investigated by Dr. Priestley. It was first produced from copper, by means of spirit of salt; but Dr. Priestley expelled it by heat from spirit of salt only, without any metallic solution; and he afterwards procured it by the same kind of process, whereby spirit of salt is made. For this purpose he filled a small phial with common salt, and poured upon it a small quantity of concentrated oil of vitriol; the fumes discharged in this process were received in a vessel previously filled with quicksilver, and standing in a bason of quicksilver, and appeared in the form of a perfectly transparent *air*; of such a nature, that it is a permanent elastic substance, not liable to be condensed by cold, like other vapours. This acid vapour extinguishes flame, which appears before the candle goes out, and when it is first lighted again, of a beautiful green, or rather light-blue colour; and it is heavier than common *air*, though in what proportion is not yet determined. Water inhibes this air, changes its aerial or elastic form, acquires, when thus impregnated, a very acid taste, becomes a very active solvent of iron, and generates *inflammable air*. Two grains and a half of rain-water will absorb no less than three ounce measures of this fluid, and thus saturated, will weigh twice as much as it did before. This *acid air* has a very strong affinity with phlogiston, and attracts it from other substances; such as inflammable spirits, expressed oils, oil of turpentine, charcoal, phosphorus, bees-wax, and even sulphur; and it is hereby converted into *inflammable air*.

The species of *air* now described may be called *marine acid air*, in order to distinguish it from the *vitriolic acid air*, which is obtained, by putting a small quantity of common oil to oil of vitriol, and gently heating the phial which contains them. When this kind of air is generated in great plenty, the top of the phial is filled with white vapours; it is equally transparent with the former, and has no greater affinity with quicksilver. It is as readily absorbed by the water as the other, and by its union forms the volatile or sulphureous *acid* of vitriol. It has the same property of extinguishing flame, and is heavier than common air. Ice is instantly dissolved in both of them. The *alkaline air* being mixed with this kind of *acid* vapour, produced a beautiful white cloud, and evidently appeared to be the lighter of the two: the substance formed by this combination was the vitriolic *sal ammoniac*, which is fixed or volatile, upon being exposed to the common *air*, according to the proportion of the two kinds of *air* in the compound. This species of *air* differs from the *marine acid air*, in not dissolving or corroding iron, though it becomes, when combined with water, a very powerful menstruum for this metal.

Another kind of *acid air* is the *vegetable*, which Dr. Priestley expelled by heat from exceeding strong concentrated *acid* of vinegar. A quantity of olive oil imbibed ten times its bulk of this *air*, and in consequence of the union became colourless like water, and less viscid than before. In this respect it differs from the other kinds of *acid air*, which deepen the colour of every species of oil, making them brown, and at the same time viscid, almost to the consistence of resin. The *vitriolic* and *vegetable acid air* very much resemble one another, and the only real difference, beside the *smell*, which is very remarkable, is that just mentioned.

In nature and properties the *fluor air acid* very much resembles the *vitriolic acid air*. It is fo called from the name of the fubftance from which it is extracted. See ACID *fluor*.

Dr. Prieftley procured this *air*, by pouring oil of vitriol upon the *fluor*, contained in a fmall phial, fitted with a ground ftopple and tube; firft without heat, and then by applying a very fmall degree of it, *air* was produced in great plenty, perfectly tranfparent, and confined by quickfilver, like the other kinds already defcribed. It formed a white cloud by iffuing from the tube, and attaching itfelf to the water that floats in the atmofphere, and yielded a very pungent fmell. The furface of water, as foon as it came into contact with this *air*, was rendered white and opake, by a ftrong film or incruftation, which made a feparation between the air above, and the water below it. When this cruft is broken, and the water rifes fo as to form a new furface, a freth incruftation takes place; and thus fucceffive layers will be produced, till every particle of *air* is united to the water. Thefe films, being collected and dried, yield a white powdery fubftance, ufually a little acid to the tafte, but when waffied in much pure water, perfectly infipid. Dr. Prieftley mentions another method, no lefs amufing in its effect, of combining this *air* with water. The incruftation is fo quick, that in lefs than an hour, two or three ounce meafures of water have been converted into this folid mafs; and in this way a very ftrong acid liquor may be obtained. Thefe appearances are explained, by fuppofing that the *vitriolic acid*, in uniting with the fpar, is in part volatilized, by means of fome phlogifton contained in it, fo as to form a *vitriolic acid air*; and that there is alfo combined with this *air* a portion of the folid earthy part of the fpar, which continues in a ftate of folution, till, coming into contact with the water, the fluid unites with the acid, and the earth is precipitated.

The effects of this vapour on fluids and folids are much the fame with thofe of the *vitriolic acid air*. There are two peculiar properties in which thefe two vapours agree; they both contain phlogifton, and in fuch a manner as to communicate it to the common *air* with which they are mixed, and to render it noxious. The electric fpark will alfo by a fingle explofion incruft the infide furface of a tube containing this kind of *air* with a deep-brown or black matter, and it will at every ftroke make the glafs more and more opake. Some reflection on the nature of the fpar which yielded this vapour, led Dr. Prieftley to try, whether the fame kind might not be procured from Mr. Canton's PHOSPHORUS, by means of oil of vitriol; and the trial fucceeded.

AIR, *alkaline*, is a fpecies of *factitious air* extracted by heat from volatile fpirit of fal ammoniac. This vapour, received into a veffel of quickfilver, ftanding in a bafon of the fame fluid, became a tranfparent and permanent *air*, not at all condenfed by cold. But Dr. Prieftley foon found, that the moft expeditious method of procuring it was from a mixture of 1 of powdered fal ammoniac, and 2 of ftaked lime. Large quantities of this vapour are readily imbibed and condenfed by water; and convert it into a volatile fpirit of fal ammoniac, ftronger, Dr. Prieftley fays, than he had ever feen, and than any, he apprehends, which can be made in the common way. The *alkaline air*, upon being mixed with nitrous *air*, occafioned a whitifh cloud, without producing any neutral falt; when water was admitted to this mixture, the *alkaline air* was abforbed, and the *nitrous air* remained, poffeffed of its peculiar properties. Alum undergoes a remarkable change by the action of this *air*. Its outward fize and fhape remain the fame, but the internal ftructure is quite changed; being hereby rendered opake, beautifully white, and in all refpects, to appearance, like alum which had been roafted. The *alkaline air* is ftightly inflammable; it diffolves ice as faft as a hot fire can do it. It is heavier than inflammable air, but lighter than marine *acid air*.

AIR, *artificial* or *factitious*, was ufed by Mr. Boyle to exprefs what the more ancient chemifts denominated *gas*, or *fpiritus fylveftris*, and which is now more generally known by the name of *fixed air*. It comprehends all thofe kinds of *air*, which are originally parts of fome folid fubftance, and exift in an unelaftic ftate; but which, by various analytical proceffes, are capable of being difengaged, and recovering their elafticity.

AIR, *atmofpherical* or *common*, conffts, according to Dr. Prieftley, of the nitrous acid and earth, combined with fo much phlogifton as is neceffary to its elafticity, and likewife fo much more as is requifite to bring it from a ftate of perfect purity, to the mean condition in which we find it. See AIR and ATMOSPHERE.

AIR, *dephlogifticated*, is a very extraordinary fpecies of *air* lately difcovered by Dr. Prieftley, to which he has given this name becaufe it is much purer than any other kind of *air*, and of courfe contains lefs phlogifton; which, on this hypothefis, verified by a variety of experiments, renders *air* noxious. This *air* was firft extracted from *mercurius calcinatus per fe*, by means of a burning lens; and in a feries of fubfequent experiments, it was procured from a variety of other fubftances, fuch as red precipitate, minium, and feveral other preparations of lead, and from all kinds of earths mixed with fpirit of nitre; the advantage being on the fide of the metallic and calcareous earths. This pure *air* was alfo extracted from other fubftances, befide *mercurius calcinatus* and red lead, without the addition of the fpirit of nitre; viz. from fedative falt, and Roman vitriol, flightly calcined. But the pureft which Dr. Prieftley ever obtained was from flowers of zinc, moiftened with fpirit of nitre, and put into a glafs phial with a ground ftopple and tube. This air is not imbibed by water, and appears to be a little heavier than common *air*. But the moft remarkable property belonging to it is its fuperior purity, which Dr. Prieftley has evinced by a variety of indubitable teffs. A candle let down into a jar filled with this *air* burns with a very vigorous flame, and the heat produced by it in thefe circumftances is remarkably great. The experiment is moft pleafing, when the *air* is only a little more than twice as good as common *air*; for when it is more highly dephlogifticated, the candle burns with a crackling noife, as if it was full of fome combuftible matter. A moufe was put into a glafs veffel, containing two ounce meafures of the *air*, extracted from *mercurius calcinatus*, and, though it would not have lived in common *air* longer than about a quarter of an hour, it lived in this *air* a full half hour; and when it was taken out feemingly dead, it was only chilled by the extreme cold; for upon being held up to the fire it revived, and feemed to have received no injury. Another moufe, in a fubfequent trial, lived three quarters of an hour in lefs than the former quantity. But the moft elegant and accurate teft of the purity of any kind of *air*, is the *nitrous air*. Dr. Prieftley put one meafure of *nitrous air* to two meafures of the *dephlogifticated air* laft mentioned; and he obferved a greater diminution than common *air* would have received by the fame treatment. A fecond meafure of *nitrous air* reduced it to two thirds of its original quantity, and a third meafure to one half; adding another half meafure, it was ftill more diminifhed, but not much; and another half meafure made it more than half of its original quantity: fo that, in this cafe, two meafures of this *air* took more than two meafures of *nitrous air*, and yet remained lefs than half of what it was. Five meafures brought it pretty exactly to its original dimenfions. Now as common *air* takes about one half of its bulk of *nitrous air*, before it begins to receive any addition to its dimenfions from more *nitrous air*, and this *air* took more than four half meafures before it ceafed to be diminifhed by more *nitrous air*, and even five half meafures made no addition to its original dimenfions, Dr. Prieftley concludes, that it was between four and five times as good as common *air*. This *air* then being capable of taking more phlogifton from *nitrous air*, it muft originally contain lefs of this principle.

Dr. Prieftley, in fome further proceffes examined, *air* between five and fix times as good as the beft common *air* he ever met with. Many experiments were made upon various fubftances, and upon red lead in particular, in order to determine by what means this kind of *air* came to be fo pure; and Dr. Prieftley was convinced in the refult that it was the nitrous acid which the red lead acquired from the *air*, that enabled it to yield this *dephlogifticated air*; and he obferves, that the red colour of *mercurius calcinatus*, and red lead, favours the fuppofition of their having extracted fpirit of nitre from the *air*. He further remarks, that *dephlogifticated air* is purified by ftanding in water; owing, probably, to its depofiting more *fixed air* in thefe circumftances. He adds, that fome mechanical contrivance may perhaps hereafter be thought of for conveying this pure *air* into rooms for the purpofe of purifying the noxious *air* contained in them. A mixture of one third of highly *dephlogifticated air*, and the reft *inflammable air*, in a phial, containing about 2 ounce meafure and a half, will caufe a report as loud as that of a common piftol; and judging by the eye, not lefs than forty or fifty times as loud as with common *air*, of which there muft be about two thirds in quantity, to make *inflammable air* explode to the greateft advantage. And it may be inferred, that, if it were poffible to fire gun-powder in this kind of *air*, a tenth part of the charge would in all cafes fuffice. The force of fire would be very confiderably augmented, by blowing it with *dephlogifticated air*, inftead of common *air*: and the prodigious heat which this *air* affords, may be ufefully applied by chemifts in a variety of ways. It would likewife be very falutary as a medicine, in certain morbid cafes, when the common *air* would not be fufficient to carry off the phlogiftic putrid effluvium faft enough. But in a healthful ftate of the body, it might not be fo

proper

proper; for, as a candle burns out much faſter in this than in common *air*, ſo we might *live out too faſt*, ſays Dr. Prieſtley, and the animal powers be too ſoon exhauſted in this pure kind of *air*. 'Who can tell, he 'adds, but that in time pure *air* may become a faſhion-'able article in luxury. Hitherto only two mice and 'myſelf have had the privilege of breathing it.' From a late publication we learn, that Mr. Cavendiſh is of opinion, that *dephlogiſticated air* is only WATER deprived of its phlogiſton. Phil. Tranſ. vol. lxxiv. part i. art. 13.

AIR, *fixable* or *fixed*, may, in the largeſt ſenſe of the term, include all the different kinds of *air*, which are the ſubjects of theſe articles; ſince they are all capable of being imbibed by ſome ſubſtance or other, and conſequently of being *fixed* in them, after they have been in an elaſtic ſtate. This kind of *air*, being ſpecifically heavier than common *air*, is found at the bottom of pits: it extinguiſhes candles, &c. and kills animals that breathe it; and on this account has been called the *chokedamp*. However, the above appellation was firſt uſed by Dr. Black, profeſſor of chemiſtry at Edinburgh, to expreſs that particular ſpecies of *factitious air*, which adheres to all calcareous earths, magneſia, and alkaline ſalts, with different degrees of force; and which may be ſeparated from theſe ſubſtances, and again combined with them. This elaſtic matter was but very imperfectly known to the ancient chemiſts before the time of Paracelſus. It was called by them *ſpiritus ſylveſtris*. Paracelſus, and his contemporaries, imagined, that this fluid is the ſame with the *air* which we breathe. Van Helmont, the diſciple of Paracelſus, made it the ſubject of particular inquiry, and gave it the name of *gas*. This ſubſtance, according to him, is diſcharged from fermenting bodies, and may be diſengaged from ſal ammoniac, and from vegetables. It is this likewiſe which eſcapes from ignited gunpowder and charcoal. To the effluvia of this *gas*, he alſo aſcribes the fatal effects of the Grotto del Cani in Naples, the ſuffocation of workmen in the mines, the accidents occaſioned by the vapour of charcoal, and that noxious *air* which is found in cellars, where ſpirituous liquors are fermenting. Van Helmont likewiſe obſerved, that a great quantity of this vapour is diſengaged from earths and metallic ſubſtances, by their effervescence with acids; and has applied his theory to the explication of ſeveral phenomena in the animal œconomy. He ſuppoſed, that the *gas* was different from the *air* which we breathe, and that it has a great affinity with water; and he appears to have been acquainted with ſeveral properties of this fluid, which are now more generally known and underſtood. Tractatus de Flatibus; and, Complexionum atque Mixtionum Elementalium Figmentum. Mr. Boyle repeated Van Helmont's experiments *in vacuo*, in condenſed and in open *air*; and he gave the *gas* of the foreign chemiſts the new name of *artificial* or *factitious air*. Both Van Helmont and Mr. Boyle obſerved, that this ſpecies of *air* eſſentially differs from that of the atmoſphere; as the latter is neceſſary to the exiſtence of animals, whilſt the other is noxious and fatal. Mr. Boyle demonſtrated, that artificial *air* ſeparated from vegetable ſubſtances, is not always the ſame; and that the *air* which is produced by the explosion of gunpowder, exhibits phenomena peculiar to itſelf; and he farther obſerved, that ſome bodies, ſuch as ſulphur, amber, camphor, &c. diminiſh the bulk of *air* in which they burn. Boyle's Works, vol. iv.

Dr. Hales purſued this inquiry with great induſtry, and with very conſiderable ſucceſs. He not only ſhewed, that *air* entered into the compoſition of moſt bodies, animal, vegetable, and mineral, but eſtimated the proportion which it bore to the reſt of the compound. He obſerved, that certain ſubſtances and operations generate *air*, and others abſorb it: imagining, however, that the diminution of *air* was ſimply a compound from the common maſs, without inducing any alteration in the properties of the remainder. Dr. Hales likewiſe examined the mineral waters, and particularly thoſe of Pyrmont; and to the great quantity of *air* which they contain, he attributed the ſpirit and briſkneſs of thoſe waters. But, though he made many important diſcoveries, ſome of which are recited in the courſe of theſe articles, and for the reſt of which the reader muſt be referred to his works, and particularly to chap. vi. of his Vegetable Statics, he ſtill apprehended, that the *air* ſeparated from bodies, as well as that which had been burned or reſpired from animals, was not different from that of the atmoſphere; and that its particular effects were owing to ſome noxious vapours, whereby its elaſticity was impaired or deſtroyed, foreign to its own nature. He likewiſe attributes the abſorption of this kind of *air* by water, not to the affinity which it bears to water in itſelf conſidered, but to the warmth of the water.

It has already been obſerved, that Dr. Seip was the firſt who diſcovered the impregnation of the mineral waters by the *mephitis* or *fixed air*: and that Dr. Brownrigg further inveſtigated the nature of this principle which enters into their compoſition, and whence they derive their peculiar taſte and effect. See ACIDULÆ.

Dr. Black farther inveſtigated the chemical nature and effects of this principle, and explained many phenomena in this part of ſcience, which had been hitherto deemed unaccountable. Such was the effervescence of abſorbent earths, and alkaline ſalts, with acids, and the change of the mild calcareous earths into quick-lime, by heat, whereby they become cauſtic, or acquire the property of corroding, and burning animal and vegetable ſubſtances, in conſequence of the expulſion of the *fixed air*, which neutralizes them. And he has alſo informed us, that the lime-ſtone loſes nearly the ſame weight by diſſolution in acids, as by calcination; and that it recovers its former weight, when it has been precipitated in the form of a calcareous earth, or with all its *air*. Eſſ. and Obſ. Phyſ. and Liter. vol. ii.

For an account of the oppoſition which Dr. Black's theory met with in Germany, ſee ACIDUM *pingue*.

In 1764, Dr. Macbride publiſhed his Experimental Eſſays, containing a variety of curious facts and obſervations relating to the nature and properties of *fixed air*. From him we learn, that a conſiderable quantity of this *air* is diſcharged, not only from effervescing ſubſtances, and fermenting vegetables, but likewiſe from all putrefying animal ſubſtances; and to the preſence of this fluid he aſcribes their cohesion and firmneſs. He advances a ſtep farther, and obſerves, that fleſh which has begun to putrefy, by having loſt a portion of the *fixed air*, which entered into its compoſition, may recover its former ſweetneſs, by reſtoring to it the *fixed air*, of which it had been deprived. In the courſe of his experiments he diſcovered, that putrid diſeaſes, and the ſea-ſcurvy, owe their origin to the privation of that certain quantity of *air*, which is neceſſary to a ſtate of ſalubrity; and that the beſt antidote againſt theſe diſeaſes muſt be derived from ſubſtances and preparations capable of furniſhing an abundance of *fixed air*. On theſe principles he recommends the uſe of wort in the ſcurvy. The antiſeptic quality of this fluid was a very important and uſeful diſcovery. Dr. Macbride was led to it by a previous obſervation of Sir John Pringle.

Mr. Cavendiſh made ſeveral valuable additions to the knowledge which had been already gained on this ſubject. An account of his experiments may be found in the Philoſ. Tranſ. for 1766 and 1767, vol. lvi. vol. lviii. and vol. lxxiv. part i. art. 13. He has accurately aſcertained the quantity of *fixed air* contained both in fixed and volatile alkali, according to their reſpective weight. He has alſo determined the ſpecific gravity of this fluid, as well as of *inflammable air*, ſhewing that the former is 14 heavier than common *air*, and the latter ten times lighter. He has likewiſe ſhewn, that *fixed air* may be mixed with water, and that it will abſorb a quantity more than equal to its own bulk; that the quantity imbibed by it is greater as the water is colder, and that it flies off again upon being heated and expoſed to the common *air*. To him we owe the diſcovery, that water acquired from its abſorption of diſſolving calcareous earths; in conſequence of which Mr. Lane found, that it would diſſolve a conſiderable quantity of iron, and become a ſtrong chalybeate. Phil. Tranſ. for 1769, vol. lix.

The next ſtep in this department of ſcience was the invention of a convenient apparatus for generating *fixed air*, and for impregnating water with it; and this was effected by Dr. Prieſtley, in the year 1772, though he had made and uſed artificial waters impregnated by the ſame kind of *air*, ariſing from fermenting wort, as early as 1768. See PYRMONT.

Having brought down the hiſtory of *fixed air* to this period, the curious reader muſt be referred to Dr. Prieſtley's Obſervations, &c. ſo often cited in theſe articles, for an account of his numerous and valuable experiments; obſerving, that he has happily availed himſelf of every fact that had been previouſly diſcovered, and extended our acquaintance with this principle in all its various forms, and in the phenomena that attend it, far more than any of his predeceſſors in theſe inquiries. One obſervation, however, ſhould be mentioned, viz. that *fixed air* is capable of forming an union with phlogiſton, and in this ſtate, it is immiſcible with water.

Mr. Bewley has proved, by very ſatisfactory experiments, that *fixed air* is an acid *ſui generis*; and Dr. Prieſtley apprehends, that it is a modification of the nitrous acid, containing phlogiſton and earth. It has been ſince ſhewn by Mr. Kirwan, to the conviction of Dr. Prieſtley, that *fixed air* conſiſts of pure elementary or reſpirable *air* and phlogiſton; and that 100 grains of *fixed air* contain 14,661 of phlogiſton and 85, 339 of elementary *air*. Phil. Tranſ. vol. lxxii. part i. art. 15.

The preceding diſcoveries, and others, the recital of which the nature of this work will not admit, have been already ſucceſsfully applied to medical purpoſes, and pro-

mise to be of very considerable utility. Dr. Percival, Mr. Hey, and others, have made various trials of this new medicine, as *fixed air* may be called, in putrid, and other disorders, and found it efficacious and useful. Notice shall be taken of the cases to which it has been applied, under subsequent articles, where it may be properly introduced.

M. Baumé, in his Chemistry, condemns the general application of the term *fixed air*; and he thinks that the fluid so called should retain the denomination given it by Dr. Hales, viz. *detached* or *elastic air*; and that *fixed air* is only common *air*, impregnated with foreign substances, which it holds in solution, and that it should be examined, only with respect to the nature and qualities of such substances.

AIR, *inflammable*, is that species of *air*, which, by being lighter than common *air*, occupies the upper parts of subterraneous places, and has been commonly found in mines and coal-pits, where it is called the *fire damp*; because it is liable to take fire, and to explode like gunpowder. It was little known, otherwise than as an object of curiosity, and by the fatal effects which it had often produced, till Mr. Cavendish began to make experiments upon it. We learn from him how to produce it in great abundance, by dissolving zinc, iron, and tin, in the diluted vitriolic acid, or spirit of sea-salt. He has shewn, that it is essentially different from the *mephitic*, or *fixed air*, being only the tenth part of the weight of common *air*; and produced a variety of inflammable mixtures, by combining it with common *air*. Dr. Priestley has extracted it from other substances, animal, vegetable, and mineral; and observes, that it emits a very offensive smell, according to the nature of the substance by which it is generated; and the more violent the effervescence producing it, so much the more *inflammable* will be the *air*, and the more offensive the smell; and the quantity obtained depends on the degree of heat employed in the process. He shews how this kind of *air* may be mixed with water, and deprived of its inflammability. Distilled water imbibed about one fourteenth of its bulk of this *air*, but occasioned no sensible difference of taste. The electric spark, which in *fixed air* is exceedingly white, is of a purple or red colour in *inflammable air*; and Dr. Priestley infers from hence, that the *inflammable air* may contain particles which conduct electricity, though very imperfectly. This *air*, he observes, consists chiefly, if not wholly, of the union of the vitriolic or marine acid vapour with PHLOGISTON: but he has since found that *inflammable air* and phlogiston are the same substance. The refractive power of this *air* has been found by Mr. Warltire to be greater than that of common air. Water, in which it is agitated, imbibes as much of the phlogiston as contributes to make it *inflammable*; and in consequence of this process it becomes fit for respiration; and by a continuance of it, at length extinguishes flame. See DAMPS.

AIR, *mephitic*, is applied to *fixed air*, to that which is *inflammable*, and to many other kinds, since they are equally noxious when breathed by animals; but it is usually appropriated to the former species of *air*. See AIR *fixable*.

AIR, *nitrous*, a name given by Dr. Priestley to that kind of *air* which was first produced by Dr. Hales from the Walton pyrites, by means of spirit of nitre. Dr. Hales observes, that the mixture of this with common *air* occasioned an effervescence, and was attended with a turbid red colour, and an absorption of part of the common *air*. Dr. Priestley procured the same kind of *air* from the solution of iron, copper, brass, tin, silver, quicksilver, bismuth, and nickel, in the nitrous acid, and of gold, and regulus of antimony, in *aqua regia*. He ascertained the phenomena taken notice of by Dr. Hales; and found, by many accurate trials, that upon a mixture of this *air* with common *air*, the latter is considerably diminished in quantity; and that the former is wholly decomposed, when the quantity of it admitted to common *air* is such as is merely sufficient to diminish it to the utmost. He adds, that the diminution and decomposition, to which *nitrous air* is subject, result from two different causes: one is by substances, which seize upon its acid, and the other, those which lay hold of the phlogiston which it contains. One measure of *nitrous air* applied to two measures of common *air*, will diminish the mixture above one ninth of the quantity of common *air*; and if both be very pure, the diminution will be gradual, and in a day or two, there will remain only one fifth of the original quantity of common *air*; and yet this mixture retains very nearly the same specific gravity with common *air*. But the diminution of common *air*, by a mixture of *nitrous air*, is not more extraordinary, than the diminution which *nitrous air* itself is subject to, from a mixture of iron filings and brimstone made into a paste with water. When this is put to a quantity of *nitrous air*, it diminishes it so much, that no more than one fourth of the original quantity will be left. The proportion of common *air*, and *nitrous air*, above stated, forms the point of saturation between these two fluids; and if more *nitrous air* be afterwards added to the mixture, no effervescence nor redness will be produced; but it will make an addition equal to its bulk. *Nitrous air* makes no change either with *fixed* or *inflammable air*, or with any other *air* that is noxious; but the effervescence and diminution are peculiar to common *air*, or such as is fit for respiration, and very nearly, if not exactly, proportional to its salubrity. And hence Dr. Priestley was led to adopt this species of *air* as a test, by which to estimate the goodness of *air*, and the kind as well as degree of the injury which it sustains. In order to explain the peculiar effects produced by *nitrous air* on common *air*, he made use of a green precipitate, procured by a solution of copper in nitrous acid, and extracted from it, by means of a burning lens, a quantity of *nitrous air*. When any volatile alkali was added to a mixture of *nitrous* and common *air*, in a state of effervescence, the jar was filled with white clouds, which precipitating in the form of fine snow, made a beautiful appearance, and proved to be a nitrous ammoniac. This, he supposes, was formed by the acid of the *nitrous air*, let loose in the decomposition of it by common *air*, while the phlogiston, which must be another constituent part of *nitrous air*, entering the common *air*, was the cause of its diminution; as it is also the cause of a similar diminution in a variety of other processes; so that, in reality, phlogiston is the test; and *air* is wholesome, in proportion to the quantity of phlogiston which it is able to take. See EUDIOMETER. Mr. Kirwan has found, that 100 grains of *nitrous air* contain 16,792 of phlogiston and 83,208 of nitrous acid.

Nitrous air is extremely noxious both to plants and animals. It is capable of being mixed with water; distilled water imbibing about one tenth of its bulk of this kind of *air*; and it communicates to the water a very acid and astringent taste. It is also absorbed in different degrees by æther, oils, spirit of wine, and alkali, the several sorts of acids, and, in general, by any substance that has a near affinity either with its phlogiston, or with any other of its constituent parts. It is likewise one of the strongest antiseptics; and Dr. Priestley suggests, that future preparations of it may be used with success for checking or correcting putrefaction in the intestinal canal, or other parts of the animal system.

AIR, *phlogisticated*. Under this general denomination may be included all those different kinds of *air*, which are diminished and rendered noxious by the burning of candles, insomuch that a common candle consumes, as it is called, a gallon of *air* in a minute, the respiration of animals, the putrefaction of vegetable or animal substances, the effervescence of iron filings and brimstone, the calcination of metals, the fumes of charcoal, the effluvia of paint made of white lead and oil, a mixture of *nitrous air*, or other similar processes. All these processes, Dr. Priestley observes, agree in this one circumstance, and he apprehends, in no other, that the principle, which the chemists call phlogiston, is set loose; and therefore the diminution of the *air* is in some way or other the consequence of the *air* becoming overcharged with it. This kind of air is rather lighter than common air.

Thus, we find, that many causes combine to produce very considerable alterations in the state of the *air*, whereby it becomes less fit for respiration, and other purposes of nature; and if there were no provision for restoring its salubrity, it must, in time, become universally injurious and fatal. Dr. Priestley, in the course of his inquiries on this subject, has discovered the great restoratives, which are provided for this purpose. One of these is vegetation. In order to ascertain this fact, he put a sprig of mint, in a vigorous state, under a glass jar, inverted in water; and he found, contrary to his expectation, that this plant not only continued to live, though in a languishing way, for two months; but that the confined *air* was so little corrupted by the effluvia of the mint, that it would neither extinguish a candle, nor kill a small animal, which he conveyed into it. He found, likewise, that *air*, vitiated by a candle left in it till it was burnt out, was perfectly restored to its quality of supporting flame, after another sprig of mint had vegetated in it for some time. And, in order to shew, that the aromatic flavour of the plant had no share in producing this effect, he observed, in a variety of other experiments, that vegetables of an offensive smell, and even such as had scarce any smell at all, but were of a quick growth, proved the best for this purpose. Nay more, the virtue of growing vegetables was found to be an antidote to the baneful quality of *air*, corrupted by animal respiration and putrefaction; and he infers from a number of similar facts, that the injury, which is continually done to the atmosphere, by the respiration of so many animals, and the putrefaction of such masses of

both vegetable and animal matter, is, in part at leaſt, repaired by the vegetable creation; and, notwithſtanding the prodigious maſs of *air* that is corrupted daily by the above mentioned cauſes; yet, if we conſider the immenſe profuſion of vegetables upon the face of the earth, growing in places ſuited to their nature, and conſequently at full liberty to exert all their powers, both inhaling and exhaling, it can hardly be thought, that the remedy is not adequate to the evil. Dr. Franklin, in a reflection on this diſcovery, expreſſes his hope, that it will give ſome check to the rage of deſtroying trees that grow near houſes, which has accompanied our late improvements in gardening, from an opinion of their being unwholeſome; adding, from long obſervation, that there is nothing unhealthy in the *air* of woods. 'Since the 'Americans have their country habitations in the midſt 'of woods, and no people on earth enjoy better health, 'or are more proliſic.' Dr. Prieſtley has ſince diſcovered that light is neceſſary to enable plants to purify *air*: however pure *air* is not produced by light on plants, but only by the purification of the impure *air* to which the plants have acceſs. Obſ. and Exp. on *Air*, vol. v p. 18. 24. &c.

The ſea, and other large bodies of water, are the ſecond reſource, which nature has provided for reſtoring the ſalubrity of corrupted *air*. Dr Prieſtley found, that all kinds of noxious *air* were reſtored by continued agitation in a trough of water; the noxious eſſluvia being firſt imbibed by the water, and thereby tranſmitted to the common atmoſphere. And he hence concludes, that the agitation of the ſea, and of large lakes and rivers, muſt be highly uſeful for the purification of the atmoſphere; the putrid matter being abſorbed by the water, and imbibed by marine, and other aquatic plants, or applied to purpoſes yet unknown. Exp. and Obſ. vol. v ſect. 2. and 4.

This ingenious philoſopher apprehends, that the agitation of water, and the vegetation of plants, purify noxious *air*, by abſorbing part of the phlogiſton with which it is loaded; and that this phlogiſtic matter is the moſt eſſential part of the food and ſupport of both vegetable and animal bodies. Ib. vol. i. p. 138. 139.

For an account of Dr. Prieſtley's numerous experiments and obſervations on theſe ſeveral ſpecies of *air*, the reader is referred to the excellent work already cited, which has furniſhed the greateſt part of the preceding articles.

AIR, *innate*, in *Anatomy*, is a fine aerial ſubſtance, ſuppoſed, by ſome anatomiſts, to be incloſed in the labyrinth of the inner EAR, and to miniſter to the due conveyance of ſounds to the ſenſory.

But the exiſtence of ſuch *innate air*, has been called in queſtion, and rendered very improbable. See EAR.

AIR, in *Medicine*, &c. makes one of the ſix NON-NATURALS.

From obſervations on bleeding in rheumatiſms, and after taking cold, it is evident, the *air* can enter with all its qualities, and vitiate the whole texture of the blood, and other juices.

From the palſies, vertigoes, and other nervous affections cauſed by damps, mines, &c. it is evident, that *air* thus qualified can relax and obſtruct the whole nervous ſyſtem. And from the colics, fluxes, coughs, and conſumptions produced by damp, moiſt, and nitrous *air*, it is evident it can corrupt and ſpoil the noble organs, &c. See ATMOSPHERE, and preceding articles.

AIR, in *Muſic*, ſignifies the MELODY, or the inflexion of a muſical compoſition

The word is alſo uſed for a tune, or ſong itſelf, that is, for a compoſition whoſe movements are juſt and equal; and the times, eſpecially the firſt of ſuch meaſure, well marked—being uſually to be played pretty quick and lively, unleſs there be ſomething to indicate the contrary; as, *largo*, or *affettuoſo*, &c.

Thus we ſee an *air* of Lully: Handel's *airs*, with their ſymphonies and accompaniments, are made into concertos for the violin, &c.

AIR, in *Mythology*, was adored by the heathens under the names of Jupiter and Juno; the former repreſenting the ſuperior and finer parts of the *atmoſphere*, and the latter the inferior and groſſer parts. The augurs alſo drew preſages from the clouds, thunder, lightning, &c.

AIR, in *Painting*, &c. denotes the manner and very life of action; or it is that which expreſſes the diſpoſition of the agent.

It is ſometimes alſo uſed in a ſenſe ſomewhat ſynonymous with geſture or attitude.

AIR-*bladder*, a kind of *veſicula* found in the bodies of fiſh, by means whereof they are enabled to ſuſtain themſelves in any depth of water, and either to riſe or ſink at pleaſure. The *air-bladder* is the ſame with what is otherwiſe called the *ſwim*, or *ſwimming-bladder*.

Dr. Prieſtley conjectures that this is not the only uſe of theſe *bladders*; but that the *air* incloſed in them may anſwer ſome farther purpoſe in the animal œconomy of fiſhes.

The diſcovery of the uſe of the *air-bladder* took its riſe from obſerving, that a bubble of *air* in riſing from the bottom of a fluid, continually dilates till it reaches the top, by reaſon of the continual diminution of the weight, or preſſure, of the incumbent water. For the *air*, in the bladder is like the bubble, more or leſs compreſſed, according to the depth the fiſh ſwims at, and takes up leſs or more ſpace; and conſequently the body of the fiſh, part of whoſe bulk this bladder is, is greater or leſs, according to the ſeveral depths, though it retains the ſame weight. The rule of hydroſtatics is, that a body heavier than ſo much water as is equal in quantity to the bulk of it, will ſink; a body lighter, will ſwim; a body of equal weight will reſt in any part of the water. By which rule if the fiſh in the middle region of the water, be of equal weight with an equal bulk of the water, the fiſh will reſt there, without any tendency either upwards or downwards; and if the fiſh be deeper in the water, its bulk becoming leſs by the compreſſion of the bladder, and yet retaining the ſame weight, it will ſink and reſt at the bottom: on the other ſide, if the firſt be higher than the middle region, the *air* dilating itſelf, and the bulk of the fiſh conſequently increaſing, without any increaſe of the weight, the fiſh will riſe and reſt at the top of the water.

Perhaps the fiſh by ſome action can emit *air* out of the bladder, and afterwards out of its body; and alſo when there is not enough, take in more *air*, and convey it to this bladder; in which caſe it will be no wonder, that there ſhould be always a fit proportion of *air* in the bodies of all fiſhes, to ſerve their uſe, according to the depth of water they live in: perhaps alſo by ſome muſcle the fiſh can contract this bladder beyond the preſſure of the weight of water; and perhaps it can by its fides, or ſome other defence, keep off the preſſure of the water, and give the *air* leave to dilate itſelf. In theſe caſes, the fiſh will be helped in all intermediate diſtances, and may riſe or ſink from any region without moving a fin. Phil. Tranſ. N° 114.

If the *air-bladder* of a fiſh be pricked or broken, the fiſh preſently ſinks to the bottom, unable either to ſupport or raiſe itſelf up again. Flat fiſhes, as ſoles, plaice, &c. which always lie groveling at the bottom, have no *air-bladder*.

In moſt fiſhes there is a manifeſt channel, leading from the gullet, or upper orifice of the ſtomach, to the *air-bladder*, which doubtleſs ſerves for conveying *air* into it. In a ſturgeon Mr. Willughby obſerved, that upon preſſing the bladder, the ſtomach preſently ſwelled; ſo in that fiſh it ſeems the *air* paſſes freely both ways. Poſſibly the fiſh while alive may have a power to raiſe up this valve, and let out *air* on occaſion.

All the cartilaginous kind want *air-bladders*: by what means it is they aſcend and deſcend in water, is yet unknown. The cetaceous kind, or ſea-beaſts, are alſo without the *air-bladder*: indeed as theſe differ little from quadrupeds, but in the want of feet, the *air* which they receive into their lungs in reſpiration, may ſerve to render their bodies equiponderant to water, and by conſtriction or dilatation of it, by the help of the diaphragm and muſcles of reſpiration, may poſſibly aſſiſt them to deſcend, or aſcend, in the water, by a light impulſe thereof with their fins. Moſt of the EEL-kind have bladders, yet they can hardly raiſe themſelves in the water, by reaſon of the length and weight of their tails; the *air-bladder* being near their heads, may help them to lift up their heads and fore part. Ray's Wiſd. of God, &c. p. i. p. 26. Phil. Tranſ. N° 115

There is great diverſity in *air-bladders*, in reſpect of figure, ſubſtance, ſituation, and connection, in different fiſh.

In ſome, the *air-bladder*, is divided into two, e. gr. in *carps*; and in others, into three. Needham maintains, that all fiſh which have teeth in their jaws have only a ſingle *air-bladder*; whereas thoſe without teeth have a double one, or, which amounts to the ſame, the *air-bladder* of theſe laſt is divided into two cells. Sig. Redi refutes this diſtinction; giving inſtances of fiſh with teeth, whoſe *air-bladder* is double; and of others without teeth, who have only a ſingle *air-bladder*.

The water-ſnake, in lieu of a bladder has a large membranous *air-bag* on its back, which empties and fills with *air* at pleaſure, by an aperture, which it can ſhut very cloſe, from without inwards, by means of a ſort of valve, ſo that the leaſt globule of water cannot enter without its conſent. By this artifice it can enlarge or leſſen the bulk of its body, and inhabit all depths of the water; though a conjecture has been advanced by Mr. Ray, that it is by the help of water which they take in, and let out, by two holes in the lower part of their abdomen, near to the ventricle. They ſink in the water, by letting in ſome of it at theſe holes; the orifices whereof are opened and ſhut at pleaſure, by means of proper muſcles. The water being thus received into the cavity of

their abdomen, ſerves to make them preponderate the water, and deſcend; when they would aſcend again, a compreſſion is made by the muſcles of their abdomen, and the water forced out again, at leaſt ſo much as ſuffices to give the degree of levity wanted. Ray's Wiſd. of God, p. ii. p. 346.

In the Phil. Tranſ. vol. lxiv. part i. p. 205. art. 29. an. 1774, there is an account of certain receptacles of *air* in birds, which communicate with the lungs, and are lodged both among the fleſhy parts, and in the hollow bones of thoſe animals, by John Hunter, F. R. S. who does not minutely deſcribe all the particular communications of this kind in birds; but mentions, however, a number of general facts, ſufficient for the introduction of this ſubject into natural hiſtory, and for opening a more particular enquiry into the final cauſe of this peculiarity in the ſtructure of birds, hitherto unobſerved or uninveſtigated.

AIR-*chamber*, is a name given by Dr. Henſhaw to a room contrived for obtaining the benefit of change of *air*, without going out of the houſe. According to his whimſical propoſal, it is to be twelve feet ſquare, and air-tight, furniſhed with a very large pair of organ bellows, to or from which, *air* is to be conveyed through the wall by a copper pipe, with valves for opening inwardly and outwardly as occaſion ſhall require. With theſe bellows, the *air* in the room is either to be condenſed and made heavier, by forcing *air* in, or lighter and rarer, by conveying *air* out of the room. See his Aero-Chalinos, or Phil. Tranſ. N° 133. See VENTILATOR and *Blowing*-WHEEL.

AIR-*gun*, ſee WIND-*gun*.

AIR-*pump*, a machine, by means whereof the *air* may be exhauſted out of proper veſſels.

The uſe and effect of the *air-pump* is, to make, what we popularly call, a *vacuum*; but this, in reality, is only a degree of rarefaction ſufficient to ſuſpend the ordinary effects of the atmoſphere.

By this machine, therefore, we learn, in ſome meaſure, what our earth would be without an atmoſphere; and how much all vital, generative, nutritive, and alterative power, depend upon it.

The principle on which the *air-pump* is conſtructed, is the elaſticity of the *air*; as that on which the common, or water-pump is founded, is the gravity of the ſame *air*.

The ſtructure of the *air-pump* is, *in itſelf*, more ſimple even than that of the water-pump.—The latter ſuppoſes two principles, gravity and elaſticity likewiſe: ſo that the water-pump muſt firſt be an *air-pump*, i. e. it muſt rarefy the *air* before it can raiſe the water.—In effect, water, being a dormant unelaſtic fluid, needs ſome external agent to make it aſcend; whereas *air* aſcends in virtue of its own elaſtic activity: its natural tendency is, to ſeparate, and leave a *vacuum*; and all that remains for art, is to prevent the ambient *air* from ſupplying the place of that which thus ſpontaneouſly flies away.

To make water aſcend, the force wherewith it is preſſed downwards, is either to be diminiſhed or increaſed in one part more than another; like a balance *in æquilibrio*, one of whoſe ſcales may be made to riſe, either by diminiſhing its own weight, or increaſing that of the other: the water, therefore, recedes from the common centre of gravity, by the very power wherewith it tends towards it, indirectly or ſecondarily applied; becauſe, two ſimilar centripetal forces being made to act contrary to each other, what in the one over-balances the other, muſt have the effect of a centrifugal force.—Whereas, the principle whereby *air* is rarefied or diminiſhed, does not reſpect the centre of the earth, but the centres of its own particles; being no other than a certain implanted power, whereby they immediately tend to recede from each other.

The invention of this noble inſtrument, to which the preſent age is indebted for ſo many fine diſcoveries, is aſcribed to Otto de Guerick, the celebrated conſul of Magdeburg, who exhibited his firſt public experiments with it, before the emperor and the ſtates of Germany, at the breaking up of the imperial diet at Ratiſbon, in the year 1654.

Dr. Hook, and M. du Hamel, indeed, aſcribe the invention of it to Mr. Boyle; but that ingenious author frankly confeſſes de Guerick to have been beforehand with him. In a letter which he wrote to his nephew, lord Dungarvan, at Paris, about two years after Schottus's book was publiſhed, he introduces the acknowledgment of his obligation, for the diſcovery of this uſeful machine, to what he had heard of it, though he had not then peruſed it, by that well-applied paſſage of Pliny, *benignum eſt et plenum ingenii pudoris fateri per quos profeceris*. Some attempts, he aſſures us, he had made upon the ſame foundation, before he knew any thing of what had been done abroad: but the information he afterwards received from Schottus's Mechanica Hydraulico-Pneumatica, publiſhed in 1657, wherein was an account of de Guericke's experiments, firſt enabled him to bring his deſign to any thing of maturity. From hence, with the aſſiſtance of Dr. Hook, after two or three unſucceſsful trials, roſe a new *air-pump*, more eaſy and manageable than the German one; and hence, or rather from the great variety of experiments that illuſtrious author applied it to, the engine came to be denominated *machina Boyliana*, and the *vacuum* produced by it, *vacuum Boylianum*.

AIR-*pump*, *ſtructure and uſe of the*. The *baſis* or eſſential part in the *air-pump*, is a metalline tube, anſwering to the barrel of a common pump, or ſyringe; having a valve at the bottom, opening upwards; and a moveable piſton or *embolus*, anſwering to the ſucker of a pump, furniſhed likewiſe with a valve opening upwards. The whole, duly fitted to a veſſel, as a recipient.

The reſt, being only circumſtances chiefly reſpecting convenience, have been diverſified and improved from time to time, according to the ſeveral views and addreſs of the makers. That of Otto de Guerick, being leſs artful, laboured under ſeveral defects, in reſpect of the force neceſſary to work it, which was very great, and the progreſs very ſlow: beſide that it was to be kept under water; and allowed of no change of ſubjects for experiments. Mr. Boyle, by degrees, removed ſeveral of theſe inconveniences, and alleviated others: but ſtill the working of his pump was laborious, by reaſon of the preſſure of the atmoſphere, a great part of which was to be removed at every exhauſtion, after a *vacuum* was nearly arrived at.—But this inconvenience has ſince been removed by Mr. Haukſbee, who, by adding a ſecond barrel and piſton to the former, to riſe as the other fell, and fall as it roſe, made the preſſure of the atmoſphere on the deſcending one, of as much ſervice as it was of diſſervice in the aſcending one.

Some of the Germans have alſo brought the *air pump* to do the oppoſite office of a condenſer: but this is not to make the inſtrument ſo much the better, as more complex.

The ſtructure of the air-pump, as now made among us, with all its advantages, is repreſented in *Tab. Pneumatics, fig.* 16.

It conſiſts of two brazen barrels or cylinders, repreſented by *a a a a*; which communicate with each other by a canal paſſing between them at *d d*; and with the receiver *e e e e*, by means of the hollow wire *b b*, one end whereof opens into the canal of communication, and the other into a like canal *a a*; which penetrating the plate *i i i i*, opens into the receiver.

Within the cylinders are two emboli, or ſuckers, made of braſs, and fitted with cork and leather to the cavities of the barrels, ſo as exactly to fill the ſame; each being furniſhed with its valve, and terminating at top in a rack *c c*, by which it is worked.

At the bottom of either barrel is another valve, by which the *air* may paſs out of the communicating canal *d d*, and conſequently out of the hollow wire and the receiver itſelf, into the cylinder, below the piſton; from whence by the valves of the piſton it may proceed into the upper ſpace of the cylinder, and thus into the open *air*.

For the application of this machiniſm.—The winch *h h* being turned upward and downward, its ſpindle *f*, catching by its teeth into the racks, will raiſe and depreſs the two piſtons, alternately.

Mr. Vream, a late pneumatic operator, made an improvement in Haukſbee's *air-pump*, by reducing the alternate motion of the hand and winch to a circular one. In his method, the winch is turned quite round, yet the piſtons are raiſed and depreſſed alternately: by which the trouble of ſhifting the hand backward and forward, as well as the loſs of time, and the ſhaking of the pump, are prevented. See the contrivance for this purpoſe deſcribed in Clare's Motion of Fluids, p. 154.

Now the conſequence of depreſſing a piſton is, that the *air* before incloſed between it and the bottom of the cylinder, being thus extended into a leſs compaſs, will, by its elaſtic force, which now exceeds the preſſure of the atmoſphere, puſh up the valve of the piſton, and thus eſcape; till that little which remains be of the ſame denſity with the external *air* incumbent on the valve.

This done, and the ſame piſton being again raiſed in its turn, from the bottom of the cylinder to the top, the little *air* being left, will of neceſſity expand itſelf, ſo as to poſſeſs the whole ſpace of the cylinder thus deſerted by the piſton: upon which, its force or preſſure upon the valve at the bottom of the cylinder being now inconſiderable, the other denſer *air* of the receiver, hollow wire, and canal of communication, by their ſuperior elaſtic force, will lift up the valve, and thus paſs into the cylinder of rarefied *air*, till both be of the ſame degree of denſity.

And thus is the *air* in the receiver diminiſhed at each elevation of the piſton, by the quantity of a cylinder-

full;

full: abating for what little remained between the depreſſed piſton, and the bottom: ſo that, by thus repeating the operation again and again, the *air* in the receiver is at length rarefied to ſuch degree, that its denſity does not exceed the thin *air* remaining in the cylinder when the piſton is raiſed: which done, the effect of the *air-pump* is at an end; the valve cannot now be opened, or, if it could, no *air* would paſs it; there being a juſt equilibrium between the *air* on each ſide.

To judge of the degree of exhauſtion, there is added a gage, *ll*; conſiſting of a tube, whoſe upper orifice communicates with the receiver; the lower being immerged in a baſon of mercury, *m m*. Hence, the *air* in the tube rarefying as faſt as that in the receiver, in proportion as the exhauſtion advances, the mercury will be raiſed by the preſſure of the column of external *air*, prevailing over that of the column of *air* included; till the column of *air*, and mercury together, become a balance to that of the external *air*. When the mercury is thus riſen to the ſame height as it ſtands in the barometer, which is indicated by the ſcale of inches added to the gage, the inſtrument is a juſt Torricellian tube; and the vacuum may be concluded to be as perfect as that in the upper end of the barometer.

To let *air* again into the exhauſted receiver, the cock *n* is to be turned, which makes a communication with the external *air*; upon which the *air* ruſhing impetuouſly in, the mercury in the gage immediately ſubſides into the baſon.

To the *air-pump* belongs a large apparatus of other veſſels, accommodated to the divers kinds of experiments.

There are ſeveral inconveniences attending *air-pumps*, of the common form, though much improved from what they uſed to be formerly. Theſe inconveniences are enumerated, and a method ſhewn to remedy them, by Mr. Smeaton.

The principal improvements ſuggeſted by Mr. Smeaton reſpect the diſpoſition of the valves, of the piſton, and of the gage. Inſtead of one hole for the valves, he makes uſe of ſeven, all of an hexagonal ſhape, and of equal ſize; one being in the centre, and the other ſix round it; ſo that the valve is ſupported at proper diſtances by a kind of grating, made by the ſolid parts between theſe holes. In order to remedy the inconvenience attending the piſton's not exactly fitting the barrel, the top of the barrel is ſhut up by a plate, having in the middle a collar of leather, through which the cylindrical rod works, that carries the piſton. His gage conſiſts of a bulb of glaſs, in ſhape reſembling a pear, and ſufficient to hold about half a pound of quickſilver. It is open at one end, and the other is a tube hermetically ſealed at top. A ſcale divided into parts of about one tenth part of an inch, and anſwering to a 1000th part of the whole capacity, is annexed to it. The gage, during the exhauſtion of the receiver, is ſuſpended therein by a ſlip-wire. When the pump is worked as much as is thought neceſſary, the gage is puſhed down, till the open end is immerged in a ciſtern of quickſilver placed underneath. The *air* being then let in, the quickſilver will be driven into the gage, till the *air* remaining in it becomes of the ſame denſity with the external; and as the *air* always takes the higheſt place, the tube being uppermoſt, the expanſion will be determined by the number of diviſions occupied by the *air* at the top. See Phil. Tranſ. vol. xlvii.

Mr. Smeaton's *air-pump* has only one barrel.

This ingenious artiſt has ſucceeded ſo well in his conſtruction of the *air-pump*, as to be able to rarefy *air* a thouſand times; whereas the beſt of the common *air-pumps*, eſteemed good in their kind, and in complete order, never rarefied it above one hundred and forty times. Mr. Smeaton's *air-pump* is worked with much more eaſe than any other, and acts alſo as a condenſing engine, by the very ſimple *apparatus* of turning a cock. So that this *air-pump* is an univerſal engine, for ſhewing any effect ariſing from an alteration in the denſity or ſpring of the air; and with a little addition may be made to ſhew the experiments of the *air*-FOUNTAIN. See GAGE, WIND-*gun*, &c. Phil. Tranſ. vol. xlvii. p. 422.

AIR-*pump*, *portable*, differs principally in ſize, and in the ſtructure of the gage, from that above deſcribed. The gage conſiſts of a glaſs tube, bent in the form of a ſyphon, hermetically ſealed at one end, and open at the other. The longeſt leg is four inches, each of which is divided on an adjoined ſcale into twenty equal parts. After conſiderable exhauſtion, the gage begins to act: and whilſt the quickſilver falls in one leg, it riſes in the other; and the quantity of *air* remaining will be determined by the difference of the height at which it ſtands in both tubes. This gage is placed under a ſmall receiver on a plate, communicating by a pipe with the main pipe, that leads from the receiver, to be exhauſted to the bottom of the barrels.

AIR-PUMP, *laws of rarefaction in the receiver of it.*—1. For the proportion of *air* remaining at any time in the receiver, we have the following general theorem.—'In a 'veſſel exhauſted by the *air-pump*, the primitive or na'tural *air* contained therein, is to the *air* remaining, as 'the aggregate of the capacity of the veſſel and of the 'pump (i. e. the cylinder left vacant in an elevation of 'the piſton, with the wire and other parts between the 'cylinder and the receiver) raiſed to a power whoſe ex'ponent is equal to the number of ſtrokes of the piſton, to 'the capacity of the veſſel alone raiſed to the ſame power.' M. Varignon gives an algebraical demonſtration of this theorem, in the Memoires de l'Acad. Roy. an. 1693, p. 233, ſeq. Id. an. 1705, p. 307, ſeq. but it may be alſo demonſtrated pneumatically, thus:—Calling the *air* remaining after the firſt ſtroke, the *firſt reſidual*; that after the ſecond, the *ſecond reſidual*, &c. and remembering that the *air* in the receiver is of the ſame denſity as that in the cylinder, when the piſton is raiſed; it is evident, that the quantity of *air* in the receiver, is to the quantity of *air* in the cylinder, wire, &c. as the capacity of the receiver to that of the cylinder, and conſequently, the aggregate of the *air* in the receiver and the cylinder, i. e. the whole primitive *air*, is to the *air* in the veſſel alone, i. e. to the firſt reſidual *air*, as the aggregate of the capacity of the receiver and the cylinder, to the capacity of the receiver alone. After the ſame manner it may be proved, that the quantity of the firſt reſidual *air*, is to the ſecond reſidual, as the aggregate of the capacity of the receiver and cylinder to the capacity of the veſſel alone. And the ſame proportion does the ſecond reſidual bear to the third, and ſo of the reſt. Hence, the product of the primitive *air* into the firſt, ſecond, third, fourth, &c. reſiduals, is to the product of the firſt reſidual into the ſecond, third, fourth, fifth, &c. as the product of the capacity of the receiver and cylinder together, multiplied as often into itſelf as the number of ſtrokes of the piſton contains units, is to the factum ariſing from the capacity of the receiver alone, multiplied as often by itſelf; that is, as the power of the aggregate of the capacity of the receiver and cylinder together, whoſe exponent is the number of ſtrokes of the piſton, to the capacity of the veſſel alone, raiſed to the ſame power. Conſequently, the primitive *air* is to the laſt reſidual, in the ratio of thoſe powers.

2. The number of ſtrokes of the piſton, together with the capacity of the receiver and cylinder with the wire, &c. being given; to find the ratio of the primitive *air* to the *air* remaining:

Subtract the logarithm of the capacity of the receiver, from that of the ſum of the capacity of the receiver and the cylinder; then, the remainder being multiplied by the number of ſtrokes of the piſton, the product will be a logarithm, whoſe natural number ſhews how oft the primitive *air* contains the remainder required.

Thus, if the capacity of the receiver be 460, that of the cylinder 580, and the number of ſtrokes of the piſton 6; the primitive *air* will be found to the remaining *air*, as 146.4 to 1.

For, ſuppoſe the capacity of the veſſel $= v$, that of the cylinder and veſſel together $= a$, the number of ſtrokes of the piſton $= n$, and the remaining *air* $= 1$. Since the primitive is to the remaining *air* as a^n to v^n, the primitive *air* will alſo be to the remaining *air*, as $a^n \div v^n$ to 1. Conſequently, if the remaining *air* be 1, the logarithm of the primitive *air* is $a - v \times n$.

3. The capacity of the receiver and the barrel being given; to find the number of ſtrokes of the piſton required to rarefy the *air* to a given degree.

Subtract the logarithm of the remaining *air* from the logarithm of the primitive *air*; and the logarithm of the capacity of the receiver, from that of the aggregate of the capacity of the receiver and cylinder; then, dividing the former difference by the latter, the quotient is the number of ſtrokes required.

Thus, if the capacity of the cylinder be ſuppoſed 580, that of the receiver 460, and the primitive *air* to the remaining *air*, as 146.4 to 10: the number of ſtrokes required will be found to be 6. See Wolf. Elem. Math. tom. ii. p. 289, &c. Cotes's Hyd. and Pneum. Lectures, Lect. 13. Beſides the effects, and the *phænomena* of the *air-pump*, recounted under the articles VACUUM, AIR, &c. we may add ſome others; which, related at large, make the ſubſtance of Mr. Boyle's Phyſico-Mech. Exper.—As, that the flame of a candle in *vacuo* uſually goes out in a minute, though it ſometimes laſts two, but the wick thereof continues ignited after; and even emits a ſmoke, which aſcends upwards.—That a kindled charcoal is totally extinguiſhed in about five minutes, though in open *air* it remain alive half an hour; that it goes out by degrees, beginning from the top and the outſides.—That red-hot iron is not affected by the abſence of the *air*; and yet that ſulphur or gunpowder will not be lighted

thereby;

thereby, but only fuſed.—That a match, after lying ſeemingly extinct *in vacuo* a long time, revives again upon the re-admiſſion of the *air*.—That a flint and ſteel ſtrike ſparks of fire as copiouſly *in vacuo* as out of it; and that the ſparks move in all directions, upwards, downwards, &c. here as in the *air*.—That magnets and magnetic needles, are the ſame *in vacuo* as in *air*.—That ſmoke in an exhauſted receiver, the luminary being extinct, gradually ſettles to the bottom in a darkiſh body, leaving the upper part clear and tranſparent; and that inclining the veſſel ſometimes on one ſide, and ſometimes another, the fume keeps its ſurface horizontal, after the nature of the other fluids.—That the ſiphon does not run *in vacuo*.—That water freezes *in vacuo*.—That heat may be produced by attrition in the exhauſted receiver.—That camphor will not take fire *in vacuo*; and that gun-powder, though ſome grains of a heap be kindled by a burning-glaſs *in vacuo*, will not give fire to the contiguous grains.—That glow-worms loſe their light in proportion as the *air* is exhauſted, and at length become totally obſcure: but upon the re-admiſſion of *air*, preſently recover it all.—That vipers and frogs ſwell much *in vacuo*, but will live an hour and half, or two hours; and though ſeemingly quite dead in that time, came to life again in ſome hours in the *air*.—That ſnails ſurvive ten hours; and eels, or glow-worms, two or three days; leeches five or ſix.—That oyſters will remain alive *in vacuo* twenty-four hours without harm.—That the heart of an eel taken out of the body, continues to beat *in vacuo*, more nimbly than in *air*; and this for a good part of an hour.—That warm blood, milk, gall, &c. undergo a conſiderable intumeſcence and ebullition *in vacuo*.—That a mouſe, or other animal, may be brought, by degrees, to ſurvive longer in a rarefied *air*, than naturally it does.—That *air* may retain its uſual preſſure, after it is become unfit for reſpiration.—And that ſilk worms eggs will hatch *in vacuo*.

AIR-SHAFTS, among *Miners*, denote holes or ſhafts let down from the open *air* to meet the adits, and furniſh freſh *air*. The damps, want, and impurity of *air*, which occur, when adits are wrought 30 or 40 fathoms long, make it neceſſary to let down *air-ſhafts*, in order to give the *air* liberty to play through the whole work, and thus diſcharge bad vapours, and furniſh good *air* for reſpiration: the expence of which *ſhafts*, in regard of their vaſt depths, hardneſs of the rock, drawing of water, &c. ſometimes equals, nay exceeds, the ordinary charge of the whole ADIT.

Sir Robert Murray deſcribes a method, uſed in the coal-mines at Liege, of working mines without *air-ſhafts*. Phil. Tranſ. N° 5.

When the miners at Mendip have ſunk a groove, they will not be at the charge of an *air-ſhaft*, till they come at ore; and for the ſupply of *air* have boxes of elm exactly cloſed, of about ſix inches in the clear, by which they carry it down about twenty fathoms. They cut a trench at a little diſtance from the top of the groove, covering it with turf and roda diſpoſed to receive the pipe, which they contrive to come in ſide-ways to their groove. four feet from the top; which carries down the *air* to a great depth. When they come at ore, and need an *air-ſhaft*, they ſink it four or five fathoms diſtant, according to the convenience of the breadth, and of the ſame faſhion with the groove, to draw as well ore as *air*. Phil. Tranſ. N° 39.

AIR-THREADS *of ſpiders*. See THREADS.

AIR-VESSEL, in *Hydraulics*, is a name given to thoſe metalline cylinders, which are placed between the two forcing-pumps in the improved fire-engines. The water is injected by the action of the piſtons through two pipes, with valves, into this veſſel; the *air* previouſly contained in it will be compreſſed by the water, in proportion to the quantity admitted, and by its ſpring force the water into a pipe, which will diſcharge a conſtant and equal ſtream; whereas in the common ſquirting engine, the ſtream is diſcontinued between the ſeveral ſtrokes.

AIR-*veſſels*, in PLANTS, are certain canals, or ducts, where by a kind of RESPIRATION is effected in vegetable bodies.

Air-veſſels ſtand diſtinguiſhed from SAP-*veſſels*; the former anſwering to the *trachea*, and lungs of animals; the latter to their lacteals, and blood-veſſels.

Dr. Grew, in an enquiry into the motion and cauſe of the *air* in vegetables, ſhews, that it enters them various ways, not only by the trunk, leaves, and other parts above ground, but at the root. For the reception, as well as expulſion of *air*, the pores are ſo very large in the trunks of ſome plants, as in the better ſort of thick walking canes, that they are viſible to a good eye without a glaſs; but with a glaſs, the cane ſeems as if it were ſtuck full of large pin-holes reſembling the pores of the ſkin in the ends of the fingers, and ball of the hand. In the leaves of the pine, through a glaſs they make an elegant ſhow, ſtanding almoſt exactly in rank and file throughout the length of the leaves.

But though the *air* enters in part at the trunk and other parts, eſpecially in ſome plants, yet its chief admiſſion is at the root: much as in animals, ſome part of the *air* may continually paſs into the body and blood by the pores of the ſkin; but the chief draught is at the mouth. If the chief entrance of the *air* were at the trunk, before it could be mixed with the ſap in the root, it muſt deſcend; and ſo move not only contrary to its own nature, but in a contrary courſe to the ſap: whereas by its reception at the root, and its tranſition from thence, it has a more natural and eaſy motion of aſcent. See CIRCULATION *of ſap*.

The ſame is farther argued, from the fineneſs and ſmallneſs of the diametral apertures in the trunk, in compariſon of thoſe in the root; which nature has plainly deſigned for the ſeparation of the *air* from the ſap, after they are both together received thereinto. Grew, Anat. of Root, chap. iii. p. 127.

Air-veſſels are found in the leaves of all plants, and are even diſcoverable in many without the help of glaſſes; for upon breaking the ſtalk or chief fibres of a leaf, the likeneſs of a fine woolly ſubſtance, or rather of curious ſmall cob-webs, may be ſeen to hang at both the broken ends. This is taken notice of only in ſome few plants, as in *ſcabious*, where it is more viſible: but may alſo be ſeen more or leſs in moſt others, if the leaves be very tenderly broken. This wool is really a ſkein of *air-veſſels*, or rather of the fibres of the *air-veſſels*, looſed from their ſpiral poſition, and ſo drawn out in length. Id. ibid. chap. iv. p. 155.

That *air* is inſpired by vegetables, has been fully proved by Dr. Hales, in his Statical Eſſays; and he has in many inſtances ſhewn, that *air* freely enters the veſſels of trees, and that it is in great abundance wrought into their ſubſtance. But as to particular *air-veſſels* in plants, he ſeems to ſpeak doubtfully. He ſays, by way of queſtion, may not the uſe of thoſe ſpiral wreaths, that are coiled round the inſides of thoſe veſſels, which are ſuppoſed to be *air-veſſels*, and which are manifeſtly to be ſeen in ſeveral trees: as alſo in the leaves of the vine and ſcabious, may not theſe be deſigned by nature to promote the quicker aſcent of *air*, by being in ſome meaſure conformed to its elaſtic contortions? For ſuch ſpiral wreaths ſeem to be altogether uſeleſs, for promoting the aſcent of any liquor, as the ſap, which aſcends moſt freely through innumerable other capillary veſſels, having no ſuch ſpiral coils in them: not that we are to ſuppoſe the *air* in its elaſtic ſtate actually to touch, and thereby to be determined in the courſe of theſe ſpirals, as any liquor would be. But as the *rays* of light, when they are reflected from a ſolid body, are found to be reflected, without actually touching the reflecting body in the point of reflection; ſo it is not unreaſonable to ſuppoſe, that elaſtic *air* may, like light, be diverted from one courſe, and ſo be determined to another, by the ſolid bodies it approaches, without touching them, but rebounding like light from thoſe ſolid bodies near the point of contact.

Dr. Hales has obſerved, that theſe ſpirals are coiled in a courſe oppoſite to the courſe of the ſun, that is, from weſt to eaſt. Vide Static. Eſſ. vol. ii. p. 265, 266.

AIRA, in *Botany*, *hair-graſs*, a genus of the *triandria digynia* claſs. See DARNEL.

AIRANI, in *Church-Hiſtory*, a ſect of Arians, in the fourth century, who denied the conſubſtantiality of the Holy Ghoſt with the Father and the Son.

They are otherwiſe called *Aerianſtæ*, and are ſaid to have taken their name from one *Airan*, who diſtinguiſhed himſelf at the head of this party, in the reigns of Valentinian and Gratian.

AIRING, in the general ſenſe of taking, or going into the freſh air, is too well known to need any explanation.

The word is particularly uſed for exerciſing horſes in the open air; which is of the greateſt advantage to theſe animals. It purifies the blood, purges the body from groſs humours, and enures the creature to fatigue, ſo as not to be hurt by it, when much greater than on theſe occaſions; and it teaches him, as the jockies expreſs it, how to make his wind rake equally, and keep time with the other motions of his body. It alſo ſharpens the ſtomach, and keeps the creature hungry; which is a thing of great conſequence, as hunters and racers are very apt to have their ſtomach fall off, either for want of exerciſe, or from the too violent exerciſe which they are often expoſed to.

If the horſe be over-fat, it is beſt to air him before ſun-riſe, and after ſun-ſetting; and, in general, it is allowed by all, that nothing is more beneficial to theſe creatures, than early and late *airings*.

Some of our modern managers, however diſpute this; they

they say, that the cold of these times is too great for the creature, and that if, in particular, he is subject to catarrhs, rheums, or the like complaints, the dews and cold fogs, in these early and late *airings*, will be apt to increase all those disorders. Nature, we see, also points out the sun-beams as of great use to these animals; those which are kept hardy, and lie out all night, always running to those places where the sun-shine comes, as soon as it appears in a morning.

This should seem to discommend those *airings* that are to be made before sun-set, and a little time after sun rise; and as to the caution, so earnestly inculcated by Markham, of using these early and late *airings* for fat bodies, it is found unnecessary by many; for they say, that the same effect may be produced by *airings* at warmer times, provided only that they are made longer: and that, in general, it is from long *airings* that we are to expect to bring a horse to a perfect wind, and sound courage.

AIRS, in *Horsemanship*, denote the artificial or practised motions of a managed horse.

Such are the *demi-volt*, *curvet*, *capriole*, *croupade*, *balotade*, *stop*, and *leap*; also, *advancing*, *yerking*, and *bounding*.

Some authors take *airs* in a more extensive sense; and divide them into *low* and *high*.

The *low airs* include the natural paces, as *walking*, *trotting*, *galloping*, and *terra-a-terra*. To which may be added *prancing*, *foling*, *stopping*, and *turning*.

The *high*, or *raised airs*, are all such motions as rise higher than the *terra-a-terra*; as the *demivolt*, *curvet*, &c.

AIRY *triplicity*, among *Astrologers*, the signs of Gemini, Libra, and Aquarius. See TRIPLICITY.

AISAMENTA, in *Law*. See EASEMENT.

AJUBAIPITA *Brasiliensium*, in *Botany*, a name given to a shrub that bears a black fruit like an almond, which yields a great deal of oil.

AJUGA, in *Botany*, the name of a genus of plants, of the *didynamia gymnospermia* class, according to Linnæus, which are called by Tournefort, and other authors, BUGULA.

AJURU-CATINGA, in *Ornithology*, the name of a Brasilian parrot. It is of the size of a pullet, and all over of a very fine bright green; its eyes are red, and the skinny circle about them is white; its beak and legs are also white. Marcgrave.

AJURU-CURAU, in *Ornithology*, the name of a Brasilian species of parrot, of the size and shape of the common green parrot, of which there are two kinds. The first an extremely beautiful one with a blue crown; the throat and sides of the head are of a fine yellow, and all the rest of the body of a chearful green: the long-winged feathers are half black, and half of a fine strong yellow, and at their ends variegated with blue and green; and the tail edged with red, black, and blue. The other kind has the same colours differently disposed; its head is yellow, with a whitish cast; the throat and sides of the head about the eyes are of a clearer yellow; and there is a sea green spot near the head.

Besides these, there is also yet another variety, the species of which have all the colours of the first kind, but have an admixture of black about the head, a yellow spot on the crown, another of the same colour below the eyes, and a blue one under the throat. Ray.

AJURU-PARA, in *Ornithology*, the name of a Brasilian species of parrot of a small size, all over of a beautiful green, and with white legs, a white beak, and white skinny circles round its eyes. Marcgrave.

AJUTAGE, or AJUTAGE, in *Hydraulics*, part of the apparatus of an artificial fountain, or *jet d'eau*; being a sort of tube, fitted to the mouth, or aperture of the vessel; through which the water is to be played, and by it determined into this, or that figure.

The word is formed of the verb *ajouter*, *to adapt*.

It is chiefly the diversity in the *ajutages*, that makes the different kinds of fountains. And hence by having several *ajutages* to be applied occasionally, one fountain comes to have the effect of many.

Mariotte enquires into the best kind of *ajutages*, or spouts for *jets d'eau*, affirming from experiment, that an even polished round hole, in the end of the pipe, gives a higher jet than either a cylindric, or a conical *ajutage*; of which yet the latter is the better. Vide Trait. du Mouvem. des Eaux, part 4. Phil. Trans. N° 181.

The various sorts of *ajutages*, their structure, application, &c. see under FOUNTAIN.

AIX LA-CHAPELLE *waters*, are volatile, sulphureous, aluminous, powerfully penetrating, resolvent, and containing a portion of iron. The three most noted hot waters in Europe, are those of Aix-la-Chapelle, Bourbon, and Bath. Of these the first are the lowest, the most nauseous, purgative, and abundant in sulphur; the last is least so.

AIZOON, in *Botany*, a name given by some authors to HOUSELEEK. It is a distinct genus of the *icosandria pentagynia* class, in the Linnæan system; the calyx of which is divided into five segments, without petals, and the capsule has five cells, with five valves. There are three species.

AKOND, an officer of justice in Persia, who takes cognizance of the causes of orphans and widows; of contracts, and other civil concerns.—He is the head of the school of *law*, and gives lectures to all the subaltern officers; he has his deputies in all the courts of the kingdom, who, with the second *sadrus*, make all contracts.

AL, an Arabic particle, prefixed to words, to exalt, or give them a more emphatical signification,—As, in *Alcoran*, *Algebra*, &c.

ALA, or ALD, in our *Ancient Writings*, signifies as much as *old*, *ancient*.—This being prefixed to the names of places, expresses their antiquity; as Aldborough, Aldgate, &c.

ALA, a Latin term, literally signifying *wing*, used, in *Anatomy*, for several parts of the body, which bear some resemblance to the figure of a wing.

Thus, the lobes of the liver are sometimes called *alæ*.

The loft, spongious bodies in the *pudendum muliebre*, usually called the *nymphæ*, are denominated *alæ*.

The two cartilages of the nose, which form the nostrils, are called *alæ*.

And the same denomination is given to the tip of the AURICLE. It is also applied to the processes of the *os sphenoides*.

ALA, in *Botany*, a name given by the Latin writers of *medicine*, in the later ages, to the *balsamum*, or ELECAMPANE.

ALA is also used in *Botany*, for the angle which the leaves, or the stalks or pedicles of the LEAVES, form with the stem, or branches of the plant from which they arise. This angle is usually acute, and always is directed upwards.

ALÆ is sometimes also applied to the angle formed by the branches themselves, with the stem; which is also observed to be very regular and uniform.

ALA has several other different significations. It most frequently is used to express the hollow of the stalk of a PLANT, which, either the leaf, or the PEDICLE of the LEAF, makes with it, or it whether turning, or *axis*, placed between the stalk, or branch of a plant, and its leaf, from whence a new offspring is wont to put forth. Sometimes it is taken also for a little branch, as when we say, a flock, or stem of a plant, is armed with many *alæ*, because these small branches stand out from it, in form of so many wings.

ALÆ is also used to signify those petals, or leaves of the papilionaceous flowers, placed between those others which are called the *vexillum* and the *carina*, which make the top and bottom of the flower. Instances of flowers of this structure are seen in the flowers of pea and beans, in which the top-leaf, or petal, is the *vexillum*, the bottom the *carina*, and the side ones the *alæ*.

ALÆ is also used for those extremely slender and membranaceous parts of some seeds, which appear as wings placed on them, as in the *plumeria*, the fruit of the trumpet-flower, the fruit of the maple, and the like, which are called by botanists *alated* seeds.

ALÆ is, finally, used also for those membranaceous expansions, which run all the way along the stems of some plants, and are therefore called *alated* stalks.

ALÆ, in *Anatomy*, is sometimes applied to the arm-pits, otherwise called *axillæ*. These parts abound with glands, and are great receptacles of humours; whence a rank smell sometimes exhales, called *fœtor alarum*.

ALÆ, in the *Military Art*, the two wings or extremes of an army, ranged in form of battle.

ALABARCHA, in *Antiquity*, a kind of magistrate among the Jews of Alexandria, whom the emperors allowed them to elect, to have the superintendency of their policy and decide differences and disputes, which arose among them.

ALABARDA, the name of a spear anciently used by the Helvetians and Germans.

ALABASTER, in *Natural History*, a kind of stone, softer than marble, yet harder than plaister of Paris: used for the making of figures, and other ornaments of sculpture. Some derive the word from *albus*, because of the whiteness of this stone.—Others, from ἀλαβαστρον, which they form from the privative α. and λαμβανω. *capio*, *to take*; this stone being too smooth and slippery for the hand to fasten hold of it.

It is found of all colours; some extremely white and shining, which is the most common; some reddish or tawny; and some is called *onyx* from its colour, which resembles that of the *onyx*, though very different from it in its nature.

Alabaster cuts very smooth and easy, and is much used among sculptors, for little statues, vases, and columns.

They sometimes also employ it as plaister of Paris: in order to which, they burn and calcine it; after which

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mixing it up with water to a thin consistence, it is cast into a mould, where it readily coagulates into a firm body.

Alabaster, Mr. Boyle obſerves, being finely powdered, and thus let in a baſon over the fire, will, when hot, aſſume the appearance of a FLUID, by rolling in waves, yielding to the ſmalleſt touch, and emitting vapour; all which properties it loſes again, on the departure of the heat, and diſcovers itſelf a mere incoherent powder.

The fineneſs and clearneſs of this ſtone render it, in ſome meaſure, tranſparent; whence it has been ſometimes alſo employed for windows. There is a church at Florence ſtill illuminated by *alabaſter*-windows, inſtead of panes of glaſs, there are ſlabs of *alabaſter* near fifteen feet high, each of which forms a ſingle window, through which the light is conveyed.

Naturaliſts alſo mention divers extraordinary kinds of *alabaſter*, *fiſh*, *ſolid*, *variegated*, *Indian*, *Carmanian*, *German*, &c. Grew ſpeaks of a *baſtard* ALABASTER, ſpotted, which he calls GYPSUM *variegatum*, wherein there are divers ſorts and colours in the repoſitory of the Royal Society. Theſe all make a ſtrong effervescence with ſpirit of nitre. They are found in Bohemia, Miſnia, &c. Of theſe lightly burnt, is made what is popularly called PLASTER of Paris.

Ancient authors ſpeak much of the medicinal virtues of *alabaſter*, as aſtringent. Some recommend it as a ſpecific in a dyſentery. But modern phyſicians ſcarce allow it in either of theſe characters. Yet ſome diſpenſatories ſtill retain a preparation of it under the title of *unguentum alabaſtrinum*, preſcribed for the head-ach.

The countries of Europe, which abound moſt in *alabaſter*, are Germany, toward Coblentz; the province of Maconnois, in the neighbourhood of Cluni in France; Italy, toward Rome; where that of Montalsino is particularly remarkable not only for its whiteneſs, but alſo for the bigneſs of its blocks, ſome of which are ſo large, that ſtatues as big as the life may eaſily be cut out of them. F. Labat, in his journey to Italy, obſerves, that there are quarries of *alabaſter*, in the neighbourhood of the village called de la Tolfa, near Civita Vecchia; there is alſo *alabaſter* to be found in ſome places of Lorrain; but it is not much eſteemed.

Cornelius le Brun, in his Voyage to the Levant (tom. v. p. 284) refutes, that he has ſeen mountains of *alabaſter*, which are diſtant about a hundred and fifty leagues weſt from Archangel.

A new manufacture of *baſſo relievo*, from a ſingular ſpecies of factitious *alabaſter*, has been lately eſtabliſhed by Mr. Letapie, at the baths of St. Philip, in Tuſcany. The ſtream at theſe baths depoſits a peculiar kind of ſand, which when collected and condenſed in the cavities of any body employed to oppoſe its current, acquires the nature, hardneſs and colour of *alabaſter*, and aſſumes the forms of thoſe cavities in which it is thus lodged. See Abbé Rozier's Obſervations, &c. for June, 1776.

ALABASTER is alſo uſed for a vaſe, wherein odoriferous liquors were anciently put.

The reaſon of the denomination is, that veſſels for this purpoſe were frequently made of the *alabaſter*-ſtone, which Pliny and other ancients repreſent as peculiarly proper for this purpoſe.

Several critics will have the box mentioned in the Goſpels as made of *alabaſter*, to have been of glaſs. And though the text ſay, that the woman broke it, yet the pieces ſeem miraculouſly to have been united, ſince we are told, the cuſtom-box was purchaſed by the emperor Conſtantine, and preſerved as a relic of great price.

Others will have it, that the name *alabaſter* denotes the form rather than the matter of this box. In this view, they define *alabaſter*, by a box without a handle, deriving the word from the privative *a*, and λαβη, *anſa*, *handle*.

ALABASTER is alſo ſaid to have been uſed for an ancient liquid meaſure, containing ten ounces of wine, or nine of oil.

In this ſenſe, the *alabaſter* was equal to half the *ſextary*.

ALABASTRA, in a *plant*, are thoſe little herbaceous leaves which encompaſs the bottoms of flowers, particularly the roſe. See CALYX, &c.

Some, with ſingulus, explain *alabaſtra*, by the globe or roundiſh bud of the roſe juſt peeping out.

ALABASTRITES, *alabaſtrites*, in *Natural Hiſtory*, the name of a genus of foſſils allied to the marbles, and defined to be ſtones compoſed of large ſeparate concretions, of great brightneſs, and an elegant, but ſhattery ſtructure, not very hard, not giving fire with ſteel, fermenting with acid ſolutible in ſcids, and calcining in a ſlight fire.

ALABASTRITES is often uſed as ſynonymous with *alabaſter*. But Anſelmus Boetius diſtinguiſhes between *alabaſter* and *alabaſtrites*, in making the criterion of the former to be its ſoftneſs, that it may be cut with a knife; and of the latter, that it is ſo hard that it cannot be ſo cut.

Grew ſpeaks of a ſort of *alabaſtrites*, repreſenting the tranſverſe ſection of the trunk of a tree.

ALABASTRUM *dendroides*, in *Natural Hiſtory*, a name given by authors to a ſpecies of alabaſter, found in great abundance in the province of Hohenſtein, and famous for the elegant delineations of trees, and other figures deſcribed in it. See GYPSUM.

ALACUOTH, among Arabian *Phyſicians*, an infirmity of the nerves, whereby a perſon in the act of venery, lets go at the ſame time his *ſeed*, &c.

ALADINISTS, a ſect among the Arabs, anſwering to free-thinkers among us.

The *Aladiniſts* multiplied greatly under the two learned kings Almanſor and Miramolinus.

ALAISE, in *Heraldry*, the ſame with *bumetty* or RACCOURCY.

ALALCOMENIUS, in *Ancient Chronology*, the Boeotian name for the Athenian month MAIMACTERION, which was the fourth of their year, and anſwered to the latter part of our September and beginning of October.

ALAMANNICUM, in *Antiquity*, a tribute impoſed on the people by the emperor Alexius Angelus, for raiſing the ſum of fifteen talents of gold, to be paid the *Alamanni*, as the conditions of a peace ſtipulated with them.

The eccleſiaſtics themſelves were not exempted from this tax.

ALAMIRE, or *A-LA-MI-RE*, among *Muſicians*, a note of the modern SCALE of muſic. See NOTE.

ALAMODALITY, *alamodalitas*, is defined by a late writer, a ſtudy or endeavour to accommodate a man's ſelf in point of behaviour, dreſs, converſation, and other actions of life, to the reigning taſte or cuſtom, from a motive of complaiſance, and to avoid the imputation of ill-breeding.

ALAMODALITY *of writing*, *alamodalitas ſcribendi*, is defined, by the ſame perſon, a particular ſtudy or endeavour of learned men to adapt the productions of their minds, both as to the choice of ſubject and the manner of treating it, to the genius or taſte of the times, in order to render them more acceptable to the readers.

A German writer, under the name of Geamonius, has a diſſertation on *alamodality in writing*.

ALAMODE, in *Commerce*, a thin, light, gloſſy black ſilk, not quilted or croſſed; chiefly uſed for womens hoods, and mens mourning ſcarves.

The name is French, though not given in the country to this fabric, for which they have no other name but *taffetas noir lustre*.

The importation of theſe ſilks is regulated by ſeveral acts of parliament. See 4 and 5 W. and M. cap. 5.—5 and 6 W. and M. cap. 20.—6 and 7 W. III. cap. 18.—8 and 9 W. III. cap. 36.—9 and 10 W. III. cap. 43.—5 Anne, cap. 10. 20.

ALANA-GIBBA, a name given to the yellowiſh-white TRIPOLI.

ALANA-TERRA, Engliſh *ether*; it is eſteemed drying and aſtringent; its principal uſe is to mix with ſalts in diſtillation, in order to keep them from melting. It is thought that this ſtone is what the ancients called the SAMIAN *ſtone*.

ALANFUTA, in the Arabian *Phyſic*, the name given to a vein between the chin and under lip, anciently uſed to be opened againſt a ſtinking breath.

ALANORARIUS, in our *Ancient Cuſtoms*, a keeper or manager of ſpaniels, or ſetting-dogs, for the ſport of hunting, hawking, &c.

The word is formed from the *Gothic*, *alan*, *a greyhound*.

ALAPOULI, in *Natural Hiſtory*, the name of an Eaſt Indian tree, a ſpecies of the *bicumba*, which is uſed in medicine as a purge and vomit, mixt with the ſeeds of muſtard.

ALAQUECA, a medicinal ſtone brought from the Indies, in ſmall gloſſy fragments; much prized by ſome for its efficacy in hæmorrhages, when applied externally.

ALARAF, in the Mahometan *Theology*, the partition wall that ſeparates heaven from hell.

Alaraf gives the denomination to the ſeventh chapter of the Alcoran, wherein mention is made of this wall. Some take it for a ſort of *limbus* for the patriarchs, prophets, &c. Others place here ſuch whoſe good and evil works do exactly balance each other, that they neither deſerve reward nor puniſhment.

ALARES, in *Antiquity*, are ſuppoſed by ſome authors to have been a kind of *militia*, or ſoldiery, among the Romans; ſo called from *ala*, a *wing*, becauſe of their lightneſs and ſwiftneſs in the combat.

Others make them a people of Pannonia; but others, with more probability, take *alares* for an adjective, *i. e.* equeſtri, and apply it to the Roman cavalry; becauſe placed in the two wings, or *alæ* of the army, for which reaſon, a body of horſe was called *ala*.

ALARES *muſculi*, in *Anatomy*. See PTERYGOIDAEI.

ALARIS *vena*, the inmoſt of the three veins in the bend of the arm.

ALARM, properly denotes a ſudden apprehenſion, conceived from ſome noiſe, or report, which makes men run to their arms, and ſtand on their guard.
The word is French, formed from the Italian *all' arme, to arms*; whence *gridare all' arme*, q. d. *to call to arms*.
Alarms are either true, that is, founded on juſt notice, or falſe.

ALARMS, *falſe*, are frequently given by an enemy, either to fatigue the other's army, or by way of diverſion; to keep themſelves ſafe and quiet from attacks. To remedy the inconveniences of formal *alarms*, and prevent the horror and confuſion of trumpets, and noiſe of warlike cries, the captains uſually give the *alarm*, by ſilent advice, without noiſe.

ALARM-*poſt*, is the ground appointed to each regiment, by the quarter-maſter-general, for them to march to, in caſe of an *alarm*.
In a garriſon, the *alarm-poſt* is the place where every regiment is ordered to draw up, on ordinary occaſions.

ALARM, in *Fencing*, denotes a ſtep, or ſtamp, made on the ground with the advancing foot.
This anſwers with what is otherwiſe called an appel, or challenge.

ALARM, or rather ALARUM, is alſo uſed for an inſtrument to awaken perſons at a certain hour: one very ſimple contrivance of this kind, is that uſed by weavers. See WEAVERS-*alarm*.

ALARM-*bell*, that which is rung to call the people together on ſome ſuch occaſion as a fire, mutiny, or the appearance of an enemy. This is what the French call *tocſin*.

ALASCANI, in *Church Hiſtory*, a ſect of Antilutherans, whoſe diſtinguiſhing tenet, beſides their denying baptiſm, is ſaid to have been this, that the words, *This is my body*, in the inſtitution of the euchariſt, are not to be underſtood of the bread, but of the whole action, or celebration of the ſupper.
They are ſaid to have taken the name from one Joannes a Laſco, a Poliſh baron, ſuperintendant of the church of that country, in England.

ALASTROR, among *Alchemiſts*, denotes lead; though ſome will have it to ſignify CALX.

ALATED *quadrupeds*. See QUADRUPED.

ALATED *leaves*, among *Botaniſts*, thoſe made up of ſeveral pinnated ones; as in the *orobus*. See LEAF.

ALATERNOIDES, a name given by botaniſts to the CASSINE.

ALATERNUS, in *Botany*, the *rhamnus* of Linnæus. See BUCKTHORN, and PRIVET.

ALAUDA, in *Ornithology*, a genus of the order of *paſſeres* and claſs of *aves*, in the Linnæan ſyſtem. See LARK.

ALAUDA, in *Ichthyology*, ſee BLENNIUS.

ALB, ALBA, ALBE, a robe, or veſtment, of white linen hanging down to the feet, and tied round the waiſt of the wearer with a girdle or ſaſh. It was anciently embroidered with various colours, ornamented with fringe, wherein the Romiſh prieſts performed divine ſervice.
The *alb* correſponds to the ſurplice among us.—The rubric of Edward VI. diſtinguiſhes between them. It takes its name from its colour, *albus*, *white*.
In the ancient church it was uſual with thoſe newly baptized to wear an *alb*, or white veſtment, for eight days; and the Sunday after Eaſter was called *Dominica in albis*, on account of the *albs* worn by the Neophytes, who were baptiſed on Eaſter day. The *albs* were alſo worn by laymen living in monaſteries.
ALB. See AUBE.

ALBADARA, ſignifies in Arabic the *ſeſamoids* bone of the firſt joint of the great toe, which is about the ſize of a ſmall pea. Its uſe is to that joint much the ſame as the *patella* is to that of the knee.

ALBA FIRMA, or ALBUM, was a yearly rent, payable to the chief lord of a hundred; ſo called, becauſe paid wholly in white money, or ſilver, and not in corn, which was called *black mail*.

ALBA TERRA, among *Alchemiſts*, denotes the philoſophers ſtone, compounded of mercury and ſulphur.

ALBANENSES, ſee ALBIGENSES.

ALBANI, in *Middle Age Writers*, denote ſtrangers or foreigners: anſwering to what we call aliens.

ALBANI, in *Antiquity*, a college of PRIESTS, or prieſts of Mars inſtituted by Tarquin, and denominated from mount Albanus, the place of their reſidence.

ALBANUM, among *Chemiſts*, denotes ſalt of urine.

ALBARA, or ALBORA, among *Phyſicians*, a mixt ſpecies of malignant itch, compounded of the *morphew*, *ſerpigo*, and *lepra*.
The *albora* partakes moſt of the nature of the leproſy; ſome make it the ſame with the *lenes*, VITILIGO, or MORPHEW. See ALPHOS. It ſignifies likewiſe the white POPLAR.

ALBARAZIN, or ALBAZARIN, a kind of Spaniſh wool.

ALBARDEOLA, in *Ornithology*, a name given by many authors to the *platea*, or SPOON-*bill*, a bird approaching to the nature of the HERON.

ALBARII, in *Antiquity*, properly denoted thoſe who gave the whitening to earthen veſſels, &c. in which ſenſe they ſtood contradiſtinguiſhed from *vitellatores*, who whitened walls.

ALBARIUM *opus*, in the *Ancient Building*, the incruſtation or covering of the roof of houſes with white plaiſter, made of mere lime. The workmen were called *albiſti*, or *albarii*.
This is otherwiſe called *opus album*. It differs from *teſtarium*, which is a common name given to all rooting or cieling, including even that formed of lime and ſand, or even lime and marble; whereas *albarium* was reſtrained to that made of lime only.

ALBATI *equi*, in *Antiquity*, was a denomination given to thoſe horſes in the games of the *Circus*, which were diſtinguiſhed by white cloths or furniture.
In which ſenſe, *albati* ſtands contradiſtinguiſhed from *roſſati*, *graſſati*, and *veneti*.

ALBATROSSE, the name of a large ſea-bird, common about the Cape of Good Hope, Cape Horn, and in many other places. This is a thieviſh creature, and principally feeds on the prey which another ſea-bird, called the *booby*, provides for itſelf.
It is ſaid that the head of the *albatroſſe* changes from brown to a fine ſcarlet, while it ſits on its eggs, and afterwards becomes brown again.

ALBELEN, in *Ichthyology*, the name of a fiſh of the truttaceous kind, called alſo *aſſunis*, and much reſembling the *ſarra*. It is caught in the German and other lakes, and is found from five or ſix to twelve pounds weight, but that more rarely. Its colour is a fine ſilvery white.

ALBELLUS, a ſpecies of *anſeres*, in the Linnæan ſyſtem, belonging to the genus of MERGUS.

ALBEOLA, a ſpecies of *anas*.

ALBERNUO, a kind of cambler, or barracan, that comes from the Levant by the way of Marſeilles.

ALBERTISTS, a ſect of ſcholaſtics, denominated from their leader Albertus Magnus.

ALBESA, a kind of ſhield uſed by the ancient Albenſes, a nation of the Marſi.

ALBICILLA, in *Natural Hiſtory*, a name given by ſome authors to that ſpecies of eagle commonly called PYGARGUS, from the whiteneſs of part of its tail.

ALBIGENSES, a ſect about Thouloufe and Alb, in Languedoc, whence they derived their name; who, in the twelfth century, became remarkable for their oppoſition to the diſcipline and ceremonies of the church of Rome. See REFORMATION.
They were alſo known by various other names: as, Petrobruſſians, Arnoldiſts, Cathari, Patarins, Publicans, Tifferans, Bon-hommes, Paſſagers, &c. Some will have them to be the ſame with the Albanenſes; and they who think them different, attribute the ſame opinions to both. They were a party of the Paulicians, who migrated from Bulgaria and Thrace into other countries. Their firſt ſettlement was in Italy, whence they ſent out colonies into almoſt all the other provinces of Europe. It is ſaid that Peter Bruys was the firſt that brought them into Languedoc, about the year 1126. See PETROBRUSSIAN.
The Romaniſts tax the *Albigenſes* with abundance of heterodox opinions; as, for inſtance, that there are two Gods, the one infinitely good, and the other infinitely evil: that the good God made the inviſible world, and the evil one that which we live in; with the reſt of the Manichean tenets.
But this ſeems to be one of thoſe pious frauds allowed particularly in that church, which eſteems it a kind of merit to blacken hereſies, and thoſe whom they chuſe to call ſo.
However this be, the *Albigenſes* growing formidable in a little time, that a holy league, or croiſade, was agreed upon among the catholics; and war denounced againſt them, the pope himſelf raiſing the firſt ſtandard.—In 1229, a peace was ſtruck up, and an inquiſition eſtabliſhed at Thouloufe, from which time the *Albigenſes* dwindled by little and little, till the times of the Reformation, when ſuch of them as were left fell in with the VAUDOIS, and became conformable to the doctrine of Zuinglius, and the diſcipline of Geneva.

ALBINI, in *Antiquity*, ſee ALBARIUM *opus*.

ALBIREO, a ſtar of the third or fourth magnitude, in the conſtellation CYGNUS.

ALBOGALERUS, in Roman *Antiquity*, a ſacerdotal cap, or ornament, worn by the *flamen dialis*, which is otherwiſe called *galerus*.

ALBORAK, in the Mahometan *Theology*, the beaſt on which the prophet is ſaid to have rode in his extraordinary aerial journies. It is repreſented as of an intermediate

diate shape and size between an ass and a mule; and many fabulous accounts are given of it by the Arabian commentators.

ALBORO, in *Ichthyology*, a name by which the ERYTHRINUS, a small red fish caught in the Mediterranean, is commonly known in the markets of Rome and Venice.

ALBUCA, in *Botany*, a distinct genus in the Linnæan system, belonging to the class of *hexandria monogynia*.

ALBUCUS, a name used by some for the white *ephemeris*.

ALBUGINEA, in *Anatomy*, the outermost coat, or tegument of the eye, otherwise called ADNATA, and *conjunctiva*. It takes its name *albuginea* from its whiteness; it being this that forms what we call the *albugo*, or white of the EYE.

ALBUGINEA is also applied to the third coat of the testicles; so called from its colour, which is white.

It is a strong thick membrane, very smooth on the outer surface; the inner, which adheres to the substance of the testicle, being rough and uneven. Into its upper part are inserted blood-vessels, nerves, and lymphatics, which from thence send divers branches into the substance of the testicles. See TUNICA.

ALBUGINEUS is applied, by some, to denote the aqueous humour of the eye.

ALBUGO, or ALBUM *oculi*, the same with *albuginea*, or the *white of the eye*.

ALBUGO is a whitish, dense, opaque spot, or film, growing on the horny tunic, by which it loses its native colour, and becomes white and opaque.

The *albugo* is the same with what is otherwise called LEUCOMA.

It is most commonly the consequence of inflammations, by the extravasation of humours, between the membranes of this tunicle; and particularly in the small-pox by the suppuration of pustules upon this part; but they sometimes arise from scars left after punctures in the *cornea*, from swords, knives, glass, &c. from burns, or from caustic substances falling into the eye, or by a peculiar tunic growing to the eye itself.

The cure is various, according to circumstances. If the disorder arises from inspissated humours, an attenuating diet and medicines, especially sudorific decoctions and infusions, together with phlebotomy, scarifications, blisters, and *pediluvia*, are useful. Cold and astringent *collyria*, especially those of white vitriol, are here pernicious: whereas warm applications are of the greatest service. But if these disorders be of long standing, there is little or no hope of a cure.

If the disorder proceeds from abscesses, or a suppuration of matter, after an inflammation, betwixt the *lamina* of the *cornea*, which they elevate like a pea, or pearl, whence they are sometimes called *pearls*, an incision ought to be made into the *cornea*, to discharge the included matter. But neither this nor any other method will succeed, so as to preserve the eye sight clear, if the matter be lodged deep.

If the pustules take their rise from burns, or the small-pox, the contained matter must be discharged, and the pellicle must be removed with *alum. ust. cum sacchar. cand. & aver. tyst. pp.* applied every day to the *cornea*.

Spots in the *cornea* arising from wounds, scars, or the abuse of vitriolic *collyria*, are seldom curable.

Dr. Mead tells us of several cures of the *albugo*, performed by means of an eye-powder, which he recommends. The receipt is this: take of common glass any quantity, pound it in a mortar to a very fine powder; then add an equal quantity of white sugar-candy, and levigate the mixture till it becomes impalpable.

A little of this powder put into the eye with a quill, every day, gradually wears off the spot.

Another method of removing the speck, is to have it pared by a surgeon every day with a knife: but this seems a doubtful remedy.

ALBULA, in *Ichthyology*, a genus of fishes of the trutta-ceous kind, having no teeth.

ALBULA *Indica*, the name of a small fish, resembling a herring caught about the shores of the East Indies, and called by the Dutch the WIT-fish. Ray.

ALBULA *nobilis*, the name of one of the trutta-ceous fishes, caught in great plenty in the lakes of Germany, and other places.

ALBULA is also a name given, by some naturalists, to mineral waters of the aluminous kind; hence endued with an astringent quality, and of use in wounds.

The word is Greek, in which language it signifies the same.

ALBUM, in *Literary History*, is used to denote a kind of table, or pocket-book, wherein the men of letters with whom a person has conversed, inscribe their names, with some sentence, or motto.

This is called by divers names and titles, as *album amicorum, repositorium amicorum*, &c.

The famous Algernon Sydney being in Denmark, was by the university of Copenhagen presented with their *album*, wherempon he wrote these words:

——*Manes hæc inimica tyrannis*
Ense petit placidam sub libertate quietem.

ALBUM, in *Antiquity*, denotes a white table, or the like, whereon names, or other matters, were to be inscribed, or entered.

Hence we meet with *album prætoris, album decurionum, album judicum*, &c.

The high priest entered the chief transactions of each year into an *album*, or table, which was hung up in his house for the public use.

ALBUM, in *Natural History*, is used for the white of an egg: more properly called *albumen*.

ALBUM, among *Chemists*, is used for white lead, popularly called *cerussa*.

ALBUM is also used, among *Alchemists*, for a tincture pretended to transmute metals.

ALBUM is also applied, in *Pharmacy*, as a title, or epithet, of divers compound medicines. Thus we meet with *unguentum album camphoræ*, &c.

ALBUM *Græcum*, dog's white dung, is a medicinal drug, in the present practice, used with honey to cleanse and deterge, chiefly in inflammations in the throat; and for the mush part outwardly, as a plaster; but as Dr. Quincy observes, seldom to any great purpose. See Neumann's Works, p. 585.

Some speak of its use internally, in the *angina*, and other inflammations; as also in the dysentery, colic, &c. and to prevent burns from rising into blisters.

ALBUM *rigrum* is used, among *Medical Writers*, for mice-dung, by some also called *musserda*.

ALBUM *oculi*, among *Anatomists*, denotes the *tunica adnata*; sometimes also called *albugo*; popularly the white of the EYE.

ALBUMEN *ovi*, in *Natural History*, and in *Medicine*, the white of an EGG.

ALBURN, or AUBURN *colour*, a whitish brown, or mixt colour, partaking of red and white.

ALBURNUM, in *Physiology*, the exterior part of the wood of a tree, next the BARK.

ALBURNUS, in *Ichthyology*, the name of a fresh water fish, commonly known in English by the name of the BLEAK. It is common in our rivers, and in those of Germany and elsewhere, and is esteemed a well tasted fish. It is most in season in September. It is a species of the *cyprinus* of Linnæus.

ALBURNUS *lacustris*, in *Ichthyology*, a name given by the writers who have copied Gesner's errors, to the *bolonus* of the ancients, or the *pallerus*, or *pleistus*, of the moderns.

ALBUS *piscis*, the white fish, in *Ichthyology*, a name by which Salvian has called the fish more usually called the *capito lacustris*, and seeming the same with the blue chub, or, as it more frequently called, the JEWTLING.

Also a fish is a species of the CYPRINUS, called by the Italians *albo*.

ALCA, in *Ornithology*, see ALKA.

ALCAHEST, see ALKAHEST.

ALCAICS, in the *Ancient Poetry*, a name common to several kinds of verses; so called from the poet Alcæus, the inventor of them.

The first species of *Alcaics* consists of five feet, of which the first may be either spondee, or iambic; the second is an iambic; the third, a long syllable; the fourth, a dactyl; and the fifth, a dactyl, or amphimacer: as these of Horace.

Omnes eodem cogimur, omnium
Versatur urna, serius, ocyus,
Sors exitura.

The second species of *Alcaics* consists of two dactyls, and two trochees: as

Exilium impositura cymbæ.

Besides these two kinds of verses, which are properly called *dactylic Alcaics*, there is a third sort, called simply *Alcaic*, whereof the first is an *Epitrite*, the second and third are *Choriambuses*, and the fourth a *Bacchius*; as,

Cur tendit fluvium Tiberim | tangere? cur | illorum P

ALCAIC *Ode* consists of four strophes, each of which contains four verses: the two first are *Alcaic* verses of the first kind; the third an iambic dimeter hypercatalectic, i. e. of four feet, and a long syllable: as,

Sors exitura, & nos in æternum.

The fourth is an *Alcaic* of the second kind.—The entire *Alcaic* strophe is as follows:

Omnes eodem cogimur, omnium
Versatur urna, serius, ocyus,
Sors exitura, & nos in æternum
Exilium impositura cymbæ.

ALCAID, in matters of *Policy*, an officer of justice among the Moors, Spaniards, and Portuguese.

The word is also written *alcade, alcalde*, and *alcayd*: sometimes also *alcaldes*.

It is originally Arabic, compounded of the particle *al*, and the verb *hadi*, or *ahad, tenuit, gessit, administravit*.

The

The emperor of Morocco's court conſiſts chiefly of ſeven or eight *alcaids*, his devoted ſlaves.

The *alcaid*, or governor of a city or caſtle in Barbary, hath ſovereign juriſdiction in civil and criminal concerns; and all fines and puniſhments are inflicted at his pleaſure.

In ſome places the *alcaids* are much the ſame with the emperor's tax-gatherers.

Alcaid, among the Spaniards, &c. is a kind of inferior judge, or miniſter of juſtice, who takes cognizance of cauſes in the firſt inſtance, and anſwers in good meaſure to the French *prevoſt*, and an Engliſh juſtice of peace.

They had alſo their *alcaid* of the whores, who took cognizance of caſes of whoredom, and adultery. This officer was otherwiſe called *alcaid* of honour. Du-Cange.

ALCALI, ſee ALKALI.

ALCALIZATION, or ALKALIZATION, which ſee.

ALCANNA, a coſmetic powder, much uſed in the Levant, made of the leaf of a ſpecies of ſhrub frequent in Barbary.

ALCANNA, or ALCANA, by the Turks called *hnah*, a dying drug, brought from Egypt and the Levant, being the leaves of a plant called by botaniſts *liguſtrum Egyptiacum*, or the Egyptian *privet*. The Egyptians call it *cus hanne*. The colour drawn from theſe leaves is either red or yellow, according to the manner of the preparation; yellow when ſteeped in common water, and red when infuſed in vinegar, or alum-water.

The people of Cairo make a conſiderable traffic of theſe leaves; which they reduce to a powder called *archenda*, much uſed by the women to dye their nails and hair of a golden-yellow hue.—From the berries of *alcana* an oil is extracted, of a very agreeable ſmell, and ſome uſe in phyſic, as a calmer, called oil of Cyprus, a name which is ſometimes alſo given to the plant. Phil. Tranſ. abr. vol. x. ii. 741.

ALCANNA is alſo a denomination given by ſome to iſinglaſs, or ICHTHYOCOLLA, and the ANCHUSA.

ALCANTARA,—*Order of* ALCANTARA, an ancient military order. The preciſe year of its inſtitution is not ſettled among antiquaries.

The knights of *Alcantara* make the ſame vows as thoſe of Calatrava, and are only diſtinguiſhed from them by this, that the croſs fleur de lys, which they bear over a large white cloak, is of a green colour: they poſſeſs thirty-ſeven commanderies.

By the terms of the ſurrender of *Alcantara* to this order, it was ſtipulated, that there ſhould be a confraternity between the two orders, with the ſame practices and obſervances in both; and that the order of *Alcantara* ſhould be ſubject to be viſited by the grand-maſter of Calatrava. But the former ſoon releaſed themſelves from this engagement, on pretence that their grand-maſter had not been called to the election of that of Calatrava, as had been likewiſe ſtipulated in the articles.

After the expulſion of the Moors, and the taking of Granada, the ſovereignty of the order of *Alcantara*, and that of Calatrava, was ſettled in the crown of Caſtile, by Ferdinand and Iſabella.

In 1540, the knights of *Alcantara* ſued for leave to marry; which was granted them.

The hiſtory of this order is chiefly taken up in expeditions againſt the Moors, and broils with their neighbours.

ALCE, in *Zoology*, the ELK.

ALCEA, in *Botany*, VERVAIN-MALLOW.

Mr. Tournefort enumerates twenty ſpecies of this *alcea*, which is a medicinal herb, whoſe virtues are much the ſame with the mallow, but in leſs degree. It is uſed as an emollient, and is an ingredient in plaiſters. Diſcorides mentions the root, drank with wine or water, as a remedy againſt dyſenteries and ruptures.

There is a ſpecies of this plant called *alcea Indica*, the ſeeds of which the Egyptians dry, and of which they mix the powder in their coffee, to make it more effectual in ſtrengthening their head, ſtomach, &c.

ALCEA *veſicaria*, the *bladder alcea*, in *Botany*, the name of a ſpecies of KETMIA.

ALCEDO *vocalis*, in *Ornithology*, a name by which Bellonius, Aldrovandus, and ſome others, have called the red ſparrow.

ALCEDO, a genus of birds belonging to the order of *picæ*, and comprehending fifteen ſpecies. The characters are, that the beak is three-cornered, thick, ſtraight, and long; the tongue is ſhort, fleſhy, ſmooth, and acute, and the feet are formed for walking.

ALCHATA, in *Ornithology*, a ſpecies of the TETRAO.

ALCHEMIST, a perſon who profeſſes ALCHYMY.

ALCHIMELECH, the Egyptian *moliat*. Ray's Hiſt. Plant.

ALCHIMELLA, ſee LADY's *mantle*.

ALCHITRAM, among the *Alchemiſts*, denotes ſometimes the oil of juniper, ſometimes liquid pitch and ſometimes *arſenic*, prepared by ablution.

This is otherwiſe written *alchieram*, and *alchiteran*; ſometimes *alchytran*, and *altytran*.

ALCOLLEA, a kind of food in uſe among the weſtern Moors, being fleſhy meat, pickled, dried, boiled, and potted.

ALCHYMY, or ALCHEMY, a higher, or more refined kind of CHYMISTRY, employed in the more myſterious reſearches of the art.

The word ſeems compounded of the Arabic augmentative particle *al*, and the Latin *chymia*, Egyptian *hemie*, or Greek χυμια, *chemiſtry*. Though ſome object to this origin, and deny the Arabic any ſhare in the compoſition of the word; urging, that *alchemia* occurs in an author who wrote before the Europeans had any commerce with the Arabians, or the Arabians any learning, i. e. before the time of Mahomet.

The name *alchymy*, however, is really of no ancient ſtanding: the firſt time it occurs, is in Julius Firmicus Maternus, an author who lived under Conſtantine the Great, and who, in his Matheſis 3. 15. ſpeaking of the influence of the heavenly bodies, affirms, 'that if the 'moon be in the houſe of Saturn, at the time a child is 'born, he ſhall be ſkilled in *alchymy*.'

The great objects or ends purſued by *alchymy*, were, 1. The making of gold, which is attempted three different ways; by ſeparation, by maturation, and by tranſmutation; which laſt is to be effected by means of what they call the *philoſophers ſtone*.

With a view to this end, *alchymy*, in ſome ancient writers, is alſo called *ſecretum*, *poetice*, and χρυσοποιητικη, *chryſo-poetice*, q. d. the art of making gold.—And hence, alſo, the artiſts themſelves are called *ſecreti*, *makers*; and χρυσοποιηται, *gold-makers*.

2. An univerſal medicine, adequate to all diſeaſes. See ELIXIR.

3. An univerſal diſſolvent, or ALKAHEST.

4. An univerſal ferment; or a matter, which being applied to any ſeed, ſhall increaſe its fecundity to infinity: if, e. gr. it be applied to gold, it ſhall change the gold into the philoſophers ſtone of gold; if to ſilver, into the philoſophers ſtone of ſilver, i. e. into a matter which tranſmutes every thing into ſilver; and if to a tree, the reſult is, the philoſophers ſtone of the tree, which tranſmutes every thing, to which it is applied, into trees. See a Hiſtory of *Alchymy*, and its Principles, &c. Dr. Lewis's Commerc. Philoſoph. Techn. p. 199, & ſeq. and PHILOSOPHERS *ſtone*.

The origin and antiquity of *alchymy* are much controverted.—If regard may be had to legend and tradition, it muſt be as old as the flood. But in effect, not one of the ancient poets, philoſophers, or phyſicians, from Homer till four hundred years after Chriſt, mention any ſuch thing. The firſt author who ſpeaks of making gold, is Zoſimus the Panopolite, who lived towards the beginning of the fifth century, and who has an expreſs treatiſe, Περι της ιερας τεχνης της τ χρυσου και τ αργυρου ποιησεως, *Of the divine art of making gold and ſilver*, ſtill extant, in manuſcript, in the French king's library.

Kircher aſſerts, that the theory of the philoſophers ſtone is delivered at large in the table of Hermes; and that the ancient Egyptians were not ignorant of the art, but declined to proſecute it. They did not need to tranſmute gold; they had ways of ſeparating it from all kinds of bodies, from the very mud of the Nile, and ſtones of all kinds: however, he adds, theſe ſecrets were never written or publiſhed, but confined to the royal family, and handed down traditionally from father to ſon.

Kircher, inſtructed in all the ſecrets of chemiſtry, has fully expoſed the artifices and impoſtures of *alchemiſts*.

An *alchemiſt* puts into a crucible the matter which is to be converted into gold; this he ſets on the fire, blows it, ſtirs it with rods; and, after divers operations, gold is found at the bottom of the crucible, inſtead of the matter firſt put in: this there are a thouſand ways of effecting, without any tranſmutation. Sometimes it is done, by dexterouſly dropping in a piece of gold concealed between the fingers, ſometimes by caſting in a little of the duſt of gold, or ſilver, diſguiſed under the appearance of ſome elixir, or other indifferent matter; ſometimes a crucible is uſed which has a double bottom, and gold put between the two; ſometimes the rod uſed to ſtir the matter is hollow, and filled with the duſt of the metal deſired; at other times there is metal mixed with the charcoal, the aſhes of the furnace, or the like. Mr. Harris very properly diſtinguiſhes *alchemy* from *chemiſtry*; and defines the former to be *ars ſine arte, cujus principium eſt mentiri, medium laborare, et finis mendicare*; and the Italians have a proverb, *non ti fidiare al alchemiſta provero o medico amalato*. The ruin which has attended this deluſion has occaſioned ſeveral ſtates to make ſevere laws againſt pretences to *alchemy*. The Romans formerly baniſhed all ſuch as profeſſed it; and the ſacred canons likewiſe directed the thunder of their cenſure againſt them:

them. Diocletian and Cæsar directed all books which treated of this subject to be burnt. Rymer furnishes us with a licence for practising *alchymy*, with all kinds of metals and minerals granted to one Richard Carter, in the year 1476. Rym. Fœd. tom. xii. Nevertheless, we have had severe laws against *alchymy*, and multiplying of metals, as much as against coining itself.

The best writers in *alchymy*, according to the judgment of Boerhaave, are Geber, Morienus, Roger Bacon, Ripley, Raim. Lully, Bern. count Trevisanus, John and Isaac Holandus, Sendivogius, Basil Valentine, Artephius, Paracelsus, Irenæus Philalethes, and Van Helmont. See Petri Borelli, Bibliotheca Chymica, five Catalogus Librorum Philosophicorum Hermeticorum, Par. 1654, 12mo. It contains an account of about four thousand writers.

ALCHYMY is also used, in a less proper sense, for the art of common *chemistry*.

In which sense, Libavius has published a Practice of Alchymy, describing the preparations of the chief chemical medicines. And. Libavii Praxis Alchemiæ, h. e. de Artificiosa Præparatione Præcipuorum Medicamentorum. Francof. 1604. 8vo.

ALCIBIADUM. See ALCIBIUM.

ALCIBIUM, in *Botany*, a word used sometimes by the ancients as an epithet for a kind of *echium*, or viper's bugloss, and sometimes as the name of a peculiar plant.

ALCMANIAN, in the *Ancient Poetry*, a kind of lyric verse, or metre, consisting of two dactyls, and two trochees. Such, e. gr. is

Virginibus puerisque canto.

The word is formed from *Alcman*, the name of an ancient Greek poet, in great esteem for his *Erotics*, or amorous compositions.

Some authors assign other *Alcmanian* verses, composed of three *dactyls*, and a long syllable:

E. gr. *Munera lætitiamque Dei.*

Others give an *Alcmanian*, composed of a *dactyl*, *spondee*, and another *dactyl*, and a long syllable:

E. gr. *Ne dubita, nam vera fides.*

ALCOHOL, or ALKOOL, in *Chemistry*, an Arabic term, chiefly understood of the purest spirit of wine, raised, or rectified, by repeated distillations, to its utmost subtility and perfection.

The word is formed from the Arabic or Hebrew קָלָה, *haul*, *to attenuate*, *subtilize*.

Alcohol is the most complete production of vegetable fermentation; and, when brought to its highest degree of perfection, is the lightest *fluid* next to *air*; perfectly transparent, very thin, most simple, totally inflammable, without producing any smoke, or diffusing any disagreeable scent while it is burning; is exceeding volatile, without leaving any *faces*; absolutely immutable in distillation, extremely expansible by heat, very easily disposed to ebullition by fire, of a very pleasant smell, and of a particular grateful taste. All the humours of the human body that we are acquainted with, it coagulates in an instant, excepting the pure water and urine; whilst it hardens all the solid parts, and thus preserves both from putrefaction, or spontaneous colliquation. It preserves the bodies of insects, fish, birds, and other animals that are put into it, from corruption, or alteration, for ages, if closely stopped. With water, vinegar, any acid liquors, oils, and pure volatile alkaline salts, it suffers itself to be mixed, and that nearly of an equable mixture; gummy and resinous substances it dissolves. So that we are acquainted with no liquid, produced either by nature or by the art of *chemistry*, that is capable of being united with more bodies than *alcohol*, but in a particular manner it proves an excellent vehicle for the *spirituous rectors* of vegetables, which, by uniting with it, may be extracted from its proper body, retained, and applied to medicinal and other uses.

In the human body, by its smell, taste, and vapour, it wonderfully quickens, gratefully affects, and invigorates the animal, natural, and vital spirits, nerves, and brain. Flames fed by *alcohol* of wine, though of the same bigness with other flames, cause different degrees of dilatation in metals. See Collect. Acad. tom. i. p. 113.

Since there are various, and sometimes very inviting occasions, in which chemists, and other artificers, stand in need of the true and purest *alcohol*, the least remainder of water rendering the operation unsuccessful, it is absolutely necessary we should have some marks by which we may be able to distinguish whether our *alcohol* be pure or not. The principal of these are,

1. If the supposed *alcohol* contains any oil dissolved in it, and so equally distributed through it, that it is no other ways perceptible than upon the pouring of water into it, the mixture will grow white, and the oil will separate from the *alcohol*.

2. If any thing of an acid lies concealed in *alcohol*, a little of it mixed with the alcaline spirit of sal ammoniac, will discover the acid by an effervescence; for otherwise there would be only a simple coagulation.

3. If there be any thing in an alkali intermixed, it will appear by the effervescence excited by the affusion of an acid. As for other salts, they are seldom found in it.

4. But it is a matter of greater difficulty to discover whether there be any matter intermixed with it; and therefore chemists have contrived certain methods by which this may also be determined, of which the best is this. Take a chemical vial with a long narrow neck, the bulb of which will hold four or six ounces of *alcohol*. Fill this two thirds full with the *alcohol* you intend to examine, into which throw a dram of the purest and driest salt of tartar, coming very hot out of the fire; then mix them by shaking them together, and set them over the fire till the *alcohol* be just ready to boil. Being thus shaken and heated, if the salt of tartar remain perfectly dry, without the least sign of moisture, we are sure that there is no water in this *alcohol*.

The internal use of *alcohol* is highly destructive to the animal frame, as among other inconveniencies, it dries and contracts the nerves, and coagulates the juices. *Alcohol*, however, and fermented spirits in general, are of good service externally applied in many cases. Thus spirit of wine, especially camphorated, is a very good addition to fomentations designed to resolve inflammations whether external or internal.

Pure *alcohol* likewise, according to Boerhaave, is the best of styptics. According to Juncker, it is a combination of the acetous acid, phlogiston, and water; but the ablest chemists are not yet agreed as to the constituent principles of this fluid.

ALCOHOL is sometimes also used for a very fine, impalpable powder, which women in the East make use of as a kind of *fucus*. Dr. Shaw, in his Travels, speaking of the women in Barbary says, that none of those ladies think themselves completely dressed, until they have tinged their hair, and edges of their eye-lids with *al-ka-hol*, the powder of lead ore. From this impalpable powder the name was transferred to other subtile powders, and afterwards to spirits of wine, exalted to its highest purity and perfection. See PORPHYRISATION.

ALCOHOL, in the Arabian *Astrology*, is when a heavy slow-paced planet receives another lighter one within its orb, so as to come in conjunction therewith.

ALCOHOL *Martis*, filings of steel reduced to an impalpable powder, by turning it into rust with urine, then levigating it, and mixing it with a large quantity of water; that is, about a gallon to two pounds and a half of filings. After it has stood a quarter of an hour, the upper part of the water is to be poured off, and evaporated to a dryness. The powder at the bottom is to be put into a paper in the form of a sugar-loaf, and washed, by gradually pouring its hot-water, till it is freed from the nitrous salts. With regard to the remaining green powder, the same process is to be repeated.

Mulgrave has a great opinion of this preparation, as a remedy to bring back the gout from the nobler parts to the joints. He prescribes it thus: take of *alcohol martis* from five to ten grains, *theriaca Andromachi* from half a scruple to one drachm, mix these with as much syrup of clove-july-flowers, as is sufficient to make a bolus.

ALCOHOLIZATION, in *Chemistry*, the rectification of a vinous spirit.

This is otherwise called *alcalisation*.

Alcalisation, according to Stalkey, denotes the circulation of a volatile spirit on a fixed alkali, till such time as out of the two arises only one neutral body, different from both the former. *Alcoholization* is one way of volatilizing alkalis.

ALCOHOLIZATION is also used for PULVERIZATION.

ALCOLA is used by alchemists for the tartar of wine.

Alcola is found in three different forms, viz. 1. Resolved, or reduced into an impalpable substance. 2. Sandy, or voided under the appearance of small grains of whitish or reddish sand. 3. Mucilaginous, or viscous.

ALCOR, in *Astronomy*, a small star adjoining to the large bright one in the middle of the tail of URSA *major*.

The word is Arabic. It is a proverb among the Arabians, applied to one who pretends to see small things, but overlooks much greater, *Thou canst see Alcor, and yet not see the full Moon.*

ALCORAN, or AL KORAN, the Mahometan bible; or revelations, doctrine, and prophecies, of the pretended prophet Mahomet.

It is vulgarly called *Alcoran*; but the first syllable of the word is nothing more than an article signifying *the*; and therefore the true orthography of the word is *Al Coran*, or *Al Koran*, that is *the Koran*. It is derived from the Arabic word *karaa*, *to read*, and signifies *the reading*, or what ought to be read. Thus Mahomet gave it this title

by

by way of eminence, in imitation of the Jews and Chriſtians, who call the Old and New Teſtament *Scripture*; and the *Bible*, i. e. the book.

It is the common opinion among us, that Mahomet, aſſiſted by one Sergius, a monk, compoſed this book; but the Muſſulmen believe it as an article of their faith, that the prophet, who, they ſay, was an illiterate man, had no concern in inditing it; but that it was given him by God, who, to that end, made uſe of the miniſtry of the angel Gabriel; that, however, it was communicated to him by little and little, a verſe at a time, and in different places, during the courſe of twenty-three years.—'And hence, ſay they, proceed the diſorder and confuſion viſible in the work;' which, in truth, are ſo great, that all their doctors have never been able to adjuſt them. For Mahomet, or rather his copyiſt, having put all theſe looſe verſes promiſcuouſly in a book together, it was impoſſible ever to retrieve the order wherein they were delivered.

Thoſe twenty-three years which the angel employed in conveying the *Alcoran* to Mahomet are of wonderful ſervice to his followers: inaſmuch as they furniſh them with an anſwer to ſuch as tax them with ſuch glaring contradictions wherewith the book is full: thoſe contradictions they piouſly father upon God himſelf; alledging that in the courſe of ſo long a time, he repealed and altered ſeveral doctrines and precepts which the prophet had before received of him.

M. D'Herbelot thinks it probable, that when the hereſies of the Neſtorians, Eutychians, &c. had been condemned by œcumenical councils; many biſhops, prieſts, monks, &c. being driven into the deſerts of Arabia and Egypt, furniſhed the impoſtor with paſſages, and crude ill-conceived doctrines, out of the Scriptures; and that it was hence that the *Alcoran* became ſo full of the wild and erroneous opinions of thoſe heretics.

The Jews alſo, who were very numerous in Arabia, furniſhed materials for the *Alcoran*; nor is it without ſome reaſon that they boaſt twelve of their chief doctors to have been the authors of this work.

The *Alcoran*, it is to be obſerved, while Mahomet lived, was only kept in looſe ſheets: his ſucceſſor, Abubeker, firſt collected them into a volume, and committed the keeping of it to Haphſa, the widow of Mahomet, in order to be conſulted as an original; and there being a good deal of diverſity between the ſeveral copies already diſperſed throughout the provinces, Ottoman, ſucceſſor of Abubeker, procured a great number of copies to be taken from that of Haphſa; at the ſame time ſuppreſſing all the others not conformable to the original.

The chief differences, in the preſent copies of this book, conſiſt in the points, which were not in uſe in the time of Mahomet, and his immediate ſucceſſors; but were added ſince, to aſcertain the reading; after the example of the Maſſoretes, who added the like points to the Hebrew texts of Scripture.

The work is divided into *ſuras*, or chapters; and the *ſuras* are divided into little verſes, in Arabic called *ayat*, *ſigns* or *wonders*, which are all compoſed in a broken interrupted ſtyle, reſembling proſe rather than verſe.—The diviſion into *ſuras* is but of late ſtanding; the uſual number is one hundred and fourteen.

Beſide theſe unequal diviſions of chapter and verſe, the *Koran* is divided into ſixty equal portions, called *ahzab*, each of which is again ſubdivided into four equal parts. The chapters have different titles, which are uſually taken from the firſt word of note that occurs in them. Under the title, at the head of every chapter, except the ninth, is prefixed the following ſolemn form, called by the Mahometans the *biſmillah, in the name of the moſt merciful God*; which form, as well as the titles, are conſidered by ſome commentators of divine original, though others believe them to be human additions.

There are ſeven principal editions of the *Alcoran*; two at Medina, one at Mecca, one at Cufa, one at Baſſora, one in Syria, and the common, or vulgate edition. The firſt contains 6000 verſes, the others ſurpaſſing this number by 200 or 236 verſes; but the number of words and letters is the ſame in all; viz. 77639 words, and 323015 letters.

The *Alcoran* is held not only of divine original, but eternal and uncreated, remaining, as ſome expreſs it, in the very eſſence of God. The firſt tranſcript has been from everlaſting by God's throne, written on a table of vaſt bigneſs, in which are alſo recorded divine decrees, paſt and future. A copy from this table in one volume, on paper, was ſent down from the loweſt heaven, in the month of Ramadan, on the night of power. From whence it was delivered out to Mahomet by parcels, ſome at Mecca, and ſome at Medina; though he had the conſolation of ſeeing the whole once a-year, and in the laſt part of his life twice. Ten new chapters were delivered entire, the greater part only in ſeparate periods, which were written down from time to time by the prophet's amanuenſis, in ſuch a part of any particular chapter, as he directed. The firſt parcel that was revealed, was the firſt five verſes of the ninety-ſixth chapter, which the prophet received in a cave of Mount Harah, near Mecca.

The general aim of the *Alcoran*, was to unite the profeſſors of the three different religions, then followed in Arabia, idolaters, Jews, and Chriſtians, in the knowledge and worſhip of one God, under the ſanction of certain laws, and the outward ſigns of ceremonies, partly of ancient, and partly of novel inſtitution, enforced by the conſideration of rewards and puniſhments, both temporal and eternal, and to bring all to the obedience of Mahomet, as the prophet and ambaſſador of God, who was to eſtabliſh the true religion on earth, and be acknowledged chief pontiff in ſpiritual matters. The chief point, therefore, inculcated in the *Alcoran*, is the unity of God, to reſtore which the prophet pretended was the chief end of his miſſion. The reſt is taken up in preſcribing neceſſary laws and directions, frequent admonitions to moral and divine virtues, the worſhip and reverence of the Supreme Being, and reſignation to his will. One of their moſt learned commentators diſtinguiſhes the contents of the *Alcoran* into allegorical and literal; under the former are comprehended all the obſcure, parabolical, and enigmatical paſſages, with ſuch as are repealed, or abrogated; the latter, ſuch as are clear, and in full force.

The Muſſulmen dare not ſo much as touch the *Alcoran*, without being firſt waſhed, or legally purified; to prevent which, an inſcription is put on the cover or label: *Let none touch but they who are clean.* It is read with great care and reſpect, being never held below the girdle. They ſwear by it, take omens from it on all weighty occaſions; carry it with them to war, write ſentences of it in their banners, adorn it with gold and precious ſtones, and knowingly ſuffer it not to be in the poſſeſſion of any of a different religion. Some ſay that it is puniſhable even with death in a Chriſtian to touch it; others, that the veneration of the Muſſulmen leads them to condemn the tranſlating it into any other language as a prophanation; but theſe ſeem to be aggravations. The Mahometans have taken care to have their Scripture tranſlated into the Perſian, the Javan, the Malayan, and other languages; though out of reſpect to the original, theſe verſions are generally, if not always, interlineated.

The ſtyle of the *Alcoran* is generally allowed to be beautiful and fluent; eſpecially where it affects to imitate the prophetic manner, and ſcripture phraſeology; adorned with bold figures after the eaſtern manner, enlivened with flowery and ſententious expreſſions, and in many places, particularly where the majeſty and attributes of God are deſcribed, truly ſublime. On this miraculous circumſtance Mahomet reſts the credit of his divine miſſion. To this pomp and harmony of expreſſion ſome aſcribe all the force and effect of the *Alcoran*; but others ſuppoſe that the ſenſual pleaſures of paradiſe which are ſo frequently diſplayed to the imagination of the reader, are the chief allorements to which it owes its effect.

The number of commentaries on the *Alcoran* are ſo large, that the bare titles would make a huge volume.—Ben Olchair has written the hiſtory of them, intitled, *Tarikh Ben Olchair*. The principal among them are, Reidhavi Thaalebi, Zamalchichari, and Bacai.

Beſide the *Alcoran*, which is the *baſis* of the Mahometan faith, they have alſo a book containing their traditions, which they call *Sunna*.

The Mahometans have a *poſitive* theology, built on the *Alcoran* and tradition; as well as a *ſcholaſtical* one, built on reaſon.—They have likewiſe their caſuiſts, and a kind of canon law; wherein they diſtinguiſh between what is of divine, and what of poſitive right.

They have their beneficiaries too, chaplains, almoners, and canons, who read a chapter every day out of the *Alcoran*, in the moſques; and have prebends annexed to their office.—The *batib* of the moſque is what we call the parſon of the pariſh; and the *ſcheics* are the preachers, who take their text out of the *Alcoran*. See Sale's Tranſlation of the Koran, and Pre'iminary Diſcourſe.

ALCORAN is alſo uſed in a more limited ſenſe, for a portion or chapter of the Koran.

In which ſenſe, the word is ſynonymous with *ſura*.

ALCORAN is alſo figuratively applied to certain other books full of impieties and impoſtures.

In this ſenſe we meet with the *Alcoran* of the Cordeliers, which has made a great noiſe; where in St. Francis is extravagantly magnified, and put on a level with Jeſus Chriſt.

ALCORAN,

ALCORAN, among the Perſians, likewiſe ſignifies a kind of tower, or ſteeple, very high, and narrow; ſurrounded without, by two or three galleries, one over another; whence the Moravites, a ſort of prieſts, repeat their prayers thrice a day, with a very loud voice; making the tour of the gallery all the while, that they may be the better heard all round.

ALCORANISTS, among Mahometans, thoſe who adhere ſtrictly to the letter or text of the *Alcoran*, from an opinion of its ultimate ſufficiency and perfection. The Perſians are generally *Alcoraniſts*, as admitting the *Alcoran* alone for their rule of faith. The Turks, Tartars, Arabs, &c. beſides the *Alcoran*, admit a multitude of traditions.

The *Alcoraniſts*, among Mahometans, anſwer to much the ſame with the *Scripturiſts* among the Jews. The *Alcoraniſts* can find nothing excellent out of the *Alcoran*; are enemies of philoſophers, metaphyſicians, and ſcholaſtic writers. With them the *Alcoran* is every thing.

ALCOVE, in *Building*, a part of a chamber, ſeparated from the reſt by an eſtrade, or partition of columns, and other correſponding ornaments; in which is placed a bed of ſtate, and ſometimes ſeats, to entertain company.

The word is derived from the Spaniſh *alcoba*, and that from the Arabick *alcouf*, *a cabinet*, or *ſhooting-place*; or *ſolum elevatum*, *a tent*.

The word is popularly uſed to denote an incloſed garden-ſeat.

ALCYON. See HALCYON.

ALCYON, a name given by the ancients to the ISPIDA, or king-fiſher.

ALCYONIUM, in the Linnæan ſyſtem, is a genus of ZOOPHYTES. See CORALLINES, &c.

ALCYONIUM, in *Ichthyology*, a ſpecies of ALCEDO.

ALCYONIUM is alſo a name given by Lloyd to a peculiar kind of foſſile CORAL, of the ASTROITES kind, found in Wales. It is very plentiful in that country, and puts on the appearance of a ſort of marble, being bedded in a marbly matter for its matrix. Phil. Tranſ. N° 252.

ALDABARAM, in *Oſteology*, a name given by ſome to the *ſeſamoide* bones in the great toe.

ALDARU, in *Botany*, a name given by Avicenna, Serapion, and other writers of the Arabian nation, to the LENTISK tree.

ALDEBAC, in the *Materia Medica* of the ancient Arabian phyſicians, the name by which they have called BIRDLIME. They place this among the vegetable poiſons.

ALDEBARAN, an Arabian name for a fixed ſtar, of the firſt magnitude, in the eye of the ſign, or conſtellation, Taurus, or the Bull; and hence popularly called the *Bull's Eye*. Its longitude, latitude, &c. ſee among the reſt of the conſtellation TAURUS.

ALDER, *alnus*, in *Botany*, claſſed by Linnæus under the genus BETULA. Its characters are theſe: it hath male and female flowers, which are produced at remote diſtances on the ſame plant; the male flowers are digeſted into a long katkin, which is looſe, imbricated, and cylindrical; the female flowers are collected into a conical, ſcaly head, and are ſucceeded by ſcaly cones; the young fruit is of a ſquamoſe ſtructure, and loaded with *embrio* ſeeds; this finally increaſes in ſize, and becomes a regular fruit, containing a number of compreſſed ſeeds. There are two ſpecies, the wood of which is much eſteemed by turners, and is of great uſe for pipes to convey water, as it will laſt a long time under ground. See BORING.

The bark of the *alder*-tree is uſed by dyers in the preparation of ſome colours. It is a ſtrong ſtyptic, though rarely or never uſed medicinally, unleſs in fomentations and epithems, by the common people.

ALDER, *berry bearing*, or *black*, *frangula*, in *Botany*. This is ranged under the genus *rhamnus*, in the claſs of *pentandria monogynia*, by Linnæus. Its characters are theſe: the flower has one petal, cut into five ſegments; and it has five ſtamina, of the length of the petal; in the centre is ſituated a globular germen, which becomes a round berry, including two plain roundiſh ſeeds. There are two ſpecies.

ALDERAIMIN, in *Aſtronomy*, a ſtar of the third magnitude on the right ſhoulder of the conſtellation CEPHEUS.

ALDERMAN, among our ancient Saxon anceſtors, was the ſecond of the three orders or degrees of nobility.

The word, in its original, is *ealderman*; compounded of *ald*, *eald*; or *alder*, *elder*; and *man*, q. d. *Elderman*. *Atheling*, was the firſt rank of nobility, *alderman* the ſecond, and *thane* the loweſt.

It muſt be obſerved, however, that among our Saxon anceſtors there were ſeveral magiſtrates who bore the title of *alderman*. Among them there were *aldermannus totius Angliæ*, *aldermannus regis*, *comitatus*, *civitatis*, *burgi*, *caſtelli*, *hundredi*, *five wapentachii*, *& decemdecimarum*.

According to Spelman, the *aldermannus totius Angliæ*, ſeems to have been the ſame officer who was afterwards ſtyled *capitalis juſticiarius Angliæ*, or chief-juſtice of England; the *aldermannus regis* ſeems to have been an occaſional magiſtrate, anſwering to our juſtice of aſſize; and the *aldermannus comitatus*, a magiſtrate who held a middle rank between what was afterward called the earl, and the ſheriff; he ſat at the trial of cauſes with the biſhop: the latter proceeding according to eccleſiaſtical law, and the former declaring and expounding the common law of the land.

ALDERMAN, in the Engliſh *Polity*, an aſſociate to the mayor, or civil magiſtrate, of a city or town, for the better adminiſtration of his office.

The *aldermen* are an order of magiſtrates, in our cities, and moſt of the municipal, or incorporate towns, who form a kind of council, and regulate things relating to the policy of the place.—They ſometimes alſo take cognizance of civil and criminal matters, but that very rarely, and only in certain caſes.

Their number is not limited, but in ſome places is more, in ſome leſs, from ſix to twenty-ſix.

Out of theſe are annually elected the mayors, or chief magiſtrates of places; who, at the expiration of their mayoralty, return again into the body of the *aldermen*, whoſe delegates they were before.

The twenty-ſix *aldermen* of London preſide over the twenty-ſix wards of the city.

When one of them dies or reſigns, the wardmote chuſe a ſucceſſor, who is admitted, and ſworn into office, by the lord-mayor and court of *aldermen*.

All the *aldermen* are juſtices of the peace, by a charter of 15 Geo. II.

The *aldermen* of London, &c. are exempted from ſerving inferior offices; nor ſhall they be put upon aſſizes, or ſerve on juries, ſo long as they continue to be *aldermen*. 2 Cro. 585. See COURT.

Formerly there were alſo *aldermen* of the merchants, of hoſpitals, of hundreds, &c. See SENATOR.

ALDHAFERA, in the Arabian *Aſtronomy*, denotes a fixed ſtar of the third magnitude, in the Lion's mane.

ALDII, in *Antiquity*, ſervants who attended their maſters in expeditions to the wars.

Theſe were otherwiſe called *aldiones*, *aldionæ*, and *aldiionarii*.

ALDROVANDA, in *Botany*, a genus of the *pentandria pentagynia* claſs of plants; the calyx of which is divided into five ſegments, with five petals; the capſule has five valves, one cell, and ten ſeeds. There is one ſpecies.

ALE, a popular drink made from malt.

For the method of brewing *ale*, ſee BREWING.

This liquor is of ſuch antiquity in England, that we find mention of it in the laws of Ina, king of Weſſex. But the firſt aſſize of ale was fixed by the famous ſtat. 51 Hen. II.

Ale is chiefly diſtinguiſhed from beer, another potable liquor made from the ſame ingredients, by the quantity of hops uſed therein; which is greater in beer, and therefore renders the liquor bitterer, and fitter to keep.

The brewers alſo diſtinguiſh pale, or fine *ale*, brown *ale*, &c. Their ſeveral properties, effects, &c. ſee under MALT-*Liquor*.

The *zythum*, and *curmi*, mentioned by Tacitus, as the beverage of the ancient Germans, are ſuppoſed by Matthiolus to correſpond to our *ale* and beer.

The duties on *ale* and beer make a conſiderable branch of the revenue in England. They were firſt impoſed by the twelfth of Car. II. and have been continued by ſeveral ſubſequent acts of parliament to 1 Geo. III. which lays an additional duty of three pence per barrel. In the whole, the brewer of *ale* and beer for ſale, ſhall pay eight ſhillings for every barrel of either, above ſix ſhillings a barrel; and for every barrel of ſix ſhillings, or under, the ſum of ſixteen pence.

ALE, *cereviſia*, is alſo a denomination given to divers medicated liquors, or diet-drinks, whereof *ale* is the baſis or vehicle. The medicated *ales* make a large article in our old diſpenſatories. Such are the *cereviſia ſayatorica*, for the eyes; *cereviſia anti-arthritica*, againſt the gout; *cereviſia aſthmatica*, for the head; *cereviſia epileptica*, &c.

ALE, *gill*, is prepared by infuſing the dry leaves of *hedera terreſtris*, i. e. ground-ivy, in malt-liquor; which hereby becomes impregnated with the virtues of that ſimple; and is therefore reputed abſterſive and vulnerary; good in diſorders of the breaſt, and againſt obſtructions of the viſcera.

Gill is an Engliſh name of ground-ivy.

ALE, *Dr. Butler's purging*, is prepared of polypody, ſena, ſarſaparilla, anniſeeds, ſcurvygraſs, agrimony, and maiden-hair, put up in a bag, and hung in a veſſel of *ale*.

We

We also meet in *some* dispensatories with syrup of *ale*, made by boiling the liquor to a consistence; this is used, against obstructions in the kidneys, and the flour alus.

ALE-*beer*. See BEER.

ALE-BERRY, is *ale* boiled with bread, and mace; sweetened, strained, and drunk hot.

ALE-CONNER, an officer in the city of London, whose business is to inspect the measures of the public houses.—There are four of them; and they are chosen by the common-hall of the city.

ALE-*houses* must be licensed by justices of the peace, who take recognizances of the persons licensed, and of their sureties, viz. 10*l.* each, that they will not suffer unlawful gaming, nor other disorderly practices in their houses. Every person, excepting those who sell *ale* in fairs, neglecting to procure a licence, is liable to a penalty of 40*s.* for the first offence, 4*l.* for the second, and 6*l.* for the third, with all costs. The licence is granted on the first of September, or within twenty days after, at a general meeting of the justices for the division to which he belongs, upon his producing a certificate to his character, testified by living in a city, or town-corporate, this last circumstance is dispensed with, and continues in force for one year only. *Ale-house* keepers, selling *ale* in short measure, are liable to a penalty not exceeding 40*s.* and not less than 10*s.* and likewise in a fine of 10*s.* for permitting tipling, &c.

ALE-*measure*. See MEASURE.

ALE-*silver*, a rent, or tribute, yearly paid to the lord-mayor of London, by those who sell *ale* within the city.

ALE-*taster*, is an officer appointed, and sworn, in every court-leet, to take heed that there be a due size, and goodness of bread, *ale*, and beer, sold within the jurisdiction of the leet.

ALEA, in Roman *Antiquity*, signifies, in general, games of chance.

ALEA, in a more limited sense, is applied by Roman writers to a particular game played with dice, in a pair of tables somewhat after the manner of our back-gammon, or tric-trac. Instead of our men, they played with white and black stones, which were moved this way or that, as the dice directed.

Alea in this sense appears to have been the same game with what the Greeks called *petteia* and *duodecim*; the Romans sometimes *tabulæ*, *tesseræ*, and XII. *scriptæ*.

ALEA, the surname of Minerva, given to her by Aleus king of Arcadia.

ALEATORIUM, in Roman *Antiquity*, was the place where they played at *alea*.

The *aleatorium* was near the *sphæristerium*; that the sportsmen, when tired with the play, or more robust exercises, might refresh themselves in the *aleatorium*.*

ALEC, in *fabulous history*, a name given by Gaza, in his commentaries on Aristotle, to the fish called by that author *mormyr*, and by Ovid *momerida*. It is of the SPARUS kind.

ALECOST. See TANSY.

ALECTO, in *Mythology*, one of the three Furies; she is represented with vipers about her head and her wings, and armed with vipers, scourges, and torches. See a fine description of this Fury in Virgil, *Æn.* vii.

ALECTORIA, in *Natural History*, a stone said to be found in the stomach, liver, or rather gall-bladder, of old cocks.

The word is derived from ἀλεκτωρ, a *cock*.

It is ordinarily of the figure of a lupine, and seldom exceeds the bigness of a bean. It has abundance of virtues attributed to it; but most of them are fabulous.

This is otherwise called *alectorius lapis*, sometimes *alectorithion*, in English the cock-stone.

The more modern naturalists hold the *alectorius lapis* to be originally swallowed down, not generated in the stomach or gizzard of cocks and capons.

ALECTORICARDITES, in *Natural History*, a name given by Plot, to a figured stone resembling a pullet's heart, with the fat near the basis of it, and the coronary vessels descending from it.

The word is compounded of the Greek ἀλεκτωρ, *cock*, and καρδια, *heart*.

ALECTORIUS *lapis*, is used for a small species of *hyæunites*, or disjunct segment of a palate of a fish, approaching to the nature of the *chondrodes lapis*.

ALECTOROLOPHUS. See PEDICULARIS.

ALECTOROMANTIA, an ancient kind of divination, performed by means of a cock.

The word comes from ἀλεκτωρ, a *cock*, and μαντεια, *divination*.

This art was in use among the Greeks; and the usual manner of it was this. A circle was made on the ground, and divided into twenty-four equal portions, or spaces: in each of which spaces was written one of the letters of the alphabet, and upon each of these letters was laid a grain of wheat. This done, a cock was turned loose in the circle, and careful observation was made of the grains he pecked. The letters corresponding to those grains were afterwards formed into a word; which word was to be the answer desired.

It was thus that Libanius and Jamblichus fought who should succeed the emperor Valens; and the cock answering to the spaces ΘΕΟΔ, they concluded upon Theodore, but by a mistake, instead of Theodosius.

There are also other species of *alectoromantia*; in some the augury was taken from the crowing of the cock, wherein regard was had to the time of day, whether before noon or after; to which some added the consideration of the sign the sun was in, and the motion of the moon. Others speak of a kind of *alectoromantia* performed by help of a ring. Phil. Trans. N° 252.

ALECTRUONURUS, *crower*. See FESTUCA.

A-LEE, the situation of the helm, when it is pushed down to the lee-side of the ship, in order to put the ship about, or lay her head to the windward.

ALEGER, a name given to an inferior sort of vinegar, made of ale, or malt liquor, instead of wine. Power has given a description of the *ales* in *aleger*. V. Power, Exper. Philos. Obs. 3. p. 32.

ALEHOOF, in *Botany*. See GROUND-*ivy*.

ALEIPHA, from ἀλειφω, *I anoint*, in the *Materia Medica* of the ancients, a word used for all fatty bodies whatever. The oils of vegetables, and fat of animals, were all called by this general name. But these simple substances were not the only ones called by it, for it is very frequently used to express any sort of medicated oil impregnated with aromatic vegetables; but its general acceptation in this sense, was for such compositions as were intended to anoint the body; and therefore they were properly only vegetable or animal fats impregnated with the lighter parts of plants, and not clogged with an addition of powders, nor with wax, or any thing of that kind, which might have given them the consistence of ointments. The ancient physicians were very fond of these compositions, which they applied either to some diseased part only, or to the whole body, and after they had made the patient use the warm bath to relax and open the pores.

ALEMBIC, or LIMBEC, a chemical vessel, consisting of a matrass or body, fitted with a roundish head, terminating in a sloping tube, for the condensed vapours to pass through in distillation.

The word is formed of the Arabic particle *al*, and the Greek αμβιξ, a sort of earthen culinary vessel, mentioned by Athenæus and Hesychius. Though Matthæus Sylvaticus, in his Pandectæ Medicinæ, asserts the word *alembic* to be Arabic, and that it literally denotes the upper part of a distilling vessel.

Alembic is popularly understood of the whole instrument of distillation, with all its apparatus; but in the proper sense of the word, it is only a part of it; viz. a vessel usually of copper, whereof a concave, globular, metalline head is closely luted; so as to stop the rising vapours, and direct them into its rostrum, or beak.

The heat of the fire raising the volatile parts of the subject exposed in the bottom of the vessel, they are received into its head, where they are condensed, either by the coldness of the ambient air, or by water externally applied, and become a liquor, which runs out at the beak into another vessel called the RECIPIENT.

The head, or capital of the *alembic*, is sometimes incompassed with a vessel full of cold water, by way of refrigeratory; though this intention is now more commonly answered by a WORM-*tub*.

There are divers kinds of *alembics*; as an *open alembic*, which is also called *rostratus*, where the head and cucurbit are two separate parts; and a *blind alembic*, or blind head, where the capital is sealed hermetically upon the cucurbit. But the invention of RETORTS seems to have superseded the use of *alembics*.

ALEMBROTH, in the writings of the *Chymists*, a word used for a sort of fixed alkaline salt, which had the power of the famous alcahest, in dissolving bodies, opening the pores of most of all known substances, and thence, as well as by destroying sulphurs, promoting the separation of metals from their ores.

The word is said to be of Chaldee origin, and its natural meaning to be *plants ashes*, the *key of art*.

Some use the term *alembroth deflegmatum*, for salt of tartar.

ALEMDAR, an officer in the court of the grand signior, who bears the green standard of Mahomet, when the sultan appears in public on any solemn occasion.

ALENON, a word used by some of the old medical writers, as a name for the oil of sweet almonds.

ALEORE, ἀλεωρη, a word used by the old medical writers, for an intermission of ease, from the raging pains of any violent acute distemper.

ALERION, in *Blasonry*. See ALLERION.

ALES, a name given to a compound salt; it also signifies *centralled*, when used by physicians as an adjective.

ALETON, signifies meal. As Erotian and Hesychius explain it. It seems derived from ἀλέω, *to grind*, and to import the meal of any sort of corn. The word is frequently used by Hippocrates.

ALETRIS, *bastard* ALOE.

ALEUROMANCY, *aleuromantia*, derived from ἄλευρον, *meal*, and μαντία, *divination*, is the same with what was otherwise called *alphitomantia*, and *crithomantia*, and means an ancient kind of divination performed by means of meal or flour.

ALEXANDERS, in *Botany*, a genus of umbelliferous flowers. See ALISANDERS.

ALEXANDRIAN, in a particular sense, is applied to all those who professed or taught the sciences in the school of Alexandria.

ALEXANDRIAN is more particularly understood of a college of priests, consecrated to the service of Alexander Severus, after his deification.

ALEXANDRIAN *Copy*, is a manuscript, consisting of four volumes, in a large quarto size, which contains the whole Bible in Greek, including the Old and New Testament, with the Apocrypha, and some smaller pieces, but not quite complete. This manuscript is now preserved in the British Museum. It was sent as a present to king Charles I. from Cyrillus Locatis, patriarch of Constantinople, by Sir Thomas Rowe, ambassador from England to the grand signior, about the year 1628. Cyrillus brought it with him from Alexandria, where, probably, it was written. In a schedule annexed to it, he gives this account; that it was written, as tradition informed them, by Thecla, a noble Egyptian lady, about thirteen hundred years ago, not long after the council of Nice. But this high antiquity, and the authority of the tradition to which the patriarch refers, have been disputed; nor are the most accurate biblical writers agreed about its age. Grabe thinks that it might have been written before the end of the fourth century; others are of opinion, that it was not writ till near the end of the fifth century, or somewhat later. Those who are desirous of farther information concerning it, may consult the Prolegomena of Mills, Wetstein, and Grabe.

ALEXANDRIAN *Library* was first founded by Ptolemy Soter. Besides the books which he procured, his son Ptolemy Philadelphus added many more, and left in this library at his death a hundred thousand volumes; and the succeeding princes of this race enlarged it still more, till at length the books lodged in it amounted to the number of seven hundred thousand volumes. Part of this library consisting of four hundred thousand volumes was destroyed in the war which Julius Cæsar waged with the inhabitants of Alexandria; but it was again supplied anew by Cleopatra and others, and continued, though frequently plundered, to be very considerable and famous, till it was burnt by the Saracens in the 642d year of the Christian æra.

ALEXANDRIN, or ALEXANDRIAN, in *Poetry*, the name of a kind of verse, which consists of twelve, or of twelve and thirteen syllables, alternately; the rest, or pause, being always on the sixth syllable.

It is said to have taken its name from a poem on the life of Alexander, intitled, the *Alexandriad*; written, or at least translated into this kind of verse by some French poets; though others will have it so denominated from one of the translators, Alexander Paris.

This verse is thought by some very proper in the epopea, and the more sublime kinds of poetry; for which reason it is also called *Heroic Verse*.

It answers in our language to the hexameters in the Greek, and Latin; though according to some, it rather answers to the *senarii* of the ancient tragic poets. — Chapman's translation of Homer consists wholly of *Alexandrines*.

The advantage of the *Alexandrin* verse, and its keeping the rhimes from coming to near, and consequently hindering them from being so much perceived. To this may be added, that coming nearer to the nature of prose, it is fitter for theatrical dialogue, and supplies the office of the ancient iambics better than any other verse in rhime.

ALEXICACUS, something that preserves the body from harm or mischief. The word is compounded of ἀλέξω, *I drive away*, and κακὸς, *malum, evil*.

Alexicacus amounts to much the same with alexiterial. Count Rhodomanes gives this name more peculiarly to the spirit of wine-salt, and has published a work under that title.

ALEXICACUS, in *Antiquity*, was an attribute of Neptune, whom the many fishers used to invoke under this appellation, that their nets might be preserved from the *lupus*, or SWORD-*fish*, which used to tear them, and prevent the assistance which it was pretended the dolphins used to give the tunnies on this occasion.

ALEXIPHARMIC, in *Medicine*, expresses that property which a remedy, either simple or compound, hath to resist, or destroy every thing of a poisonous or malignant nature.

The word is derived from ἀλέξω, *arceo, I expel*; and φάρμακον, *poison*.

The ancients had a notion, that there was a poison in all malignant diseases, and in the generality of those whose cause was unknown. Whence *alexipharmic* became a denomination of all remedies and antidotes against malignant diseases, and of AMULETS.

Alexiterial, carminative, antidote, alexipharmic, and *counterpoison*, are all terms nearly of the same signification.

Alexipharmics are ordinarily divided into such as are general; and those more particular, supposed only to combat some particular disease. — But this division is founded more on speculation than experience.

Alexipharmic medicines in general contain a great number of volatile parts, and such as render the mass of blood fluid. The greatest part of them are aromatic and pungent to the taste. — Among the rest, it is true, there are some acid plants and juices; but these are only reckoned in the number, on account of their use in malignant and colliquative fevers.

Alexipharmics chiefly act by exciting, or increasing a diaphoresis, or perspiration; by which the noxious matter is thrown off. See SUDORIFIC.

Alexipharmics, whether simple or compound, are also esteemed preservatives against malignant and pestilential fevers; but they are to be used with caution; some of them being only proper in condensations, and others only in colliquations of the blood.

It is dangerous to administer *alexipharmics* to young people of plethoric habit, without previous evacuations; and Celsus advises only to promote a sweat, when the marks of one approaching are evident.

Alexipharmics are deemed proper correctors of OPIUM, when it produces sickness, nausea, &c. They are also serviceable in those diseases which proceed from external cold, and obstructed perspiration; as catarrhs, rheumatisms, fluxes, coughs, and glandular tumors. *Alexipharmics* make a large class of medicines; but the principal ones are these: 1. Of the animal kingdom, hartshorn, bezoars, and the bones and teeth of different animals. 2. Of the vegetable kingdom, the leaves and flowers of all the aromatic plants, especially such as are umbelliferous. 3. Of the mineral kingdom, the different preparations of antimony, the dulcified spirit of vitriol with alcohol.

ALEXITERIAL, in *Medicine*, a term of the same import with *alexipharmic*; but chiefly applied to the milk-water of that name, and remedies against the poisonous bites of animals.

But it is said by some authors that *alexiterials* differ from alexipharmics: thus, alexipharmics signify medicines against poisons taken internally; whereas *alexiterials* are remedies against the poisons of venomous animals inflicted externally.

ALFANDIGA, the name of the custom house at Lisbon.

ALFAQUES, among the Spanish Moriscos, were the clergy, or those who instructed them in the Mahometan faith.

The *alfaques* differed from the *morabites*, who answered to monks, or religious, among Christians.

ALFDOUCH, a name given by the Moors to a sort of *vermicelli*, which they make of flour and water, and are very fond of in their entertainments.

ALFECCA, in *Astronomy*, a name given to the star commonly called LUCIDA *coronæ*. It is also called *Alfeta*.

ALFET, anciently signified a large caldron, in which boiling water was put, for the accused to plunge his hand in up to the elbow, by way of trial or purgation.

ALGA, in *Botany*, the name of a genus of plants of the same kind with the FUCUS, or *sea-weed* of Linnæus, but they are composed of very long and narrow grassy leaves, or of long capillaceous filaments. Tournefort enumerates three species. Tournef. Inst. 580.

The *algæ* are some *marinæ*, or growing in the sea; others *fontanæ*, or produced in rivers; others *fossiles*, growing on springs; and some again grow on stones at the bottom of the water; others on shells by the shore; others even float on the surface of the water.

One of the most considerable of the tribe of *algæ*, is the common, called *alga vulgaris*; sometimes also *alga angustifolia tuberariorum*, as being used in the glass-works like kali.

Its ashes afford great plenty of fixed salt.

Some speak of its medicinal properties as aperient, vulnerary, and detersive.

It is said that the *alga marina* put under the roots of cole-worts, and other plants, will forward their growth.

Alga is popularly known in England by the name of *wrack*, being generally conceived rather as excrescences than

as regular plants; but this is unphilosophical, and falſe.

ALGÆ, *flags*, form one of the ſeven families of plants in the Linnæan diſtribution.

ALGALI, a name given, by ſome of the old chemical writers, to nitre.

ALGAROT, or ALGAROTH, in the Arabian *Chemiſtry*, a powder prepared of butter of antimony, being in reality no more than the *regulus* of that mineral, diſſolved in acids, and ſeparated again by means of ſeveral waſhings with luke-warm water, which imbibes thoſe acids. Some derive the name from *Algarath*, a phyſician of Verona, who, they ſay, invented the preparation.

This is alſo called *mercurius vitæ*, or ſimply *emetic powder*.—It purges violently, both upwards and downwards; and is more properly called *antimonium mortis*. See BUTTER *of* ANTIMONY.

By collecting all the lotions, and evaporating two third parts, what remains is a very acid liquor, called *ſpirit of philoſophical vitriol*.

There are divers ways of preparing *algarot*, as by precipitating the butter, or by diſtilling antimony, together with the ſweet ſublimate, or white precipitate of mercury.

ALGATRANE, a ſort of pitch found in the bay formed by the point of the cape of St. Helena, on the ſouth of the iſle of Plata.

ALGAVAREIA, the language anciently ſpoken by the Moriſcos in Spain.

The *Algavareia* was a ſort of Arabic, and ſtood contradiſtinguiſhed from the *Aljamiea*.

ALGEBRA, a method of reſolving problems, by means of equations.

Critics have given various etymologies of this word; but the moſt probable is from *gebr*, a word whence, by prefixing the particle *al*, we have formed *algebra*, which is pure Arabic, and properly ſignifies the reduction of broken numbers to a whole number.—However, the Arabs, it is to be obſerved, never uſe the word *algebra* alone, to expreſs what we mean by it; but always add it to the word *macabelah*, which ſignifies *oppoſition* and *compariſon*.—Thus *algebra almucabelah*, is what we properly call *algebra*.

Some authors define *algebra* the art of ſolving all problems capable of being ſolved; but this is rather the idea of analyſis, or the analytic art.

The Arabs call it, the *art of reſtitution and compariſon*; or, the *art of reſolution and equation*.—Lucas de Burgo, the firſt European who wrote of *algebra*, calls it, the *rule of reſtauration and oppoſition*.—The Italians call it, *regula rei & cenſus*, that is the rule of the root and the ſquare; the root with them being called *res*, and the ſquare *cenſus*.—Others call it *ſpecious arithmetic*; others, *univerſal arithmetic*.

Algebra is a peculiar kind of ARITHMETIC, which takes the quantity ſought, whether it be a number, or a line, or any other quantity, as if it were granted, and by means of one or more quantities given, proceeds by conſequences till the quantity at firſt only ſuppoſed to be known, or at leaſt ſome power thereof, is found to be equal to ſome quantity or quantities which are known, and conſequently itſelf is known.

Algebra is of two kinds, *numeral* and *literal*.

ALGEBRA, *numeral*, or *vulgar*, is that of the ancients, which only had place in the reſolution of arithmetical queſtions.—In this, the quantity ſought is repreſented by ſome letter or character; but all the given quantities are expreſſed by numbers. This is thought by ſome to have proved an introduction to the art of keeping merchants accounts by double entry.

ALGEBRA, *ſpecious* or *literal*, or the *new algebra*, is that wherein the given or known quantities, as well as the unknown, are all expreſſed or repreſented by their ſpecies, or letters of the alphabet.

This eaſes the memory and imagination of the vaſt ſtreſs or effort, required to keep ſeveral matters, neceſſary for the diſcovery of the truth in hand, preſent to the mind: for which reaſon this art may be properly denominated *metaphyſical geometry*.

Specious algebra is not, like the numeral, confined to certain kinds of problems, but ſerves univerſally for the inveſtigation or invention of theorems, as well as the reſolution and demonſtration of all kinds of problems, both arithmetical and geometrical.

The letters uſed in *algebra* do each ſeparately repreſent either lines or numbers, as the problem is arithmetical or geometrical; and together they repreſent planes, ſolids, and powers, more or leſs high, as the letters are in a greater or leſs number.—For inſtance, if there be two letters, *a*, *b*, they repreſent a rectangle, whoſe two ſides are expreſſed, one by the letter *a*, and the other by *b*; ſo that by their mutual multiplication they produce the plane *a b*. Where the ſame letter is repeated twice, as *a a*, they denote a ſquare. Three letters, *a b c*, repreſent a ſolid, or a rectangled parallelepiped, whoſe three dimenſions are expreſſed by the three letters *a b c*; the length by *a*, the breadth by *b*, and the depth by *c*: ſo that by their mutual multiplication they produce the ſolid *a b c*.

As the multiplication of dimenſions is expreſſed by the multiplication of letters, and as the number of theſe may be ſo great as to become incommodious; the method is only to write down the root, and on the right hand to write the index of the power, that is, the number of letters wherein the power to be expreſſed does conſiſt; as a^2, a^3, a^4, a^5; the laſt of which ſignifies as much as *a* multiplied five times into itſelf; and ſo of the reſt.

For the ſymbols, characters, &c. uſed in *algebra*, with their application, &c. See CHARACTER, and QUANTITY, &c.

For the method of performing the ſeveral operations in *algebra*. See ADDITION, SUBTRACTION, and MULTIPLICATION.

The origin of this art is very uncertain and obſcure.—The invention is uſually aſcribed to Diophantus, a Greek author, who wrote thirteen books, though only ſix of them are extant, firſt publiſhed by Xylander, in 1575, and ſince commented on, and improved by Gaſper Bachet, of the French Academy; and ſince by M. Fermat. And yet *algebra* ſeems not to have been wholly unknown to the ancient mathematicians, long before the age of Diophantus; we ſee the traces and effects of it in many places, though it looks as if they had deſignedly concealed it.—Something of it there ſeems to be in Euclid, or at leaſt in Theon upon Euclid, who obſerves that Plato had begun to teach it.—And there are other inſtances of it in Pappus, and more in Archimedes and Apollonius.

But the truth is, the analyſis uſed by thoſe authors is rather geometrical than *algebraical*: as appears by the examples thereof which we find in their works: ſo that we make no ſcruple to ſay, that Diophantus is the firſt, and only author among the Greeks, who has treated of *algebra* profeſſedly. This art, however, was in uſe among the Arabs much earlier than among the Greeks. And it is ſaid, that the Arabs too borrowed it from the Perſians, and the Perſians from the Indians.—It is added, that the Arabs carried it into Spain, whence, ſome are of opinion, it paſſed into England, before Diophantus was known among us.

The firſt who wrote on the ſubject in this part of the world, was Lucas Pacciolus, or Lucas de Burgo, a Cordelier; whoſe book, in Italian, was printed at Venice in 1494.—This author makes mention of Leonardus Piſanus, and ſome others, of whom he had learned the art; but we have none of their writings. He adds, that *algebra* came originally from the Arabs, and hence mentions Diophantus, which makes it probable, that this author was not then known in Europe. His *algebra* goes no farther than ſimple and quadratic equations.

After Pacciolus appeared Stifelius, a good author, but neither did he advance any farther.

After him came Scipio Ferreus, Cardan, Tartaglia, and ſome others; who reached as far as the ſolution of ſome cubic equations. Bombelli followed theſe, and went a little farther. At laſt came Nunnius, Ramus, Schoner, Saligmac, Clavius, &c. who all of them took different courſes, but none of them went beyond quadratics.

About the ſame time, Diophantus was firſt made public; whoſe method is very different from that of the Arabs, which had been followed till then.

In 1590, Vieta entered on the ſtage, and introduced what he called the *ſpecious arithmetic*, which conſiſts in denoting the quantities, both known, and unknown, by ſymbols or letters.—He alſo introduced an ingenious method of extracting the roots of equations, by approximations; ſince much facilitated by Raphſon, in his Analyſis Æquationum.

Vieta was followed by Oughtred, an Engliſhman, who, in his Clavis Mathematica, printed in 1631, improved Vieta's method; and has invented ſeveral compendious characters, to ſhew the ſums, differences, rectangles, ſquares, cubes, &c.

Mr. Harriot, another Engliſhman, contemporary with Oughtred, left ſeveral treatiſes at his death; and among the reſt, an Analyſis, or Algebra, which was printed in 1631, where Vieta's method is brought into a ſtill more commodious form; and this is much eſteemed to this day.

In 1637, Des Cartes publiſhed his Geometry, wherein he made uſe of the literal calculus, and the *algebraic* rules of Harriot; and as Oughtred in his Clavis, and Matth. Gheraldus, in his books of Mathematical Compoſition and Reſolution, publiſhed in 1630, applied Vieta's arithmetic to elementary geometry, and gave the conſtruction

traction of simple and quadratic equations; so Des Cartes applied Harriot's method to the higher geometry, explaining the nature of curves by equations, and adding the constructions of cubic, biquadratic, and other higher equations.

Des Cartes's rule for constructing cubic and biquadratic equations was farther improved by Tho. Baker, in his Clavis Geometrica Catholica, published in 1684, and the foundation of such constructions, with the application of *algebra* to the quadratures of curves, questions de maximis & minimis, the centrobaryc method of Guldinus, &c. was given by R. Sluzius, in 1668, as also by Fermat, in his Opera Mathematica; Roberval, in the Mem. de Mathem. & de Physique; and Barrow, in his Lect. Geomet.—In 1708, *algebra* was applied to the laws of change and gaming by R. de Montmort; and since by de Moivre, and James Bernoulli, and others. Thus much for the progress of *algebra*.—The Elements of the Art were compiled and published by Kersey in 1673, wherein the species, arithmetic, and the nature of equations, are largely explained and illustrated by variety of examples: the whole substance of Diophantus is here delivered; and many things added concerning mathematical composition and resolution from Ghetaldus. The like has been since done by Prestet in 1675, and by Ozanam in 1703.—But these authors omit the application of *algebra* to geometry; which defect is supplied by Guisnee in a French treatise expressly on the subject, published in 1705, and L'Hopital in his Analytical Treatise of the Conic Sections, in 1707.—The rules of *algebra* are also compendiously delivered by Sir Isaac Newton, in his Arithmetica Universalis, first published in 1707, which abounds in select examples, and contains several rules and methods invented by the author. This piece is rendered complete by Mr. Maclaurin's commentary on it, which is lately published and entitled a Treatise of Algebra.

Other writers on *algebra*, are Dr. Pell, who revised and published a piece of *algebra* first published in Dutch. In this the doctor has given us a peculiar method of his own for applying *algebra* to problems of various kinds; and introduced the way of registering the whole process in the margin. This method has been followed by Mr. Ward, and Mr. Hammond, in their treatises on this subject. Dr. Wallis published a treatise on *algebra*, both *historical* and *practical*, in the year 1685. There are many other treatises of *algebra*, of very various extent and value, that have been published since. See particularly Ward's Mathematicians Guide to *Algebra*; Jones's Synopsis; Wolfius's *Algebra*; Stanion's *Algebra*; Dodson's Mathematical Repository; Clairaut's Elements of *Algebra*; and Dr. Saunderson's Treatise of *Algebra*, in two volumes, quarto, which is the most comprehensive of any.

Algebra has been also applied to the consideration and calculus of infinites; from whence a new and extensive branch of knowledge has arisen, called the *doctrine of* FLUXIONS, or *analysis per aequationes*, or the *calculus differentialis*.—The authors on this subject, see under ANALYSIS.

ALGEBRAICAL, something that relates to *algebra*.

Thus we say, *algebraical* CHARACTERS, of symbols, curves, relations, &c.

ALGEBRAICAL *curve*, is a curve, wherein the relation of the abscisses to the semiordinates may be defined by an *algebraical* equation.

These are also called *geometrical lines*, or *curves*.

Algebraical curves stand contradistinguished to MECHANICAL or TRANSCENDENTAL ones.

ALGEBRAICAL *solution*. See RESOLUTION.

ALGEBRAIST, or ALGEBRISTE, is affectedly used in some writers for *algebra* itself. In which sense, we read of the application of *algebraists*.

ALGEBRAIST, a person skilled in *algebra*.

ALGEDO, the name of an accident which sometimes happens in a *gonorrhœa*, by the stoppage of the running soon after it appears. Calomel repeated so as to purge, brings back the running, and the difficulties and danger disappear.

ALGENEB, or ALGENIB, in *Astronomy*, a fixed star of the second magnitude, on the right side of PEGASUS.

ALGIABARII, a Mahometan sect of predestinarians, who attribute all the actions of men, good or evil, to the agency or influence of God.

The *Algiabarii* stand opposed to the ALKADARII.

ALGOIDES, in *Botany*, a name given by Vaillant to a genus of plants, called by Micheli and Linnæus, XANICHELLIA.

ALGOL, or *Medusa's Head*, a fixed star of the third magnitude, in the constellation PERSEUS.

ALGONQUIN, one of the chief American languages, spoken especially in Canada, or New France. The *Algonquin* is one of the two principal languages spoken in the Northern America, the other is the *Huron*.

It takes its name from an ancient people of the same denomination, now almost extinct, the Iroquois being the only remains.

The *Algonquin* tongue is spoken, with some diversity of dialects, by most of the natives from the river St. Laurence to that of Mississippi.

The baron la Hontan has given a little dictionary of the *Algonquin* language. Reland has also given a glossary of several words of the same. The first is entitled Mem. de l'Americ. Septentr. Hag. 1703; the last is in his Dissert. Misc. p. 3. diss. 3.

ALGOR, is used by some *Medicinal Writers*, to denote a preternatural coldness or chilness in a part. Musgrave speaks, in this sense, of an *algor* of the arm, attended with an *atrophy*.

ALGORAB, a fixed star, of the third magnitude, in the right wing of the constellation CORVUS.

ALGORITHM, an Arabic term, which some authors, and especially the Spaniards, make use of to signify the practical operation of the several parts of *specious* arithmetic, or *algebra*.

Sometimes it is also used for the practice of common arithmetic, by ten numeral figures.

Algorism is properly the art of numbering truly, and readily; and comprehends the six common rules of arithmetic.—It is sometimes called *logistica numerosa*.

Wallis, the *algorism* of integers, the *algorithm* of fractions, the *algorithm* of surds, &c.

ALGOSAREL, in *Botany*, a name used by Avicenna, and some other authors, for the common wild CARROT, or *daucus sylvestris*.

ALGUAZIL, in the Spanish Policy, a serjeant or official of a judge, or magistrate, appointed to see his decrees executed.

ALHABOR, among the Arabian *Astronomers*, is that star commonly called SIRIUS.

ALHAGI, the *camel thorn* BROOM of *Syria*. The inhabitants of Aleppo gather from it a new kind of *manna*, the grains of which are somewhat larger than *coriander*. The leaves are of a hot drying nature, and the natives use the flowers as a purgative: one handful of which boiled in water suffices for a dose.

ALHANDAL, a term in the Arabian *Pharmacy*, signifying *colocynth*.—The TROCHES of *alhandal*, or *trochisci alhandal*, are a kind of TROCHES composed of *colocynth*, *scammony*, and *gum tragacanth*.

The word is formed of the Arabic *hanbal*, or *handhal*, a name for *colocynth*.

They are esteemed good purgatives, and are used on divers occasions.

ALHEN, in *Natural History*, a name by which Dr. Shaw, and others, have called a genus of plants, since named by Linnæus LAWSONIA.

ALHIDADE, or ALIDADE, the index or label of an astronomical, or geometrical instrument, for taking of heights or distances.

The word is Arabic, and it signifies the same thing.—In Greek and Latin, it is called ΔΙΟΠΤΡΑ, *dioptra*, and *linea fiducia*, *fiducial line*.

The *alhidade* is a kind of ruler moveable on the centre of the instrument; and carrying two SIGHTS, which are erected perpendicularly at the two extremities of it.

ALHIRTO, in *Astronomy*, a fixed star of the third magnitude, in the constellation CASSIOPEIA. This is otherwise called *cephren Gedicæ*. Near this star, in the year 1600, appeared a new star, which lasted twenty-one years, and then disappeared again.

ALI gives a denomination to a sect or division, among the Mahometans, who adhere to the right of succession of *Ali*, the fourth caliph, or successor of Mahomet, and the reform of *Moslemanism* introduced by him. Sale's Prel. Diss.

The sectaries of *Ali* are more particularly called *Schiites*, and stand opposed to the *Sonnites*, or sect of Omar, who adhere to the law, as left by Mahomet, Abubeker, and Omar.

Ali was cousin of Mahomet, and son-in-law of that prophet, having married his daughter Fatimah. After Mahomet's death, great disputes arose about the succession; many stood for *Ali*, but Abubeker was preferred, and elected the first caliph. *Ali* took his turn, after the death of Othman.

The Persians are the chief adherents to the sect of *Ali*, whom they hold to have been the legitimate successor of Mahomet, and Abubeker an usurper. On the contrary, the Turks are of the sect of Omar, and hold *Ali* in execration, having raised a furious civil war among the *Mussulmen*.

The Persian emperors of the family of Sophi pretend to be the direct descendants from *Ali*; but the descent is very darkly made out.

The distinguishing badge of the followers of *Ali*, is a red turban, which is worn by the Persians, who are hence called in derision, by the Turks, *Kisilbash*, q. d. *red heads*.

Ali is reputed the author of divers works, particularly a Cabalistic, in great repute among the Arabs and Persians.

Persians; part of which has been published in English by Mr. Oakley.

ALJAMIA, is a name which the Moriscoes in Spain give to the language of the Spaniards.

Among other articles agreed on by the treaty, which was appointed by the emperor Charles V. in 1526, in favour of the Moriscoes, this was one, that the Moriscoes should no longer speak Algarena, i. e. Moorish, or Arabic, but should all speak *Aljamia*, i. e. Spanish, as it was called by the Moors, and all their writings and contracts should be in this language. Gordon's Mod. Traite, tom. 1. p. 25.

ALJARBUCHA, in *Natural History*, the Arabian name for a large kind of ray, common in that country, and good to eat, according to Bochart, who thinks it the same as the *shephon*, mentioned in Leviticus, and there declared unclean. Levit. xi. 3.

ALIAS, in *Law*, a second or further writ issued from the courts of Westminster, after a capias, &c. sued out without effect.

ALIBI, in *Law*, denotes the absence of the accused from the place where he is charged with having committed a crime; or his being *elsewhere*, as the word imports, at the time specified.

ALICA, in the *Ancient Physic* and *Diet*, a kind of food; but the various accounts given of it by authors, make it uncertain what it was; some representing it as a sort of grain, and others as an ointment made of grain.

The Greek word for *alica* was *zea*, which term, and *ptisana*, seem to have been general names for all spelt or hulled grain, beaten or ground into a pulp.

Bay, in his history, says the *alica* differs from the *zea*, as the grass from the *spires*.

ALIGARDE, in *Ancient History*, a term synonymous with praitorians.

ALICATICA, an Arabian weight.

ALICES, *in Anatomy*, fibres investing the small guts.

ALICULA, in *Zoology*, a kind of panicle found under the Peruvian cuirasses.

The *alicula* is a part of *allecula*: some explained it to be *femoralia*.

ALIDES, in the *Mahometan History*, the descendants of Ali, otherwise called *Fatimites*.

The *Alides* had a long struggle with the Ommiades, for the khalifate, or succession of Mahomet; which is the Mahometan papacy.

ALIE-KUVVE, a Lapland name given to a kind of fea-fowl, the history of which is given by Brunnichius. Ills. Not. tom. I. p. 186.

ALJEMBUTI, or, as some write it, *zembut*, a name given by the Arabians, Avicenna, and others, to a species of ACACIA, which they also call the Nebathæan pod, and cersion, or filiqua, and which some have supposed to be the same with the common carob; but they especially distinguish it, by saying that it is an astringent, whereas the carob is gently purgative; and that the fruit of it was given in hæmorrhages. Nay, Isidore goes so far as to say, that the acerb juice of the twigs was made of its fruit, while unripe.

ALIEN, in *Law*, a stranger, or person born out of the king's allegiance; or under the jurisdiction of another sovereign; and not naturalized, or made a denizen.

Of these there are two kinds; viz. *alien friends*, who are of those countries which are at peace and league with us; and *alien enemies*, who are of countries at war with us; to which some add a third, viz. *alien neutrals*.

A man born out of the land, but within the limits of the king's obedience, by which the law understands not only the king's dominions, but also the children of English parents out of the king's obedience, provided the parents at the time of the birth be of such obedience, is no alien, but a subject of the king; stat. 2. 25 Edw. III. commonly called the statute *De natis ultra mare*.

Also, that if one born out of the King's allegiance come and dwell in England, his children begotten here are not aliens, but denizens.

By the statute 11 and 12 W. III. cap. 6. all persons being the king's natural born subjects, may inherit as heirs to their ancestors, though their ancestors were aliens. Children of an ambassador to a foreign country by a wife who is an English woman, are natural born subjects by the common law. 7 Rep. 17. And if an English merchant living beyond sea, marries a wife there, and hath a child by her and dies, that child is born a denizen, and shall be heir to him, notwithstanding the wife be an alien. Cro. Car. 605. Persons born in English plantations are natural born subjects.

An alien can hold no land by descent or purchase, or let tenant by the courtesy, or in dower; and if he purchase, the king shall have it; but he may purchase a house for years for habitation, during his residence, as necessary for trade. If an alien merchant leaves the kingdom, the king shall have the lease; if he be no merchant, the king shall have his lease for years, though it were to his habitation; and by the stat. 32 H. VIII. there is a penalty for letting houses to aliens. 5 Rep. 70. — 7 Rep. 18. — 1 Inft. 2. 129. — 2 Inft. 740.

A devise of lands to an alien is void; and if a man be bound to an alien enemy in a bond, it is void to him, but the king shall have it.

Aliens, however, may obtain grants and preferral either by trade, &c. and may bring actions for the same; but an alien enemy cannot maintain any action whatever, nor obtain any thing lawfully within the realm. 1 Vaugh. 274.

Persons of this description are by several acts of parliament put under several other restrictions, with regard to carrying trades, taking apprentices, and are likewise debarred from being factors in the plantations, &c.

ALIENS duty, an impost laid on all goods imported into England by aliens, denizens, and even on certain goods imported by natural subjects, if they be brought in foreign bottoms, the same above what is paid by the same goods imported by British, and in certain shipping. 12 Stat. Car. II.

Aliens duty is otherwise called *petty custom*, and *navigation duty*.

Fish, dried or falted, and rodfish, at burning, not caught in British veffels, and cured by British, pay a double *aliens duty*.

Aliens duty now wholly exempted by the following acts. 12 Car. II. cap. 4. — 25 Car. II. cap. 6. — 1 Ann. cap. 27 — 6 Ann. cap. 20. — 8 Ann. cap. 7. — 9 Ann. cap. 6. — 8 Geo. I. cap. 15. — 11 Geo. I. cap. 29.

Scraggs, pedlars, and *hawkers*, pay alſo the duty of London, the property of the *aldermen*. The wine-ſtarting aliens are permitted to import foreign commodities into Great Britain. 22 Car. II. cap. 13.

ALIEN is sometimes used, in *Middle Age Writers*, for *separate*. Du Cange.

ALIENARE, in civil *law*. See ALIEN.

ALIEN *priories*, a subordinate kind of monasteries in England, belonging to, and dependent on, other monasteries in foreign countries. Vide Plowd. Mouast. Abr. p. 44.

ALIENATION, ALIENATIO, in *Law*, the act of making a thing another man's; or the altering or transferring the property, and poſſeſſion of lands, tenements, or other things, from one man to another.

To *alienate*, as alien in MORTMAIN, is to make over lands or tenements to a religious community, or some body *politic*.

To *alienate in fee*, is to ſell the fee-ſimple of any land, or other incorporeal right.

All perſons who have a right to lands, may generally *alienate* them to others; but ſome *alienations* are prohibited; ſuch as *alienations* by tenant for life, &c. whereby they incur a forfeiture of their eſtate. 1 Inſt. 222.

By the ſtatute of Edward I. a bar was put to *alienations*, by what we call *entails*, which is an expedient for preſerving perpetuities in families; but counter-expedients were deviſed to defeat this intent, and a practice was introduced of conveying eſtates by fines, and of barring remainders and reverſions by *recoveries*.

The ſtatute for *alienations* in Henry the Seventh's time, had a great effect on the conſtitution of this kingdom; as among other regulations of that reign, it tended to throw the balance of power more into the hands of the people. By the ſtat. 12 Car. II. cap. 24. fines for *alienations* are taken away.

Crown lands are only *alienable* under a ſtatute of perpetual redemption.

The council of Lateran, held in 1123, forbids any clerk to *alienate* his benefice, prebend, or the like.

By the laws of the ancient Jews, lands could only be *alienated* for the ſpace of fifty years. At each return of the jubilee, all returned again to the primitive owners, or their deſcendants, to whom the lands were originally allotted, as the firſt diſtribution of Canaan.

ALIENATO *a mensâ*. See ABDICATION.

ALIENATION *fine*, is an office to which all writs of covenants and entry, upon which fines are levied, and recoveries ſuffered, are carried, to have fines for *alienation* ſet and paid thereon.

ALIFORMIS *muſculi*, a pair of muſcles, ariſing from the *os ſacrum* and *os ilium*, and ending in the neck of the lower *os femoris*, towards the internal part of the thigh.

They are thus called from *ala*, *wing*, and *forma*, *ſhape*, as reſembling wings.

ALISPHENOIDES *proceſſus*, in *Anatomy*, the prominences of the os sphenoides.

ALIS *ordo*, ALIS *in regno*, are phraſes which often occur in our ancient records and hiſtories. Their meaning

ing has occasioned much dispute. Dr. Bayly will have them to signify only remains *in cavities* which Mr. Ettrel endeavours to refute, and shew that they denote the whole contents of the kingdom. Hist. of Eng. tom. 1. Appen.

ALIMA, among *Mineralists*, a kind of leaf found in gold mines, out of which lead is extracted.

ALIMENT, ALIMENTUM, in a *physical sense*, is whatever may be digested, and turned into chyle, so as to be afterwards converted into blood, for augmenting the body, or repairing its continual waste.

The word is formed of *alere*, *to nourish*. See CHYLIFICATION, DIGESTION, FOOD, and NUTRITION.

ALIMENT of plants. See PLANTS.

ALIMENTARY, ALIMENTAL, something that relates to aliment, or food.

The ancient physicians held, that every humour consists of two parts; an *alimentary*, and an excrementitious one.

ALIMENTARY *vessels*, *duct*, *alimentum*, is a name given by Dr. Tyson and some others, to that part of the body through which the food passes, from its reception into the mouth, to its exit at the anus; including the *pharynx*, *stomach*, and *intestines*.

Dr. Morgan considers the whole alimentary tube (including the stomach, intestines, and bladder) as constituting one gland; of the like nature, structure, and use with the other glands of the body.

Every gland has its vas *deferens*, *ductus*, and *reparatorius*, together with its constituent *secretory*, whence the matter is to be collected in first prepared by digestion, &c. in this grand primary concoctive gland, the *pharynx*, in the mouth of the stomach, and the *duodenum*, the first of the *intestines*, which is also the *vas deferens* common to the whole; the *ductus* is the *intestinum rectum*, and the *reparatorius* the *emulgents* from the aorta, or some branch of it; the *secretory* is common to the same common vas *deferens*, or common excretory duct. The whole parenchyma of this, as of every other gland, we grant, is by hairs, or fibrous, *filamentous* glandulous *colature* of arteries, and excrementary capillaments.

The whole *alimentary*, from its use, may be artificially divided into four parts. 1. That which conveys the food, called the *œsophagus*. 2. That which digests or concocts it, called the *stomach*. 3. That which further perfects the chyle, called the *intestines*. 4. That which expels the feces called the *rectum*. Phil. Trans. N° 444. p. 1555.

This duct is found to be the true characteristic of an animal, or *sentient vessel*; since there being no animal without it, and all never has it, being properly enough ranged under the class of animals. Plants receive their nourishment by the numerous ducts of their roots, but have no common receptacle for digesting the food received, or for carrying off the feces remote. But in all even the lowest of animals, we may observe a stomach and intestines; even where we cannot perceive any but indeterminate or any organs of the senses, unless that common one of touching as in oysters. Phil. Trans. N° 469. p. 1179 &c.

Dr. Willis produces arguments from the structure of the animal organs to make it more than probable that they are carnivorous. To this purpose, Dr. Tyson makes many observations. Phil. Trans. N° 180.

ALIMENTARY *canal*, or sometimes also understood of the thoracic duct.

ALIMENTARY *law*, or *ordinance*, was an old law among the Romans, whereby children were obliged to find sustenance for their parents.

ALIMENTARIA *puerl*, *boys* were certain children maintained and educated by the munificence of the emperors, in a sort of public places, not unlike our hospitals.

Trajan was the first that thought up any of these *alimentary boys*. He was imitated by Adrian. Antoninus Pius did the same for a number of maids, at the solicitations of Faustina; and hence, in some medals of that empress, we read PUELLÆ FAUSTINIANÆ.—Alexander Severus did the like, at the request of Mamæa; and the maids thus educated are called Mamæ.

ALIMENTATION is used by some naturalists, for what we more commonly call NUTRITION.

ALIMONY, ALIMONIA, property signifies nourishment, or maintenance; but in modern style, in Law, it denotes that portion, or allowance, which a married woman has for, upon any occasional separation from her husband, wherein she is not charged with elopement, or adultery.

This was anciently called *separalis sustentatio*, *separate maintenance*, and was recoverable only in the spiritual court, but now is recoverable also at common law.

Where a woman is divorced *a mensa et thoro*, she may sue her husband in the court Christian for alimony, or maintenance, out of his husband's estate, during the separation, either in the chancery, or in the spiritual court; and it will be allowed, except in the cases of elopement, and adultery, as aforesaid. 1 Hill. 235.

ALIPASTA, in *Botany*, a name given by some of the Greek writers to the common hemlock. It has been thus called, from its quality of pulling the appetite, and making it intolerable either of hunger or thirst.

ALINDESIS, in the *ancient Gymnastic Exercises*, a kind of exercise, wherein persons being besmeared with oil, rolled themselves naked in the dust.

The word is sometimes also written ALINDA.

ALIPA *lana*, in *Pharmacy*, a name given by Avicen to the grease left behind by Attick LUBRICK, and by others SUCK *pinguitie*.

ALIPANGOS, in the *ancient Greek*, an appellation given to any liquid medicines or lotions to be used on the naked body.

The word is sometimes also written ALIPANTES.—It is purely Greek, ἀλειφω, compounded of the preposition, and ἀλειφω, *I anoint*, or *smear*. In which sense ἀλειφα answers to *ceræ*, or plasters, which were for the most part called also by Celsus, *unguenta*.

Hence the name seems to the remedies applied to green wounds, to check the inflammation, and hasten their healing.

ALIPILARIUS, or ALIPILUS, in *Antiquity*, an officer belonging to the baths, who, by means of wax, and wax plasters, took off the hairs from the skin, of any person. The servants who performed this office were called *depilatores*, and *dropacistæ*.

The depilatories used to what the Greeks called ἀλειπτηρια.

The ancient Romans took it for a mark of cleanliness to keep the body free of hairs. To effect this, they were neither, according to the fashion of the times, to go without pains, with pincers and razor, and by the *alipilus*, or instrument for this purpose.

ALIPOW MEWIN CEVI, a kind of white *orpiment*, which is a strong purgative. It is to be found in several places of Languedoc, particularly near Celas, whence the name. Lemnius have given it as a remedy. It is sometimes applied to *fistulæ*, with good success, but is dangerous, since it is a much stronger purgative.

ALIPTA, among the *ancient Gymnastics*, is used to express a person who anoints the body with what was proper to combat, to run, and wrestle.

ALIPTICA is sometimes also used, in a more proper sense, for the direction, or superintendant of the exercises of the athletæ.

In which sense, ἀλειπτικη is synonymous with γυμναστικη, and SALTATIO.

ALIPTERIUM, among the *ancients*, a place in the *gymnasia* and *thermæ*, where the athletæ were anointed before their exercises.

The *aliptericus*, or *aliptarius*, was otherwise called ELEOTHESIUS, and *unctuarius*; sometimes also *cerarius*.

ALIQUANT *parts*, in the *Arithmetic*, are those which will not measure or divide any number exactly. Or an *aliquant part*, is that which being taken any number of times, is always greater or less than the whole. See ALIQUOT.

Thus 5 is an aliquant part of 12, for being taken twice, it falls short; and when taken three times it exceeds 12.

The *aliquant parts* of a pound, or 20s. are

1s. an *aliquant part* compounded of a tenth and 20th
2s. of a 5th and a tenth.
3s. of a 6th and a tenth.
4s. of two 5ths.
5s. of a 4th and a 5th.
6s. of a 6th and a 5th.
8s. of a half and a 20th.
10s. of a half and a tenth.
13s. 4d. a half, a tenth, and a 20th.
14s. of a half and a 5th.
15s. of a half and a 6th.
16s. of a half and a 10th.
18s. of a half, a 5th, and a tenth.
19s. of a half, a 5th, and a 20th.

1 — of a half, a 4th, and a 5th. See MULTIPLICATION.

ALIQUOT *parts*, in *Arithmetic*, are such parts of any number or quantity, as will exactly measure it, without any remainder.—Or it is a part, which being taken a certain number of times, becomes equal to the number, or integer.

The word is formed of *aliquot*, any number of times. Thus, 3 is an *aliquot part* of 12, because, being taken four times, it will just measure it.

The *aliquot parts* are as follow:

1s. — of 20s.	2s. 6d. an eighth.
5s. a fourth.	10 s. a tenth.
4s. a fifth.	3s. 4d. a fifteenth.
2s. a tenth.	1s. 8d. a thirtieth.
1s. 6d. a twentieth.	10d. a twenty-fourth.
6s. 8d. a third.	5d. a forty-eighth.
10s. a half.	

To multiply by the help of *aliquot parts*, see MULTIPLICATION.

We must not confound an *aliquot part* with that of a commensurable, for every *aliquot part* is a commensurable, but not *vice versâ*. Thus four is commensurable with 6, but is not an aliquot part of it. Phil. Trans. N° 47.

ALISANDER, a mineral, in Silesia, by some of the people among it called *Ore*. Its characters are these: it has an unpolished surface; the principles united by nature, the small cubes are cross'd they have no investation, but the appearance of the flowers are flower differently; the flowers have five leaves, which are of a flesh-colour, and the filaments the impression of the pistil surrounded by single filaments; the germen is situated under the flowers, supporting two styles, crowned by headed figures; the germen afterwards turns to an oblong fruit, which is divided in two, and is full of small seeds, which are kidney-form, convex on one side, and marked with transverse and plain on the other. They are inodorous.

Alisanders are to be sown in the autumn for sallading, etc. but is seldom now propagated; and as parsley is now entirely in garden, so formerly it was generally used in the kitchen, before celery and its sweet coolness, which both tastes alone of ourselves, and entirely supersedes the use of it.

The ancient Greeks have likewise distilled two different plants under the name of *alisanders*, the one of which is the *petroselinum Macedonicum* of Caspian Bauhin. The former of these plants grows wild and in rich ground, and the other grows in corn-fields and in rich ground, and in the driest and most barren situations. They are observed, that the seeds of the former have their virtues more active than those of the latter, and that the latter are more active than the roots of the former. The roots of the latter are observed to be more active in the autumn than in the spring, and the seeds of the former more active in the spring than in the autumn. The seeds of the latter are observed to be more active than the roots of the former, and the roots of the latter more active than the seeds of the former. The roots of the latter are observed to be more active than the roots of the former, and the seeds

sand-heat; and if, after rectifying the solvend, it be distilled therefrom, the body is left pure unfixt water, equal in quantity to its original salt, but deprived of its fossival virtues. Thus if gold be dissolved by the alkahest, the metal first becomes salt, which is possible gold; but when the solvend is by a further application drawn off distilled therefrom, it is left more elementary water. Whence it appears, that pure water is the last production or effect of the *alkahest*.

4. It suffers no change or diminution of force by distilling the bodies it works on, and therefore remains no retention from them; being the only immutable menstruum in nature.

5. It is incapable of mixture, and therefore remains free from fermentation and putrefaction; causing all as pure from the body it has dissolved, as when first put thereon, without leaving the least foulness behind.

Van Helmont had another menstruum, which he called *circulatum minus*, said to be prepared by a circulation of nine weeks, from equal parts of spirit of wine rectified three times, alcohol, or highly rectified spirit of wine, and vinegar twice rectified. These were more mixt than the great effects which may be produced by them separately, will readily believe that there by an intimate union may be converted into a menstruum number of things forming things, especially as we know that neuters *menstrua*, as this must be, will act upon some very hard bodies, which are no otherwise dissolvable by acid, alkaline, watery, or fuliginous *menstrua*.

There are various processes described, whereby the *alkahest* may be procured, yet many accountable, doubts of the possibility of such a menstruum. Though we have the expres testimonies of Paracelsus, Helmont, Philalethes, Starkey, Fuber, and others, that they were actually possessed of the secret, yet many among the later writers, as Boyle, Wedelius, Meyer, Neumann, Lefebure, parsist in holding it impossible, and even to involve contradictions.

Either such a menstruum does not exist, or else there is not any body in nature which may not become an *alkahest*. For although certain fossil ores have not hitherto been combined with others, the daily discoveries in the mystery of combinations formerly believed impossible, seem to prove, that by certain management, and certain circumstances, any substance may be combined with all others; or, in other words, that all bodies may be dissolved by any single substance.

Kunckel very well thews the absurdity of searching for an universal solvent, by asking, 'If it dissolves all substances, in what vessel can it be contained?'

The illustrious Boerhaave, after collecting every thing which has been told by Helmont and other chemists, with regard to this wonderful liquor, concludes in the following manner. 'Perhaps, says he, you may not be willing to know my opinion of this matter, and whether I believe that any of those chemists were ever masters of this great secrecy. To this I freely answer, Van Helmont complains, that the bottle was once given him: but that it was broken; and therefore he could not now make many experiments with this liquor. And Paracelsus does not say so many, and to great things of his solvent; and therefore I really do not know what to say to it. This, however, I will venture to say, that if you examine fossils and mercury, by every chemical method possible, you will never repent of your trouble.'

ALCHEMILLA is also said in a more extensive sense, so as to comprehend all fixed salts volatilized, and reduced into a quintessence.

ALKAHESTIC is used by some to denote the quality of bodies which are powerfully solvent.

In which sense, *alkahestic* amounts to much the same with menstruous, except that the latter imports a greater degree of the solutive power than the latter. See MENSTRUOUS.

ALKALESCENT, denotes a matter slightly *alkaline*, or which begins to turn to the *alkaline* and putrid fermentation.

ALKALI. See ALKALY.

ALKALIZE, in *Botany*. See KALIZE and SALTWORT.

ALKALINE, is a general term, denoting that has the properties of an ALKALY.

In this sense we say, *alkaline* salts, *alkaline* spirits, *alkaline* substances, &c.

ALKALINE, in *Chemistry*, is more peculiarly applied to SALTS which will petrify, and bear a strong fire, without flying away and combining to the air. To which limit their *alkaline* salts are said to belong.

ALKALINE *ferments*, in *Medicine*, denotes a menstruum lodged in the blood, which is dissolved by acidities and the like other things, both of organic and inorganic, as also deficient food, poisonous conditions, putrid effects on the lungs, tongue, and other parts in the mouth, &c. again in the stomach, a frequent *diarrhœa*, a fenfe of heat, laffitude, and general uneafinefs, a diffolution of the texture of the blood, the urine high coloured, and red. It produceth a putrefcency in the blood, &c. and is to be remedied by the fame means as the fea fcurvy, and other putrid diforders.

ALKALINE, or ALKALIZATE *bodies*, among *Chemifts*, are fuch as have their pores naturally fo formed, that they readily to be pierced, and put into motion, by the points of an acid pointed upon them.

ALKALIZATION, ALKALIZATIO, in *Chemiftry*, the act of impregnating a liquor with an *alkaline* fait.

This is done either to make it a better diffolvent, for fome particular purpofe; or to haſt the phlegm, fo as it may not rife in diſtillation, whereby the ſpirituous parts may go over more pure.

ALKALIZATION, is a name applied to operations, by which *alkaline* properties are communicated to bodies; or to thoſe by which *acids* is extracted from bodies which contain it, or in which it may be formed; as *e. g. ſpirit of wine* is ſaid to be *alkaliſed*, when it has been digeſted *per ſe* with *ſalt*, as part of which it imbibes, and thus acquires *alkaline* properties. On the other hand, when a mineral fait is decompoſed, in order to obtain its *alkaline* baſis, this fait is ſaid to be *alkaliſed*. Vegetable ſubſtances when reduced to aſhes, may alſo be ſaid to be *alkaliſed*; becauſe the aſhes contain fixed *alkali*.

ALKALY, ALKALI, or ALKALI, in *Chemiſtry*, a name originally given by the Arabians to a fait extracted from the aſhes of a plant called KALI; and by us *glaſs-wort*; but ſucceſsfully uſed in the making of glaſs.

Afterwards, the term *alkaly* became a common name for the Harrisian ſalts of the firſt kind; that is for ſuch ſalts as are drawn by lixivium from their aſhes.

And hence, again, became the original *alkaly* was found to ferment with acids; the name has ſince become common to all ſaleable ſalts, and all terreſtrial ſubſtances, which have that property.

ALKALY, then, in its modern extenſive ſenſe, is any ſubſtance, which, being mixed with an acid, occaſions an ebullition and effervescence.

And hence arile the grand diviſion of mineral bodies into the two oppoſite claſſes of *acids* and *alkalies*.

Beerhaave ſcarce takes this circumſtance to be enough to conſtitute any determinate claſs of bodies. In effect, *alkalies* are not of one ſimple homogeneous nature, but there are ſeveral ſorts of them.

The firſt are obtained from vegetable and animal ſubſtances, by calcination, diſtillation, putrefaction, &c. Such are ſpirit of urine, ſpirits of hartſhorn, ſalt of tartar, &c. The ſecond are of the terreſtrial kind; as ſhells, chalk, &c.

Theſe two ſpecies of *alkalies*, Boerhaave obſerves, differ widely from each other; having ſcarce any thing in common but their being ſaturated with acids. The firſt is a chaſs of natures, hard, ſcruſtate, inſipid, mild ſaline green bodies; the other, a ſet of ſoft, or ſoft reſolvable, odorous, ſapid, cauſtic, aperitive, and are penetrated by air. Hence, adds he, it is not to be wondered, that ſubſtances which muſt be allowed to be of ſuch oppoſite nature, ſhould be of the nature of an *alkaly*, and that ſuch a number whoſe property conſiſts in their being ſaturated with acids, ſhould be allowed to any mixt and genuine body, as chalk, &c. but other properties and conſiderations are to be taken for and particularly theſe laſt, which is purpoſely the manner of preparing, and the change of colour they occaſion in bodies.

With regard to this laſt circumſtance, thoſe liquors which, being poured on ſyrup of violets, change it to a green colour, are *alkalies*; as thoſe which turn it red, are acids. Thoſe out of other roots it alſo changes green; and out of others of a common red, as it is the ſyrup that acids give by out of violets, but of turnſole be poured, it turns that part, wherewith it comes in contact, green: having the ſame effect with the bodies of the firſt claſs, poured on ſyrup made ſharp by oil of tartar. But this change of colour is not peculiar to *alkalies*, ſince a ſolution of ſublimate in the marine acid changes the colour of ſyrup of violets to a green.

To the ſame effect, Dr. Hamberg obſerves, that 'a mixture of lead and bismuth being upon the ſolution of a body in acids, ſhews that it is an *alkaline* ſubſtance of the *alkaline* kind, and that many of them will move vegetable colours themſelves; ſo as ſometimes even to make blue, which *acids* never do.

The opinion of the ancient ferment only with acids, ſeems too haſtily taken up: for the different *alkalies* will ferment with one another; ſpirit of hartſhorn, ſpirit of wine, ſpirit of ſal ammoniac, and other volatile ſpirits of the *alkaline* kind, when in the dry form of ſalts, all ferment with ſalt of tartar, or other fixed [illegible] of the ſame material kind. Spirit of ſalt is an *alkaly*, in regard to [illegible]

...ture return, this method, for a few days, is thought to be sufficient preparation for the bath. The patient should be taken in a dry, or rainy day; when the sky is clear, and the wind south, west, or the last is obtained, by observing the letter by Mr. Ellicott.

ALLEGIANCE, See ALLEGIANCE and LIEGE-HOMAGE.

ALLEGIANCE, See ALLEGIANCE.

ALLEGIANCE, in Heraldry. See Feudal Coats.

ALLEGIANCE, in Law, is the natural bond or tie, which binds every subject to the king, in return for that protection which he affords him.

The duty of allegiance is founded in the original contract between king and people; antecedently to all express declarations of it, which are indeed only intended as a more solemn security of the same. For as all government is entered into for the sake of protection, so all subjects are bound to pay obedience to the government under which they live, from the general principles of reason and justice, unless they mean to renounce the benefits of society, and return back to the savage state. And, as this mutual compact is the solemn act of the whole community, it is binding upon every individual member of it, unless he openly renounces it when he comes to years of discretion, by declaring his intention to abjure the realm within a convenient time; or else by tacitly renouncing it, by acquiring lands in another country, or entering into actual service against his native prince. But, as the vigour of government will be destroyed, if it be shaken by frequent changes, the law therefore presumes every man's allegiance to be perpetual, when it is not expressly renounced for some of the reasons before mentioned.

The rule is laid down by the most orthodox writers in the following manner: that allegiance is the duty of the subject to the king, wherever the king's protection is due to the subject. This allegiance is either express or implied. Express allegiance is that which is taken by the oath of fealty, or homage, to every subject at the age of fourteen years. Implied allegiance is that which is due from every man that abides within the king's dominions, unless he openly renounces it. Local allegiance is the duty of all aliens, or strangers, while they continue within the king's dominions, for the protection they there enjoy. Natural allegiance is that which is due from all men born within the king's dominions immediately upon their birth. For infants owe allegiance to the king, though not bound by oath, while they remain under the king's protection: and this natural allegiance is equally binding with that which is express. Natural allegiance may be forfeited by the breach of it, by words or actions, which amount to treason or misprision. But local allegiance may be lost as soon as the party transfers himself to another country, with a design to settle there. And express allegiance, when once lawfully taken, can never be forfeited by any treason, unless the party abjures the realm, or lives for five years in a foreign country without returning upon the king's summons. Yet, if he returns after a war declared, he cannot plead his allegiance in excuse for treason committed during the war. Nor can a traitor be pardoned by the king, unless he takes the oath of allegiance, which is a declaration of faith, as well as a promise of obedience. And, in order to encourage the discovery of treasons, it is provided by the statute 1 Edw. VI. c. 12. that if any person, who has been engaged in any treason, shall discover his accomplices, so as they may be taken before the king in council, or before one of the chief justices, or lord lieutenant of a county, he shall be entitled to the king's pardon for the same, if he has not been the first discoverer of the offence of others.

ALLEGIANCE, in Scots Law, is a term borrowed from the feudal system, signifying the personal security, or the acknowledgment of a subject, whereby the lieges acquire protection.

The other ingredients are rolls-carts, horses, under-girths, mails, crammasies, stone wood, peats, and leaf wood, for which the horses are usually employed.

The crammasies answer to elderly coals in Hampshire, which grow together with pieces of heaps with it. It is called so because made from stones as can be gathered, the nature of which determines it, that the sand, which grows in a crammasie, it was where found in plentifully together. The manner of preparing the grain for making the crammasies is described in the First Treatise, &c.

Its touch of the ... especially, says De Quincy, among female patients, and in postpartance to them; but that author declares he found in that intention, and thinks it ought only to be regarded as a resource.

Count Mazzuchi, in an inquiry into the composition of the medicine, found, that some of the ingredients which the ancients prescribed, he found it, and which, on this account, he prescribed in the form of, by many modern practitioners, were discovered to the appearance of some of the ingredients, wherein is found, is evidently antiseptic, fulsome and rancid, and contains a great quantity of oil, differs in appearance in the different states of the disease, and highly prejudicial in diseases where the blood tends to putrefaction.

ALLEGIANCE, a duty in the ecclesiastical Courts.

ALLEGIANCE, See ALLEGIANCE.

ALLEGIANCE, See ALLEGIANCE.

ALLEGIANCE, in Geography, a name given by the Swedes to a city which they founded in ... It is a species of ... and is distinguished by Arnold by the name of ... New Sweden, and by ... on the ... The ... ground, which is the ground of the ... ...

ALLEGIANCE, in Law, a writing or ... ...

ALLEGIANCE, in Law, a writing or ... ...

ALLEGIANCE, in Law, a writing or

...ingdoms; and, in the thereof, we ...ade a declaration of rebellion. 2 Geo. cap. 9.

ALLEGORICAL, something containing an allegory.

The clearest and most ... in Scripture, as a literal, a mystical, and an allegorical sense. See Parkhurst, and Tow.

ALLEGORY, ALLEGORIA, a figure in Rhetoric, wherein we make use of words which, in their proper signification, ... another thing, which they are brought to shadow; or it is a figure wherein we ... one thing, expecting it shall be understood of another, to which it alludes.

An allegory, or property, a ... of metaphor, ... is that beautiful allegory, in Horace lib. 1. Ode 14.

O navis, referent in mare te novi
Fluctus, &c.

Where the *Ship* is chiefly held to ... the republic; *waves*, for civil ... *port*, for peace and ... *sorry*, for *sinners*; and *recovery*, for *repentance*.

Allegory includes *parable*, *apologue*, *satire*, or *fable*, and *enigma*, or *perplexity* or *riddle*; and sometimes comprehended such *proverbs* as are ... or tangible of different kinds.

Metaphor contains *allegory* in one part, or like, of a comparison. It differs from *irony*, in that *irony* imports a ... between the thing spoken and intended; *irony* a contrariety between them.

The Old Testament is regarded, by many, to be prophetical *allegory*, or figural representation of the ... in the New.

It chiefly ... have ... last ... religious — the jews, of course, ... them. Of the Hebrew sacred books, ... the ... in the Old Testament is allegorical.

For are the ... without *allegory* in their ... as ... in some sort so, ... the ... have ... a ... existing ... in the Christian ... in the Jewish world. — Some of their ... and ... in ... Some of their ... and so have the ... and hope in them Esdras, and the ... histories of their ... Second ... recollect in our ... Christian ... and ... and ... that they ... something ... from what they ... to expect. And ... came the ... *allegory*, or a ... in ... to ... and ... figurative ... resembling ... than ... has ... intended by it.

This ... they ... recourse to, ... to ... people from being ... and ... which the ... had ... into their ... and ... the world, that the gate of ... but ... their ... which ... suffered ... them to ... by the means ... author ... of ... was ... once ... and ... look ... them ... to ... have ... understood ... ancient ... modern ...

The ... finding the ... of this ... of ... ... *allegory*, ... to ... the ... ...

talling eaglets, *allerions*, and of reperfenting them fpread, without feet and beaks, is not above a hundred years old, and is of French invention; introduced to reperfent the Imperialifts as fubdued. Hence, Menage derives the word from *aquilaris*, a diminutive of *aquila*.

The *allerion*, reperfented *Tab. Heraldry fig. 1.* appears much the fame with the *martlet*, except that the wings of the latter are clofe, and it is reperfented, as it were, *paffant*; whereas the *allerion* is fpread, and is reperfented in *pale*. Add, that among our heralds, the *martlet* has a beak, which the *allerion* wants.

ALLEU, or ALLOUE, in *our Ancient Cuftoms*. See ALLODIUM.

ALLEVEURE, the fmalleft copper coin that is ftruck in Sweden; it is not worth quite two *deniers Tournois* of France.

ALLEVIARE, in *Old Records*, to LEVY or pay an accuftomed fine or compofition.

ALLEVIATION, denotes the act of making a thing lighter, and eafier to bear or endure.

The word is originally Latin, compounded of *ad*, *ad*, and *levis*, *light*.

In which fenfe, *alleviation* is fynonymous with *lightening*, and ftands oppofed to *aggravation*.

ALLEY, in *Gardening*, a ftraight parallel walk, bordered, or bounded on each hand with trees, fhrubs, or the like.

The word *alley* is derived from *aller*, *to go*; the ordinary ufe of an *alley* being for a walk, paffage, or thoroughfare, from one place to another.

Alleys are ufually laid either with grafs or gravel.

According to lord Bacon, "where *alleys* are clofe gravelled, "the earth putteth forth the firft year knot grafs, and after "fpire-grafs. The caufe is, that the hard gravel, or pebble, at the firft laying, will not fuffer the grafs to come "forth upright, but turneth it to feed way where it can; "but after that the earth is fome what footened at the top, "the ordinary grafs cometh up."

An *alley* is diftinguifhed from a *path* in this, that in an *alley* there muft be always room enough for two perfons, at leaft, to walk a breaft; fo that it muft never be lefs than five feet in breadth; and there are fome who hold, that it ought never to have more than fifteen.

ALLEYS, *crofs*, are the little *alleys* by the fides of the great one.

ALLEY, *front*, is that which runs ftraight in the face of a building.

ALLEY, *triangle of*, that which cuts the former at right angles.

ALLEY, *winding*, is that which cuts a fquare, clofet, parterre, &c. from angle to angle.

ALLEY, *fliping*, is that which, either by reafon of the lownefs of the point of fight, or of the ground, is neither parallel to the front, nor to the tranfverfe *alleys*.

ALLEY, in the *New Hufbandry*, implies the vacant fpace between the outermoft row of corn on one bed, and the neareft row to it on the next parallel bed; and it is ufually about four feet in breadth, exclufive of the partitions between the rows of corn in the beds. The firft hoeing of wheat is performed in the beginning of winter, and the earth is ploughed away from the rows into the intervals, which forms fmall ridges in the middle between the double rows. The fecond hoeing is in the fpring, which turns it back to the rows, leaving a furrow in the middle of the *alley*. The third hoeing is from the rows, after the wheat has bloffomed; this turns the earth into the intervals, forming fmall ridges there, as at the firft hoeing. The fourth hoeing returns the earth to the ridges, which is performed a month or more after the third hoeing. This commonly finifhes the hoe-hoeings, if the land is in good heart; otherwife one or two more hoeings are neceffary.

ALLEY, *in winter*, is that which has too great a defcent, and which, on that account, is liable to be damaged by floods; to prevent the ill effect whereof, it has plafhands of turf run acrofs it from place to place, which help to keep up the gravel.

This laft name is likewife given to an *alley* in a labyrinth, or wilderness, formed by feveral returns of angles, in order to render it the more folitary and obfcure, and to hide its exit.

ALLEY, in *Perfpective*, is that which is largeft at the entrance than at the exit; to give it the greater appearance of length.

ALLEY *of compartiment* is that which feparates the fquares of a *parterre*.

ALLGOOD, in *Botany*, *chenopodium*. See GOOSE-*foot*.

ALL-HEAL, *Hercules's*, in *Botany*, a name given to WOUNDWORT.

ALL-HEAL, *vipers*, *feabious*. See DEVILSBIT.

ALLIANCE, the union or connection of two perfons, or two families, by means of marriage; otherwife called AFFINITY.

The word feems formed of the Latin *adligatio*, q. d. a *tying together*.

The law of the *Twelve Tables* forbids all *alliances* between perfons of unequal rank and condition. And in Portugal, we are told, the daughters of the nobility are prohibited to *ally* with fuch as have never been in the wars.

ALLIANCE is alfo extended to the leagues or treaties concluded between fovereign princes and ftates, for their mutual fafety and defence; in which ftile they are the fame with what we otherwife call *confederacy*, *league*, &c. *Alliances* are a fpecies of treaties; which are ufually divided into treaties of peace, of commerce, and of *alliance*, properly fo called. Thefe are fometimes particularly denominated *foreign alliances*.

Alliances are variously diftinguifhed, according to their object, the parties in them, &c. Hence we read of equal, unequal, triple, quadruple, grand, offenfive, defenfive, &c. *alliances*.

ALLIANCE, *equal*, *fœdus inter æquos*, are thofe wherein one of the contracting powers promifes paffage, or protection, and the other fidelity and obfervance by which they feem to be diftinguifhed from equal *alliances*, wherein the two powers treat on a foot.

ALLIANCE, *offenfive*, that whereby the parties oblige themfelves jointly to attack fome other power. This ftands diftinguifhed from defenfive *alliance*.

The *triple alliance*, between England, Holland, and Sweden, is famous. So is the *quadruple alliance*, between England, Holland, the emperor, and the king of France.

Though the title of *allies*, *fœti*, of the Romans, was a fort of fervitude, it was much coveted. Ariarathes, we are told by Polybius, offered a facrifice to the gods by way of thankfgiving for having obtained this *alliance*. The reafon was, that thenceforwards people were fure not to receive any injuries except from them.

There were divers forts of *allies*: fome only united to them, by a participation of the privileges of Romans, as the Latins and Hamics; others by their very foundation, as the colonies; others by the benefactions they received from them, as Maffiniffa, Eumenes, and Attalus, who owed their kingdoms to Rome; others by three treaties, which tell, by a long *alliance*, became fubject, as the kings of Bithynia, Cappadocia, Egypt, and moft of the cities of Greece; laftly, others by compulfive treaties, and the law of fubjection, as Philip and Antiochus. For they never granted peace to an enemy, without making an *alliance* with him: but it, they never fubdued any people without ufing it as a means of fubduing others.

The forms or ceremonies of *alliance* have been various in different ages and countries. Among us, figning and fwearing, fometimes at the altar, are the chief: anciently eating and drinking together, chiefly offering facrifice together, were the cuftomary rites of ratifying an *alliance*. Among the Jews and Chaldeans, heifers or calves; among the Greeks, bulls or goats; and among the Romans, hogs were facrificed on this occafion. Among the ancient Arabs, *alliances* were confirmed by drawing blood out of the palms of the hands of the two contracting princes with a fharp ftone, dipping herein a piece of their garments, and therewith fmearing their bodies, at the fame time invoking the gods Vanale and Allat, i. e. according to Herodotus, Bacchus, and Uranus. Among the people of Colchis, the confirmation of *alliances* in faid to be effected by one of the princes offering his wife's breafts to the other to fuck, which he was obliged to do till blood iffued.

It has been difputed, whether the ftates of the empire have a right of making *alliances*, without the emperor's participation. And whether the king of England be veffed with abfolute power of making *alliances* at difcretion, without content of parliament. De Dieudonné aflerts the negative. According to him, the contrary opinion owes its rife to the mere flattery of modern courtiers, having no foundation in the ancient laws and conftitution of the kingdom. King John and Richard II. were, according to this author, the firft that attempted any thing like it. It is certain there occur numerous inftances in hiftory, where the king has acted, or the parliament have offered, their advice, concerning the *alliances* to be made; but there are many others, at leaft of later times, wherein no fhoutfteps of any fuch conftitution appear.

There are inftances likewife where the parliament have declined giving any advice concerning fuch arduous matters.

ALLIARIA, in *Botany*. See *Dame's* VIOLET.

ALLIGATION, in *Arithmetic*, a rule or operation, whereby queftions are refolved, relating to the mixture of divers commodities or ingredients together, with the value, effect, &c. thereof in compofition.

The word is formed of *aligare*, *to tie together*, by reafon, perhaps,

perhaps, of a sort of *minuta*, or circular ligatures, ordinarily used to connect the several numbers together.

Alligation is of two kinds, *medial* and *alternate*.

ALLIGATION *medial* is, when, from the several quantities and rates of divers simples given, we discover the mean rate of a mixture compounded out of them.

The several cases will come under the following rules.

1. The quantity of the ingredients, and the prices of each, being given; to find the price or value of some part of the mixture.

Rule. As the sum of the quantities given,
Is to the sum of the said products;
So is one ounce of the mixture,
To its value.

Example. A refiner, or goldsmith, hath 12 ℥ of gold at 4*l.* per ℥, 8℥ at 4*l.* 5*s.* 3℥ at 4*l.* 6*s.* 8*d.* and 9℥ at 4*l.* 13*s.* 4*d.* per ℥; what is an ounce worth of all these melted together.

℥ of gold	*l.*	*s.*	*d.*	*l.*
12 × by	4	0	0 the product is	48
8 by	4	5	0	34
3 by	4	6	8	13
9 by	4	13	4	42
32 total				137 sum.

Then as 32 ℥ : 137*l.* :: 1 ℥ : 4*l.* 5*s.* 3*d.* ½, or to 4*l.* 5*s.* 3½*d.* By the same rule the value of any other quantity of that composition is to be found: as supposing 7 ℥.

For as 32 : 137 :: 7 : 30¼.

2. The prices of the several ingredients, and the sum paid or received for the mixture, being given; to find what quantity of each was bought or sold. Divide the sum paid or received, by the sum of the particular prices; the quotient is the answer.

3. The ingredients of a mixture being given, to augment or diminish the mixture proportionally.

Rule. As the sum of the particular quantities of the compound given,
Is to the whole quantity proposed to be augmented or lessened;
So is each particular quantity in the given compound,
To the due proportion required of that simple, sineness, &c.

Example. The compound in the foregoing instance is required to be augmented to 48 ℥: that is, 16 is to be added to 32, how much of each ingredient must be taken?

12		12 : 6	
8	Then as 32 : 16 : :	8 : 4	
3		3 : 1½	
9		9 : 4½	
32 sum.		16 sum.	

	l.	*s.*	*d.*	
So that there must be 18 ℥ of gold at	4	0	0	per ℥
12	4	5	0	
4½	4	6	8	
13½	4	13	4	

Sum = 48 for proof of the operation.

4. The nature, quality, &c. of the several ingredients of a mixture being given, to find the temperament or degree of sineness resulting from the whole. Place the several quantities of the mixtures in rows; against which place orderly their several qualities or sineness; and multiply each quantity by its own quality or degree of sineness: then, as the sum of the quantities is to their products, so is unity to the quality or sineness of the mixture.

5. The quantities of a mixture being given; to find the particular quantities of any ingredient in any part of the mixture.

Rule. As the total of the composition,
Is to the quantity of any simple in that composition,
So is the total quantity proposed, to be proportionably compounded,
To the quantity of each simple to be in that proposed quantity.

Example. How much of each ingredient (or price of gold mentioned in the first case) is in a pound, or 12 ℥ of the 32, being the compound given?

				l.	*s.*	*d.*	
	12	℥.	4½	at 4	0	0	per ℥.
As 32 : 12 : :	8	:	3	at 4	5	0	
	3	:	1¼	at 4	6	8	
	9	:	3¾	at 4	13	4	
	12 proof.						

6. Given the total of a mixture, with the whole value, and the values of the several ingredients; to find the several quantities mixed, though unequally.

This case admits of two varieties; first, where the mixture is of two simples; and secondly, when it consists of more than of two. For the first, the rule is—Multiply the total of the mixture by the least value, subtract the product from the total value; and the remainder is the first dividend; then take the said least value from the greatest valued ingredient, and the remainder is the first divisor. The quotient of this division shews the quantity of the highest-priced ingredient, and the other is the complement to the whole.

Thus, still referring to the first example, and assuming the two first terms of it:

Gold at 4*l.* per ℥
Ditto at 4*l.* 5*s.*

Total of the composition = 20 ℥. Total value 82*l.*
× 4 − 80
80 − by 2½) 2 (8 the
quantity of the highest-priced ingredient.

Secondly, when the quantities are more than two in number.

These kinds of questions, as in those of *alligation* alternate, admit of various answers, all of them true, and are called INDETERMINATE *problems*. They are best done by parcel, two at a time, as in the preceding operation.

ALLIGATION *alternate* is, when the rates or qualities of divers simples are given; and the quantity of each is required, necessary to make a mixture of the given rate or quality.

Alligation alternate shews the due proportion of several ingredients; and counterchanges the place of such excesses or differences as arise between the mean price and the extremes; ascribing that to the greater extreme which proceeds from the lesser: and contrarily.

The rules which obtain in *alligation* alternate are as follow: every greater extreme is to be linked with one lesser. If either of the extremes be single, and the other extremes plural, the single extreme is to be linked to all the rest.

If both greater and lesser extremes be not plural, they may be linked so diversly, that several differences may be taken and a variety of answers may be made to the question, yet all true; but if one of the extremes be single, there can be but one answer.

The numbers being linked, take the difference of each from the mean or common price; and place this difference against the number it is linked to, alternately.

Every number, linked with more than one, must have all the differences of the numbers it is linked to, set against it.

These differences resolve the question, when the price of every one of the ingredients is given without their quantities: and the demand is, to mix them so as to sell a certain quantity at a mean rate.

But when the quantity of one, with the price of all the ingredients, is given, and the demand is to know the quantities of the other ingredients; then, the rule of three is to be used.

And when the price of every ingredient is given, without any of their quantities, and the demand is to make up a certain quantity to be sold at a mean rate; then all the differences added together will be the first number in the rule of three; the whole quantity to be mixed, the second number; and each difference apart, the several third numbers; and so many sorts mixed, so many operations of the rule of three.

We shall add an example, wherein both the kinds of *alligation* have place. Suppose a mixture of wine of 119 quarts, required to be made of wines of the following prices, 7*d.* 8*d.* 14*d.* and 15*d.* per quart; and so, as that the whole may be afforded at 12*d.* per quart.

Having linked 8 to 14, and 7 to 15, and counterchanged their differences from the common price, 12*d.* the sum of their difference is found to be 145 by which dividing 119, the quotient is 82/145, or 8/5, or for convenience in operation

	Quarts.
8 \ 2	5 : 2 :: 17
14 / 4	5 : 1 :: 34
7 \ 3	5 : 3 :: 51
15 / 5	5 : 5 :: 17
14	119

Those who are curious to have a fuller explanation of this rule, may consult Ward, Wallis, Jaquet, Malcolm, and other books of *arithmetic*.

ALLIGATI, in *Antiquity*, the basest and most [illegible] slaves, whom they kept locked up, or with [illegible]. The Romans had three degrees, or orders [illegible] servants; the first employed in the manage[illegible] estates, the second in menial or lower func[illegible] family, the third called *alligati*, above mentioned.

ALLIGATOR, in *Zoology*, a name given [illegible] kind of CROCODILE in the West Indies.

An *alligator* smells so strong of musk, as to affect the water and air at a considerable distance.

ALLIGATOR *Pear*, *a species of* PEAR.

ALLIONIA, in *Botany*, a genus of the *tetrandria monogynia* claſs: having the common calyx oblong, ſimple, and three-flowered: the proper calyx obſolete; the corolla irregular, and the receptacle naked. There are two ſpecies.

ALLIOTH, in *Aſtronomy*, a ſtar in the tail of the Great Bear, whoſe obſervation is much uſed at ſea.

It is alſo written *allist*, and *aliet*, and literally denotes a *horſe*. The Arabs give this name to each of the three ſtars in the tail of the *Great* BEAR, on account of their appearing like three horſes, ranged for the drawing of a waggon. See URSA *major*.

To find the latitude or elevation of the pole, by this ſtar, ſee LATITUDE and POLE.

ALLIOTICUM (from ἄλλος, *to vary*), a *Galenical medicine*, which alters and purifies the blood, conſiſting chiefly of the roots of dandelion, ſuccory, fennel, and raiſins; with the herbs endive, common ox-eye, lettuce, ſorrel, fumitory, &c.

ALLIUM, *garlick*, a genus of the *hexandria monogynia* claſs. See GARLICK.

ALLOCATION, ALLOCATIO, the admitting or allowing of an article in an ACCOUNT; and paſſing it as ſuch.

ALLOCATION is alſo an allowance made upon an account; uſed in the *exchequer*.

ALLOCATIONE *facienda*, a writ directed to the lord-treaſurer, and barons of the exchequer, upon the complaint of ſome accountant; commanding him to allow him ſuch ſums as he hath in execution of his office lawfully expended. Reg. Orig. p. 206.

ALLOCATO *comitatu*, is a new writ of exigent allowed, before any other county-court holden, when the former has not been fully ſerved, or complied with, &c. Fitz. Exig. 14.

ALLODIAL, in *Ancient Cuſtoms*. See ALLODIUM.

ALLODIARIUS, the owner or proprietor of an *allodium*, or *allodial* lands: alſo uſed to denote a lord paramount of a manor.

This is otherwiſe written *alodiarius*, *aladerius*, *alvarius*, *alver*, *alverius*, and *alvetior*.

ALLODIUM, or ALLEUD, land held of a man's own right, without acknowledgment of ſervice, or payment of any new rent to another; and this is a property in the higheſt degree; but *feudum* is ſuch land as is held of another for which ſervice is done, or rent is paid, as an acknowledgment thereof. All the lands in England, except the crown-lands in the king's own hands, in right of his crown, are of the nature of FEUDUM, or FEE; for although many have lands by deſcent from their anceſtors, and others have bought land, it cannot come to any either by deſcent or purchaſe, but with the burden that was laid upon him who had *novel-fee*, or firſt of all received it from his lord; ſo that there is no perſon hath *directum dominium*, i. e. the very property or demeſne in any land, but the king, in right of his crown.

The origin of the word is controverted. Caſſeneuve ſays it is almoſt as obſcure as the head of the Nile. There are few of the European languages, from which one etymologiſt or other has not derived it; yet ſome, not improbably, take it for a primitive French word without etymon.

Bollandus explains *allodium*, to be *prædium, ſeu quævis poſſeſſio libera, juriſque proprii, & non in feudum alienſave onere accepta*.

After the conqueſt of the Gauls, the lands were divided in two ways; viz. into beneficia, *beneficia*; and *allodia*. Benefices conſiſted in lands given by the king to his officers and ſoldiers; either for life, or for a time fixed.

Allodia, or *alleuds*, were ſuch lands as were left in property to the ancient poſſeſſors.—The ſixty-ſecond title of the Salic law, is *de allodiis*; where the word ſignifies hereditary lands, or thoſe derived from a man's anceſtors. Whence *allodium* and *patrimonium* are frequently uſed indiſcriminately.

In the ancient capitulars of Charlemagne, and his ſucceſſors, we find *allodium* conſtantly oppoſed to *feu*; but, toward the period of the ſecond race of kings, it loſt the prerogative: the feudal lords obliging the proprietors of *allodial* lands to hold of them for the future. The ſame change alſo happened in Germany, &c.

The uſurpation of the feudal lords over the *allodial* lands went ſo far, that they were almoſt all either ſubjected to them, or converted into fees; whence the maxim *nulle terre ſans ſeigneur, no land without a lord*.

In the cuſtomary laws of France, we find mention made of two kinds of *allodiums*, viz.

ALLODIUM *nobile, alleu noble*, that to which *juſtitia* or juriſdiction was annexed; and which was alſo free from all homage and ſervice.

ALLODIUM *villanum, alleu roturier*, that to which no juriſdiction was annexed.

ALLOGIA, in *Antiquity*, denote winter-quarters appointed for the ſoldiery.

Some will have the word of French origin from *logement*; others, with more probability, from the Italian *allogare*, formed of *locus*, *place*.

ALLOM. See ALUM.

ALLONGE, in *Fencing*, a thruſt, or PASS at the enemy.

The word is French, formed of the verb *allonger*, *to lengthen out a thing*.

ALLOPHYLUS, in *Botany*, a genus of the *octandria monogynia* claſs. the calyx of which is a perianthium compoſed of four leaves of an orbicular figure, and two oppoſite ones, ſmaller than the others; the corolla conſiſts of four petals leſs than the cup; the germen is didymous, and the ſtigma divided into four parts. There is one ſpecies.

ALL SEED. See FLAX.

ALL-SPICE. See PIMENTO.

ALLOTTING, or ALLOTMENT *of goods*, in matters of *Commerce*, is when a ſhip's cargo is divided into ſeveral parts, bought by divers perſons, whoſe names are written on as many pieces of paper, which are applied by an indifferent perſon to the ſeveral lots or parcels; by which means the goods are divided without partiality; every man having the parcel which the lot with his name on is appropriated to. See INCH *of Candle*.

ALLOY, or ALLAY, in matters of *Coinage*, &c. a proportion of a baſer metal, mingled with a finer, or purer. The word ſeems derived from the French *loy*, *law*; in regard the *alloy* is fixed by law.

Minters never ſtrike any gold or ſilver coin without *alloy*, always mixing ſome copper with thoſe two metals, according to a certain proportion, ſettled by the rules of the MINT; which in France cannot be altered but by the king's edicts, proclamations or ordinances.

Braſs coin is made of an *alloy* of copper, mixed with a few parts of fine ſilver, regulated alſo by the prince. The jewellers, gold-wire drawers, gold-beaters, and gold and ſilverſmiths, are obliged to uſe *alloy* in the gold and ſilver they work, but it ought to be leſs than that of coin, to prevent their melting it in order to uſe it in their works; called by the French *billonage*, which is an unlawful melting of gold or ſilver coin. The braſs-founders alſo have their *alloy* of copper, pewter, and tin. This *alloy* differs according to what they deſign to caſt, whether ſtatues, guns, or bells. The pewterers in making their ſeveral veſſels, diſhes, plates, &c. alſo make uſe of an *alloy* of red copper, *regulus* of antimony, and ſome other minerals.

There are ſeveral kinds of *alloy*; ſuch as BRONZE, TOMBAC, BRASS, WHITE COPPER, &c.

Metallic ſubſtances cannot unite directly with earthy matters, not even with their own earths when deprived of their inflammable principle, and conſequently of their metallic properties. But in general it may be ſaid, that all metals may be *alloyed* with each other, although more or leſs eaſily, and although ſome of them have not yet been made to unite. As *metals* are bodies naturally ſolid, the firſt condition for their union is that they be fuſed; they then unite like all bodies that reciprocally diſſolve each other; and from theſe combinations new compounds reſult, which have the mixed properties of the component ſubſtances.

In *metallic alloys*, as in almoſt all other *metallic* combinations, phenomena appear which depart from the general rules of combination; and ſome of the properties of metals forming an *alloy* are altered, increaſed or diminiſhed by their union. The ductility, for inſtance, of a *metallic* compoſition is generally leſs than the ductility of the component metals alone and pure. The denſity or ſpecific gravity of metals and ſemi-metals, is alſo changed by *alloying* them with each other. Sometimes the ſpecific gravity of the compound is intermediate betwixt the ſpecific gravity of the component metals; ſometimes it is leſs, and frequently greater; this depends upon the nature of the metal.

ALLOYS, *metallic*, are either *natural* or *artificial*.

ALLOYS, *natural*, are thoſe made by *nature*, ſuch as moſt minerals containing ſeveral metals, *alloyed* with each other. Native gold is always more or leſs *alloyed* with ſilver; and native ſilver with gold.

ALLOYS, *artificial*, are thoſe made expreſſly for different uſes, or for the ſake of examining their properties.

There are two ſorts of *alloys* practiſed in the coinage of money: the one when gold and ſilver are uſed which have not yet been coined; the other when ſeveral ſpecies of coin, or ingots of different fineneſs are melted together to coin new money. The proportion of the *alloy* with the finer metal is eaſy in the firſt caſe; ſince when once the fineneſs of the ſilver or gold is known by refining, it is only adding to it the *alloy* of copper required by law, to bring it to the legal ſtandard.

In England the ſtandard of gold coin is 22 *carats* of fine gold, and 2 *carats* of *alloy*, in the pound troy: the French, Spaniſh, and Flemiſh gold are nearly of the ſame fineneſs.

nels. The pound weight is cut into 44 pieces and ½, each current for 21 shillings.

The standard of silver is 11 oz. 2 pennyweights troy of silver, and 18 pennyweights of *alloy* of copper. The *alloy* in gold coin is silver and copper, and in silver coin copper alone. Whether gold or silver be above or below standard, is to be found by ASSAY.

The chief reasons alledged for the alloying of coin are, 1. The mixture of the metals, which, when smelted from the mine, are not perfectly pure. 2. The saving of the expence it must otherwise cost if they were to be refined. 3. The necessity of rendering them harder, by mixing some parts of other metals with them, to prevent the diminution of weight by wearing, in passing from hand to hand. 4. The mixing of foreign gold or coin which is *alloyed*. 5. The charges of coinage, which must be made good by the profit arising from the money coined. 6. And lastly, the duty belonging to the sovereign on account of the power he has to cause money to be coined in his dominions. See GOLD, SILVER, REFINING, and ASSAYING. See a particular account of the *alloy* of gold, its usefulness, and its proportion in different coins, in Dr. Lewis's Commerc. P. Techn. p. 144. & seq.

According to the different proportions of *alloy*, money is of different degrees of fineness or baseness; and is valued accordingly in foreign exchanges.

The silver coin among the Romans was long kept to a great degree of purity; which was first broke in upon by the tribune Livius Drusus, who mixed with it an eighth part of copper. But the acts of his tribunate were afterwards annulled, and the money restored to its ancient fineness. Thus things remained till the time of the emperor Severus, who increased the *alloy* still more; yet on his medals he took the title of *restitutor monetæ*.

ALLUM, ALLOM, or ALUM, a kind of mineral salt, of an austere taste, leaving in the mouth a sense of sweetness, accompanied with a considerable degree of astringency.

The word *allum* comes from ἁλς, *salt*; or perhaps from the Latin *lumen*, light, because it gives lustre to colours.

ALLUM is a crystallizable salt, composed of vitriolic acid, united with an argillaceous earth. It dissolves sufficiently well in cold, but in much larger quantity in boiling water. Neumann says, that *allum* requires ten times, and other authors say that it requires fourteen times its weight of water to dissolve it. It retains half its weight of water in crystallizing; of which crystallization it is susceptible by the evaporation and cooling of the water in which it is dissolved. The figure of its crystals, like that of the crystals of other salts, varies according to the circumstances concurring during the crystallization.

In Italy this salt is obtained from a soft reddish stone, about Puteoli, from several kinds of earth; and in England from a whitish or bluish stone, called Irish slate.

ALLUM, *its generation and nature.*

As *vitriol* is produced from a sulphureous mineral, either simple or compound, that is, of iron and copper, so *allum*, which is, as it were, a kind of white vitriol, is also generated of a kind of sulphureous minerals, partly bituminous, partly luteous. Therefore the acid which is extracted from *allum*, called *spirit* of *allum*, seems to be of the same nature and properties with what is afforded by *vitriol*, whatever difference there is in the earths or receptacles in which both these kinds of salts are coagulated. For the *caput mortuum* of *vitriol* is of a metalline, that is to say, of an iron or copper-like quality; but the earth of *allum* seems to be a peculiar kind of ROLE, very spungy and subtle.

Chemists are generally agreed in opinion, that the acid of *allum* is the pure vitriolic; but the precise nature of its earthy base has been a subject of dispute. For a long time it was considered as a calcareous earth; but the late experiments of Pott, Margraaf and Baron, have shewn that calcareous earths, united with vitriolic acid, form selenites, and not *allums*; and that these and the earth of *allum* have no common distinguishing properties. M. Baron therefore conjectures, that the earth of *allum* is of a metallic nature. Others, on the contrary, as M. Geoffroy, Hellot, and Macquer have urged experiments to prove, that the earth of *allum* is contained in clays. M. Macquer, in particular, in a Memoir read to the Academy of Sciences at Paris in 1762, expresses his full conviction that the earth of *allum* has an entire and perfect resemblance to the purest clay; and he recites a variety of experiments and observations in support of this opinion.

Though *vitriol* and *allum* be produced, as it were, from the same matter, and from one sulphureous matrix; yet each of them is endued with peculiar properties and virtues. For *allum* and *vitriol* are very different in taste, and the common *vitriol* leaves no such astringency on the palate as is observed in *allum*. Again, a solution of *allum* makes no commotion nor precipitation in a solution of gold or silver, which a solution of *vitriol* is known to effect. Nor will a decoction of galls, or pomegranate flowers grow black, and be converted to ink, by the mixture and solution of *allum*, as with a solution of *vitriol*. Lastly, in *allum* the acid may be readily separated by the help of fire, from its earthy principle, in which it is inherent; but the case is otherwise with *vitriol*.

Allum and *sulphur* are both formed from the same chaos spirit, which, if it meets with a stony substance, forms *allum*; if with a bituminous one, *sulphur*.

Allum may easily be decomposed by various intermediate substances, saline alkalies, calcareous earths, iron, and any matter containing *phlogiston*, treated properly, &c. It is formed on the universal acid, or fluid salt combining with a chalky earth.—The same acid with a mercurial earth forms common *sea* SALT, and with a moist rocky, or clay earth, SAL *gemmæ*.

This system is confirmed, by what naturalists have observed concerning the origin of the native *allum* in the isle of Chio. That island is a hollow spungy rock, penetrated on all parts by the sea-water. M. Tournefort considers the whole as a natural laboratory, wherein the sea-water undergoes much the same action in it as in our retorts. By this means, an acid spirit is separated from it, which penetrating the substance of the rocks, dissolves and incorporates with them, and forms mines of *allum*. The forms hardly to be doubted, inasmuch as by pouring spirit of salt on common stones, or chalk, aluminous concretions are readily formed. The same spirit mixing with a BITUMEN under-ground, forms SULPHUR.

Some attribute the original of *allum* chiefly to a sulphureous principle acting on, corroding of, and coagulating with a mineral substance, usually of a terrene and stony, rather than metallic nature, though that metal be often contained in the *allum* stone. That the sulphur is the chief efficient and material cause of this production, seems to appear hence, that many *allum* stones distilled *per descensum*, yield good brimstone, and all *allum* stones, during calcination, emit a sulphureous steam. An inquisitive naturalist gathered from the very same rock, and that within a few inches of each other, *vitriol*, *allum*, and *sulphur*, all of them excellent in their kinds. Indeed these three minerals are so nearly allied, that an ingenious chemist shews us, he can by some artifices convert allum into *vitriol*, or *vitriol* into *allum*, the same to all intents and purposes, with the natural. Phil. Trans. N° 104.

Allum is ranked by Homberg, and others as an urinous neutral salt, on account of the urinous smell it exhales by burning, and its use in the volatilization of fixed salts. Yet some deny *allum* to belong to the class of *salts*, and rank it rather among stony substances; by reason that after dissolving *allum*, and precipitating the solution with oil of tartar *per se-quum*, the coagulation at the bottom resembles a stony *calx*, and being exposed to the fire, will neither melt nor sublime. The *ore* of *allum*, if mature, yields its salt immediately, and without trouble; but if less mature, it requires a previous calcination, as is the case in many of our English *allum* stones; and if very crude or immature, it must not only be burnt, but a long time exposed to the air before it will yield its salt. From this it appears, that the *allum* is not a genuine and native salt, but is composed by the acid of sulphur corroding some peculiar earth or stone, as vitriol is by its corroding some metal; and that, in both these operations, this corroding acid can sometimes perform its business, while it lies in the bowels of the earth; and sometimes, while it lies in the open air, though it failed of it when buried. Phil. Trans. N° 104.

Allum distilled into an acid spirit, with copper, or iron, becomes good *vitriol*; and *vitriol* freed from its metallic parts becomes aluminous; and being distilled, yields a spirit not to be distinguished by the taste from that of *allum*, and even scarce by the most accurate scrutiny.

Rectified oil of *vitriol*, or spirit of *sulphur*, of the same degree of strength, will sometimes concrete [illegible] and transparent substance, resembling crystal [illegible] and this substance is no way different, whether [illegible] by one or other of these ways, and in both [illegible] purest *allum*, so as not to be distinguishable [illegible] by tasting it. *Aqua fortis* is as well made [illegible] with *vitriol* and *nitre*.

Allum ores generally contain *vitriol* as well as [illegible] capable of great fermentation, when exposed to the air, though they would never have been subject to it while buried in the earth. They will become so hot in the

heap, that it is scarce possible to endure the hand upon them; and sometimes will break out into absolute flame. The acid and the sulphur they contain are the occasion of this, as, according to Simpson and some others, they are the cause of all subterraneal fermentations and heats; and the whole is not badly explained by the familiar instance of adding water to rectified oil of *vitriol*. The acid and the sulphur of that fluid are, as in these ores, so combined as not to exert their forces naturally against one another, but all is quiet as in these stones while under ground, but the water does to the one what the air does to the other; tends in a shrill, which not agreeing with either of the others, disturbs and sets their particles in motion, and the vessel containing the liquid becomes as hot to the touch in the one case, as the pebbles themselves are in the other.

Alum dissolves in water; what remains undissolved at bottom is a sort of *colcothar*, which soon dissolves in oil, or in spirit of vitriol; and hence arises some doubt whether *alum*, as it does not leave an earth behind, does properly belong to the class of salts. Mr. Boyle assures us that *alum-ore*, robbed of its *salt*, does, in tract of time, recover it again from the air.

ALUM, *the process of making it*.

The process of making *alum* at Whitby in Yorkshire is thus described by Mr. Ray, at the end of his collection of English words, not generally used. They take the mine or ore dug from the *desse* or rock, and laying it in great heaps, burn it with whins, or wood, till it be white. When it is sufficiently burnt, they harrow it into a pit, ten feet long, six broad, and seven fourths of a yard deep, where it is steeped in water during the space of eight or ten hours; then they draw out the liquor, which is only a laxivium impregnated with the *alum* mine, into troughs, by which it is conveyed to the *alum* house, into a deep cistern, about twenty yards in circumference, and three yards and a half deep. After the first water is drawn off from the mine into the pan, they do not presently call away the mother, but pour fresh water on it a second time; and after the second water is drawn off, which is much weaker than the first, they call out the mine, and put in new, and pour on fresh water as before. Out of the cistern they convey the laxivium by troughs into the pans, where it is boiled for the space of twenty four hours ordinarily. Then they take the liquor out of the pans, and examine it by weight, to know how much ley made of kelp, it will require, which for the most part is six inches of the pan's depth. This being put in, as soon as the liquor boils, or flows up, by the putting in of an iron coal-rake, or other iron instrument, they draw it off into a settler, and let it stand about an hour, that the sulphur and other dregs may settle to the bottom; which being done, it is drawn off into coolers, where it continues about four days and nights. The cooler being drawn about half full, they pour into it a quantity of urine, viz. about eight gallons into a cooler that contains about two hall tuns. Having thus stood about four days and nights, it is quite cool, and the *alum* crystallized to the sides of the cooler. Then they scoop out the liquor, which they call the mother, into a cistern, and put it into the pans again, with new laxivium, to be evaporated by boiling, &c. The *alum* that is thrown and crystallized on the sides of the cooler they scrape off, and wash with fair spring water, then throw it into a hag, where the water drains from it. Thence it is cast into a pan, called the *reaking* pan, and there stirred; after which it is scooped out, and conveyed by troughs into tuns, in which it stands about ten days, till it be perfectly cool and condensed; then they unhoop and have the tuns, and taking out the *alum*, chip it, and carry it into the store-house. The exact proportion of kelp does not appear in this process; for though the workmen told Mr. Ray, that the ley was six inches of the pan's depth, yet they did not tell him how deep the pans were. Phil. Trans. N° 252. See DOGGERS.

At Solfatera, near Puzzuoli, there is a considerable oval plain, the soil whereof is wholly saline, and so hot, that the hand cannot long endure it.—From the surface hereof, in summer time, there arises a fort of flour, or salino dust; which being swept up, and cast into pits of water at the bottom of the plain, the heat of the ground, i. e. of certain subterraneous spiracles, over which the coppers are placed, without any other fire, evaporates the water, and leaves the *alum* behind.

Alum is made at Cypella, in Thrace, by gently calcining the stone, and letting it diffolve afterwards in the air both in dews and rains; then boiling and crystallizing the impregnated waters.

ALUM, *its properties and uses*.

Alum is of some use in medicine, in quality of an astringent; but, being apt to excite vomiting, is not much used inwardly, and rarely without some smooth aromatic, as a corrector. It is proper for diseases where the principal ingredients are to fortify and constringe. It is said to be good in hæmorrhages of all kinds, especially uterine hæmorrhages; whether to correct the frequent return of the *menses*, or their too great abundance; to stop the flooding to which women with child are subject, or to moderate the flow of the too plentiful *lochia*. It is also said to be efficacious in the case of a *fluor albus*, *alum* mixed with honey cures the *aphthæ*, and with the juice of *knot-grass* is good for *exanthemata* and rheums in the ears; with cabbage leaves and boiled honey, it is effectual in the leprosy; and very good in warm water to make a fomentation for the itch. *Paronychia*, *pterygia*, and kibes; to scour away all nits and lice, and to anoint scalds or burns. It is used outwardly also in astringent lotions, and is an ingredient in several dentifrices and collyries.

It is a principal ingredient in dying and colouring, neither of which can be well performed without it.—It serves to bind the colour upon the stuffs, and has the same uses there, that gum water and glutinous oil have in painting. It likewise disposes stuffs to take the colour, and adds a degree of brightness and delicacy to it; as we see visibly in cochineal, and the scarlet grain. Without *alum* these dyes would be only confused stains, which might be washed out by water.

This effect of *alum* seems also owing to its styptic or astringent quality, by which it binds the finer parts of colours together, and prevents their exhaling. Hence also it preserves paper that has been dipped in its water, from sinking when wrote upon.

Vintners fine down their wines, &c. with *alum*; fishermen use it to dry codfish with; and bakers have mixed it with the flour to make their bread compact and white; to this last use of it, great objections have been made, but unjustly, for it is entirely innocent, and now seldom used. It is recommended from ten to twenty grains, mixed with an equal proportion of sugar, gum arabic, or spermaceti, as a cure for colics. Dr. Percival adds, that in about fifteen cases, he has employed it with success. Percival's Essays, vol. ii. p. 194.

Naturalists speak of divers kinds of *alum*, which may be reduced to two, *native* and *artificial*.

ALUM, *native*, are those prepared and perfected under ground, by the spontaneous operations of nature, mixing the proper ingredients, water, earth, and salt, or sulphur. It is found in the coal mines near Whitehaven.

These are either *liquid*, or *solid* and *concrete*.

ALUM, *liquid*, appears to be the primitive kind, as being that out of which the rest is formed.

It is not uncommon to find *liquid alum* in the places where subterraneous fires have raged. It is a milky thick liquor, and is found lodged in cavities of the strata of stone, when the sulphur and sal ammoniac have been sublimed away. The acid aluminous part of the matter will also escape with a great degree of heat, leaving in the place of the liquor only a dry flyptic, and hard flony matter. The liquor itself is of a very flyptic taste, and will yield one half its weight of pure crystalline *alum* on evaporation. Phil. Trans. N° 230.

ALUM, *solid* or *concrete*, is divided into fcilike *alum*, called by the Greeks *exyris*, as being soft and easily separable. This is said to bear a near resemblance to our *plumose alum*, only differing in this, that the former instead of whitish, is of a greenish hue. Some pretend to have done wonders with it against hæmorrhages, ludicrofs of the teeth, the itch, *pterygium*, *perus*, &c. In some of which its aluminous or astringent quality might be expected to do more harm than good.

ALUM, *rotunda*, *alumen rotundum*, called also *ovoydeum*, is found ordinarily in roundish masses, though sometimes angular.

ALUM, *fissile*, or *fossile*, is either composed of thin flakes, very friable to the fingers, or of *fibræ*, or whitish hairs, hence called *capillary*, usually *plumæ* ALUMI.

ALUM, *rock*, or *rosche*, is prepared from gypsum dooes cut from the rocks of the quarry, and stands contradistinguished from the common *alum*, or that prepared from earths. It is sometimes called *ice alum*. The method of making *alum* in Italy, is somewhat different from that described above.

It appears, that the names, *ice-alum*, and *rock-alum*, are synonymous, and confounded in *commerce*, because there is no difference in the price. There is this remarkable circumstance attends the crystallization of *alum*, that good crystals of this salt cannot be formed, unless an *alkaline lixivium* be added to the *laxivium* of *alum*, when set to crystallize.

Mr. Geoffroy had an exact information in Italy of the method of making *roche-alum* at Civita Vecchia. Near that city are quarries of a greyish or reddish stone, pretty hard, like the *travertin*. They calcine these stones in kilns, and then boil the *cole* in water over a strong fire. The water dissolves all the salt contained in the *cole*, and

there remains an insipid earth. The water thus impregnated is left to cool, and the salt shoots into crystals like tartar, about the sides and bottoms of the cask, which is a species of the *rock alum*, called ROMAN *alum*, the price of which is greater than that of common *rock alum*.

ALUM, *saccharine*, bears a near resemblance to sugar.—It is a composition of common *alum* with rose-water and whites of eggs, boiled together to the consistence of a paste, and thus moulded at pleasure. As it cools, it grows hard as stone. It is used as a cosmetic.

ALUM, *burnt, whence alum* is prepared by melting the salt in a fire-shovel, or crucible, and letting it bubble till it come to a white hard substance. This is used as an escharotic; it gently eats proud flesh, but leaves such a hardness on the part, as makes it little esteemed in that intention.

ALUM, *plume, alumen plumosum*, is a sort of saline mineral, of various colours, most commonly white bordering on green, resembling Venetian TALC, except that instead of scales, it rises in threads or fibres, resembling those of a feather; whence its name, from *pluma, feather*.

Some will have this to be the *lapis amiantus* of the ancients. It is chiefly found in the islands of Rhodes and Crete, where there are whole mountains of it. See Phil. Trans. vol. xxiv. ner. 48. an. 1704. p. 489.

ALUMEN *plumosum*, is also a name given by some chemists to a peculiar kind of sublimate of mercury, invented by Basil Valentine, whose name it also bears. It is a compound formed of arsenic, united with vitriolic acid.

ALLUMEN *fungitæ, or foliate*, a squamose or flaky stone, the same with what is otherwise called *lapis* SPECULARIS.

Some take this for the same with what the ancients called SCHISTOS.

ALUMEN *catini* is a name which some have given to the albus, or rather talc of the herb *kali*, used chiefly in the making of glass.

In this sense, *alumen catini* amounts to the same with what is more frequently called ALKALI.

ALUMEN *fecis* is made of the lees of wine, formed into round masses, dried by the sun, and then burnt or torrified so long by the fire, as to turn white. Its chief use is among the women of Italy, to dye the hair of a yellow colour, much affected in that country.

ALUM, *purified*, is that prepared by dissolving it in hot rain water, and evaporating it again, till it shoot into crystals.

By repeating this operation divers times, the fourness of the *alum* is much abated.

ALUM, *crude*, is the salt, such as produced at the *alum*-works, without further preparation. This stands contradistinguished from prepared *alum*.

It is used by some as a *mixture* against the itch and swellings of the feet; but rather palliates than works a thorough cure.

ALUM, *prepared*, is of divers kinds.—Under this class come *purified alum, saccharine alum, burnt alum, alum mineralized, tinctures of alum*, water, spirit, *oil, and oil of alum*.

ALUM, *Roman*, properly denotes a *rock alum*, of a red colour, prepared in the country near Rome.

In the genuine Roman *alum*, the red colour is not superficial but diffused through the whole substance of it; by which it may be distinguished from the spurious, or counterfeit kind, which is only the common English *alum* dyed red.

Alum mines are said to have been first found in Italy in the year 1460; and in 1526 king Henry VII. made a monopolizing grant of this commodity to Augustine Chigi, a merchant of Sienna. In the year 1608 the manufacture of *alum* was first invented, and successfully practised in England, meeting with great encouragement to Yorkshire, where it was first made, from Lord Sheffield, and other gentlemen of that county. King James I. by advice of his ministry, assumed the monopoly of it to himself, and therefore prohibited the importation of foreign *alum*; and in 1625 the importation of it was further prohibited by the proclamation of Charles I.

All the *alum* which is in commerce, is extracted by different operations from several *pyritous*, earthy, or stony matters, containing the vitriolic acid, and the earth proper for forming this salt. See PYRITES.

ALUM WATER, see ALUMINOUS *waters*.

ALUM WORKS, places where *alum* is prepared, and manufactured in quantities for sale. They differ from *alum* mines, as in the former an *artificial* ALUM, and in the latter *natural* ALUM, is produced.

ALLUMINOR, from the French *allumer, to lighten*, is used for one who colloureth or painteth upon paper, or parchment; and the reason is, because he gives light and ornament by his colours to the letters, or other figures. Such ornaments are styled illuminations. The word is used in stat. 1. R. III. cap. 9. But now such a person is called a *limner*.

ALLUMINOUS, any thing that contains *alum*, or partakes of the nature and qualities of that SALT.

Grew describes some extraordinary kinds of *alumineous* earths in the repository of the Royal Society.

ALLUMINOUS *waters* are those impregnated with the particles of that salt.

Alumineous waters make a species of those called mineral or medicinal waters.

Such is the Spa at Scarborough observed to be by Witty, Simpson, &c.

According to the last author, that which gives the essence to this water is an acid *alumineous* mineral salt, preying on, and dissolving a slight mixture of iron. Dr. Highmore objects, that supposing *alum* the principal ingredient in these waters, the properties of *alum* being to dry, to astringe, and to incrassate, how comes it to pass that they are pretended to be so highly deoppilative, and so beneficial to hypochondriac and cachectical persons, where their astringency should rather be noxious? Dr. Witty answers, that they do not derive these virtues from the *alum*, but from the other ingredients in them. It is disputed whether or no the bath at Lucca be *alumineous*. Phil. Trans. N° 47. N° 56. and N° 160.

We have also factitious waters under the denomination of *alumineous*; such is that called in the shops *aqua aluminosa magistralis*.

Its preparation is thus; take of *rock alum*, and white sublimate, *ana* ʒii. boil them in rose and plantain water, *ana* ℔i. till half is consumed; filter the remainder, and keep it for use.

This is prescribed against deformities of the skin, and often for the itch; but it is an uncertain remedy, and not to be used without caution.

ALLUSION, ALLUSIO, in *Rhetoric*, a figure whereby something is applied to, or understood of another, by reason of some similitude of name or sound.

The word is formed of *ad*, and *ludere, to play*.

Camden defines *allusion* a dalliance, or playing with words alike in sound, but unlike in sense; by changing, adding, or subtracting a letter, or two; whence words resembling one another become applicable to different subjects.

Thus the Almighty, if we may use sacred authority, changed Abram, i. e. high father, into Abraham, i. e. father of many.—Thus the Romans played on their tippling emperor Biberius Nero, by calling him Biberius Mero; and thus in Quintilian the sour fellow Placidus is called Acidus.

Allusions come very near to what we popularly call *puns*.

ALLUVION, ALLUVIO, in the *Civil Law*, a gradual addition or accretion made along the sea-shore, or the banks of large rivers.

The word is formed of *adluo, I wash to*, compounded of *ad* and *luo*.

The civil law places *alluvion* among the lawful means of acquisition; and defines it to be a latent imperceptible accretion.—Hence, where any considerable portion of ground is torn away at once, by an inundation, and joined to some neighbouring estate, this is not acquired by right of *alluvion*, but may be claimed again by the former owner.

Great alterations are made in the face and limits of countries, by *alluvions* of the sea, rivers, &c. Whole plains are sometimes formed by *alluvions*. It is controverted whether *alluvions* should be considered as fruits, and as such accruing to *usufructuaries*.

ALLY. See ALLIANCE.

ALMACANTARS, ALMACANTARAS, or ALMICANTHARATH, in *Astronomy*. See ALMUCANTARS.

ALMACANTARS *staff*. See ALMUCANTARS *staff*.

ALMADE, in *ship-building*, a small vessel used by the negroes of Africa, about four fathom long; and made usually of the bark of a tree.

The same name is also given to the vessels of Calicut in India, which are eighty feet long, and six or seven broad, and square sterned.

These are otherwise denominated *cathori*. They go with great swiftness. Wilson says, that they are sometimes thirteen paces long, sharp at head and stern, and that they are moved both by sails and oars.

In time of war, the king of Calicut has out two or three hundred of these vessels.

ALMAGEST, the name of a celebrated book composed by Ptolemy; being a collection of many of the observations and problems of the ancients, relating to geometry and astronomy.

In the original Greek it was called *μαθηματικὴ σύνταξις*, q. d. *greatest construction*, or *collection*: which last word *συναγὼγὴ*, joined

joined to the particle *al*, gave occasion to its being called *almagesti* by the Arabians, who translated it into their tongue about the year 800, by order of the caliph Al-Maimon.—The Arabic word is *almagisti*.

Ricciolus has also published a body of *astronomy*, which he intitles, after Ptolemy, the New Almagesti: being a collection of ancient and modern observations and discoveries in that science.

We have also a botanical *almagesti*, composed by Plukenet, being a kind of *pinax*, or general index of plants, containing the proper, and descriptive names, of upwards of six thousand. To which is a supplement, since published by the same author, have been added above one thousand others. A magestum Botanicum, sive Phytographiæ Pluckenetianæ Onomasticon, &c. Lond. 1696. fol.

ALMAGRA, in *Natural History*, a name given in later ages to an earth of the OCHRE kind, called *fil veticum* by the ancients. It is an ochre of a fine and deep red, with some admixture of purple, very heavy, and of a dense yet friable structure, and rough dusty surface. It adheres very firmly to the tongue, and melts freely and easily in the mouth, and is of an austere and strongly astringent taste; it stains the skin in touching it, and ferments very violently with acid menstruums; by which single quality, it is sufficiently distinguished from the *fil veticum*, to which it has in many respects a great affinity. It is found in immense quantities, in many parts of Spain; and in Andaluſia there are in a manner whole mountains of it. It is used in *painting*, and in *medicine*, being a very valuable astringent.

ALMAGRA, in the cant of chemiſts, denotes red *bole*, or RUDDLE; sometimes a lotion, or wash.

ALMALECI, in *Medical History*, a celebrated work, containing a ſyſtem of the ancient Arabian phyſic.

The word imports as much as the *royal work*.

Concerning the hiſtory, contents, &c. of the *almaleci*, ſee Freind's Hiſt. of Phyſ. p. ii. p. 36.

ALMANAC, a *calendar* or *table*, wherein are ſet down the days and feaſts of the year, the courſe of the moon, &c. for each month of the year.

The original of the word is much controverted among grammarians.—Some derive it from the Arabic particle *al*, and *manah*, *to count*.—Others, and among them Scaliger, rather derive it from *al*, and *manach*, the courſe of the months: which is contradicted by Gelius, who advances another opinion. He ſays, that, throughout the Eaſt, it is the cuſtom for ſubjects, at the beginning of the year, to make preſents to their princes; and, among the reſt, the aſtrologers preſent them with their ephemerides for the year enſuing; whence thoſe ephemerides came to be called *almanchi*, i. e. handfels, or new-year's gifts. To ſay no more, Veſtegan writes the name *almon-ac*; and makes it of Saxon original. Our anceſtors, he obſerves, uſed to carve the courſes of the moon, of the whole year, upon a ſquare ſtick, or block of wood, which they called *al-monaghi*, q. d. *all-moon-herd*.

The modern *almanac* anſwers to the *faſti* of the ancient Romans.

The neceſſaries for making an *almanac*, the reader will find under the article CALENDAR.

Henry III. of France very prudently decreed, by an ordonnance of 1579, that 'no *almanac*-maker ſhould preſume to give predictions relating to civil affairs, either of ſtates or private perſons, in terms either expreſs or covert.'

In the Philoſoph. Collect. we have a perpetual *almanac*, deſcribed by Mr. R. Wood.

Many forms of a head-*almanac* have been propoſed in ſome of our periodical publications; but the following diſtich will very well anſwer the purpoſe:

At Dover Dwells George Brown, Eſquire;
Good Chriſtopher Finch, And Dowſe Frier.

The twelve words anſwer to the twelve months; the firſt letter of each word ſtands in the Calendar againſt the firſt day of the correſponding month; and if the Dominical letter is known, it is eaſy to find on what day of the week any day of the month will fall throughout the year. In 1776, F being the Dominical letter, Dec. 25 is Wedneſday, becauſe the firſt day denoted by F is Sunday.

ALMANAC, *nautical*, is publiſhed annually, by anticipation, under direction of the commiſſioners of longitude. Beſide every thing eſſential to general uſe that is to be found in any *almanac* hitherto publiſhed, it contains many new and intereſting particulars; more eſpecially, the diſtances of the moon from the ſun and fixed ſtars for every three hours of apparent time, adapted to the meridian of Greenwich, by comparing which with the diſtances carefully obſerved at ſea, the mariner may readily, and with little danger of miſtake, infer his longitude to a degree of exactneſs, that may be thought ſufficient for moſt nautical purpoſes. And the publication of it is chiefly deſigned to facilitate the uſe of Mayer's lunar tables, by ſuperſeding the neceſſity of intricate calculations, in determining the longitude at ſea. It began with the year 1767, and has been continued ever ſince. See LONGITUDE.

ALMANAR, in the Arabian *Aſtrology*, denotes the preeminence, or prevalence of one planet over another.

ALMANDIN, or ALMANDINE, a precious ſtone of the RUBY kind, ſomething ſofter than the oriental ruby; and, as to colour, partaking more of that of the garnet than the ruby.

It is ranked among the richeſt of ſtones, and takes its name from Alabanda, a city of Caria, whence Pliny ſays it was brought.

ALMARIA, in our *Ancient Records*, the archives of a church, or the like.

ALMEHRAB, among *Mahometans*, denotes a niche in their moſques, which directs to the *kebla*, that is, to the temple of Mecca, to which they are obliged to bow their faces in praying.

The word is Arabic, where it is properly written *al mehrab*.

ALMEISAR, a celebrated game among the ancient Arabs, performed by a kind of caſting of *lots*, with arrows, ſtrictly forbid by the law of Mahomet, on account of the frequent quarrels occaſioned by it.

The manner of the game was thus: a young camel being brought and killed, was divided into a number of parts. The adventurers, to the number of ſeven, being met, eleven arrows were provided without heads or feathers; ſeven of which were marked, the firſt with one notch, the ſecond with two, the third with three, &c. the other four had no marks. Theſe arrows were put promiſcuouſly into a bag, and thus drawn by an indifferent perſon. Thoſe to whom the marked arrows fell, were obliged to pay the whole price of it.

Even the winners laſted not of the fleſh themſelves, more than the loſers; but the whole was diſtributed to the poor.

ALMELILETU is uſed by Avicenna, for a preternatural kind of heat, a degree more remiſs than that of a fever, and which ſometimes remains after a fever is gone.

ALMENE, a name given, by ſome of the Arabian writers, to the *prickly lotus* of Africa, called by ſome of the ancients *lotus acanthus*, and by Virgil *acanthus* only.

ALMERICANS, were the followers of Almeric, or Amaury, in the thirteenth century. They maintained that the power of the father continued no longer than the Moſaic diſpenſation; that the empire of the Son extended only to the thirteenth century; and that then the reign of the Holy Ghoſt commenced, when all ſacraments and external worſhip were to be aboliſhed, and the ſalvation of Chriſtians was to be accompliſhed merely by internal acts of illuminating grace. Their morals were as infamous as their doctrine was abſurd. Their tenets were condemned by a public decree of the council of Sens, in the year 1209.

ALMERY. See AUMERY.

ALMIGGIM *wood*, a word uſed in the Scriptures, to ſignify a beautiful and light ſort of wood. It has been conjectured to be ſeveral different ſorts of woods now in uſe; others think it has been loſt long ſince. But Meibomius proves, from the accounts of Joſephus, that it was the wood of the Indian pine, or fir-tree. This was excellent for its whiteneſs, as well as remarkably light, and therefore was uſed in muſical inſtruments.

ALMIZADIR, among *Alchemiſts*, is ſometimes uſed for verdegriſe; ſometimes for the proceſs of the philoſophers ſtone; and ſometimes for the *aqua mercurialis*, or *aqua philoſophorum*. See ALCAHEST.

ALMOGIZA, among Arabian *Writers*, denotes the limb, or circumference of the ASTROLABE.

ALMOHARRAM, one of the ſacred months of the ancient Arabs.

The word is Arabic, *al moharram*. It was the firſt month of the Arab year. On ſome occaſions they put off the obſervance of this month to the following month Safar.

ALMOIN, in *Law*. See FRANK-*almoin*.

ALMOND, *amygdala*, a kind of medicinal fruit, the produce of the ALMOND-*tree*.

ALMOND-*tree*, *amygdalus*, in *Botany*, the name of a genus of trees, of the *icoſandria monogynia* claſs, the characters of which are theſe: it hath a tubulous empalement of one leaf, which is cut at the brim into five obtuſe ſegments; the flower hath five oval, obtuſe, concave petals, which are inſerted into the empalement. After the flower is paſt, the germen becomes an oval compreſſed large fruit, with a thin, tough, hairy covering, having a longitudinal furrow;

furrow; this opens and falls away, leaving an oval compressed nut.

Mr. Miller enumerates four species of this tree; which is propagated by inoculating a bud of any of the species into the stock of a plum, peach, or *almond*, of another species, in the month of July.

The second year after their budding, they are to be removed to the places where they are to remain.

The best season for transplanting them, if far dry ground, is in October; but for a wet soil, February is always found the properest season.

The fruit of this tree is of two kinds, the sweet *almonds*, and the bitter *almonds*.

ALMONDS, *sweet*, are of a soft, grateful taste; and are reputed cooling, bedling, emollient, and nutritive: they are much prescribed in emulsions, and found of good effect in all disorders from choleric and acrimonious humours. Neumann says, that when roasted they are a *succedaneum* to coffee. The oil of sweet *almonds*, drawn without fire, is a safe and useful remedy in nephritic pains: it is also of good repute for costiveness, and for gripes in children.

For the manner of procuring it, see OIL.

Half an ounce of it may be taken for a dose, with thirty drops of the mineral anodyne liquor. Some reckon two kinds of sweet *almonds*, 1. Jordan, which are the larger, longer, and dearer kind, chiefly sold to be eat with raisins. 2. Valentian and Barbary *almonds*, which are those from whence the oil is procured. Hough. Collect. N° 434. tom. ii. p. 76.

The tree that bears them is called *amygdalus sativa*. Their chief medical uses are to soften and obtund acrimony, and to render resinous substances soluble in water, and in the animal fluids. Neumann's Works, p. 389.

ALMONDS, *bitter*, are held aperient, detersive, and diuretic; and, on those accounts, they are commended in obstructions of the liver, spleen, uterus, &c. Some esteem them good to take off the effects of drunkenness. Accordingly, Plutarch relates, that Drusius's physician, a great drinker, took down at every cup five bitter *almonds*, to allay the heat and fumes of the wine.

The *expressed* oil of bitter *almonds* is as tasteless as that of the sweet: it is much used to soften and deterge the wax out of the ear.—Some affirm, that *bitter almonds* are poisonous to birds, particularly: and Neumann adds, to all animals that come into the world blind. It is said that hogs, fed plentifully with, so that they may be easily taken with the hand: that this is a secret practised among the Bohemians; and that the husks, remaining, after the oil is expressed, have the same effect.

The kernels of bitter *almonds* give much the same relish in distillation, as the kernel of the cherry; on which account, some practise the making of a counterfeit cherry brandy with them. They are also frequently used instead of apricot kernels, in RATAFIA. See the chemical history of *almonds*, in Neumann, at large.

ALMONDS, *sweet*, and *bitter*, contain an expressible oil, and farinaceous earth: the bitter part of *bitter almonds* is not expressed with the oil, but may be dissolved by digestion in aqueous, and spirituous liquors, and with these may be distilled. Waters distilled from *bitter almonds*, or from mealy other bitter vegetables, fruits, and flowers, which have a similar flavour to them, are poisonous to birds, to some animals, and have sometimes been so to men. It is chiefly, if not solely, in the matter which arises in distillation that the noxious qualities of the *bitter almonds* reside. Dr. Lewis. See more in Neumann's Works, p. 389. and n.

Almonds give the denomination to a great number of preparations in confectionary, cookery, &c. wherever they are the basis; as *almond* cakes, *almond* cream, crisped *almonds*, *almond* milk, *almond* paste, *almond* snow, &c. With sweet *almonds* blanched (that is, put into warm water a while, which makes them slip their skins) and water, is made *almond* milk, frequently used as a cooler in emulsions, &c. V. Hough. Collect. N° 434.

There is a preparation also called *almond-butter*, made of cream and whites of eggs boiled; to which is afterwards added, blanched *almonds*: the whole set over a slow fire, till it become thick.

ALMONDS are also a fruit which serves instead of small money, in several parts of the East Indies; particularly where the *cowries*, those small shells which come from the Maldives, are not current.

ALMOND, *dwarf*. See PERSICA.

ALMOND, *Indian*. See BRABEJUM.

ALMONDS, *amygdalæ*, in *Anatomy*, denote two glands of the *fauces*, more properly called the *tonsils*.

These are commonly called *almonds of the ears*; but ought rather to be denominated *almonds of the throat*.

They are two rough glands placed on the sides of the *fossa* of the tongue, under the common membrane of the *fauces*, with which they are covered.

Each of them has a large oval *sinus*, which opens into the *fauces*; wherein are contained a great number of lesser ones, which discharge through the great *sinus*, a mucous and slippery matter into the *fauces*, *larynx*, and *œsophagus*, for the moistening and lubricating of those parts.

When the *œsophagus* muscle acts, it compresses the *almonds*; and as they are subject to inflammations, they frequently are the occasion of what the common people call a *sore throat*.

ALMOND, or ALMAN-*furnace*, is a peculiar kind of furnace, used in refining; to separate all kinds of metals from cinders, parts of melting pots, tests, bricks, &c.

The *almond-furnace*, called also the *sweep*, is usually six feet high, four wide, and two thick: it is built of brick, and having a hole in the middle of the top, eight inches over, which grows narrower towards the bottom, where, on the fore part, it ends in a point, encompassed with a semicircle of iron, to keep in the melted metal. About the middle of the back, there is another hole, to receive the nose of a pair of bellows, which require the continual strength of two men to work.

The matter, then, on which the operation is to be performed, being beat small, they kindle charcoal in the furnace, to anneal it; and when hot, they throw in two or three shovels of coals to one of the forementioned stuff; and so proceed during the whole work, parting lay upon lay, of one and the other. After eight or ten hours, the metal begins to run; and when the receiver below is pretty full, they lade it out with an iron ladle, and cast it in lows, in cavities, or forms made with ashes. In this furnace the refiners of silver out of lead melt the slags of the LITHARGE left in this operation, and reduce them into lead again. See FURNACE.

ALMOND, a measure in Portugal for OIL. The Portuguese sell their oil by *almonds*, twenty-six of which make a butt, or pipe.

ALMONDS, *amondes*. Thus the French lapidaries, and looking-glass makers, call those pieces of rock crystal, or cast crystal, which they cut with a wheel, giving them a figure something like that fruit. They are used to adorn branch-candlesticks, and other furniture made of glass or crystal.

ALMONER, anciently also written AUMNER, an officer in a king's, prince's, or prelate's household, whose business is to distribute alms to the poor.

The *lord almoner*, or *lord high almoner*, of England, is an ecclesiastical officer, usually a bishop; who is to visit and relieve the sick, poor widows, prisoners, and others in necessity: for which purpose, he has the forfeiture of all deodands, and the goods of *felos de se*, which he is to dispose of to the poor.

He has likewise, by an ancient custom, a privilege to give the first dish, from the royal table, to whatsoever poor person he pleases; or instead thereof, an alms in money.

He also distributes to twenty four poor men, nominated by the parishioners of the parish adjacent to the king's palace or residence, to each, four-pence a day in money, and an alms of bread and small beer; each person first repeating the Creed, and the Lord's prayer, in presence of one of the king's chaplains, deputed by the lord *almoner* to be his *sub almoner*; who is also to scatter new coined two-pences in the town and place through which the king passes in his progress. See MAUNDY-*Thursday*.

He has also the charge of several poor pensioners to the crown below stairs; consisting of such as have spent their youth, and become superannuated, in the king's service; or the widows of such honourable servants as died poor, and were not able to provide for their wives and children: whom he duly pays. Chamberlayne's State of Great Britain, p. 98.

Under the lord *almoner*, besides the *sub-almoner*, there is a yeoman, and two grooms of the *almonry*, chosen by his lordship.

The French kings have their great *almoners*, first *almoners*, ordinary or quarterly *almoners*, &c.

Great *almoner*, *grand-aumonier*, is the highest ecclesiastical dignity in that kingdom. To him belongs the superintendency of all hospitals, and houses of lepers. The king receives the sacrament from his hand. He says mass before the king, in all grand ceremonies and solemnities.

ALMONER is also applied in *Ecclesiastical Writers*, to the DEACONS of churches.

ALMONER is also used, in *Hybernian of the Middle Age*, for him appointed by a prelate to distribute his alms to the poor. In this sense, *almoner* amounts to much the same with what has been since denominated *executor*.

ALMONER is also sometimes used for a person who left alms to the poor, by his last will.

ALMONER is sometimes also used for a legatee.

In this sense, it is the rule, that the same person could not both be *almoner* and heir.

ALMONER is also a more fashionable title given, by some writers, to chaplains.

In this sense we meet with *almoner* of a ship, *almoner* of a regiment.

ALMONRY, or AUMERY, the office or lodgings of the almoner; also the place where the alms are given. See AMBRY.

ALMS, *eleemosyna*, something given out of charity or pity to the poor.

The ecclesiastics anciently subsisted wholly on *alms*.—The *alms* of the primitive Christians were divided into three parts; one whereof belonged to the bishops, another to the priests, and a third to the deacons and subdeacons.—Sometimes they divided them into four; the last of which went to the poor, and to the repairing of churches.

The Romans extend the term *alms* to that which is given to the church, or to other pious uses.—Hence, what the church holds on this footing, is called *tenure in alms*.

Alms are of divers kinds.

ALMS, *paschal*, *eleemosyna paschales*, were those distributed at the solemnity of Easter, attended in some places with other acts of humility, as washing of feet, &c.

ALMS, *reasonable*, *eleemosyna rationalis*, a certain portion of the effects of persons dying intestate, set apart for the use of the church and the poor.

ALMS *of plough lands*, *eleemosyna carucarum*, or *eleemosyna terræ aratrix*, was a tax anciently paid for the benefit of the poor, at a penny for each plough-land.

ALMS *of the king*, denote what was otherwise called *Peter-pence*.

These were sometimes also called *alms* of St. Peter.

ALMS are divided by MAHOMETANS, into *voluntary* and *legal*.

ALMS, *voluntary*, are those left to every man's discretion, to give more or less as he sees fit.

The *voluntary alms* are properly denominated, by the Arabs, *sordechad*.

No religious system is more frequent or warm in its exhortations to *alms*-giving than the Mahometan. The Alcoran represents *alms* as a necessary means to make prayer be heard.

ALMS, *legal*, those of indispensible obligation, as being commanded by the law, which directs and determines both the portion to be given, and the kind of things it is to be given of.

The *legal alms* are properly called, by the Mahometans, *zacat*, either on account of their increasing a man's store, or of their purifying the remaining part of his substance.

Some writers have given these the denomination of tithes, but improperly; since, in some cases, they fall short, and in others exceed the proportion of a tenth.

ALMS, *charter of*, *charta eleemosynaria*, that whereby a thing is given to the church.

ALMS, *assize*, among the French, is also used for a compulsory payment, imposed by way of punishment, to be converted to pious or charitable uses.

In all adjudications to the king's right, there is an *alms* reserved. This amounts to what among us is usually called *forfeiture to the poor*.

ALMS-*box*, or *chest*, a small chest, or coffer, wherein anciently the *alms* were collected, both at church and at private houses. This is also in common use in several places.

The *alms-chest*, in churches, is a strong box, with a hole in the upper part, having three keys, one to be kept by the parson, or curate, the other two by the churchwardens.

The erecting of such *alms-chest* in every church was introduced by an act in 27 H. VIII. and it is enjoined by the Book of Canons, as also the manner of distributing what is thus collected among the poor of the parish.

ALMSFEOH, or ALMESFEOH, among our Saxon ancestors, *alms-money*; that is, PETER-PENCE, anciently paid in England on the first of August; called also *romescot*, *romefeoh*, and *hearthpenning*.

ALMS-HOUSE, a petty hospital; or an edifice built by a person in a private capacity, and endowed with a revenue, for the maintenance of a certain number of poor, aged, or disabled people.

ALMUCANTARS, in *Astronomy*, are circles parallel to the HORIZON, imagined to pass through all the degrees of the MERIDIAN.

The word is formed of the Arabic *almucantharat*.

As the meridians pass through the several degrees of the equator, the *almucantars* pass through those of the meridian of any place.

The *almucantars* are the same thing with regard to the azimuths and horizon, that the parallels are with regard to the meridians and horizon.

They serve to shew the height of the sun and stars; and are described on many quadrants, &c. being also called PARALLELS *of altitude*.

ALMUCANTARS, *staff*, is an instrument usually made of pear-tree or box, having an arch of fifteen degrees; used to take observations of the sun, about the time of its rising and setting, in order to find the amplitude and consequently the variation of the compass.

ALMUCIUM, or ALMUTIUM, in *Middle Age Writers*, denotes a kind of cover of the head, part of it pendant over the neck and shoulders, worn chiefly by the ancient canons and monks.

The word is also written *almucia*, *amucia*, *almucilla*, *armutia*, and *amucia*.

The *almucium* appears to have been much the same with what is otherwise denominated *cappa magna*.

The *almucium*, though proper only to religious, was sometimes also assumed by laymen, princes, and even women of quality.

The part which covered the head was of a square form, making, as it were, four horns, as may be seen from the ancient pictures of canons. Hence appears the origin of the square caps, bonnets, &c. still retained in cathedrals and universities, which are no other than the upper part of the *almucium*, without the lower.

ALMUCIA is also used in some *Italian Writers*, for the furs, or skins, worn by the canons, on their left arms, in the manner of muffs.

ALMUDHERIS, in the Arabian *Astrology*, a kind of dignity, or pre-eminence according to a planet in some place, either from its disposition or benign aspect.

ALMUG-*tree*, a kind of wood mentioned in Scripture, imported by Solomon from Ophir, and used in the making of rails and pillars of the temple. 1 Kings, ch. x. ver. 11, 12. 2 Chron. ch. ii. ver. 8.

ALMUGEA, in *Astrology*, denotes a certain configuration of the five planets, in respect to the sun and moon, correspondent to that which is between the hours of those planets, and the sun's and moon's hours.

Thus Saturn will be in the *almugea* of the sun, when distant from him the space of five signs in succession, or in the *almugea* of the moon, when he is at the same distance, only contrary to the succession of the sign.

ALMUTAZAPHUS, a magistrate of Arragon, whose office is to search houses for stolen goods, weigh the bread, measure the wine, &c.

ALMUTHEN, in the Arabian *Astrology*, the planet which has the dispofal of 5 place, that is, surpasses the rest in the number and efficacy of dignities, regard being had to the essential points, viz. *exaltation*, *terms*, *trigon*, and *phasis*.

This is otherwise called *almuthesis*.

ALNABATI, in the *Materia Medica*, a name given, by Avicenna and Serapion, to the FILIQUA *dulcis*, or carob-tree. They called both this and the ACACIA, by the common name *chorroub*, or *churrub*; but they sufficiently distinguish this, not only by this appellation, but by telling us it was a gentle purge, whereas the other was astringent.

ALNAGE, or AULNAGE, q. d. ell-measure; the measuring of woollen manufactures with an ell, and the other functions of the ALNAGER.

The word is French, formed of *aune*, or *alne*, an *ell*.

All the attempts which our forefathers made for regulating manufactures, when left to the execution of any particular officer, in a short time resolved into a TAX on the commodity, without respect to the goodness thereof.—As is most notorious in the case of *aulnage*, which was intended for a proof of the goodness of the commodity; and to that purpose a seal was invented, as a signal that the commodity was made according to their statute; which seals, it is said, may now be bought by thousands, and put on what the buyers please. Sir Jos. Child's Disc. on Trade.

It is probable that the abuses here mentioned by Sir Josiah Child did, among other reasons, give occasion to the clause 11 and 12 W. III. cap. 20. by which *aulnage* duties are wholly taken away.

ALNAGER, ALNEGER, or AULNEGER, q. d. *measurer by the ell*; signifies a sworn public officer, who, by himself, or deputy, is to look to the assize of woollen cloth made throughout the land, i. e. the length, width, and work thereof; and to the seals for that purpose ordained.

The office of king's *alnager* seems to have been derived from the statute of Richard I. A. D. 1197, which ordained that there should be only one weight and one measure, throughout the kingdom; and that the custody of the assize, or standard of weights and measures, should be committed to certain persons in every city and borough. His business was, for a certain fee, to measure

all cloths made for ſale, till the office was abolished by the ſtatute 11 and 12 W. III. cap. 20.

ALNAM, in *Botany*, a name uſed by ſome, for PENNY-ROYAL.

ALNASI, in the *Mahometan Law*, the puniſhment or the obſervation of a ſacred month to a profane month.

ALNUS, in *Botany*, the ALDER.

ALNUS *baccifera*, the berry-bearing *alder*, in *Botany*, a name given, by ſome writers, to the *frangula*.

ALNUS alſo denotes a part in the ancient theatres, at the greateſt diſtance from the ſtage.

ALOA, in *Antiquity*, a Grecian feaſt, celebrated by the Athenian huſbandmen, in honour of Ceres, as inventreſs and protectreſs of corn and tillage.

The word is ſometimes alſo written ἅλως. It is formed of ἅλως, *grange*, or *barn*; it being in theſe places that much of the ſolemnity paſſed.

Authors are not agreed as to the time or occaſion of the celebration of the *aloa*. Some ſuppoſe it to have been before the beginning of harveſt; others will have it to have been a rejoicing after harveſt, not unlike our HARVEST-*home*.

ALOE, a name applied in three different things. 1. To a very precious and ſcarce tree. 2. To a plant from the roots and leaves of which a drug, very uſeful in phyſic is extracted. 3. To that drug itſelf.

Moſt authors miſtake the plant and tree for each other; becauſe, no doubt, we have but little knowledge of the tree; and the drug which the plant produces is much better known, and of much greater uſe.

The *aloe*-tree grows in China, in the kingdom of Lao, and in Cochinchina, Champac, and Sumatra. It is about the ſame height and form as the olive-tree; its trunk is of three colours, and contains three ſorts of wood: the heart is that of *lignum*, or *calambac*, which is dearer in the Indies than even gold itſelf; it ſerves to perfume cloaths and apartments; and is a ſovereign cordial in fainting fits, and againſt the palſy. It deſtroys the *tinea* and *ſcarabee* in children. It is uſed in ſacrifices, as incenſe, by the Chineſe, and all the heathen Moors. It is alſo uſed to ſet the moſt precious jewels that are worked in the Indies.

The *aloe* wood is very highly valued; and divers ſtrange fables have been invented, as to the origin of the tree that yields it; ſome feign that it grew in Paradiſe, and was only conveyed to us by means of the rivers overflowing their banks, and ſweeping off the trees in their way. Others ſuppoſe it to grow on inacceſſible mountains, where it is guarded by certain wild beaſts, &c.—The Siameſe ambaſſadors to the court of France, in 1686, who brought a preſent of this wood from their emperor, firſt gave the Europeans any conſiſtent account of it.

ALOE-*plant*. The characters of this plant are theſe: the flower is liliaceous, and conſiſts of one petal, which is of a tubular form, and is divided into ſix ſegments at the edge. In ſome ſpecies of this genus, the cup, and in others the piſtil, finally becomes a fruit, or ſeed-veſſel, of an oblong cylindric form, divided into three cells, and containing flat and ſemicircular ſeeds. Tournefort ranges this plant in his ninth claſs, and Linnæus in his ſixth, called *hexandria monogynia*; becauſe the flowers have ſix ſtamina and one ſtyle.

Mr. Miller enumerates twenty-five ſpecies of this plant, which grow in divers parts to the Eaſt and Weſt Indies; and are alſo found in ſome countries of Europe, as Spain, and particularly the mountains of Sierra Morena.—Its leaves are green, very thick, hard, and prickly, yielding a kind of ſtrong threads, whereof laces may be made.

The ſoil in which theſe plants thrive beſt, is one half freſh, light earth, from a common; and if the turf is taken with it, and rotted, it is much better; the reſt ſhould be white ſea-ſand, and ſifted lime rubbiſh, each of theſe two, a fourth part; mix theſe together ſix or eight months at leaſt before it is uſed, obſerving to turn it over often in this time. The middle of July is a very proper ſeaſon to ſhift the plants; at which time you may take them out of the pots, and with your fingers open the roots, and ſhake out as much of the earth as poſſible, taking off all dead or mouldy roots, without wounding the young freſh ones: then fill the pot about three parts full of the above mentioned earth, putting a few ſtones at the bottom of the pot to drain off the moiſture; and after diſpoſing the roots in ſuch a manner as to prevent their interfering too much with each other, put in as much of the ſame earth, as to fill the pot almoſt to the brim, ſhaking the plant in as to let the earth in between the roots, and letting it cloſe to the roots with your hand, to place it firmly in the pot; then water them gently, and ſet them abroad in a ſhady place, where they may remain for three weeks, giving them gentle waterings, if the weather be hot and dry.

Toward the latter end of September, in a dry day remove them into the houſe again, obſerving to give them as much free open air as poſſible, while the weather continues warm; but if the nights are cool, you muſt ſhut up the glaſſes, and give them air only in the day; and as the cold increaſes, you muſt decreaſe opening the glaſſes, only giving them gentle waterings till the middle of October, when you muſt abate them according to the heat of the houſe in which they are kept. For thoſe plants which are placed in a ſtove, will require to be watered at leaſt once a week, moſt part of the winter, whereas thoſe which are kept in a green-houſe, without artificial heat, ſhould not be watered in the winter oftner than once in a month.

The tender ſorts ſhould conſtantly remain in the ſtove, or be removed to the ſummer to an airy glaſs-caſe, where they may have free air in warm weather, but be protected from the rain and cold. With this management the plants will thrive and increaſe; and ſuch of them as uſually flower, may be expected to produce them in beauty at their ſeaſons.

Some *aloes* are arboreſcent, inclining to make large trees, breaking forth into branches; others are ſo ſmall that a whole plant does not exceed the bigneſs of a crown-piece. Some grow cloſe to the ground, others are more ſhining, and have their crown of leaves raiſed upon a ſtem, ſomewhat above the earth. The kind moſt common in our gardens, with ſome few other ſorts, are brought from America; but the greateſt varieties, and, as ſome think, the beſt kinds, come from Africa, chiefly from the Cape of Good Hope.

The two kinds moſt conſiderable, the one for its curioſity, the other for its uſe, are the *aloe Americana*, or flowering *aloe*, and the *aloe Africana*, or drug *aloe*.

The American *aloe* ſeldom flowers in cold climates. See AGAVE.

ALOE, *boſtard*, *alcetris*, in *Botany*, a genus of the *hexandria monogynia* claſs; the corolla is funnel-ſhaped, and furrowed; the ſtamina are inſerted in the baſe of the ſegments; and the capſula has three cells. There are three ſpecies.

ALOE, *water*, *ſtrutiaria*, in *Botany*, a genus of the *polyandria hexagynia* claſs. Its characters are theſe: it has but one flower incloſed in a compreſſed obtuſe ſheath, compoſed of two leaves, which are keel-ſhaped, and permanent; the empalement of the flower is of one leaf, trifid, and erect; it has three almoſt heart-ſhaped petals, which are twice the ſize of the empalement, and about twenty ſtamina, inſerted in the receptacle of the flower, terminated by ſingle ſummits; the germen is ſituated under the empalement, ſupporting ſix ſtyles, divided in two parts, crowned by ſingle ſtigmas; the germen becomes an oval capſule, narrowed on every ſide, having ſix angles, and as many cells, filled with oblong incurved ſeeds. We know but one ſpecies, which is ſhaped like the *aloe*, and grows plentifully in ſtanding waters in the iſle of Ely, and other places. Linnæus mentions two ſpecies.

ALOES, in *Medicine* and *Pharmacy*, the inſpiſſated juice of a particular ſpecies of the foregoing plant, much uſed as a purgative remedy, but very improper for ſuch as are ſubject to the piles.

The juice, or extract, for Neumann thinks it is the true extract of *aloes*, is uſually diſtinguiſhed into three kinds.—The firſt, which is called *Socotorine*, as being brought from Socotora, is the pureſt and moſt tranſparent; being friable, moderately black in the lump, but of a beautiful yellow colour when broken. It is brought in ſkins from the Levant and Eaſt Indies.

The ſecond is called *hepatic*, becauſe of its liver-colour: it is reſinous, ſmells ſtrongeſt like myrrh, has a yellow colour when pounded, and is brought from China and Barbadoes. Some confound this with the following ſort; as, in effect, there are but two ſorts commonly known in our ſhops.

The third is the moſt impure, the blackeſt, and the ſtrongeſt. It was formerly uſed by the Indians to pitch their veſſels with; and is of little uſe among us, excepting for horſes and cattle; for which reaſon it is called *caballine*, i. e. *horſe-aloes*. It is prepared in Jamaica and Barbadoes, and brought over in large gourds.

A late writer deſcribes the preparation of *aloes* thus: the leaves being pulled from the roots of the tree with the hand, or an inſtrument, and preſſed, diſtil a juice, of which the thick part will ſubſide, and the thinner is poured off, and put in the ſun till it dries and hardens, in which time it gains a yellow colour. This is called *aloe Socotorina*. The thicker part remaining is put into another veſſel, and by being inſpiſſated in the ſun, gains a liver-colour, and is called *aloe hepatica*. The thickeſt part is called *caballina*, or horſe-*aloes*.

The general nature of theſe three kinds is the ſame: their particular differences conſiſt in the different proportions of gum to their reſin, and in their flavours, which

which render them more or less disgustful for internal use. Good *aloes*, Neumann says, must be glossy, not very black, but brown; when chewed, rubbed, or cut, of a yellow colour; compact, but easy to break; easily soluble, of an unpleasant smell, and an extremely bitter taste. Such as is black, firm, and hard to break, we may suspect, he says, to be adulterated.

From M. Boulduc's analysis by extraction, it appears, that the *Socotrine aloes* contains scarce half the quantity of resin or sulphureous matter, and about a third more of saline substance than the *hepatic*. As for the horse-*aloes*, it is so impure, and contains so much earth in proportion to its sulphur and salts, that it deserves not to be regarded.

The different proportion of the principles of the *Socotrine* and *hepatic aloes*, might well be the cause of their different properties. As the resinous part of *aloes*, contrary to other cathartics charged with resin, is little or nothing purgative; the *Socotrine*, which has the least of that resin, has been always preferred to the *hepatic* for inward use, and on the contrary, the *hepatic*, which has more of it, excels as much the other in its external usefulness, for cleansing wounds, and closing the lips of recent cuts, &c. M. Boulduc equals it in that respect to the natural balsams. It is plain enough that these effects are the natural result of the resinous and balsamic parts. The salts of the *aloes* are very active, and corrode the extremities of the veins, where the fibres are finest; whence proceed hæmorrhages. Therefore it highly concerns us that the saline part, which wants to be restrained by the resinous, be not separated from it: and yet this is the case in several preparations of *aloes*, when they have not been made by skilful hands. They have rejected the resinous part as too gross and good for nothing, because it kept at the bottom of the solution. Hist. de l'Acad. Roy. des Scienc. 1708. It is very observable that the essence of *aloes* stains the glass wherein it has been kept for some time of a deep red colour, covering it as it were with a coat of fine transparent varnish, which no other essence does. Neumann's Works, p. 307.

Aloes is extremely bitter, and purgative, whence some have called it *sol naturæ*: externally applied, either in substance or tincture, it prevents putrefaction and gangrene. Its bitterness makes it so nauseous, that it is rarely used in liquid forms, but it is generally made into pills, whereof half a dram is an ordinary dose. Scarce any of the officinal purging pills are without this in their composition.

Its cathartic virtue is best employed in watery, cold, and corpulent constitutions, as it heats and attenuates; being bad for thin and hectic constitutions. It is accounted efficacious in promoting the menses; and is also good to destroy worms. Guy Patin decries *aloes* as a fiery and noxious drug, which heats and dries the liver, disposes towards a dropsy, causes the piles, &c.

The *aloes*, as imported, is usually too foul for medicinal purposes, as having a mixture of straws, flicks, or gritty matter. To purify it, they gently dissolve it in water enough to pass it conveniently through a flannel cloth when warm, and afterwards evaporate it to a consistence. Some for this purpose use spirit of wine, and others spirit of tartar, under the notion of better correcting the *aloes*; but that dissolvent seems most suitable, which leases the drug its native qualities, after refinement, referring it to the physician afterwards to correct it in prescription as he pleases.

This drug applied to sores will cause a purging. Thus we find in the Medical Essays, that a pastil made of myrrh, *aloes*, and honey, having been put every day into a cavity formed by an ulcer in the bone, the patient had a constant purging, which ceased the day after the *aloes* was omitted. Med. Ess. Edinb. vol. v. art. 241. where it is also observed, that the tincture of *aloes* applied to ulcers and carious bones, frequently brings on a purging.

Aloes is a prime ingredient in *elixir proprietatis*, and *species hiera picræ*, with which the *tinctura sacra* is made.

Aloes was used among the ancients, in embalming, to preserve bodies from putrefaction. Of this *aloes*, interpreters understand that to have been which Nicodemus, in the Gospel, brought to embalm the body of Christ. John, ch. xix. ver. 39.

Several authors have treated expressly on *aloes*; as Bejer and Major; Duroftantius, on its substance; Marquis, on its virtues; Martinez, on its choice; Fuchsius and Pisæus, on its opening the veins. Many particulars also relating to *aloes* are given occasionally by botanic and pharmaceutical writers.

ALOE *rosata*, is a preparation of the *Socotrine aloes*, made by dissolving it in juice of damask roses, and evaporating it to the consistence of a paste. Then more juice is added, and the evaporation repeated, again and again.—This is held a gentler and safer cathartic than the *aloes* alone. If this be dissolved in a good quantity of the fresh juices of roses, violets, borage, and bugloss, mixed in equal proportions, and afterwards reduced by evaporation to its former consistence, the extract, thus prepared, is called ALOE *succotato*, and with the addition of one third its weight of cream of tartar, ALOE *succotata tartarizata*.

ALOE *violata*, is prepared by means of the expressed juice of violet flowers; and mixed with half its weight of cream of tartar; it is called *aloe violata tartarea*.

ALOE is applied by some writers, to a kind of mineral juice produced in Judea.

This is called *solfaic*, mineral, or metalline *aloe*.—Some dispute the existence of any such *aloe*. Others suppose it to be no other than the ASPHALTUS.

ALOES, *lignum*. This wood, of which we have spoken before, by the Indians and Portuguese is called *calamba*, or *calambac*; being the same with what is otherwise called by medical writers *agallochum*, and *aquilarium*.

Grew describes a piece of *lignum aloes*, with its own gum growing on it, in the repository of the Royal Society. See Grew, Mus. Reg. Soc. p. ii. s. i. p. 179.

ALOEDARY, *alocdarium*, ἀλοηδάριον, denotes a purging medicine, wherein *aloes* is an ingredient.

This amounts to the same with what we otherwise call an ALOETIC.

ALOEDARY is also used for a history of the class of plants under the denomination of ALOES.

ALOETICS, *medicines* wherein *aloes* is the chief or fundamental ingredient.

Aloetics open the orifices of the vessels, and are on this account found hurtful in cases of hæmorrhages, particularly at the nose, also in the *tenesmus*, *hæmorrhoids*, &c. The immoderate use of *aloetics* tends to produce hæmorrhoids, hypochondriac pains, and inflations.

Joannius has a treatise expressly on *aloetic* pills.

ALOEUS, a species of *scarabæus* or *beetle*, found in America.

ALOGIANS, ALOGI, or ALOGIANI, a sect who denied that Jesus Christ was the *Logos*, or eternal Word; and on this ground also rejected the Gospel of St. John as spurious.

The word is compounded of the privative α, and λογος q. d. *without Logos*, or *Word*.

Some ascribe the origin of the name, as well as of the sect of *Alogians*, to Theodore Byzantium, by trade a currier, who, having apostatized under the persecution of the emperor Severus, to defend himself against those who reproached him therewith, said, that it was not God he denied, but only man. Whence his followers were called in Greek ἀλογοι, because they rejected the Word. But others, with more probability, suppose the name to have been first given them by Epiphanius in the way of reproach. They made their appearance towards the close of the second century.

ALOGOTROPHIA, in *Medicine*, an irregular nutrition of some part, attended with a vicious figure or conformation thereof, as in the rickets.

If the bones of the *vertebræ* of the back receive too much nutriment on one side, as sometimes happens in children, an incurvation necessarily ensues, which, as Charleton expresses it, is produced by an *alogotrophia*.

ALOIDES, in *Botany*, a name used by some for the *aloe paludris*, or fresh *water* ALOE, called in some parts of England, *water soldier*; and by Linnæus, *stratiotes*.

ALOOF. See LUFF.

ALOPECIA, in *Medicine*, a total falling off of the hair in certain parts, occasioned either by the defect of nutritious juice, or by its vicious quality corroding the roots of it, and leaving the skin rough and colourless.

The word is formed from αλωπηξ, *vulpes*, a *fox*; whose urine, it is said, will occasion baldness; or because it is a disease which is common to that creature.

The *alopecia* properly differs from *defluvium capillorum*, as in the former, certain parts or patches are left, entirely bald, whereas in the latter, the hair only grows immoderately thin. It also differs from the *ophiasis*, as this latter creeps in spires about the head, like the windings of a serpent, whereas the former is not confined to any figure. See PLICA *Polonica*.

The cause as well as cure of the *alopecia* is the same as that of the *ophiasis*; though some would make a difference; urging that the primary intention in the former is to correct or carry off the vicious humours; in the latter, to supply the want of nutriment to the cutaneous parts.

The remedies which remove the proximate cause of this malady, are called *psilanoutpectica*. *mutfyaritica*. Here, first, if any corrupt hairs still remain, they are to be drawn out either with tweezers, or by *depilatories*; or the place must be shaved by a razor. Then the head is to be washed every night at going to bed, with a ley prepared

pared by boiling the ashes of vine-branches in red wine. A powder made by reducing hermodactyls to fine flour, is also recommended for the same purpose.

In cases where the baldness is total, a quantity of the finest burdock roots are to be bruised in a marble mortar, and then boiled in white wine, until there remains only as much as will cover them. This liquor, carefully strained off, is said to cure baldness, by washing the head every night with some of it warm. A ley made by boiling ashes of vine branches in common water, is also recommended with this intention. A fresh-cut onion rubbed on the part, until it be red and itch, is likewise said to cure baldness.

A multitude of such remedies are every where to be found in the works of Valesius de Taranta, Rondeletius, Hollerius, Trincavellius, Celsus, Senertus, and other practical physicians.

ALOPECIA is also used by Galen for a change of the hair to another colour.

ALOPECIAS, in *Ichthyology*, a name of the *vulpes marinus*, or *Sea* FOX.

ALOPECOPITHECOS, in *Natural History*, a name derived from the Greek, and given by Aldrovand and others to that strange creature the OPOSSUM.

ALOPECURUS. *See Fox-tail* GRASS.

ALOPEX, in *Zoology*, a species of the CANIS, with a straight tail, and black tip. It is commonly called the *Sable fox*.

ALOSE, a sort of fish, somewhat like the *sardine*, or *pilchard*, in shape, but much larger. Some will have it to be the shad, but it is quite another fish, and is very scarce in England. It is one of those called passage-fish, as fish of a season, because it never swims out of the sea into rivers, but in the spring.

The roes of *alofes* are as much valued in the East Indies, as those of the sturgeon in Russia, and form a very lucrative article of trade.

ALOUCHI, a kind of sweet-scented gum, which runs from the tree that produces white cinnamon.

ALP, in *Zoology*, an English name used by some for the BULL-FINCH.

ALPAGE, *alpagium*, in *Ancient Writers*, denotes the privilege of feeding cattle on the ALPS or high mountains, or a sum paid for the purchase of such a right.

This is otherwise called *Appatuum*.

ALPACNA, an animal much like the *llamar*, and *vigonar*, except that its legs are shorter, and its muzzle thicker and flatter, so that it somewhat resembles a human face. The inhabitants of Peru reckon this animal among the beasts of burden, and make it carry a hundred weight. Of its wool they make stuffs, ropes, and bags, and of its bones combs for weavers. They even make an advantage of its excrement, using it for fuel.

ALPAM, is the *Mimosa indica flore tripetalo filiquis tortilibus parva absque seminibus repletis*.

The stem of this plant, which divides itself twice or thrice, is covered with a bark of an ashy green colour, inodorous, and of an acid astringent taste. The branches are of a whitish wood, have a green pith running through them, and are distinguished into joints. The root is red, composed of a great number of capillary fibres. The leaves are of a narrow, oblong form, terminating in a point, of a deep green on the outside, but pale within. They have a smell not ungrateful, and taste somewhat acrid. The flowers, which are of a dark purple colour, and inodorous, grow on very slender round pedicles, sometimes two or three together. To the flowers succeed the pods which are sharp, pointed, round, and full of a carnose pulp, without any discernible seeds. It bears flowers and fruit as well at the end of the year as in the beginning, and is always full of leaves.

One part of this shrub, made into an ointment with oil, is a powerful remedy in case of the scab, and old ulcers. The juice of the leaves, with *calamus aromaticus*, is good against the venom of serpents.

ALPHA, the name of the first letter of the Greek alphabet.

The word is originally Hebrew, formed from *aleph*, the name of the first letter in the Hebrew alphabet.

The Greek *alpha* answers to what in English we call simply A.

Alpha, according to Plutarch, was placed at the head of all the letters, because in the Phœnician language, it denotes an ox; which, with regard to use and service, is the first among beasts.

ALPHA, in *Composition*, denotes, sometimes, *privation*, in the same sense with *a*, or, *without*; sometimes augmentation, as *ayeiρω*, *assemble*; and sometimes union, as *αμα*, *together*. See A.

ALPHA, is also used as a letter of order, to denote the *first*; and of number to signify *one*; but when it was a numerical letter, a little stroke, or an acute accent, was drawn above it thus, A', to distinguish it from the mere A, which was a letter of order.

ALPHA and *Omega*, in the *Divine Writings*, signify the beginning and the end, or the first and the last (viz. before and after all things); and therefore the hieroglyphic of God is formed of these two letters A and Ω.

These two letters were made the symbol of Christianity, and were accordingly engraved on the tombs of the ancient Christians, to distinguish them from those of idolaters.

ALPHA is particularly used among *ancient Writers*, to denote the chief or first man of his class or rank.

In this sense the word stands contradistinguished from *beta*, which denotes the *second* person.

Plato was called the *alpha* of the wits; Eratosthenes, keeper of the Alexandrian library, whom some called a second Plato, is frequently named *beta*.

ALPHA is also a title given by some ancient writers to the Jewish legislator Moses. The reason of the application is much controverted.

ALPHABET, the several letters of a language disposed in their natural or accustomed order.

The word is formed from the names of the two first letters of the Greek *alphabet*, *alpha*, *beta*: which were borrowed from those of the Hebrew, *aleph*, *beth*.

In the English *alphabet* we reckon 26 letters, viz. *a b c d e f g h i j k l m n o p q r s t u w x y z*. See each under its proper article, A, B, C, &c.

But as there is a much greater number of different sounds in our language, it is not without reason, that some grammarians maintain, that there ought to be a greater number of letters: as also, that the double letters, *x*, *y*, and *w*, and the superfluous ones, *c*, and *q*, should be retrenched.

The French *alphabet* contains only 23 letters. Pasquier indeed maintains it to consist of 25, because he adds the two double letters, *æ* for *ae* and *œ* for *oe*; but those are only abbreviatures. The abbé d'Angeau, on better grounds, reckons 34 different sounds in the French tongue; and urges, that the *alphabet* ought of consequence to consist of 34 different characters, setting aside the double letters *x* and *y*, and the superfluous one *q*.

The difference between languages, with respect to the number of letters in their *alphabets*, is very considerable: the Hebrew, Chaldee, Syriac, and Samaritan *alphabets*, have each 22; the Arabic 28; the Persian 31; the Turkish 33; the Georgian 36; the Coptic 32; the Muscovite 43; the Greek 24; the Latin 23; the Sclavonic 27; the Dutch 26; the Spanish 27; the Italian 20; the Indians of Bengal 21; the Bramas 19.

The Ethiopic has no less than 202 letters in its *alphabet*, there being seven vowels, which they combine with each of their 28 consonants; to which they add 20 other aspirated syllables. The like is said of the Tartarian; each of their letters is a syllable, having one of the vowels joined to its consonant; as *le*, *li*, *lo*, &c.

The Chinese have no *alphabet*, properly speaking; except we call their whole language their *alphabet*; their letters are words, or rather hieroglyphics, and are in number about 80,000. See Phil. Trans. vol. lix. an. 1769, N° 66.

In effect, *alphabets* were not contrived with design, according to the just rules of reason and analogy; but have been successively framed, altered, &c. as occasion offered. And hence many grievous complaints as to their deficiencies; and divers attempts to establish new, and more adequate ones in their places. Bishop Wilkins charges all the *alphabets* extant with great irregularities, with respect both to the order, number, power, figure, &c. As to the order, it appears inartificial, preposterous, and confused; in that the vowels and consonants are not reduced into classes, with such order of precedence and subsequence as their natures will bear. Even the Hebrew order is not free from this imperfection.

As to number, they are both redundant and deficient; redundant, either by allotting several letters to the same power and found; as in the Hebrew ס and צ, and the ordinary Latin *c* and *k*, *f* and *ph*: or by reckoning double letters among the simple elements of speech; as in the Hebrew ץ, the Greek ξ and ψ, the Latin *q*, *cu*, *x*, *es*, and the *j* consonant, or *jod*—Deficient in divers respects, especially in regard of vowels, of which there are seven or eight kinds commonly used, though the Latin *alphabet* only takes notice of five; wherein two, viz. *i* and *u*, according to our English pronunciation, are not properly vowels but diphthongs.

Add, that the difference among vowels in respect of long and short, is not sufficiently provided for: the ancients, we know, used to express a long vowel by doubling its character; as *amaabo*, *vaata*, *ooo*, *fooste*, *feetiferfimus*; though the vowel *i*, instead of being doubled, was frequently prolonged, as *scribis*, *vivo*, *vivus*.

The ways used in English for lengthening and abbreviating

vising vowels, viz. by adding *e* quiescent to the end of a word, for prolonging a syllable; and doubling the following consonants, for the shortening of a vowel, as *wane wanna, ware warr*, &c. or else by inserting some other vowel, for the lengthening of it, as *meet met, read red*, &c. are all improper; because the figo ought ever to be where the sound is.

As to their powers, again, those are not always fixed to the same signification; the vowels, for instance, are generally acknowledged to have each of them several sounds: *vocales omnes pluriformes*, says Lipsius; and Vossius assures us, the ancients used their vowels in very different ways, *aliquando tenuius exilinsque, nunc crassius, nunc intermedio sono*. Thus the power of the vowel *i* is expressed in writing no less than in six several ways, viz. by *e*; as in *be, me, he, ye*; by *ee*, in *three, free, we*; by *ie*, in *field, yield, shield, chief*; by *ea*, in *near, dear, hear*; by *ee in people*; by *i*, in *privilege*. So is the power of the vowel *e*; as in *all, awl, aw, south, caught*; which are only various ways of writing the same long vowel; besides the other distinct ways of expressing the same vowel when used short: again, the power of the vowel *o* is written five ways: *o*, as in *to, who, move*; *oe*, as in *doe*; *ow*, in *bore, more, now*; *ou*, in *could, would*; *oo*, in *two*: and so of the rest.—Nor are the consonants of more determinate powers; witness the different pronunciation of the same letter *c* in the same word *circe*; and of *g* in *negligence*.—To say no more, the letters *c, j, s*, are used alike, to denote the same power; and the letter *ſ* is commonly used for *s*; and which is yet worse, some letters of the same name and shape, are used at one time for vowels, and at another for consonants; as *j, v, w, y*; which yet differ from one another, says bishop Wilkins, *sicut corpus & anima*.

From this confusion in the power of letters, there arise divers irregularities; as, that some words are distinguished in writing, which are the same in pronunciation; e. gr. *esſe* and *eſſe*, &c. and others are distinguished in pronunciation, which are the same in writing; as *get, acquire*, and *get, gagates*, &c. Hence also the Latin *mare* is a diſſyllable, and the Engliſh *male* is a monoſyllable.

The names also, in most *alphabets*, are very improperly expressed by words of divers syllables; *alpha, beta*, &c. in which respect, the Roman and our Engliſh *alphabets*, which only name the letters by their powers, have a great advantage over the rest.

Lastly, their figures are not well concerted; there being nothing in the characters of the vowels answerable to the different degrees of aperture; nor in the consonants, analogous to the agreements or disagreements thereof. Wilkins's Eſſ. towards a real Character, &c. b. i. c. 4.

All these imperfections are obviated in the *universal alphabets*, or characters, of M. Lodwick, bishop Wilkins, &c. See *Universal* CHARACTERS.

In the French king's library, is an Arabic work, intitled *Sephat Alachum*; containing divers sorts of *imaginary alphabets*, which the author distinguiſhes into *propoſitional, mystical, philoſophical, magical, talismanical*, &c.

Monsieur Leibnitz had it in view to compoſe an *Alphabet of Human Thoughts*. Mem. de l'Acad. Roy. an. 1716.

It is no wonder that the number of letters in moſt languages ſhould be ſo small, and that of the words ſo great; ſince from a calculation made by Mr. Preſter, it appears, that, allowing only twenty-four letters to an *alphabet*, the different words or combinations that may be made out of thoſe twenty-four letters, taking them firſt one by one, then two by two, three by three, &c. would amount to the following number, 1 391,724288,887252,999425, 128493,402200. See COMBINATION.

It may be here obſerved, that every combination may make a word, even though that combination have not any vowel in it; becauſe the *e* mute, or quieſcent, inſinuates itſelf imperceptibly between the conſonants, or after the conſonants, where they are but two, the latter of which would not be heard without it.—The uſe of this ſilent *e* is very remarkable in the Armenian, Welſh, and Dutch languages; wherein the generality of words have ſeveral conſonants together.

Nor muſt it be omitted, that every ſingle letter may make a word: which is very apparent, where the letter is a vowel; words of that kind being found in moſt languages. Thus, *a* and *o* make words in the Greek; *a, o*, in the Latin; *o, i, a*, in Engliſh; *a, o, y*, in French; *o, e, i, o*, in Italian; *o, y*, in Spaniſh; *a, e*, in the Portugueſe; *i*, in moſt languages, and even in the Dutch and Swediſh. Any conſonant alſo becomes a word, by adding an *e* mute to it in pronunciation.

In ſhort, though a conſiderable number of the poſſible combinations of twenty-four letters were retrenched, yet the number remaining would ſtill be immenſe, and vaſtly ſuperior to that of the words in any language known.

Of all known languages, the Greek is looked upon as one of the moſt copious, the radices only of which are eſteemed about 3244, but then it abounds exceedingly in compounds and derivatives. Biſhop Wilkins thinks theſe may be moderately computed at about ten thouſand. Hermannus Hugo, indeed, aſſerts, that no language has ſo few as 100,000 words; and Varro is frequently quoted by learned men, as if he affirmed that there are in the Latin no leſs than 5,000,000; but upon inquiring into the ſcope of the paſſage, biſhop Wilkins obſerves, that this number is not intended by him to expreſs the juſt number of words in the Latin; but the great variety made thereof, by the inflection and compoſition of verbs.—To this purpoſe he lays it down, that there are above one thouſand radical verbs in the Latin; and that each verb admits of five hundred ſeveral varieties. He farther ſuppoſes, that each of theſe may be compounded with nine prepoſitions; as, *eſſio, receſſio, acceſſio, deceſſio, praeceſſio, proceſſio, ſucceſſio*, &c. which amounts to five millions. See WORD.

Concerning the origin and progreſs of *alphabetical* writing, ſee LETTERS and WRITING.

ALPHABET, in matter of *Polygraphy*, is a duplicate of the key or cypher, which each of the parties correſponding are to keep by them.

It is properly an *alphabet* of the uſual letters diſpoſed in their order; oppoſite, or underneath which, are the ſecret characters correſponding thereto, with the blank or uſeleſs letters, and the other ſigns or ſymbols ſerving to obſcure and render it difficult to decipher. See DECIPHERING.

ALPHABET, among *Merchants* and *Traders*, is a kind of index, with the twenty-four letters in their natural order, in which are ſet down the names and ſurnames of thoſe with whom open accounts are kept; and which refers to the folios of the ledger where thoſe accounts are written, in the form of debtor and creditor; ſerving to find eaſily, and without any trouble, ſuch accounts as are neceſſary to be turned to.

ALPHABET, among the French, ſignifies alſo thoſe punches or iron tools, which engravers upon metal uſe to engrave the ſeveral letters, or characters, which belong to their works, either for legends, or for other inſcriptions.

The book-binders have alſo ſmall braſs tools, which they call alphabets, and with which they put the titles, and the number of the volume, on the back of books.

ALPHÆNIX, white barley-ſugar, to which is given an extraordinary name, to render it more valuable. This ſugar, which is thought good for colds, is made of common ſugar, which is boiled until it becomes eaſy to crack, when they pour it upon a marble table, greaſed with oil of ſweet almonds, and mould it in various figures with a braſs crouchet. It is eaſily falſified with ſtarch.

ALPHARD. See COR *hydræ*.

ALPHERATZ, in *Aſtronomy*, a fixed ſtar of the third magnitude in AQUARIUS.

This is otherwiſe called *alpharatz*. Some alſo give the denomination *caiſ alpharatz*, and *marchab alpharatz*, to two other ſtars in the right ſhoulder of PEGASUS.

ALPHESERA, in *Botany*, a name by which the Arabian, and ſome other authors, expreſs the white BRYONY.

ALPHESTES, in *Ichthyology*, the name of a fiſh, called by others CINÆDUS, ſeeming to approach very much to the *turdus*, or *wraſſe* kind, but having the rays or nerves of its back-fin prickly all the way to the tail; whereas the *turdi* have only the anterior rays of that fin prickly, the reſt ſmooth. It is a ſmall fiſh, and is always caught about the ſhores, and among rocks: its back is purple, and its ſides and belly yellowiſh. Its mouth is ſmall and has thick and fleſhy lips. Geſner.

ALPHETA, in *Aſtronomy*, a fixed ſtar in the northern crown: otherwiſe called *lucida coronæ*.

ALPHITIDON, in *Surgery*, a ſpecies of *fracture*, wherein the bone is broke into a great number of ſmall parts, or particles.

The word is formed of ἀλφιτον, *farina, flour*; q. d. a bone ground to flour or powder.

ALPHITOMANTIA, in *Antiquity*. See ALEUROMANCY.

ALPHONSIN, is the name of a ſurgeon's inſtrument uſed in the extraction of bullets from the body.

The *Alphonſin*, ſo called from its inventor Alphonſus Ferrier, a phyſician of Naples, conſiſts of three branches, which are cloſed together by means of a ring. The inſtrument thus cloſed, being conveyed into the wound to the bullet, the operator draws back the ring towards the handle, upon which the branches, opening themſelves, lay hold of the ball: after this he puſhes the ring again, from the haft, whereby the branches graſp the bullet ſo firmly, that it muſt needs come out with them.

ALPHONSINE *Tables*. See TABLES.

ALPHOS, in *Medicine*, a diſtemper deſcribed by Celſus, under the name of *vitiligo*; wherein the ſkin is rough, and becomes ſprinkled as it were with drops of white; and thence denominated *lunea*. Where the ſpots are

black, it is called *nigra*; and is also called, *melæne*. It bears the same relation to the *lenes*, as the *scabies* to the *lepra*; the first is superficial and cutaneous, the second sinks deeper into the flesh. The *alphos molus*, and *lenes* are but one and the same disorder, only differing in its degree of inveteracy.

ALPIEU. See BASSET.

ALPINE. See CISALPINE.

ALPINIA, in *Botany*, so called from Prosper Alpinus, a celebrated botanist, who died in 1616, a genus of the *monandria monogynia* class. Its characters are these: the flower has one *stamen*, and one style; it is cut into six parts at the top, and has a swelling tube, with three spreading lobes. We know but one species of this genus, *viz.* the white branching *alpinia*, with leaves like the flowering reed. This plant is a native of the West Indies, from whence it has been brought into some of the curious gardens of Europe, where it must be preserved in a warm stove, and the pots plunged into a hot-bed of tanner's bark, otherwise it will not thrive in this country. The leaves decay every winter, and are pushed out from the roots every spring like the ginger and *maranta*, so should be managed in the same manner as is directed for those two plants; and may be propagated by parting their roots, when the leaves decay. It grows naturally in most places in the West Indies.

ALPISTE, or ALPIA, a sort of seed used to feed birds with, especially when they are to be nourished for breeding. The *alpiste* seed is of an oval figure, of a pale yellow inclining to an isabel colour, bright and glossy. It is an article of the corn-chandlers and seedsmen's trade.

ALPS, in *Geography*, besides its proper signification, by which it denotes a certain chain of mountains, which separate Italy from France and Germany, is sometimes used as an appellative to denote any mountains of extraordinary height.

In this sense, Ausonius, and others call the Pyrenean mountains, *Alpes*; and Gellius, the Spanish *Alpes*, *Alpini Hispani*.

Sidonius gives the same appellation of *Alpe* to mount Athos. Other authors speak of Norman *Alpi*, *Alpes Arvernæ*, *Alpes Asbriconsis*, *Alpes Delphinæ*, *Alpes Romanicæ*, *Alpes Bastarnicæ*.—The Appennines are also called by Johannes Villenest, *Alpi D'Appennino*.

ALPS is also used to denote pastures on the mountains, wherein cattle are fed in the summer time; or rather in the vallies, and spaces between the mountain tops. Some will have this to be the primary signification of the word *Alpes*, which is supposed by these authors literally to denote the streights or apertures between hills.

ALQUIER, which is also called *cantar*, a liquid measure for oil used in Portugal. It contains six *canadas*, or *cantaros*. Two *alquiers* make an *almeide*, or *almuide*.

ALQUIER is also a measure for grain, at Lisbon.

ALQUIFOU, or ARQUIFOU, as the merchants spell it, a sort of mineral *lead*, very heavy, easily reduced into powder, and hard to melt. When it is broken, it parts into shining scales, much like the colour of needles of antimony. The potters use it to give their works a green varnish. In England it is commonly called *potter's ore*. It is found in Cornwall; the potters mix manganese with it, and then the varnish, or glazing on their wares, becomes of a blackish colour.

ALRAMECH, or ARAMECH, in *Astronomy*, the Arabic name of a star of the first magnitude, otherwise called ARCTURUS.

ALRATICA, among the Arabian *Physicians*, is where the *vulva*, or *vagina*, of a woman is imperforate, or at least the *foramen* smaller than ordinary, whether naturally, or by accident.

ALRAUPE, in *Ichthyology*, a name given by the Germans to the *muftela fluviatilis*, or eelpout, a species of the GADUS.

ALRUKAB, in the *Materia Medica*, a word used by Avicenna, and others of his nation, for what was called by the Greeks *opos libanotes*, and *manna thuris*. This was the fragments of frankincense, which were broken off from the larger pieces in the collecting or packing up, and were most esteemed in medicine, as being the driest and purest kind.

ALRUM, in the *Botanical Writings of the Ancients*, a name given to the tree which produces the *bdellium*. This gum was originally known to be the exudation of a tree growing in Arabia and the East Indies, and well known to Avicenna, and others, and by all of them called by that name.

ALRUNES, a name given by the ancient Germans to small figures of wood of which they made their LARES.

ALSADAF, in the *Materia Medica*, a name given by Avicenna and Serapio, to the *unguis odoratus*, and also to the *murex*, or purple fish, of the shell of which it was supposed to be a part.

ALSAHARATICA, a name used in *Botany*, by some, to signify the *parthenium*, or FEVERFEW.

ALSCHARCUR, in the *Materia Medica*, a name given by Rhases, and some others of the old writers, to the SKINK, a small animal of the lizard kind, used in medicine as a cordial, and as a provocative to venery.

ALSCNEFU, in *Botany*, a name used, by some authors, for WORMWOOD.

ALSEBON, a name given, by some of the chemical writers, to *sea-salt*.

ALSIMBEL, in the *Materia Medica*, a name given by Avicenna and others, to the *spikenard* of India. It is thus called from its having the appearance of a spike, or ear, and also *simbalath*, a word which signifies its being a *congeries* of many spikes, or ears, and such is much of the *nardus Indica*, or Indian *spikenard*, that we receive at this day.

ALSINASTRUM, in *Botany*, the *adonis* of Linnæus; a name given by Vaillant to a genus of plants, on account of their general resemblance to the *alsines*, or *chickweeds*. The characters of the *alsinastra* are these: the flower and fruit are the same with those of the *alsine*; but the flower-cup in these is composed only of one leaf, whereas in those it is made up of several. Tournefort mentions two species. Inst. 244.

ALSINE, CHICKWEED, in *Botany*, a genus of the *pentandria trigynia* class of plants, the calyx of which is a perianthium, consisting of five concave, oblong, and acuminated leaves; the corolla consists of five equal petals, longer than the cup; the fruit is an oval covered capsule, containing only one cell, with three valves; the seeds are numerous and roundish. There are three species.

ALSINELLA, in *Botany*, the name by which Dillenius calls the plant *fagina*.

ALSINOIDES, the *bufonia* and *montia* of Linnæus.

ALSIRAT, in the Mahometan *Theology*, a bridge laid over the middle of hell, finer than a hair, and sharper than the edge of a sword, over which people are to pass, after their trial on the day of judgment.

To add to the difficulty of the passage, Mahomet affures, that the *alsirat*, narrow as it is, is befet with briars and thorns; none of which, however, will be any impediment to the good, who shall fly over it like the wind; Mahomet and his musfulmen lead the way; whereas the wicked by the narrowness of the path, the entangling of the thorns, and extinction of the light, which directed the former to paradise, will soon mifs their footing, and tumble headlong into hell, which is gaping beneath to receive them. Vide Sale's Prelim. Disc. to Koran, sec. iv. p. 99. See MAHOMETANS.

ALSTROEMERIA, in *Botany*, a genus of the *hexandria monogynia* class; the corolla of which hath six petals, with two lower petals, tubulous at the base, and declining flamina. There are three species.

ALT, in *Mufic*. See DIAGRAM and SCALE.

The word is formed of the Latin, *altus*, *high*.

ALTAR, ALTARE, ARA, a place or pile whereon to offer sacrifice to some deity.

The Jews had their brazen *altar*, for burnt-offerings, and a golden *altar*, or *altar* of incense.

Among the Romans, the *altar* was a kind of pedestal, either square, round, or triangular; adorned with sculpture, with basso relievos, and inscriptions, whereon were burnt the victims sacrificed to idols.

According to Servius, those *altars* set apart for the honour of the celestial gods, and gods of the higher class, were placed on some pretty tall pile of building; and for that reason were called *altaria*, from the words *alta* and *ara*, a high elevated *altar*.—Those appointed for the terrestial gods, were laid on the surface of the earth, and called *aræ*.—And, on the contrary, they dug into the earth, and opened a pit for those of the infernal gods, which they called *βόθρον χθονιον*, *scrobiculi*. But this distinction is not every where observed; the best authors frequently use *ara* as a general word, under which are included the altars of the celestial and infernal, as well as those of the terrestrial gods. Witness Virgil, Ecl. 5.

——*Et quatuor aras*,

Where *aræ* plainly includes *altaria*; for whatever we make of Daphnis, Phœbus was certainly a celestial god. So Cicero, pro Quinct. *Aras deluebraque Hecates in Græcia vidimus*.

The Greeks also distinguish two sorts of *altars*; that whereon they sacrificed to the gods, was called *βωμος*, and was a real *altar*, different from the other, whereon they sacrificed to the heroes, which was smaller, and called *ἐσχαρα*. Pollux makes this distinction of *altars* in his Onomasticon: he adds, however, that some poets used the word *ἐσχαρα*, for the altar whereon sacrifice was offered to the gods.—The Septuagint version does sometimes also use the word *ἐσχαρα*, for a sort of little low *altar*, which may be expressed in Latin, by *craticula*; being a hearth, rather than an *altar*.

The Jews also gave the name *altars* to a kind of tables occasionally raised in the country or field, whereon to sacrifice to God. In such a place, *he built an* altar *to the Lord*.

Altars were of divers kinds, with regard to their qualities, use, matter, form, accidents, and the like, and were sacred to gods, heroes, virtues, vices, diseases, &c. Thus we read of inner and outer, stationary and portable, public and private *altars*, &c.

Altars are doubtless as ancient as sacrifices themselves; consequently their origin is not much later than that of the world.—Gen. ch. iv.

Some attribute their origin to the Egyptians; others to the Jews; others to the patriarchs before the flood. Some carry them as far back as Adam, whose *altar* is much spoken of by Jewish, and even Christian writers.—Others are contented to make the patriarch Enoch the first who consecrated a public *altar*. Be this as it will, the earliest *altars* we find any express testimony of, are those erected by Abraham.

ALTAR *of Adam*, in *Antiquity*, is pretended, by some rabbins, and others, to have been erected by the first man, soon after the fall; when being overwhelmed with sorrow, a promise was made him, by the ministry of the angel Hazriel, that a redeemer should be sent. In gratitude for this news, and for a perpetual remembrance thereof, Adam is said to have built an *altar*, and sacrificed on it a heifer.

The reliques of this *altar* have been mentioned by several writers of late ages.

ALTAR is sometimes also used, among Christians, for a square table, placed on the eastern side of a church, raised a little above the floor, and set apart for the celebration of the eucharist.

Its form is not borrowed, either from that of the heathen *altars*, or even from that of the Jews in the temple; but, as the eucharist was instituted by Jesus Christ, at supper, and upon a table, the modern *altar* is made in form of a table; whence it is more usually, and even more significantly, denominated *Communion Table*.

In effect, the denomination *altar* is founded on this supposition, that the eucharist is a proper sacrifice; which, though the standing doctrine of the church of Rome, is utterly denied by most of the reformed.

In the primitive church, the *altars* were only of wood; as being frequently to be removed from place to place. But the council of Paris, in 509, decreed that no *altar* should be built but of stone.

At first there was but one *altar* in each church; but the number soon increased; and from the writings of Gregory the Great, who lived in the sixth century, we learn, that there were sometimes in the same church twelve or thirteen. In the cathedral of Magdeburg there are no less than forty-nine *altars*.

The *altar* is sometimes sustained on a single column, as in the subterraneous chapels of St. Cæcilia, at Rome, &c. and sometimes by four columns, as the *altar* of St. Sebastian of Crypta Arenaria; but the customary form is, to be a massive of stone-work, sustaining the *altar-table*.

These *altars* bear a resemblance to tombs: to this purpose, we read in church-history, that the primitive Christians chiefly held their meetings at the tombs of the martyrs, and celebrated the mysteries of religion upon them. For which reason it is a standing rule to this day in the church of Rome, never to build an *altar*, without including the relics of some saint in it.

In lieu of proper *altars*, the Greeks in process of time made use of ANTIMENSIA.

ALTAR *of Prothesis*, is a name given by the modern Greeks to a smaller, preparatory kind of *altar*, whereon they bless the bread, before it be carried to the large *altar*, where the solemn liturgy is performed.

F. Goar maintains, that the table of *prothesis* was anciently in the sacristy, or vestry; which he makes appear from some Greek copies, where sacristy is made use of in lieu of *prothesis*.

ALTAR, is also used, in *Church History*, for the oblations or contingent incomes of the church.

In ancient days they distinguished between the church and the *altar*. The tithes, and other settled revenues, were called the *church*, *ecclesia*; and the other incidental incomes, the *altar*.

ALTAR, in *Astronomy*. See ARA.

ALTAR-*thane*, in our *Ancient Law Books*, denotes a priest, or parson of a parish.

In this sense the word is synonymous with *church-thane*.

ALTARAGE includes not only the offerings made upon the altar, but also the profit that arises to the priest on account of the altar.

ALTARIST, *altarista*, properly denotes the vicar of a church, who serves the altar, and to whom the altarage, or produce of the altar, is assigned for his maintenance. Du-Cange.

The *altarist* is sometimes also called *altaruriar*, sometimes *altar priest*.

ALTARIST is also used for *chaplain*.

ALTASRIF, in *Literary History*, the title of a medicinal book written in Arabic, describing the method of practice in use among the Arabs.

It was written by Alsaharavius, an author in the fifteenth century, and translated into Latin by P. Ricius, in 1519. Concerning the history and contents of the *Altasrif*, see Freind, Hist. Phys. p. ii. p. 124, seq.

ALTAVELA, in *Ichthyology*, the name of a flat cartilaginous fish, of the *squalus* marine kind; but with its wings as they are called, that is, its thin and flat sides, broad and obtuse towards their lower part. The fishermen, from the resemblance these flat sides have to wings, have an opinion that this fish can fly. The tail is very short, scarce being of half the length of the body. Its flesh is solid, and well tasted, and it always sells well in the markets. It is caught in the Mediterranean, and is frequently brought to market at Rome. Fab. Columna.

ALTE *& basse*, in *Middle Age Writers*, denotes sovereignty, or a thing done with the supreme power. Du-Cange.

ALTERANT, or ALTERATIVE, in *Medicine*, a property, or power, in certain remedies, whereby they induce an *alteration* in the body, and dispose it for health and recovery, by correcting some indisposition, without occasioning any sensible evacuation.

Alteratives, therefore, must generally be either such remedies as destroy some prevailing acrimony in the *primæ viæ*, or in the juices; or else such as resolve concretions in the blood-vessels, and dispose them, when thus resolved, to pass out of the body by perspiration, or some of the least remarkable evacuations.

Alteratives are generally divided into four kinds, which are, *absorbents* for imbibing and blunting the acid juices; *temperating medicines* for checking and mitigating the rage of the bilious intemperies; *penetrating medicines* for dissolving and attenuating the thick and viscid juices; and, in fine, *demulcents* for sheathing and mitigating their burning and corrosive acrimony.

We meet with medicines of the purgative kind, represented by practical writers as *alterants*; the *colocynth* particularly by Helmont; for all medicines which operate in the farthest palliges, they frequently include under that appellation. Phil. Trans. No 369.

Dr. Woodward enquires into the efficacy of several of the most celebrated *alterants*, and endeavours to show on what little foundation their great use is established. Of this number, according to him, are the absorbents, *cortex Peruvianus*, bitters, salts, steel, and its preparations, mineral waters, &c.

The more efficacious and useful *alterants*, according to the same writer, are cordials, stomachics, attenuants, *mercurius dulcis*, vegetable oils, mucilages, certain absorbents, and some preparations of opium.

According to this learned physician, all that is commonly alledged concerning the change of the principles, or ferments of diseases, by *alterant* remedies, is merely chimerical and imaginary; that there is no change made to the advantage of the human body, without a successive renovation, and discharge of what is hurtful, and a supply of in place by something innocent.

The primitive and constituent elements of bodies never change their figure, magnitude, solidity, or gravity, but remain still the same as at the creation. Hence some infer, 1. The vanity of all pretences to the transmutation of metals. And, 2. The folly of pretending to change the mass of blood, by those remedies called *alterants*.

The mixtures and combinations of the primitive elements are almost infinite, and their alterations as to sensible and external appearances are so too. It may be added, that among *alterant* medicines, there are several which change the scene of the symptoms; others suspend the action of the morbific matter for a time; and others diminish the sensibility of the organs. But these remedies, which hold the morbific principles captive for a time, are only palliatives, and even, in some accounts, dangerous, since they may as well captivate other principles necessary to life. Woodward gives the preference to evacuants, as being the only medicines capable of freeing the machine from that which incommodes it.

Some take a contrary course, and ascribe even the salutary effects of evacuants to their *alterative* nature. This has been alledged of mercury in the venereal disease; the like is urged concerning mineratives, which some maintain do not work a cure by evacuation, so much as by alteration. The like is alledged of *ipecacuanha* in the cure of dysenteries, and of divers other enmities, in cases of apoplexies. In effect, evacuating medicines, as they do not separate the good from the bad, seem indifferently disposed, either to do harm or good. See Woodward's State of Physic, *passim*.

ALTERATE. See SESQUIALTERATE.

ALTERATION, Alteratio, in *Physic*, the act of changing the circumstances and manner of a thing; its general nature and appearance remaining the same.—Or, it is an accidental, and partial change in a body: without proceeding so far, as to make the subject quite unknown, or to take a new denomination thereupon. Or, it may be defined, the acquisition or loss of such qualities as are not essential to the form of the body.

Thus a piece of iron, which *before* was cold, is said to be *altered*, when it is made hot; since it may still be perceived to be iron, is called by that name, and has all the properties thereof.

In this, *alteration* is distinguished from *generation* and *corruption*; those terms expressing an acquisition or loss of the essential qualities of a thing.

The modern philosophers, after the ancient chemists and corpuscularians, hold all *alteration* to be effected by means of local motion. According to them, it always consists either in the emission, accession, union, separation, or transposition of the component particles.

Aristotle makes a peculiar kind of motion, which he calls the *motion of alteration*.

ALTERATION is also, in *Medicine*, to denote a change in the state and qualities of an animal body, in respect of temperature or constitution, health or sickness.

In this *sense*, *alteration* includes both *evacuation* and *accretion*.

ALTERATION is more strictly taken for a change in the quality of the body, contradistinguished from *evacuation* and *apposition*.

In which sense, *alteration* is the effect of medicines called ALTERANTS.

Alteration is chiefly applied in respect of the fluids, or humours of the body. When applied to the solids, it is chiefly in respect of the humours, or the motions of them.

ALTERATION is sometimes also applied in respect of the vital motions of the body.

Thus specifics are applied to alter and rectify convulsive and other disorderly motions. The *alteration* of the humours is either extrinsic, or intrinsic.

ALTERATION, *extrinsic*, is a change produced in the sensible appearances, as colour, thickness, and the like.

ALTERATION, *intrinsic*, is a change in the primitive *crasis*, or constitution of a fluid.

ALTERATION, in a sense still more strict, denotes that conversion which the food undergoes, to render it nourishment.

In this sense *alteration* both includes the digestion performed in the stomach; and the assimilation in the habit of the body.

It is disputed among physicians what the *alteration* is which the food undergoes.—Some reduce it to a mere comminution or trituration.—Others assert a total transubstantiation. See DIGESTION.

ALTERATION, in *Botany*, denotes the conversion of one body into another by similitude.

ALTERATION *of quantities*, among *Algebraists*, denotes what we otherwise call *variation*, or permutation.

ALTERATIVE, *Medicine*, the same with ALTERANT.

ALTERCATION, a debate or contest between two friends, or acquaintance.

The word comes from *altercari*, which anciently signified to converse or hold discourse together.

Thus, we say, they never come to an open quarrel; but there is continually some little *altercation* or other.

ALTERCUM, in *Botany*, a name by which some of the old authors express the *hymenum*, or HYMENE.

ALTERITY is used by some philosophers for DIVERSITY. The word is formed of the Latin *alter*, *another*.

Alterity amounts to the same with what others call *aliety*, *alietas*.

ALTERN *base*, a term in *Trigonometry*, contradistinguished from *true base*, thus—In an oblique triangle, the true base is either the sum of the sides; in which case, the difference of the sides is called the *altern base*; or, the true base is the difference of the sides; in which case, the sum of the sides is called the *altern base*.

ALTERNALL, or ALTERNATIVE, is understood of several things which succeed, or are disposed after each other by turns.

Thus, an *alternate*, or *alternative* office, or trust, which is that discharged by turns; so, two general officers, who command each his day, are said to have the command *alternately*.

In *Botany*, the leaves of a plant are said to be *alternate*, or placed *alternately*, when there is a correspondence between the two sides of a branch; the leaves of the one standing a little above those of the other, not one opposite to the other.

ALTERNATE, in *Arithmetic*. See ALLIGATION.

ALTERNATE *angles*, in *Geometry* are the internal angles made by a line cutting two parallels, and lying on the opposite side of the cutting line; the one below the first parallel, and the other above the second.

Thus *n* and *u*, and *x* and *y* (Tab. II. *Geometry*, *fig.*) are *alternate* angles.

There are also two *external* angles, *alternately* opposite to the internal ones. See PARALLEL.

ALTERNATE *ratio* or *proportion*, is where the antecedent of one ratio is to its consequent, as the antecedent of another to its consequent; the very same ratio, in this case, being *alternately* in respect of the antecedents to each other, and the consequents to each other.

Thus, if A : B :: C : D; then *alternately*, A : C :: B : D.

ALTERNATE, in *Heraldry*, is used in respect of the situations of the QUARTERS.

Thus in quarterly *quarterly*, the first and fourth quarters are *alternate*; and are usually of the same nature. And the like holds of the second and third.

ALTERNATION, in its primary sense, denotes a succession by turns.

ALTERNATION is more particularly used, among *Grammarians*, for distinction, as in saying thus or that.

ALTERNATIONS, a term sometimes used to express the divers changes, or alterations of *orders*, in any number of things proposed.

This is also called *permutation*, &c. and is easily found by a continual multiplication of all the numbers beginning at unity.

Thus, if it be required to know how many changes or *alternations* can be rung on six bells, multiply the numbers 1, 2, 3, 4, 5, 6, continually one into another; and the last product gives the number of changes.

ALTERNATIVE, is particularly used for the choice of two things proposed.—In this *sense* we *say*, to take the *alternative* of two propositions.

ALTHÆA, in *Botany*, a genus of the *monadelphia polyandria* class. See MARSH-MALLOW.

ALTIMETRY, Altimetria, the art of taking or measuring ALTITUDES or heights, whether accessible or inaccessible.

The word is compounded of *altus*, *high*, and *μετρον*, *water*, *to measure*.

Altimetria makes the first part of geometry; including the doctrine and practice of measuring both perpendicular and oblique lines; whether in respect of height, or depth.

ALTIN, a money of account in Muscovy; worth three *copecs*, one limmered of which make a *ruble*, worth about four shillings and six pence sterling.

ALTINCAR, among *Mineralists*, a species of factitious salt used in the fusion and purification of metals.

The *altincar* is a sort of dun powder. Divers ways of preparing it are given by Libavius.

ALTITH, in *Botany*, a name given by some authors to the plant of which the *opo panicis* of the shops is the gum.

ALTITUDE, Altitudo, in *Geometry*, the third dimension of body, considered with regard to its elevation above the ground—called also *height* or *depth*.

ALTITUDE *of a figure*, is the distance of its vertex from its base, or the length of a perpendicular let fall from the vertex to the base.

Thus, KL (*Tab. Geometry*, *fig.* 19.) being taken for the base of the rectangle-triangle, KLM; the perpendicular KM will be the *altitude* of the triangle.

Triangles of equal bases and altitudes are equal, and parallelograms whose bases and altitudes are equal to those of triangles, are just the double thereof.

ALTITUDE, in *Optics*, is usually considered as the angle subtended between a line drawn through the eye, parallel to the horizon, and a visual ray emitted from an object to the eye.

For the laws of the vision of *altitude*, see VISION.

If through the two extremes of an object, S and T (*Tab. Optics*, *fig.* 23.) two parallels, TV and SQ be drawn; the angle TVS, intercepted between a ray passing through the vertex S, and terminating the shadow thereof in V, makes, with the right line TV, what is called, by some writers, the *Altitude of the Luminary*.

ALTITUDE, in *Cosmography*, is the perpendicular height of an object, or its distance from the horizon, upwards. *Altitudes* are divided into *accessible* and *inaccessible*.

ALTITUDE, *accessible*, of an object, is that whose base you can have access to, i. e. measure the nearest distance between your STATION, and the foot of the object on the ground.

ALTITUDE, *inaccessible*, of an object, is that when the foot or bottom of it cannot be approached, by reason of some impediment; such as water, or the like.

There are three ways of measuring *altitudes*, viz. *geometrically*, *trigonometrically*, and *optically*.—The first is somewhat indirect and unartful; the second is performed by means of instruments for the purpose; and the third by shadows.

The instruments chiefly used in measuring of *altitudes*, are the

the quadrant, theodolite, geometrical quadrant, or line of chords, &c. the descriptions, applications, &c. whereof, see under their respective articles QUADRANT, THEODOLITE, and QUADRANT.

ALTITUDE, *to find inaccessible.* To measure an accessible *altitude, geometrically.*—Suppose it required to find the *altitude* AB (*Tab. IV. Geometry, fig.* 9.) of the flagstaff DE perpendicularly on the ground, or such height as any equal the height of the tower FH, may jump perpendicularly on the ground with your feet to the staff, at E, and D prove in the same right line with the eye C to the length CA is equal to the *altitude* AB. If some other lower point, as F, prove in the line with E, and the eye, you must remove the staff, &c. nearer to the object: on the contrary, if the line continued from the eye over E, mark out some point above the *altitude* required, the staff, &c. are to be removed further off, till the line CE cut the very point required.—Thus, measuring the distance of the eye C from the foot of the object A, the *altitude* is had; from CA = AB.

Or thus: at the distance of thirty, forty, or more feet, plant a staff DE (*fig.* 8.) and at a distance from this, as C, plant another shorter one, so as that the eye being in F, E, and B, may be in the same right line therewith. Measure the distance between the two staves, GF; and between the shortest staff, and the object, HF; as also, the difference of the height of the staves, GE.—To GF, CE, and HF; find a fourth proportional HH.—To this add the *altitude* of the shorter staff, EC. The sum is the *altitude* required, AB.

To measure an accessible *altitude*, trigonometrically.—Suppose it required to find the *altitude* AB (*Tab. Trigonom. fig.* 23.) choose a station in E; and with a quadrant, theodolite, or other graduated instrument duly placed, find the quantity of the angle of altitude ADC. Measure the shortest distance of the station from the object, viz. DC; and this of consequence is perpendicular to AC.

Now, C being a right angle, it is easy to find the line AC; hence, in the triangle ACD, we have two angles, viz. D and the complement, and a side opposite to one of them, CD, the opposite side to the other may be easily found by this canon: As the sine of the angle A is to the given side opposite thereto DC; so is the sine of the other angle D to the side required CA. See TRIGONOMETRY.

To the side thus found, adding BC, the sum is the perpendicular *altitude* required.

The operation is best performed by logarithms. See LOGARITHM.

If there happen an error in taking the quantity of the angle A (*fig.* 24.) the true *altitude* BD will be to the false one BC, as the tangent of the true angle DAB, to the tangent of the erroneous angle CAB.

Hence, such *error* will be greater as a greater *altitude* than is less; and hence also the error is greater, if the angle be lesser, than if it be greater. To avoid the inconveniencies of both, the station is to be pitched on at a moderate distance: for that the angle of *altitude* DAB, may be nearly half right.

Again, if the instrument were not horizontally placed, but inclined, e. gr. to the horizon in any angle, the true *altitude* will be to the erroneous one, as the tangent of the true angle is that of the erroneous one.

To measure an accessible *altitude* optically, by the shadow of the body, see SHADOW.

To measure an accessible *altitude* by the geometrical quadrant. Suppose it required to find the *altitude* AB (*Tab. IV. Geom. fig.* 9.) choosing a station as pleasure in D, and measuring the distance thereof from the object DB; mark the quadrant this and that way, till the top of the tower A appear through the sights.

If, then, the thread cut the right shadows, GF, as the part of the right shadow cut off is to the side of the quadrant, EG to the distance of the station DB, so the part of the *altitude* AE, to the thread on the vertical shadows, fey, as the side of the quadrant is to the part of the vertical shadow cut off, fe, is the distance of the station DB, to the part of the *altitude* AE.

AE, therefore, being found in either case, by the rule of three, and the part of the *altitude* EB added thereto, the sum is the *altitude* required. See QUADRANT.

ALTITUDE, *to measure an inaccessible, geometrically.* Suppose AB (*fig.* 8.) an inaccessible *altitude*, to find you cannot measure to the foot of it. Find the distance CA, or FH, as taught under the article DISTANCE; then proceed with the rest as in the article for accessible distances. See STAFF. To measure an inaccessible *altitude*, *trigonometrically.*—Choose two stations, G and E (*Tab. Trigonom. fig.* 25.) in the same right line with the required *altitude* AB, and at such distance from each other, DF, as that neither the angle FGD be too small, nor the other station G too near the object AB. With a proper instrument take the quantity of the angles ADC, AFC, and CFE. See ANGLE. And also measure the interval FD.

Then in the triangle AFD, we have the angle D, given by observation; and the angle AFD, by subtracting the observed *altitude* AFC, from two right angles; and consequently the third angle DAF, by subtracting the other two from two right angles; and also the side FD; from whence the side AF is found by the canon above laid down, in the problem of accessible *altitudes*. And again, in the triangle ACF, having a right angle C, an observed angle F, and a side AF, the side AC, and the other CF, are found by the same canon. Lastly, in the triangle FCB, having a right angle C, observed angle CFB, and a side CF, the other side CB, is found by the same canon.

Adding, therefore, AC, and CB, the sum is the *altitude* required, AB.

To find an inaccessible *altitude* by the shadow, or the geometrical quadrant.—Choose two stations as D and H (*Tab. IV. Geom. fig.* 9.) and find the distance DH.—Or observe what part of either the right or verted shadow is cut by the thread.

If the right shadows be cut in both stations, fey. As the difference of the right shadows in the two stations, is to the side of the square; so is the distance of stations GC to the *altitude* EA.—If the thread cut the verted shadows at both stations, fey. As the difference of the verted shadows answering to the two stations, is to the lesser verted shadows, so is the distance of the station GC, to the interval AE.—Which being had, the *altitude* EB is also found by means of the verted shadow in G; as in the problem for accessible *altitudes*.—Lastly, if the thread in the first station G, cut the right shadows, and in the latter, the verted shadows: fey, as the difference of the product of the right shadow into the verted, subtracted from the square of the side of the quadrat is to the product of the side of the quadrat into the verted shadow, so is the distance of the stations GC, to the *altitude* required AE.

The utmost distance at which an object may be seen, being given, to find its *altitude*.—Suppose the distance DB (*Tab. Geography, fig.* 9.) turn this into degrees, by which means you will have the quantity of the angle C: from the former of this angle subtract the radius DC.—the remainder will be AD, in such parts, wherof DC, is 100000.—Then fey, as 100000: is to the value of AB in such parts, as is the semidiameter of the earth BC 36065570, to the value of the *altitude* AB in Paris feet. Suppose e. gr. the *altitude* be required of a tower AB, whose top is visible at the distance of five miles: then will DC be 20, from whole sine 100000 168, subtracting the whole sine, 100000, the remainder AB is 168, which will be found 331 Paris feet.

The method of taking considerable terrestrial *altitudes*, of which those of mountains are the greatest, by means of the BAROMETER, is very easy and expeditious. This is done by observing on the top of the mountain how many inches, &c. the mercury in it falls below what it was at the foot of the mountain. When this is done, you will have its *altitude* by the help of a table calculated for that purpose. A very accurate table of this kind may be found in the Hist. de l'Acad. Roy. des Scien. 1703, and 1705, calculated by M. Cassini; and also in the Phil. Trans. Hamen's and Halley's Abr. vol. vi. p. 32. See BAROMETER.

ALTITUDE, *determination*, in *Mechanics*, is sometimes used for the height, wherein a falling body acquires, by acceleration, a certain velocity. Hermannus, *Phoron.* lib. i.

ALTITUDE *of the eye*, in *Perspective*, is a right line let fall from the eye, perpendicular to the geometrical plane.

ALTITUDE, in *Astronomy*, is the distance of a star, or other point, in the mundane sphere, from the horizon.

This *altitude* may be either TRUE or APPARENT. If it be taken from the rational, or real horizon, the *altitude* is said to be *true*, or *real*; if from the apparent, or sensible horizon, the *altitude* is *apparent*. Or rather, the apparent *altitude* is such as it appears to our observation; and the true is that sum which the refraction has been subtracted.

The true *altitudes* of the sun, fixed stars, and planets, differ but very little from the apparent *altitudes*; because of their great distance from the centre of the earth, and the smallness of the earth's semidiameter, when compared thereto. But the difference between the true apparent *altitude* of the moon is about 32'.

The *altitude* of a star, or other point, is properly an arch of a vertical circle, intercepted between the alligned point and the HORIZON. Hence

ALTITUDE, *meridian.* The meridian being a vertical circle; a *meridian altitude*, that is, the *altitude* of a point in the meridian, is an arch of the meridian intercepted between it and the horizon.

To observe the *meridian altitude* of the sun, of a star, or other phenomenon, by means of the quadrant, see MERIDIAN *Altitude*.

To observe a *meridian altitude* by means of a gnomon, see GNOMON.

The sun's *altitude* may also be found without a quadrant, or any the like instrument, by erecting a pin or wire perpendicularly, as in the point C (*Astronom. fig.* 62.) from which point you have described the semicircle AF. Make CE equal to the height of the pin or wire, and through E draw ED parallel to CA, and make it equal to CG, the length of the shadow; then will a ruler, laid from C to D, intersect the quadrant in B; and BA is the arch of the sun's *altitude*, when measured on the line of chords.

An irregularity has been observed in the apparent *altitudes* of the stars near the MERIDIAN. On some occasions of the stars near the meridian, when they are mounting towards the meridian, they appear to fail, and after gaining the meridian, to rise. Hist. Acad. Scienc. 1719. p. 75.

M. Parent suggests a new method of taking *altitudes* at sea, by a common watch.

Upon theorie, the difference between the rising and setting of the two stars, or the sum thereof, is greater, as they are farther distant from one another.

Now, the astronomical tables (mentioned in the tables of the right ascensions and declinations of all the fixed stars, it is easy, after observing the difference of time between the rising of two stars, to distinguish that part of the difference which arises from their different positions from that which arises from the obliquity of the sphere.—But such difference is the precise height of the pole of the place of observation.

Indeed, the ship not being immoveable, but changing place between the two observations, seems to be the method under some difficulty; but to the Mr. Parent answers, that a small aberration either of the ship's longitude or latitude, will make no sensible error; and that if she have gone a large distance between the two observations, it is easy reckoning how much it is, and accordingly allowing for it. See SAILING.

ALTITUDE, *rule of the sun*, may be compared by the following rule, proposed by Mr. Lyons for nautical purposes. By the rules in the Nautical Almanac, for 1771 find the logarithm sine; subtract it from the rising found answering to the given distance of time from noon in the tables of the same Almanac; the remainder is the logarithm of a number, which subtracted from the natural sine of the sun's meridian *altitude*, leaves the natural sine of the *altitude* at the required time. For finding the *altitude* of the moon or a star, he gives the following rule. From the table above mentioned, take out the sine, corresponding to the latitude of the place, and the time from the preceding the meridian; add to it the logarithm cosine of the sun's declination, and the logarithm cosine of the latitude of the place; the sum, abating twenty from the index, is the logarithm of a number, which subtracted from the natural sine of the star's meridian *altitude*, leaves the natural sine of the *altitude* at the given times. These rules are of great importance in determining the longitude at sea. See Naut. Alm. for 1778.

In taking of *altitudes* from the visible horizon, where great exactness is required, an allowance is to be made for refraction, and the height of the observer's eye above the surface of the sea.

ALTITUDE *of the pole*, is an arch of the meridian, intercepted between the pole and the horizon.

The *altitude of the pole* coincides with the latitude of the place.

To observe the *altitude* or ELEVATION of the pole, see POLE.

ALTITUDE *of the equator*, is the complement of the *altitude* of the pole to a quadrant of a circle. See ELEVATION *of the equator*.

To find the *altitude* of the star, &c. by the globe, see GLOBE.

ALTITUDE *of the tropic* amounts to the same with what is otherwise called the *greatest altitude* of the sun.

ALTITUDE *of the heavens*, or of stars here in it, is variable by the refraction, according to the quantity of which the horizon is either elevated or depressed more or less.

ALTITUDE *of the moon's atmosphere* is thought, by some, to be much greater than that of the earth; the former being said to reach three-score French leagues. But the existence of this atmosphere has been disputed and denied by modern astronomers. See MOON.

M. Bofe has proposed a method of discovering the *altitude* of the earth's atmosphere, the like of which was first given by Kepler, viz. by the magnitude of the arch wherein the sun is said to sink below the horizon, when the CREPUSCULUM begins or ends.

ALTITUDE *of the narrow bounds* in 1760, has been much controlled, viz. whether it were above the atmosphere, or within the limits of it: the former opinion being defended by Dr. Halley, the latter by Mr. Hillier. The same contest, which is given to seamen to favour the latter.—Besides, it appears not by any observation to have been above thirty-eight miles high. See ATMOSPHERE *Barometer*. Phil. Trans. N° 369.

ALTITUDE, in speaking of lands, is more frequently expressed by the term depth.

The ingenious Dr. Hales, in his Vegetable Staticks, proposed a method for measuring unfathomable depths of the sea, on the principles of which Dr. Desaguliers contrived an instrument called a *sea-gage*, which was tried before the Royal Society, and is described in the Phil. Trans. N° 403. A more particular description of this instrument by Dr. Hales himself is as follows.

Suppose AB (*Tab. II. Miscellany*, fig. 20.) to be an iron tube, or antiquet vessel, of 20 inches, as fifty inches, having its upper end A well close; if this tube be let down in this position about thirty-three feet into the sea, a column of water of that height is nearly equal to the mean weight of our atmosphere, and consequently from a known property of the air's elasticity, it will be compressed into half the space it took up before, so that the water will ascend half way up the tube: and if the tube be let down thirty-three feet deeper, the air will be compressed into $\frac{1}{3}$ of its first dimensions, and so on $\frac{1}{4}$, $\frac{1}{5}$, &c. the air being continually compressing in proportion to the incumbent weight; whence by knowing to what height the water has ascended in the tube we may readily know to what depth the tube has descended into the sea.

Now to measure the depth of one thick column of sea-water: first, by a line let the iron tube, with a weight at its bottom, sink about thirty-three feet, which depth in salt-water will nearly answer to the weight of one and a mean height of the barometer; then draw up the tube, and observe how far the water has.

If the specific force of water be equal to one atmosphere, then the air will be so high as to fill exactly one half of the tube. But if the water rise higher or lower than half the tube, then by the rule of three fay, as the number of inches the water rises is to 20, so is thirty-three to the number of feet, measuring the depth of the column required. For example, suppose the water rises when the tube is let down thirty-three feet, only 9 inches, then fay, 9 : 20 :: 33 : 73$\frac{1}{3}$ feet the depth of each column, which being once known, the number of columns of water is to be multiplied by this number of feet, whereby the depth of the sea in that will be known.

But since, when an instrument has descended to the depth of 99 columns, or 99 times 33 feet, the air will be so compressed into the 100 part of its bulk, that is, into half an inch, the diameter both of the tube below and also above that will be very small, that the difference in weight of several columns of water will not be sensible. So that an instrument of no greater length than this would scarcely give an account of millions of but a mile's depth, that is 5280 feet, or 80 columns, depth of water. The length of this instrument to 4, 5, or 10 times that length, would obviate this defect, and make the differences of the degrees of descent much more sensible. But it is next to impracticable to make a metallene tube of 3000 a length, and if it were made, it would be to great to be easily broken, the difficulty may be obviated in the following manner.

Let there be a globular metallene vessel, of iron or copper, nearly of this form (*Fig. 21. Tab. II. Mi.*), whose capacity within may be equal to some convenient capacity of the metallene tube, X, X, &c.; let the globular body be firmly screwed in the metallene tube, at E, E, with a leathern collar well soaked in tallow and some matter in the shoulder, or junction, thereby to secure the joint in the most exact manner. Let there be a small hole at X for the admission of water freely in, and let some coloured oil be poured into the globular body, to fill it up to the hole, X. Let there be also provided a thunder rod, A A, screwed, or soldered into the cover of the tube at B, which rod is to be of some or other and use, therein to rest on the top of the tube at pleasure; and rod must also have a small piston, or stopper to the upper end, which will prevent its being damaged by falling upon the sides of the tube.

The capacity of tube must be estimated by the number of sea-water to, when the rod and piston must be fixed at that place.

Now since the lower part is supposed to contain some terms as much as the tube X A, which is the same thing as if the tube were continued down to the bottom, the air in the globular vessel will act as if it were in the capacity of the tube, and the same will be the case at the depth of 99 times 33 feet, or 3267 feet, for then the air will be compressed into the 100 part of its space it took up at the surface of the sea, and the water will have entered the tube to the height of 99 inches, or 8 feet 3 inches, and the remainder will be the air in the globular vessel and tube. Now if the whole length of the tube be 20 feet, the air will be compressed into $\frac{1}{3}$ of its first dimensions, when the depth of the water will be 66 feet, and the height of the water in the tube 13 feet 2 inches, and the remainder will be the air in the globular vessel and tube. And so on, the greater the depth of the water, the greater will be the height of the water in the tube, and the less the space of the air in the globular vessel and tube, and the greater the pressure of the incumbent water, and consequently the greater the density of the air in the globular vessel and tube, and the greater the number of columns of water to be multiplied by the number of feet, whereby the depth of the sea in that will be known.

Now since, when an instrument has descended to the depth of 99 columns, or 99 times 33 feet, the air will be so compressed into the 100 part of its bulk, that is, into half an inch, the diameter both of the tube below and also above that will be very small, that the difference in weight of several columns of water will not be sensible. So that an instrument of no greater length than this would scarcely give an account of millions of but a mile's depth, that is 5280 feet, or 80 columns, depth of water. The length of this instrument to 4, 5, or 10 times that length, would obviate this defect, and make the differences of the degrees of descent much more sensible. But it is next to impracticable to make a metallene tube of 3000 a length, and if it were made, it would be to great to be easily broken, the difficulty may be obviated in the following manner.

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that length) that it, within five inches of the top of the tube; and consequently the rod *A* will be found tinged with the oil, within five inches of its top.

Suppose again the instrument to have descended to the depth of 198 columns, of 33 feet each; then the air will be compressed within $\frac{1}{40}$ part of the whole, that is, nearly within $2\frac{1}{2}$ inches of the top of the tube. In this case the instrument will have descended 6567 feet: that is, one mile and a quarter, and 132 feet.

Suppose again the instrument to have descended to the depth of 399 columns, then the air will be compressed into $\frac{1}{80}$ part of the whole, that is, nearly within one inch and a quarter of the top of the tube. In this case the instrument will have descended two miles and a half, wanting 53 feet, which may probably be the greatest depth of the sea.

The larger the capacity of the vessel K, L, M, N, O, the deeper will the engine be enabled to sink, the instrument being made stronger, and its joints being secured in proportion.

The instrument being thus prepared, a large buoy, *i*, must be fixed to it, which ought to be a solid piece of light wood, well turned, to prevent the water's being pressed into the lap-vessels *f*, and at it may rise at a considerable distance from the ship, it may be advisable to fix on the top of the buoy broad tins of tin, properly painted, so as to be easily seen.

In order to sink the instrument, a weight must be fixed to it in the following manner. See the diagram. W is a weight of ballast, hanging by its chest-hook T, to the socket *f f*, which forkes is screwed fast to N Q. The hook is retained in its place by the catch *k* of the spring O, while the machine is descending; but as soon as W touches the ground at the bottom of the sea, the catch O *k* sinking by the descending force, a little below the upper part of the hole *k*, is thereby at liberty to fly back, and to let go the weight; then the buoy rises up to the surface of the water with the machine. Springs might also be fixed on the inside of the socket *f f*, so as to fly back in the same manner, when the weight reaches the ground. It might be advisable to keep an exact account of the flay of the machine under water, which might be done by a watch, or by a pendulum vibrating seconds. As Dr. Hooke found upon trial, that a leaden ball which weighed two pounds, fixed to a wooden ball of the same weight, and both let down in fourteen fathom water, reached the bottom in fourteen seconds, and the detached wooden ball ascended to the surface in fourteen more. If this machine descended and ascended greater depths with the same velocity, it would reach to the depth of a mile in fourteen minutes, and reascend in the like time. This, however, might be a vague estimate, until experience has furnished a rule.

This machine was tried in various depths of the Thames, and answered very well, always returning, and leaving the ballast behind. It was afterwards tried near the Bermudas, where several ships were in company; but though a good look-out was kept for three or four hours, it was not seen to return. Hales's Statics, vol. ii. p. 328.

ALTITUDE *of the sea's surface* is not every where the same, as appears from the drift of CURRENTS setting things out of one sea into another.

ALTITUDE *of the mercury*, in the BAROMETER, is marked by degrees placed on the face of the instrument, the variations of which are the chief object of *barometrical* observations.

The mean altitude of the mercury at London is about 29 inches.—The extreme *altitudes* are 27½ inches, and 31; inches. Some suggestions have been made, as if the *altitude* of the mercury were regularly greater in the morning than in the evening; as least laughing of this kind was observed to hold for a considerable time at Berlin. Hist. Ceel. Rep. Lett. tom. xii. p. 239.

ALTITUDE *of the pyramids in Egypt* was measured so long ago as the time of Thales, by means of their shadow: which makes one of the first geometrical observations we have an exact account of. Plutarch has given an account of the manner of this operation, which according to this author, was done by erecting a staff perpendicular upon the end of the shadow of the pyramid; and by two triangles made by the beams of the sun, he demonstrated, that there was the same proportion between the staff and its shadow as between the pyramid and the shadow. Stanl. Hist. Philos. p. 109.

ALTITUDES, in astrology, denotes the second of the five essential dignities, which the planets acquire in virtue of the signs they are found in.

In this sense, *altitude* is otherwise called *exaltation*.

ALTITUDE *of the meridional*, is the *altitude* of the poll degree of the ecliptic, reckoned from the orient, or east point. See MONADICAL.

ALTITUDE, *reduction of*, is an arch of a vertical circle, or *S. (Vid. Astronomy, fec. 28.)* whereby the *altitude* of a star, or other body, is increased by means of the refraction.

ALTITUDE, *parallax of*, is the difference CB (*Vide Astron. fig. 27.*) between the true and apparent place of a star; or, the difference BC, between the true distance of a star AB, and the observed distance AC, from the zenith A. The parallax diminishes the *altitude* of a star, or increases its distance from the zenith.—To find the parallax of *altitude*, see the PARALLAX.

ALTITUDE *of motion*, is a term used by Dr. Wallis for the measure of any motion, estimated according to the line of direction of the moving force.

ALTITUDE, *circle of*. See CIRCLE.

ALTITUDE, *parallels of*. See PARALLELS.

ALTITUDE, *quadrant of*. See QUADRANT.

ALTITUDE, *reflecting*, *equal*, is that used to observe a celestial object, when it has the same altitude on the east and west sides of the meridian, or in the morning and afternoon. This instrument consists of a telescope about thirty inches long (with two vertical, and three or five horizontal wires in its focus) supported on the end of an iron bar, or axis, thirty inches long, and about an inch in diameter; the axis being fastened in a vertical position, by passing through a hole in one end of a brass box, whose other, or lower end, fastens the lower joint of the axis. The box, which is about twenty-one inches long, with ends about four inches square, has only two sides, which are fixed at right angles. Three ends of these sides project four flat arms with a hole in each, whereby the box is, by screws, fixed in a vertical position to an upright post. On the lower end of the box lies a brass plate, which slides in grooves, and can, by means of a screw, be gently moved forwards or backwards; in this plate is a fine punched hole, to receive the smooth conical point, into which the lower end of the axis is inserted. On the upper end of the box are two plates, which slide also in grooves; and, by the means of screws, can be gently moved sideways, till their angular notches embrace the axis, which, in this part, is made perfectly cylindrical, and very smooth. To the upper part of the axis is fixed, by its collar, a brass sextant of an inch, or 60°, or a radius of seven or eight inches, and with the arch downwards, so that the centre is just above the top of the axis. Also a foldeched is fixed at right angles across the axis, just under the arch, so as to be clear of the upper end of the box. To the under part of the telescope is fixed a brass semicircle, of the same radius with the sextant, both arches having a common centre-pin. In the semicircle is a groove cut through the plate parallel to its limb, to receive two screw-pins, which go into the sextantal arch, near its ends; by these screw-pins, the two arches may be pressed close, and the telescope fixed in any desired elevation; which might be nearly ascertained, by graduating the semicircle, and putting a Vernier's scale on the sextant.

When this instrument is used, the box is fixed to the post, and the axis put into the box, bringing the conical point drop into the punched hole; the level is screwed on, and the telescope is annexed, observing to adjust the centre and orthogonal; then by the help of the screw-plates at the bottom and top ends of the box, the vertical position of the axis is corrected, so that the time and of the air-bubble in the level may stand at the same point through the whole revolution of the axis, which will thereby be known to be then truly vertical, so that the telescope will describe a parallel of *altitude*. The tube, thus adjusted, is to be directed to the sun, or star, and fixed at the desired elevation, by pressing the two arches together with the two screw-pins. This instrument is very useful in adjusting clocks, &c. and comparing *equal* and *apparent* time.

ALTITUDE *of Equal*, or *of* ALTO *or* *of* BASSO, *in Law*, figures the absolute coherence of all differences, small and great, high and low, in some subsistent person. *Fines antiqui*, *fol. 2. pro Hollowes Vide de Finis*, *& Thomas Coster to 2. Rep. Reporter fol. 61.* *Allo & in Bullo, is where no quarter between; viz. a quadrate quarels pendent below as to centre.—Nor of reverse, right as also to bullo against Bullo supponunt colunaris.*

ALTO *relievo*. See RELIEVO.

ALTOLIZOM, among some *Chemists*, denotes the *tartar Parcelsi*, well beaten, calcined, and boiled to the form of an oil, called also *philosophic*; because it is a better fate.

ALTUMAL, a term used to denote the mercantile style, or dialect.

In this sense, we meet with *altumal cant*, to denote the language of petty traders and cars.

ALVAH, the wood wherewith Moses sweetened the waters of Marah. Exod. ch. xv. ver 25.

The name of this wood is not found in Scripture, but the Mahometans give it that of *alvah*, and pretend to

trade

trace its history from the patriarchs before the flood: Josephus, on the contrary, says, that Moses used the wood which he found next lying before him.

ALVARID, among the Spanish Moors, denotes a lodge. The word is also written *alvaridas*. In this sense, *alvaridas* amounts to much the same with what is otherwise called ALCAID.

ALVARISTS, in *Church History*, a *sect*, or branch of modern Thomists, denominated from Alvarez, whose method and principles they follow.

The *Alvarists* differ from the ancient Thomists, in that the former are asserters of sufficient grace, the latter of efficacious grace. The former come near to the Jesuits, the latter to the Jansenists.

ALUCITA, a subdivision of insects belonging to the genus of PHALENA and of the *lepidoptera* order, in the Linnæan system; comprehending eight species.

ALUCO, in *Ornithology*, the name by which authors have called the common white owl; or, as we commonly call it, the barn-owl, or church-owl.

ALUDELS, in *Chemistry*, subliming pots, or vessels used for the sublimation of mineral powers. *Vide* CHEMISTRY, *Ch. fig.* 20.

Aludels are a large range of earthen tubes, or pots without bottoms; fitted one over another, and sloping from the lowest to the top. The lowest is adapted to a pot placed in the furnace, wherein the matter to be sublimed is lodged. And at the top is a head, to retain the flowers which ascend the highest.

The *aludel*, which terminates this tube above, ought to be closed in its upper part, or to have but a very small opening. The tube composed of these *aludels* is nothing but a kind of capital, or head, that may be enlarged or lengthened at pleasure, and adapted to a cucurbit. This apparatus is intended to collect and retain dry and volatile matters, which may be reduced into flowers by SUBLIMATION. It may be employed for the preparation of flowers of *sulphur*, of *arsenic*, of *antimony*, of benjamin, &c.

ALVEARIUM, in *Anatomy*, the bottom of the *meatus*, or hollow of the auricle, or outer EAR.

The *alvearium auriculæ* is a cavity, terminating at the *meatus auditorius*, wherein that bitter yellowish excrement is collected, called *cerumen*, or EAR-WAX.

ALVEARIUM also signifies a bee-hive.

The word is formed of *alveus*, a *channel*, or *cavity*; in allusion to the *alveoli*, or cells, in bee-hives.

Some of the ancients use also the word *alvearium* for a bee-house, more usually called among us APIARY.

ALVEARIUM is sometimes also used in anatomy, to denote a collection.

In which sense, *alvearium auriculæ* is much the same with what we otherwise call *thesaurus*, *cerumen*, or the FAECES. Vide Boerhaave's published *alvearium* of laws.

ALVEHEZIL, among the *Arabian Physicians*, denotes what we ordinarily call *fuliginous*, or EVAPORATION.

ALVEOLI, in *Anatomy*, those little sockets in the jaws, wherein the teeth are fixed.

The *alveoli* are lined with a membrane of exquisite sense, which seems to be nervous, and is wrapt about the roots of each tooth, from whence, and from the nerve, proceeds that pain called *clavus*, or TOOTH-ACH. Of these *alveoli* there are usually fifteen in each jaw.

ALVEOLI is more especially used, among *Naturalists*, for those waxen cells in the combs of bees, wherein their honey is deposited.

ALVEOLUS, in *Natural History*, the name of a marine body, found frequently fossile, sometimes lodged in the cavity of the *belemnites*, and sometimes loose; and in this last case, often so large, that we cannot suppose any *belemnites* ever to have existed so large as to have been able to contain it. We do not meet with them at this day in their recent state, but what we find of them fossile, are ever larger at one end, and tapering to a point at the other, and are composed of several hemispheric cells, five or many more times joined into one another, and having a *siphuncle*, or pipe of communication, like that in the shell-animal. These are sometimes found perfect and whole, but much more frequently truncated, or wanting a part of their lowest end. Klein.

ALVERES, in *Botany*, a name used, by some, for the *pericardium*, or *os cordis*.

ALVEUS properly denotes a channel.

Alveus, in *Botany*, by some, *thalamus*, is the tunid lateral branches arising from the *receptaculum* upon which the *calyculus* stands.

ALVEUS is also used, in *Antiquity*, to denote a small vessel, or boat, made out of the trunk of a single tree, by boring or cutting it hollow.

Such was that wherein Romulus and Remus are said to have been exposed.

ALVIDUCA, a term used by some writers for laxative or purgative medicines.

The word is compounded of *alvus* and *duco*, *I draw*.

ALUM, ALMEN. See ALEMA.

ALUMEA, in *Botany*, a name given by some of the old Latin writers to the plant otherwise called *lutea* or *mala*, and by the Greeks *cynara*. It was the same our *gentiles tinctorius*, or dyer's weed, and was used by the dyers and by the ladies, to tinge their hair yellow, the colour that was esteemed most beautiful in those times.

ALUNGU, in *Natural History*, is a word of the Malabar language, and the name given by the Malabarians to an animal resembling a large *lizard*, except as to head and tail, which are both pointed. It is a German ell, or 3 long, and as broad as is half an ell. It is a species of the *stellio* of Linnæus, and belongs to the family of *amphibia*, which have no teeth, but a long round tongue, with which they catch the ants. Phil. Trans. vol. lx. N° 6. an. 1770.

ALUS, in the *Materia Medica* of the ancients, a name given to two different plants.

ALUSMA *Caramanica*, in *Botany*, a term used sometimes to express a plant growing in Caramania, and sometimes a preparation of that plant, or pigment made from it. The word frequently occurs in the writings of Avicenna and Serapion.

ALVUS, among *Anatomists*, is sometimes used to express the lower belly, or venter.

ALVUS is more usually taken among *Physicians*, for the state and condition of the *fæces*, or excrements, contained within that cavity.

Thus, when a person is laxative, it is called *alvus lubrica*; and, when costive, *alvus astricta*.

They who are of a loose belly in their youth are generally costive in their old age; and they who are bound in youth are often loose when old. A laxer state in youth, and rather bound than loose in old age, is most desirable.

Blunders of the belly are labour, sitting in a chair, fuller's clay laid over the body, diminution of food, eating once a day instead of twice, little drinking, and that only after a full meal, rest after meals. On the contrary, things which loosen the belly, are, walking and eating more than usual, sleeping after meat, accompanying draughts with eating; and it ought to be observed, that a vomit binds a loose belly, and loosens a bound one; and that a vomit taken immediately after meat binds the belly, but delayed until a considerable time after, loosens the same. Celsus.

ALWAIDI, a sect of Mahometans, who hold that all great crimes are unpardonable, and the eternal reprobation to ensue.

The *alwaidis* stand in opposition to the MORAITI. They attribute little efficacy to the sacrament in the salvation of men, other than the toil of the ploughman.

ALYBAS, in the *Materia Medica*, a species of *realgar*, particularly by some physicians for the purging of bile. Some write the word *alybus*, and it seems to be also *Galen* used *alybum*, *arsenic*, for a mineralogic, or medicine that gently purges.

ALYPON MONTIS CRETÆ, called the WHITE STRIPE, a plant which grows in several parts of France, particularly in Provence and Languedoc. It is a kind of STAEAS.

ALYSUM, in *Botany*, a name given, by some authors, to a species of *lunaria*, the THLASPI of *Tournefort*. See SPORGE.

ALYSSUM is likewise a name given, by some authors, to a species of *conyza*, distinguished by Mr. Tournefort, by the name of ALYSSUM *montanum foliis incanis, flore purpureo*, the purple flowered MOUNTAIN *alyssum* of Vernic, with willow-like leaves.

ALYSUM is also a name given to the *clematis* of Linnæus.

ALYSSON, in *Botany*, a name given, by some authors, to the HYPERICUM, or gold of pleasure.

ALYSSON, *crystallinum*, the AIZOON of Linnæus.

ALYSSUM, called *saxatile*, by Tournefort. See MADWORT.

ALYTARCHIA, in *Antiquity*, a priest of Antioch in Syria, whose office was to lead up the *mollybdobrii*, or *effeminate*, naked men with whips in their hands, who attended at the games or spectacles of the *athletæ*, encouraged them to behave themselves, and, on occasion, forced to preserve good order, and keep off the crowds.

The office who presided at the Olympic games was also sometimes denominated alytarch.

Some will have them to be the same with the *hellanodicæ*, or as others opinion are Faber and Pricæus.

Van Dale shows them to be different offices; not but that the *alytarchi* might sometimes be substituted for the *hellanodicæ*, to perform some parts of their functions.

The *agonothetæ* were the same with what were called, in some other places, *editæ*.

ALZACHI, in the *Materia Medica*, the name given, by the

the Arabian *Physicians* to that kind of gourd called in the shops the CITRUL, and by the people of some parts of Italy, the *anguria*. It is an oblong, and usually cylinder gourd, and contains in its cavity a considerable quantity of water, which is drank by people of the places where the plant is common, to quench thirst. It contains seeds of an oblong figure, flatted, and covered with a hard skin.

ALZAGIAT, in the *Materia Medica*, a name given, by the Arabian writers, to all the vitriolic minerals. It is also written *zegi*, or ZEGI.

ALZARAC, in the *Materia Medica* of the Arabians, a name given to a kind of CAMPHOR, which was coarse, and of a brown colour. It seems to have been the same with our rough camphor, as imported from the Indies, before it is purified.

ALZIZ, in the *Materia Medica*, a name given by Serapion and Avicenna, to the roots of the *iris*. The word *Zic* is the name of a river in Africa, according to Leo; and the roots probably had this name from their being found in great plenty on the banks of that river, the *iris* always growing in wet places.

ALZUM, in *Botany*, a name given, by the ancients, to the tree which produces the gum BDELLIUM. It is also written *alzum* and *alzam*, which last seems the proper way. The gum of this tree was called, by the Arabians, *sadet*, and the same word *sadet* is used as the name of a fruit of a palm-tree.

AMA, in *Ecclesiastical History*, denotes a vessel wherein wine, water, or the like, were held, for the service of the eucharist.

In this sense, the word is also written *amula*; sometimes also *huma* and *humala*.

AMA is sometimes also used for a wine-measure, as a cask, pipe or the like.

AMA, AME, or rather AMES, *ames*, a sort of cake. Arcæus uses this word to express the quantity of hellebore which is sufficient for a dose in strong constitutions, when given in a *syrup*.

AMABYR, or AMOBYR, in some *Ancient Customs*, the price of a maidenhead; or a sum of money to be paid the lord upon marrying a maid of his manor. This custom is said to have anciently obtained in Wales, where *amobyr* was paid to the prince; also in the honour of Clun belonging to the earl of Arundel, till earl Henry, in the time of queen Mary, in consideration of sixty pounds, released it to all his tenants by the name of the custom of *amobyr* and *chevage*.

AMADOW, a kind of *black-match*, tinder, or touch-wood, which comes from Germany. It is made of a sort of large mushrooms, or spungy excrescences, which commonly grow on old trees especially oaks, ash, and firs. This substance being boiled in common water, and afterwards dried and well beaten, is then put into a strong ley prepared with salt-petre, after which it is again put to dry in an oven. The druggists sell this match wholesale in France, and several hawkers retail it.

Some give to the *amadou* the name of *pyrotechnical sponge*, because of its aptness to take fire.

AMADOWRY, a kind of cotton which comes from Alexandria by the way of Marseilles.

AMAIN, or AMAYNE, a sea term, used by a man of war, to his enemy; and signifying *yield*.

Hence, *to strike amain*, is, to lower, or let fall, the top-sails.

The word is also written *amayne*. Waving *amain*, is to make a sign to another vessel, by waving a bright sword, or other thing, as a demand for striking its top-sails. This is commonly done either in the fore-top, or on the poop.

AMAIN is also a term used in letting down a thing, by a tackle, into the hold, or elsewhere, in the lowering a yard, or the like, to denote, that the sailors are to let go that part of the rope, which they held before and let it run at once, or suddenly.

AMALGAMA, or AMALGAM, in *Chemistry*, a mass of MERCURY, united and incorporated with a METAL.

The word *amalgama* is formed of the Greek, μαλ, *together*, and γαμειν, *to join*; and is applied to the ALLAYS of metallic metals with *mercury*, which is capable of being *alloyed* more or less easily with almost all metallic substances.

The *amalgama* of *mercury* with lead, is a soft, friable substance, of a silver colour.

By washing and grinding this *amalgama* with fair warm water in a glass mortar, the impurities of the metal will mix with the water; and by changing the water, and repeating the action again and again, the metal will be further and further purified. Boerhaave mentions it as one of the greatest secrets in chemistry, to contrive to bring off the liquor, at last, as clear and unsullied as when first poured on the *amalgama*, which, he says, might afford a method of making the nobler metals, or procuring them from the baser.

This philosophical way of purifying metals, may be easily applied to all the metals, except iron and copper.

AMALGAMATION is either done in the *dry*, or in the *humid* way.

AMALGAMATION *in the dry way*, is performed in a mortar for the purpose, described by Barber and others.

AMALGAMATION *in the humid way*, is when part of the metal is first dissolved in its proper *menstruum*, and afterwards precipitated into an *amalgama*, by the addition of MERCURY.

This operation is denoted by chemists by the letters A A A.

The *amalgams* of gold, silver, tin, lead, zinc, bismuth, and copper, with quicksilver, are all white; and when the quantity of metal is large in proportion to that of the mercury, they thicken into a kind of paste.

All METALS, except iron and copper, spontaneously unite and *amalgamate* with mercury; and gold with the greatest facility; silver the next; then lead, and tin; copper, and regulus of antimony, with difficulty; iron, and, as Mr. Geoffroy says, *cobalt*, hardly at all; but with all other metals, and semi-metals, mercury may easily be *amalgamated*. The *amalgamation* of all metals with mercury is much facilitated by heat; but with respect to the metals which unite with difficulty with mercury, it cannot be effected without heat. All metals ought to be divided into very small parts, when they are to be *amalgamated* by *trituration*, without fusion or heat.

AMALGAMATION *of copper*. The *amalgamating* mercury with copper is a very difficult process, mercury not mixing well with that metal unless when in fusion, and the heat sufficient to keep it in that state being great enough to evaporate the mercury. *Trituration*, however, may be made to supply the place of heat, first reducing the copper to an exceeding fine powder. This *amalgama* boiled in river water, and then distilled in a retort, and cohobated twice, leaves the copper, in form of a new metal, of the colour of gold, and more ductile than before. Shaw's Lectures, p. 433.

Amalgamation of copper may likewise be performed by dissolving the metal in *aqua fortis*, diluting the solution with twelve times the quantity of pure water, then heating it, and putting into it polished plates of iron; by this means the copper will be precipitated to the bottom, and the iron dissolved. Pour off the liquor, and wash the precipitated powder with hot water, till it becomes insipid. The powder being well dried, and put into a glass mortar, with an equal quantity of hot mercury, an *amalgama* will be made.

AMALGAMATION *of gold* is usually performed by heating the *fumina* of plates of that metal red-hot; after which, quicksilver, previously heated, is to be poured upon them, and the mixture is to be stirred with a little iron rod, till it begins to rise into smoke. It is then thrown into a vessel full of water, where it coagulates, and becomes manageable.

This *amalgamation* is in great use among goldsmiths and gilders; who, by this means, render gold fluid and ductile for their purposes. Such mixture or *amalgama* being laid on any other metal, for instance, copper; and this afterwards placed on the fire to evaporate, the gold will be left alone on the surface of the copper; which makes what we call GILDING.

The blackness adhering to the *amalgama* may be washed away with water; and a great part of the mercury may be pressed out through a linen cloth; and the rest being evaporated in a crucible, by a gentle and gradual heat, the gold remains behind in an impalpable powder, which admits better of being burnished than that which is procured by grinding of gold-leaf. Gold retains about thrice its own weight of mercury. See *Tables of* AFFINITY.

The method of extracting gold by *amalgamation* is thus described by Dr. Lewis: the gold sands, first cleared of grosser particles by water, are dried, and a small proportion, less than a hundredth part of their weight, of mercury, is poured on them; the whole is well kneaded together, that the mercury may penetrate, as much as possible, into all the interstices between the grains; upon which it imbibes the atoms of gold it meets with, and the sand is afterwards washed off with water. In the mines of the Spanish West Indies, where the gold is bedded in stones, the stony matter is reduced to a very fine powder, that every atom of the gold may be laid open to the mercury. The powder is soaked for some time in a solution of common salt; the mercury is squeezed in through a linen cloth, so as to fall like dew all over the surface; and the mixture being well stirred and kneaded, a gentle heat is applied, by which the aqueous

tivity of the mercury is so far increased, that the incorporation of the gold with it, which in the cold requires about thirty days, is effected by this method in five or six days.

There is another method of expediting the *amalgamation*, described by Alonso Barba. He puts the powder, with a suitable quantity of mercury and water, into a deep copper vessel fixed in a furnace, and applies a fire sufficient to keep the water boiling. He likewise employs a small wooden mill to affist the ebullition of the water in giving motion to the earthy powder, which continually rising and falling down again, is brought into frequent contact with the mercury at the bottom, so as to give out its gold to the mercury in as many hours as the common process without heat requires days.

When the gold is judged to be united with the mercury, the earthy powder is washed off by water, so as to leave the *amalgam* clean. The gold-dust, or *shining*, dispersed through the sweepings of the gold-smiths shops, are recovered also by *amalgamation* with mercury. Com. Phil. p. 193, &c. See Gold.

AMALGAMATION *of iron*. It is well known that this operation has been reckoned extremely difficult, if not absolutely impossible. However, M. Navier succeeded in combining mercury with iron by the following process. Having made strong solutions of iron and of mercury separately in distilled vinegar, he put equal quantities of each into a matrass, which he placed in *balneo Mariæ*. As soon as the liquor became very hot, there began to be formed on its surface, and within it, an extremely light, fine, white substance, resembling snow, which evidently contained mercury and iron, in a saline form, intimately united with each other. The liquor being filtered, left behind this snowy substance, which, when washed and dried, appeared to be a silvery mass, made by the union of innumerable crystals in the form of thin plates, without acidity or acrimony. Mem. de Math. & de Phyf. vol. vi. Mem. 2.

AMALGAMATION *of lead* is thus performed. Melt a proper quantity of pure lead in an iron crucible, remove the veffel from the fire, and when the metal is a little cooled, pour to it an equal weight of clean mercury, which will immediately enter the lead with a hiffing noife. Stir the mixture well together with an iron rod, and when cold, it will appear in the form of a foftith brittle mafs, called the *amalgam* of mercury with lead.

Bifmuth promotes the action of mercury upon lead in a remarkable manner. Mercury impregnated with one fourth, one eighth, one twelfth its weight of bifmuth, diffolves maffes of lead, in a gentle warmth, without the agitation, or triture, or comminution, or melting heat, neceffary for uniting lead with pure mercury. Lewis's Ed. of Neumann's Works, p. 93.

AMALGAMATION *of platina*. Dr. Lewis rubbed together one ounce of *platina* with fix ounces of pure quickfilver, together with a little common falt and water, and a few drops of fpirit of falt, in an iron mortar. After the grinding has been continued for about fix hours, the grains of *platina* appeared to be coated with the quickfilver, fo as to cohere together in a kind of imperfect *amalgam*. After repeating the experiment feveral times, and evaporating the mixture, he always found, upon examining the dark-coloured powder, intermingled with fhining particles which remained, that a part of the *platina* was diffolved by the mercury, and that the undiffolved grains were coated with it. Com. Phil. &c. p. 508.

AMALGAMATION *of filver* is performed much after the fame manner with that of gold; or it may be previously diffolved in *aqua fortis*, and then precipitated. Mr. Gellert obferves concerning this *amalgam*, that its fpecific gravity is not only greater than the intermediate fpecific gravity of the mercury, and of the filver, but that it is even greater than the fpecific gravity of mercury, although filver is much lighter. Metall. Chym. tom. i.

This *amalgam* is ufed in the operation of filvering, and alfo in making the *Silver Drops*.

The method of extracting filver by *amalgamation* is this: wafh the ores, earthy ftones, fands, &c. in which filver lies hidden in its metallic form, and when well waffied, infufe them in very ftrong vinegar in a clean wooden, or glafs veffel; about one tenth part of alum muft alfo be firft boiled, and diffolved in the vinegar; let the vinegar entirely cover the ore, and leave it thus for one or two days. Decant off the vinegar, and wafh the macerated powder in pure warm water, till the water becomes quite infipid, when juft poured upon it; dry the powder, and put it into an iron mortar; then add mercury four times the quantity of the dried powder, and with a wooden peftle fitted to the fize of the mortar with a large round head, beat the whole till every part of the powder is recovered of a blackifh colour, by the minute globules of mercury mixt with it; at this time pour water on the whole, and continue rubbing it with the peftle for fome time; pour out the turbid water, and add freth, till all the loofe powder is waffied off; then dry the *amalgam* with a fponge. Cramer's Art of Affaying, p. 232.

To feparate the filver from this *amalgam*, fpread a piece of leather over a wide earthen or glafs veffel, fold it up in the form of a bag, and put the *amalgam* into it; tie the *bag* very firmly at the top, and fqueeze it very hard, and the greateft part of the mercury will be forced through into the veffel placed underneath; untie the *bag*, and all the filver and gold, if there be any there, will be found remaining in it, with about an equal quantity of the mercury mixed with it. Put this paffe into a glafs retort, fet it in a fand heat, adapt on a receiver, with a quantity of water in it; let the nofe of the retort be immerfed in the water, make a fire confiderably ftrong, and the mercury will all be driven into the receiver, falling into the water with a hiffing noife. If you hear a crackling in the retort, diminifh the fire a little; when no more quickfilver can be driven over by a great fire, let the retort grow cool, then take it away, and fplit it by means of a thread dipped in brimftone tied round the belly of the retort, and then fet the fire-tube on the mark, and in an open fire run it, with the help of borax, into a mafs. Ibid.

AMALGAMATION *of tin* is made in the fame way with that of lead. This is ufed for ftaining looking-glaffes, and for making mercury-balls, ufed in purifying waters. Mr. Cannon firft obferved, that a fmall quantity of this *amalgam*, with a very little chalk or whiting, being rubbed on the cufhion of a glafs globe, or on the oiled filk-rubber of a tube, would contribute to increafe the power of electricity; fo that they might be excited by this means to a very great degree with very little friction, efpecially if the rubbers be made more damp or dry, as occafion may require. Phil. Tranf. vol. li. p. 461. *See Experiments, &c. in* ELECTRICITY.

AMALGAMATION is alfo applied, in a lefs proper fenfe, to a folution of fulphur with mercury.

In this fenfe *amalgamation* amounts to the fame with mollification, or foftening; in which fenfe the word is ufed by fome ancient chemifts.

AMALOZOUE, in *Ornithology*, a name under which Nieremberg defcribes a Mexican bird. The neck of this is red; it is of the fize of the turtle, and lives about the lakes and rivers, but has not webbed feet; the breaft, belly, and under-part of the wings are white; the tail is variegated with black and yellow, and it has two black circles, a finger's fpace afunder, round the neck and breaft. It has a very long and ftender neck, and feeds on the infects common in watery places. Ray.

AMAN, a fort of blue cotton cloth, which comes from the Levant by the way of Aleppo.

AMANDAVAS, in *Ornithology*, a fpecies of the FRINGILLA, common in the Eaft Indies.

AMANITA; fee AGARICUS.

AMARACUS, among *Ancient Naturalifts*; fee SAMYDUCHUS.

AMARACUS, in *Botany*; fee *Baftard* PENNYROYAL.

AMARADULUS, in *Botany*, a name fometimes given to the woody NIGHTSHADE.

AMARANTH, an order of knighthood, inftituted in Sweden by queen Chriftina in 1645, at the clofe of an annual feaft, celebrated in that country, and called *Wittefeaft*.

This feaft was folemnized with entertainments, balls, mafquerades, and the like diverfions, and held from evening till the next morning. That princefs, thinking the name too vulgar, changed it into that of the *feaft of the gods*, becaufe each perfon here reprefented fome deity, according as it fell to his lot. The queen affumed the name of *Amarante*, that is *unfading*, or *immortal*. The young nobility, dreffed in the habit of nymphs and fhepherds, ferved the gods at the table. At the end of the feaft, the queen threw off her habit, which was covered with diamonds, leaving it to be pulled in pieces by the mafquers; and, in memory of fo gallant a feaft, founded a military order, called, in Swedifh, *fatzihoffs*, into which all that had been prefent at the feaft were admitted, including fixteen lords, and as many ladies, befides the queen. Their device was the cypher of *Amarante*, compofed of two A's, the one erect, the other inverted, and interwoven together; the whole inclofed by a laurel crown, with this motto, *Live with immortals*. Bulftrode Whitlock, the Engliih ambaffador from Charles II. to the court of Sweden, was made a knight of the order of *Amarante*. On which account it feems to be, that we fometimes find him ftyled Sir Bulftrode Whitlock.

AMARANTH, AMARANTHUS, *flower gentle*, or *prince's feather*, in *Botany*, a genus of the *monœcia pentandria* claſs. The characters are theſe: it hath male and female flow-

flowers on the same plant. The flower hath no petals, but the empalement consists of three or five leaves, which is common to both sexes. The male flowers have in some species three, in others five slender stamina. The female flowers have three short styles; the seed-vessel hath one cell, in which is lodged a single globular seed. There are annual species.

The species of this plant cultivated in gardens for their beauty, are raised on hot-beds; and in June or July may be planted into the borders of the pleasure garden, shading them until they have taken new root; and in dry weather they should be well watered.

All the species of this plant are drying and astringent, but heat not in a violent degree. Schroder recommends the flowers of the common large garden-kind dried and powdered, as good in diarrhœas, dysenteries, hæmorrhages of all kinds, and incontinence of urine; but they are very little used in the present practice.

AMARANTH expresses a colour inclining to purple. The name is derived from the flower.

AMARANTHOIDES, in *Botany*, *lithe amaranth*, or GOMPHRENA of Linnæus.

The culture and propagation of these plants are, in all respects, the same with that of the AMARANTH: only that they must have a greater share of heat, and must be forwarded more in the spring.

The flowers of this plant are commonly known by the name of *everlasting flowers*; and, if kept in a dry place, after having been gathered in their full perfection, and before they begin to decay on the plant, they will retain their full beauty many years.

AMARYLLIS, in the Linnæan system of *Botany*, the name of a genus of plants of the *hexandria monogynia* class, called in English *daffadillies*, and by other botanical writers *lilionarcissus*: the corolla is bell-shaped, with six petals; the stigma is divided into three segments.

AMATIDES, in *Natural History*, a name given by Bartholomæus Anglus, and other writers of his time, to a stone, of which they recorded a wonderful virtue in resisting the fire.

AMATORII *musculi*, in *Anatomy*, an appellation sometimes given to those muscles of the eyes which give them a call sideways, and assist in that particular look by some called *ogling*.

When the *abductor* and *humilis* act together, they give this oblique motion.

AMAUROSIS, in *Surgery*, a deprivation of sight; the eye remaining fair, and seemingly unaffected.

The word is formed of *αμαυρωω*, *I darken*.

Amaurosis is the same with what the Latins more usually call GUTTA *serena*.

A *perfect amaurosis* is when the blindness is total; when there is still a power of distinguishing light from darkness, the disease is called by M. de St. Ives an *imperfect amaurosis*. There is a periodical sort which comes on instantaneously, continues for hours, or days, and then disappears. The *mythiasis* is considered by some as a species of this disease. This disorder must be carefully distinguished from the *glaucoma*, or CATARACT; and a vertigo, which require different methods of treatment. If the *amaurosis* succeeds a fever, or comes upon the aged, or very infirm, a cure is not to be expected; if one eye fails, the other usually soon follows. But if the case be slight, and the habit of the body robust, if it happens after the measles, or small-pox, or in pubertine virgins, it is sometimes cured.

Mr. Hey, surgeon at Leeds, mentions several cases of patients afflicted with the *amaurosis*, who were relieved by being electrified. Med. Obf. and Inq. vol. v.

This distemper is sometimes denominated *scotoma nigra*, the black cataract.

The *amaurosis* differs from the AMBLYOPIA, this being in an inferior degree. For methods of cure, &c. see Heister, Hoffman, St. Ives, &c.

AMAUSA, a name by which the chemists have called the PASTES made of lead and cryftal with various admixtures, for imitating gems.

AMAXOBII, see HAMAXOBII.

AMAZON, in *Antiquity*, denotes a bold, courageous woman, capable of doing hardy atchievements.

AMAZONS, in a more peculiar sense, denote an ancient nation of warlike women, who founded an empire in Asia Minor, upon the river Thermodoon, along the coasts of the Black Sea.

The *Amazons* are said to have formed a state out of which men were excluded. What commerce they had with that sex, was only with strangers; they killed all their male children, and cut off the right breasts of their females, to make them more fit for the combat.—From which last circumstance it is, that they are supposed to take their name, viz. from the privative α, and μαζος, *mamma*, *breast*.

It is a point controverted, even among ancient writers, whether ever there really were such a nation of *Amazons*?—Strabo, Palæphatus, and others, absolutely deny it: on the contrary, Herodotus, Pausanias, Diodorus Siculus, Trogus Pompeius, Justin, Pliny, Mela, Plutarch, &c. expressly assert it.

Hippocrates mentions a law among the *Amazons*, whereby they were doomed to remain virgins, till such time as they had slain three men of their enemies.—He adds, that the reason of their cutting off the right breast was, to make the right arm the stronger; as supposing this would now receive the whole nutriment, which would otherwise have been divided between both.

Some authors relate, that, instead of killing, they only twisted the legs of their male children, to prevent their being able to contend with them for the mastery.

Dr. Bryant, in his Analysis of Ancient Mythology, explodes the above account of the etymology and establishment of the *Amazons* as fabulous; and observes, that they were, in general, Cushite colonies from Egypt and Syria, who formed settlements in different countries, and that they derived their name from *ase*, the *sun*, which was the national object of worship. Vol. iii. p. 463.

M. Petit, a French physician, published a Latin dissertation, in 1685, to prove, that there was really a nation of *Amazons*; it contains abundance of curious inquiries, relating to their habit, their arms, the cities built by them, &c.—On medals, the *Amazons* bust is usually armed with a little ax, called *bipennis*, or *securis*, borne on the shoulder, and a buckler, in form of a half-moon, by the Latins called *pelta*, on the left arm.—Hence that of the poet:

Non tibia Amazonia aft gre ut fumenda fecuris,
Aut exsita levi pelta gerenda manu.

Ov. ex Pont.

We read of Scythian *Amazons* in Herodotus; of Lybian *Amazons*, in Diodorus Siculus; and of German *Amazons* in Lucius Florus. Later geographers and travellers also speak of Mingrelian, and Georgian *Amazons*; *Amazons* in America, in Monomotopa, in the Philippine islands, in Denmark, &c.

The *Amazons* of South America, living on the banks of the great river which bears their name, make the greatest figure in modern story. They are represented as governed and led to war only by their queen. No men are suffered to live among them; though those of some neighbouring nations are suffered to visit them, at a certain season, for the sake of procreation. The females issuing from this commerce are bred up with care, and instructed in what relates to war and government; as to the males, they are sent away into the country of their fathers.

Some modern geographers and travellers mention *Amazons* still in being.—John de los Sanctos, a Portuguese Capuchin, in his description of Æthiopia, speaks of a race of *Amazons* in Africa; and Æneas Sylvius gives us a very precise account of a republic of real *Amazons*, in Bohemia, which lasted nine years; founded by the courage of a maid named Valasca.

AMAZON is also applied, in a figurative sense, to bees, because among these insects the females alone are commonly supposed to bear sway.

Aristotle, treating of the breeding of bees, professes himself ignorant of their sex; and therefore, willing to keep up the prerogative of the males, calls their governor ΒΑΣΙΛΕΥΣ, *rex*, in which he has been followed by the generality of authors.

An ingenious writer of our own country, takes the liberty to strain the ordinary signification of the word *rex*, and in such places translates it *queen*, this being an *Amazonian*, or female kingdom.

Mr. Warder has published a work under the title of the True *Amazons*, or Commonwealth of BEES.

AMAZONIAN, something relating to, or resembling AMAZONS.

AMAZONIAN *kingdom*, is particularly used for a feminine one, or that wherein the females alone bear rule.

AMAZONIAN *habit*, in *Antiquity*, denotes a dress formed in imitation of the *Amazons*.

Martia, the famous concubine of the emperor Commodus, had the appellation *Amazonian*, because she charmed him most in a habit of this kind.—Hence also that prince himself engaged in combat, in the amphitheatre, in an *Amazonian* habit; and of all titles the *Amazonius* was one of those he most delighted in.—In honour either of the gallant, or his mistress, the month December was also denominated *Amazonius*.

Some also apply *Amazonian habit* to the hunting dress worn by many ladies among us.

AMAZONIUS is an appellation given to a kind of pastil or *troche*, anciently used against risings of the stomach, and vomitings.—The ingredients of which it is com-

posed

posed, are smallage, anise-seed, worm-wood, myrrh, pepper, *castoreum*, *opium*, and cinnamon.

AMBA, in *Botany*, a name by which some authors have called the *mango Indica*, or MANGO-*tree*, called also *ambolans*, and *ambe*.

AMBACHT, in *Topography*, denotes a kind of jurisdiction, or territory, the palatine whereof has the administration of justice, both in *alta* and *basa*; or of what is called in the Scotch law a power of pit and gallows, i. e. a power of drowning and hanging.

In some ancient writers *ambacht* is particularly used for the jurisdiction, government, or chief magistracy of a city. The word is very ancient, though used originally in a sense some what different. Ennius calls a mercenary, or slave hired for money, *ambactus*; and Cæsar gives the same appellation to a kind of dependents among the Gauls, who, without being slaves, were attached to the service of great lords.

AMBAGES, *circumlocution*; an indirect discourse, or phrase, tending to express or shew something by a Compass of words or sentiments fetched from afar.

AMBAIBA, the name of a tree in Brasil, called by the Indians, *tipinon*. Ray's Hist. of Plants.

AMBAITINGA, the name of a tree whose leaves are so rough, that they may be used to polish hard wood. Ray's Hist. of Plants.

AMBAR-*seed*, in the *Materia Medica*, a name by which some have called musk-seed.

AMBARVALIA, in *Antiquity*, a feast, or ceremony, among the Romans, celebrated annually, in honour of the goddess Ceres, in order to procure a happy harvest.

At these feasts they sacrificed a bull, a sow, and a sheep; which, before the sacrifice, were led in procession thrice around the fields; whence the feast is supposed to have taken its name; from the Greek *amfis*, *around*; or the Latin *ambio*, *I go round*; and *arvum*, *field*. Though others write it *amburbalia*, and *amburbia*, and deduce it from *ambire urbem*, *to go round the city*.

From the beasts offered in sacrifice, the ceremony was also called SUOVETAURILIA.

Some will have the *amburbalia* to have been held twice a year; the first time towards the end of January, or, as others think, in April; and the second time in July, or, as Rosinus imagines, in August; at the time when the harvest was ripe, *maturis frugibus*. Which opinion is the more probable, because Ovid, who, in his Fasti, describes the feasts in the first six months of the year, from January to June inclusive, says nothing of the *amburbalia*.

The sacrifice offered on this occasion was hence called *amburbiale sacrum*, and *hostia amburbialis*.

The *amburbalia* were of two kinds, *public* and *private*.

The *private* were those solemnized by the masters of families, accompanied with their children and servants, in the villages and farms out of Rome. They walked three times round the grounds, every one being crowned with leaves of oak, and singing hymns in honour of Ceres. After the procession, they went to sacrifice.

The *amburvale carmen* was a prayer preferred on this occasion; wherein we have the *formula* preferred in Cato.

The *public amburbalia* were those celebrated in the boundaries of the city; and in which the twelve *fratres arvales* officiated pontifically, walking, at the head of a procession of the citizens, who had lands and vineyards at Rome.

The prayer, or *formula*, here used, was *averrua morbum, vortere, taben, pedum, impetigenem, pestilatem*.

Some make a quinquennial as well as an annual *amburbalia*, the one performed once every *lustrum*, the other once a year.

The priests who chiefly officiated at the solemnity, were called *fratres* ARVALES.

AMBARVALIS *fos*, in *Botany*, a name given, by some authors, to the *polygala*, or milkwort.

AMBASSADOR. See EMBASSADOR.

AMBE, in *Anatomy*, a superficial jutting out of a BONE.

AMBE, in *Surgery*, is also used as the name of an ancient instrument, with which they reduced dislocated bones. The *ambe*, or *ancumandre*, is mentioned by Hippocrates, and has its partisans among the moderns, especially for replacing the arm.

It consists of an horizontal lever, and a fixed point made of a piece of wood standing vertically, to the extremity of which the lever is jointed by a hinge. The patient sitting, and his arm that is hurt being raised, the machine is pushed forward under the arm-pit, as far as can be: *curandum*, says Hippocrates, *ut quam penitissimè alam subeat*. The arm is tied to this horizontal piece, and then an assistant bears upon the scapula and the clavicula, whilst another presses down the lever, and thus makes the bone come into its place again. See *Tab.* III. *Surgery fig.* 32.

The capital defect of the *ambe* is, that it pushes the head the bone into its cavity, before the extension and counter extension are made; the dangerous consequences of which are, first, that the reduction is very difficult, because the bone is not conducted by the same [illegible] took in hunting itself, and that one meets with o[illegible] from the parts that surround it, even the *scapula* on which it articulates. Secondly, in making effort surmounting those obstacles, one runs the risque o[illegible] ing inwards the cartilaginous edge of the cavity *fossula*, or the *capsula ligamentosa*. The third d[illegible] the *ambe* of Hippocrates is, that it cannot move the luxated bone, but from below upwards; consequently the machine is only proper in luxations directly downwards; and yet it is certain, that the arm luxates itself both outwards and inwards, and sometimes forward are very frequent. In those cases, the *ambe* is useless, and being dangerous in luxations downwards, it follows, that this machine (shown by Hippocrates very near the clavicle, Mr. le Cat, in the Phil. Trans. N° 469, has endeavoured to remedy these defects, by giving the description and use of a new *ambe*, not subject to the inconveniencies of the old one.

AMBER, *succinum*, or *lacabe*, in *Natural History*, &c. a yellow, transparent fossil juice, of a gummous or bituminous form or consistence, of a resinous taste, and a smell like oil of turpentine; chiefly found in the Baltic sea, along the coasts of Prussia, &c. of use in medicine, and in divers arts.

The word is originally Arabic, *ambar*, or *anbar*, which signifies the same.

This substance has been in great repute in the world from the very earliest times we have any knowledge of; many years before Christ it was in esteem as a medicine; and Plato, Aristotle, and Herodotus, and among the poets, Æschylus, and others, have commended its virtues. In the times of the Romans it became in high esteem as a gem; and in the luxurious reign of Nero, immense quantities of it were brought to Rome, and used for ornamenting works of various kinds. Long after this, Theodoric king of the Goths shewed a high esteem for it. However well known, and however highly esteemed this substance was in these ages, its nature and origin yet remained unknown through a long series of time, and various conjectures were made about it in the different places where people were pussified of it among their gems.

The generality of the false accounts of *amber* have been owing to the ignorance of the persons who have taken upon them to give the history of it: they have, in general, taken upon hearsay what they have related, or borrowed it from books they were not able to understand. Thus we find the many places in Asia and Africa celebrated for producing large stones of *amber*, are taken upon credit from the old authors, who have mentioned *ambra* as being found there; these copiers not distinguishing, that *ambra* in those places is not given as the name of *succinum*, or *amber*, but that of the rich perfume called *ambergris*, which is found there, though the real *amber* never was.

The name of *oriental amber*, so common with some, seems to have been also owing to a mistake, but of another kind; the gum COPAL, brought from the East Indies, is very like *amber*, and some of the fantastic writers in chemistry have called this by the forced name of *oriental amber*. Hence those who read their works, without perfectly understanding them, have supposed that *amber* was common in the East Indies; and as all the gems of that part of the world are superior to those of other places, they began to call all the fine pieces of this fossil, by the pompous name of *oriental amber*. But it is certain, that we have no authentic account of its ever having been found in any of those regions. All the intelligent persons who have resided in the East Indies, say, that they never saw or heard of *amber* being found there. And, upon the whole, it seems very rational to conclude, that our *oriental amber* never existed, other wise than in the error before mentioned, of calling COPAL by that name. This we are very well assured of, that the Chinese, who are so cunning a people as any in the world, expend annually with us vast sums of money in buying European *amber*, and have done so at all times since we have traded with them; and it is by no means to be supposed that they would purchase it at us, if they had it nearer home. Europe seems the only region of the world where *amber* is produced: it seems also to be produced almost all over Europe, but not in equal plenty, nor perfection; the German dominions, and the country about the Baltic, claim the prerogative above all other places. Hartman, who has given the above mentioned account of the errors of the ancients, &c. in regard to the places of its origin, has been too free in censuring the moderns for giving it, to some parts even of Europe, he scruples to believe that *Italy*, Spain, and even England, produce *amber*; but

but in this he errs: he supposes that *ist*, which is called by some *black amber*, being found in these places, has imposed upon the authors of these accounts, and made them say *amber* was found there; but nothing is more certain, than that *amber*, and that of the finest kind in the world, is found in England at least, if not in the other places where he doubts of its production.

Amber is at this time thrown on the shores of Yorkshire, and many other places; and found even in our clay-pits; the pits dug for tile-clay, between Tyburn and Kensington Gravel-pits, have afforded many specimens; and those behind St. George's Hospital, at Hyde-park Corner, has afforded fine specimens, one of which has been wrought into a beautiful cane-head of three inches long; and if we mention Dr. Woodward, and the other authors, who have themselves taken it up, we shall have no room to doubt of its being real *amber*, not *jet*, as Hartman supposes.

Poland, Silesia, and Bohemia, are famous for the *amber* dug up there at this time. Germany affords great quantities of *amber*, as well dug up from the bowels of the earth, as tossed about on the shores of the sea and rivers there. Saxony, Misnia, and Sweden, and many other places in the tract of Europe, abound with it. Denmark has affirmed, as different times, several quantities of fossile *amber*, and the shores of the Baltic abound with it. But these countries lying on the Baltic afford it in the greatest abundance of all: and of these the most plentiful country is Prussia, and the next is Pomerania. Prussia was, as early as the times of Theodoric the Goth, famous for *amber*; for this substance coming into great repute with this prince, some natives of Prussia, who were about this court, offered their service to go to their own country, where that substance, they said, was produced, and bring back great stores of it. They accordingly did so; and from this time Prussia had the honour to be called the *Country of Amber*, instead of Italy, which had before so deservedly that title.

This *amber* of Prussia is not only found on the sea coasts, but in digging; and though that of Pomerania is generally brought from the shores, yet people, who dig on different occasions in the very heart of the country, at times find *amber*. Phil. Trans. N° 248. p. 5. See MATRIX *Succini*.

Junker describes, after Neumann, the Prussian *amber-mines*, which are the richest known.

First, at the surface of the earth, is found a *stratum* of sand. Immediately under this sand is a bed of clay, filled with small lumps of about an inch diameter each. Under this clay lies a *stratum* of black earth, or turf, filled with fossile wood, half decomposed, and bituminous; this stratum is extended upon a bank of minerals, containing little metal, except iron, which are consequently pyrites. Lastly, under this bed the *amber* is found, scattered about in pieces, or sometimes accumulated in heaps.

Naturalists are greatly divided as to the origin of *amber*, and what class of bodies it belongs to; some referring it to the vegetable, others to the mineral, and some even to the animal kingdom. Its natural history, and its chemical analysis, afford something in favour of each opinion.

Pliny describes it as, 'a reluctant juice, oozing from 'pines and firs (others say from poplars), whereof there 'are whole forests on the coasts of Sweden), and discharged thence into the sea, where, undergoing some 'alterations, it is thrown, in the form upon the shores 'of Prussia; which he says low: he adds that it was 'hence the ancients gave it the denomination *succinum*, 'from *succus*, *juice*.'

This opinion of the ancient naturalists seem confirmed by observations of many of the modern ones; particularly of the learned father Camelli. Phil. Trans. N° 290.

Some suppose it a BITUMEN, trickling into the sea from subterraneous sources; and those concreted into this form, and thrown ashore by the waves. But a good *amber* has been found in digging at a considerable distance from the sea, as that gathered on the coast.

Others suppose *amber* a compound substance—Prussia, say they, and the other countries which produce *amber*, are mentioned with a bituminous juice, which mixing with the vitriolic salts abounding in those places, the points of those salts fix its fluidity, whence it congeals, and the result of that congelation makes what we call *amber*; which is more or less pure, transparent and firm, as those parts of salt and bitumen are more or less pure, and are mixed in this or that proportion.

Mr. Brydone, in his Tour to Sicily and Malta, says, that the river Gearretta, formerly celebrated by the poets under the name of Simetus, throws up near its mouth great quantities of *amber*. Vol. I. Lett. 22. p. 282.

He mentions also a kind of artificial *amber*, not uncommon there, made, as he was told, from COPAL, but very different from the natural. Ib. p. 284.

If the people, who collect *amber* on the shores of the Baltic, were more curious and particular in their observations of the masses they find, we should doubtless have much more light into its true history and nature. There is no question but that some pieces of it are tossed up there in imperfectly formed, that the process of nature may be seen in its different stages. Pieces have been sometimes found to soft, as to receive the impression of a seal; these are always not only perfect *amber* in other respects, but they are observed to have a smell stronger than the common *amber* has. These pieces sometimes harden immediately on being exposed to the air, but sometimes they remain this softness many months. We have an account of such as piece, which had remained this softness a whole year, in which time it had lain among other pieces of *amber*, and of another mark received on one side, and hard on the other, and containing in the soft part a fly buried. Phil. Trans. N° 57.

Hartman has undertaken to prove, that *amber* is formed of a BITUMEN, mixed with vitriol and other salts; and though this is allowed him in regard to the fossile *amber*, many dispute whether the sea or *beautiful amber*, as they express it, be so produced. It is, however, very evident, that all *amber* is of the same origin; and probably all the *beautiful amber* is first washed into the sea out of the cliffs; though Hartman thinks it very possible, that some of it may be formed in the earth under the sea, and be washed up thence. The *beautiful*, or *fine amber*, is usually finer to the eye than the *coarse*; but the reason is, that it is divested of that coarse coat with which the other is covered within in the earth. Hartman's Hist. Succini.

The chemists are as much divided on this head as the naturalists. *Amber* being found by distillation to yield an acid spirit, which precipitates into salt, is inferred, by some to be of a mineral nature; this being a circumstance peculiar to this kingdom, and never found in the distillation of vegetables; to which may be added, that *amber* dissolves in *alcohol*, not in water; and melts at the fire, and is inflammable; which are characters that seem to refer it to the class of sulphurs, or bitumens.

Others, on the contrary, argue it to be of the vegetable kind, from its resolving into the same principles with vegetables, viz. water, spirit, salts, and oil. See MATRIX *Succini*. Boerhaave reconciles it to camphor, which is a concrete oil of the aromatic plants of hot countries, elaborated by heat into a crystalline form.

Amber, though fusible with a small fire, and concreting again when cold, yet differs from the metals, and other fusible bodies of that kind, in this, that as soon as cold they are the same as before melting; but *amber*, when it has once been melted, is no longer *amber*, it loses its beauty and hardness; and the true reason of this is said to be, that being compoled of an UNCTUOUS and fat, the fat flies off in the heating, and leaves the remainder little better than the simple resinous or any exported *gummous*, or any other liquid bitumen. There have been people, at different times, who have pretended to have an art of melting small pieces of *amber* into a mass, and constituting large ones of them; but this seems such another undertaking as the making of gold; all the trials that have yet been made by the most curious experimenters, proving, that the heat which is necessary to melt *amber*, is sufficient to destroy it. Phil. Trans. N° 248. p. 25.

Hartman indeed mentions an accident, which shews a possibility of many pieces of *amber* being combined into one by an operation of nature, though it never could be effected by art. A sheep was once killed in Prussia, in whose stomach a large piece of *amber* was found, which was composed of several other smaller pieces, the joinings of all which might be seen, though as firm as the pieces themselves. This is a proof that the creature had swallowed the whole in small pieces with its food, and that nature, by the heat and juices of its stomach, had softened these pieces without melting them, so as to make them unite firmly, though not so as to be thoroughly blended with each other. Could art arrive at this, whether it is not probable it ever will, even this is far short of what is pretended of melting *amber*, and calling it into what form is defired.

There are several indications which discover where *amber* is to be found.—The surface of the earth is there covered with a soft scaly stone; and vitriol in particular always abounds there, which is sometimes found white, sometimes reduced into a matter like melted glass, and sometimes figured like petrified wood.

Amber assumes all figures in the ground; that of a pear, an almond, a pea, &c. In *amber* there have been faid to be letters found very well formed; and even Hebrew and Arabic characters.—Within fome pieces of *amber* have likewife been found leaves, infects, &c. included; which feems to indicate, either that the *amber* was originally in a fluid ſtate, or that having been expoſed to the ſun, it was once ſoftened, and rendered ſuſceptible of the leaves, infects, &c. which came in its way. The latter of theſe ſuppoſitions ſeems the more agreeable to the phenomenon, becauſe theſe infects, &c. are never found in the centre of the pieces of *amber*, but always near the ſurface.

It is obſerved by the inhabitants of the places where *amber* is produced, that all animals, whether terreſtrial, aerial, or aquatic, are extremely fond of it; and that they frequently find pieces of it in their excrements, and in their bodies when opened.

The bodies of inſects, found buried in *amber*, are viewed with admiration by all the world; but of the moſt remarkable of theſe, many are to be ſuſpected as counterfeit; the great price, beautiful ſpecimens of this kind fell at, having tempted ingenious cheats to introduce animal bodies in ſuch artful manners into ſeemingly whole pieces of *amber*, that it is not eaſy to detect the fraud. The factitious curioſities in *amber*, which are pretended to be pieces of this foſſil, with inſects embedded in it, are uſually no other than a hardened varniſh, not having the hardneſs or other qualities of *amber*. Some few of them are *amber mollet*, into which the inſects have been put in that ſtate, but theſe are very coarſe and brittle. Theſe two kinds of cheat are diſcovered by their want of hardneſs, or by obſerving the ſides of the piece, to find the joining where it had been ſplit.

Many ſpecies of the fly kind, however, are obviouſly and indiſputably lodged by nature there. Among this tribe of animals, the ſeveral ſpecies of the *tipula* fly are found the moſt numerous; the common houſe and flieſh flies are alſo frequently found thus preſerved; and it is remarkable, that of thoſe ſome have preſerved, and others have wholly loſt their natural colours. Theſe are ſometimes found in cloudy pieces of *amber*, but much more frequently in the perfectly clear and fine ones; and in theſe many are ſeen plainly to be encruſted with a thin coat of the matter of the *amber*, ſeparate from the maſs.

Some of theſe, which are incloſed in it, are plainly ſeen to have ſtruggled hard for their liberty, and even to have left their limbs behind them in the attempt; it being no unuſual thing to ſee in a maſs of *amber* that contains a ſtout beetle, the animal wanting one, or perhaps two of its legs; and thoſe legs left in different places, nearer that part of the maſs from which it has travelled. This alſo may account for the common accident of finding legs, or wings of flies, without the reſt of their bodies, in pieces of *amber*; the inſects, to which theſe have belonged, having, when entangled in the yet ſoft and viſcid matter of the *amber*, eſcaped, at the expence of leaving theſe limbs behind them. Drops of clear water are ſometimes alſo preſerved in *amber*. Theſe have doubtleſs been received into it while ſoft, and preſerved by its hardening round them. They are uſually contained in cavities too large for them, though ſometimes the holes are filled up. In ſome ſpecimens, the holes alone remain without any moiſture. Naturaliſts, who have been ſo curious as to examine this liquor contained in the *amber*, have found it to be of an auſtere taſte, like that in which vitriol had been diſſolved; others mention the having met with it wholly inſipid, and ſome taſting of ſea-ſalt. It is eaſy to account for a drop of water, of any of the three kinds, being found in *amber*, but the vitriolic water is the moſt natural there, as there is always great plenty of vitriol where the *amber* is found.

Beautiful leaves of a pinnated ſtructure, reſembling ſome of the ferns, or maidenhairs, have been found in ſome pieces; but theſe are rare, and the ſpecimens of great value.

Mineral ſubſtances are alſo found at times lodged in maſſes of *amber*. Some of the pompous collections of the German princes conſiſt of ſpecimens of native gold and ſilver in maſſes of *amber*; but as there are many ſubſtances of the marcaſites, and other kinds, that have all the glittering appearance of gold and ſilver, it is not to be too haſtily concluded that thoſe metals are really lodged in theſe maſſes of *amber*. Iron is found in various ſhapes intermixed in *amber*, and as it is often ſeen eroded, and ſometimes in the ſtate of vitriol, it is not impoſſible but that copper, and the other metals, may be alſo ſometimes immerſed in it in the ſame ſtate: and that the bluiſh and greeniſh colours, ſometimes found in the recent pieces of *amber*, may be owing, like the particles of the gem colours, to thoſe metals; but as the gems, by their denſe texture, always retain their colours, this lighter and more lax bitumen uſually loſes what it gets of this kind, by keeping ſome time. Small pebbles, grains of ſand, and fragments of other ſtones, are alſo unfrequently alſo found immerſed in *amber*.

There is one very eaſy way of diſtinguiſhing alſo whether theſe are real and natural curioſities, or whether it has been concerned in them; which is by examining what depth in the maſs the creature lies. Insects naturally embodied in *amber* are always found near its ſurface, or, at leaſt, there are few found otherwiſe. Artificially buried creatures are always lodged in or near the centre. The reaſon of this is plain; for the artiſt knows the deeper the creature lies, the better his art will be concealed; and that if he had lodged it near the ſurface, the natural tranſparence of the thin plate of *amber* which lay over it, would have ſhewn the fallacy, by bringing the artificial hollow too near the eye. Phil. Tranſ. N° 248. p. 81.

The moſt remarkable property of *amber* is, that, when rubbed, it draws or attracts other bodies to it; and this, it is obſerved, is does even to thoſe bodies which the ancients thought it had an antipathy to; as oily bodies, drops of watery ſweat of human bodies, &c.

Add, that by the friction it is brought to yield light pretty copiouſly in the dark; whence it is reckoned among the native *phoſphori*.

This property which *amber* poſſeſſes of attracting light bodies was very anciently obſerved. Thales of Miletus, ſix hundred years before Chriſt, concluded from hence that it was animated. But the firſt perſon, who expreſly mentions this ſubſtance, is Theophraſtus, about the year 300, before Chriſt. The attractive property of *amber* is likewiſe occaſionally taken notice of by Pliny and other later naturaliſts, particularly by Gaſſendus, Kenelm Digby, and ſir Thomas Brown; but it was generally apprehended that this quality was peculiar to *amber* and jet, and perhaps agate, till Gilbert publiſhed his treatiſe De Magnete, in the year 1600. From καϰτρον, the Greek name for *amber*, is derived the term ELECTRICITY, which is now very extenſively applied not only to the power of attracting light bodies inherent in *amber*, but to other ſimilar powers, and their various effects, in whatever bodies they reſide, or to whatever bodies they may be communicated.

Some diſtinguiſh *amber* with regard to its colours, into *yellow*, *white*, *grey*, and *black*. But the two latter are properly of a different nature and denomination; the one called JET, the other AMBERGRIS.

The *white* is moſt valued for medicinal uſes, as being beſt digeſted, of the moſt odoriferous ſmell, and containing the greateſt quantity of volatile ſalt. The *yellow* is moſt prized by thoſe who work it into beads, and other toys, by reaſon of its tranſparency.

There are two methods of rendering *amber* tranſparent; either by cementing lumps of it with heat, during forty hours, in an iron pot; or by digeſting them, during twenty-four hours, in boiling rape-ſeed oil.

AMBER is the baſis of all varniſhes. For the method of diſſolving this ſubſtance into varniſh, ſee VARNISH.

But *amber* could be diſſolved without impairing its tranſparency, or one large maſs be made of it by uniting ſeveral ſmall ones, it is eaſy to ſee what would be the advantages of ſuch a proceſs. The art of embalming might poſſibly be alſo carried to a great height by this. If we could preſerve the human corpſe in a tranſparent caſe of *amber*, as the bodies of flies, ſpiders, grathoppers, &c. are, to a great perfection. Something of a ſubſtitute of this kind we have in fine roſin, boiled to a great hardneſs, and perfect tranſparence; this being diſſolved by heat, and the bodies of ſmall animals ſeveral times dipped in it, they are thus coated with colophony, that in ſome degree reſembles *amber*; but this muſt be kept from duſt. Shaw's Lectures, p. 425.

For the methods of diſſolving *amber* in oils, the advantages of ſuch ſolutions, and a farther account of its preparation for varniſhes, the curious may conſult Dr. Lewis's Commerc. Phil. Tech. p. 366, &c ſeq.

AMBER is reputed of ſome medicinal efficacy; being uſed in fumigations, to remove defluxions; and in powder, as an alterant, abſorbent, ſweetener, and aſtringent.

In times of the plague, thoſe who work in *amber* at Koningſberg, are ſaid to be never infected; whence it is held a preſervative. It is alſo eſteemed a lithontriptic, diuretic, and promoter of the *menſes*.

It is preſcribed in the *fluor albus*, in convulſions, and in all diſorders of the nerves. It is alſo given in coughs, and diſeaſes of the lungs; and is by ſome greatly recommended in inveterate head-ache. Its dote is from one ſcruple to two.

In

Its preparations are as follow:

AMBER, *spirit of*, is an acid liquor, procured from amber by putrefying and diſtilling it with a ſand heat, with or without the addition of tobacco-pipes, bricks, ſand, &c.

It is chiefly uſed externally in rheumatic pains and aches; and internally, in inveterate gleets, &c.

AMBER, *oil of*, is a fine, tranſparent, ponderous, yellow oil, procured after the ſpirit, by increaſing the degree of fire. This, by rectification, becomes a good antihyſteric, and emmenagogue; being very ſubtile and penetrative.

To purify the dark muddy *oil of amber* drawn *per ſe*, take two pounds of good brandy, one of ſea-ſalt, half a pound of the oil; mix them, and diſtil them together, and a large proportion will come over very tranſparent, and finely coloured.

AMBER, *volatile ſalt of*.—The principal chemical production of *amber*, is a peculiar acid ſalt; which riſes after the oil, and fixes in the neck of the retort, &c. Mr. Potts concludes from ſeveral experiments, that the acid of this *ſalt* is eſſentially diſſerent from the three mineral acids, and approaches neareſt to thoſe of the vegetable kingdom. See ACID of *Amber*.

It is a good cephalic, and detergent; and Quincy ſays, it extremely attenuates, and cuts, and penetrates, the moſt remote and minute recrifes; and thus ſcours, as it were, the whole nervous ſyſtem. Its chief tendency, he adds, is to ſecretion, and what it carries along with it, is by urine. It alſo contributes, with alexipharmics, to promote a *diaphoreſis*; and is *ſcarce* ever omitted in preſcription for chronic caſes, as epilepſies, palſies, &c. The great conſumption of this medicine, and the ſmall proportion that *amber* yields of it, occaſions it to be frequently adulterated with ſal ammoniac, nitre, cream of tartar, ſalt of coral, &c.

AMBER, *ſtrong*, is procured by digeſtion in ſpirit of wine with a ſand heat. It is prefended with the ſame intentions as the oil of *amber*.

AMBER, *black*, *gagate*. See JET.

AMBER, *liquid*, and *odoriferous*. See BALSAM.

AMBER-GRIS, or AMBRE GRIS, is a fatty ſubſtance, of an aſh-colour, ſometimes variegated with white, yellow, and blackiſh ſtreaks, and brought dry to us from Mauritius and Egypt. The Egyptians uſe it attenuated, as a cordial, to fortify the heart, ſtomach, and head, and to provoke luſt.—It gives a grateful ſcent to the breath, after eating; but it is not proper for thoſe who are inclinable to vapours.

AMBER-TREE, *ambrifermum*, in *Botany*, a genus of the *polygamia dioecia* claſs. Its characters are theſe: it is male and female in different plants, and the male flowers have no petals. The female flowers have the ſame ſtructure as the male, but have no ſtamina: an oval germen is ſituated in the bottom, which becomes a roundiſh capſule having four cells, and containing ſeveral angular ſeeds. There is but one ſpecies.

The beauty of this ſhrub is its ſmall evergreen leaves, which grow in cloſe ſet heads, and being bruiſed between the fingers emit a very fragrant odour.

It is but of late years, that this plant could be propagated by ſeeds, as female plants being in our gardens; they were, therefore, continued from cuttings, until ſeeds were procured from the Cape of Good Hope, from which both kinds were raiſed.

AMBERBEL, in *Botany*. See CENTAURY.

AMBERGRIS, from *amber* and *gris*, *gry*, AMBER GREASE, AMBRA GRISEA, a fragrant drug, that melts almoſt like wax; and is commonly of a greyiſh or aſh-colour, and is uſed both as a perfume, and a cordial.

It is found on the ſea-coaſts, in ſeveral countries; as, along the ſouthern and eaſtern parts of Africa, Madagaſcar, the Maldives, ſome parts of the Mediterranean, and in the Weſt Indies, about the iſlands of Bermudas and Jamaica; alſo on the coaſts of Carolina, and the weſtern coaſts of Ireland. It is likewiſe ſaid to be found on the coaſts of Norfolk, and in the iſlands of Orkney.

It is ſometimes whitiſh, browniſh, and ſtreaked with yellowiſh, blackiſh, &c.

There is a great variety of opinions among naturaliſts with regard to its origin and production: to rehearſe them all, would make a volume. Kiobius recites eighteen, to which we could add half as many more. The principal may be reduced to thoſe which follow.

1. Some take it for the excrement of a bird, called in the Madagaſcar language *ofeibibanch*; which being melted by the heat of the ſun, and waſhed off the ſhore by the waves, they ſay is ſwallowed up by whales, who return it back in the condition we find it.

2. Others ſpeak of it as the excrement of a cetaceous fiſh: becauſe ſometimes found in the inteſtines, and ſometimes in the *feces* themſelves, of ſuch animals.

But to both theſe hypotheſes it is objected, that we have no inſtance of any excrement capable of melting like wax. Beſides, the *error* of theſe opinions may be detected by chemical experiments; the dung of all animals admitting of a ſolution in aqueous menſtrua, but ultimately refuſing the moſt highly rectified ſpirit of wine. Add, that if it were the excrement of a whale, it ſhould rather be found in ſuch places where thoſe animals abound, as about Greenland, &c. than about the Maldive iſlands, Soffala, Malinda, Cape Comorin, &c. where no whales are found.

3. Others take it for a kind of wax, or gum, which diſtils from trees, and drops into the ſea, where it congeals, and becomes *ambergris*.

4. Others, and particularly many of the oilemals, imagine it ſprings out of the bottom of the ſea, as naphtha does out of ſome fountains.—They add, that the only ſprings hereof are in the ſea of Ormus, between the Arabian and Perſian Gulfs. Edriſi, who is of this opinion, in the firſt climate of his Geography, mentions pieces of *ambergris* on thoſe coaſts, weighing a full quintal. Pabidanus and Linſchoitan alſo ſpeak of it as a ſort of bitumen, gradually working up from the bottom of the ſea and hardening in the ſun.

5. Others take it for a ſea muſhroom, torn up from the bottom by the violence of tempeſts; it being obſerved, that *ambergris* is never found but during the ſouth-weſt monſoons, after ſtorms.

6. Others aſſert that it is a vegetable production, iſſuing out of the root of a tree, whoſe roots always ſhoot toward the ſea, and diſcharge themſelves into the ſame. This account we have in the Philoſophical Tranſactions, from one of the Dutch factors at Batavia; and the ſame is confirmed by Mr. Boyle.

7. Others ſuppoſe it a ſpongious kind of earth, which the working of the ſea waſhes from off the rocks, where, being lighter than water, it floats. Others are of opinion, that it is a bituminous matter; that it is at firſt liquid, and runs into the ſea; and that it is there conſtrued, and reduced into a maſs.

8. Others maintain, that *ambergris* is made from the honey combs which fall into the ſea from the rocks, where the bees have formed their neſts. This opinion ſeems to have ſomething of exiſtence on its ſide; ſeveral perſons having from pieces that were half *ambergris*, and half plain honey-comb; and others, again, having found large pieces of *ambergris*, in the middle of which, when broken, they diſcovered both honey-comb and honey. But the error of this hypotheſis may be detected by chemical experiments; as honey likewiſe admits of a ſolution in aqueous *menſtrua*, but refuſes the moſt highly rectified ſpirit of wine.

9. Dr. Boylſton, and Mr. Dudley, in the Philoſophical Tranſactions, aſſert, that the *ambergris* is a true, animal concrete, formed in balls, in the body of the male ſpermaceti whale, and lodged in a large oval bag, over the teſticles, at the root of the penis. Phil. Tranſ. N° 385. and 387.

It is certain the whale-catchers have divers times found *ambergris* in their ſpermaceti whales, and that chiefly in the large and older ſort; and it is from the information of Mr. Atkins, and other whale-catchers, that Mr. Dudley chiefly drew his account. But it is added, that it is not one ſpermaceti whale in a hundred that is found to have *ambergris*. Mr. Neumann abſolutely denies it to be an animal ſubſtance, as not yielding, in the analyſis, any one animal principle. It may indeed, he ſays, be found in whales; but it muſt have been ſwallowed by them.

Mr. Neumann, chemiſt to the king of Pruſſia, after an ample recital of all the different opinions advanced by others, gives us his own; which is, that *ambergris* is a BITUMEN, iſſuing out of the earth into the ſea; at firſt of a viſcous conſiſtence, but hardening, by its mixture with ſome liquid *nitrum*, into the form wherein we find it. Phil. Tranſ. N° 434. N° 434. N° 435. Mr. Cartheuſer is of the ſame opinion.

This opinion ſeems to be the beſt founded, and is ſtrengthened by this circumſtance, that *ambergris* is found in the greateſt quantities in the ſea, about the iſland of Madagaſcar, where the ſubterraneous parts are ſuppoſed to be impregnated with bituminous matter.

The pieces are frequently ſeen compoſed of divers ſtrata, laid one over another, with ſtones and other bodies incloſed therein, and the ſtrata are ſometimes full of little holes, which ſeem a ſpecies of *concha anatifera*; whence it may be conjectured, that the *ambergris* has originally been in a fluid ſtate, or, at leaſt, that it has been diſſolved and in that ſtate has formed itſelf afreſh, and inveloped ſuch bodies as happened to be in its way. Dr. Swediar has lately proved *ambergris* to be of animal origin. Kirwan's Elem. Miner. p. 221.

Ambergris is of conſiderable uſe among perfumers, who melt

melt it over a gentle fire, and make extracts, essence, and tinctures of it. It would be of more use in physic too, were not its smell apt to occasion vapours.

There is a preparation, however, recommended by Hoffman, which is said not to be attended with these ill consequences. The preparation is made in the following manner.

Let the spirit of roses, perfectly dephlegmated, be, not only once, but twice, at least, drawn off from the salt of tartar, which is burnt, or calcined, into a vehement fire. By this means there is produced a spirit, which, by its penetrating quality, enters into the inmost substance of the *ambergris*, and so separates and resolves its oleous concretion.

This, we are assured, will not excite commotions and agitations in a weak body, as does the common preparation of *ambergris*, which is made with a mixture of musk or civet. Hoffm. Observ. Physic. Chem. lib. 1. cap. 18.

It enters into the composition of many cordial, sudorific, and alexiterial waters. But its chief virtue consists in its antispasmodic and sedative qualities, similar to those of musk and castor, and its power of relieving certain hysterical, convulsive, and other nervous affections. It may be taken inwardly from half a grain to ten or twelve grains, or more; for as to doses, there can be no fixed rules about remedies and diseases of these kinds.

Ambergris is very commonly counterfeited and adulterated. The bill generally consists of musk, civet, storax, laudanum, and aloes wood, mixed together; the latter of a large quantity of bullock's blood, duly flavoured with musk and civet. It is one of the most agreeable perfumes; but must be proportioned so sparingly, as that while it improves the smell of what it is added to, its own may not be felt.

Neumann gives the chemical characters of this bitumen, and its analysis, by distillation. He distinguishes the sophistications of *ambergris*, and observes, that it is totally soluble in oils and vinous spirits, and that it yields the same products as AMBER. See the particulars and the proofs of this in Newmann's Works, p. 239, & seq.

We have various instances in authors of vast pieces of this matter: one of the largest that has been known in Europe was brought by the Dutch East India company, toward the close of the last century, and kept in their house for some years. It was almost round; measured two feet in diameter, and weighed a hundred and eighty-two pounds. The great duke of Tuscany offered fifty thousand crowns for it. We are told, however, that one was taken up near the Cape of Good Hope, which weighed three hundred pounds; and another, if we may credit the relation, fifteen thousand pounds. Phil. Trans. N° 263, N° 232.

AMBERGRIS, may be known to be genuine by its fragrant scent, when a hot needle or pin is thrust into it, and its melting like fat, of an uniform consistence. Whereas the counterfeit will not yield such a smell, nor prove of such a fat texture.

One thing, however, is very remarkable, that this drug, which is the most sweet of all the perfumes, should be capable of being resembled in smell, by the preparation of one of the most odious of all stinks. Mr. Homberg found that a vessel in which he had made a long digestion of the human *faces*, acquired a very strong and perfect smell of *ambergris*, insomuch that any one would have thought a great quantity of essence of *ambergris* had been made in it. The perfume was so strong and offensive, that the vessel was forced to be removed out of the elaboratory. Mem. Acad. Roy. 1700.

AMBERING is used, by some writers, to denote the giving a scent, or perfume of *amber* to any thing.

This is otherwise called *incensering*. Hooke, Phil. Collect. N° 4.

Dr. Hooke mentions an extraordinary method of *ambering in profusum*, i. e. with a small quantity of *amber*, and other requisites, *incensering* a hundred or a thousand pounds of sugar, or the like, so as the first matter shall remain undecayed, to be used again. Ibid.

AMBIDEXTER, one who uses both hands alike, the left as well as right, or in cases where only the use of one is necessary.

The word is compounded of *ambo*, *both*, and *dexter*, *right hand*, by analogy to the Greek, ἀμφιδέξιος, which signifies the same.

Women, according to the observation of Hippocrates, are never *ambidextrous*. But this is denied by some moderns, who give instances of the contrary; though it is owned, they are but few in comparison of those that are found in the other sex.

It may be imputed to education and habit, that men as well as brutes are not all *ambidexters*, there being no difference of right and left in the nature of things. Nurses are even forced to be at some pains to ensure the infants under their care to forego the use of their left hand. How far it may be our advantage to be deprived of half our natural dexterity, may be doubted. It is certain, there are infinite occasions in life, when it would be better to have the equal use of both hands. Surgeons and oculists are of necessity obliged to be *ambidexters*; bleeding, &c. in the left-arm or left-ankle, and operations on the left-eyes, cannot be well performed but with the left-hand. Divers inflances occur in battery, where the use of the left hand has been cultivated preferably to the right. But by the laws of the ancient Scythians, people were enjoined to exercise both hands alike, without partiality either for the right or left; and Plato enjoins *ambidexterity* to be observed and encouraged in his republic.

In the Grecian armies, their more distinguished soldiers, their pikemen and halberdeers, as those who formed the first line of their battalions, were to be able to fight indifferently with left hand or right. We find it mentioned in Scripture, that, on an extraordinary occasion, the single tribe of Gad produced 300 brave men, who fought with the left-hand as well as the right. And the Roman historians allure us, that they had gladiators who were trained up to the same exercise. An ingenious French writer is surprised, that among all the modern refinements in the art of war, none have thought of restoring the ancient practice of forming *ambidexters*, which, it is certain, might be of considerable service in the way of stratagem.

AMBIDEXTER, in a legal sense, denotes a person who takes money from both of the contending parties to father them in their cause. In this sense the word may be applied to a judge, juror, a solicitor, or the like. The penalty on a juror, in such a case, is to forfeit DECEM TANTUM, ten times as much as he received.

AMBIGNA, in *antiquity*, an appellation given to a victim, which was surrounded, or attended at the time of offering it with other lesser ones.

In this sense the word is also written *ambigna*. We read of *ambignæ oves* used in sacrificing to Juno, which were sheep, having brought forth twins, and offered up with two lambs fattened on either side.

AMBIENT, a term applied to such things as encompass others round about.

The word is formed of *ambire*, *to encompass*.

Thus the bodies situate around another body, are called *ambient*, and often the CIRCUM-AMBIENT bodies. The whole body of air, because it encompasses all things on the face of the earth, is often by physical writers called, by way of eminence, the *ambient*, or *ambiant* air.

AMBIGENAL, *hyperbola*. See HYPERBOLA.

AMBIGU denotes a kind of mixed entertainment, wherein both flesh and fruit are served together; so that it seems doubtful whether to denominate it a mere collation, or a meal.

AMBIGUOUS, something dubious, obscure, or which may be taken in different senses. See EQUIVOCAL.

The word is formed of *ambo*, *both*, and *ago*, *I drive*; q. d. that which keeps the mind wavering, or in suspence; not knowing which side to choose.

The answers of the ancient oracles were always *ambiguous*.

An anonymous writer has published a dictionary of *ambiguous* words, Lexicon Philosophicum de *Ambiguitate* Vocabulorum, Francof. 1597, 8vo.

Ambiguity is occasioned either by a wrong choice of words, and the use of equivocal terms, or by an improper arrangement of them. *Ambiguities* of the first kind are either where the arrangement leads to a wrong sense, or where the sense is left doubtful. Dr. Campbell expresses the former by the term equivocation, and appropriates that of *ambiguity* to the latter. See Elem. of Criticism, vol. ii. p. 20, 34, and Campbell's Philosophy of Rhetoric, vol. ii. p. 28, 32.

AMBIT, AMBITUS, of a figure in *Geometry*, denotes the *perimeter*; or the sum of all the lines, that constitute, or include it.

Isaac Vossius has a particular inquiry concerning the *ambit*, or circumference of ancient Rome. That of the city he makes to be 60 miles, or *mille passus*, and that of the city and suburbs together 72 miles; exceeding ancient Babylon, whose *ambit* was only 60 miles.

AMBIT, *ambitus*, was particularly used, in *Antiquity*, to denote a space of ground to be left vacant between one building and another. By the laws of the Twelve Tables, houses were not to be built contiguous, but an *ambit*, or space of 2½ feet, was to be left about each, for fear of fire.

The *ambitus* of a tomb, or monument, denoted a certain number of feet, in length and breadth around the same, within which the sanctuary assigned to it was limited. The whole ground, wherein a tomb was erected, was not to be separated from the common uses; for this reason, it was frequent to inscribe the *ambitus* on it, that it might be known how far its sanctuary extended: thus, *in fronte pedes tot, in agrum pedes tot.*

AMBITUS, among the ancient Romans, the act of soliciting or making interest for offices, or honours.

The candidates, in this case, were about the city, and into all public places and assemblies, in long robes; which was called *ambire toga*, in the ancient Latin, signifying *circumdare, abire*, and *ire, to go*.

Among the Romans, it differed from *ambition*, as the former lies in the act, the latter in the mind.

Ambitus was of two kinds, one lawful, and even laudable; the other infamous.

The first, called also *ambitus popularis*, was when a person offered his service to the republic frankly, leaving it to every body to judge of his pretensions as they found reasonable.

This kind was not prohibited by any law, but always approved and practised by the best and greatest men.

The means and instruments here made use of were various: 1. *Amici*, or friends, under divers relations, including *cognati, affines, necessarii, familiares, socii, tribules, clientes, municipes, subditi, exercitus*. 2. *Nomenclatores*, or the calling and saluting every person by his name; to which purpose, the candidates were attended with an officer, under the denomination of *interpres*, or *nomenclator*. 3. *Blanditia*, or obliging persons by serving them, or their friends, patrons, or the like, with their vote and interest on other occasions. 4. *Promissa*, the shaking every person by the hand, offering him his service, friendship, &c. 5. *Assectatio*. 6. The *toga candida*, were loose. 7. *Benignitas*, the distributing largesses, *congiaria*, &c.

The second kind was that wherein force, caioling, money, or other extraordinary influence was made use of. This was held infamous, and severely punished, as a source of corruption and other mischiefs.

This kind of *ambitus* was at one time the great trade of Rome, and demanded a constant supply of great sums of money. Tully alleges this as the cause of the high rate of interest, and tells us it had risen from 4 to 8 per cent. Bribery was come to the pitch of 80,750*l.* per tribe; and there being no less than thirty-five tribes, it is obvious how expensive this corruption was grown. It is also well known where it ended.

Several laws were made against it, as the *Lex Acilia, Calpurnia, Aufidia, Baebia, Cornelia, Fabia, Fabia, Julia Augusti, Julia Cæsaris, Licinia, Maria, Pactia, Pompeia, Tullia Petri*.

In the year of Rome 321, the use of the *toga candida* was prohibited. In the year 398, the candidates were forbid to go to the markets and meetings in the neighbouring towns. In 571, severe penalties were laid on the givers of largesses. In 594 this was made punishable by banishment. In 697, heavy fines were imposed. By the *Lex Tullia*, made in the consulship of Cicero, the candidates were forbidden to bestow any combats of gladiators on the people, to make any public feasts, or to cause themselves to be followed by a crowd of clients, for two years before they put in for any place.

A senator, who was guilty of a breach of this law, was punished with ten years banishment; others were fined, and rendered incapable of any dignity for ever.

Ambitus was not only practised at Rome and in the forum, but in the meetings and assemblies of other towns in Italy, where numbers of citizens were usually found, on account of trade and business.

The practice ceased in the city from the time of the emperors, because posts were not then to be had by courting the people, but by favour from the prince.

Persons who had causes depending, practised the same, going about among the judges to implore their favour and mercy.

They who practised this were called *ambitiosi*. Hence we also meet with *ambitiosæ decreta*, and *ambitiosa judicia*, used for such sentences and decrees as were thus procured from the judges, contrary to reason and equity, either gratuitously, or for money.

AMBITUS, in *Music*, a name sometimes appropriated to signify the particular extent of each tone, or modification of grave and sharp.

AMBIX, in *Ancient Writers*, denotes a vessel of glass, or flint.

Hence the origin of the word *alembic*, which we sometimes also find denoted by the word *ambix*.

AMBLE, AMBLING, in *Horsemanship*, a peculiar kind of pace, wherein a horse's two legs of the same side, move at the same time.

The *ambling* horse changes sides at each remove; two legs of a side being always in the air, and two on the ground, at the same time: an *amble* is usually the first natural pace of young colts; which, as soon as they have strength enough to trot, they quit. There is no such thing as an *amble* in the manage; the riding-masters allowing of no other paces besides walk, trot, and gallop: their reason is, that a horse may be put from a trot to a gallop, without stopping him; but not from an *amble* to a gallop without stopping: which loses time, and interrupts the juliness and cadence of the manage.

There are various practices and methods of discipline, for bringing a young horse to *amble*; some choose to tie him in his foot-pace through new-coupled hads; which naturally inures him to the trade required in the *amble*. But its inconveniences are, the weakness and lameness that such disorderly gait may bring on a young horse.

Others attempt it by sudden flopping, or checking him in the cheeks when in a gallop; and thus putting him into an amazedness, between gallop and trot; to that losing both, he necessarily stumbles upon an *amble*. But this is apt to spoil a good mouth and rein, and expose the horse to the danger of a hoof-reach, or knee-strain, by over-reaching, &c.

Others prefer *ambling* by weights, as the best way; and to this end, some overload the horse with excessive heavy shoes, which are apt to make him interfere, or strike short, with his hind feet. Others fold tenden weights about the fetlock pasterns; which are not only liable to the inconveniences of the former, but put the horse in danger of incurable strains, crushing of the coronet, and breeding of ring-bones, &c. Others load the horse's back with earth, lead, or the like massy substance; but this may occasion a swaying of the back, overstraining the reins, &c.

Some endeavour to make him *amble* in hand, before they mount his back, by means of some wall, smooth pale or rail, and by checking him in the mouth with the bridle-hand, and correcting him with a rod on the hinder hoofs, and under the belly, when he treads false. But this is apt to drive the horse to a desperate phrensy, before he can be made to understand what they would have of him; and to tear, (spawl out his legs, and to make other antic postures, which are not easily quitted again. Others think to effect it by a pair of hind shoes, with long spurns or plates before the toes; and of such length, that if the horse offers to tread the hind-foot before the fore-foot. But this occasions wounds of the back-sinews, which often bring on an incurable lameness.

Some attempt to procure an *amble*, by folding fine, soft till, flrait about his gambrels, in the place where he is gartered for a fistle-drain; and turn him thus to grass for two or three weeks, and afterwards take away the Eft. This is a Spanish method, but disapproved; for though a horse cannot then trot but with pain, yet the members must be sufferers; and though the *amble* be gained, it must be slow and unsightly; because attended with a cringing in the hind-parts. In effect, *ambling* by the tramel, as practised by us, appears the nearest to nature, and the best and most allured way.

There are divers errors, however, usually practised in this method: as, that the tramel is often made too long, and so gives no stroke, but makes a horse hackle and shuffle his feet confusedly; or too short, which makes him volt and switch up his hind-feet so suddenly, that by cushion it brings him to a string-halt, from which he will scarce ever be recovered. Sometimes the tramel is misplaced, and to prevent falling put about the knee, and the hind hoof. In which case, the best cannot give any true stroke, nor can the fore-leg compel the hind to follow it: or if, to create this, the tramel be made short and strait, it will press the main bone of the hind-leg, and the fleshy part of the fore-thigh; so that the horse cannot go without halting before, and cringing behind.

As to the matter of the tramel; some make it all of leather, which is inconvenient; in that it will either stretch or break, and thus confound the certainty of the operation. In a true tramel, the side ropes are to be so firm, as not to yield a hair's breadth: the horse soft; and to tie so close, as not to move from its first place: and the back-band flat, no matter how light, and to descend from the fillet so as not to gall.

When the horse, by being tramelled on one side, has attained to *amble* perfectly in the hand, it is to be changed to the other side, and that is to be likewise brought to rule.

When by this changing from one side to another, with a half-tramel, the horse will run and *amble* in the hand readily and swiftly, without stoppering and stumbling; which is ordinarily done by two or three hours labour; the whole tramel is to be put on, with a broad, flat, back-band, and both sides tramelled alike. See TRAMEL.

AMBLYGON, or AMBLYGONIUM, in *Geometry*, denotes a triangle, one of whose angles is obtuse, or consisting of more than ninety degrees.

The word is compounded of ἀμβλὺς, *obtusus*, and γωνία, *angle*.

AMBLYOPY, AMBLYOPIA, in *Medicine*, a disease of the eyes, otherwise called CAUTA *ferens*, and *amaurosis*.

The word comes from ἀμβλὺς, *dull*; and ὄψις, *I see*.

AMBO, or AMBON, a kind of pulpit, or desk, in the ancient churches, where the priest and deacons stood to read or sing part of the service, and preach to the people; called also *analogium*.

The term is derived from ἀναβαίνω, *to mount*. The *ambo* was mounted upon two steps; whence some also derive the appellation from *ambo*, *both*.

The *ambo* was ascended by steps; which occasioned that part of the office performed there to be called the *gradual*. The Gospel was read at the top of the *ambo*; the Epistle a step lower.

The *modern* reading desks and pulpits have been generally substituted instead of the ancient *ambo*, though in some churches, remains of the *ambo* are still seen. In that of St. John de Lateran at Rome, there are two miserable *ambo*s. M. Thiers inveighs against the disuse of the ancient *ambo*. Those by whom this innovation has been effected, he calls by a new word *ambonoclastes*. It was in the *ambo* that publication was made of feasts, fasts, processions, &c. Here were read the acts of the martyrs, the *sancta sanctis*, the diptychs, or commemoration of the dead; the letters of peace and communion, which one church sent to another. Here new converts made their public confession of faith, and bishops their defence against accusations brought against them. Here treaties of peace were sometimes also concluded, and coronations of kings and emperors performed, &c.

Divers antiquaries hold, that the *ambo* was anciently the place from whence the bishops and presbyters made their sermons; pulpits for that purpose having only been introduced by the mendicants at the beginning of the last tenth century.

A late writer combats this opinion, and shews, that the usual place from whence the ancients preached, was the steps of the altar; not but St. Chrysostom and St. Augustine both appear to have preached from the *ambo*; but this was looked on as a thing somewhat extraordinary.

AMBONOCLASTES, a name given, by a late writer, to the demolishers of the *ambo*s used in the primitive church.

AMBONUM, in *Natural History*, a term used, by some of the old writers, to express the prominent tubercles on certain stones.

AMBRELDA, thus they call the false or factitious amber, which the Europeans vile in their trade with the negroes on the coast of Africa, and particularly on the river Senegal. There are some large and red pieces of it, a thousand of which making twenty ropes of strings, weigh three pounds. There are others small, and also red, which weigh but two pounds and a half.

AMBROSE, *St. Ambrose in the wood*, by the Italians called *al vano*, is an order of religious, confirmed in 1431, under the rule of St. Augustine.

The monks of *St. Ambrose al vano* wear the image of the saint engraven on a little plate, and make use of the Ambrosian office.

In the province of Berry in France, the title *fathers of St. Ambrose* is also given to the canons regular of St. Augustine, because their abbey at Bourges is dedicated to St. Ambrose de Cahors.

AMBROSIA, in the *Heathen Theology*, &c. a delicious kind of food, wherein the gods were supposed to feed.

The word is compounded of the privative particle α, and βροτὸς, *mortal*; because it rendered those who fed to excess immortal, or because it was the food of the immortals.

Lucian, ridiculing the poetical gods, tells us, that *ambrosia* and *nectar*, of which one is the meat, and the other the drink of the gods, were not so excellent as the pores between them; since their deities would leave them for blood and fat, which they come to suck from the altars like flies.

But though the *ambrosia* is commonly represented as the solid food of the gods, by way of contradistinction from the fluid, which was called *nectar*; yet the appellations are sometimes inverted, and the name *ambrosia* given to the drink of the deities, as that of nectar to the meat.

Wedelius has a dissertation on *ambrosia* and nectar, wherein he shews, that the terms are sometimes used to denote honey, sometimes wine, sometimes perfumes, and particularly ambergris; besides this, their method and ingredients for embalming or preserving dead bodies from putrefaction, and sometimes also for a state of exchange from a state of immortality.

AMBROSIA is also a splendid kind of title, given, by some physicians, to certain alexipharmic compositions, of extraordinary virtue.

In this sense, *ambrosia*, ἀμβροσία, amounts to much the same with *athanasia*, *athanasie*, as being supposed to connote immortality.

This name was particularly given to a famous antidote of Philip of Macedon, against all poisons, bites, and stings of venomous creatures, as well as many internal diseases.

AMBROSIA is also used for a pure spirituous kind of medicine, artfully extracted from the grosa elementary parts of a body, and which being administered in the smallest dose is of considerable virtue, and may be taken without disgust, or inconvenience.

In this sense, *ambrosia* amounts to much the same with what we otherwise call QUINTESSENCE.

Nic. Abr. Framboisa has a treatise on the preparation of these *ambrosiæ*. Ambrosiopœa, Lugd. Bat. 1028. 12mo. Francof. 1629. 4to.

AMBROSIA, in *Botany*, the name of a genus of plants belonging to the *monœcia pentandria* class; the characters of which are these: it hath male and female flowers on the same plant; the male flowers are of one leaf, funnel-shaped, and cut into five parts at the brim; the female flowers are placed under the male in the same spike; they have no petals, but an oval pericarpium placed in the bottom of the empalement; the germen afterward becomes an oval capsule with one cell, including one roundish seed. There are according to Linnæus four, and according to Miller five species of this plant, which is perennial, and may be propagated by cuttings, or by seeds; if by the former, they should be planted in a shady border, in either of the summer months. In a month or five weeks they will have good roots, and therefore should be then taken up and potted; for when they are left longer in the full ground, they will grow very luxuriant, and will not so soon recover their removal as those which are transplanted earlier. The plants are hardy, so may be exposed to the open air in the summer; and in winter, if they are sheltered in a common green-house with myrtles, and other hardy exotic plants, they will live several years.

The seeds of this sort seldom come up the same year when they are sown in the spring; but those which have fallen in autumn, have grown in the following year as well as those sown at the same season.

It revives the heart and brain; it stops fluxes; it resolves and fortifies; and is prescribed both internally and externally.

AMBROSIA is also used, by some of the *Ancient Writers*, to express what they judged to be the food of the BEES.

This substance is, by some, taken to be a gross or solid honey; and is contradistinguished from the liquid or purer sort, which is denominated *nectar*.

The *ambrosia* will not keep, and if not speedily spent, corrupts and turns sour, making what is sometimes called, *esses*, or *foppings*, or, after the Greeks, *sandyx*; highly offensive and pernicious to the hive. See PAPE *des Abeilles*.

AMBROSIA, in *Antiquity*, denotes a feast celebrated by the Accuians, in honour of Bacchus.

The *ambrosia* were also denominated *Choa* and *Lenæa*. They were held in the month called Lenæon.

AMBROSIAN *rite*, or office, denotes a particular office or formula of worship, used in the church of Milan, which is sometimes also called the *Ambrosian* church.

The denomination takes its rise from St. Ambrose, archbishop of Milan, in the fourth century, who is usually supposed to have been the author of this office. Yet some are of opinion the church of Milan had an office different from that of the Roman, and other churches of Italy, before the time of that father. In effect, till the time of Charlemagne, each church had its several office; and when in 1080 the pope took on him to impose the Roman office on all the other churches of the West, that of Milan sheltered itself from the imposition, under the name and authority of St. Ambrose; from which time, the phrase *Ambrosian rite* has obtained, in contradistinction to the Roman rite.

We also meet with the *Ambrosian chant*, or song, which was distinguished from the Roman, in that it was stronger and higher. See *Choral* SERVICE.

The public library of Milan is called the *Ambrosian Library*.

AMBROGIN, in *Middle Age Writers*, denotes a coin struck by the lords or dukes of Milan, wherein was represented St. Ambrose on horse-back, with a whip in his right-hand. The occasion of this coinage is said to have been a vision of that saint, who appeared to the Milanese general, in 1339, during the time of a battle.

AMBROSINIA, in *Botany*, a genus of the *gynandria polyandria* class of plants, with a single-leaved and divided *spatha*. There is only one species.

AMBRY: the place where the arms, plate, veſſels, and every thing belonging to houſe-keeping, were formerly kept.

Hence, probably, the *Ambry* at Weſtminſter was ſo called, becauſe formerly ſet apart for that uſe: or rather, from *aumonery*, a houſe adjoining to an abbey, in which the charities were laid up and diſtributed to the poor. The word is ſtill uſed in Scotland, in the ſame ſenſe.

AMBUBAJÆ, in *Antiquity*, a kind of wanton miniſtrels about Rome, who lived by playing and dancing in places of reſort, and proſtituting their bodies for hire.

Authors ſpeak as if there had been a regular college, or community of *ambubajæ*, and that theſe were the ſame with what were otherwiſe called *citharistæ*. Some ſuggeſt that the *ambubajæ* were of the male kind, only dreſſed in the habit of women.

Antiquaries have been greatly divided about the *ambubajæ*; ſome will have them to have come to Rome out of Syria; others ſuppoſe them to have been Roman women, though called by a name of Syriac origin.

Torrentius, Turnebus, and Salmaſius, derive the name from *ambo*, or *am*, an old Latin prepoſition, denoting *circum*, *about*, and *Baiæ*, a delicious place near Naples; and maintain, that the *ambubajæ* were a kind of courtezans, who frequented the baths of that city. Cruquius is of a different opinion, taking the word *ambubajæ* to have been uſed for *ambubeja*, and primarily to denote a ſeller of *ambubeja*, an herb mentioned by ancient naturaliſts. Theſe ſellers of *ambubeja* being a kind of empirics, their name became afterwards applied to all charlatans and quacks.

Hoffman has a diſcourſe on the *ambubajæ*.

AMBUBEIA, in *Botany*, a name given, by ſome authors, to wild ſuccory.

AMBULANT, or AMBULATORY: they give in *France* the name of *ambulant* commiſſioners to thoſe commiſſioners, or clerks of the king's farms, who have no fixed office, but viſit all the offices within a certain diſtrict, to ſee that nothing be done in them againſt the king's right, and the intereſt of the farm.

AMBULANT is alſo uſed to denote thoſe brokers at Amſterdam, or exchange-agents, who have not been ſworn before the magiſtrates. They tranſact brokerage buſineſs, but their teſtimony is not received in the courts of juſtice.

AMBULATION, or walking. See EXERCISE.

AMBULATION, in *Phyſic*, is uſed by ſome for the ſpreading of a gangrene or mortification.

AMBULATORY, a term anciently applied to ſuch courts, &c. as were not fixed to any certain place; but held ſometimes in one place, and ſometimes at another.—In oppoſition to ſtationary courts.

The word is formed from *ambulare*, to walk.

The court of parliament was anciently *ambulatory*; ſo alſo were the courts of king's bench, &c.

We ſometimes alſo ſay, in a legal ſenſe, a man's will is *ambulatory*, to the time of his death; meaning, that he has it always in his power to revoke it.

AMBULON, in *Botany*. See *Sweet* WILLOW.

AMBURBIUM, or AMBURBIALE *Sacrum*, in *Antiquity*, a religious feaſt, or ceremony, practiſed among the Romans, wherein they made proceſſions around their city. Hence alſo we have *amburbiales victimæ*, the victims carried along in the proceſſion, and afterward ſacrificed.

The word is compounded of *ambo*, *I go round*; or of *amb*, or *ambo*, an ancient prepoſition, ſignifying *around*, and *urbs a city*.

Scaliger, in his notes on Feſtus, followed by many others, maintains the *amburbia* to be the ſame with *ambarvalia*. Servius, however, expreſly diſtinguiſhes between the *amburbia* and *ambarvalia*, and ſays, the one was performed in the city, and the other in the country.

AMBURY, or AMBURY, a name given, by our farriers, to a kind of ſoft and ſpungy ſwelling growing on the bodies of horſes, ſomewhat ſore to the touch, and full of blood. The method of curing it is, to tie a horſe-hair very hard round it, at the root: in about a week after this it will fall off, and the part is then to have ſome powder of verdigris ſtrewed upon it, to prevent the return of the complaint, and finally to be healed up with the common green ointment.

This is the common method when the *ambury* is high and prominent; but ſometimes it is flat and low, with a broad baſe: in this caſe, it is impoſſible to take it off by ligature, and there is a neceſſity of having recourſe to a ſeverer operation. It muſt in this circumſtance be taken away either by the knife or fire; if the former way be agreed on, the method is this: the ſkin is to be drawn back tight, and then the whole ſwelling cut off cloſe to the common level of the reſt of the fleſh: if in the other way, an iron is to be heated red-hot, and applied to it, continuing it on till the whole is burnt down to the even fleſh. In both caſes, care muſt be taken not to ſpare in the cutting or burning, ſo as to leave any root behind, for then the complaint will be renewed. When it is taken off, the common ointment of hog's-lard, and turpentine, will complete a cure. There are ſome circumſtances, however, in which the knife and cautery may be both unneceſſary, as, if it grows in a downy part, or the like: in this caſe, the proper method is, to cut out the core with oil of vitriol, or white arſenic, and then ſtop the hole with flax dipped in honey, and time will do the reſt. Some for the firſt day or two dip it only in the white of an egg, and after that, in the mixture of quick-lime and honey; and this ſeems the better way.

Many of our farriers boaſt of a ſecret, which infallibly cures all kinds of protuberances of this kind, the preparation of which is this: take three ounces of green vitriol, and one ounce of white arſenic; beat them to a coarſe powder, and put them into a crucible; place the crucible in the midſt of a charcoal-fire, ſtirring the inſtance, but carefully avoiding the poiſonous fumes; when the whole grows reddiſh, take the crucible out of the fire, and when cool, break it and take out the matter at the bottom; beat this to powder in a mortar, and add to four ounces of this powder five ounces of *album rhaſis*; make the whole into an ointment, and let it be applied cold to warts, rubbing them with it every day: they will, by this means, fall off gently and eaſily, without leaving any ſwellings. It is beſt to keep the horſe quiet, and without working during the cure. What horſe remain on the parts which the ſwellings fall off from, may be cured with the common application, called the *countryman's* ointment.

AMBUSCADE, AMBUSH, AMBUSHMENT, a body of men who lie in a wood, &c. in readineſs to ruſh out upon, or incloſe an enemy unawares.—Or, the place wherein ſuch a corps hide themſelves.

AMBUSTIO, in *Medicine*, a BURN.

AMBUTUA. See PAREIRA *Brava*.

AMEA, in *Botany*, a name given, by the natives of Guinea, to a plant which they uſe in bleedings at the noſe, drying and powdering the leaves, and ſnuffing up the powder. It ſeems to be of the family of the plant called *peponoides*, by Sir Hans Sloane, in his Jamaica Catalogue. Its leaves are large and ſhated, and of a beautiful green, even when dried. Phil. Tranſ. N° 232.

AMEDEI, *Amedæi*, a congregation of religious in Italy, inſtituted in 1465.

Their name is formed of the Latin *amans Deum*, q. d. *lover of God*, or rather of *amatus Deo*, *beloved of God*.

The *Amedei* wore a grey habit, and wooden ſhoes: had no breeches, and girt themſelves with a cord. They had twenty-eight convents, and were united by pope Pius V. partly with the Ciſtercian order, and partly with that of the Servantini, or wooden-ſhoe wearers.

AMEIVA, in *Zoology*, the name of a Braſilian ſpecies of lizard, reſembling the *teguixin* in figure, but having a bifid tail. This is Margrave's account of it; but Mr. Ray very judiciouſly queſtions the fact, not believing that there is in nature any ſuch ſpecies. Probably indeed it is only an accidental variety of the TARAGUIRA, or ſome other common lizard, perhaps from a wound, or other accident; perhaps from the egg, as we have lately ſeen from Barbadoes a ſnake with two heads, taken out of an egg of ſome common kind; for aſſuredly there never was any ſuch ſpecies as a two-headed ſerpent.

AMEL. See EMMER.

AMELLUS, in *Botany*, a name uſed, by ſome authors, to expreſs the CALTHA *paluſtris*, or *marſh*-MARYGOLD; and by Virgil, for the ASTER *atticus*.

AMELLUS is uſed by Linnæus to denote a genus of plants of the *ſyngeneſia polygamia ſuperflua* claſs: with a chaffy receptacle, ſimple flower, imbricated calyx, and undivided ſeminal.

Of this genus there are two ſpecies.

AMEN, a church-term, uſed at the concluſion of all ſolemn prayers, &c. and ſignifying, *ſo be it, or ſo.*

The Hebrews had four kinds of *amen*. That moſt mentioned they called *amen pauli*, which was accompanied with the greateſt attention and devotion: to this ſenſe the word has paſſed in almoſt all languages, without any alteration.

Some authors are of opinion, that the word *amen* is formed of the initial letters of theſe words, *Adonai*, *Melech*, *Neeman*, *Dominus Rex Fidelis*; an uſual expreſſion among the Jews, when they would give weight or attention to any thing they ſaid. In effect, it is known, that to expreſs the words אדני מלך נאמן *Adonai Melech Neeman*, in the ordinary way of abbreviature, the rabbins only take the initial letters, which, joined together, are really the letters of the word אמן *amen*.

On the other hand, there are ſome of the Cabbaliſts, who, according to their uſual manner of finding a myſterious meaning in words, which they call *notaricon*, out of the letters of the word *amen* form the whole phraſe, *Adonai Melech Neeman*.

Yet

Yet it is certain also, that the word *amen* was in the Hebrew tongue before ever there were any such things as cabbala or cabbalists in the world; as appears from Deuteronomy, chap. xxvii. *ver.* 15.

The primitive of the word *amen* is the verb *aman*, which, in the paſſive voice, ſignifies to be true, faithful, conſtant, &c.—Hence came the noun ⁊ⁿ *amen*, which ſignifies *truth*. And, laſtly, of this noun *amen* they make a kind of affirmative adverb, which, when placed at the end of any phraſe, or propoſition, ſignifies, *it is it, be it true, I acquieſce in it*, &c. Thus, in the paſſage above cited from Deuteronomy, Moſes ordered the Levites to cry aloud to the people, *Curſed is he that makes any graven or molten image, &c. and all the people ſhall ſay amen*, i. e. yes, may he be curſed, we deteſt, we agree to it.—But at the beginning of a phraſe, as in ſeveral paſſages of the New Teſtament, it ſignifies, truly, verily.—When it is redoubled, or repeated twice together, as is always done by St. John, it has the effect of a ſuperlative; agreeably to the genius of the Hebrew tongue, and her two daughters, the Chaldee and Syriac.—To this ſenſe we are to underſtand *amen, amen, dico vobis*. The Evangeliſts uſually preſerve the Hebrew word *amen*, in their Greek ἀμὴν, though St. Luke ſometimes renders it by ναὶ, *truly*, or ναὶ, *certainly*.

AMENABLE, or AMENABLE, is applied in our law-books to a woman, who is ſuppoſed to be governable by her huſband.

It is likewiſe uſed to ſignify a right or power of bringing perſons before a particular juriſdiction: thus, we ſay, a perſon is *amenable* before ſuch a court, or magiſtrate.

AMEND, or AMENDE, in the French *Coſtume*, a mulct, or pecuniary puniſhment, impoſed by a ſentence of the judge; for any crime, falſe proſecution, or groundleſs appeal.

AMENDE HONORABLE denotes an infamous kind of puniſhment, uſed in France, &c. on traitors, on parricides, ſacrilegious perſons, and other heinous criminals.

It conſiſts in this, that the offender is delivered up to the common hangman, who having ſtript him to his ſhirt, and put a rope about his neck, and a wax taper in his hand, leads him to the court, where he is to beg pardon of God, the king, the court, and his country.

Sometimes the puniſhment ends here; and ſometimes death, or the galleys, are added.

The phraſe *amende honorable* is alſo uſed by way of alluſion, where a perſon is condemned to come into court, or into the preſence of ſome perſon injured, and make an open recantation, aſk pardon, &c.

AMENDMENT, in a general ſenſe, a change made in a thing for the better.

Amendment amounts to much the ſame with melioration, reformation, correction, &c.

AMENDMENT, more particularly uſed for a MANURE laid on the ground, to fatten or enrich it.

AMENDMENT, in a literal ſenſe, is uſed to denote the corrections and other alterations made in the paſſtive editions of books.

In this ſenſe, *amendments* are alſo denominated emendations.

AMENDMENT, in *Law*, the correction of an error committed in a proceſs, and diſcovered before judgment.

If the error be committed in giving judgment, viz. if a wrong judgment be given, there they cannot amend it; but the party aggrieved muſt bring his writ of error.—However, where the fault appears to be in the clerk who writ the record, it may be amended; chiefly if it be in matter of *fact*, not in point of *law*.

Original writs are not amendable at common law, for if the writ be not good, the party may have another: judicial writs may and have been often amended. Indictments of treaſon and felony, writs of appeal, &c. are excepted out of the ſtatutes of *amendment*, though ſome things in them are *amendable* at common law. *Amendments* are uſually made in affirmance of judgments; and ſeldom or never to deſtroy them: and where *amendments* were at common law, the party was to pay a fine for leave to amend. Terms de Ley, 39. 8 Rep. 157. Palmer, 232. Mod. Caſ. 269. 3 Salk. 269.

AMENDMENT *of bills in Parliament*, means ſome alteration, made in the original draught; and we read of *amendments* of *amendments*, *amendments* or returns of repreſentatives, &c.

In caſes of wrong returns, ſo reported by the committee of privileges and elections, and voted by the houſe of commons, it is uſually ordered, that the returns be *amended* by the returning officer, according to the directions of the houſe, without iſſuing a new writ.

Amendments ought always to be in that houſe from whence the thing to be *amended* originally proceeded, though the directions for the *amendments* came from the other houſe. Hakew. Manu. of Paſſing Bills, p. 167.

AMENTACEOUS, in *Botany*, a term applied to the flowers of certain trees and plants, which are compoſed of vaſt number of *ſpices* or *anthers*, hanging down in form of a rope, ſuch as the hazel, &c.

AMENTUM, among *Alchemiſts*, denotes *alembic faſſion*.

AMENTUM, in *Antiquity*, a leathern thong faſtened about the middle of a dart, or javelin, whereby, after caſting it at the enemy, it might be drawn back again to the owner. The *amentum* ſerved alſo to increaſe the force of the ſtroke; for which reaſon, ſome of their great men refuſed to uſe it, as confiding wholly in the natural ſtrength of their own arms.

AMENTUM, in *Botany*. See CATKIN.

AMERADE, a kind of officers among the Saracens, anſwering to the governors of provinces among the Europeans.

The name is originally the ſame with that of *emir*.

AMERCEMENT, or AMERCIAMENT, in *Law*, a pecuniary puniſhment impoſed upon offenders, at the diſcretion of the court; frequently alſo called *miſeria arbitr.*

There is this ſtated difference between fines and *amercements*; that fines are puniſhments certain, and determined by ſome ſtatutes; but *amercements* are arbitrary impoſitions, proportioned to the fault and wholly at the mercy of the court.—Manwood, in his *Foreſt Laws*, makes another diſtinction; as if an *amercement* were a more eaſy and merciful penalty, and a fine a more ſharp and grievous one.

If *amercements* were too grievous, releaſe may be ſued by an ancient writ called *moderata miſericordia*.

Fines are alſo impoſed and aſſeſſed by the court; *amercements*, by the country: and no court can impoſe a fine, but a court of record; other courts can only *amerce*. 8 Rep. 39. 41. A town ſhall be *amerced* for the eſcape of a murderer in the day time; and if the town be walled, it is ſaid it ſhall be ſubject to *amercement* whether by day or night. 3 Inſt. 53.

By the ſtatute of *Magna Charta*, a freeman is not to be *amerced* for a ſmall fault, but proportionable to the offence, and that by his peers. 9 Hen. III. c. 4.

In the New Terms of the Law, *amercement* is ſaid to be properly a penalty aſſeſſed by the peers or equals of the party *amerced*, for an offence done; for which he puts himſelf upon the mercy of the lord.

Amercement tryal is uſed by ſome to denote a pecuniary puniſhment laid upon a ſheriff, coroner, or ſuch like officer of the king, by juſtices, for ſome offence or abuſe in his office.

AMERICAN *ſea-ſun-ſtone*, CORONA *ſolis marina Americana*, a name given by John Andrew Peyſonnel, M. D. F. R. S. to a marine inſect, becauſe of the reſemblance it bears to the flower called *corona ſolis*. The curious may ſee a very particular deſcription of it in the Philoſ. Tranſ. vol. 50. part II. N° 11. anno 1758. The gentleman who deſcribes it could not tell how it lived, or what its mechaniſm was, not being able, as he ſays, to diſtinguiſh either a mouth, or any *viſcera*, nor any other organ neceſſary to its nouriſhment.

AMERICIMA, in *Zoology*, the name of a Braſilian ſpecies of lizard, very ſmall, being not above three fingers breadth long, and of the thickneſs of a ſwan's quill. Its body appears ſquare; its whole back is covered with deep grey ſcales, and its head, legs, and ſides, with brown ones, and its tail with blue. All of them are very ſlothful, and extremely ſmooth to the touch. Its feet are ſcarce thicker than hogs briſtles. It is generally eſteemed a poiſonous animal. See *Tab. of Serpents* N° 35.

AMETHYST, in *Natural Hiſtory*, a precious ſtone of a violet colour, bordering on purple, frequently yellowiſh or reddiſh.

Plutarch ſays the *amethyſt* takes its name from its colour; which, according to him, reſembles that of wine mixed with water; and not from its preventing drunkenneſs, which, however, was a common opinion, and gave occaſion to its being hung about the neck of great drinkers.—Thoſe who aſcribe this virtue to the *amethyſt*, derive its name from the privative α, and μεθύω, *to inebriate*. See GEM.

There are divers ſorts of *amethyſts*.—The oriental, which is the hardeſt, the ſcarceſt, and moſt valuable, and which is of a deep purple colour; the German, which is of a violet colour; and the Spaniſh, which has the colour of a *pale*.

This *gem* is pellucid, the ſecond in degree of hardneſs from diamonds, fuſible by fire, which alſo deſtroys its colour. It is found among *quartz*, and is probably only a coloured quartz cryſtal. This ſtone may be imitated by adding to a frit of cryſtal glaſs eight parts of magneſia, and one part of zaffre. The purple of the *amethyſt* as well as the blue of the ſapphire, and the green of the emerald, are very periſhable, being all totally deſtroyed by a moderate degree of heat. Lewis. "The ſpecific gravity of *amethyſt* is between 2,6 and 2,7.

There are ſome oriental ſorts of a paler colour and others white,

white, and like the diamond. There are also beautiful ones found in the Pyrenean mountains, and in those of Auvergne.

Amethysts are dug in a hill named St. Sigmimont, two leagues from Vich, in Catalonia. They find the stones by following a vein of reddish or black earth, or a rein in the rock to coloured. They are all hexangular, and pointed like crystal. There are three sorts: the best are the blackish, or deepest violet; others are almost quite white; and some few are tinctured with yellow. Sometimes there is a great number found sticking together, like the Bristol diamonds; but these are never good: the best are found loose in the chinks of the rock, in a fatty reddish or yellowish earth. They take out this earth with long narrow knives, which enter the chinks; and then crumble it with their fingers to feel for the stones. Ray's Trav. p. 402.

The occidental *amethyst* is not extremely hard, but may be cut with a leaden wheel, smeared with emery moistened with water. It is polished on a pewter wheel with *tripoli*. It is easily engraven on, either in CREUX or RELIEVO.

Mr. Morin shewed Dr. Lister a huge block of French *amethyst*, two or three hundred pounds weight. Ray speaks of a mountain of *amethysts*. Spars and crystals tinged red and yellow, &c. are sold for *amethysts*. The false ones come from Germany, are tinged by vapours in the mines, and contain some lead.

Amethysts may be counterfeited by glass, to which the proper colour or stain is given. There were fine ones made in France, about the year 1690, which may even impose on connoisseurs, unless the stone be taken out of the collet.

The method of giving this colour to glass is as follows: take crystal-flint, made with the most perfect and fine tartar; then prepare a mixture of manganese in powder, one pound; zaffer prepared, one ounce and a half; mix these powders well together, and add to every pound of the frit, an ounce of this powder. Let it be put into the pots with the frit, not into the already made metal. When the whole has stood long enough in fusion to be perfectly pure, work it into vessels, and they will resemble the colour of the *amethyst*.

Some physicians distinguish a particular class of medicines, under the denomination of *amethystine, amethystina*, under which they comprehend all preservatives from drunkenness.

Among the medicinal qualities attributed to this stone, it is said to be good to stop a looseness, and to absorb the acid particles, when too much abounding in the stomach; which virtue it has in common with other alkaline substances.

AMETHYST, in *Heraldry*, signifies the purple colour in the coat of a nobleman, which in gentlemen's escutcheons below that degree, is called *purpure*; and in those of sovereign princes, *Mercury*.

AMETHYSTEA, *amethyst*, in *Botany*, a genus of the *diandria monogynia* class. The characters are: the flower has one leaf, which is cut into five equal pointed segments at the brim; it hath two slender stamens, which stand under the upper lip. After the flower is past, the germen becomes four naked seeds, shut up in the empalement.

We know but one species of the genus, viz. *amethystea*, Hort. Upsal. 9. Mountain upright *amethyst*. This plant is a native of the mountains in Siberia, from whence the seeds were sent to the imperial garden at Petersburgh.

It is annual, and hath an upright stalk, which rises about a foot high, and towards the top puts out two or three small lateral branches; these are garnished with small trifid leaves, sawed on their edges, and of a very dark green colour; at the extremity of the branches the flowers are produced in small umbels; these are of a fine blue colour, as are also the upper part of the branches, and the leaves immediately under the umbel; so that though the flowers are small, yet from their colour with those of the upper part of the stalk, the plants make a pretty appearance, during their continuance in flower. If the seeds of this plant are sown in the autumn, or are permitted to scatter, the plants will come up early in the following spring, and these will flower the beginning of June; but those sown in the spring will not flower until July.

When the plants come up, they will require no other care than to keep them clean from weeds, and where they are too close, to thin them, for they do not thrive when transplanted; the seeds, therefore, should be sown where they are to remain.

AMETHYSTINE is applied, in *Antiquity*, to a kind of purple garment dyed of the hue of *amethyst*.

In this sense *amethystine* differed from *Tyrian*, as well as from *hyacinthine* purple, being a kind of medium between both.

AMGAILA, or AMGAILAM, in the *Materia Medica of the Ancients*, a name given by Avicenna, and others, to a plant sometimes called ACANTHA *Arabica*, and *leucacantha* by the Greeks; the roots of which were called *hauban*, and much used in medicine by the Arabian physicians.

The *amgailia*, called also *furaha*, or *anuthai*, is described as a prickly herb, having roots like those of the cyprus, formed of several joints, or knots. They were used in stomachic and cardiac compositions, and were chosen by their lightness and good smell.

AMIA, in *Ichthyology*, the name of a very large sea-fish, called by some also *glaucus*, and by others *lucius*. It grows to a vast size, and in figure resembles the salmon. It is very common in the Mediterranean, and grows to four or five feet long.

AMIA is also the name of a fish called, by some authors, *pelamys*, but different both from the *pelamys sarda*, more usually called simply *pelamys*, and from the *pelamys* of the ancients, which was no other than the *thynnus*, or runny-fish, at a certain time of its growth.

This is, in shape and figure, very like the mackrel; it is common in the Mediterranean, and is brought to the markets of Italy, &c.

The *amia* is a species of the SCOMBER, in the Linnæan arrangement, and also the name of a genus of *abdominal* fishes.

AMIABLE *numbers*, denote numbers which are mutually equal to the whole sum of each others aliquot parts.—Such are the numbers 284 and 220. See NUMBERS.

AMIANTHUS, in *Natural History*, the name of a genus of fossils, of the class of the STEATITÆ; the characters of which are, that the bodies of it are flexile and elastic, and composed of short and abrupt filaments. See *Nat. of Fossils, Class* 1.

It has been a common error to confound the species of this genus one with another, and all with the several species of the *asbestus*, the consequence of which has been the loss of the art of spinning, and working the STEATITÆ into incombustible cloth.

Dr. Grew, in his Cosmologia Sacra, printed at London, in English, in the year 1701, observes, that the *amianthus* is full of parallel threads like silk hairs; and that it forms that diamonds, *amianthus*, and talc, both on account of their hardness, and because fire cannot spoil them, are composed of earthy and stony particles properly so called; and that it may be inferred from hence, that these bodies being of regular figures, are composed of regular atoms.

With regard to its medicinal virtues, not to speak of the fabulous properties attributed to it by Pliny, and others, it is said to resist poison, and to cure the itch.

It is the lightest and softest of all stones; its fibres are so flexible, that cloth has been made of them. It is indissoluble by acids, and was long thought unfusible by fire, till Mouf. d'Arcet discovered, that by violent and long continued heat it is fusible, and forms a black glass. By strong heat it is whitened and hardened so as to strike fire with steel, and become brittle. This stony concrete is of the talcky kind, though differing from talc in its external appearance. The shorter filaments that separate in the walking of the flour, may be made into paper in the common manner. For the method of its preparation for manufacture into cloth, see Phil. Trans. N° 277, and Dr. Lewis, in his edition of Neumann, p. 30.

The species of this genus, at present known in the world, are four, two of which are composed of larger, and two of finer or smaller filaments.

AMICABLE *lawyers, fauna amicabilia*, in *Antiquity*, are generally supposed to denote the seats in the Roman courts, wherein the advocates were placed. Some think that these had but little title to the denomination of *amicable*, and therefore will have the word to be here used for the benches wherein the *assessors*, or those called *judices pedanei*, were placed.

AMICABLE *compounder, amicabilis compositor*, is used by some ancient LAW-writers, for an ARBITRATOR.

AMICABLE, or *amiable compounder*, among the French, is a person who acts the part of a common friend, to reconcile two merchants or traders who have disputes, or are at law together. He differs from the *arbiter*, in that, in order to make the two disputants agree, he often prevails upon both to give up some part of their right or claim which an *arbiter* who performs the functions of a judge, is not, it seems, at liberty to do.

AMICABLE *society*. See ASSURANCE.

AMICIA. See AMELLUM.

AMICITIA.—*Tenure in* AMICITIA, is applied in *Ancient Writers*, to land granted freely, and of mere good will, to be enjoyed at the discretion of the donor.

AMICTUS, in our *Ancient Writers*, the uppermost of the

six garments, worn by priests; the others are *alba*, *cingulum*, *stola*, *manipulus*, and *planeta*. It was first found the neck, *Ne inde ad linguam transeat manducatum*; and covered the breast and heart, *Ne vanitates cogitet*.

This garment is otherwise called *amboligium*; sometimes *ambolagium*, *anagolagium*, and *humerale*. In ancient English writers it is called *amice*.

The *amict* is also worn by deacons, sub-deacons, and *acolouths*, when they officiate at the altar.

The priest and deacons in some dioceses, wear *amicts* on their heads from All-saints to Easter; though by the canons, they be expressly forbid to wear the *amict* without some considerable occasion.

Mr. Thiers asserts, that the use of *amicts* was introduced into the Latin church before the twelfth century. Dom. de Vert. maintains the contrary, chiefly from a figure of St. Fermin, first bishop of Amiens, supposed to have suffered martyrdom towards the beginning of the seventh century, whereon he is represented in his pontifical habit, with the *amict* on his head.

AMICTUS, in Roman *Antiquity*, denotes any upper garment worn over the tunica.

AMICULUM, in *Antiquity*, denoted an upper garment worn by the women. The *amiculum* is said to have differed from the *palla*; but wherein the precise difference lay does not appear. An *amiculum* was also in use among the men. This seems to have been the same with the *chlamys*, or *paludamentum*.

AMIDA, a god worshipped by the Japanese, who has many temples erected to him in the island of Japan, of which the principal is at Jedo. The Japanese have such a confidence in their idol *Amida*, that they hope to obtain eternal felicity by the frequent invocation of his name. One of the figures of this idol is represented at Rome.

AMID-SHIPS, a nautical term, denoting the middle of a ship, either with regard to her length or breadth.

AMIETES, cotton cloths which come from the East-Indies.

AMIGETI, in the Christian *Theology*, denote a kind of intellectual powers, or persons in the divine hierarchy.

The *amigeti* are represented as three in number, and constitute one of the triads, in the third order of the hierarchy.

AMINEUM *wine*, a name by which some of the medical writers have called white-wine vinegar, to distinguish it from other kinds. See AMINEA *Uva*.

AMIRANTE, a great officer in Spain, answering to the lord high-admiral in England.

AMISS *drawing*. See DRAWING.

AMISSA, *in*. See LEX.

AMITTERE *legem terræ*, a law-phrase, signifying the forfeiture of the right of swearing in any court or cause; or the becoming infamous.

This is the punishment of a champion overcome, or yielding in the combat; of jurors found guilty in a writ of attaint; and of perfons outlawed. Vide Glanvil. lib. ii. and fee the ftat. 5 Eliz. cap. 9. against *perjury*.

AM-KAS, in *Hiftory*, a name given to a fpacious falloon in the palace of the great Mogul, where he gives audience to his fubjects; and where he appears on folemn feftivals with extraordinary magnificence. His throne is fupported by fix large fteps of maffy gold, fet with rubies, emeralds, and diamonds; and eftimated at 60,000,000*l*.

AMMA, or HAMMA, from *amao*, to mow, a girdle or truls ufed in ruptures, to hinder the inteftines from bearing down into the fcrotum.

AMMA, in *Ecclefiaftical Writers*, denotes a fpiritual mother. In this fenfe, the word was chiefly underftood of an abbefs, or fuperior of a nunnery.

AMMAN, in the German and Belgic *Polity*, denotes a judge who has the cognizance of civil caufes.

The word is alfo written *amant*. Thus it occurs in writers on the French officers, where it ftands for a notary, or parochial officer, who draws acts or inftruments.

AMMANNIA, in *Botany*, a genus of the *tetrandria monogynia claſs*, in the Linnæan fyftem; the characters of which are thefe: it has a bell-fhaped empalement, divided at the brim into four fmaller parts; the flower hath no petals; it has four fmaller ftamina, which are inferted in the empalement; the empalement afterward becomes a round capfule with four cells, which are filled with fmall feeds. Linnæus mentions three and Miller two fpecies of it; the firft grows naturally in moift places in Jamaica, from whence Dr. Houftan fent the feeds to England. It grows about a foot high, with an upright fquare ftalk, and long narrow leaves, in form of a triangle, whofe bafe half furrounds it. The fecond fort grows naturally in Virginia and Carolina; this is an annual plant, which rifes about a foot high, with red fucculent ftalks, putting out fide-branches, which grow oppofite: the flowers are produced fingle from the wings, on the lower part of the branches.

AMMI, in *Botany*, called *ammoides*, by Boerhaave. See Ellior's *Bot.*

AMMI, or *Semen* AMMEOS, a kind of aromatic feed, of fome ufe in medicine; the produce of the plant above mentioned.

This feed is brought from the Levant: it is found to contain a great deal of eſſential oil, and volatile fal[illegible] to be attenuating, aperitive, hyſteric, carminative, [illegible]phalic, and alexipharmic; being one of the four hot feeds. It expels wind, provokes the menſes, [illegible]. It is alſo thought to have the property of reſiſting poiſon, and to be good againſt the bites of ſerpents. According to Lemery, the plant takes its name *ammeos*, from *ammos*, *arena*; its ſeeds being very like grains of ſand.

AMMINEA *uva*, in *Botany*, a name given by the old writers, to the grapes of a wild vine, common in the hedges of Italy, and ſome other places. They uſed to make wine of theſe grapes, which they mixed with other richer wines, and had in common uſe.

Some write the word *tamines*, inſtead of *amminea*.

AMMITES, in *Mineralogy*, a kind of figured ſtone, of a looſe open contexture, formed of a number of ſmall globular ſtones.

Ammites is the ſame with what is otherwiſe called *ammonites*. The word is derived from *ammos*, *ſand*; becauſe the *animales* appear to the eye as a compoſition of large ſand. The *ammites* is found in divers countries of Germany, &c. of different colours, as well as different degrees of hardneſs. It bears a near reſemblance to the cochlea.

AMMOCETUS, in *Ichthyology*, a name given by Gesner, and ſome others, to the AMMODYTES, or ſand-eel; called alſo *tobianus*, by Schonevelde and others.

AMMOCHOSIA, from *ammos*, *ſand*, and *χεω*, *I lay along*, in the *Materia Medica*, a kind of remedy, or operation for drying the body, by lying along on warm ſand, and having the body covered with it. Some prefer fait for this purpoſe to ſand.

AMMOCHRYSOS, from *ammos*, *ſand*, and *χρυσος*, *gold*, a name given by authors to a ſtone very common in Germany, and forming to be compoſed of a golden ſand. It is of a yellow gold-like colour, and its particles are all very glofſy, being all fragments of a coloured cube. It is eaſily to ſoft as to be eaſily rubbed to a powder in the hand; ſometimes it requires grinding to powder in a mortar, or otherwiſe. It is alſo uſed as ſand to ſtrew over writings. The Germans call it *bartzgold*; and there is another kind of it leſs common, but much more beautiful, conſiſting of the ſame ſort of glofſy ſpangles, but thoſe not of a gold colour, but of a bright red, like vermillion.

AMMOCHYSUS, in *Natural Hiſtory*, a kind of gem, ſuppoſed to be the ſame with the *coralloides*.

AMMODYTES, in *Zoology*, the name of a ſpecies of ſerpent, called alſo *ſerpens cornutus* by ſome, from certain protuberances in the head. It is about the ſize of the viper, and is of a yellowiſh or ſand colour. Its head is ſhaped like that of the viper, but its jaws are wider; and, in the upper part of its head, it has a ſort of wart-like excreſcence, which is ſuppoſed to reſemble a horn; and thence its name of *ſerpens cornutus*, as it has in other of *ammodytes*, or ſand-ſnake, from its ſand-like colour, or from its quality of ſometimes running under the ſands. It is found in Lybia, and in ſome parts of Italy.

AMMODYTES, in *Ichthyology*, the name of a genus of fiſh, characterized of which, according to Artedi, are theſe: the *branchioſtege* membrane contains on each ſide ſeven bones, but theſe are, in great part, hid by the *lamina* of the *operculum*. The head is compreſſed, the body oblong and ſlender, nearly cylindrical, but a little compreſſed, and it has no belly-fins. The fiſh is of the *malacopterygious*, or ſoft-finned kind; and the characters of the ſpecies, enumerated by Artedi, are theſe: The lower jaw is the longeſt; the lateral lines are double, or two on each ſide: the pectoral fins have each twelve rays; the back-fin five fifty-four; that of the anus twenty-eight: the tail is bifid, and has fifteen long rays: the mouth is toothleſs; the anus is nearer to the tail than the head. We call the fifth the *ſand-eel*. Schonevelde, the *ichneumon*. The fiſh is commonly found at about half a foot deep under the ſand, when the tide has run out, and caught there with iron hooks, with which the fiſhermen pull them out.

The name is formed of *ammos*, *ſand*, and *δυνω*, *a diver*, expreſſing the quality of this creature, to dive into, or bury itſelf under the ſand.

This genus belongs to the order of *apodes*, in the Linnæan ſyſtem.

AMMON, or HAMMON, in *Antiquity*, an epithet given to Jupiter in Lybia: where was a celebrated temple of that deity under the denomination of Jupiter *Ammon*.

There has been a great diſpute about the origin of this name.—Some derive it from *ammos*, *ſand*; becauſe the temple was ſituate in the burning ſands of Lybia; others borrow it from the Egyptian *Amun*, a ram; as having been firſt diſcovered by that animal.—Others will have

Ammon

Ammon to fignify the fun, originally derived from *Ham*; and the horns wherewith he is repreſented, the ſun-beams. Plutarch ſays, that of all the Egyptian names which ſeemed to have any correſpondence with the Zeus of Greece, *Ammon*, or *Amun*, was the moſt peculiar and adequate. Bryant's Mythol. vol. I. p. 5.

However this be, Jupiter *Ammon* was uſually repreſented under the figure of a ram; though in ſome medals he appears of a human ſhape, having only two ram's horns growing out beneath his ears.

AMMONIAC. *Gum* AMMONIAC, or as it is ſometimes, though improperly, called ARMONIAC, is a kind of gum, brought from the Eaſt Indies, and is ſaid to oozе from an umbelliferous plant.

Dioſcorides ſays, it is the juice of a kind of *ferula*, growing in Barbary; and that the plant which produces it was called *afaſtilis*.

Pliny calls the plant whence it flows, *metopion*; and ſays the gum takes its name from the temple of Jupiter *Ammon*, nigh which it grows. But it is much to be queſtioned whether we have at preſent the *gum ammoniacum* deſcribed by the ancients; and indeed their deſcriptions of that drug ſeem to evince that we have not.

The good *ammoniac* ought to be in dry drops, white within, yellowiſh without, eaſily ſuſible, reſinous, ſomewhat bitter, and of a very ſharp taſte and ſmell, ſomewhat like garlick. It ſhould alſo be of a pale colour, and not mixed with any ſcrapings of wood, ſtone, or ſand; this by the Greeks was called *commun. fragment.* The other, which is full of ſtone or ſand, was called *commun.* that is, *mixture.*

Some ſay, this gum ſerved the ancients for incenſe in their ſacrifices. It is a *gum reſin*, from an ounce of which ſix drams may be diſſolved by ſpirit of wine, or ſix drams two ſcruples and a half may be diſſolved by water. Neumann.

It enters ſeveral medicinal compoſitions, as an attenuant and detergent, againſt diſorders ariſing from viſcidities and grumes. Outwardly applied, it is reſolutive and ſuppurative; and, as ſome ſay, will of itſelf draw out ſplinters, &c. This gum contains plenty of eſſential, or volatile oil, ſome phlegm, and earth.

Some diſſolve the gum in vinegar, and other liquors, and call theſe *ſal ammoniacs*; much uſed in aſthmas, and obſtructions of the lungs. It is frequently alſo given in pills. It is often adulterated with common roſin.

AMMONIAC, *ſal*, is *natural* and *artificial*.

AMMONIAC, *ſal, natural*, is a neutral ſalt, compoſed of marine acid, and of volatile alkali; combinations of other ſalts with volatile alkalies are alſo called, from the name of this ſalt, *ſal ammoniac*, more uſually written *ammoniac*.

AMMONIAC, *ſal, mineral*, uſed by the ancients, was found in the ſands of Lybia, near the temple of Jupiter Ammun, from whence it derives its name. It was ſuppoſed to be generated in thoſe ſands from the urine of camels. Nor will this appear ſtrange, if we ſuppoſe thoſe ſands to be naturally impregnated with common ſalt; for then the urine of thoſe animals, by the intenſe heat of the ſun, muſt cauſe a fermentation, which will unite the acid of the common ſalt with the urinous ſalt, and conſequently produce *ſal ammoniac*. What the ancients called by this name is ſuppoſed to be a ſpecies of *ſal gem.* M. Lemery had a ſalt taken from mount Veſuvius, which they call *mineral ſal ammoniac*. It was of a compoſed ſubſtance, pretty tranſparent, very white, and the inſide cryſtalline; it would not attract much humidity from the air, but no ſmell, was of an acid ſaline taſte, and very much like that of *ſal ammoniac*. Hiſt. de l'Acad. Roy. des Scien. 1703.

The true *modern ſal ammoniac* is never found native, at leaſt in any tolerable pure ſtate, or in ſuch quantities as to anſwer the demands of arts.

AMMONIAC, *ſal, artificial*, or common *ſal ammoniac*, is chiefly brought from Egypt; and though there is hardly a more common drug, it is but very lately we have known in what manner it is made. M. Lemery, who was reſident at Grand Cairo, in the year 1720, has given us the following account of the method uſed by the Egyptians, in making *ſal ammoniac*.

'Concerning *ſal ammoniac* (ſays he), I ſhall obſerve, 1. the matter. 2. The veſſels that contain it. 3. The diſpoſition of the furnaces. 4. The manner of working. 5. The quantity and uſe of that ſalt.

'1. The *matter* is pure ſoot, and nothing elſe; but ſuch as is ſwept from chimneys, where they burn tufts of the dung of animals fed with ſtraw, which is the common fuel of the country. Theſe tufts, which are impregnated with alkaline and urinous ſalts, communicate to the ſoot certain properties, which it could not be expected to receive from the ſmoak of wood or coal, and yet are abſolutely neceſſary for the production of *ſal ammoniac*.

'2. The veſſels which contain the matter, are exactly of the figure of bombs. They are large round glaſs bottles, a foot and a half in diameter, with a neck two fingers in height. They cauſe over their bottles with a fat earth, and all theſe with ſhot to four fingers ſhort of their neck, which continues void and open. They contain each about ſixty pounds of ſoot, which at the end of the operation, yield ſix pounds or more of *ſal ammoniac*, according to the goodneſs of the ſoot.

'3. The furnaces are built like our common ovens, excepting that their vaults are perforated with ſeveral longitudinal clefts; upon each cleft are four bottles, placed in ſuch a manner, that the bottom of the bottle being funk in, and expoſed to the action of the flame, only the neck of the bottle continues expoſed to the air, the parts of the cleft contained between the bottles being ſtrongly cloſed with cement. Every furnace has four clefts, and conſequently contains fifteen bottles, and a very great laboratory conſiſts of eight furnaces, diſpoſed in two rooms; ſo that there are at once an hundred and twenty-eight bottles employed.

'4. In each furnace, for three days and eight ſucceſſively, there is kept up a conſtant fire, made of the dung of animals, mixed with ſtraw. The firſt day the thick phlegm of the ſoot exhales in a thick fume through the neck of the bottle. On the ſecond, the acid and alkaline ſalts being ſublimed, coaleſce and harden near the necks of the bottles. The third day the coagulation continues, depurates, and is finiſhed. In the mean time, they make a ſmall hole in the fire, a little below the neck of each bottle, to ſee if the matter be ſufficiently baked, and all the ſalt ſublimed. After making theſe obſervations, they carefully ſtop the hole with lute, and open it from time to time as they ſee occaſion. When the operation is finiſhed, they take out the fire, break the bottles, and ſeparate the aſhes from the ſublimed ſalts, or *ſal ammoniac*, which is a round, white, tranſparent ſubſtance, three or four fingers thick.

'5. In two towns of the Delta, near each other, a league from the city of Munſoure, there are twenty-five large laboratories, and ſome ſmall ones, which make every year fifteen hundred, or two thouſand quintals, of *ſal ammoniac*. In all Egypt beſide there are but theſe laboratories more, two of which are alſo in the Delta, and the other at Grand Cairo, which do not produce above twenty or thirty quintals of this ſalt.' Idem. de l'Acad. Roy. des Scienc. 1720.

Some, however, doubt whether ſo prodigious a quantity of ſoot can be furniſhed by ſuch a country as Egypt, whoſe climate is ſo warm, that fires are only uſed for culinary purpoſes, and for baginios; and therefore conclude, that the Egyptians have had the addreſs to keep the proceſs a ſecret from the Europeans, and that they uſe ſome other materials than ſoot; and it is ſaid that very good *ſal ammoniac* may be made without any ſoot at all.

Ammoniac ſalt is principally uſed by whitners of copper-veſſels, and goldſmiths; and is a noted drug with chymiſts and phyſicians. F. Sicard, a miſſionary, and an eye-witneſs, ſays they add a little ſea ſalt and urine of beaſts. Mem. de l'Acad. Roy. des Scienc. 1720.

See the method of making *ſal ammoniac* in Egypt, as communicated by Dr. Libanius, from his pupil Dr. Haſſelquiſt. His account does not eſſentially differ from that above recited. Phil. Tranſ. vol. ix. N° 48. an. 1760.

AMMONIAC is ſometimes made by the chemiſts of urine, ſea-ſalt, and wood-ſoot, boiled into a maſs, and then ſublimed.

We are told, that at the works carried on lately at Newcaſtle, *ſal ammoniac* was made from *urine* and *brine*; and it is further ſaid, that from one hundred weight of ſalt made from *brine*, ſold under the name of Epſom ſalt, and three boſtheads of urine, fifty-ſix pounds of *ſal ammoniac* may be procured.

AMMONIAC, *ſal, properties of*. It is ſoluble in four times its quantity of water; and if the ſolution be duly evaporated, it ſhoots into thin oblong ſublimates, reſembling feathers. *Sal ammoniac* neither coagulates milk, nor changes the colour of a ſolution of ſublimate; it makes a conſiderable efferveſcence with the vitriolic acid, attended with a great degree of cold. Expoſed to a conſiderable heat, it totally ſublimes; and if previouſly ground with metallic, and certain other powderous ſubſtances, elevates ſome part of them along with itſelf, and concretes with the reſt into a maſs, which expoſed as a moiſt air, readily flows into a liquor. Mixed with a due quantity of alkaline ſalts, it yields, by a ſmall degree of heat, two-thirds its weight of pure volatile alkali; what remains in the ſubliming veſſel, being diſſolved in water, and cryſtallized, readily aſſumes the form of cubical cryſtals, like thoſe of common ſalt, the properties of which it likewiſe poſſeſſes. *Sal ammoniac*, mixed

mixed with nitre, and injected into a red-hot crucible, boils up, and emits flashes of light, and thus betrays its animal origin. Sublimed in a retort, with double its weight of chalk, it is said to be increased in its weight. See Mem. de l'Acad. des Scienc. 1735.

In this operation, as M. Duhamel has observed, a true decomposition of the *sal ammoniac* takes place by the intervention of the chalk; which combining with the acid of the salt, discharges its *fixable air*. This again combines with the volatile alkali of the *sal ammoniac*, and occasions that increase of weight, which Duhamel, and other chemists, erroneously ascribed to a part of the calcareous earth carried off during the operation.

A mixture of quick-lime and *sal ammoniac* set to sublime, affords an exceeding penetrating spirit, but gives nothing in the form of a solid salt: if the quantity of lime be considerable, a volatile alkaline part of the *sal ammoniac* will be almost totally absorbed by it.

The volatile alkali obtained by this process is called *volatile spirit of sal ammoniac*; as it is caustic, or uncombined with *fixable air*, it is always in a liquid state. Moreover, fixed alkali, either vegetable or mineral, and most metallic substances, are capable of decomposing *sal ammoniac*.

Lastly, of all salts, *sal ammoniac* most intensely cools the water, in which it is dissolved, whose coldness in hot weather equals that of water ready to freeze.

From what has been said, it appears that *sal ammoniac* is a neutral salt, compounded of a volatile alkaline salt, and an acid.

The *sal ammoniac* derives its name from the various kinds of acid forming the composition. And accordingly we have *sal ammoniac animal, nitrous, vitriolic*, and *vegetable*, denoting the different combinations of volatile alkali with these acids respectively. That formed by volatile alkali and vinegar, is called *spirit of Mindererus*.

But it must be observed, that *sal ammoniac* is a very different substance from most of the preparations made from it; for when alkaline salts are mixed with the crude *sal ammoniac*, they absorb the acid, which renders the *sal ammoniac* neutral; and then the volatile urinous salts, being freed from the acid, rise in distillation.

Boerhaave says, that *sal ammoniac* preserves all animal substances from putrefaction; that its brine penetrates into the most minute parts; and that it is the noblest aperient, attenuant, resolvent, stimulant, errhine, alexipharmatory, diaphoretic, sudorific, antiseptic, and diuretic. It is made use of in sundry mechanic businesses, by the dyers and glass-makers, but especially by those who work on metals, for the purpose of soldering.

There are several preparations of this salt made use of in the present practice of physic, as

AMMONIAC, *flos*, volatile, made by sublimating *sal ammoniac*, mixed with salt of tartar. It is used for pocket-smelling bottles; but Boerhaave, with the greatest appearance of reason, condemns the custom of smelling to these salts as highly pernicious. Some put aromatics into the retort, which give it a more agreeable smell. It is prescribed in malignant fevers as a sudorific.

AMMONIAC, *spiritus salis, spirit of sal ammoniac*. This is a spirit distilled from *sal ammoniac*, mixed with salt of tartar, or pot-ash, and diffolved in a proper quantity of water. Some use lime instead of salt of tartar, in order to increase its volatility; but this should never be used internally.

The *aqua regia*, with which so many experiments are made, particularly in diffolving gold, is made from *sal ammoniac* and nitre. But the most celebrated medicine now in the shops from this substance, is the

Spiritus salis ammoniaci anisatus, generally called *sal volatile*, the oily spirit of volatile salt. This is a spirit distilled from *sal ammoniac*, salt of tartar, and spirit of wine, impregnated with aromatic oil. There is also the

AMMONIAC, *spiritus salis, succinatus*, spirit of *sal ammoniac* with amber; which is reckoned to be cephalic, and exceedingly well suited to all nervous indispositions; its dose is from ten drops to forty.

AMMONIAC, *flores*, is a name given to the *sublimate* formed by decomposing *sal ammoniac*, with a calcareous earth. It is a salt compofed of that earth, and marine acid.

AMMONIACUM *regeneratum*, in *Chymistry*, the name given to a sort of *sal ammoniac*, procured by chemistry from its principles.

The method of preparing it is this: take four ounces of alkaline spirit of *sal ammoniac*, dilute it with three times its weight of water, in a tall glass, and drop in spirit of sea-salt, till the alkali is saturated, and no more effervescence happens. The saturation being nicely hit, the liquor will be scentless, and of the taste of *sal ammoniac*; let it be filtrated and evaporated, and it will shoot out a fine woolly salt; or if it be evaporated to a dryness, a white salt will remain, and either one or the other of these will be found to be true genuine *sal ammoniac*, capable of rising in flowers, and standing all the tests of the common *sal ammoniac*.

The volatile alkali of animal and vegetable substances, which of itself indifferently recovers all acids, is here determined, by the acid of sea-salt, into a semi-volatile sea-salt; hence the chemical rule, that acids are capable of determining alkalies into their own nature, seems to receive confirmation, while the alkali either gives [illegible] neals, or volatility, as itself is fixed, or volatile. [illegible] therefore, as a large quantity of volatile alkali is continually generated from putrified animals and vegetables, if there was in nature a spirit of sea-salt floating about in several places, *sal ammoniac* would, in these places, be continually produced; and the same spirit meeting with a fixed alkali, produced from the ashes of vegetables, would immediately produce a true fixed sea-salt, as appears by the process of the regenerated sea-salt.

But though it is easy to manifest these fixed alkalies by experiments, yet it is very difficult to shew the existence of such acids in nature, unless we had the secret of Mr. Boyle, who, in his treatise of Mechanical Experiments, declares, that by a secret and long continued digestion, sea-salt may be so disposed as to part with its acid, by a gentle heat, and that before its water, and without any addition of any other substance. Boerh. Chem. part ii. p. 261.

For the chemical history of this substance, see Neumann's Works, p. 312.

AMMONIS, *cornu*, in *Natural History*. See CORNU *Ammonis*.

AMMONITÆ, in *Natural History*. See SNAKE-*stone*, and Phil. Trans. abr. vol. 2. part ii. p. 644.

AMMOSCHISTA, in *Natural History*, a genus of stones of a laminated structure, and splitting only horizontally, or into flat plates.

The *ammoschista* are coarse, harsh, and rough stones, of a very loose texture, and appearing something porous. They are considerably heavy, and composed of a large, coarse, and obtusely angular GRIT, surrounded, and in part held together, by a loose earthy spar. They are very soft and friable in the mass, but much more so when reduced to small pieces. They make a violent effervescence with aqua fortis, and will not easily strike fire with steel.

The species of *ammoschista* are six.

AMMUNITION, in general, signifies all sorts of warlike stores and provisions, more especially powder and ball.

The word is *ammunire*, which, according to Du-Cange, was used in the corrupt state of that language for *fortification*.

Ammunition or gun-powder, may be prohibited to be exported at the king's pleasure, by 12 Car. II. cap. 4. sect. 13.

By 1 Jac. II. cap. 8. sect. 2. *ammunition*, arms, utensils of war, or gun-powder, imported without license from his majesty, are to be forfeited with treble the value. Such license obtained, except for the furnishing his majesty's public stores, is to be void, and the officer to incur a premunire, and be disabled to hold any office from the crown.

Whoever is curious to know the quantity of *ammunition* necessary for the siege of a place, may consult the chevalier de St. Julien's treatise De la Forge de Vulcain; and the quantity requisite for the defence of a place, will be found in Surrey de St. Remy's Memoires d'Artillerie.

AMMUNITION-*bread*, flour, &c. what is provided for, and distributed to, the soldiers of an army or garrison.

Such an officer has so many rations of *ammunition-bread*, &c.

AMNA, in *Physical Writers*, denotes the water found in tiny soils, and which is consequently tinged with a whitish colour, as in many places of England.

In this sense, Paracelsus speaks of the medical virtues and uses of *amna*.

AMNESTY, or AMNESTIA, from *a*, *not*, and *memini*, *I remember*, a kind of general pardon, which a prince grants to his subjects, by a treaty or edict, wherein he declares, that he forgets and annuls all that is past, and promises not to make any farther enquiry into the same.

The word is *amnestia*, *amnestie*, which was the name of an ancient law of this kind, passed by Thrasybulus upon the expulsion of the thirty tyrants out of Athens. Andocides, an Athenian orator, whose life is written by Plutarch, and of whom we have an edition of the year 1575, gives us, in his Oration upon Mysteries, a *formula* of the *amnesty*, and the oaths taken thereupon.

Amnesties are usually practised upon reconciliations of the sovereign with his people, after rebellions, general defections, &c.

Amnesty is either general and unlimited, or particular and restrained, though most commonly universal, without condition or exception: such as that which passed in Germany,

Germany, at the peace of Osnabrug, in the year 1648.

Amnesty, in a more limited sense, denotes a pardon granted by a prince to his rebellious subjects, usually with some exceptions: such was that granted by king Charles II. at his restoration.

Amnesty also, in a military sense, signifies the pardon granted by a sovereign to deserters, on condition of their rejoining their regiments.

AMNIMODAR, in *Astrology*, the planet that rectifies a genniture, or rather a method of rectifying a nativity, and finding the precise degree in the horoscope at the time of an infant's birth, from the condition of the planet, which had the rule in the last preceding conjunction, or opposition of the luminaries. Vital. Lex. Math.

AMNIOS, or AMNION, in *Anatomy*, the innermost membrane wherewith the *fœtus* in the womb is immediately invested.

The word seems to be derived from ἀμνὸς, *a lamb*; q. d. *pelis agnina, lamb's skin*.

The *amnios* is a white, soft, thin, transparent membrane; making part of the secundine, and lying under the *chorion*. The existence of the *amnios* in human subjects is questioned; but the *amnios* is found in all animals both viviparous and oviparous. Dr. Hunter says, that the *amnion*, viewed in the microscope, appears to have blood-vessels, but that they are really lymphatics.

It contains a limpid liquor, like a thin jelly-broth; which, because the stomach of the *fœtus* is always found full of it, is supposed to be the matter of its nourishment.

But authors differ widely as to the quantity and quality of the liquor of the *amnios*.

The liquor of the *amnios*, according to Mr. Monro, serves to keep the *fœtus* and its membranes soft and extensible, hinders them from cohering, and defends the *fœtus* from pressure and other violence, which it needs most to be protected from, while its parts are very tender.

It is a question, however, whether the liquor of the *amnios* be a proper food for the *fœtus*. Mr. Monro is of opinion, that whether the liquor of the *amnios* be in a sound or in a morbid state, it appears to be very ill calculated for serving as food to be taken into the stomach of a *fœtus*.

It is also controverted, whether the liquor of the *amnios* passes into the stomach of the *fœtus*. Mr. Monro asserts, that the liquor of the *amnios* does not pass into the stomach of the *fœtus*; and answers the arguments brought by several learned men for the contrary opinion. Medic. Ess. Edinb. vol. i. and ii.

On its outside lies the *allantois*, or urinary membrane. In some subjects, the urinary membrane and *chorion* flick so close to one another, that they appear to be but one. The *amnios* hath all its vessels from the same origin as the *chorion*.

See some observations, proving that the *fœtus* is in part nourished by the liquor *amnii*, by Malcolm Fleming, M. D. Philof. Transact. vol. xlix. part i. N° 42. an. 1755.

AMNIS *alkalifatus*, among *Chemists*, denotes water impregnated with an alkalious quality, by passing through a lime or other alkaline substance under ground.

This amounts to much the same with what Paracelsus calls AMSA.

AMNITES, in *Natural History*, a name used by some for the *hamatites*, or spaw-stone, a stone supposed to be composed of the petrified spawn of fishes; but they are, in reality, a *congeries* of small STALAGMITÆ, or drop-stones.

AMŒBÆUM, in the *Ancient Poetry*, denotes a kind of poem, or composition, wherein two parties speak alternately in the same number of verses, but so as that he who answers, either goes beyond or contradicts the other.

The word is *amœbæus*, signifying *mutual* or *alternate*. Hence also we meet with *tripodes amœbæi*. Such, e. g. are those of Pliny and Dares.

AMOGABARI, a kind of ancient Spanish soldiers, in great repute for their bravery.—These are otherwise denominated, by some writers, *almogavares*.

AMOGLOSSUS, in *Ichthyology*, a name of a peculiar kind of flat fish, somewhat resembling the sole, and called in some parts of England, the *smear*. It is of a very slender, pellucid, and white body, never exceeds three inches in length, and is exceedingly smooth to the touch, being covered only with a number of very thin scales, which fall off on touching it. Its flesh is very finely tasted, and requires very little dressing.

AMOMI is used, by the Dutch traders, for what we otherwise call Jamaica pepper.

AMOMUM, in *Botany*. See GINGER.

AMOMUM *of Pliny*. See SOLANUM.

AMOMUM, in the *Materia Medica*, a small and rich aromatic fruit, growing in bunches like grapes, valued highly for its medicinal virtues. It is commonly chused among the *feeds*.

The commentators on Pliny and Dioscorides, have never been able to agree upon the ancient *amomum*; the generality of them seek it in fruits different from one's. Some will have the rose of Jericho pass for it.—F. Camelli is positive he has discovered the real *amomum* of Dioscorides, and that it is the *tapos* or *tiras*, or *zarapi*, growing in the Philippine islands; the grains or berries whereof are worn by the natives about their necks; both on account of their agreeable odour, and of their supposed virtue in preserving from infection, during the rising of the scolopendra, &c. Phil. Trans. N° 248.

Scaliger is confident, that the *amomum* of the ancients was not a fruit, but the wood itself, which bore some resemblance to a bunch of grapes, and was particularly used in embalming of bodies; and hence, says he, the term MUMMY was given to the bodies of Egyptians, embalmed with it. On this account, likewise, all medicines and unguents used in the embalming and preserving of dead bodies, were called *amomia*.

The ancient *amomum* was of divers kinds; but the Armenian was most esteemed. It was a heater, dryer, and astringent; used as a cardiac, to appease pain, cure poisonous bites, inflammation of the eyes, &c.

The true *amomum* of the ancients resembles the muscat grape, and grows like it, in clusters; it is about the bigness of a large chich-pea, round, membranous, and divided into three cells, which contain several brown angular grains; of a very strong aromatic taste and smell; and is of the cardamum kind.

This fruit is brought from the East Indies; and makes part of the composition of Venice treacle.—It is of a hot, spicy taste and smell.

Besides this, there is likewise another paler sort, which bears the name *amomum*; but neither this nor the former are much used in physic.

The modern *amomum*, used in the shops, under the denomination of *amomum vulgare*, or *amomum officinarum*, appears to be the seed of the *siser* or *sium* of the ancients, answering to what in English we call *hollow-stone* PARSLEY.

It is esteemed a powerful diuretic, and is good in all nephritic cases. It is also commended as an aperient in general, and prescribed in obstructions of the liver and spleen, and in suppressions of the menses. The people in some parts of England bruise the seeds, and give them in warm ale, in colics; but those of caraway, or anise, are better. See SKIRRET.

AMORÆANS, from "ΧΝ, *Amri*, a self or order of *gamaliel* doctors or commentators on the Jerusalem Talmud.

The word is otherwise written *amorai*, and *amoraim*, *amoraim*.—The *amoræans* are also called, by Scaliger, *sophifæ*; by Alting, *sematores*, or, *fpectores of sentences*; by Bartolocius, *doctores*, or *disputantes*, because they conferred and disputed together in a scholastic manner. The *amoræans* succeeded the *mishnic* doctors. They subsisted 250 years; and were succeeded by the *sabureans*.

AMORE, in *Ichthyology*, the name of a genus of fishes, of which there are three species. 1. The *amore plumieri*. 2. The *amore grace*. And, 3. The *amore thuja*.

The *amore plumieri* has a very broad head, and a very large mouth, but has no teeth. Its body is oblong, and its back and sides are of a dusky iron colour. Its belly, which is protuberant, is white. Its fins is soft; and it has seven fins, besides the tail, which is rounded at the end. Its flesh is firm, and well-tasted.

The *amore grace* is, like the former, of an oblong figure; but it grows to six inches in length. Its head is thick, its gills large, and its mouth is furnished with small teeth. Its eyes are small, their pupil black, and the iris yellow. It has seven fins besides the tail, which is long, and rounded at the end. This species is covered with somewhat large scales, and is of a ruby iron colour, but somewhat paler on the belly than on any other parts.

The *amore thuja* is of the same shape with the former, but is much smaller, and is covered with whitish scales all over, but painted with brown spots. Its tail is brown, and waved with different degrees of that colour. All the three species are eaten, but the first is esteemed the best. They are caught about the American shores. Meregrave's Hist. Brasil.

AMOMPHA, *bastard indigo*, in the Linnæan system of *Botany*, a genus of plants belonging to the *decandria diandria* class, of which the characters are: the flowers are of the butterfly kind, having an oval concave standard, but no wings, or keel; this is inserted between the two upper segments of the cemplement; the germen afterword becomes a reflexed, moon-shaped pod, having one cell, in which are lodged two kidney-shaped seeds. We know but one species of this genus.

This shrub grows naturally in Carolina, where formerly the inhabitants made a coarse sort of *paper* from the

young ſhoots, which occaſioned their giving it the title of *baſtard acacia*.

It riſes with many irregular ſtems to the height of twelve or fourteen feet, with very long winged leaves, in ſhape like thoſe of the common ACACIA. At the extremity of the ſame year's ſhoots, the flowers are produced in long ſlender ſpikes, which are very ſmall, and of a deep purple colour. After the flowers are paſt, the germen turns to a ſharp pod, having two kidney-ſhaped ſeeds; but theſe do not ripen in England.

This ſhrub is become very common in all the gardens and nurſeries near London, where it is propagated as a flowering ſhrub, for the ornament of the ſhrubbery. It is generally propagated by laying down the young branches, which in one year will make good roots, and may then be taken off and planted, either in the nurſery, or the places where they are deſigned to remain.

AMORTIZATION, or AMORTISEMENT, in *Law*, the act of turning lands into mortmain, i. e. of alienating or transferring them to ſome corporation, guild, or fraternity, and their ſucceſſors.

The word is formed of the French *amortir*, *to extinguiſh*. See EXTINGUISHMENT.

The term is alſo uſed for the licence or privilege which the king or ſuperior lord grants, to enable ſuch a corporation, &c. thus to receive lands in MORTMAIN; which otherwiſe they cannot do.—There is always ſuppoſed to be ſome fine or acknowledgment paid to the king, or the lord, in conſideration hereof; to make them ſatisfaction for ſeveral incidental duties and profits, which would have fallen to them in the common way; which are hereby cut off.

This practice was borrowed from the ancient *Lex Papiria*, whereby it was forbidden to conſecrate any land to religious uſes without the conſent of the people.

AMOS, or the *Prophecy of Amos*, a canonical book of the Old Teſtament. This prophet boldly remonſtrates againſt the crying ſins that prevailed among the Iſraelites; and reproves the people of Judah for their ſecuſality and injuſtice. He terrifies them both with frequent threatnings, and denunciations that their ſins will at laſt end in the ruin of Judah and Iſrael. He begins with denunciations of judgment and deſtruction againſt the enemies of the Jews, and concludes with promiſes of reſtoring the tabernacle of David, and of erecting the kingdom of Chriſt.

AMOVING, the act of removing or expelling another from his place, office, or the like. We have ſtatutes for *amoving* papiſts out of London and Weſtminſter, and ten miles round the ſame. 1 W. and M. cap. 9.

AMOVING *a guardian, amovendo cuſtode*. See CUSTODE.

AMPANA, in *Botany*, a name given, in the Hortus Malabaricus, to a genus of plants, ſince deſtroyed by LINNÆUS, under the name of ROSSÆUS.

AMPELIS, in *Botany*, the *vine*. See VINE.

AMPELIS, in the *Linnæan* ſyſtem of *Ornithology*, the name of a genus of birds of the order of the *paſſeres*; the diſtinguiſhing characters of which are, that the tongue is furniſhed with a *rim*, or margin, all round; the beak is of a convex form, and ſtraight. There are ſeven ſpecies.

AMPELIS is alſo the name of a bird, of the magpye-kind, called by ſome GARRULUS *Bohemicus*. See ROLLIER.

AMPELITES, canal-coal, in *Natural Hiſtory*, a black *bituminous* ſubſtance, called alſo PHARMACITIS, and nearly reſembling pit-coal, inſomuch, that the difference between them is ſcarce ſenſible. Accordingly, Theophraſtus gives its deſcription under the claſs of thoſe coals; and Dr. Woodward ſeems of the ſame opinion. The *ampelites* of the ſhops, according to him, is the ſame with our canal-coal found in Lincolnſhire.

It differs from the common pit-coal, in that it is more friable and fat; and alſo leſs compact and ſolid; which, it muſt be owned, does not agree with Woodward's deſcription of canal-coal, which he repreſents as very fine and hard, ſo as to take a pretty good poliſh.

The beſt, according to Dioſcorides, is that of a black colour, reſembling ſmall pieces of the *lapis piceus*, or pit-coal; equally gloſſy on all ſides, though when kneaded up with a little oil, it readily melts.

It is found in many parts of England, in the ſame places with pit-coal. It is alſo to be met with in a quarry near Abergavenny, in France. It is uſed by huſbandmen, &c. to ſmear their wives with, againſt vermin, and is endued with a drying diſcuſſive power; on which account it is alſo uſed for the dying of hair.

It makes no efferveſcence with *aqua fortis*. Being applied to the belly, it is reputed good for killing worms. It is capable of a fine poliſh, and for that reaſon is turned into vaſt number of toys, as ſnuff-boxes, and the like.

Ampelites is by ſome called vine-earth, becauſe it kills the worms that creep upon vines.

Libavius has treated at large of the *terra ampelites*.

AMPELOGRAPHIA, the natural hiſtory, or deſcription of the VINE.

The word is originally compounded of ἀμπελος, *a vine*, and γραφω, *deſcription*.

Phil. James Sachs has publiſhed an *Ampelographia, ſeu Vitis vinifera ejuſque partium conſideratio phyſica, &c.* Uratiſlav, 1661, 8vo.

AMPER, a local term uſed in Eſſex for a *tumor* or *phlegmon*. In this ſenſe, the word is alſo written *amper*.

AMPHERES, from ἀμφι, *on both ſides*, in *Antiquity*, a kind of veſſels, wherein each mariner wrought two oars at the ſame time, one with the right-hand, and the other with his left, anſwering to our *ſculler*s. This is alſo called *amphoricum*.

AMPHIARTHROSIS, in *Anatomy*, a neutral or dubious kind of articulation; diſtinguiſhed from the *diarthroſis*, in that it has no conſpicuous motion; and from the *ſynarthroſis*, in its not being without ſenſible motion.

The word is derived from ἀμφι, *both*, and ἀρθρωσις, *articulation*, the *amphiarthroſis* being compounded of both the other ſorts. Whence ſome alſo call it *diarthroſis ſynarthrodialis*.

Of this kind is the articulation of the ribs with the *vertebræ*; and that of the *carpus* with the *metacarpus*.

AMPHIBALUM, among *Middle Age Writers*. See AMPHIMALLUM.

AMPHIBIA, in *Natural Hiſtory*, the third claſs of animals, whoſe eſſential characters are, according to Linnæus, that they have either a naked, or elſe a ſcaly body, with no grinders, or *dentes molares*, their teeth all ſharp and pointed, and without radiated fins; or, their heart has but one ventricle, and they reſpire through their lungs.

This claſs is divided into three orders, viz. *reptiles, ſerpentes*, and the ſwimming *amphibia*, comprehending 24 genera, and 289 ſpecies.

AMPHIBIOUS, in *Natural Hiſtory*, a term applied to a ſort of animals which live both on land and in the water; that is, which breathe the air, but paſs part of their time in the water, as affording them their chief food.

The word comes from ἀμφι, *utrumque, both ways*, and βιος, *vita, life*; as living in either place.

Such are the *frog, caſtor, otter, tortoiſe, ſea-calf, crocodile*, &c.—Moſt of the *amphibious* kind, the *caſtor* and *otter* excepted, have peculiar proviſions in their ſtructure, to fit them for ſo various a way of living; particularly in the heart, lungs, *foramen ovale*, &c.

In ſome of theſe animals, as the *frog, tortoiſe*, &c. the heart has but one cavity, with an artery to receive the blood coming out of it, and a vein to convey it thither. In others, the *foramen ovale* appears to be ſtill open for the paſſage of the blood from the vena cava to the *arteria venoſa*, without the help of breathing.

In the *caſtor* diſſected by the academiſts of Paris, though the *foramen* was not found actually open, yet the marks of it appeared; and the cauſe of its cloſure might well enough be accounted for, from the animal's having been detained a good while from the water, by which the part having been in diſuſe cloſed up. In the OTTER the caſe is different; there is no appearance of any thing like a *foramen*, and hence the neceſſity the creature is under of riſing, from time to time above water, to take in air. Phil. Tranſ. N° 124.

The ſtructure of the feet of the CASTOR pronounces it *amphibious* at firſt ſight, the fore-feet being formed like thoſe of terreſtrial animals, who hold their food in their feet, e. gr. ſquirrels, while the hind-feet are faſhioned after the manner of river fowl, with webs or membranes between the toes, as the gooſe, duck, &c.

A great part of the fly-kind may be ſaid, in one ſenſe, to be *amphibious*. Gnats drop their eggs in water, where hatching, the young live and breathe after the manner of fiſhes, till at length undergoing a metamorphoſis, they take wing, quit their native element, and become inhabitants of the air. May not ſwallows alſo be ranged under this claſs, which have been ſometimes found to paſs their winter aſleep under water, from which the warmth of the ſpring awakes, and calls them forth?

Elias Geiſsler has written expreſly concerning *amphibious* animals. M. Ottwald of Dantzick has left behind him anatomical obſervations on *amphibious* animals.

Dr. Hunter obſerves that, properly ſpeaking, there are no *amphibious* animals; for that fiſh cannot live long without air, though much longer than men. See two ingenious diſſertations on this ſubject by Dr. Parſoes, in the Phil. Tranſ. vol. lxi. 1766.

The term *amphibious* is ſometimes alſo extended to men, who have the faculty of living a long time under water.

We have divers inſtances of ſuch *amphibious* men; the moſt remarkable is of a Sicilian named the *Fiſh-Cola*. Kircher relates, that by a long habitude from his youth, he had ſo accuſtomed himſelf to live in water, that his nature ſeemed to be quite altered; ſo that he lived rather

after

after the manner of a fish than a man. See Brydone's Tour, vol. I. p. 77.—The PEARL-*fisher*, also arrive at a surprising art of this kind.

AMPHIBIOUS *Plants*. See PLANTS.

AMPHIBIOUS *birds*. See SIREN.

AMPHIBLESTRODES, in *Anatomy*, a tunic, or coat of the eye, more usually called *retina*.

The word is compounded of ἀμφὶ, *about*, βλῆστρον, net, and εἶδος, *form*; on account of its net-like texture; whence the Latins also call it *reticformis*.

AMPHIBOLOGY, or AMPHIBOLIA, in *Grammar*, a fault in language, whereby it is rendered obscure, and liable to be understood in a double sense.

The word comes from ἀμφίβολος, *ambiguous*, and λόγος, *discourse*.

Amphibology is chiefly used in respect of a phrase, as equivocal is in respect of a word.

Of this kind was that answer which Pyrrhus received from the oracle: *Aio te, Æacida, Romanos vincere posse*; where the *amphibology* consists in this, that the words *te* and *Romanos*, may either of them precede, or either of them follow, the words *posse vincere*, indifferently. See ORACLE.

The English language usually speaks in a more natural manner, and is not capable of any *amphibologies* of this kind: nor is it so liable to *amphibologies* in the articles, as the French, and most other modern tongues.

AMPHIBRACHYS, the name of a foot in the Latin and Greek poetry; consisting of three syllables, the first and last whereof are short, and that in the middle long.

The word comes from ἀμφὶ, *circum*, and βραχὺς, *brevis*, q. d. a foot short at both ends, and long in the middle.—Among the ancients it is also called *jonius*, and *ecdicus*. Diom. iii. p. 475.

Such are the words *amāvī*, *ămārī*, *patĕrnūs*, Ὁμήρου, &c.

AMPHICOME, in *Natural History*, a kind of figured stone, of a round shape, but rugged, and beset with eminences, celebrated on account of its use in divination. The word is originally ἀμφίκομα, q. d. *utrinque comata*, or *hairy on all sides*.

AMPHICTYONS, AMPHICTYONES, in *Antiquity*, the deputies of the cities and people of Greece, who represented their respective nations in a general assembly; having a full power to concert, resolve, and appoint, what they should think fit, for the service of the common cause.

Some suppose the word ἀμφικτύονες, to be formed of ἀμφὶ, *about*, and κτίσις, or κτίσμα, because the inhabitants of the country round about met here in council. Others, with more probability, derive it from *Amphictyon*, son of Deucalion, whom they suppose to have been the founder of this assembly; though others will have Acrisius, king of the Argives, to have been the first who gave a form and laws to this body.

The *amphictyones* very much resembled the states-general of the United Provinces; or rather, what in Germany they call the DIET of the empire.

Authors give different accounts of the number of the *amphictyons*, as well as the states who were entitled to have their representatives in this council; according to Strabo, Harpocration, and Suidas, they were twelve from their first institution, sent by the following cities and states; the Ionians, Dorians, Perrhæbians, Bœotians, Magnesians, Achæans, Phthians, Melians, Dolopians, Ænianians, Delphians, and Phocæans. Æschines only reckons eleven, instead of the Achæans, Ænianians, Delphians, and Dolopians, he only gives these three, the Thessalians, Œtæans, and Locrians. Lastly, Pausanias's list only contains ten *amphictyons*; namely, the Ionians, Dolopians, Thessalians, Ænianians, Magnesians, Melians, Phthians, Dorians, Phocians, and Locrians.

In the time of Philip of Macedon, the Phocians were excluded the alliance, for having plundered the Delphian temple, and the Lacedæmonians were admitted into their place; but the Phocæans, sixty years after having behaved gallantly against Brennus and his Gauls, were restored to their seat in the *amphictyonic* council. Under Augustus, the city Nicopolis was admitted into the body; and to make room for it, the Magnesians, Melians, Phthians, and Ænianians, who till then had distinct voices, were ordered to be numbered with the Thessalians, and to have only one common representative. Strabo speaks as if this council were extinct in the times of Augustus and Tiberius; but Pausanias, who lived many years after, under Antoninus Pius, assures us it remained entire in his time, and that the number of *amphictyons* was then thirty.

The members were of two kinds: each city sending two deputies, under different denominations, one called πυλαγόραι, whose business seems to have been more immediately to inspect what related to sacrifices and ceremonies of religion; the other σύνεδροι, charged with hearing and deciding causes and differences between private persons. Both had an equal right to deliberate and vote, in all that related to the common interests of Greece. The *hieromnemon* was elected by lot; the *pylagorat*, by plurality of voices.

Though the *amphictyons* were first instituted at Thermopylæ, M. de Valois maintains that their first place of residence was at Delphi, where, for some ages, the tranquillity of the times found them no other employment than that of being, if we may so call it, church-wardens of the temple of Apollo. In after-times the approach of armies frequently drove them to Thermopylæ, where they took their station, to be nearer at hand to oppose the enemies progress, and order timely succour to the cities in danger. Their ordinary residence, however, was at Delphi.

Here they decided all public differences and disputes between any of the cities of Greece; but before they entered on business, they jointly sacrificed an ox, cut into small pieces, as a symbol of their union. Their determinations were received with the greatest veneration, and even held sacred and inviolable.

The *amphictyons*, at their admittance, took a solemn oath never to divert any city of their right of deputation, never to avert its running waters; and if any attempt of this kind were made by others, to make mortal war against him; more particularly, in case of any attempt to rob the temple of any of its ornaments, that they would employ hands, feet, tongue, their whole power, to revenge it. This oath was backed with terrible imprecations against such as should violate it; as eg. May they meet all the vengeance of Apollo, Diana, Minerva, &c. their soil produce no fruit, their wives bring forth nothing but monsters, &c.

The stated terms of their meeting were spring and autumn; the spring meeting was called Ἐαρινὰ Πύλαια, that in autumn Μετοπωρινὰ. On extraordinary occasions, however, they met at any time of the year, or even continued sitting all the year round.

Philip of Macedon survived the right of presiding in the assembly of the *amphictyons*, and of first consulting the oracle which was called Προμαντεία.

The Romans never thought fit to suppress the meeting of the *amphictyons*. Strabo informs us that they subsisted in his time. Potter's Arch. Græc. Meib. Acad. Inscr. tom. iv. and vii. Æschin. Orat.

AMPHIDROMIA, from ἀμφὶ, and δρόμος, a *course*, in *Antiquity*, a feast celebrated the fifth day after the birth of a child, called *dies lustricus*, or LUSTRAL *day*.

AMPHIDRYON, in *Ecclesiastical Writers*, a veil or curtain usually drawn before the door of the BEMA in ancient churches.

APHIMACER, a foot in the *Ancient Poetry*, consisting of three syllables; the first and last whereof are long, and that in the middle short.

The word is derived from the Greek ἀμφὶ, *circum*, and μακρὸς, *longus*, by reason both extremes are long.

Such are the words *lunārĭum*, *cāpĭtāle*, *γεραιτάτων*, &c.

This foot is also called *creticus*, and sometimes *felecmnius*.

AMPHIMALLUM, from ἀμφὶ, and μαλλὸς, a *fleece of wool*, whence *covering*, or *garment*, in *Ecclesiastical Writers*, is otherwise called *amphibalum*, and *amphibalum*, from ἀμφὶ, and βάλλω.

Magri suggests the *amphimallum*, spoken of by ecclesiastical writers, to have been a garment peculiar to bishops.

AMPHIPNEUMA, ἀμφίπνευμα, among *ancient Physicians*, a great degree or species of difficult respiration.

AMPHIPOLES, from ἀμφὶ and πωλέω, *sell*, in *Antiquity*, archons, or chief magistrates of the city of Syracuse.

They were first established by Timoleon, after the expulsion of Dionysius the Tyrant. They governed Syracuse for the space of three hundred years; and Diodorus Siculus assures us, they subsisted even in his time.

AMPHIPPI, in *Antiquity*, those who practised riding on two horses, by jumping from one to the other.

The word is Greek, ἀμφίπποι; they are sometimes also called ἐφαμιππιοι, and sometimes by corruption, ἀμφιππι.

The appellation was given to a sort of cavalry in the Grecian armies, who, for their convenience, had two horses a-piece, on which they rode by turns, leading the other.

AMPHIPRORÆ, from ἀμφὶ, and πρῶρα, *prow*, in *Antiquity*, were ships which had prows at both ends, that no time might be lost in turning them, and also on account of the rapidity of streams, and narrowness of channels.

AMPHIPROSTYLE, in the *Ancient Architecture*, a kind of temple, which had four columns in front, and as many behind.

The word is derived from ἀμφὶ, *about*, πρὸ, *before*, and στύλος, *column*.

AMPHISBÆNA, from ἀμφὶ and βαίνω, *I go*, in *Zoology*, the name of a genus of serpents in the Linnæan system. It goes with equal ease, as its name imports, either forward or backward.

Linnæus

Linnæus enumerates two species, viz. the fulfiginous, and white. They are both found in America.

AMPHISBÆNA *aquatica*, a name given, by Bertrutius, Albertus, and several other authors, to that long and slender insect, called by others the *scta aquatica*, and *vermis fetorius*. It has the name *amphisbæna* from its going backwards or forwards with equal ease or celerity. The usual size is four or five inches long, and the thickness of a large hair.

Dr. Lister accidentally found out the origin of this worm, in his researches into the history of a very different sort of insect. Dissecting one of the common black beetles dug up in a garden, he found in its belly two of these hair-worms, or *amphisbænæ*; and renewing the experiment on other beetles of the same species, he found that they usually contained one, two, or three of these worms. As soon as the body of the beetle is opened, they always crawl out. When put into water, they will live a considerable time, and swim nimbly about; but often put up their heads above water, as if endeavouring to make their escape, and sometimes fastening themselves by the mouth to the sides of the vessel, and drawing their whole bodies after them.

These creatures are not only found in the waters, but buried in earth, and sometimes on the leaves of trees, in our gardens and hedges. Phil. Trans. N° 83.

AMPHISCII, in *Geography* and *Astronomy*, the people who inhabit the torrid zone.

The word comes from ἀμφὶ, *about*, and σκιὰ, *shadow*. They are thus denominated, as having their SHADOW turned sometimes one way and sometimes another, i. e. at one time of the year to the north, and at another to the south.

The *amphiscii* are called also SCII.

AMPHISMILA, or AMPHISMELA, an anatomical knife, edged on both sides.

The word is formed from ἀμφὶ, *utrinque*, *on both sides*, and σμὴ, *knife*.

AMPHITANE, ἀμφίτανις, in *Natural History*, a name of a stone described by the ancients, and said to have the power of the magnet, or load-stone: but with this remarkable difference, that as that stone attracts only iron, to this is supposed to exert its influence only on gold. For this fabulous property, however, there does not appear to be the least foundation.

AMPHITAPA, in *Antiquity*, a kind of carpets, or clothing, having a soft warm nap on each side.

AMPHITHEATRE, a spacious building of an oval figure, having its *area* or *arena* encompassed with several rows of seats, rising gradually one over another: with portico both within and without-side.

The word is derived from ἀμφὶ, *about*, and θεατρον, *theatre*, from θεασθαι, *contemplari*; in that an *amphitheatre*, strictly speaking, is a place whence a person may see all around him.

Among the ancients, the *amphitheatre* was appointed for the exhibiting of spectacles or shews to the people; as the combats of gladiators, those of wild beasts, and the *naumachiæ*, or *sea-fights*.

Amphitheatres were at first only of wood; and it was not until the reign of Augustus, that Statilius Taurus built one for the first time of stone. The lowest part was of an oval figure, and called *arena*, because for the convenience of the combatants, it was usually strewed with sand; and round the *arena* were vaults, styled *cuneæ*, in which were confined the wild beasts appointed for the shews.

Above the *cuneæ* was erected a large circular peristyle *podium*, adorned with columns. This was the place of the emperors, senators, and other persons of distinction. The rows of benches were above the *podium*. Their figure was circular, and they were entered by avenues, at the end of which were gates called *vomitoria*.

Their theatre was built in form of a semicircle, only exceeding a full semicircle by one fourth part of the diameter; and the *amphitheatre* was nothing else but a double theatre, or two theatres joined together; in that the longest diameter of the amphitheatre was to the shortest, as 15 to 8.

There are *amphitheatres* still standing at Rome, at Pola, at Nismes, &c. The *amphitheatre* of Vespasian, called the Coliseum, and that at Verona in Italy, are the most celebrated now remaining in all antiquity. Remains of *amphitheatres* are there also at Arles, Bourdeaux, &c.

The *amphitheatre* at Pola, an ancient republic of Istria, is very entire; it consists of two orders of Tuscan pillars, one over the other. The lower have pedestals, which is extraordinary; this order having scarce ever more than *bases* to support them.

The *amphitheatre* of Titus is computed to have been capable of holding 85,000 spectators. That of Verona is the best preserved: for, though most of the great and best stones of the outside are picked out, yet the great vault, on which the rows of the seats are laid, is entire; the rows also (which are 44 in number) are entire. Every row is a foot and a half high, and as much in breadth; so that a man fits conveniently in them; and allowing for a seat a foot and a half, the whole will hold 23,000 persons.

Pliny mentions an *amphitheatre* built by Curio, which turned on large iron pivots; so that of the same *materials* two several theatres were occasionally made, where different entertainments were sometimes presented at the same time.

Mr. Brydone mentions an *amphitheatre* at Syracuse, the theatre of which is so entire, that the *gradini* for seats still remain; but it is a small theatre, he says, in comparison of that at Taurominum. Tour to Sicily, vol. I. p. 295.

AMPHITHEATRE is also used for a room formed with circular seats above one another, for the convenience of those who attend chirurgical experiments and operations.

AMPHITHEATRE, in *Gardening*, certain dispositions of trees and shrubs on the sides of hilly places, which, if the hill or rising be naturally of a circular figure, always have the best effect. They are to be formed of evergreens, such as hollies, phillereys, laurustines, bays, and such plants, observing to plant the shortest growing trees in the front, and those which will be the tallest behind, such as pines, firs, cedars of Lebanon, &c.

Amphitheatres are also sometimes formed of slopes on the sides of hills covered only with turf, and, when well kept, they are a great ornament to large gardens.

AMPHITHURA, in *Ecclesiastical Antiquity*, a name given to the veil, or curtain, which attended the chancel from the rest of the church.

The word is ἀμφίθυρα, thus called, on account of its opening in the middle, after the manner of folding doors.

AMPHITRITE, ἀμφίτριτη, from ἀμφὶ and τρίζω, *fono*, in the *Heathen Mythology*, the wife of Neptune, daughter of Nereus, and goddess of the sea, sometimes taken for the *sea*.

AMPHITRITE, in *Zoology*, the name of a small naked sea insect, of an oblong figure, with only one *tentaculum*, resembling a piece of thread. There are several species of this animal, some of which are margmated, and variously furrowed, so as to bear some resemblance to a quill.

AMPHODONTA, in *Zoology*, a denomination given to animals which have teeth in both jaws, the upper as well as under.

The word is compounded of ἀμφὶ and ὀδους, *tooth*.

AMPHORA, in *Antiquity*, an earthen vessel, which served as a kind of liquid measure, among the ancient Greeks and Romans.

It is called in Homer ἀμφιφορευς, from ἀμφὶ and φερω, and by Suidas, ἀμφωτις, on account of its two *ansæ*, or *handles*, for carriage. It is the same with the quadrantale. But we meet with two kinds of *amphoræ* in ancient writers, the Italic and Attic.

AMPHORA, *Italica*, was that used by the Romans, and which is therefore sometimes called the Roman *amphora*. The Italian *amphora* was also called *quadrantal*, and sometimes *cadus*. It contained 72 pounds of wine or water, 80 of oil, and 180 of honey.

The *amphora* was equal to 2 *urnæ*, or 3 *modii*, 6 *semodii*, 8 *congii*, 48 *sextarii*, 96 *cyathi*, 192 *quartarii*, and 576 *acetabula*, amounting to about 7 gallons one pint, English wine measure. Arbuthnot.

The ancient *amphoræ* were either *fossiles*, i. e. such as would stand, or *non fossiles*, terminating in a sharp bottom. Of both which kinds, we meet with figures on ancient medals.

The *amphora capitolina* was the standard of this measure, which was kept in the Capitol, to adjust others by.

Suetonius tells us of a man, who stood for the quæstorship, and who drank an *amphora* of wine at one meal, with the emperor Tiberius.

Supposing the *amphora* to have been a cube of four feet each side, as Politian asserts it to have been, we may venture to say, that ten of the greatest drinkers on earth could not have emptied it. Buddæus's computation is much more reasonable: he makes the *amphora* of wine amount to about 4½ gallons Paris measure.

AMPHORA, *Attica*, was that used by the Greeks, and therefore sometimes also called the Grecian *amphora*.

The Attic *amphora* was one-third part bigger than the Italic; so that as the latter contained 2 *urnæ*, or 48 *sextarii*, the former contained 3 *urnæ*, or 72 *sextarii*, amounting to about 10 gallons 5½ pints, English wine measure. This was called *amphora*, sometimes also κεραμιον, and, by way of distinction from the Roman kind, *petrinum*.

AMPHORA was sometimes also used as a dry measure, containing three bushels; the standard whereof was kept at Rome in the Capitol, to prevent false measures.

AMPHORA is also used to denote the largest liquid measure in use among the Venetians. The *amphora* contained

talis four *bigæ*, seventy-six *amphoræ*, or two boats, or *naides*.

AMPHORA, in *Astronomy*, a name given to the sign more usually called AQUARIUS.

AMPHORARIUM *vinum*, in *Antiquity*, denotes that which is drawn or poured into *amphoræ*, or pitchers, by way of distinction from *vinum doliare*, or cask wine.

The Romans had a method of keeping wine in *amphoræ* for many years, to ripen, by fastening the lids tight down with pitch or GYPSUM, and placing them either in a place where the smoak came, or under-ground. Columm. Re Rust. lib. 1. cap. 6. Plin. Nat. Hist. tom. ii. lib. 23. cap. 1.

AMPHOTEROPLON, among *Civilians*, denotes a kind of naval insurance, where the insurers run the risque both of the going out and return of a vessel.

In this sense, the word stands opposed to *Hateroplon*, where only the voyage outwards is insured.

AMPHOTIDES, in *Antiquity*, a kind of defence, or armour for the ears, worn by the ancient Pugiles, to prevent giving their adversaries a handle by that part.

Authors have been in the dark as to the nature and office of the *amphotides*. Some explain them as a sort of helmet for covering the nose and ears.

Fabretti first ascertained their real use, from the figure of a Pugil, which had *amphotides* over its ears, joined by a piece coming over the forehead, and tied with strings under the chin.

AMPLEXATIO, or *Basiatio*, among *Alchemists*, denotes a kind of union betwixt their *philosophical mercury*, which they call the white female, by which they mean *regulus* of antimony, and the red husband, by which they mean *gold*. This embracing, some of them express in terms not very decent.

AMPLIATION, is used, by some writers, for the act of enlarging the compass or extent of a thing.

On a medal of the emperor Antoninus Pius, we find the title *amplitator civium* given him, on account of his having extended the *jus civitatis*, or right of citizenship, to many states and people, before excluded from that privilege. In effect, this prince is generally supposed to have made the famous constitution, whereby all the subjects of the empire were made citizens of Rome. M. Spanheim refutes this notion, and makes the emperor Caracalla to have been the author of that constitution.

AMPLIATION, in the Roman *Law*, denotes the act of deferring a judicial sentence, either as the cause is not clear, or in favour of him against whom it is to pass.

Ampliation differed from *comprobation*, as the former was granted on the mere motion or pleasure of the judge, the latter as the petition of one or both the parties. Besides, the former was not limited to any certain time, whereas the latter could not be extended beyond the third day. Besides, *ampliation* might be repealed, which *comprobation* might not.

The first introduction of *ampliation* was in favour of the *reis*, or persons accused. But it was afterwards used on other occasions; e. gr. when certain witnesses were wanting, or the crime or the fact had not been sufficiently proved for a final decision, or the kind or measure of punishment was not agreed on, &c.

In these cases, the prætor signified his intention, by pronouncing the word *ampliat*, or the letters *N. L.* for *non liquet*, by which he denoted that the cause was not clear, but that the second action must be brought.

The person whose sentence, whether of condemnation or absolution, was thus deferred, was said to be *ampliatus*.

Hence the phrases, *bis ampliatus, tertiò absolutus est reus*.

AMPLIATION is also used, among *Scholmen*, to denote the acceptation of a term for a different time from that signified by the verb in the proposition, e. gr. *justus peccavit*, i. e. *before he was but now just*.

AMPLIFICATION, in *Rhetoric*, part of a discourse or speech, wherein a crime is aggravated, a praise or commendation heightened, or a narration enlarged, by an enumeration of circumstances; so as to excite the proper emotions in the souls of the auditors.

Such is the passage in Virgil, where instead of saying merely that Turnus died, he *amplifies* the circumstances of his death.

——*Ast illi solvuntur frigore membra,*
Vitaque cum gemitu fugit indignata sub umbras.

The masters of eloquence make *amplification* to be the soul of discourse. Longinus speaks of it as one of the principal means which contribute to the sublime: but he censures those who define it a discourse which magnifies things; this equally agreeing to the sublime, the pathetic, &c. The same author distinguishes *amplification* from the sublime by this, that the latter consists wholly in the elevation of words and sentiments, whereas the former consists also in their multitude: the sublime is sometimes found in a single thought; but *amplification* cannot subsist, excepting in abundance.

There is likewise a difference between the *amplification*, and the proof; because the one serves to clear the point, and the other to heighten and exaggerate it.

There are two general kinds of *amplification*; the one of *things*, the other of *words*. The first is produced in divers manners; as, 1. By a multitude of definitions: thus it is Cicero *amplifies* on history: *Historia est testis temporum, lux veritatis, vita memoriæ, magistra vitæ, nuntia vetustatis*. 2. By a multitude of adjuncts; of which we have a fine instance in Virgil's lamentation for Cæsar's death, by enumerating the many prodigies and monsters that either preceded or succeeded it. *Tum quoque per tacras vulgo exaudita silentes ingens, & simulacra modis pallentia miris visa sub obscurum noctis; pecudesque locutæ, infandum! sistunt amnes terramque dehiscunt, & mœstum illacrymat templis ebur, æraque sudant.* 3. By a detail of causes and effects. 4. By an enumeration of consequences. 5. By comparisons, similitudes, and examples, &c. 6. By the contrast of antithets, and by rational inference.

Amplification by words is effected six ways. 1. By using metaphors. 2. By hyperboles. 3. By *synonyma*. 4. By splendid and magnificent terms; as that of Horace, *Scandit æratas vitiosa naves cura, nec turmas equitum relinquit, neque cervi, & agente nimbos ocyor cervo.* 5. By *periphrases*, or circumlocutions. 6. By repetition. To which may be added, by gradation.

AMPLITUDE *of the range of a* PROJECTILE, denotes the horizontal line subtending the path in which it moved.

AMPLITUDE, in *Astronomy*, an arch of the horizon, intercepted between the true east or west point, and the centre of the sun, or a star, at its rising or setting; so that the *amplitude* is of two kinds; *ortive*, or *vesper*; and *occasive*, or *occiduous*.

The eastern and western *amplitudes* are also called *northern* and *southern*, as they fall in the northern and southern quarters of the horizon.

The complement of the eastern or western *amplitude* to a quadrant, is called the *ascensio*.

To find the sun's or star's *amplitude*, either rising or setting, by the globe. See GLOBE.

To find the sun's *amplitude* trigonometrically; having the latitude and the sun's declination, given. Say, as the cosine of the latitude is to the radius, so is the sine of the present declination to the sine of the *amplitude*. Suppose, e. gr. the latitude 15° 30', and the declination 11° 50';

Sine comp.	15° 30' subtr. from radius,	0,0160805
Sine of declin.	11° 50'.	+ 9,3112920
		9,3273821

Amplitude required 12° 15'.

AMPLITUDE, *magnetical*, is an arch of the horizon, contained between the sun at its rising, and the east or west point of the compass; or it is the difference of the rising or setting of the sun, from the east or west points of the compass.

It is found by observing the sun, at its rising or setting, by an azimuth compass. If the compass had no variation, the *magnetical amplitude* would be the same as the true one.

AMPOTIS, *motuum*, signifies properly the recess or ebb of the tide. But Hippocrates, who was of Cos, one of the Grecian isles, and must have had many opportunities of observing the tides, very elegantly applies this word to the recess of humours, from the circumference of the body to the internal parts.

AMPULLARE, in *Antiquity*, denoted a kind of dancing performed by the chief of the *salii*, and answered with a correspondent motion by others in the *armati*.

This is sometimes also called *ambervare*; the answer of the *chorus* was particularly called *redambvare*.

AMPULLA, in *Antiquity*, an oil-vial with a large belly, used for unction at the baths.

The word *ampulla* was also used for a drinking vessel used at table.

AMPULLA, among *Ecclesiastical Writers*, denotes one of the sacred vessels used at the altars.

The word is sometimes also written in English *ampul*.

Ampullæ were also used for holding the oil used in christmation, confecration, coronation, &c.

Among the ornaments of churches, we find frequent mention made of *ampullæ*, or *vialæ*. In the inventory of the cathedral of Lincoln, we meet with *ampullæ* of crystal, variously enriched with silver-feet and covers; one containing a tooth of St. Christopher, another a tooth of St. Cecily, another a bone of the head of St. John Baptist. Dugdale Mon. tom. iii. p. 272.

AMPULLA, *Knights of St. Ampulla*, belong to an order instituted by Clovis I. king of France; at the coronation

they bear up the canopy, under which the *ampulla* is carried in proceſſion.

AMPULLA, a ſpecies of *bulla*, in the Linnæan arrangement of *worms*.

AMPULLACEÆ *concha*, in *Natural Hiſtory*, a name by which ſome authors have called a genus of ſhells, named by others *conchæ globoſæ* and *bullæ*, and by the French naturaliſts *tonnes*. See DOLIUM.

AMPUTATION, in *Surgery*, the operation of cutting off a limb, or other part of the body with an inſtrument.

The uſual method of performing it, in the inſtance of a leg, is as follows.—The proper part for the operation being four or five inches below the knee, the ſkin and fleſh are firſt to be drawn very tight upwards, and ſecured from returning by a ligature two or three fingers broad; above this ligature another looſe one is paſſed, for the gripe; which being twiſted by means of a ſtick, may be ſtraightened to any degree of pleaſure.

Then, the patient being conveniently ſituated, and the operator placed on the inſide of the limb, which is to be held by one aſſiſtant above, and another below the part deſigned for the operation, and the gripe being ſufficiently twiſted, to prevent too large an hæmorrhage, the fleſh is with a ſtroke or two to be ſeparated from the bone with the diſmembering knife. Then the *periofteum* being alſo divided from the bone with an inſtrument called a *catalin*, ſaw the bone aſunder with as few ſtrokes as poſſible. When two parallel bones are concerned, the fleſh that grows between them muſt likewiſe be ſeparated before the uſe of the ſaw.

This being done, the gripe may be ſlackened, to give an opportunity for ſearching for the large blood-veſſels, and ſecuring the hæmorrhage at their mouths, either by the actual cautery, the ligature, ſtitching them up, applying vitriol buttons, or the like. After this a dry pledget of lint, or one dipped in ſpirit of wine, and ſprinkled with *diapente*, may be applied to the ſtump: then looſen the firſt ligature, and pull both the ſkin and fleſh as far as conveniently may be, over the ſtump, to cover it; and ſecure them with the croſs-ſtitch, made at the depth of half or three quarters of an inch in the ſkin.

It remains to apply over the whole ſtump two large pledgets, dipped in oxycrate, dried, and afterwards charged with aſtringents; over theſe to apply a plaiſter of the de minio, or ſimple diachylon; over all theſe, an ox-bladder, wetted in oxycrate; and finally over all a croſs-cloth pretty tight, ſecured with rollers.

After all this, the gripe may be ſlackened, ſo as to be made eaſy to the patient; or even entirely taken away, after he is put to bed; in which he muſt lie with the ſtump ſomewhat raiſed; an aſſiſtant for twelve or fourteen hours keeping faſt the dreſſing with his hand, to prevent any violent hæmorrhage.—In three or four days the dreſſing may be removed; and proper digeſtives mixed with aſtringents, applied; having an actual cautery, or ſome powerful ſtyptic, in readineſs, in caſe of a violent hæmorrhage at the firſt opening. M. Sabourin, ſurgeon of Geneva, is recorded in the hiſtory of the Royal Academy of Sciences, an. 1702, for an improvement in the method of *amputation*, propoſed to that academy; the whole ſecret conſiſts in ſaving a piece of fleſh and ſkin, a little lower than the place where the ſection is to be, wherewith the ſtump is to be afterwards covered. The advantages hereof are, that in leſs than two days time, this fleſh unites with the extremes of the divided veſſels, and ſo ſaves the neceſſity either of binding the ends of thoſe veſſels with thread, or of applying cauſtics or aſtringents; which are methods very dangerous, or at leaſt very incommodious: and, that the bone thus covered up, does not exfoliate. This method of Meſſrs. Sabourin and Verduin, is called *l'operation de l'amputation à lambeau*.

Dr. Motherby, in his Medical Dictionary, ſays, that in the year 1674, Mr. Morrel, a French ſurgeon, introduced the *tourniquet*, as it is now uſed; but the firſt mention of the inſtrument is in the Currus Triumphalis e Terebintho, Lond. an. 1679, from which book it alſo appears, that the operation *de l'amputation à lambeau*, was then the practice of the Engliſh ſurgeon, who publiſhed it.

In the year 1713, it is ſaid in the Collect. Acad. tom. iii. p. 517, that M. Sabourin, a ſurgeon of Geneva, had diſcovered the method of what is called *amputation à lambeau*; and that he came that year to Paris, to propoſe it to the academy, with a view of introducing it into practice in the courſe of a war that was then beginning. It is added, that he diſcloſed it without reſerve or preſumption, and in a manner that did him great honour; but that the academy declined adopting the practice, ſuſpended its judgment, and waited for the additional recommendation of experience.

Many and important improvements on the methods of *amputation* have been made in this century, in the courſe of which the crooked needle, and moſt other parts of the *apparatus* in this branch of ſurgery, have either been introduced or improved. The double-edged knife, called the *catalin*, formerly uſed to clear away the *periofteum*, is now laid aſide, as unneceſſary or hurtful; it having been diſcovered, that in conſequence of ſtripping off the *periofteum*, an exfoliation ſometimes follows from the adjacent bone.

In moſt *amputations* the operation ſhould be performed the breadth of a finger or more, above the ſphacelus or otherwiſe injured part. The *tourniquet* ſhould be ſo applied, as that it may preſs upon the chief artery of the limb to be taken off. The practice of making a ſhort ſtump is moſt general; but others prefer amputating between the calf of the leg and the ankle, in caſes that will admit of ſaving ſo much of the leg: and are confident that the motion of the long ſtump is more eaſy than that of a ſhort one. Mr. White and Mr. Bromfield are entirely of this opinion.

The uſe of ſponge as a part of the dreſſing, as ſoon after the *amputation* as the digeſtion is begun in the ſtump, is recommended by Mr. Kirkland, to prevent the ill and ſometimes fatal conſequences of an abſorption of the matter from the wound, after the inflammation is gone off, particularly when the digeſtion does not proceed kindly. See Lond. Med. Obſ. & Inq. vol. ii. art. 23. p. 278.

According to his method, ſo ſoon as the digeſtion is complete, the wound is firſt covered with thin layers of dry lint, over them pieces of fine ſponge are applied, which imbibe the thinneſt part of the matter from the lint, and that which remains becomes too thick to be abſorbed. Vide Eſſays Phyſic. and Liter. Edinb. vol. iii. art. 22. See a general account of the caſes that are ordinarily ſuppoſed to indicate and require *amputation*, and the various methods of amputating particular parts, &c. Med. Dict. Sharp's Operations of Surgery, and Crit. Inq. Heiſter's Surgery; Bilguer's Diſſert. on Amputation; Le Dran's Operations, &c.

AMSDORFIANS, in *Church Hiſtory*, a ſect of proteſtants, in the ſixteenth century; ſo denominated from their leader *Amſdorf*.

Saunders repreſents them as maintaining, that good works were not only unprofitable, but even oppoſite and pernicious to ſalvation.

AMSEGETES, in *Antiquity*, thoſe whoſe grounds abutted on the highway. Vide Feſt. de Verb. Signif. in voc.

The laws of the Twelve Tables decree, *amſegetes viam munianto*.

AMTRUSTIO, in *Ancient Charters*, denotes a ſworn or liege tenant, or vaſſal, of the ancient French or German kings.

The word is alſo written *antruſtis*. Spelman derives it from the German *amps*, *office*, *beſingſ*, and the Engliſh *truſter*.

AMULET, AMULETUM, a kind of external medicament, to be worn about the neck, or other part of the body, to prevent, or remove diſeaſes.

The word *amulet* is formed from *amoliri, to remove*.

Such are quills of quickſilver, or arſenic, which ſome hang on the neck, or wear under the ſhirt, againſt the plague, and other contagious diſeaſes; as alſo the bloodſtones worn by others againſt hæmorrhages; and that worn by the women of the Eaſt Indies to bring the *menſes*.

Amulets are alſo frequently no other than a ſort of ſpells, or charms, conſiſting of quaint words and characters, ſuppoſed to have the virtue of warding off ill. Pliny makes frequent mention of them.

The Greeks called this kind of remedies φυλακτηρια, *phylacteries*; περιαπτα, *periapta*; περιτετμημενα, περιαμματα, βριθια, and ενσημα. The Latins call them *amulata*, *appenſa*, *pentacula*, &c.

Some think this word derived from *amolo*, a ſmall veſſel with luſtral water in it, anciently carried in the pocket by the Romans, for the uſe of purification and expiation. This laſt opinion appears the more probable, in that ſome *amulets* were made in the ſhape of little veſſels, as appears from the teſtimony of Pliny, who obſerves, that pieces of amber, cut in form of little veſſels, were hung about children's necks for *amulets*.

Amulets are by ſome conſidered as a natural ſpecies of *teſtimonia*. Others rather make *teſtimonia* a ſpecies of *amulets*. The *bulla*, worn by the ancients; the *abraxas* of the Baſilidians, &c. were alſo *amulets*.

The ancients made great uſe of gems for *amulets*: the whole Eaſt, according to Chiflet, wore a kind of jaſper for this purpoſe.

That ſpecies of *amulets* compounded of poiſons, uſed as preſervatives from the plague, are more particularly denominated *zenexta*.

Under *amulets*, ſome alſo include medical or other ſubſtances

ſtances fixed to brutes, or even plants, to preſerve them from certain diſeaſes and dangers.

Charms, words, ſcrolls, magic figures and numbers, make a large claſs of *amulets*, to which the Turks are ſtill greatly devoted. Their *amulets*, called *chaimaïls*, are little bits of paper of two or three fingers breadth, rolled up in pieces of ſilk, containing ſhort prayers or ſentences out of the Alcoran, with circles and other figures, in which they inſcribe the name of Jeſus, the figure of the ſun, &c. They hang them about their necks, or place them under their arm-pits, or in their boſom near their hearts, and eſpecially when they go to war, as a preſervative againſt the dangers of it.

The pope is ſuppoſed to have the virtue of making *amulets*, which he exerciſes in the conſecrating of *Agnus Dei's*, &c.

Amulets are now much fallen from the repute they were anciently in; yet the great Mr. Boyle alledges them as an inſtance of the ingreſs of external effluvia into the habit; in order to ſhew the great poroſity of the human body.—He adds, that he is perſuaded ſome of theſe external medicines do anſwer; for that he himſelf, having once been ſubject to bleed at the noſe, and reduced to uſe ſeveral remedies to check it, found the moſs of a dead man's ſkull, though only applied ſo as to touch the ſkin till the moſs was warm thereby, the moſt effectual of any. The ſame Mr. Boyle ſhews how the effluvia, even of cold *amulets*, may, in tract of time, pervade the pores of a living animal; by ſuppoſing an agreement between the pores of the ſkin, and the figure of the corpuſcles. Beſides has demonſtrated the poſſibility of the thing in his laſt propoſitions, De Febribus; and the like is done by Dr. Wainwright, Dr. Keill, &c. However, theſe are principally uſed at preſent by empirics, women, and credulous, ſuperſtitious perſons.

AMULET, in a more particular ſenſe, is reſtrained to ſuch medicines, as do not operate by any phyſical virtue, or to thoſe wherein there is no proportion between the cauſe and effect.

In this ſenſe medicines, which operate by effluvia, odours, and the like, do not belong to the claſs of *amulets*.

In this ſenſe, alſo, thoſe eſſence-veſſels worn by hyſterical women on their breaſts, called by the Greeks ἀνθίσματα, and by the Latins *dentes pellicii*, were not properly *amulets*.

AMULET is ſometimes alſo applied, in a more extenſive ſenſe, to all medicines, whether internal or external, whoſe virtue, or manner of operation is *occult*.

AMULET, in *Cookery*. See OMELET.

AMULETIC, in *Medicine*, is uſed by ſome writers for what is more frequently called an *amulet*.

Amuletic amounts to the ſame with what are otherwiſe called *ſympathetics*, and are chiefly uſed of late times to ſtop bleeding; ſuch are the *perſicaria*, *lapis hæmatites*, dried toads, &c. alſo againſt warts, *furcomas*, &c.

Sir Kenelm Digby's ſympathetic powder is one of the principal *amuletics* in caſes of hæmorrhages; and with many the *cruces ſacra*.

AMUND, in *Ancient Writers*, denotes a perſon free or diſcharged from tuition or wardſhip.

The word is alſo written *aumund*, *amond*, and *amont*; and is compounded of the privative *a*, and the Saxon *mund*, *defence, tuition*.

AMURACORY, in ſome *Writers of the Middle Age*, denotes a kind of Turkiſh ſoldiery belonging to the corps or order of Janizaries.

They ſeem to be the ſame with thoſe otherwiſe called *Sacraptæ* and *Peſſilatores*.

AMURCA, in *Pharmacy*, a medicine made of the refuſe or recrement of expreſſed OLIVES.

Amurca being boiled in a copper veſſel to the conſiſtence of honey becomes a drug of ſome uſe in medicine, being reputed an aſtringent and drier; and as ſuch ſometimes preſcribed in ulcers, as well as againſt diſeaſes of the teeth, eyes, &c.

Hippocrates applies the term *amurca* to a crude, immature, putrid ſtate of the liver.

Some authors have alſo given the name *amurca* to the juice or fluid found in the RENES *ſuccenturiati*.

AMY, in *Law*, the perſon next of kin to an orphan, or infant, who is to be intruſted for him; properly called PROCHEIN *amy*.

The word in French literally ſignifies *friend*.

AMY, *whom*, is a foreigner here, ſubject to ſome prince, in friendſhip with us.

AMYGDALA, in *Natural Hiſtory*, the name of a ſpecies of ECHINUS *marinus*, of the genus of the BRISSOIDES.

AMYGDALE, in *Surgery*, denotes ſuperfluous fleſh growing at the root of the tongue.

AMYGDALÆ, in *Anatomy*. See ALMONDS.

AMYGDALE. See ALMOND.

AMYGDALATE, an artificial milk, or emulſion made of blanched almonds, &c.

AMYGDALOIDES *lapis*, in *Natural Hiſtory*, the name given by authors to a ſtone which reſembles the kernel of an almond in figure. It is no natural foſſil, but the petrified ſpine of an ECHINUS *marinus* or ſea urchin, of the nature of the LAPIS *Judaicus*, but wanting the pedicle or ſtalk of that ſpine.

AMYGDALUS, in *Botany*, the ALMOND-*tree*.

AMYLON, in *Ancient Writers*, a kind of aliment anſwering, as ſome apprehend, to our furmity.

The word is Greek ἄμυλον, thus called, becauſe made *ſine mola*.

AMYLUM. See STARCH.

AMYNTA, in *Literary Hiſtory*, a beautiful paſtoral comedy, compoſed by Taſſo; the model of all dramatic pieces, wherein ſhepherds are actors. The *Paſtor Fido*, and *Filli di Sciro*, are only copies of this excellent piece.

AMYNTICA *emplaſtra*, in *Pharmacy*, defenſative, or ſtrengthening plaiſters.

AMYNTOR properly denotes a perſon who defends or vindicates a *cauſe*. The word is ἀμύντωρ, formed of the verb ἀμύνω, *I defend*, or *avenge*.

In this ſenſe, Mr. Toland entitles his defence of Milton's life, *Amyntor*, as being a vindication of that work againſt Mr. Blackall, and others, who had charged him with queſtioning the authority of ſome of the books of the New Teſtament, and declaring his doubt that ſeveral pieces under the name of Chriſt and his Apoſtles, received now by the whole Chriſtian church, were ſuppoſititious.

AMYRALDISM, a name given by ſome writers to the doctrine of univerſal grace, as explained and aſſerted by Amyraldus, or Moſes Amyraut, and others his followers, among the reformed in France, towards the middle of the ſeventeenth century.

This doctrine principally conſiſted of the following particulars, viz. that God *deſires* the happineſs of all men, and none are excluded by a divine decree; that none can obtain ſalvation without faith in Chriſt; that God refuſes to none the *power of believing*, though he does not grant to *all* his aſſiſtance, that they may improve this power to ſaving purpoſes; and that many periſh through their own fault. Thoſe who embraced this doctrine were called UNIVERSALISTS, though, it is evident they rendered grace univerſal in words, but *partial* in reality, and are chargeable with greater inconſiſtencies than the SUPRALAPSARIANS.

Amyraldiſm is ſaid to have been a ſyſtem worked up, to bring on a reconciliation with the Lutherans.

AMYRRERIS, in *Botany*, a name uſed by ſome authors, to expreſs the BARBARY-*tree*.

AMYRIS, in *Botany*, a genus of the *octandria monogynia* claſs, with a four-toothed calyx, four oblong petals, a four-cornered ſtigma, and a pulpy berry.

AMZEL, in *Ornithology*, the name of a bird of the *merula* or black-bird kind, of which there are two ſpecies. The *ring-ouzel*, or *merula torquata*, and the *merula montana*, called ſimply the *ouzel*.

The ring-*ouzel* is a little larger than the common black-bird. Its back is of a duſky blackiſh brown, and its throat and breaſt are beautifully variegated with ſpots and ſtreaks of white, and the lower part of the throat is adorned with a fine broad white ring, whence the bird has its name: this ring is of a lunated ſhape, the points ending at the ſides of the neck. The wings and tail are blackiſh, but are ſome what variegated with white in the females; the white looks greyiſh. The female is ſaid alſo by ſome not to have the ring round its neck, and has by that means been miſtaken for the *merula montana*, or common *ouzel*. This feeds on inſects and on berries. It is common about the Peak in Derbyſhire, and is there called the rock-*ouzel*.

The common *ouzel*, or *merula montana*, differs from this, in that it has no ring round the throat, which is variegated with a brownith red, and with ſpots of black, and the belly with grey and black ſpots. It ſeems, however, not determined certainly, whether this is any other than the female of the *ring-ouzel*. Ray. See OUZEL.

ANA, æ, in *Medicine*, denotes an equal quantity of any things, whether in liquid or in dry meaſure.

Hence *ana libra ſeptem* is uſed by ſome writers to ſignify the *ratio*, or *proportion of equality*.

ANA, in *Matters of Literature*, a Latin termination, adopted into the titles of ſeveral books in other languages. *Anas*, or *books in ana*, are collections of the memorable ſayings of perſons of learning and wit; much the ſame with what we otherwiſe call TABLE-*talk*.

Weſſius has given the hiſtory of books in *ana*, in the preface to the Caſauboniana. He there obſerves, that though ſuch titles be new, the thing itſelf is very old; that Xenophon's books of the deeds and ſayings of Socrates, as well as the dialogues of Plato, are *Socratiana*; that the apophthegms of the philoſophers, collected by Diogenes Laertius; the ſentences of Pythagoras, and thoſe of Epictetus; the works of Athenæus, Stobæus, and divers others, are ſo many *anas*. Even the *Gemara*

of

of the Jews, with several other oriental writings, according to Wolfius, properly belong to the fame claſs. To this head of *ana* may likewiſe be referred the *Orphica*, the *Pythagorana*, *Æſopica*, *Pyrrhonia*, &c.

Scaligerana was the firſt piece that appeared with a title in *ana*. It was compoſed by Ifan de Vaſſan, a young Champanois, recommended to Joſ. Scaliger, by Caſaubon.—Being much with Scaliger, who was daily viſited by the men of learning at Leyden, De Vaſſan wrote down whatever things of any moment he heard Scaliger ſay. —And thus arroſe the *Scaligerana*, which was not printed till many years after, at Geneva, in 1666. Patin. Let. 431.—Soon after came the *Perroniana*, *Thuana*, *Naudæana*, *Patiniana*, *Sorberiana*, *Menagiana*, *Anti-Menagiana*, *Fortiana*, *Chevræana*, *Leibnitiana*, *Arquiniana*, *Poggiana*, &c.

ANA is uſed among ſome occult philoſophers to denote the human mind. Hence, according to ſome, is derived the word *anapaſta*, a dæmon invoked to the aſſiſtance of a ſick perſon.

ANABAPTISM, ſee ANABAPTISTS, *infra*.

ANABAPTISTON. See ANABAPTISTON.

ANABAPTISTS, a name given to Chriſtians who maintain that *baptiſm* ought always to be performed by immerſion; that it ought not to be adminiſtered to children before the age of diſcretion, or that at this age it ought to be re-adminiſtered to thoſe who have been baptized in their infancy, becauſe, they ſay, the adminiſtration of this ſacrament is neither valid nor uſeful, *if* it be done by ſprinkling only, and not by immerſion; or if the perſons who received it, be not in a condition to give the reaſons of their belief.

The word *Anabaptiſt* is compounded of *ava*, *new*, and *βαπτιζω*, *I baptize*; and this general denomination has been indiſcriminately applied to people of very different principles and practices; though many of them object to the name, and hold nothing in common, excepting ſome one or other of the above mentioned opinions concerning BAPTISM.

The NOVATIANS, the CATAPHRYGIANS, and the DONATISTS, may be conſidered as a kind of *Anabaptiſts*, in the earlier ages, though not then denoted by this name; for they contended that thoſe Chriſtians of the catholic church who joined themſelves to their reſpective parties, ſhould be re-baptized. But we muſt not claſs under the ſame denomination thoſe biſhops of Aſia and Africa, who, in the third century, maintained, that *baptiſm*, adminiſtered by thoſe whom they called heretics, was not valid; and therefore that ſuch of them as returned into their churches ought to be re-baptized. Nor does it appear that there is ſufficient authority to affirm, that the *Vaudois* and the *Albigenſes* were predeceſſors of the modern *Anabaptiſts*, though ſome of them adopted the practice of adult *baptiſm*.

It was not till a little after the time when the Lutherans ſeparated from communion with the Romiſh Church, that the *Anabaptiſts* began to make a noiſe in Germany. Storck, Stubner, and Munzer, were the firſt diſciples of Luther, who, about the year 1521, were ſtyled *Anabaptiſts*. But well knowing that their opinions were very different from Luther's doctrine, they availed themſelves of his abſence to diſſeminate them in Wittemburgh, and had the addreſs to over-reach the piety of Melancthon. Their principal purpoſe, was to gain over the populace, and to form a conſiderable party. To effect this, ſays Bayle, they were induſtrious and active, each in his own way. Storck wanting knowledge, boaſted of inſpiration; and Stubner, who had both genius and erudition, labboured at commonious explications of ſcripture. Not contented with diſcrediting the court of Rome, and decrying the authority of conſiſtories, they taught, that men being entitled under the Goſpel to equal liberty, could not be juſtly ſubjected to any civil power, nor erect ſuperiorities over each other: that, as all magiſtracy was an uſurpation on Chriſtian freedom, no true Chriſtian could be either magiſtrate, or ſubject, nor conſequently pay any impoſt, give any oath, or bear arms; that violence or arms ought never to be made uſe of, excepting againſt princes, and people in power, from whom they were permitted to revolt, as from ſo many uſurpers, who were to be pulled down, in order to erect the kingdom of God. They pretended that Chriſtians, being all free, equal, and independent, there ought to be no tribunal among them, nor laws, nor any diſtinction of property, but that every thing ſhould be in common, nor any reſtraints with regard to the number of wives which they might marry. In other reſpects they affected ſingular auſterity, recommending macerations, faſtings, and the utmoſt ſimplicity of apparel. Their ſermons were, for the moſt part, declamations againſt the communion of the reformed; and they were inceſſantly exhorting every body to join with them, who, as they ſaid, were ſent of God, to re-eſtabliſh the kingdom of his Son. They made high promiſes to all who would unite with them to exterminate the impious, if this maſſacre proved the epocha, for the commencement of Chriſt's reign upon earth, when the juſt, meaning themſelves, were to reign alſo, inſtead of the unrighteous uſurpers of authority. They moreover affected to ſpeak with a kind of contempt concerning external worſhip, the ſacraments, the miniſtry, and even the word of God, with a view to enhance the merit of the extacies, viſions, and inſpiration, to which they pretended, and on which they valued themſelves. They dealt much in predictions, eſpecially concerning the nearneſs of the laſt judgment; and finally, to give a greater eclat to their party, they re-baptized all thoſe who joined them; and to make their practice ſucceed, they taught that baptiſm adminiſtered to infants was void.

Munzer took the lead of this party; and, in 1525, aſſembled a numerous army of aſſociates; but this inſurrection was ſoon ſuppreſſed, and Munzer put to an ignominious death. Many of his followers, however, ſurvived, and propagated their opinions through Germany, Switzerland, and Holland. In the year 1533, they formed a new community at Munſter, under the direction of two *Anabaptiſt* prophets, John Matthias, a baker of Haerlem, and John Bleckholdt, a journeyman taylor of Leyden. Having made themſelves maſters of the city, they depoſed the magiſtrates, confiſcated the eſtates of ſuch as had eſcaped, and depoſited the wealth they amaſſed together in a public treaſury, for common uſe. They made preparations of every kind for the defence of the city, and ſent out emiſſaries to the *Anabaptiſts* in the Low Countries, inviting them to aſſemble at Munſter, which was now dignified with the name of Mount Sion, that from hence they might be deputed to reduce all the nations of the earth under their dominion. Matthias, who was the firſt in command, was ſoon cut off, in an act of phrenſy, by the biſhop of Munſter's army; and was ſucceeded by Bleckholdt, who was proclaimed, by a ſpecial deſignation of heaven, as he pretended, king of Sion, and inveſted with legiſlative powers, like thoſe of Moſes. The extravagancies of Bleckholdt were too numerous to be recited; it will be ſufficient to add, that the city of Munſter was taken, after a long ſiege, and an obſtinate reſiſtance; and Bleckholdt, the mock monarch, was puniſhed with a moſt painful and ignominious death. The *Baptiſts* in England, and Holland, or, as they are there called the *Mennonites*, are very different from thoſe who firſt gave riſe and name to the ſect.

It muſt be acknowledged, that the firſt inſurgents in Germany had been grievouſly oppreſſed; and that they took up arms principally in defence of their civil liberties; nor ſhould ſubſequent extravagancies of violence be attributed to their religious principles, much leſs charged on their ſucceſſors.

The ſequel of their hiſtory, and diſtinguiſhing tenets, may be ſeen under the article ANTI-PÆDO-BAPTISTS, BAPTISTS, MENNONITES, WALDENSIANS, &c.

ANABASII, in *Antiquity*, the couriers who travelled on horſe-back, or in chariots, for the greater expedition.

The word comes from the Greek *αναβασις*, *mounting*.

ANABASIS, *αναβασις*, *aſcenſion*, derived from *αναβαινω*, *to aſcend*.

ANABASIS, *in Medicine*, the ſtate of a diſeaſe in its growth.

ANABASIUS, a name given by Pliny to a plant, which he calls alſo *aphedro*, and deſcribes as hanging down from the branches of large trees, in form of tufts of hair. The plant deſcribed by Pliny, and others of the ancients, under this name is the USNEA, or long hairy tree-moſs.

ANABATA, in *Ancient Cuſtoms*, a cope, or ſacerdotal veſt, to cover the back and ſhoulders of the prieſt.

It is otherwiſe called *anabolium*, formed of *αναβαλλω*, *to caſt over*, or *throw*.

The word *anabata* ſeems to be uſed in the ſame ſenſe.

ANABATERA, from *αναβαινω*, *I aſcend*, in *Ancient Writers*, denote a kind of ſteps or ladder, whereby to aſcend to ſome eminence. In this ſenſe we read of the *anabathra* of theatres, pulpits, &c.

Anabathra appears to have been ſometimes alſo applied to ranges of ſeats riſing gradually over each other.

ANABATHRA is more particularly applied to a kind of ſtone-blocks raiſed by the highway ſides, to aſſiſt travellers in mounting or alighting, before the uſe of ſtirrups was invented.

The firſt author of this contrivance, among the Romans, was C. Gracchus, brother of Tiberius.

ANABIRAZON, in *Aſtronomy*, the DRAGON'S *tail*.

ANABLATUM, in *Botany*, a name uſed by ſome authors for the *ſyngonanthe*, or tooth-wort, called *dentaria* by others.

ANABLEPS, in the *Artificial Syſtem of Ichthyology*, the name of a new genus of fiſh, of the *malacopterygious* kind, the characters of which are theſe: the *branchioſtege* membrane contains ſix bones, and there is only one ſmall fin at the extremity of the back. There is a ſpecimen of this fiſh, in the great collection of Alberms

Sebs in Holland. The *anoblepsis* is a species of the *colitis*, in the Linnæan ſyſtem.

ANABOLÆUM, in *Antiquity*, denotes any kind of upper garment worn over the coat or tunic.

This is otherwiſe called *anabole*, from ἀνα and βαλλω.

ANABOLEUS, among the *Ancients*, a ſervant whoſe office was to aſſiſt in mounting on horſeback. Theſe were in uſe before the invention of ſtirrups, or of thoſe ſtones called *anabathra*.

ANABOLEUS is alſo uſed by Euſtathius, to denote a ſmall piece of iron, whereon the foot was ſet, in order to mount; from which Buddæus infers, that the ancients had ſtirrups or foot-boards; to which Lipſius objects, that it does not appear this *anabolæus* was any pendent part fixed to the ſaddle, after the manner of our ſtirrups, but rather a portable engine brought by a ſervant, and placed by the horſe's ſide.

ANABROCHISMUS, from ἀνα, *upwards*, and βρεχω, a *loop*, in the *Ancient Phyſic*, the operation of taking away offenſive hairs in the eye-lids.

The manner of performing the *anabrochiſmus* is deſcribed by Gorræus.

ANABROSIS, in *Medicine*, otherwiſe called *diabrosis*, the iſſuing of blood at a hole worn in a vein by corroſion.

The word is ἀναβρωσις, q. d. *eroſio*.

ANACA, in *Ornithology*, the name of a Braſilian ſpecies of PARROQUET. It is of the ſize of a lark; its beak is brown and crooked; the crown of its head is covered with feathers of a liver-colour, and there are circles of brown once near its eyes. Its throat is grey; the upper part of its neck and ſides are green; its belly is of a reddiſh brown; its back green, with a pale brown ſpot, and its tail a pale brown. There it a deep blood-red mark at the top of each wing, the reſt of the wings is green, except their extremities, which are bluiſh. Its thighs are covered with green feathers, and its legs and feet are grey.

ANACALYPTERIA, in *Antiquity*, feaſts celebrated among the heathens on the day that the bride was permitted to lay aſide her veil, and to be ſeen in public.

They were thus called from ἀνακαλυπτω, *to uncover*.

According to Suidas, it alſo means the preſents which were made to the bride by her huſband's relations and friends on that day.

ANACAMPSEROS. See PORTULACA.

ANACAMPTERIA, in *Eccleſiaſtical Antiquity*, denote little hoſpitals, or inns, for the entertainment of the poor and ſtrangers, built adjoining to the ancient churches.

ANACAMPTIC, from ἀνα and καμπτω, *flecto, I bend*, ſignifies as much as *reflecting*; and is frequently uſed in reference to echoes, which are ſaid to be ſounds produced *anacampticallly* or by reflection.

Hence, alſo, *anacamptics* is by ſome uſed for the ſcience of reflecting rays; otherwiſe called CATOPTRICS.

ANACANDAIA, in *Zoology*, the name of a ſpecies of ſerpent found in the iſland of Ceylon, and very miſchievous among the cattle, whence it is called BUBALINUS.

ANACARDIUM, in *Botany*, the caſhew-nut, or *acajou*, a genus of the *ennandria monogynia* claſs. For the characters, ſee ACAJOU.

We have but one ſpecies of this genus, viz.

ANACARDIUM, Hort. Cliff. 161. This tree grows to a conſiderable height in its native country, which is the Weſt Indies. But in England the plants are with great difficulty preſerved; though by their firſt ſhoots from the ſeeds they appear ſo ſtrong and vigorous, as to promiſe a much greater progreſs than they are ever ſeen to make here.

The milky juice of this tree will ſtain linen of a deep black, which cannot be waſhed out again; but whether this has the ſame property with that of the eaſtern *anacardium*, has not yet been fully experimented; for the inſpiſſated juice of that tree is the beſt ſort of lack which is uſed for ſtaining of black in China or Japan. Phil. Trand. vol. xlix. part ii. p. 872, and Dr. Lewis's Commercium, Phil. Techn. p. 309, &c.

ANACARDIUM, in *Medicine*, the fruit of the above mentioned tree, brought from the Eaſt Indies, anciently in great eſteem as a cephalic.

The word is formed of ἀνα and καρδια, *heart*, on account of the figure of this fruit, which bears ſome reſemblance to a heart.

The pith or medullary part of the *anacardium* is extremely pungent and acrimonious; whence the ancients made great uſe of it in cold diſeaſes of the head, particularly to ſtrengthen the memory; but the abuſe of it ſometimes making them ſtupid, delirious, or even mad, the moderns rarely venture on the uſe of it, at leaſt not without great correctives.

ANACARDIUM *antarcticum* is alſo uſed by ſome for the *cajou-fruit*. This is alſo called by others *anacardium occidentale*, and is ordinarily uſed for the true, or eaſtern kind.

ANACATHARSIS, in *Medicine*, properly denotes a purgation by ſpitting; in which ſenſe, it ſtands contradiſtinguiſhed from *catharſis*, or evacuation downward.

In this ſenſe is the word uſed by Hippocrates and Galen; agreeably to this Blaſius reſtrains *anacatharſis* to expectoration. Only Blancard, on what authority does not appear, extends *anacathartic* medicines to all thoſe which work upwards, by the glands of the head, whether vomitories, ſternutatories, or maſticatories.

ANACATHARSIS is alſo a name given by civil lawyers to the *Baſilicon reputitæ Prælectionis* made by order of the emperor Conſtantine Porphyrogenitus.

It was thus called as being a review or correction of the Baſilicon.

ANACATHARSIS, among *Divines*, denotes the clearing up ſome obſcure paſſage, by a ſpiritual, or anagogical interpretation.

ANACATHARTIC, is uſually underſtood of a vomit, or a purging medicine that works upwards.

The word comes from ἀνα, *upwards*, and καθαιρω, *I purge*.

ANACEIA, an Athenian feſtival in honour of the Dioſcuri. It took its name from thoſe deities, who were alſo called Ἀνακες and honoured with a temple called Ἀνακειον, *Anaceum*.

The ſacrifices offered at that time were named Ξενικια because thoſe deities were ξενοι, or *ſtrangers*; and conſiſted of three offerings, which were called Τριτυα. Athenæus mentions plays acted in honour of theſe deities.

ANACEPHALÆOSIS, in *Rhetoric*, a recapitulation, or a ſhort and ſummary repetition of the heads of a diſcourſe.

The word comes from ἀνα, which in compoſition ſignifies *again*; and κεφαλη, *head*.

ANACHIS, in *Mythology*, one of the four deities, to whom the Egyptians imagined the peculiar care of each perſon was committed at his birth: the other three were *Dymen*, *Tychen*, and *Hercle*. They are alſo called *Dymonia*, *Tyche*, *Eros*, and *Ananche*; i. e. Power, Fortune, Charity, and Neceſſity.

ANACHORESIS, denotes a withdrawing from ſociety, or retiring into ſolitude.

The *anachoreſis* was not allowed to perſons, before they had ſpent thirty years in the community.

ANACHORET, a hermit or devout perſon, living alone in ſome deſert, to be farther out of the reach of the temptations of the world, and more at leiſure for meditation.

The word comes from ἀναχωρεω, *I retire into a ſolitary place*.

Such were St. Anthony, St. Hilarion, &c. Paul the Hermit was the firſt of the tribe of *anachorets*.

When many of the habitations of *anachorets* were placed together in the ſame wilderneſs, at ſome diſtance from one another, they were all called by one common name *lauræ*, which, as Evagrius informs us, differed from a *cœnobium*, or *convent*, in that a *laura* conſiſted of many cells divided from each other, where every monk provided for himſelf; but a *cœnobium* was one habitation, where the monks lived in ſociety, and had all things in common. *Anachorets*, popularly *anchorets*, were very numerous among the Greeks, conſiſting principally of monks; who not caring for the fatigues and offices of the monaſtery, purchaſed a little ſpot of ground, with a cell, whither they retreat, and never appear in the monaſtery again, excepting on ſolemn days. Theſe are ſometimes alſo called *aſcetæ* and *ſolitaries*.

They have their chapel, and after prayers apply themſelves to the culture of their vineyards, olives, fig-trees, and the like, which afford them proviſion for the year.

Theſe *anchorets* only differ from the conventual monks, in that they have leſs intercourſe with the world, and live but in ſmall bodies.

The *anchorets* of Syria and Paleſtine retire into the moſt obſcure and unfrequented places; hiding themſelves under rocks and mountains, and living on the ſpontaneous productions of the earth.

There have alſo been *anchorets* in the Weſt. Peter Damian, who was of the order of *hermits*, frequently ſpeaks of them with great praiſe. He repreſents them as by far the moſt perfect ſort of monks; holding them in much higher eſtimation and veneration than the *cœnobites*, or monks reſiding in monaſteries.

Many of theſe retire, with the leave of their abbots, and have an allowance from the monaſtery. The people, on account of their piety, preſent them with good ſums of money, which they carefully hoard up, and at their death bequeath to the monaſtery they had belonged to.

ANACHORITA, in *Eccleſiaſtical writers*, a name ſometimes given to the cells of recluſes.

By the ancient canons, no *anachorita* could be erected without conſent of the biſhop.

ANACHRONISM, in *Chronology*, an error in computation of time; whereby an event is placed earlier than it really happened.

The word is compounded of ἀνα, *higher*, and χρονος, *time*.

Such is that of Virgil, who placed Dido in Africa, at the time of Æneas; though, in reality, ſhe did not come there till 300 years after the taking of Troy. An error

on the other side, whereby a fact is placed later or lower than it should be, is called a *parecrasis*; though this distinction is not commonly observed.

ANACLASTIC *glasses, vitra anaclastica*, a kind of sonorous phials, or glasses, chiefly made in Germany, which have the property of being flexible, and emitting a vehement noise by the human breath. They are also called vexing glasses, by the Germans *vexier glaser*, on account of the slight and disturbance they occasion by their resilition.

The *anaclastic* glasses are a low kind of phials with flat bellies, resembling inverted funnels, whose bottoms are very thin, scarce surpassing the thickness of an onion-peel: this bottom is not quite flat, but a little convex. But upon applying the mouth to the orifice, and gently inspiring, or as it were sucking out the air, the bottom gives way with a horrible crack, and from being convex becomes concave. On the contrary, upon expiring or breathing gently into the orifice of the same glass, the bottom with no less noise bounds back on its former place, and becomes gibbous as before.

The *anaclastic* glasses first taken notice of were in the castle of Goldbach; where one of the academists *Naturæ Curiosorum*, having seen and made experiments on them, published a piece expressly on their history and phænomena. Rossii Lentilii Oribasii Sched. de Vitris Anaclasticis. Vid. Ephem. Acad. N. C. Dec. 2. Ann. 3. p. 489. seq. Their figure may be seen in the book above cited.

They are all made of a fine white glass. It is to be observed in these, 1. That if the bottom be concave at the time of inspiration, it will burst, and the like will happen if it be convex at the time of expiration. 2. A strong breath will have the same effect even under the contrary circumstances.

ANACLASTICS, or ANACLASTICS, that part of OPTICS which considers refracted light. The term is derived from ἀνὰ, and κλάω, *I break*.

Anaclastics is the same with what we more usually call *dioptrics*.

ANACLETERIA, in *Antiquity*, solemn feasts celebrated in honour of kings and princes when they came of age, and took upon them the administration of the state, and made a solemn declaration thereof to the people.

The word is formed of ἀνὰ, and καλέω, καω, *I call*.

ANACLETICUM, in the *Ancient Art of War*, a particular blast of the trumpet, whereby the fearful, and flying soldiers were rallied, and recalled to the combat.

ANACLINOPALE, from ἀνὰ, κλίνω, *I recline*, and πάλη, *wrestling*, in *Antiquity*, a kind of wrestling, wherein the champions threw themselves voluntarily on the ground, and continued the combat by punching, biting, scratching, and other methods of offence.

The *anaclinopale* stood contradistinguished from the *orthopale*, wherein the champions were erect. In the *anaclinopale*, the weaker combatant sometimes gained the victory.

ANACLINTERIA, in *Antiquity*, a kind of pillows on the eating-bed, whereon the guests used to lean.

The ancient triclinary beds had four ἀναπαῆται, one at the head, another at the feet, a third at the back, and a fourth at the breast. That on which the head lay, was properly called by the Greeks, ἀναπαυτήριον, or ἀναπαυτὴρ; by the Romans *fulcrum*, sometimes *pulvinus*.

According to other writers, *anaclinteria* is more properly understood of the backs of chairs whereon we lean.

ANACOINOSIS, from ἀνὰ and κοινὸς, *I communicate, communicatio*, a figure in *Rhetoric*, when we consult the adversary, or appeal to the judges what ought, or could have been done on such an occasion.

Such as that of Cicero, *Quæro, fi te hodie domum tuam redeuntem, cœtûs hominum et armati, non modo linguæ tectique omnium tuorum, sed privatæ etiam vestibulique prohibuerint, quid alluris fit?* Cicero pro Cœcin.

ANACOLLEMA, in *Physic*, denotes a liniment or other medicine applied to the forehead, to stop or prevent defluxions of the eyes.

The word is formed of ἀναλλάω, *conglutino*.

Anacollemata make a species of medicines called *frontalia*.

The qualities required are, to be dryings, cooling, thickening, astringent, conglutinant, &c.

To the class of *anacollema* belong bean, manna, myrrh, *terra sanda, oxalis*, &c.

Junker describes an *anacollema frontale* for stopping hæmorrhages at the nose.

ANACOLUTHON, from ἀνακόλουθος, *incoherent*, among *Ancient Grammarians*, denotes an incoherence, or a construction which does not hang together. This is usually signified by the appellation of a figure which ought rather to be nominated an inaccuracy.

ANACONDO, in *Zoology*, is a name given, in the isle of Ceylon, to a very large and terrible RATTLE-SNAKE, which *alive* devours the unfortunate traveller alive, who is itself accounted excellent and delicious fare.

ANACREONTIC, in the Greek and Latin *Poetry*, something invented by Anacreon; or in the manner and taste of Anacreon, a poet of Teios, who lived upwards of 400 years before Christ, famous for the delicacy of his wit, and the exquisite, yet easy and natural, turn of his poesy.—We have several of his odes still extant; and there are few of the modern poets who have not written *Anacreontics* in imitation of them. They are mostly composed in verses of seven syllables; or rather of three feet and a half; spondees and iambics, though sometimes anapæsts. Hence verses in that measure are sometimes called *Anacreontics*, or *Anacreontic verses*.

ANACRISIS, from ἀνὰ and κρίνω, *I judge*, among the *Ancient Greeks*, is used for a kind of trial, or examination, which the *archons*, or chief magistrates of Athens, were to undergo, before their admission into that office.

The *anacrisis* stands distinguished from the *dokimasia*, which was a second examination in the *senate*.

The *anacrisis* was performed in the senate house. The questions here proposed to them were concerning their family, kindred, behaviour, estate, &c.

Some maintain that all magistrates underwent the *anacrisis*.

ANACRISIS, in the *Civil Laws*, denotes a search or inquiry into the truth by examination of witnesses.

ANACROSIS, in *Antiquity*, denotes a part of the Pythian song, wherein the combat of Apollo and Python are described.

The *anacrosis* was the first part, and contained the preparation to the fight.

ANACTON *festum*, in *Antiquity*, a festival held at Amphyssa, the capital of Locris, in honour either of the Dioscori, or of the Curetes, or Cabiri, about which authors are not agreed.

ANACYCLUS, in *Botany*, a genus of plants of the *syngenesia polygamia superflua* class of Linnæus, being the same with the *santolinoides* of other authors. It is a sort of camomile of little beauty, and of no known use.

ANADAVADEA, in *Ornithology*, the name of a small bird of the East Indies, which has the look of a chaffinch, and the feet of the lark. It is sometimes brought over to England alive in cages, and will live here very comfortably.

ANADEMA, among the *Ancients*, denotes an ornament of the head, wherewith victors at the sacred games had their temples bound.

The word is formed of ἀναδέω, *to tie bound round*.

Some confound the *anadema* with the *diadema*, worn by the ancient Persian kings.

Anademata are also mentioned by ancient writers among the ornaments of the heads of women.

According to some, ἀναδέσια answers to what the Latins call *redimiculum*.

ANADIPLOSIS, ἀναδίπλωσις, from ἀνὰ, *again*, and διπλόω, *I double*, denote a repetition of the last word of the former verse or member in the beginning of the next; e. g.

Addite si quam timidi pavi superavit Achilles,
Achilles Maladum pulchrior ille fuit,
Æquitat ille fuis hortatus Achivis,
Æquus equo fidens.

If children, then heirs, heirs of God, and joint heirs with Christ.

ANADIPLOSIS, in *Medicine*, denotes the redoubling or return of the paroxysm of a fever, chiefly of a remittention.

This is otherwise called *epanalepsis* and *epanadiplosis*.

ANADOSIS, from ἀνὰ and δίδωμι, *I give*, in the *Ancient Medicine*, denotes the distribution of the aliment by the vessels of the body.

In this sense, *anadosis* makes a part of nutrition or DIGESTION.

ANADROMOUS, in *Ichthyography*, a term of distinction among fishes, denoting such as have their times of going from the fresh water to the salt, and afterwards returning back to the fresh water again.

The word is derived from ἀνὰ, *again*, and δρόμος, a *course*. The *anadromous* fishes are many of them of this kind, and the method nature has appointed for their course of changes seems to be this: they are first produced from the spawn in fresh water rivers; they live there till they acquire some strength and size, and then seek the salt water to feed more at large in, and grow to their full extent: at which period they return into the freshes again to lay their spawn, that their young brood may have the same advantages which they had before, of being placed first in fresh water. Some use the word *catanadromi* in the same sense.

ANADUOMENE *Venus*, in the Grecian *Mythology*, answered to the *Sea-Venus* in the Roman, and was the appellation

pellation given to one of the chief deities of the sea. The most celebrated picture in all antiquity was that of this goddess by Apelles; and the famous Venus of Medici is a *Sea-Venus*.

ANADYSIS, among *Ancient Divines*, denotes the ceremony of the emersion in BAPTISM.

In which sense *anabora* stands contradistinguished from *katabora*, or *immersion*.

ANÆDEIA, in *Antiquity*, a denomination given to a silver stool placed in the *areopagus*, on which the defendant, or person accused, was seated for examination.

The word is *anadeia*, which imports *impudence*; but according to Junius's correction, it should rather be *anaideia*, q. d. *unmodesty*.

The plaintiff, or accuser, was placed on an opposite stool, called *hybris*, or *injury*: here he proposed three questions to the party accused; to which positive answers were to be given. The first, are you guilty of this fact? The second, how did you commit the fact? The third, who were your accomplices?

ANAIRETA, in *Astrology*, a place in the heavens, at which the *apheta* arriving, an infant born at that time, is pronounced by astrologers in danger of death.

The word is Greek, and literally imports a *cutter off*. In this sense, *anaireta* stands opposed to *apheta*.

ANAIRETA, among the Greek *Astrologers*, amounts to the same with what the Arabs call *alcubaren*.

ANAESTHESIA, *anæsthesia*, in *Medicine*, a privation of sense, or of the faculty of perceiving external objects.

The species or degrees of this are, *stupor*, *hebetudo*, *deprivatio*, &c.

ANAGALLIDASTRUM. See CENTUNCULUS.

ANAGALLIS, in *Botany*. See PIMPERNEL.

ANAGALLIS *Aquatica* is called by *Botanists*, *veronica aquatica*, or *becca bunga*; in English, BROOKLIME.

ANAGLYPHA, in *Ancient Writers*, denote vessels, or other things, adorned with sculpture in *basso relievo*; and hence the *anaglyphic* art is the art of carving, chasing, engraving, or imboſſing plate.

ANAGLYPHICE, or ANAGLYPTICE, denotes that species of sculpture wherein the ſtrokes or figures are prominent, or imboſſed; and is contradiſtinguiſhed from *diaglyphice*, where the ſtrokes are indented.

The word comes from the Greek *anaglyphw*, *exſculpo*.

ANAGNOSES, or ANAGNOMATA, from *ana* and *ginomai*, *I know*, in the Greek *Church*, denotes an eccleſiaſtical book, containing the leſſons read at divine ſervice, in the ſeveral feaſts, &c. of the year.

ANAGNOSTA, or ANAGNOSTES, among the *Ancients*, denotes a kind of ſervant reſident in the families of perſons of rank, to read to them at meals.

Theſe are called by the Greeks *anagnostai*, and by the Romans *lectores*; ſometimes alſo *a ſtudiis*.

Even private families, who lived in any degree politely, were not without this kind of literary ſervants. Servius makes mention of a female *anagnoſte*, under the denomination of *lectrix*. Sometimes the maſter himſelf performed the office of reader. The emperor Severus read himſelf at table. Martial mentions one Liguſinus, who read his own poems at dinner, to the great diſguſt of the gueſts.

Among the Greeks there were alſo *anagnoſtæ* in their theatres for public reading of the poets.

Some ſpeak of the *anagnoſtæ*, as a ſpecies of *acroamata*, from which, however, in propriety they differed.

Cornelius Nepos relates of Atticus, that no *acroama* was ever heard at his meals, but an *anagnoſtes*. He never ſupped without reading, ſo that the minds of his gueſts were no leſs agreeably entertained than their appetites. The ſame cuſtom Eginhard obſerves was kept up by Charlemagne, who at table had the hiſtories and acts of ancient kings read to him. This cuſtom ſeems to have been a reliqué of that of the ancient Greeks, who had the praiſes of great men and heroes ſung to them, while at table. The ancient monks and clergy kept up the like uſage, as we are informed by St. Auguſtin. Sidonius praiſes a man of quality in his time, who, in this reſpect, lived a clerical life, though he was no prieſt.

Bilbergius, and Th. Raynaud, have diſſertations expreſs on *anagnoſtæ*.

ANAGNOSTIC, in *Middle Age Writers*, is ſometimes uſed for an epiſtle, or other writing.

ANAGOGIA, in *Antiquity*, ſolemn ſacrifices to Venus at Eryx, in Sicily, where ſhe was honoured with a magnificent temple.

The name of this ſolemnity was derived, *apo tu anayein*, i. e. *from returning*; becauſe the goddeſs was ſaid to leave Sicily, and return to Africa, at that time.

ANAGOGICAL, *tranſporting*, ſomething that raiſes the mind to things eternal and divine; the great objects of the next life.

The word is derived from *anagoge*, *carrying away*, which is formed of the preposition *ana*, *upwards*, and *agoge*, *leading*.

The term is principally uſed in ſpeaking of the diverſ ſenſes of Scripture.—The *literal* ſenſe is the firſt, and natural ſenſe; the *myſtical* ſenſe is founded on the natural ſenſe, from whence it is taken by analogy or compariſon, by ſimilitude or reſemblance of one thing to another; and is diviſible into ſeveral kinds.

Where it regards the church, and matters of religion, it is called the *allegorical* ſenſe.

Where it regards our morals, it is called the *tropological* ſenſe. And where it regards eternity, or the life to come, it is called the *anagogical* ſenſe.

ANAGOGY, ANAGOGE, a rapture or elevation of the ſoul, to things celeſtial and eternal.

Anagogy, in a more particular ſenſe, denotes the application of types and allegories of the Old Teſtament to ſubjects of the New; thus called becauſe the veil being here drawn, what before was hidden is expoſed to open light. Some of the fathers place *anagoge* in oppoſition to *ecpaſis*, *baſtos*.

ANAGOGY, in *Medicine*, denotes a return of humours, or the rejection of a matter upwards, or by the mouth.

Anagogy amounts to the ſame with what is otherwiſe called *anabaſis*.

ANAGOGY, *exagoge*, in *Ancient Hiſtory*, denotes a looſe education or diſcipline.

ANAGRAM, ANAGRAMMA, a tranſpoſition of the letters of a name, with a combination thereof in ſome new manner, ſo as to exhibit one or more words, either to the advantage or diſadvantage of the perſon to whom it belongs.

The word is formed from *ana*, *backwards*, and *graphw*, *letter*.

Thus the *anagram* of Galenus is *angelus*; that of Logica, *caligo*; that of Aſtronus, *ſedronus*; that of Archimundury Godfry, *I find murdered by regret*; or, *by Rene's knife ſlayer die*, that of Loraine, *in odorem*, on which account it was, that the family of Loraine took *odorem* for their armoury.—Calvin, in the title of his Inſtitutions, printed at Strafburgh in 1550, calls himſelf *Alcuinus*, which is the *anagram* of Calvinus, and the name of an eminently learned perſon in the time of Charlemagne, who contributed greatly to the reſtoration of learning in that age. Baillet, in his Argenis, *anagrammatiſes* Calvinus by a leſs creditable name, *Upnedo*; and Rabelais, to be revenged of the ſame Calvin, who had made an *anagram* of his name, found in that of Calvin, *Jan. Cule*.

Such as keep cloſe to the definition of *anagram*, take the liberty to omit or retain the letter H, and that letter only; but ſuch as ſtand up for the poetical licence, make bold ſometimes to uſe E for B, V for W, S for Z, and C for K, and *vice verſa*.

This way of writing was ſcarce known among the ancients: Dauriat, a French poet in the reign of Charles IX. is uſually ſaid to be the firſt that practiſed it; yet Lycophron, who wrote under Ptolemy Philadelphus, about 280 years before Chriſt, appears to have been no ſtranger to the art of making *anagrams*. Canterus, in his *Prolegomena* to Lycophron, gives us two of the pieces in this kind; the firſt on the name of king Ptolemy, Πτολεμαιος, in which he found *meli thras*, *of honey*; to inſinuate the ſweetneſs and mildneſs of that prince: the ſecond was on queen Virginia, Αρσινοη, of whom he made *ios Heas*, *Juno's violet*.

There are two ways of making *anagrams*, for, 1. Some only conſiſt in dividing a ſingle word into ſeveral: thus the anigma of the god Terminus, mentioned by Aulus Gellius, lib. xii. cap. 6. is founded on the *anagram* TER MINUS; and thus *ſeptimontium* yields *ſex timet mus*. This kind alone ſeems to have been uſed among the Romans.

The ſecond is, where the order and poſition of the letters is changed: ſuch are thoſe above mentioned; and alſo theſe, *Roma*, *Amor*, *Amor*, *Jeſus*, *Lisus*, *Caſpari Peucer*, *Precus*, *Spurca*.

To find all the *anagrams* any name will admit of, *algebraically*. See COMBINATION.

The fineſt and happieſt of all the *anagrams* extant, is that on the queſtion put by Pilate to Jeſus Chriſt; *Quid eſt veritas?* which *anagrammatically* makes *Eſt vir qui adeſt*: the *anagram*, here, is the beſt and fulleſt anſwer that could poſſibly be given.

Beſides the ancient kind of *anagrams*, there have been new ones invented: as, the mathematical *anagram*, invented in 1680, by which the abbot Catelan found, that the letters of the name Lewis XIV. made *vrai heros*, i. e. *true hero*.

We are now likewiſe furniſhed with the numerical *anagram*, more properly called *chronogram*; where the numerical letters (i. e. ſuch as in the Roman cypherings ſtood for numbers) taken together, according to their numerical value, expreſs ſome epocha: of which kind is that diſtich of Godart on the birth of Lewis XIV. in the

year

year 1638, on a day wherein there was a conjunction of the eagle with the lion's heart:

eXsVLeonIsDeLphIn eqVILoCVDIssVeLeonIs
CongressVsgaLLasseLatIsIaqVeresCIt.

ANAGRAMMATIST, a maker or compoſer of *anagrams*; Thomas Billon, a Provençal, was a celebrated *anagrammatiſt*, and retained by Lewis XIII. with a penſion of 1200 livres, in quality of *anagrammatiſt* to the king. Lipenius gives a long liſt of *anagrammatiſts*.

Thomas Billon has given a ſet of propheſies in *anagrams*; Gul. Blancus, the art of compoſing *anagrams*.

ANAGROS, a meaſure for corn, uſed in ſome cities in Spain containing ſomewhat more than the Paris *mine*.

This is otherwiſe called *anegros*.

Four *anegros* make a *cabi*, four *cabis* a *tunega*.

ANAGYRIS, in *Botany*, ſtinking bean TREFOIL, a genus of the *decandria monogynia* claſs. The characters are: the flower is of the butterfly kind; the ſtandard is heart-ſhaped, and much longer than the empalement; the wings are oblong, plain, and longer than the ſtandard, as is alſo the keel; the germen afterward becomes a large oblong pod, in which are lodged ſeveral kidney-ſhaped ſeeds. We have but one ſpecies in England, viz.

Anagyris ſtipis ramis floribus lateralibus: ſtinking bean *trefoil*, with oval leaves, and flowers proceeding from the wings of the ſtalks. This ſort grows wild in the ſouth of France, as alſo in Spain and Italy. It is a ſhrub which uſually riſes to the height of eight or ten feet, and produces its flowers in April and May, which are of a bright yellow colour, growing in ſpikes, ſomewhat like thoſe of the LABURNUM.

Tournefort, however, enumerates two ſpecies. Tourn. Inſt. p. 647.

The leaves of the *anagyris* are reſolutive, and its ſeed emetic.

ANALECTA, the fragments, or offals of meat, which dropped from the table on the ground.

Analecta was alſo uſed for a ſervant appointed to gather up the offals of the tables.

In this ſenſe, the word is ſometimes alſo written *analectes*. Sateliius Quadratus, in the way of deriſion, adviſed Calviſius Sabinus, a man of great wealth, and much affectation of learning, but with little memory, and leſs genius, to keep *analectas*, *ut grammaticus haberet analectas*; a phraſe which has occaſioned much diſpute among critics and antiquaries.

ANALECTA is likewiſe, in a literary ſenſe, uſed for a collection of ſmall pieces or compoſitions.

The word is formed of *ανα*, *λεγω*, *I gather*.

ANALEMMA, a planiſphere, or projection of the SPHERE, on the plane of the meridian, orthographically made, by ſtraight lines and ellipſes; the eye being ſuppoſed to be at an infinite diſtance, and in the eaſt or weſt points of the horizon.

The word is derived from *ανα*, of *αναλαμβανω*, *reſumo*, *I take backwards*.

The *analemma* was invented by John de Royas, a Spaniard. The advantages of this above the *aſtrolabe* of Ptolemy and Gemma Friſius, are, that all the lines proceeding from the eye are parallel to each other, and perpendicular to the plane of projection; conſequently not only the equator is a right line, as in the *aſtrolabe* of Gemma Friſius, but all the parallels to the equator are ſo too; ſince, in virtue of the infinite diſtance of the eye, they are all in the ſame caſe, as if their plane paſſed through the eye: for the like reaſon, the horizon, and its parallels, are alſo right lines. On the other hand, whereas in the two former *aſtrolabes* the degrees of circles converted into right lines become very ſmall towards the centre, and large towards the circumference, they become here ſmall towards the circumference, and large towards the centre: ſo that their figures will be no leſs altered in this than in the others. Add, that moſt of the circles here degenerate into ellipſes, which are often difficult to deſcribe.

ANALEMMA is alſo uſed for a *gnomon* or *aſtrolabe*, conſiſting of the furniture of the ſame projection, drawn on a plate of braſs, or wood; with an horizon, or *curſor* fitted to it.

Its uſe is for finding the time of the ſun's riſing and ſetting, the length of the longeſt day in any latitude, and the hour of the day.

The *analemma* is alſo of conſiderable uſe among *Dialiſts*, for laying down the ſigns of the zodiac, with the length of days, and other matters or furniture, upon dials.

ANALEPSIS, the reſtoration of a body waſted by diſeaſe, by the uſe of a nutritious diet.

ANALEPSIS is alſo uſed for the method of hanging a broken or diſlocated member, eſpecially the hand, in a ſling. This operation to the arm is called *analeptis*; to the foot, *thyſis*.

ANALEPTICS, in *Medicine*, reſtoratives; or remedies proper to reſtore the body, when waſted or emaciated, either by the countenance of a diſeaſe, or by want of food.

The word is derived of *ανα*, *λαμβανω*, *I re-aſſabiſh*.

ANALOGICAL *ſyllogiſm*. See SYLLOGISM.

ANALOGISM, in *Medicine*. See ANALOGY.

ANALOGISM, among *Logicians*, the arguing from the cauſe to the effect.

ANALOGISTA, among *Civil Law Writers*, a tutor who is not obliged to give an account of his conduct.

Perſons dying ſometimes appointed friends to be tutors to their children, with this clauſe, that they ſhould be *analogiſtæ*.

Some lawyers hold, that this did not exempt a tutor guilty of glaring miſmanagement, from being called to account, and puniſhed accordingly.

ANALOGIUM, in *Eccleſiaſtical Writers*, denotes an *ambo*, or reading-deſk.

ANALOGIUM is ſometimes alſo uſed for a *martyrology*, or *obituary* of a monaſtery.

ANALOGY, in *Philoſophy*, a term denoting a certain relation, proportion, or agreement, which ſeveral things bear to each other in ſome reſpects, though different in others.

The word is Greek, which the Latins uſually render by *comparatio*, and *proportionalitas*.

The ſchoolmen define *analogy* to be a reſemblance, joined with ſome diverſity: its foundation, according to them, is laid in the proportion of ſeveral things, conſidered as that proportion proceeds upon different conſiderations.

Thus, a ſound animal, a ſound food, and a ſound propoſition, agreeing in this, that they have a common denomination, but the reaſon or quality whereon the denomination is founded, different, are ſaid to have an *analogy*, or to be *analogous*. Accordingly, *analogous* things are defined to be ſuch as have a common name, but the thing immediately ſignified by that common name different; yet with ſome correſpondence or relation diſcernible therein.

Philoſophers uſually diſtinguiſh three kinds of *analogy*, viz. of *inequality*, where the reaſon of the common denomination is the ſame in nature, but not in degree or order: in which ſenſe, animal is *analogous* to man and brute.—Of *attribution*; where, though the reaſon of the common name be the ſame, there is a difference in its habitude or reſpect thereto: in which ſenſe, healthy is *analogous* both to a man, and an exerciſe.—Of *proportionality*; where, though the reaſons of the common name do really differ, yet they bear ſome proportion to each other. In this ſenſe, the gills of fiſhes are ſaid to be *analogous* to the lungs in terreſtrial animals; and thus, the eye and the underſtanding are ſaid to bear an *analogy* to each other.

Reaſonings by *analogy* may ſerve to explain and illuſtrate, but not to prove any thing; yet is a great deal of our philoſophizing no better founded.

From a few *data*, a few points known and allowed, we reaſon by *analogy*, and deduce a number of others. It is thus that moſt branches of knowledge are extended to their preſent dimenſions. There are but few things actually obſerved, few experiments made; and all the obſervations and experiments we have are only ſingular. Such an effect was found from ſuch an individual body, under ſuch and ſuch circumſtances. We infer, that what has been obſerved of one body under ſuch circumſtances, will, from the *analogy* and uniformity in the works of the Creator, equally hold in all other bodies of the ſame ſpecies under the like circumſtances. Thus, without having recourſe to experiment, we never heſitate to conclude, that the fruit of trees of the ſame ſpecies will have the ſame taſte and properties. This has many times drawn us into great errors; it continues every day to lead us into new ones, and may be ſaid to be the ſource of moſt of the miſtakes committed in purſuit of ſcience. But nevertheleſs, while mankind extend their thoughts toward unknown and inacceſſible *objects*, they have no other guide to direct their reſearches but the ſuppoſed correſpondence between the objects they are acquainted with, and thoſe which are the ſubjects of their inveſtigation.

The *analogy* between the three kingdoms of plants, animals and minerals, has been the ſource of a variety of diſcoveries, either real or imaginary: hence it is we have learnt, that ſtones vegetate; that plants breathe: that the ſap circulates in them; that generation is performed by eggs in the human kind; that the planets have their atmoſpheres, their inhabitants, their trees, their ſeas, &c. Indeed, if we will follow whither *analogy*, real or imaginary, will lead us, there is no end of ſcience.

As to divine and ſupernatural matters, it is aſſerted we know nothing of them, but by *analogy*; that is, by the mediation and ſubſtitution of thoſe ideas we have of ourſelves and other natural beings. Our ideas of God himſelf ariſe from this ſpring; we have no direct and immediate perception of him. The knowledge we have of

the Supreme Being, is only an observation of his works, and a reflection of the mind, which shews what power, wisdom, &c. appear necessary to enable him to produce them. Having no proper ideas of his perfections, we give them the names of those faculties of men, which we judge necessary. See an excellent treatise on the *Analogy* of Religion, natural and revealed, to the Constitution and Course of Nature, by bishop Butler: in which, by evincing the *analogy* or likeness that subsists between the system of things and dispensation of providence, which revelation informs us of, and that system of things and dispensation of providence, which experience and reason inform us of, i. e. the known course of nature, he is led to ascribe both to the same author and cause.

ANALOGY, in *Grammar*, denotes the subsistence, or agreeableness of a word or phrase to the common rules, or forms of language.

In this sense, *analogy* stands opposed to ANOMALY.

ANALOGY, in respect to language, denotes a conformity with other points already established, serving as a rule, or model, for the making of new words and phrases similar to those already in use.

Or, *analogy* may be considered as a general or established usage, applied in similar cases, to certain words, phrases, or constructions not yet established. Or, *analogy* is only a particular usage which, in certain cases, is inferred from a general usage already established.

Grammarians are divided into two parties. Some, with Sanctius, contend, that the *analogy*, or reason, reigns through all the parts, all the phrases and dictions of the Latin tongue. On the contrary, others, with Perizonius, assert, that there are many phrases, contrary to *analogy* and reason, derived all originally from the populace. Such, e. g. are, *Nemo bona, dicerium, eversum*, &c.

Varro and Cæsar wrote expressly on the *analogy* of Latin words, but their works are now lost. Jac. Operarius has endeavoured to supply that loss, by tracing the *analogy* of 30,000 Latin words. Vid. Bib. Lat. lib. 1. cap. 10.

ANALOGY of *conjugation*, *analogia conjugationis*, is not only when a verb is conjugated like another, but agrees with it in the quantity of the syllables.

Thus *clamo* is conjugated like *amo*, and *clamabam* pronounced like *amabam*.

ANALOGY *of declension*, *analogia declinationis*, is not only when a noun, pronoun, or participle, is declined like another, but agrees with it in respect of the quantities of the syllables.

Thus, e. g. *mater* is declined like *pater*, *faltans* as *amans*, *suus* as *tuus*. So *pennarum* is pronounced as *monjarum*, and *fumeris* as *meneris*.

ANALOGY *of doctrine*, among *Critics*, is one of the great rules to which regard is to be had in the interpretation of authors.

We are first to learn from the author himself, the general system which he follows; and as no writer is to be easily supposed to contradict himself, our interpretation is to be so conducted, as that nothing be admitted which is contrary to, or tends to overthrow this system.

Thus, in interpreting an author who follows the Platonic scheme, we are to prefer a sense which is consistent with the Platonic doctrine, to another which is contrary to it, unless there be some evident proof, that the author contradicts himself, or asserts things which are inconsistent.

ANALOGY, in *Rhetoric*. See COMPARISON.

ANALOGY, in *Geometry*, denotes a similitude of ratios, or proportions.

ANALOGY *of faith*, among *Divines*, denotes that relation which the several articles of faith bear to each other.

Analogy of faith stands opposed to tradition and authority, which is the great rule of interpretation among catholics. By this it is required, that whether we interpret Scripture, or explain the doctrines of Christianity, all our positions and explanations be consistent with the *analogy* of our faith, and those evident propositions deduced from Scripture.

Tottschius, Antonius, Franckius, &c. have written expressly on the *analogy of faith*.

ANALOGY, in *Medicine*, is a certain relation or resemblance between diseases, in virtue whereof, we may reason and conclude from one to another, and treat them all much in the same manner; e. gr. a pleurisy, being a species of inflammation, produced like inflammations of other parts, is to be treated like them, relaxing the solids, which are too much stretched, and giving free passage for the humours.

This method of deduction was called, by the ancients, *medicina rationalis*, or *dogmatica*, in opposition to the *empirica*, called also *epilogismi*, which was conducted by appearances only, without theory.

ANALYSIS, in a general sense, is the resolution of something compounded into its constituent parts.

ANALYSIS, in *Logic*, is a method of applying the rules of reasoning, to resolve a discourse into its principles, in order to a discovery of its truth, or falsehood. Or it is an examination of some discourse, proposition, or other matter, by searching into its principles, and separating and opening its parts; in order to consider them more distinctly, and arrive at the more precise knowledge of the whole.

The word is ἀνάλυσις, which literally signifies *resolution*; formed of ἀνα and λυω, *solvo*, *I solve*.

Analysis makes one great branch or species of method; called also RESOLUTION.

It is particularly used for the reduction of an imperfect syllogism to a perfect one. This is otherwise called REDUCTION.

The order of the *synthesis* is contrary to that of the *analysis*, one beginning where the other ends. The two methods cannot always be used indifferently; the *analysis* is most proper for the discovery of truth, and SYNTHESIS for teaching and explaining it in a systematical way. Hence some call *analysis* the method of invention.

ANALYSIS, in *Mathematics*, may be divided into *ancient* and *modern*.

The modern *analysis* is what is often called *algebra*; but they ought to be distinguished, algebra being only a part of the *analytic* art.

The moderns are at some loss concerning the *ancient analysis*, i. e. concerning the art and method whereby the ancients resolved problems, and invented theorems. Some traces of their method are extant in Pappus, Apollonius, and Euclid; and Dr. Hook suspects, that their *analysis* went backwards through almost all the same steps by which their demonstrations went forwards.

That this might often be the case, seems evident to any one who has studied Euclid with care. They have indeed left us no precepts of their art. This, like almost all others, must be acquired by imitation, and the excellent examples left us by the Greeks. Men of genius among the moderns, who had studied the works of the ancient geometers, have been thereby enabled to imitate them, and penetrate into their methods: the works of Huygens and Newton, and of late the treatise of Conic Sections by Mr. Simpson, professor of mathematics in the university of Glasgow; as also several parts of Mr. Maclaurin's Treatise on Fluxions, are evident proofs of this.

Weigelius has endeavoured to retrieve the ancient *analysis* of Aristotle, from Euclid and other ancient geometricians.

ANALYSIS is divided by some authors into *simple* and *compound*.

ANALYSIS, *simple*, is that employed in solving problems reducible to simple EQUATIONS.

ANALYSIS, *compound* or *complex*, that which gives the expressions or solutions of problems in compounded EQUATIONS.

ANALYSIS is further divided, with regard to its object, into that of *finites*, and that of *infinites*.

ANALYSIS *of finite quantities*, is what we otherwise call *species arithmetic*, or ALGEBRA.

ANALYSIS *of infinites*, called also the new ANALYSIS, is particularly used for the *method of* FLUXIONS, or the *differential calculus*.

ANALYSIS *of powers*, denotes the resolving them into their ROOTS.

In this sense *analysis* amounts to the same with what we otherwise call EVOLUTION.

We find divers other kinds of *analysis* treated of by mathematical writers, as the *analysis* of *indivisibles*, &c. M. Leibnitz spoke of an *analysis situs*, different from the *analysis* of magnitudes.

The *analysis* of geometrical curves shews their properties and internal constitution, their curvature, points of inflexion, station, retrogradation, variation, &c. In this *analysis*, curves are usually considered as polygons composed of an infinite number of infinitely little sides; but this supposition is neither accurate nor necessary, though it sometimes affords convenient hints for invention.

F. Renau of the Oratory has given a large system of algebra under the title of *analysis*. F. Calsel censures it as not sufficiently methodical or systematical. The great divisions and members are lost in the multitude of particular rules and methods.

ANALYSIS *of ideas*, that whereby an idea is resolved into the ideas of its ingredients, and the ideas of these again into simple ones, till at length we arrive at the most simple.

ANALYSIS, *grammatical*, is that employed about words, their etymons, homonymas, or various acceptations, synonymas, constructions, rules, and the like.

Pasor has given a grammatical *analysis* of the difficult words in Hesiod, &c. Starmius has published a method of making the *analysis* of Latin words.

ANALYSIS, *rhetorical*, is that which examines the connections, tropes, figures, and the like, inquiring into the proposition, division, passions, arguments, and other apparatus of rhetoric.

Several authors, as Freigius and others, have given *analyses* of Cicero's Orations, wherein they reduce them to

their grammatical and logical principles; strip them of all the ornaments, and additions of rhetoric, which otherwise disguise their true form, and conceal the connection between one part and another. The design of these authors is to have those admired harangues, just such as the judgment disposed them, without the help of imagination; so that here we may coolly view the force of each proof; and admire the use Cicero made of rhetorical figures, to conceal the weak part of a cause.

A collection has been made of the *analyses* formed by the most celebrated authors of the fixteenth century, in three volumes folio.

ANALYSIS is alſo uſed, in *Chemiſtry*, for the decompounding of a mixed body; or the ſeparation of the principles and conſtituent parts of the compounded ſubſtance.

To *analyſe* bodies, or reſolve them into their component parts, is indeed the chief object of the art of chemiſtry. Chemiſtry furniſhes ſeveral means for the decompoſition of bodies, which are all founded on the differences of the properties belonging to the different principles of which the body to be analyſed is compoſed. If, for example, a body be compoſed of ſeveral principles, ſome of which have a great, and others a moderate degree of volatility, and, laſtly, others are fixed, its moſt volatile parts may be firſt ſeparated by a gradual heat, in diſtilling veſſels, and then the parts which are next in volatility will paſs over in diſtillation, and laſtly, thoſe parts which are fixed, and capable of reſiſting the action of fire, will remain at the bottom of the veſſel.

There are two methods of *analyſis* which chemiſts make uſe of; *analyſis by fire*, and *analyſis by menſtrua*. The laſt is at leaſt of as extenſive utility as the firſt, ſince it takes place in almoſt all the operations of chemiſtry. The operations called by chemiſts PARTING, ought to be conſidered as the true *analyſis by menſtrua*. It is true, that in many caſes, the *analyſis by menſtrua*, as well as the *analyſis by fire*, is incomplete. Frequently it is neceſſary, in order to make a perfect *analyſis* of bodies, to unite theſe two methods, by *fire* and by *menſtrua*, ſo that the one can be made to aſſiſt the other; and from theſe combined means a decompoſition reſults much more perfect and more accurate than could have been obtained by either of them ſeparately. Nothing more need be ſaid here on *analyſis* in general; the ſubject is ſo extenſive, that to make particular applications of it, we ſhould be obliged to conſider all the objects in chemiſtry. Thoſe who know the uſe of general principles, will apply theſe to particular operations, and longer details would be fatiguing and uſeleſs to others. It is, nevertheleſs, proper to mention the general articles which relate to this. See therefore EXTRACTION, DECOMPOSITION, DISTILLATION, CALCINATION, PRECIPITATION, and SOLUTION.

All bodies by a chemical *analyſis* reſolve into water, earth, ſalt, ſulphur, and mercury, though every body does not afford all theſe parts; but ſome more, ſome fewer, of them, according to the kingdom they belong to. The *analyſis* of vegetables is eaſy; that of foſſils, particularly of metals, and ſemi-metals, difficult.

The many *analyſes* that have been made of plants by Bourdelin, and others, have generally proved uſeleſs with regard to any diſcoveries of the properties and virtues of the plants analyſed. The moſt ſalutary plants, in this way of treatment, yield much the ſame principles as the moſt poiſonous. The reaſon apparently is, that the too great action of the fire, in diſtillation, changes the plants, and their principles: on this account, inſtead of diſtillation, M. Bouldue has made his *analyſes* by decoction only. Vide Mem. Acad. R. Sciences an. 1734. p. 139. Hiſt. 63.

Some bodies of the foſſil tribe conſiſt of particles ſo very minute, and ſo firmly united, that the corpuſcles thereof need leſs heat to carry them off than to ſeparate them into their principles: ſo that the *analyſis* is impracticable in ſuch bodies. Hence ariſes the difficulty of *analyſing* ſulphur.

Analyſis of metals, and metallic minerals, conſiſts in what they call the MERCURIFICATION of them: the *analyſis* of other bodies is performed by *diſtillation*, *ſublimation*, &c.

The order of matters which ariſe in analyſing vegetable and animal bodies in different, according as thoſe bodies have been fermented or not; if they have, the ſpirits and volatile ſalts ariſe firſt, then aqueous liquors, then fœtid oil, after which a *caput mortuum*, which by *calcination* and *lixiviation*, is reduced to a fixed ſalt, and inſipid earth. In bodies unfermented, the aqueous parts riſe firſt, afterwards the reſt ſucceed in the ſame order as above.

The anatomical diſſection of an animal, is alſo a kind of *analyſis*.

ANALYSIS is alſo uſed for a kind of ſyllabus, or table of the principal heads or articles of a continued diſcourſe; diſpoſed in their natural order and dependency.

Analyſes are more ſcientifical than alphabetical indexes; but they are leſs uſed, as being more intricate.

Analyſis is likewiſe uſed for a brief, but methodical illuſtration of the principles of a *ſcience*; in which ſenſe it is nearly ſynonymous with what we otherwiſe call a *ſyngeſis*.

ANALYST, a perſon who analyſes a thing, or makes uſe of the *analytical* method.

Some reſtrain the word more peculiarly to denote a mathematician, who makes a great uſe of the algebraic method or *calculus* in geometry, in excluſion of the *ſynthetic*, or ſtrict geometrical method.

In which ſenſe *analyſt* amounts to much the ſame with *algebraiſt* or *calculator*.

In a ſenſe not unlike this, Dr. Berkeley, an ingenious writer, gives the title *analyſt* to a book againſt the modern *geometry*, or doctrine of FLUXIONS.

ANALYTIC, ANALYTICAL, ſomething that belongs to, or partakes of, the nature of analyſis.

Thus we ſay, an *analytical* demonſtration; *analytical* inquiry; *analytical* table or ſcheme; *analytical* method, &c.

The *analytic* method ſtands oppoſite to the *ſynthetic*.

ANALYTICS, ANALYTICA, the ſcience, or doctrine, and uſe of *analyſis*.

The great advantage of the modern mathematicians above the ancient, is in point of *analytics*.

The authors on the ancient *analytics* are enumerated by Pappus, in the preface of his fifth book of his mathematical collections; being, Euclid, in his *Data*, and *Porifmata*; Apollonius, *De Sectione Rationis*; Apollonius in his *Canon*, *Inclinationes*, and *Tactiones*; Ariſtæus *De Locis Solidis*; and Eratoſthenes, *De Mediis Proportionalibus*. But the ancient *analytics* were very different from the modern.

To the modern *analytics* principally belongs *algebra*; the hiſtory of which, with the ſeveral authors thereof, ſee under ALGEBRA.

The chief writers upon the analyſis of infinites are, its inventor, Sir Iſaac Newton, in his *Analyſis per Quantitatem Seriei, Fluxiones, & Differentias, cum Enumeratione Linearum tertii Ordinis* 1702. *De Quadratura Curvarum*; and M. Leibnitz, in *Act. Eruditor.* an. 1684. The Marquis De l'Hôpital, in his *Analyſe des Infiniments petites*, 1696. Carre, in his *Methode pour la Meſure des Surfaces, la Dimenſion des Solides, &c. par l'Application du Calcul integral*. 1700. G. Manfredi, in a poſthumous piece, *De Conſtructione Æquationum differentialium primi gradus*, 1707. Nic. Mercator, in *Logarithmotechnica*, 1668. Cheyne, in *Methodus Fluxionum inverſa*, 1703. Craig, in *Methodus Figurarum lineis rectis & curvis comprehenſarum Quadraturas determinandi*, 1685; and *De Quadraturis Figurarum curvilinearum & inclt*, &c. 1693. Dav. Gregory, in *Exercitatio Geometrica de Dimenſione Figurarum*, 1684; and Nieuwentit, in *Conſiderationes circa Analyſeos ad Quantitates infinite parvas applicatæ principia*, 1695. The ſum of what is found in l'Hôpital, Carre, Cheyne, Gregory, and Craig, is collected into one volume, and very well explained, by C. Hayes, under the title of a Treatiſe of Fluxions, &c. 1704. And the ſubſtance of moſt of the reſt in Pere Reyneau's *Analyſe Demontrée*, 2 vols 4to. 1708. De Moivre alſo, Maclaurin, and Mr. T. Simpſon, may be added to the number.

ANALYTICS, in *Literary Hiſtory*, is particularly uſed to denote certain writings of Ariſtotle under this title.

Ariſtotle's *Analytics* conſiſt of four books, run under the denomination of *former*, ANALYTICA *poſteriora*, and as many under that of *latter*, *priora*. They belong to the claſs of his *acroamatic* works. Fabr. Bibl. Græc. lib. iii. cap. 6.

ANALYTICS is alſo uſed by ſome for a part of LOGIC, which teaches to decline and conſtrue reaſon, as grammar does words.

ANAMNESIS, from ἀνὰ and μνήσομαι, *I remember*, in *Ancient Writers*, denote encomiums of perſons who had behaved well in war, or on other occaſions, rehearſed before the emperors of Conſtantinople, to put them in mind of beſtowing ſuitable rewards.

ANAMNESTICS, in *Medicine*, are uſed by ſome writers, to denote thoſe ſigns which help to diſcover the paſt ſtate of a patient's body: in which ſenſe it ſtands oppoſed to PROGNOSTICS.

Theſe are otherwiſe called *commemoratives*.

ANAMNESTIC is alſo applied by Blancard to remedies proper for reſtoring or ſtrengthening the memory.

Such, according to this author, are all ſpirituous things.

ANAMORPHOSIS, in *Perſpective* and *Painting*, a monſtrous projection; or a repreſentation of ſome image, either on a plane or curve ſurface, deformed and diſtorted: which at a certain diſtance ſhall appear regular, and in proportion.

The word is compounded of ἀνὰ and μορφὴ, *form*.

To make an *anamorphoſis*, or monſtrous projection on a plane. Draw the ſquare ABCD (*Tab. Perſpective, fig.* 10. N° 1.) of a bigneſs at pleaſure, and ſubdivide it

into

into a number of areolas, or lesser squares. In this square, or reticle, called the *cruticular prototype*, let the image to be distorted be drawn. Then draw the line *a b* (*fig.* 19. N° 2.) equal to A B; and divide it into the same number of equal parts, as the side of the prototype A B; and in E, the middle thereof, erect the perpendicular E V, so much the longer; draw V S perpendicular to E V, so much the shorter, as the image is defired to be more distorted. From each point of division draw right lines to V, and join the points *a* and S, by the right line *a* S. Through the points *d e f g* draw lines parallel to *a b*; then will *a b d* be the space which the monstrous projection is to be delineated in; called the *cruticular eclype*.

Lastly, in every *areola*, or small *trapezium* of the space *a b d*, draw what appears delineated in the correspondent *areola* of the square ABCD: by this means you will obtain a deformed image, which yet will appear in just proportion to an eye distant from it the length EV, and raised above the height VS.

It will be diverting to manage it so, that the deformed image may not represent a mere chaos, but some other image: thus, we have seen a river with soldiers, waggons, &c. marching along the side of it, so drawn, that when viewed by an eye in the point S, it appears to be the farrical face of a man.

An image also may be distorted mechanically, by perforating it here and there with a needle, and placing it against a candle or lamp; and observing where the rays, which pass through these little holes, fall on a plane, or curve superficies; for they will give the correspondent points of the image deformed; by means whereof, the deformation may be completed.

ANAMORPHOSIS, *to draw the, or deformation of an image, upon the convex surface of a cone.*—It is manifeft from the former cafe, that all here required is, to make a *cruticular eclype* on the fuperficies of the cone, which fhall appear to an eye duly placed over its vertex, equal to the cruticular prototype.

Let the bafe, or periphery, ABCD, therefore, of the cone (*fig.* 20.) be divided by diameters into any number of equal parts; and let fome one radius be likewife divided into equal parts; and through each point of divifion draw concentric circles: thus will the cruticular prototype be made. With double the diameter AB, as a radius, defcribe the quadrant EFG (*fig.* 21.) fo as the arch EG be equal to the whole periphery: then this quadrant, folded duly up, will form the fuperficies of a cone, whofe bafe is the circle ABCD. Divide the arch E G into the fame number of equal parts as the cruticular prototype is divided into; and draw radii from each of the points of divifion. Produce GF to I, fo that FI = EG: and from the centre I, with the radius IF, draw the quadrant FKH; and from I to E draw the right line IE. Divide the arch KF into the fame number of equal parts as the radius of the cruticular prototype is divided into; and draw radii through each of the points of divifion, from the centre I, meeting EF, in 1, 2, 3, &c. Laftly, from the centre F, with the radii, F 1, F 2, F 3, &c. defcribe the concentric arches. Thus will the cruticular eclype be formed, the *areolæ* whereof will appear equal to each other.

Hence what is delineated in every *areola* of the cruticular prototype, being tranfferred into the *areolæ* of the cruticular eclype, the images will be diftorted or deformed: yet an eye being duly raifed over the vertex of the cone, will perceive it in juft proportion.

If the chords of the quadrants be drawn in the cruticular prototype, and chords of the fourth part in the cruticular eclype, all things elfe remaining the fame, you will have the cruticular eclype in a quadrangular pyramid.

And hence it will be eafy to deform any image, in any other pyramid, whofe bafe is any regular polygon.

Becaufe the eye will be more deceived, if from contiguous objects it cannot judge of the diftance of the parts of the deformed image; therefore, thefe kinds of deformed images are to be viewed through a fmall hole; and when they are made to appear like the objects which they are intended to repreſent, by means of a mirror of any particular conftruction, thefe *anamorphoſes* are faid to be *performed*. See MIRROR.

ANANAS, in *Natural Hiſtory*, by fome called *nanas*, by others *ananas*, and by us popularly the *pine-apple*, on account of the refemblance it bears to the cones of pines and firs, is a fine Indian fruit, which grows on an herbaceous plant, with leaves like thofe of the aloe. See PINE-APPLE.

ANAPÆST, *Anapæstus*, a foot in the Greek and Latin poetry, conſiſting of two fhort, and one long fyllable, being the reverſe of the dactyl.

The word is derived from ἀνάπαιστος, *contra ferio*, becauſe, in dancing this meaſure, the ground was ſtruck in a contrary order from what it was in the dactyl. Whence the Greeks called it *ἀντιδάκτυλος*. Diom. lib. iii. p. 74.

Such are the words *ſupervĕnit*, *ſuperĕmi*, *reſiſtĕre*.

ANAPÆSTIC, or ANAPÆST, is ſometimes uſed in a ſubſtantive ſenſe.

Such is the *anapæſtus Ariſtophaneus*, in Cicero, which is a verſe conſiſting of eight feet, as

Arena ponit pro ſcriba denique dictata adhæſit.

Vide Cic. in Orat. cap. 56. Fabr. Theſ. in voc. *Anapæſtus*.

This is otherwiſe called *anapæſtus octonarius*.

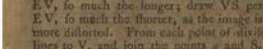
ANAPÆSTIC, in an adjective ſenſe, ſomething relating to, or compoſed of *anapæſts*.

ANAPÆSTIC *kind*, *genus anapæſticum*, is a ſort of verſe compoſed of pure Ariſtophanic or Parthenaic *anapæſts*.

Anapæſtic verſes are either Ariſtophanic or Pindaric.

Anapæſtici Ariſtophanei, called alſo *Parthenaici*, conſiſts of three *anapæſts*, and one long ſyllable, but in ſtead inſtead of the firſt two *anapæſts* as many ſpondees may be uſed.

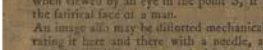
Its type ſtands thus:



Venient ætis ſæcula quæ non
Socius naſcet naſſa recluſit
Animantique ſalmarius ævo
Habitacula priſſima pandet
Laxymas ſolſandite cauſſi
Mors nec reparabilis vincet te. Boeth.

Pindaric anapæſt admits, in the firſt place, either of an *anapæſt* or a ſpondee; in the ſecond, only of an *anapæſt*; in the third, of an *anapæſt* or a ſpondee in the ſixth, either of a ſpondee or a trochee.

As in the following type:



In ſummo perſcula textuit
Malum timor ipſe mali mittit.

ANAPHORA, in *Rhetoric*, a figure whereby one or more words are repeated in the beginning of ſeveral ſentences or verſes.

The word is ἀναφορὰ, ſignifying *repetition*.

Such, e. gr. is that of the Pſalmiſt: *The voice of the Lord is powerful: the voice of the Lord is full of majeſty: the voice of the Lord ſhaketh the wilderneſs.*

ANAPHORA is uſed in the *Ancient Medicine*, for the rejection of matter by the mouth.

Hence alſo we meet with the term *anaphoricis*, *anaphoricum*, uſed for thoſe labouring under an *anapatos*, who bring up blood from the lower part by the mouth.

ANAPHORA, among *Eccleſiaſtical Writers*, denotes the hoſt or ſacrifice offered in the *euchariſt*.

ANAPHORA is alſo uſed to denote the rehearſing a perſon's name from the DIPTYCHS in the liturgy.

ANAPHORA is alſo a title given to thoſe little Syriac liturgies, wherein are contained the prayers after the *ſanctus* paris. Ignatius, patriarch of the Maronites, enumerates forty of theſe *anaphoræ*.

ANAPHORA, in *Aſtrology*, denotes the ſecond houſe, or that part of heaven which is thirty degrees diſtant from the HORIZON.

The term *anaphora* is ſometimes alſo promiſcuouſly applied to ſome of the ſucceeding houſes; as the ſecond, fifth, eighth, and eleventh. In this ſenſe *anaphora* amounts to the ſame with *epanaphora*, and ſtands oppoſed to CATAPHORA.

ANAPHORA is alſo applied by ſome to the oblique aſcenſions of the ſtars.

ANAPHRODISIA, from ἀν and Ἀφροδίτη, *Venus*, denotes impotency in reſpect of venery. Some alſo uſe it for a want of deſire or inclination to the ſex.

In this ſenſe, the academiſts *Naturæ Curioſæ* give an extraordinary inſtance of this kind, in a perſon otherwiſe healthy and robuſt. Eph. Acad. N. C. Dec. 1. ann. 8. Obſ. 134.

ANAPHYSEMATA, from ἀνα and φυω, *I ſend forth*, in ſome *Ancient Writers*, denote winds iſſuing from under ground, at the clefts or apertures thereof.

Theſe are ſometimes called by latter writers *apopnoi*.

ANAPLASIS, from ἀνα and πλάσσω, *I form*, in *Medicine*, the complete reſtitution of a broken bone, ſo that the two ends meet and cloſe exactly together. This is the ſame with what is otherwiſe called *anaſtaſis*.

ANAPLASIS alſo ſignifies a renutrition of the exhauſted fleſh.

ANAPLEROSIS, in the general ſenſe, denotes REPLETION. *Anaplerotics* in more particularly uſed to denote that part of ſurgery whereby things wanting are ſupplied.

In which ſenſe, *anapleroſis* amounts to the ſame with what we otherwiſe call apposition, or PROTHESIS.

ANAPLEROTES, in the *Greek Laws*, is a name which ſome give to the four laſt books of Juſtinian's Code.

ANAPLEROTICS, in *Medicine*, ſuch remedies as incarnate, and fill up ulcers and wounds with new fleſh.

The word comes from *αναπληρω*, *I fill up*.

Anapleroties are the ſame with what we otherwiſe call INCARNATIVES.

ANAPODOPHYLLON, in *Botany*. See DUCK'S-*foot*.

ANARCHI, in *Antiquity*, a name given by the Athenians to four ſupernumerary days in the year, during which they had no magiſtrates.

The Attic year was divided into ten parts, according to the number of tribes, to whom the preſidency in the ſenate fell by turns.

Each diviſion conſiſted of thirty-five days; what remained after the expiration of theſe, to make the lunar year complete, which, according to their computation, conſiſted of three hundred and fifty-four days, were employed in the creation of magiſtrates, and called *αναρχοι ημεραι*. and *αρχαιρεσιαι*.

ANARCHY, the want of government in a nation, where no ſupreme authority is lodged, either in the prince, or other rulers; but the people live at large, and all things are in confuſion.

The word is derived from the Greek privative *a*, and *αρχη*, *principality*.

All kinds of ſtates are ſubject to *anarchies*. We read of civil *anarchies*, eccleſiaſtical or ſpiritual *anarchies*, and even *anarchies* in the republic of letters.

Anarchy is ſuppoſed to have reigned after the deluge, before the foundation of monarchies. We ſtill find it obtain in divers parts, eſpecially of Africa and America; e. gr. among the Iſlands, who are obſerved by travellers to live in a perfect independency of any ſuperior; among the Californians, where every family makes its own laws, as well as religion; in Chili, where every maſter of a family is a king; in the Marian iſlands, where neither prince nor law is known, but every perſon governs himſelf according to his own will; and to mention no more, among the Hottentots, where the only reſemblance of government is, that in each neighbourhood, the eldeſt is the firſt in honour, and his advice chiefly followed, not from any civil authority he is veſted with, but on account of his ſuperior experience.

Some extend the idea of *anarchy* farther, ſo as to make it comprehend all the more popular governments.

In this ſenſe, *anarchy* amounts to much the ſame with DEMOCRACY.

Hobbes, in this ſenſe, calls the Roman commonwealth an *anarchy*.

It has been ſometimes controverted which of the two is beſt, a ſtate of *anarchy*, or of tyranny and arbitrary power. This controverſy, however, does not appear to be of any great uſe; it is of little purpoſe to determine which is beſt, ſince a ſtate of *anarchy* naturally, nay neceſſarily, paves the way for deſpotiſm; and confuſion is always the parent of oppreſſion.

ANARCHY is alſo applied to certain troubleſome and diſorderly periods, even in governments otherwiſe regular. —In Germany, the ſpace from the election of Richard duke of Cornwall, to that of duke Rud. of Hapſburg, is commonly called the *anarchy*, or *interregnum*.

In England, the period between the death of Cromwell and king Charles's Reſtoration, is commonly repreſented as an *anarchy*. Every month produced a new ſcheme or form of government. Enthuſiaſts talked of nothing but annulling all the laws, aboliſhing all writings, records, and regiſters, and bringing all men to the primitive level. No modern nation is more ſubject to *anarchies* than Poland: where every interval between the death of one king, and the election of another, is a perfect picture of confuſion, inſomuch that it is a proverb among that people, Poland is governed by confuſion.

The Jewiſh hiſtory preſents numerous inſtances of *anarchies* in that ſtate, uſually denoted by this phraſe, *that in thoſe days there was no king in Iſrael, but every man did that which was right in his own eyes*; which is a juſt picture of an *anarchy*. The firſt *anarchy* we read of in that commonwealth, is that which enſued on the death of Joſhua, who leaving no ſucceſſor, the government devolved to the elders of the tribes, who ruled each according to his own will. After the death of theſe elders, the *anarchy* became complete.

ANARGYRUS, from *α* and *αργυρος*, *money*, in *Ancient Writers*, denotes a perſon without money, though otherwiſe ſufficiently accommodated with land, and other effects.

In a like ſenſe, we ſometimes alſo meet with the word *anargyria*, uſed by lawyers for the condition of a perſon without ready money.

Mart. Phil. Fabricius has a diſſertation expreſs *De Exceptione Anargyriæ*.

ANARGYRI, in *Eccleſiaſtical Hiſtory*, is an appellation given to certain ſaints in the Greek church, who having been phyſicians, gave not only their advice, but their remedies, *gratis*. They are alſo called *argentinopoi*.

ANARRHAPHE, from *ανα* and *ραφη*, *ſuture*, in *Surgery*, denotes a kind of future or retraction of the upper eye-lid, when relaxed and hanging over the eye.

This is by ſome alſo called *ſutura blepharica*, by others *adverſalis*, *contractio*, *colliſio*, or *ſuſpenſio ſuperioris palpebræ*. It is uſed in the *phalangoſis*, *ptoſis*, or *chalaſis*; where the ſight is obſtructed, by a *prolapſus* of the part, or the eye-lid itſelf is too thick beſet with briſtly hairs both within and without.

ANARRHICAS, in *Ichthyology*, the name given by Artedi to the fiſh called by others the LUPUS *marinus*. It is a genus of the order of *apodes*, in the Linnæan ſyſtem.

ANARRHINON, in *Botany*, a name given by ſome of the ancients to the plant called by others LYCHNIS *agria*, and by others *antirrhinum*. Pliny tells us, that this plant reſembled flax; that it had ſcarce any root; that its flower was the colour of the hyacinth, and its fruit reſembled the noſe of a calf. It is from this reſemblance that we at this time call the plant *calve's ſnout*. Dioſcorides ſays, that it was like the *anagallis*.

ANARTHRA, from *α* and *αρθρον*, *joint*, a claſs of naked inſects, diſtinguiſhed from all others, by having neither wings nor limbs. To this claſs belong all kinds of worms and leeches.

ANAS, *duck*, in the Linnæan ſyſtem of *Zoology*, the name of a large genus of birds, of the general order of ANSERES. The diſtinguiſhing characters of this genus are, that the beak is convex, and ends in an obtuſe point. The birds of this genus are the ſwan, goote, widgeon, &c. See DUCK.

ANAS *ſaraſſa*, in *Ornithology*, the name of a bird common in France, and uſually called TETRAX, and *canus perdicis*. It is of the ſize of a pheaſant, and of the nature of the *buſtard*, having no hinder toe; it runs very ſwiftly, and ſits on the ground as the duck does in the water, whence it has its name.

ANASARCA, from *ανα* and *σαρξ*, *fleſh*, in *Medicine*, a ſort of univerſal dropſy, wherein the whole ſubſtance of the body is ſtuffed or bloated with pituitous humours.

This diſtemper is ſometimes alſo called *cataſarca*, ſometimes *hypoſarcidium*, ſometimes *epiſarcidium*, ſometimes *aqua inter cutem*, or *interosa*, becauſe the pituitous humour ſpreads itſelf through the fleſh. Sereanus Samonicus elegantly calls it *ſympathicus error*; Alhucaſis calls it a dropſy by inſiltration.

Anaſarca is a peculiar ſpecies of univerſal dropſy, differing from both the *aſcites* and *tympanites*. It differs from the *aſcites* in that, though it uſually ariſes from the ſame cauſes, the waters in an *aſcites* do not poſſeſs the upper parts of the body, at leaſt while the patient keeps in an erect poſture, which they do in the *anaſarca*.

Some diſtinguiſh between the *anaſarca* and the *leucophlegmatia*, in that the latter comes from the *pituita*, the former from an ichorous ſerosity diſcharged in the very habit of the body; apparently through the fault of the lymphatic veſſels.

The *anaſarca* ſometimes ſtops at half its growth; in which caſe it is called by the ancients *phlegmatia*, where the bloating is conſpicuous, yet ſoft and looſe.

In an *anaſarca*, the legs ſwell at firſt, eſpecially towards night, and then pit remarkably; the urine is pale, the appetite decays; at length the ſwelling riſes higher, and appears in the thighs, belly, breaſt, and arms. The face becomes pale and cadaverous; the fleſh loſt and lax; and a difficult reſpiration comes on, attended with a ſlow fever.

The uſual method of cure among us is much the ſame as that of the *aſcites*. The ancients had a peculiar method adapted to it.

Actius relates from Aſclepiades, the manner of curing an *anaſarca*. This is by making inciſions on the inſide of the leg, about four fingers breadth above the ankle, as deep as generally thoſe in bleeding are made. At firſt a little blood iſſues out, afterwards there is a continual diſcharge of water, without any inflammation, ſo that the aperture cannot be cloſed, till the humour is ſpent, and the ſwelling gone down; and this drain cures the diſtemper, without any internal medicine.

Leonides ſays farther, that if the inciſions in the legs do not make a diſcharge quick enough, ſome ought to be made in other parts of the body; in the thighs, in the arms, or in the *ſcrotum*, if ſwelled, by which means a great quantity of watery matter may be evacuated.

The operation itſelf is mentioned by Hippocrates, and had been practiſed from his time down to our days, with ſucceſs; though ſometimes mortifications have been known to enſue.

In ſome caſes the *anaſarca* appears to have been advantageous, inſomuch that the cure of it has killed the patient.

Dr.

Dr. Dover's cure for an *anaſarca* is an electuary compoſed of ſteel prepared with ſulphur and crude antimony, each an ounce; *diapridium*, four ounces; make a fine powder of theſe; then add as much of any ſyrup as will make a ſoft electuary.

ANASSAS, in *Natural Hiſtory*, the name of a fruit very common in Guinea, and in ſome other parts of Africa. It is very beautiful to the eye, and not leſs agreeable both to the taſte and ſmell, and is by ſome accounted the fineſt fruit in the world. The deſcriptions we meet with of it are very imperfect; but as there is nothing in them that contradicts its being the PINE-APPLE, it may be that fruit, and if ſo, it deſerves all the praiſe that is given it.

ANASTASIS, a Greek word adopted into the Engliſh language, which denotes a reſurrection.

Chiflet has given us a diſſertation on Childeric's tomb, under the title of *Anaſtaſis Childerici*. Trucr has publiſhed the figure of a man and woman in the ancient German habit, as found in an ancient urn, under the title of *Anaſtaſis veteris Germani Germanaque Faminæ*.

ANASTASIS, among *Ancient Phyſicians*, denotes a riſing up to go to ſtool. It likewiſe ſignifies a migration of humours, when expelled from one place and obliged to remove to another.

ANASTATICA, ROSE *of Jericho*, in *Botany*, a genus of the *tetradynamia ſiliculoſa* claſs. *Anaſtatica*, *Hort. Cliff.* 328. The characters are: the flower hath four roundiſh petals, placed in form of a croſs; the ſeed-veſſel in this is blunt-pointed, bordered, and crowned, and the valves open oblique to the ſtyle.

This plant grows naturally on the ſands, near the borders of the Red Sea, and in many parts of Syria.

It hath had the epithet of *roſa Mariæ* given to it by the monks, who have ſuperſtitiouſly ſuppoſed that the flowers open on the night that our Saviour was born. But the truth is, that the dry woody plant being ſet for ſome time in water, will diſtend and open, ſo as to diſcloſe the ſeed veſſels and ſeed. This has been done when the plants have been many years gathered; ſo that ſome curious perſons preſerve them in their repoſitories of curioſities, for the ſingularity of this property.

This plant is propagated by ſeeds, which ſhould be ſown the beginning of April, on a border of light ſandy earth, where it is deſigned to remain; for it will not bear tranſplanting. If the ſeaſon proves favourable the plants will flower in Auguſt; but unleſs the autumn proves warm and dry, they will not ripen their ſeeds in England.

ANASTOMASIS, or ANASTOMOSIS, in *Anatomy*, is ſometimes uſed to expreſs ſuch aperture of the mouths of the veſſels as lets out their contents.

The word is formed of *ava*, *through*, and *ςομα*, *mouth*.

ANASTOMASIS is more frequently uſed to denote the opening of two veſſels into one another; or the union and junCture of the mouths of two veſſels, whereby they come to communicate with one another.

There are various *anaſtomoſes* of this kind, e. gr. of an artery with an artery, a vein with a VEIN, and of a vein with an ARTERY.

This circulation of the blood in the *fœtus* is effected by means of the *anaſtomoſes*, or inoſculations of the *vena cava* with the pulmonary vein; and of the pulmonary artery with the *aorta*.

The circulation is alſo performed in adults by the *anaſtomoſes*, or continuation of the capillary arteries with the veins.

After the circulation of the blood through the heart, lungs, and large blood-veſſels, was demonſtrated by Harvey, it was only gueſſed how the extremities of the arteries tranſmitted the blood to the veins; till Leewenhoeck's microſcopes had diſcovered the continuations of the extremities of thoſe veſſels, in fiſh, frogs, &c.—However, there were not wanting thoſe who doubted of the like continuations of the extremities of the arteries and veins in human bodies, and quadrupeds; ſince thoſe animals it had hitherto been chiefly ſeen in ſatisfactorily, were either ſuch fiſh or amphibious kinds, as have but one ventricle in their hearts, and whoſe blood is actually cold; beſide that in them it does not circulate with ſuch rapidity as in animals whoſe hearts have two ventricles. This difference in the principal organs of circulation moved Mr. Cowper to make experiments on animals whoſe organs differ only from the human in their groſs figure, and not in their intimate ſtructure.—The reſult was a plain diſcovery of the like inoſculations of the arteries and veins in the *omentum* of a cat.

George Frederic Francus, of Frankenau, a phyſician of Copenhagen, publiſhed in the year 1705, a learned and copious work, intituled, *Anaſtomaſis Reſtella*.

It is a queſtion among *anatomiſts*, whether the uterine arteries and veins *anaſtomoſe* with the veins and arteries of the fecundines. Mr. Alex. Monro holds the negative, and he thinks that ſeveral inconveniencies are avoided by the want of this *anaſtomoſis*. Med. Eſſ. Edinb. vol. ii. p. 133, &c.

ANASTOMATICS, or ANASTOMATIC *medicines*, are ſuch as have a faculty of opening and dilating the cavities of the veſſels: and by that means of making the blood circulate the more freely.

The word comes from *ανακτομοω*, *I unſtop*.

ANASTROUS *ſigns*, in *Aſtronomy*, an appellation given to the *duodecatimoria*, or the twelve portions of the ecliptic which the ſigns poſſeſſed anciently, but have deſerted by the preceſſion of the *equinox*.

ANASTROPHE, from *ava* and *ςρεφω*, *I turn*, in the *Ancient Military Art*, denotes the turn of a battalion to its former ſtation, after a turn or evolution either to the right or left.

The *anaſtrophe* ſtands oppoſed to the *epiſtrophe*.

ANASTROPHE alſo denotes a grammatical figure, whereby a prepoſition, which regularly ought to precede, is placed after its caſe, e. gr. *Saxa per et ſcopulos*.

ANASTROPHE, in *Rhetoric*, denotes a quaint inverſion of the order of the words in a ſentence, e. gr. *ut ſcire poſſis ad quos te expediat loqui*, for *quo ad expediat te loqui*.

ANATHEMA, from *ava* and *τιθημι*, *I lay up*, in *Antiquity*, denotes a preſent offered to ſome god, and hung up in his temple.

Making preſents to the gods was a cuſtom even from the earlieſt times, either to pacify them when angry, or to obtain ſome future benefit, or as a grateful acknowledgment of ſome paſt favour. They conſiſted of crowns and garlands, garments, cups of gold, and other valuable metals, and any other things which conduced to the ornament, or the enriching of the temples.

Theſe were commonly termed *αναθηματα*, and ſometimes *αναϑεματα*; from their being depoſited in the temple, where they ſometimes were laid on the floor, ſometimes hung upon the walls, doors, pillars, or the roof, or any other conſpicuous place. Sometimes the occaſion of the dedication was inſcribed either upon the thing itſelf, or when the matter of that could not bear an inſcription, upon a tablet hung up with it.

When any perſon left his employment, or way of life, it was cuſtomary to dedicate the inſtruments belonging to it, as a grateful commemoration of the divine favour and protection. Thus in an ancient Greek epigram we find a fiſherman makes a preſent of his nets to the Nymphs of the ſea. Shepherds hung up their pipe to Pan, or ſome of the country deities, as we find done by one in Tibullus. So Lais, decayed with age, dedicates her mirror to Venus. Pauſanias has left us a particular deſcription of the *anathemata*, in the Delphian temple, which was the richeſt of any in Greece.

The term *anathema* alſo occurs in a like ſenſe, applied to Chriſtian offerings.

The *anathemata* or ornaments of the ancient churches, are otherwiſe called in eccleſiaſtical writers *donaria*.

Such in particular were thoſe called *ευχτηριακα*, conſiſting of the votive tablets of the heathens. Alſo pictures, moſaics, inſcriptions, and at length images, ſtatues, crucifixes, &c.

Cebes's beautiful Tablature of Human Life, is ſaid, in the introduction to it, to have been among the *αναϑηματα*, in the temple of Saturn.

ANATHEMA, in an eccleſiaſtical ſenſe, denotes an EXCOMMUNICATION, attended with execrations and curſes. In this ſenſe, the word is uſually written in Greek *anathema*, to diſtinguiſh it from an offering to the gods, called *anathema*: though it is certain ſeveral of the Greek fathers do not obſerve this diſtinction; but uſe *anathema* indifferently for either.

There are two kinds of *anathemas*; the one *judiciary*, the other *abjuratory*.

The former can only be pronounced by a council, a pope, biſhop, or other qualified perſon; and differs from a ſimple excommunication in this, that an excommunication only prohibits the criminal from entering within the church, or from holding communion with the faithful; whereas an *anathema* cuts him off from the body, the ſociety, and even the commerce of the faithful, and delivers him over to the *Devil*.

The latter kind of *anathema* uſually makes a part of the ceremony of ABJURATION; the convert being obliged to *anathematize the hereſy* he abjures.

The critics and commentators are divided about the manner wherein St. Paul wiſhes to be *anathema* for his brethren. Romans, ch. ix. 3. See ACCURSED.

In ancient cenſures we meet with an extraordinary *formula*, called *maranatha*; and authors are divided concerning its import and uſe.

St. Chryſoſtom ſays it is a Hebrew word, ſignifying *the Lord is come*; and he particularly applies it to the confuſion of thoſe who ſtill abuſe the privilege of the Goſpel, notwithſtanding that the Lord was come among them.

St. Jerom says it was more a Syriac than an Hebrew word, though it had something in it of both languages, signifying *our Lord is come*. But he applies it against the perverseness of the Jews and others who denied the coming of Christ, making this the sense of the apostle; *if any man love not the Lord Jesus Christ, let him be anathema, the Lord is come.*

According to this sense, *maranatha* could not be any part of the form of *excommunication*, but only a reason for pronouncing the *anathema* against those who expressed their hatred against Christ, by denying his coming, either in words, as the Jews did who blasphemed him, and called Jesus *anathema* or accursed; or else by wicked works, as those who lived profanely under the name of Christians. Others of the ancients interpret the word of the future coming of Christ, particularly St. Austin, who says, *maranatha* is a Syriac word, signifying *the Lord will come*. And he particularly applies it against the Arians, who could not be said, as he unchristianly thought, to love the Lord, because they denied his divine nature. Dr. Hammond and others will have *anathema maranatha* to have answered to the third and highest degree of excommunication among the Jews, called *shammatha*.

Baldunus, Deutrohmannus, Durrius, Stewartius, and others, have written expressly concerning *anathemas*. Hen. Laberus, a German writer, has given an *Anathematologia*, or a discourse on the church curses. See a form of the *anathema* denounced against robbers in the middle ages, in Bouquet's Recueil des Hist. tom. x. p. 527. The English reader may see it in An. Regist. vol. xii an. 1769. p. 147.

ANATHEMATIZING, the act of pronouncing an *anathema*. In which sense it amounts to the same with *excommunicating*. The term is not only applied in speaking of persons, but of doctrines and opinions.

ANATHEMATISM denotes the same with *anathema*, or imprecation.

ANATHREPSIS, in *Medicine*, amounts to much the same with ANALEPSIS.

ANATICULA, a diminutive of *anas*, and used by the old Roman *authors*, as a term of fondness, to express the passion of love. There is another of the same kind from a different bird, *palumbula*.

My little duck my little dove, were the most endearing terms the lovers of those times could use; nor was this the custom of the Romans only, but the Greeks, as far back as Anstophanes, have it.

ANATIFERA *concha*, in *Natural History*, the name of a genus of shells, the characters of which are these; it is a shell-fish of the multivalve kind, being of a triangular figure, flat, and composed of five shells fastened to a long pedicle, and furnished with fourteen hairs. Of this genus of shell-fish, the cabinets of the curious afford us four species.

This genus of shells obtained this strange name from an erroneous opinion, that they produced ducks, or a species of wild-fowl of that kind, the name signifying a shell producing *ducks*.

ANATOCISM, ANATOCISMUS, an usurious contract, wherein the interest is arising from the principal sum are added to the principal itself, and interest exacted upon the whole.

The word is originally Greek, but used by Cicero in Latin; whence it is descended into most other languages. It comes from the preposition ανα, which in composition signifies *repetition* or *duplication*, and τοκος, *usury*.

Anatocism is what we properly call *interest upon interest*, or *compound interest*.

This is the worst kind of usury, and has been severely condemned by the Roman law, as well as by the common laws of most other countries.

ANATOMY, the art of dissecting, or artificially taking to pieces the solid parts of animal bodies; in order to an exact discovery of their structure and œconomy.

The word is ανατομη, q. d. *section* or *cutting*; formed of ανατεμνω, *I cut asunder*.

Anatomy makes a great branch of that division of medicine called *physiology*.

It is sometimes divided, with regard to its end, into *speculative* and *practical*; a division of very little moment.—It is also divided, with regard to its subject, into *human* and *comparative*.

ANATOMY, *comparative*, is that which considers brutes, and other animals, and even vegetables; chiefly with a view to illustrate the human structure.

There is some dispute among physicians and naturalists concerning the usefulness of comparative *anatomy*. On the one hand it is urged, that the parts less apparent in one animal, are found more distinct and conspicuous in another; so that the knowledge of the structure of the former, may be improved by analogy, from that of the latter. On the other hand it is objected, that the diversity is so great between one animal and another, according to the different manners of life they are intended for, that it is never safe concluding by mere analogy, from the structure of one to that of the other. Malpighi has been very large in the refutation of this objection.

ANATOMY, *human*, which is absolutely and properly denominated ANATOMY, is that employed on the human body; by some called also *anthropotomy*.

The subject of *anatomy*, viz. the body, is variously divided into parts, *organical*, and *inorganical*; *similar*, and *dissimilar*, *normal*, &c.

Its more obvious division is into *solids* and *fluids*, or into the containing and contained parts.

Under the solids come the bones, muscles, nerves, arteries, veins, cartilages, ligaments, membranes, &c.—Under the fluids come chyle, blood, milk, fat, lymph, &c. See each under its proper article.

But some divide *anatomy*, with regard to its objects, into OSTEOLOGY and SARCOLOGY.

The first treats of the bones and cartilages: the second is subdivided into *splanchnology*, which comprehends the history of the internal parts, and more particularly of the viscera; *myology*, or the doctrine of the muscles; and *angiology*, which treats of the vessels, viz. the nerves, arteries, veins, and lymphatic vessels.

Others divide *anatomy*, with regard to its objects, into that of living bodies, and that of dead carcases.

Herophilus and Erasistratus, we are told by Celsus, dissected living persons; condemned criminals were sent to the former by princes, on purpose that they might have an opportunity of seeing the parts in their natural state, before any alterations induced in them by diseases or death.

The bodies of persons who have suffered a violent death, among which those who have been hanged, or lost their lives by strangulation with a cord, are the most proper, and to be preferred before the rest. It is for that reason that Riolan rejects those dead carcases which have been suffocated in the water, as improper for *anatomy*; though Galen used most frequently to drown such of his living creatures, as he had chosen for his anatomical operations.

Anatomy is by others divided into *medicinal* and *physical*.

ANATOMY *physical*, *anatomia physica*, is that employed in enumerating and describing the several solid parts of the body, as bones, cartilages, membranes, muscles, tendons, nerves, ligaments, arteries, veins, lymphæducts, &c. describing their figure, situation, connection, &c.

ANATOMY, *medicinal*, *anatomia medica*, is that which, to the former inquiries, adds that of the office and use of the several parts, and their concern in health or diseases. Some give a particular species of this under the denomination of chirurgical *anatomy*.

Some considerable physicians have endeavoured to check a minute study of *anatomy*, as of no use in physic. It is in reality but a small part of the science, as it now stands, that falls under immediate consideration in the medicinal practice. It seems enough for a physician to know the number, situation, communication, and use of the parts, without losing time in a minute investigation of their intimate structure, not excepting the smallest fibres, of which they are composed.

Others again recommend an exact and curious knowledge of *anatomy*, which does not barely include the situation of one or other of the viscera, or the magnitude, colour, figure, and order of the internal parts, but is of very wide extent. For, *by* they, it is necessary to inspect, with all our curiosity, the peculiar structure of each part, which we see to be formed with the highest art and skill; to find out its use, what function it performs in the body, what connection it has with the other members, and to comprehend what influence it has, after a wonderful manner, on different and remote parts. Such a knowledge of *anatomy* they esteem as a most firm foundation, on which the whole body of medicine may securely rest. If this be removed, all rational explications in medicinal matters must fail, practice is in danger, and even *medicine* itself fails to ruin. The use of *anatomy*, in *surgery*, they add, is so undoubted, that none but such as are little versed in the *medicinal* art, will have the rashness to deny it.

Anatomy is not only of use in *medicine*, but also in *painting*, *designing*, *statuary*, &c. Leonardo da Vinci, and all the great masters, studied it with particular application. Titian took so much delight in it, that he designed the figures for Vesalius's *Anatomy*. M. de Piles, under the fictitious name of Tortebat, and the Rolli at Rome, have published books of *anatomy* particularly accommodated to this use. A translation of this has been given in England, under the title of *Anatomy* improved and illustrated, with regard to the Use thereof in Designing.

ANATOMY, *its history*.—With respect to the antiquity of *anatomy*, it seems scarcely possible, but that the slaughter of beasts for the use of man, casualties, murders, and the accidents

accidents of war, muſt have furniſhed mankind with a general knowledge of the ſtructure of the parts, in very early ages of the world. But it is not very certain at what period it began to be cultivated as a *ſcience*. This however muſt have been very early, eſpecially if we pay any regard to Manetho, the famous Egyptian writer, who, according to the report of Euſebius, relates that Athotis, an Egyptian king, wrote ſome treatiſes of *anatomy*. This king, if the Egyptian chronology was to be depended on, lived many ages before Adam. This, however falſe with reſpect to time, amounts to a ſort of proof of the antiquity of this *ſcience*. It is inferred that Solomon was no ſtranger to the ſtructure of the human body, from ſome paſſages in the twelfth chapter of the book of Eccleſiaſtes.

It is very certain however that before, or at leaſt in the days of Homer, *anatomy* was much cultivated; ſince this author appears to have had a competent knowledge of the parts, and to have been very well verſed in the enumeration of wounds, as the moderns call it, ſo as to give an accurate account of their effects in almoſt all the parts of the body.

But Hippocrates is the firſt author, at leaſt extant, who treated of *anatomy* ſcientifically. This writer, conſcious of his noble and exalted genius, publiſhed many *anatomical* obſervations, which, though diſjoined and ſcattered here and there in his works, yet make up an entire body of *anatomy*, when taken together: but that he made it his principal buſineſs to underſtand and explain the parts of the human body, is plain from thoſe valuable books upon Fractures, and the Joints, which evidently diſcover his perfect knowledge of, and intimate acquaintance with, the bones; and that his diligence, his induſtry, and ſkill in this way, might the more effectually be tranſmitted to future ages, he conſecrated, if we may believe Pauſanias, a brazen ſkeleton to the Delphian Apollo.

The writings of this great man are interſperſed with many things relating to the blood, which ſeem to ſhew ſome knowledge of the circulation, and alſo of the ſecretion of the various humours. Dr. Douglas has pointed out ſuch of them as ſeem to be the moſt glaring and unexceptionable proofs of this.

Galen, by general conſent of writers, is the prince of *anatomiſts*. By his early application, his unwearied aſſiduity, great ſagacity, and penetration of mind, as well as dexterity of hand, he not only carried the art infinitely beyond what had been done by thoſe before him, but even to that perfection wherein we find it at this day, ſharing only ſome few diſcoveries made by modern anatomiſts. In reality, many of the diſcoveries with which late writers plume themſelves, are due to him. Dr. Douglas enumerates ſeveral of the diſcoveries made by Galen in the ſtructure and uſe of the parts of the human body.

Anatomy ſuffered with the other *ſciences* by the invaſions of the Goths and Vandals, and at length ſunk into total barbariſm; from which it was reſtored in the fourteenth century by Mundinus, a Milaneſe, who compoſed an inſtrument of that art in the year 1315, which, notwithſtanding the barbarous ſtyle wherein they were written, remain ſtill in eſteem, and are the only ſyſtem now taught in ſome of the principal ſchools in Italy. The ſtatutes of the univerſity of Padua expreſly enjoin the profeſſors to follow the text of Mundinus in their lectures and expoſitions.

Some, with Fallopius, rather aſcribe the honour of the reſtoration of *anatomy* to Jac. Bercengarius, called alſo Carpus or Carpenſis, who lived two hundred years after Mundinus. He ſet out with commenting on that author, but afterwards wrote a much better book on the ſubject, of his own; in order to which he diſſected above one hundred bodies. Some have even charged him with the crime of Herophilus. It is alledged that he bore an implacable hatred to the Spaniards; and that, having got ſome of them into his cuſtody, he intended to have proceeded to diſſection, but his deſign being diſcovered, he was baniſhed. Others deny the charge, and give other reaſons for his exile.

The honour of reforming *anatomy*, and bringing it to its preſent perfection, is commonly aſcribed to Veſalius, whoſe inclination to this ſcience was ſo great, that, when a boy, he could not forbear diſſecting moles, dormice, cats, and the like. As he grew up, his paſſion increaſed; when bodies were wanting for ſkeletons, he would ſteal them from the gibbets; for which he was expelled Louvain, as he himſelf informs us. Bodies which he dug out of their graves, he would keep ſeveral weeks in his bed-chamber. He publiſhed his famous work on the ſtructure of the human body at twenty-eight years of age. He was chief phyſician to the emperor Charles V. and Philip II. of Spain; but growing weary of a court-life, he undertook a pilgrimage to Jeruſalem, and died in his return. The motive of this expedition is attributed to his opening the body of a young Spaniard of quality, ſuppoſing him dead, whereas, when he came to the heart, he found it ſtill beating. Others give a different account of his misfortunes.

The writers of *anatomy* may be divided into ſuch as either treat on the ſubject *profeſſedly*, or *occaſionally*.

Under the latter are comprehended *phyſicians*, *natural hiſtorians*, thoſe who treat of human nature, and of brutes. Among the *profeſſed* writers on *anatomy*, ſome treat of the whole ſubject, others only of a part.

The ancient writers in *anatomy*, Hippocrates, Democritus, Ariſtotle, Galen, and others, looked upon this as the moſt important part of phyſic, and that, without which the uſes of the parts of a human fabric, and conſequently the cauſes of diſeaſes incident to it, could no way be diſcovered. And yet this art, uſeful as it is, was entirely diſcontinued for ſeveral ages; till in the fifteenth century it began to flouriſh afreſh.—The diſſection of a human body was looked upon as ſacrilege before that time; and we have ſeen a conſultation which the emperor Charles V. appointed to be held by the divines of Salamanca, in order to be ſatisfied, whether or no it were lawful, in point of conſcience, to diſſect a dead carcaſe?—We may add, that to this day the uſe of *anatomy* and ſkeletons is forbid in Muſcovy: the firſt as inhuman, the latter as ſubſervient to witchcraft: and Olearius aſſures us, that one Quirin, a German ſurgeon, being found there with a ſkeleton, hardly eſcaped with life; and the ſkeleton, after being ſolemnly dragged about the ſtreets, was burnt in form. Boyle's Uſefulneſs of Philoſophy.

After Veſalius, a Flemiſh phyſician, who died in 1562, ſucceeded Carpus, Sylvius, Fernelius, Fallopius, Euſtachius, Fabricius, Parens, Bauhinus, Hoffman, Riolanus, &c.

Theſe were followed by others, to whom ſome of the fineſt diſcoveries in *anatomy* are owing.—Aſellius, in the year 1622, diſcovered the lacteal veins, though he modeſtly declines the honour of this *diſcovery*, and ſays they were known to Hippocrates, Praxiſtratus, and Galen; and in 1628, the immortal Harvey publiſhed his admirable diſcovery of the circulation of the blood.—Pecquet diſcovered the reſervoir of the chyle, and the thoracic duct, in 1651.—Rudbeck, a Swede, and Bartholine, a Dane, found out the lymphatic veſſels, in 1650, and 1651. Wharton, in 1655, diſcovered the lower ſalival ducts; and Steno the upper ſalival ducts, thoſe of the palate, the noſtrils, and eyes, in 1661. Wirſungus, in 1642, diſcovered the pancreatic duct.—Willis, who came after him, publiſhed an anatomy of the brain, and nerves, in a manner much more exact than had been done before him; yet he had omitted ſome conſiderable things, which were afterwards obſerved by Vieuſſens.—In ſhort, Gliſſon treated particularly of the liver; Wharton, of the glands; Havers, of the bones; Graaf, of the pancreatic juice, and the parts of generation; Lower, of the motion of the heart; Thurlton, of the reſpiration; Peyer, of the glands of the inteſtines; Brown, of nutrition, and Douglas, of the muſcles; and Drelincourt, of the conception of the ova in women, the placenta, and the membranes of the *fœtus*; Dryander, of the head; Hoffman and Rudius, of the uſe of the parts; Rufus, Epheſius, and Cumeratius, of the names of the parts; Galen, Cappivaccius, Hippolitus, Boſcus, and Lacuna, of the art of diſſecting; Horſtius, on the art of preſerving carcaſes; and Monro of *ofteology*, and *comparative anatomy*. Malpighi, who died in 1694, is one of thoſe to whom *anatomy* owes the moſt: he made a great number of diſcoveries in the lungs, brain, liver, ſpleen, glands, and lymphatics, by the help of the microſcope, &c. Nor muſt it be omitted, that Ruyſch, who died in 1727, has let great light into many of the finer and more intricate parts of the human frame, particularly the glands, by means of his injections.

An account of the later diſcoveries controverted between Monro, Hunter, and Hewſon, who all claim the merit of firſt making them, ſhall be given under the articles LYMPHATICS and LACTEALS. The reader may find a particular information about them, and the pretenſions of the different claimants, in Monro's Inaugural Diſſertation.

Among thoſe who treat of the whole ſubject of *anatomy*, Winſlow is moſt deſervedly eſteemed. This author's works have been tranſlated into Engliſh by Dr. George Douglas. We have alſo an excellent compendium of *anatomy* by Heiſter. The merits of Albinus's Tables, and of his writings, is well known; as is that of Mr. Cheſelden; ſo that after reading Heiſter, Winſlow, Monro, and Cheſelden, conſulting the Tables of Veſalius and Albinus, a ſtudent may, we believe, conſider other books rather curious than neceſſary.

Manget and Le Clerc, two phyſicians of Geneva, have given us a *Bibliotheca Anatomica*, containing all the new diſco-

discoveries that have been made in this art, but with many miſtakes, the detecting of which has been undertaken by Morgagni, who has publiſhed ſeveral volumes with that view, under the title of *Adverſaria Anatomica*.

ANATOMY is alſo uſed for an artificial repreſentation of the ſtructure and parts of the human body in metal, plaiſter, wax, or the like.—In this ſenſe, we ſay, the wax-work *anatomy*. R. Dickenſon, Eſquire, ſtuffed an human *anatomy* in plaiſter of Paris, repreſenting a man ſtanding upright, with his ſkin flayed off.

There is likewiſe a wax-work *anatomy*, ſaid to have been invented by Gaetano Giulio Zumbo, a Sicilian of Syracuſe. Yet M. des Noues, who learnt it of him, and probably made ſome improvements in it, bringing it to Paris, arrogated the chief honour of it to himſelf. Some prefer before all the reſt, for public lectures and courſes, the uſe of real parts of dead bodies, prepared by injection. *Anatomical* injections are either of mercury, or mixtures of equal parts of bitumith, lead, and tin. Neumann. The inconveniencies that attend the diſſecting of dead carcaſes, have occaſioned the invention of another elean-lier and more durable kind of ſubjects. Reiſeiſius contrived a human ſtatue, wherein the circulation of the blood was repreſented to the ſight, and ſomething of the like kind was ſhewn by M. Chovet; and more lately ſtill by Madam Bacheroo, who has brought this art to great perfection. See her obſervations on the artificial *anatomy*, in the Memoirs of the Acad. des Scienc. an. 1759. Hiſt. 94.

ANATOMY is ſometimes uſed to denote the ſubject to be anatomized. Thus (by 32 H. VIII. cap. 22.) the company of barbers and ſurgeons may have and take yearly four perſons condemned, adjudged, and put to death for felony, for *anatomies*; and to make inciſion of the ſame dead bodies.

And by 25 Geo. II. cap. 37. the bodies of felons convicted of murder, in the county of Middleſex, or city of London, are, after execution, to be delivered to the hall of the ſurgeons' company, to be diſſected and anatomized; and in caſe ſuch conviction and execution ſhall happen to be in any other county, or places, in Great Britain, then the body of ſuch murderer ſhall be delivered by the ſheriff, &c. to ſuch ſurgeon as the judge ſhall direct.

ANATOMY is alſo uſed, in an improper ſenſe, for the ANALYSIS of mixt bodies.

In this ſenſe the chemiſts ſometimes call their art *ſpagyrical anatomy*, *anatomia ſpagyrica*.

In which ſenſe we ſometimes ſay the *anatomy* of vitriol, the *anatomy* of ſulphur, the *anatomy* of Rhenith wine, &c.

ANATOMY is alſo uſed, in a leſs proper ſenſe, to denote the art of reſolving compound bodies into ſimple ones.

In this ſenſe any kind of compound body may be conſidered as the object of *anatomy*; that is, any body wherein there are divers parts joined together; even the taking aſunder an artificial, political, or moral being, may, in this ſenſe, come under *anatomy*.

ANATOMY is alſo uſed, *figuratively*, for an exact ſearch or examination of the parts of a diſcourſe, buſineſs, or the like: in which ſenſe we ſay the *anatomy* of a book, a doctrine, or the like.

ANATOMY *of plants* may be conſidered as a branch of comparative *anatomy*, otherwiſe called *phytotomy*.

The parts of PLANTS which come under anatomical conſideration are, the root, wood, bark, pith, fruit, leaves, flowers, &c.

The *anatomy* of vegetables is chiefly owing to the induſtry of Malpighi, and Dr. Grew, though conſiderably promoted alſo by Ruyſch, who by a peculiar method of injection has produced divers ſkeletons or ſyſtems of veſſels of fruit, leaves, and the like. Something of the ſame kind has alſo been done by Thummigius.

Some pretend to make F. Fabri the father of this *ſcience*; and allege that Malpighi took many of his diſcoveries from him. Dr. Highmore in his book of Generation, Dr. Sharrock on the propagation of plants, and Dr. Hook in his *Micrographia*, have alſo given ſome obſervations tending this way, though only collaterally.

ANATRIPSIS, from ἀνὰ and τρῖβω, *I tear*, in the *Ancient Medicine*, denotes friction.

The word is ſometimes alſo written ſimply TRIPSIS.

ANATRON, or NATRON, a kind of native ſalt-petre, or nitre, found in Egypt. It is of a cineritious colour, and bitter taſte, approaching to ſal ammoniac.

It is the produce of a hoge lake, on the ſurface of which it is gathered, in form of a ſcum.

ANATRON is alſo uſed for the ſalt and ſcum of the compoſition of glaſs, when in fuſion.

When pounded it yields a kind of powder; which being diſſolved in the air, or in a proper liquor, becomes common ſalt, after congelation.

The *anatron* ſkimmed from glaſs fuſion is the ſame with what others call *ſal vitri*, or *gall of glaſs*.

ANATRON is likewiſe the name of a nitrous juice, which condenſes in vaults, arches, and other ſubterraneous places.

ANATRON is alſo uſed by ſome writers, for a compound ſalt, made of quicklime, alum, vitriol, common ſalt, and nitre; uſed as a flux to promote the fuſion and purification of metals.

ANATRON, laſtly, is uſed for the TERRA *Saxonica*; of which there are ſeveral kinds, black, red, and blue.

ANATROPE, ἀνατροπὴ, from ἀνατρέπω, *to ſubvert*; a ſubverſion literally, or relaxation of the ſtomach, attended with the loſs of appetite, vomiting, and nauſea.

ANAUDIA, among *Naturaliſts*, denotes dumbneſs, or a want of the uſe of ſpeech.

Anaudia is, by ſome, made to differ from *aphonia*, as the former is owing to a defect of the nerves of the tongue, the latter to that of the nerves of the *larynx*.

Infants and mutes are *anaudi*, *aphoni*, not *aphoni*, *aphones*.

ANAVINGA, in *Botany*, a tree of middle ſize, that grows in Malabar, in the Eaſt Indies, eſpecially about Cochin. It is an evergreen, and its fruits or berries are ripe in Auguſt.

The juice of the berries drunk, excites ſweat, cures malignant diſtempers, and keeps the body ſoluble. A decoction of the leaves in water makes a fit bath for ſuch as are afflicted with pains in the joints.

ANAUMACHION, from ἀ, *non*, *ſhip*, and μάχομαι, *I fight*, in *Antiquity*, the crime of refuſing to ſerve in the fleet. The puniſhment aſſigned for this offence was infamy.

ANAX, in *Ancient Writers*, denotes a hero, or a god.

The word ſeems formed of the Hebrew *anakim*, or *enacim*, which ſignifies the ſame.

Some will have it originally to import giants, called alſo *terrigenæ*, *earth-born*. Cicero aſſures us, that the three eldeſt ſons of Jupiter, called *Dactyli*, were alſo denominated *anaces*.

ANAXAGORIA, in *Antiquity*, a feſtival obſerved in honour of Anaxagoras.

The occaſion of its being inſtituted was this: Anaxagoras dying at Lampſacus, the magiſtrates of that city aſked him, whether he deſired any thing to be done for him? He replied, that on the anniverſary of his death the boys ſhould have leave to play.

ANAXIMANDRIANS, a name given by ſome writers to the followers of Anaximander. Theſe are otherwiſe denominated *hylopathi*; and ſtand oppoſed to the *atomiſts*.

The *Anaximandrians* make the moſt ancient ſect of *philoſophical atheiſts*; they allow of nothing in nature but bodies. Theſe bodies, they aſſert, admit of qualities which produce and deſtroy each other, in a circle without beginning or end.

ANBERTKEND, in the *Eaſtern Languages*, a celebrated book of the Brachmans, wherein the Indian *philoſophy* and *religion* are contained.

The word in its literal ſenſe denotes the ciſtern, wherein is the water of life.

The *anbertkend* is divided into fifty *baths*, or diſcourſes, each of which conſiſts of ten chapters.

It has been tranſlated from the original Indian into Arabic, under the title of *Morat el Moumi*, q. d. *the marrow of intelligence*.

ANBLATUM, in *Botany*. See APHYLLON.

It is alſo named by Linnæus LATHRÆA, &c.

ANBURY, in *Farriery*. See AMBURY.

ANCA, in *Middle Age Writers*, denotes the thigh or hind-leg.

In which ſenſe, the word is alſo written ANCUS.

ANCESTORS, *progenitori*, are thoſe from whom a perſon is deſcended; excluſive of his immediate parents.

The word is derived from the Latin *anceſſor*, written, by contraction, *for anteceſſor*, q. d. *goer before*.

Moſt nations have paid honours to their *anceſtors*.

It was properly the departed ſouls of their fore-fathers that the Romans worſhipped under the denominations of *lares*, *lemures*, and houſhold gods.

Hence the ancient tombs were a kind of temples, or rather altars, wherein oblations were made by the kindred of the deceaſed.

The Ruſſians have ſtill their anniverſary feaſts in memory of their *anceſtors*, which they call *radituli ſobot*, q. d. *himſelf's ſabbath*, wherein they make formal viſits to the dead in their graves, and carry them proviſions, eatables, and preſents of divers other kinds. They interrogate them, with loud lamentable cries, What they are doing? how they ſpend their time? what it is they want? and the like.

The Quojas, a people of Africa, offer ſacrifices of rice and wine to their *anceſtors*, before ever they undertake any conſiderable action. The anniverſaries of their deaths are always kept by their families with great ſolemnity. The king invokes the ſoul of his father and mother to make trade flouriſh, and the chace ſucceed.

The Chineſe ſeem to have diſtinguiſhed themſelves above all

all other nations in the veneration they bear their *ancestors*. By the laws of Confucius, part of the duty which children owe their parents, consists in worshipping them when dead. This service, which makes a considerable part of the natural religion of the Chinese, is said to have been instituted by the emperor Kaie, the fifth in order from the foundation of that ancient empire.

The Chinese have both a solemn and ordinary worship which they pay their *ancestors*. The former is held regularly twice a year, viz. in spring and autumn, with much pomp. A person who was present at it gives the following account of the ceremonies on that occasion.

The functions were made in a chapel well adorned, where there were six altars furnished with censers, tapers, and flowers. There were three ministers, and behind them two young acolytes; he that officiated was an aged man, and a new Christian. The three former went within a profound distance, and frequent genuflexions towards the five altars, pouring out wine: afterwards they drew near the fifth, and when they came to the foot of the altar, half bowed down, they said their prayers with a low voice. That being finished, the three ministers went to the altar, the priest took up a vessel full of wine, and drank; then he lifted up the heart of a deer or goat; after which taking fire from the altar, they lighted a bit of paper, and the minister of the ceremonies turning towards the people, said with a high voice, that he gave them thanks in the name of their *ancestors* for having so well honoured them; and in recompence he promised them, on their part, a plentiful harvest, a fruitful issue, good health and long life, and all those advantages that are most pleasing to men.

All the Chinese, pagans as well as Christians, give their *ancestors* another simpler and more private worship. To this end they have in their houses a nich or hollow place, where they put the names of their deceased fathers, and make prayers and offerings of perfumes and spices to them at certain times, with bowing, &c. They do the like at their tombs.

It has been a question warmly agitated of late years, whether the worship which the Chinese pay their *ancestors* be religious, or only of a civil nature. The Jesuits, who not only allow their neophytes, or new converts, to join in it, but even assist in it themselves, are necessitated to maintain the latter, to screen themselves from the charge of idolatry; the Dominicans, and other missionaries, maintain the former, and prohibit the service as absolutely unlawful.

The Jesuits argue, that with relation to the first institution, those honours might be given to our *ancestors*, since at first they appear to have been only civil; even though they should since, through the superstitious disposition of the people, have degenerated into idolatry. But it is answered, that by this argument the most gross worship of idols might be authorised, because all idolatry appears at first only to have been civil worship, as is maintained in the book of *Wisdom*, chap. xiv. ver. 15.

The Jews settled in China are said to worship their *ancestors* like the heathens, and with the same ceremonies, except that they offer not swine's flesh. Near their synagogue they have a hall, or court of *ancestors*, wherein are niches for Abraham, Isaac, &c.—The Jesuits also conformed, and were permitted by their general to conform to this, and many other superstitious usages of the Chinese. See the proof of this in Patchal's Provincial Letters, *passim*.

There is one peculiarity of another kind, wherein the Chinese shew their regard for their *ancestors*; in proportion as any of their descendants are preferred to a higher degree of dignity, their dead *ancestors* are at the same time preferred and ennobled with them. The kings Ven, Vou, Vou, Vang, Cheng, and Cum, who were descended from vassal kings, when they mounted the imperial throne, raised their *ancestors* from the vassal or depending state wherein these had lived, to the dignity of emperors; so that the same honours were for the future rendered them as if they had been emperors of China. The same example was followed by the subsequent kings, and now obtains among the grandees and literati; all now worship their *ancestors*, according to the rank which they themselves hold in the world. If the son be a mandarin, and the father only a doctor, the latter is buried as a doctor, but sacrificed to as a mandarin. The like holds in degradations, where the condition of the fathers is that of their sons.

The law distinguishes between *ancestor*, and *predecessor*: the former being applied to a natural person, as such an one, and his *ancestor*; and the latter to a body politic or corporate, as a bishop, and his *predecessors*.

ANCESTOR, *disability by the act of*. See DISABILITY.

ANCESTREL, in *Law*, something relating to a man's ancestors.—Thus,

ANCESTRAL *homage*, signifies homage that hath been done or performed by one's ancestors.

ANCESTRAL, *action*. See ACTION.

ANCHILOPS, in *Medicine*, denotes an abscess, or collection of matter between the great angle of the eye, and the nose.

The same abscess when broken is no longer denominated *anchilops*, but ÆGILOPS.

Strictly speaking, the *anchilops* is only a tumor not yet exulcerated; not is the tumor always within the *great lacrymale*, but sometimes only near it.

If the *anchilops* be suffered to remain too long, or be unskilfully managed, it degenerates, the stagnating humours corrupt, and an ulcer is produced.

It makes a species, or rather a degree, of the FISTULA *lacrymalis*.

Care must be had to examine strictly, whether the abscess opens into the lacrymal bag, or whether it be only superficial, between the skin and the orbicular muscle. In the latter case, there is no occasion to fear its changing to a *fistula*, if the matter be not lodged between the bag and the muscle.

When the tumor is broke, and the tears flow involuntarily, whilst the *os lacrymale* is not carious, it is an *egagropyle*; but when the ulcer is of a long standing, deep, fetid, and the *os lacrymale* becomes carious, it is a FISTULA.

The *anchilops* is sometimes attended with an inflammation, and then resembles a PHLEGMON; but when not inflamed, it approaches nearer to those tumors called *atheromata*, *steatomata*, and *meliceridæ*.

Its cure is by cutting and caution; tying it at the root on the *glandula lacrymalis*, and, when ready, cutting it off.

ANCHIROMAGUS, in *Middle Age Writers*, denotes a kind of vessel, which, on account of its middle sailing, was used for the conveyance of anchors, and other necessary utensils of ships.

In this sense, the word is also written *anceromagus*, *anceiromachus*, *ancyromani*, *angromagus*, *anguromagus*, and *anguromagus*.

ANCHOR, ANCHORA, an instrument used at sea, and in rivers, to retain and fasten a vessel by.

The word comes from the Latin *uncus*, or *uncinus*, of the Greek ἄγκυρα, which comes from ἀγκος, *incurvus*, *crooked*.

An *anchor* is a large, strong piece of iron, crooked at one end, and formed into two barbs, resembling a double hook; and fastened at the other end by a cable.

The goodness of the *anchor* is a point of great importance; the safety and conservation of the vessel depending principally upon it.—Great care is to be taken, that the metal it is made of be neither too soft, nor too brittle: the latter rendering it liable to break, and the former to straiten.

ANCHORS, *method of making*. The shank, arms, and flukes, are first forged separately: then the hole is made at one end of the shank for the ring, which being also previously forged, is put into the hole of the shank, and the two ends shut together. After which the arms are shut to the shank, one after the other, and the *anchor* is finished.

Proof is made of *anchors*, by raising them to a great height, and then letting them fall again on a kind of long block placed across for the purpose.—To try whether the flukes will turn to the bottom, and take hold of the ground, they place the *anchor* on an even surface, with the end of one of the flukes, and one of the ends of the shank resting on the surface; in case the *anchor* turns, and the point of the fluke rises upwards, the *anchor* is good.

Travellers tell us of people in the Indies who make use of wooden *anchors* in their navigation.—The inhabitants of the island of Ceylon, in lieu of *anchors*, use huge round stones; and, in other places, their *anchors* are a kind of machines of wood, loaden with stones. Sometimes bags of sand have been made use of, but these chiefly obtain in rocky places, where *anchors* would not take hold.

In England, France, and Holland, *anchors* are made of forged iron; but in Spain they are sometimes made of copper, and likewise in several parts of the South Sea.

The parts of an *anchor* are, 1. The *ring*, into which the cable is fastened. 2. The *arm*, or *shank*, which is the longest part of the *anchor*. 3. The *arms*, which is that which runs down into the ground: at the end of which is, 4. The *flukes*, or *flues*, by some called the *paws*; being that broad and picked part, with its barbs, like an arrow-head, which fastens into the ground. 5. The *stock*, a piece of wood fastened to the beam, near the ring, serving to guide the flukes, so that it may fall right, and fix in the ground.

The first *anchors* of iron had only a fluke on one side.

The contrivance was completed by Eupalinus, who made them fluked both ways; though some ascribe the honour of this to Anacharsis the Scythian.

All *anchors* have now two arms; not but they might still be used with only one arm, which structure would have this advantage, that they would be lighter, and yet in fine weather would hold equally firm with the double kind. The reason of having two arms is, that the *anchor* may always take, in order to which it is necessary that it be very heavy; besides, that *anchors* with a single arm would require more preparation for service.

For the proportions of *anchors* according to Manwaring, the shank is to be thrice the length of one of the flukes, and half the length of the beam. According to Aubin, the length of the *anchor* is to be four-sevenths of the greatest breadth of the ship; to that the shank; so are of an *anchor* in a vessel three feet wide is to be twelve feet long. When the shank is, for instance, eight feet long, the two arms are to be seven feet long, measuring them according to their curvity. As to the degree of curvity given the arms, there is no rule for it; the workmen are here left to their own discretion.

Aubin, in his Marine Dictionary, gives a table from a Flemish writer, wherein the lengths of the shanks of *anchors*, for vessels of all widths, is computed, as well as the weights of the *anchors* from a vessel eight feet wide within, which requires an *anchor* 3½ feet long, weighing thirty-three pounds; to a vessel forty-five feet wide, which demands an *anchor* eighteen feet long, and weighing 5832 pounds.

He likewise observes, that the *anchor* of a large heavy vessel is smaller, in proportion, than that of a lesser and lighter one. The reason he gives is, that though the sea employs an equal force against a small vessel as against a great one, supposing the extent of wood upon which the water acts to be equal in both, yet the little vessel, by reason of its superior lightness, does not make so much resistance as the greater; the defect whereof must be supplied by the weight of the *anchor*.

From these and other hydrostatic principles, the following table has been formed; wherein is shewn, by means of the ship's breadth within, how many feet the beam or shank ought to be long, giving it ⅓ or ½ of the ship's breadth within; by which proportion may be regulated the length of the other parts of the *anchor*. In this table is represented likewise the weight an *anchor* ought to be for a ship from 8 feet broad to 45, increasing by 1 foot's breadth; supposing that all *anchors* are similar, or that their weights are as the cubes of the lengths of the shanks.

Feet.	Feet.	Pounds
8	3⅓	33
9	3¾	48
10	4	64
11	4⅓	84
12	4½	110
13	5⅓	140
14	5⅔	175
15	6	216
16	6⅔	262
17	6¾	314
18	7½	373
19	7⅔	439
20	8	512
21	8⅓	592
22	8¾	681
23	9	778
24	9½	884
25	10	1000
26	10⅓	1124
27	10¾	1259
28	11⅓	1405
29	11½	1562
30	12	1728
31	12⅓	1906
32	12¾	2097
33	13⅓	2300
34	13⅔	2515
35	14	2743
36	14½	2986
37	14⅔	3242
38	15⅓	3515
39	15¾	3796
40	16	4096
41	16½	4426
42	16¾	4745
43	17⅓	5088
44	17⅔	5451
45	18	5832

Breadth of the Vessel. Length of the Anchor. Weight.

N. Bouguer directs to take the length of the shank in inches, and to divide the cube of it by 180 for the weight. The reason is obvious; because the moment of the cube of 201 inches, which is the length of an *anchor* weighing 1000lb. divided by the weight is 1180, and therefore by the rule of three, this will be a common divisor for the cube of any length, and a single operation will suffice.

M. Bouguer, in his *Traité de Navire*, gives the following dimensions of the several parts of an *anchor*. The two arms generally form the arch of a circle, whose centre is three eighths of the shank from the vertex, or point where it is fixed, to the shank; and each arm is equal to the same length of the radius; so that the two arms together make an arch of 120 degrees: the flukes are half the length of the arms, and their breadth two fifths of the fluke length. With respect to the thickness, the circumference at the throat, or vertex of the shank, is generally made about the fifth part of its length, and the small end two thirds of the throat; the small end of the arms of the flukes, three fourths of the circumference of the shank at the throat. These dimensions should be larger, when the iron is of a bad quality, especially if cast iron is used instead of forged iron.

Vessels that sail on rivers have at least one *anchor*; those which sail in the canals of Zealand, have two *anchors*; but those which go to sea have always three, four, or more.

There are three kinds of *anchors* commonly used, the *lesser*, the *greater*, and the *stream-anchor*.

The distinctions of *anchors* are taken from their use, and the proportion they bear in the ship, where they are employed; for that which in one ship would be called but a *lesser*, or *bower*-ANCHOR, in a lesser would be a *sheet*-ANCHOR.

ANCHOR, *lesser*, is the smallest, which, by reason of its slightness, is first to stop the ship in *looking* a river.

This is what the Dutch sailors call *sterp*-ANCHOR, the French *un petit ancre*. It ought to weigh 250 pounds.

The *grapnel* is an *anchor* for a small ship or boat.

ANCHOR, *stream*, is a small *anchor* fastened to a stream-cable, wherewith to ride in rivers, and gentle streams, and to stop a tide without in fair weather.

ANCHOR, *sheet* or *sheet*, is the biggest and strongest, being that which the seamen call their last hope, never to be used but in great extremity.

This is what the Romans call *anchora sacra*; the Dutch *sheep-anker*, and *stop-anker*; the French *maistresse-ancre*, or *grande-ancre*.

The other *anchors* are called by the name of the first, second, and third *anchor*; by any of which the ship may ride in any seasonable weather, sea-gate, or tide.— These are something bigger one than another, and usually when they sail in any freighters, or are near a port, they carry two of these at the bow, in which respect they are also called by the name of first and second bowers.

ANCHOR, *second*, called by the Dutch *boey-anker*, or *danger-fast anker*, is that ordinarily made use of.

ANCHOR, *creuk*, called by the Dutch *cruy-anker*, or *cruy-under*, and by the French *ancre d'affourche*, is a middling *anchor* thrown across or opposite to another.—This ought to weigh 1500 pounds, or near as much as the second *anchor*.

ANCHOR, *riding at*, in the *Sea Language*, the state of a vessel moored and fixed by her *anchors* at some proper Station.

Where a great number of vessels are moored in the same port, care is to be taken by the pilots, or those who have the command, that each ship be at a due distance from the rest, to prevent their running foul of each other: also that they be neither too near, nor too far from land. The proper space betwixt vessels is, from two to three cables length.

ANCHOR, *stopping*, or *let fall the*, otherwise called *casting anchor*, is quite the letting it down into the sea.

In some cases it is necessary to drop two *anchors* opposite to each other, one of them to keep the ship firm against the tide, or flow, the other against the ebb.

ANCHOR, *weighing*, imports the act of withdrawing, or recovering the *anchor* into the vessel, in order for sailing. The *anchor* is ordinarily weighed, or recovered, by means of a CAPSTAN, or WINDLASS.

ANCHOR, *dragging*, is when the *anchor* gives way, or loses its hold in the ground by the force of the wind, or sea, and the vessel drives from the place.

ANCHOR, *clearing the*, signifies the getting the cable off the fluke.

Generally also, when they let fall the *anchor*, they use this term, to see that the buoy-rope, nor any other ropes, hang about it.

ANCHOR, *fishing*, or *bringing home the*, denotes the weighing it in the bow, and bringing it aboard the ship.

The *anchor* is said to come home, when the ship drives away with the tide or sea.—This may happen either because the *anchor* is too small for the burden of the ship, or because the ground is soft, and ozzy; in such places flooring is used.

ANCHOR, *flooring the*, denotes putting boards on the flukes, in the form of flukes themselves, to make it broader than before,

before, used when they are obliged to *anchor* in bad ground, to prevent the ship from driving.

This is what the French mariners call *broder l'ancre*, and the Dutch *t'anker leckadee*.

In some cases, they have been known to fallow the *anchors*, where the ground being soft, the ordinary would not hinder them from coming home. Mauwaring saw an instance of fallowing the anchor in Porto Farein by Tunis.

The reason of the advantage is hard to assign; he supposes it to be that the fallow sinks deeper into the ooze, and finds some harder ground at the bottom, than the other.

Other terms and words of command relating to the *anchor* are, *the anchor is a pike*, that is, when heaving up the *anchor*, the cable is right perpendicular between the hawse and the *anchor*: *the anchor is cock-bill*, when the *anchor* hangs right down by the ship's side: this word is given by the mariners, when they are ready to bring the ship to an *anchor*: *the anchor is foul*, that is when the cable by the turning of the ship, is hitched, or got about the fluke; which will not only cut the cable asunder, but hinder the *anchor* from holding.

On this account, when they come to an *anchor* where there is a tide, they lay out two *anchors*, by which means, on the turning of the tide, the ship winds up clear of either.

ANCHOR, in *Architecture* and *Sculpture*, denotes an ornament in form of an *anchor*, or *arrow's* head, frequently carved on the ovolo of the capital, in the Tuscan and Ionic orders, as well as in the bed-moulding of Ionic and Corinthian cornices.—See *Tab. Archit. fig.* 10.

The *anchors* are usually mixed with representations of eggs; whence the *echinus*, or ovolo itself, is popularly called *eggs* and *anchors*.

ANCHOR, *ancora*, in *Literary Matters*, the figure of an *anchor*, represented in ancient books; which is of two kinds, *superior* and *inferior*. The *superior*, &c. is where the crooked part is uppermost, used to denote a thing or passage strongly expressed.

The *inferior* is where the crooked part is at the bottom, to denote a thing poorly or meanly set forth.

ANCHOR is also used in a less proper sense for any thing that holds another thing fast, or prevents its driving.

In this sense, sea-muscles are said to *vive at anchor*, by a sort of threads, the thickness of a large hair, which they emit out of the body, to the number sometimes of a hundred and fifty, which fastening to the stones and other adjacent bodies, keep them firm in their place.—The same is done by the PINNA *marina*.

ANCHOR, in *Heraldry*, is the emblem of Hope; and is taken for such in a *spiritual*, as well as in a *temporal* sense.

ANCHOR, a measure. See ANKER.

ANCHORAGE, ground fit to hold a ship's *anchor*, so that she may ride safely.

The best ground for a ship to anchor in is stiff clay, or hard sand; and the best *riding* at anchor is when a ship is sand-locked, and out of the tide.

ANCHORAGE, in *Law*, denotes a duty taken of ships for the pool of the haven where they cast anchor.

The ground in all ports and havens being the king's, no man can let an anchor fall in any port, without paying for it to the king's officer appointed by patent.

ANCHORED, or ANCRED, in *Heraldry*.—A cross *anchored*, or *ancred*, is a form of cross, so called, because the four extremities resemble the fluke of an anchor.

This cross is so like the CROSS *moline*, that the resemblance has occasioned many mistakes in heraldry.

ANCHOVY, in *Matters of Commerce*, &c. a little sea-fish, much used by way of sauce, or seasoning.

The word is derived from the Spanish *anchoras*, or rather from the Italian *anchioe*, which signifies the same.

Scaliger describes the *anchovy* as of the herring kind, about the length of a finger, having a pointed snout, a wide mouth, and no teeth, but gums as rough as a saw.—Others make it a sort of sardine, or pilchard: but others with better reason, hold it a peculiar species, very different from either.

The *anchovy* is caught in the months of May, June, and July, on the coasts of Catalonia, Provence, &c. at which season, it constantly returns up the straights of Gibraltar, into the Mediterranean. Collins says, they are also found in plenty on the western coasts of England and Wales.

The fishing for them is chiefly in the night-time: when a fight being put on the stern of their little fishing vessels, the *anchovies* flock round, and are caught in the nets. But then it is asserted to have been found by experience, that *anchovies* taken thus by fire, are neither so good, so firm, nor so proper for keeping, as those which are taken without fire.

When the fishery is over, they cut off the heads, take out their gall and guts; and then lay them in barrels, and salt them.—The common way of eating *anchovies* is with oil, vinegar, &c. in order to which they are first boned, and the tails, fins, &c. flipped off.—Being put on the fire, they diffolve almoft in any liquor. Or they are made into fauce by mincing them with pepper, &c.

Some alfo pickle *anchovies* in fmall caflk, or earthen pots, made on purpofe, of two or three pounds weight, more or leff, which they cover with plaifter, to keep them the better. *Anchovies* fhould be chofen fmall, freih pickled, white on the outfide, and red within. They muft have a round back; for thofe which are flat or large, are often nothing but fardines. Befide thefe qualities, the pickle, on opening the pots or barrels, muft be of a good tafte, and not have loft its flavour.

ANCHUSA, in *Botany*, called alfo *bugloffe* and *alkanet*, a plant of the *pentandria monogynia* clafs, of which the characters are: the flower is of one leaf, having a cylindrical tube, at the brim it is cut into five obtufe fegments, which fpread open; the germen afterwards becomes four oblong, blunt feeds, fhut up in the empalement.

It grows with us only in gardens, and flowers in June. The roots only are ufed. Parkinfon highly commends the infufion of the bark in *petitoeum*, as excellent in freih cuts and green wounds. At prefent it is very little ufed.

The common *alkanet*, *anchufa* offic. is brought from Languedoc and Provence; being the root of the *bugloffum radice rubra, fore anchufa vulgatiori*. The root is aftringent, and proper in hæmorrhages of all kinds; it is employed to colour ointments, &c. It muft be boiled in oil; for it does not readily communicate its tincture to water. The ancients ufed it as a cofmetic. See its hiftory, as a colouring drug, in Neumann's Works, p. 329.

ANCHYLOBLEPHARON, in *Surgery*, a diftemperature of the eye-*lids*, wherein they fometimes adhere to each other, and fometimes to the globe of the eye itfelf. This is eafily diftinguifhable from the flight glewing up of the eye-lids occafioned by the fmall pox, or other like caufes. This diforder is fometimes brought with an infant into the world; fometimes it comes upon adults by a fleihy excreicence from the angles of the eyes; and fometimes it happens from accidents, as blowing up of gun-powder, and the like. This is always dangerous, and difficult of cure, but moft fo when the eye-lids grow to the *cornea*. They are to be divided by a blunt pointed pair of fciffars, and when feparated from each other, it muft be tried whether they adhere to the eye; if they do, they muft be feparated with great caution with a blunt pointed fcalpel; but there is, in this cafe, great danger of injuring the fight: when feparated, they muft be kept from touching one another, to prevent their cohering again, by lint or a plate of lead.

ANCHYLOPS, in *Medicine*. See ANCHILOPS.

ANCHYLOSIS, ANCYLE, or ANCYLOSIS, in *Phyfic*, is when a juncture or articulation becomes immoveable.

The word is derived from αγκυλος, a *bending* or *contraction* of the joint.

Anchyloſis bears an affinity to contractures, fhrinkings, or witherings of the parts.

This fymptom fometimes happens in fractures near the joints, where the nutritious juice oozes into the cavities thereof.

This difeafe, when once formed, is incurable, but while yet freih, is fometimes removed by motion, friction, and the ufe of efficacious medicines.

ANCI, in Greek, αγκωνοιοι, *wrift-bones*, from αγκων, a *wrift*, and ουον, an *egg*. So Hippocrates calls thofe, who, from ſlipping the head of the *os humeri* into the *ala*, have an arm fhorter and fmaller than it ought to be, and the fulnefs or elbow of a *wrift*; whence they are called by fome *mufculani*, which fully expreſſes the Greek word, or barely *anci*. The diforder that gives occafion for the name, happens either in the womb, where the *os humeri* fuffers a luxation, from too much moifture; or in tender years by means of an abfcefs deeply ſeated about the head of the *os humeri*.

ANCIENT, or ANTIENT, in its uſual ſenſe, denotes a thing which exiſted in times long ago.

The word comes from the French *antien*, of the Italian *ancoano*, and that of the Latin *antiquus*, which denotes the ſame.

In which ſenſe *ancient* ſtands oppoſite to *modern*.

Ancient differs from *antique* as the *genus* from its *ſpecies*.

We ſay *ancient* nations, *ancient* architecture, ſculpture, philoſophy, &c. *ancient* manner, ceremonies, poets, phyſicians, and the like.

ANCIENTS, in *Scotiſh Deſcipline*. See ELDERS.

ANCIENTS, in *Inns of Court*, imports a diſtinction of a certain degree.—Thus, the ſociety of Gray's-Inn conſiſts of *benchers*, *ancients*, *barriſters* and *ſtudents* under the bar: here the *ancients* are the elder barriſters.

In the inns of Chancery there are only *ancients*, and ſtudents, or clerks; and among the *ancients*, one is yearly the principal, or treaſurer.—In the Middle Temple,

ancients are such as have gone through, or are past their reading.

ANCIENT, is sometimes also used in a military sense, for the colours, or an ENSIGN.

ANCIENT, in the *Naval Armament*, is the FLAG or streamer, borne in the stern of a ship.

ANCIENT *demesne*, or *demain*, in *Law*, is a TENURE, whereby all manors belonging to the crown in William the Conqueror's and Sir Edward's time were held.

The number, names, &c. thereof, were entered by the Conqueror, in a book called *Domesday Book*, yet remaining in the Exchequer; so that such lands as by that book appeared to have belonged to the crown at that time are called *ancient demesne*.

The tenants in *ancient demesne* are of two sorts; one who hold their lands frankly by charter; the other by copy of court-roll, or by the verge, at the will of the lord, according to the custom of the manor.

The advantages of this tenure are, 1. That tenants, holding by charter, cannot be rightfully impleaded out of their manor; and, when they are, they may plead the writ, by pleading the tenure. 2. They are free from toll for all things relating to their livelihood, and husbandry; nor can be impanelled on any inquest.

These tenants held originally by plowing the king's land, plashing his hedges, and the like service, for the maintenance of his household; and it was on this account that such liberties were given them, for which they may have writs of *monstraverunt* to such as take the duties of toll, &c.

No lands are to be accounted *ancient demesne*, but such as are held in socage. Whether land be *ancient demesne* or not, shall be tried by the book of DOMESDAY.

ANCIENT *differences*, in *Heraldry*. See BORDURES.

ANCIENTY, in some *Statutes*, is used for eldership or seniority.

The elder sister can demand no more than her other sisters, beside the chief *messe*, by reason of her ancienty. This word is used in the statute of Ireland, 14 Hen. III.

ANCLABRIS, in the *Religion of the Ancient Romans*, denoted a table in temples, whereon the priests set their portion of the sacrifices and oblations.

ANCLE, *Ancleus*, in *Surgery*.—The *ancle* is subject to be luxated, either in running, in jumping, or even in walking; and that in all four directions, either inward, or outward, backward or forward. When the *ancle* is luxated inward, the bottom of the foot is turned outward; and on the contrary, when it is luxated outward, the bottom of the foot is turned inward, which latter case is indeed much more frequent than the others. If it is dislocated forward, the heel becomes shorter, and the foot longer than it should be; and if backward, the contrary signs to these will appear. The *ancle*, however, can scarce possibly be luxated outwards unless the *fibula* be separated from the *tibia*, or else quite broken, which may happen to the external *ancle*; nor is it uncommon for a luxation of the *ancle* to be attended with very grievous symptoms, especially when occasioned by some great external violence. Nor can it indeed well happen otherwise in that case, since the distortion of the foot must necessarily overstrain the adjacent tendons, ligaments, and nerves, and thence excite very violent pains, and other bad symptoms: or the veins and arteries may also be very easily lacerated, which will occasion a large extravasation of blood about the whole foot, and too often give rise to a gangrene.

It is, however, necessary to observe, that the *ancle* is not always luxated, although it has been violently strained by leaping, or turning the foot on one side; for it sometimes happens that the *ancle* is not dislocated on these occasions, but only the parts violently contused and strained. The *ancle*, when truly luxated, is more or less difficult to be reduced, according to the violence of the force by which the accident was occasioned. The most ready way, however, of reducing a luxation of the *ancle*, is to place the patient upon a bed, seat, or table, letting the leg and foot be extended in opposite directions by two assistants, while the surgeon replaces the bones with his hands and fingers in their proper situation. When the foot is by this means restored to its proper position, it is to be well bathed with oxycrate and salt, and then carefully bound up with a proper bandage. The patient must be confined to keep his bed for a considerable time, till the bad symptoms are gone, and the *ancle* has recovered its strength so far as to bear the weight of the body, without any apprehension or danger.

We have an account of the *ancle* regularly evacuated at an ulcer of the *ancle*, in the Medic. Ess. Edinb. vol. iii. art. 9.

ANCON, in *Anatomy*, denotes the curvature, or flexure of the arm, wherein we rest in leaning.

This is otherwise called OLECRANUM.

ANCON, in *Architecture*, is used to denote the corners or quoins of walls, ends beams, or rafters.

ANCON also is used in *Ancient Architecture*, to denote the two parts or branches of a spire, which meet in an angle resembling the letter L.

ANCON is also used by Vitruvius, to denote a kind of mosaic, or tables before doors, bent somewhat after the manner of scrolls, so as to resemble the letter S. In this sense, it may amount to the same with what the Greeks call *scolopendra*, *prothyrides*.

ANCON is particularly applied in the *Ancient Architecture*, to the brackets, or thundering-pieces, called CONSOLES and CANTALES by the moderns.

ANCON was also used by the Carthaginians, to denote a dark prison or dungeon. Suidas mentions one of this kind, in which Carthalo used to put all who displeased him; from which Bostharus delivered many merchants of the Bull, whom the tyrant intended to put to death.

ANCON is also applied to the angles or declivities of streets; sometimes also to the tops of mountains.

ANCONEUS *Internus*, in *Anatomy*, the first muscle of the elbow so called, as being situated behind the ends of the *cubitus* or elbow.—See *Tab. Anat. Chirurg. fig.* 5. 40.

It arises from the back part, or the extremities of the humerus, passes over the elbow, and is inserted into the lateral and internal part of the *cubitus*, about three or four fingers breadth above the *os ancon*.—Its use is to assist in extending the arm.

Some *anatomists* make the following distinctions, according to Winslow.

ANCONEUS *externus*, a long muscle, lying on the outer part of the backside of the *os humeri*, from its neck to the external condyle.

ANCONEUS *internus*, a muscle shorter, and more fleshy than the *anconeus externus*, and lying towards the inner part of the lower half of the *os humeri*.

ANCONEUS *major*, a long fleshy muscle lying on the backside of the *os humeri*.

ANCONEUS *minor*, a small muscle obliquely triangular, lying on the oblong *fossula* on the side of the *olecranon*.

ANCONY, in the iron mines, a bloom wrought into the figure of a flat IRON bar, about three feet long with two square rough knobs, one at each end.

The proceis for bringing the iron to this state is this: they first melt off a piece from a sow of cast iron, of the proper size; this they first hammer at the forge into a mass of two feet long, and of a square shape, which they call a *Mum*; when this is done, they send it to the finery, where, after two or three heats and workings, they bring it to this figure and call it an *ancony*. The middle part, beat out at the finery, is about three feet long, and of the shape and thickness the whole is to be; this is then sent to the chafery, and there the ends are wrought to the shape of the middle, and the whole made into a BAR.

ANCRES, in *Heraldry*, the same with ANCHORED.

ANCTERES, in the *ancient Medicine*, seem to have been the same, at least to have answered the same uses, as our SUTURES.

Some also speak of a strong kind of sticking plaster under this denomination.

ANCTERIASMUS, in *Medicine*, the operation of applying a *fibula* to close the two patent lips of wounds.

This is also called by Latin writers, *infibulatio*.

ANCYBLASMUS is more particularly used to denote the putting a *fibula* through the prepuce of the ancient flagellants and buffoons.

ANCYBLITIUS, among *Ancient Physicians*, denotes a disease of the eyes, wherein there is an appearance of small, or little bones sprinkled on them.

This is otherwise called EXTILIFICATION.

ANCUS, a name for such as have an arm bent crooked, so that they cannot extend it.

ANCYLE, in *Antiquity*, denotes a small kind of brazen shield, said to have fallen from heaven into the hands of Numa Pompilius at the same time that a voice was heard, that Rome should be mistress of the world, while she preserved that shield.

Though there was but one *ancyle* that fell from heaven, yet there were twelve preserved: Numa, by the advice, as it is said of the nymph Egeria, having ordered eleven others, perfectly like the first, to be made by Veturius Mamurius, that if any should attempt to steal it, as Ulysses did the Palladium, they might not be able to distinguish the true *ancyle* from the false ones.

These *ancyla* were preserved in the temple of Mars; and were committed to the care of twelve *priests*, or *salii*, instituted for that purpose.

They were carried every year, in the month of March, in procession all round Rome; and the thirteenth day of that month they were again deposited in their place.

ANCYLE, see ANCHYLOSIS.

ANCYLOBLEPHARON, *inviscatio, adglutinatio palpebrarum*, a diſeaſe wherein the eye-lids are ſtuck fall, or glued together. The cure is by manual operation.

ANCYLOGLOSSUS, *ἀγκυλογλωσσος*, from *ἀγκυλος, crooked*, and *γλωσσα, tongue*, one that is tongue-tied, or has an impediment in his ſpeech, ariſing from a contraction of the *frænum* of the tongue.

This diſeaſe is alſo called *ancyloglossum*, which is either *naturel*, i. e. born with the infant, or *accidentel*, occaſioned uſually by ſome ulcer under the tongue, which leaves behind it a hardneſs, or *eſchar*. It is the common opinion of midwives, that ſome are born without this infirmity; and hence, one of the firſt things after a birth, is to cut the ſtrings of the infant's tongue.

The effect of the *ancyloglossum* is not only to hinder the uſe of ſpeech, but in children it alſo diſables them from ſucking. The cure is performed by a careful ſection of the *frænum*, ſo as not to hurt the nerves, or other veſſels. This operation is never to be performed, where the infant is able to thruſt its tongue ſtraight out of the mouth. Fabricius ab Aquapendente complains ſeverely of the officiouſneſs of midwives, who, without ever examining the condition of the *frænum*, practiſe the operation promiſcuouſly on all infants, from an opinion, that without it the child would never be able to ſpeak. But according to this author, there is ſcarce one child in 100,000 in whom this ligament needs any cutting at all. In ſome parts of Italy the midwives nouriſh a long nail on their right thumb, which is faſhioned after the manner of a knife's point, wherewith, as ſoon the child is born, they cut the ligaments. In other places, from a vain opinion that there is ſomething malignant in the nail, the operation is performed with the edge of a piece of money.

The operation is painful to the infant, and is ſometimes followed by inflammations, and even death itſelf.

ANCYLOMELE, *ἀγκυλομηλη*, from *ἀγκυλος, crooked*, and *μηλη, a probe*; a ſurgeon's crooked probe, or a probe with a hook.

ANCYLOSIS, ANCHYLOSIS.

ANCYROIDES, *ἀγκυροειδες*, is uſed by ſome writers in *Anatomy*, for the proceſs or ſhooting forth of the ſhoulder-bone, in form of a beak; otherwiſe called *coracoides*.

ANDA, *G. Piſon*, is a tree of Braſil, the wood of which is ſpungy and light; the leaf laugiſh, fibrous, and pointed; the flower large and yellow; and the fruit a grey nut, which encloſes, under a double rind, two kernels of the taſte of cheſnuts. The fruit is ſaid to be purgative, and a little emetic: two or three of the kernels are a doſe. They extract oil by expreſſion from theſe kernels, with which the natives anoint their limbs. The rinds of the fruit are eſteemed proper to ſtop a looſeneſs; thrown into ponds, they kill the fiſh.

ANDABATÆ, in *Antiquity*, a kind of GLADIATORS, who fought hoodwinked; having on a ſort of helmet that covered the eyes, and even the face.

They were called *andabatæ, quaſi ἀνοβατοι, aſcenſores*, becauſe they fought mounted on horſeback, or out of chariots. Others derive the word from *ανα, again*, and *βαινω, I go*.

Some ſay, the *andabatæ* fought in the dark, or late at night, after the *circenſia* were over. There were two men in the chariot, viz. the driver, or *auriga*, and the *magiſtratus*, who was alſo called *ανοβατης*, q. d. *aſcenſor*, or *mounter*; whence, by corruption, the Latins formed the *andabata*.

It has been diſputed among critics, whether the *andabatæ* were a people who actually fought blindfold, in their wars, or a ſet of combatants who only practiſed this method of fighting for exerciſe ſake.

ANDELANGA, in *Middle Age Writers*, occurs as part of the *formula* of divers donations.

In this ſenſe, we meet with *donare per andelangam & ſolarium, vendere & tradere per andelangam*, &c. Some will have the term properly to denote what we call an *ardre*; others a long ſtaff, or rod, which it is known was much uſed in the act of putting into poſſeſſion.

The word is ſometimes alſo written *andelangus, andelago, andelagus*, or *andalangus*, &c.

ANDENA, in *Ancient Writers*, denotes a ſwath in mowing. The word is likewiſe uſed to ſignify as much ground as a man can ſtride over at once.

ANDERENÆ, *ſal*, in *Natural Hiſtory*, a name given, by many of the old writers, to the nitre of the ancients, or NATRON. Some have, ſince their time, applied it to our common nitre; and it has been wondered at, that the accounts do not agree with the ſubſtance. But it is to be obſerved, that the nitre, or *natron*, of the ancients, is a fixed ſalt, approaching to the nature of *pot-aſh*, and not at all inflammable with ſulphur, as our nitre is. It is, therefore, no wonder if the things related of the one ſhould not be found to agree with the other.

ANDIRA, or ANGELYN, in *Botany*, *G. Piſon*, a tree in Braſil, the wood of which is hard and proper for building. Its bark is of an aſh colour; its fruit is of the ſhape and ſize of an egg, green at firſt, but growing blacker by degrees. It is covered with a hard rind, incloſing a grain, of yellowiſh kernel, of a bitteriſh, aſtringent taſte.

They pulverize this nut, and give it for worms; but not more than one ſcruple; for more than this is ſaid to be poiſonous.

ANDIRA, in *Zoology*, is an animal called alſo *ανδιρα-μυρικι*, a kind of bat in Braſil; the largeſt of which are as big as our pigeons: they call them horned bats, from a ſort of excreſcence, or plaiut body, above their brain. Some of theſe are very dangerous; for they get into chambers in the night, and ſo ſubtilly open the veins in the feet of thoſe who are in bed, that they are not perceived but by the flowing of the blood, which is difficult to be ſtopped. The inhabitants reckon the tongue and heart of that animal among poiſons.

ANDIRIAR, in *Botany*, the name by which Rhaſes, and ſome others, expreſs the BABAGO.

ANDORINHA, in *Ornithology*, a name by which the Portugueſe in the Braſils call the Braſilian ſwallow, more uſually known by its Braſilian name *tapera*.

ANDRACHNE, in *Botany*. See *Boſſard* ORTIFE.

ANDRACHNE is alſo a name given, by the ancients, ſometimes to a tree of the ARBUTUS, or ſtrawberry tree kind, and ſometimes to the herb PURSLAIN. Some of the later Latin writers have alſo called it *portula*, and ſome of the later Greeks have called it *καυκαλιδα*.

ANDRAPODISMUS, in *Ancient Writers*, the ſelling of perſons for ſlaves.

Hence alſo *andrapodiſtes, andrapodiſta*, a *dealer in ſlaves*, more particularly a *kidnapper*, who ſteals men or children, to ſell them; a crime the Theſſalians were noted for.

ANDRAPODOCAPELI, in *Antiquity*, a kind of dealers in ſlaves. The *andrapodocapeli* had a particular proceſs of taking off moles, and the like diſfigurements on the faces of the ſlaves they kept for ſale, by rubbing them with bran.

At Athens ſeveral places in the forum were appointed for the ſale of ſlaves. Upon the firſt day of every month, the merchants brought them into the market, and expoſed them to ſale, whilſt the crier ſtanding upon a ſtone erected for that purpoſe, called the people together.

ANDREW, *Knights of St. Andrew*, or the thiſtle. See THISTLE.

Knights of St. Andrew, is alſo an order inſtituted by Peter the Great of Muſcovy, in 1698; the badge of which is a golden medal, on one ſide of which is repreſented St. Andrew's croſs, and on the other, are theſe words, *Czar Pierre, monarque de tout la Roſſie*. This medal being faſtened to a blue ribbour, is ſuſpended from the right thoulder.

ANDREW's *Croſs*, is a badge worn in the hat, by the people of Scotland, on the day of the feaſt of that ſaint.

It conſiſts of blue and white ribbands, diſpoſed into a croſs, or *ſaltier*; and is intended as a commemoration of the crucifixion of St. Andrew, the tutelary ſaint of Scotland.

ANDRIA, in *Antiquity*, a name given by the Cretans to the public entertainments, at which whole cities, tribes, or other bodies of men, were preſent.

The hall, or place of eating, where theſe entertainments were held, was denominated *andreion*, in the uppermoſt part of which was a conſtant table ſet apart for ſtrangers.

ANDRIA, is alſo uſed by ſome naturaliſts, to denote a ſpecies of hermaphrodite, wherein the female ſex has the predominancy.

ANDRODAS, in *Ancient Writers*, denotes the ſixty-third year of man's life.

This is otherwiſe called, *annus Egyptius*, and *climacter magnus*.

ANDROGYNA, in *Botany*, plants bearing male and female flowers on the ſame root.

ANDROGYNUM, in *Eccleſiaſtical Writers*, is uſed to denote *matrimony*, or even one of the parties married.

ANDROGYNUM, *balneum*, denotes a bath common to both ſexes.

ANDROGYNUS, or ANDROGYNOUS, an HERMAPHRODITE, or one born with two ſexes, being male and female in the ſame perſon.

The word comes from *ανηρ γυνη*, a compound of *ανηρ, man*, and *γυνη, woman*, q. d. *man-woman*.

The aſtrologers alſo give the appellation *androgynous* to ſuch of the planets as are ſometimes hot, and ſometimes cold; as Mercury, which is reputed hot and dry when near the ſun, and cold and moiſt when near the moon.

ANDROIDES, or AUTOMATON, in the figure of a man; which, by virtue of certain ſprings, &c. duly contrived,

lived, walks, and performs other external functions of a man.

The word is compounded of *ανερ, ανδρος, man,* and *ειδος, form.*

Albertus Magnus is recorded as having made a famous *androides.*

ANDROLEPSY, ANDROLEPSIA, in *Antiquity.* If an Athenian were killed by a citizen of some other place, and such city refused to deliver up the criminal to punishment, it was held lawful to take three inhabitants of that city, and punish the homicide in them. This the Greeks called *androlepsia,* and the Romans CLARIGATIO. The word is formed of *ανηρ, man,* and *λαμβανω, capio, I take.*

Some authors also use *androlepsia* for REPRISALS.

ANDROMACHI *theriaca,* or *treacle of* ANDROMACHUS, in *Pharmacy,* is a capital alexipharmic compositions; called also *Venice Treacle.*

ANDROMEDA, in *Astronomy,* a constellation of the northern hemisphere, representing the figure of a woman chained.

It is supposed to have been formed in memory of *Andromeda,* daughter of Cepheus and Cassipeia, and wife of Perseus, by whom she had been delivered from a sea-monster, to which she had been exposed to be devoured for her mother's pride. Minerva translated her into the heavens.

Dr. Hook thinks he has discovered the hidden meaning of the story of *Andromeda.* Vide Poft. Works, p. 402.

The stars in the constellation, *Andromeda,* in Ptolemy's catalogue, are twenty-three, in Tycho's twenty-three, in Hevelius's forty-seven, in Mr. Flamsteed's no less than sixty-six. They are as follow.

Situation of ſtars.	Bayer's Letters	Figures	Longitud.		Latitude N.		Magnitude.
			° ′	″	° ′	″	
Preceding thoſe in the right hand		♈	3 29	27	45 45	38	3. 4
			3 57	22	44 3	8	6
			10 21	16	49 52	26	6
			7 55	15	46 35	5	6
			10 28	9	48 36	23	6
5°.							
			6 15	1	44 57	5	6.
			12 20	45	48 34	11	5. 6
			12 8	29	47 45	17	6
			6 30	29	41 39	54	6
			7 8	12	41 40	31	6. 7
10°.							
			12 9	37	47 15	53	6
			4 44	16	38 20	43	6
			9 15	12	41 46	39	6
			7 38	16	38 14	42	6
			9 1	14	38 46	4	6
15°.							
In the right hand	λ		14 0	43	43 48	39	4
	ι		11 47	35	41 1	40	4
			17 32	33	46 55	32	6
	κ		13 0	16	41 43	6	4
	ζ		15 39	13	42 36	29	5. 6
20°.							
In head, and navel of Pegaſus	ω		9 58	53	25 41	2	2
			20 9	57	40 24	33	5
			17 34	35	35 40	13	6
In the right arm	δ		16 51	54	33 22	53	4. 5
			16 3	52	31 35	56	5
25°.							
			14 35	36	28 54	15	6
			17 16	50	32 23	13	5
			14 59	1	24 21	42	6
In the right ſhoulder	π		18 19	47	27 8	28	4. 5
In the left ſhoulder	ι		16 37	2	23 0	57	4
30°.							
Between the two ſhoulders	β		17 58	34	24 20	32	3
			22 13	1	31 51	36	6
			23 31	40	31 20	44	*Neb*
In the left arm	ζ		16 46	29	17 35	54	5
Under the girdle	γ		24 42	32	32 33	13	4
35°.							
			17 40	58	16 19	35	6
	α		21 48	46	29 30	24	4. 5
In the elbow of the left arm			18 6	8	25 56	29	5. 6
			17 35	33	31 40	9	6
			22 54	41	25 3	42	6
40°.							
			29 58	16	33 33	13	5
In the right knee	μ	♉	2 8	1	30 20	21	5
Under the girdle	η		26 2	24	25 56	19	3
			29 26	27	31 42	48	6
			27 24	8	27 42	18	5. 6
45°.							
			3 33	44	25 47	50	4. 5
			29 54	29	26 39	2	6
			4 48	45	33 17	31	5

Situation of Stars.	Bayer's Letters	Figures	Longitud.		Latitude N.		Magnitude.
			° ′	″	° ′	″	
In the train		♉	5 49	27	34 50	55	5
In the left horn, northerly	ε		4 16	25	28 58	21	6. 5
50°.							
In the right foot S. of Perſeus	ο		8 8	31	32 23	41	5
In the train	λ		6 12	20	31 27	43	0
In the left ham ſoutherly	ρ		4 36	1	27 54	6	5
In the right N. foot of Perſeus	φ		10 16	1	36 49	23	4
			7 9	46	27 4	8	*Neb*
55°.							
			6 13	5	23 29	13	6
Above the left foot	ψ		9 55	44	27 46	7	5. 6
			8 56	41	21 18	11	6
			9 54	32	28 13	24	6
	δ		12 32	20	28 32	35	6
60°.							
			15 27	48	32 48	36	6
	τ		15 4	19	31 22	22	6
			16 38	31	33 49	31	6
			17 11	50	33 28	27	6
			17 52	29	33 38	50	5
65°.							
			8 18	4	41 33	47	35 5. 7

ANDROMEDA, in *Botany,* a genus of the *decandria monogynia* claſs. We have no Engliſh name for this plant. The characters are, that the empalement of the flower is cut into five ſmall acute ſegments; the flower is of one leaf, oval, and bell-ſhaped, and is divided into five parts at the brim, which are reflexed; it hath ten ſtamina; the germen afterwards turns to a round, pentagonal veſſel, having five cells, which are filled with ſmall round ſeeds. Mr. Miller enumerates five, and Linnæus ten ſpecies, moſt of which are natives of America.

ANDROMEDA, in *Middle Age Writers,* denotes a kind of garment made of ram-ſkins.

ANDRON, or ANDRUM, in *Antiquity,* an apartment in houſes aſſigned for the uſe of the men. This was otherwiſe denominated *andrœum,* and *andronitis.*

The *andron* ſtood oppoſed to the GYNÆCEUM, or apartment of the women.

The Greeks alſo gave their dining-rooms the title *andron,* becauſe the women had no admittance to feaſts with the men.

ANDRONA, in *Ancient Writers,* denotes a ſtreet, or public place, where people met and converſed together.

In ſome writers *androna* is more expreſly uſed for the ſpace between two houſes. In which ſenſe the Greeks alſo uſe the term *αναθυρωμα,* for the way or paſſage between two apartments.

The word is ſometimes alſo written *andra, andrion,* and *andronium.*

ANDRONA is alſo uſed, in *Eccleſiaſtical Writers,* for that part in churches deſtined for the men. Anciently it was the cuſtom for the men and women to have ſeparate apartments in places of worſhip, where they performed their devotions aſunder; which method is ſtill religiouſly obſerved in the Greek church.

The *andron,* or *androna,* was on the ſouthern ſide of the church, and the women's apartment on the northern.

ANDRONION, in *Phyſic,* the name of a paſſil, invented by an ancient phyſician named Andro, ſaid to have been of great efficacy againſt the carbuncle and HERPES.

Its ingredients, according to Ægineta's preſcription, are the *ſquame* of copper, *ſal ammoniac, alumen rotundum,* ſhavings of verdigriſe, and frankincenſe, all wrought up with wine. Celſus gives another recipe, and Aetius a third.

ANDROPHAGI, from *ανηρ, man,* and *φαγω, I eat,* among *Ancient Geographers,* denoted man-eaters.

Theſe are more uſually called *anthropophagi.*

Herodotus and Pomp. Mela, ſpeak of a nation of *Androphagi,* in Scythia.

ANDROPOGON, in *Botany,* a genus of the *polygamia monœcia* claſs. Its characters are, that it has hermaphrodite and male flowers; the calyx of the former is an unifolous glume, and the corolla a glume bearded at its baſe; the ſtamina are three, the ſtyles two, and the ſeed ſingle; the calyx, corolla, and ſtamina of the male are the ſame. There are eighteen ſpecies.

ANDROSACE, in *Botany.* We have no Engliſh name for this plant. The characters are, that the flowers grow in an umbel ſet in an involucrum, and divided into five parts; it hath five ſmall ſtamina within the tube; the empalement afterward becomes a round capſule of one cell, which is full of round ſeeds. It is of the *pentandria monogynia* claſs.

Mr. Miller enumerates three, and Linnæus ſix ſpecies.

The *androſaces* approach much to the nature of the auricula, but differ from the ſtructure of the flower.

Androſace is ſo called, from its bringing relief to men,

q. d. *ανὰ κατὰ σχεσιν*. It is aperitive, and good for the dropsy, for retention of urine, and for the gout.

ANDROSÆMUM, in *Botany*. See St. JOHN's *Wort*.

ANDROTOMY, or ANDRATOMY, from *ανηρ*, *man*, and *τεμνω*, *I cut*, the *anatomy* or DISSECTION of human bodies. It is thus called in opposition to *zootomy*, which is used to denote that of brutes.

Anatomy is the *genus*, and comprehends all dissections in general, whether of men, beasts, or plants; and *androtomy* and *zootomy* are the *species*.

ANDRUM, in *Physiology*, a local disease, epidemical among the people of Malabar, being a peculiar species of *hydrocele*, or watery tumor of the *scrotum*.

The *andrum*, in the language of the country, is also called *periçal*; sometimes paraphrastically, *andu vnjaku*, q. d. a *popular water rupture*.

Its origin is derived from the vicious quality of the country waters, impregnated with corrosive muriatic salts, the source of most other diseases that affect the Malabarians. Its signs, or symptoms, are an erysipelas of the *scrotum*, returning every new moon, by which the lymphatics being exuded, pour a serous saline humour into the cavity of the *scrotum*.

The *andrum* is incurable; those once seized with it, have it for life; but it is not dangerous, nor very troublesome, to those used to it; though sometimes it degenerates into a hydrosarcocele.

The means of prevention is by a heap of sand fetched from a river of the province Mangatti, and strewed in the wells. This is practised by the rich. As to the cure, they have only a palliative one, which is by incision, or tapping and drawing off the water from the *scrotum*, once in a month or two.

ANDRYALA, *downy sow-thistle*; in *Botany*, a genus of the *syngenesia polyg. æqual.* class. The characters are, that it hath a short round hairy impalement; the flowers are compoled of many hermaphrodite florets, which are uniform and of one leaf, stretched out like a tongue on one side; the germen is situated at the bottom of each floret; and becomes afterwards a single oval seed, crowned with a down.

Mr. Miller enumerates two, and Linnæus three species, which are natives of the southern parts of Europe.

ANECDOTES, ANECDOTA, a term used by some authors, for the title of *Secret Histories*; but it more properly denotes a relation of detached and interesting particulars.

The word is Greek *ανεκδοτα*, q. d. *things not yet known*, or *hitherto kept secret*.

Procopius gives this title to a book which he published against Justinian, and his wife Theodora; and he seems to be the only person among the ancients, who has represented princes such as they are in their domestic relation. Varillas has published *Anecdotes* of the house of Medicis.

ANECDOTES is also an appellation given to such works of the ancients as have not yet been published.

In which sense, M. Muratori gives the name *Anecdota Græca* to several writings of the Greek fathers, found in the libraries, and first published by him. F. Martene has given a *Thesaurus Anecdotorum Novus*, in folio, 5 vols.

ANEE, in *Commerce*, denotes a corn-measure, used in some provinces of France, particularly in Languedoc and Maconnois.

It is otherwise called *asnee*.

The *anee* is not so properly a measure, as the denomination, or assemblage of a certain number of other measures. The *anee* at Lyons consists of six *bichets*, equal to one *septier* and three bushels, Paris measure. At Macon, the *anee* is somewhat more.

ANEE is also used for a quantity of wine, supposed to be an ass's load; and is fixed to eighty pots.

ANELE, or ANIL, the same with *indigo*. 23 El. cap. 9.

ANEMIUS *furnace*, among *Chemists*, a wind-furnace; used to make fierce fires for melting, &c.

The word is formed of *ανεμος*, *wind*.

ANEMOMACHIA, from *ανεμος*, *wind*, and *μαχη*, *fight*, in some *ancient Writers*, denotes a whirlwind, or hurricane. In which sense, we sometimes also meet with *anemocle*, *anemotarasis*, &c.

ANEMOMETER, a machine wherewith to measure the strength of the wind.

The word is compounded of *ανεμος*, *wind*, and *μετρον*, *measure*.

The *anemometer* is variously contrived. In the Philosophical Transactions we have one described, wherein the wind being supposed to blow directly against a flat side, or board, which moves along the graduated limb of a quadrant, the number of degrees it advances shews the comparative force of the wind.

Wolfius gives the structure of another, which is moved by means of sails, ABCK (*Tab. Pneumatics, fig.* 17), like those of a wind-mill; which raise a weight, L, that, still the higher it goes, receding farther from the centre of motion, by sliding along a hollow arm K M, fitted on to the axis of the sails, becomes heavier and heavier, and presses more and more on the arm, till being a counterpoise to the force of the wind on the sails, it stops the motion thereof. An index, then, MN, fitted upon the same axis at right angles with the arm, by its rising or falling, points out the strength of the wind, on a plane divided like a dial-plate into degrees.

It is objected to this machine, however, that it requires a considerable wind to make it work. Leumannus has contrived another, wherein the sails are horizontal, and are more easily driven about, and will turn what way soever the wind blows.

Mr. d'Ouvers liray invented a new *anemometer*, which of itself expresses on paper, not only the several winds that have blown during the space of twenty-four hours, and at what hour each began and ended, but also the different strength and velocities of each. Vide Mem. Acad. Scienc. an. 1734. p. 169. See WIND *Machines*.

ANEMONE, in *Botany*, *wind-flower*, a genus of the *polyandria polygynia* class. Its characters are, that the flower is naked, having no empalement, and consists of two or three orders of leaves, or petals, which are oblong, and disposed in three series over each other; it hath many germens collected into a head, which afterwards become so many seeds inclosed with a down, which adhere to the foot-stalk, and form an obtuse cone.

Mr. Tournefort enumerates 168 species; Linnæus 23; Mr. Miller, however, mentions no more than 6.

The proper soil and culture of many varieties of this beautiful flower are these: for the soil take a quantity of fresh light sandy loam, or hazel-earth, from a common, or dry pasture, not dug above eight or ten inches deep; mix this with a third part its quantity of rotten cow-dung, and lay it up in a heap; turn this over at least once a month, and every time pick out the stones and break the clods. After this mixture has been twelve months made, it will be fit for use.

The beds of this earth must be prepared in September, and should be made eight inches deep, if it be in a wet soil; but if in a dry one, three or four inches will be sufficient; three weeks after this has been laid in, stir it for six inches deep with a spade, and then with a stick draw lines each way of the bed, at four inches distance, so that the whole may be in squares; then make a hole three inches deep in the centre of each square, and plant a root in each; and when all are planted, rake the earth of the whole bed smooth, so as to cover the roots two inches thick. The season of planting these roots for forward flowers, is the middle of September, and for the later in October: this is best done at a time when there are gentle rains. Some roots should also be saved to be planted after Christmas, for fear of accidents to the former from very hard weather.

These usually flower three weeks after those planted in autumn. In the beginning of April the early planted roots will begin to flower, and they will keep in flower near a month, if the weather prove favourable, and they are properly shaded with mats, laid over hoops in the greatest heat of the day; the second, and last planted ones, will follow these; and, in the whole, there will be at least two months fine flowering.

Toward the latter end of May the first planted roots will lose all their leaves, and they must be then taken up and washed clean, and laid to dry on mats in the shade; after which they are to be put up in paper bags, and hung up till the time of planting them comes on again. The later planted ones are to be taken up also as soon as their leaves are decayed, and not suffered to remain to make new shoots; for then it is too late to remove them.

They are propagated two ways, either by dividing the roots, or by sowing. The roots are to be divided as soon as they are taken up out of the ground: they will succeed if broken into as many parts as there are eyes or buds in them; but they flower most strongly, if not parted too small.

The way, by sowing, is this: choose first some good kinds of *anemones*, plant these early, and they will produce ripe seed three weeks after the flower first blows. This must be carefully gathered, and in August it should be sowed in pots or pans, or a very well prepared bed of light earth, rubbing it between the hands with a little dry sand, to prevent several of the seeds from clinging together, and spreading them as even as possible all over the bed; after this a light hair-brush should be drawn many times over the surface of the bed, to pull asunder any lumps of seed that may yet have fallen together; observing not to brush off the seed, and as much as possible not to brush it into heaps. When this is done, some light earth, about a quarter of an inch deep, should be sifted over the bed. If the weather be hot, the bed must be at times covered with mats laid hollow, and gently watered.

In about two months after sowing, the plants will appear, if the season has been favourable, and they are to be carefully defended from the hard frosts by proper covering, and from the heat of the sun afterwards by a moveable reed-fence. As the spring advances, if the weather be dry, they must be gently watered, and when their green leaves decay, there must be a quarter of an inch more earth sifted over them, and the like again at Michaelmas; and the bed must be kept clear from weeds, and the following spring they will flower.

The *anemones* are good for pains of the head, and for inflammations; help diseases of the uterus, and procure milk into the breasts. Taken in ptisan, or applied to the part in wool, they provoke the menses. The root, chewed in the mouth, draws out phlegm, and makes the teeth sound; and the decoction thereof cures inflammations in the eyes.

All the *anemones* are acrimonious and detersive, drawers, and endued with the faculty of opening the mouths of the veins.

ANEMONES, *sea*, a species of the ACTINIA, the history of which has been lately elucidated by the abbé Dicquemarre. He has already discovered four or five different species of them. They vary in their size, shape, and colour; but are generally found to resemble a truncated cone, and many of them are of an uniform colour, whilst others are spotted either in regular stripes, or in a more irregular manner. They are found adhering to rocks or stones in the sand, or in oyster-beds: and they are observed to stretch out their limbs and mouth, in order to lay hold of any thing that touches the surface of the sand, &c. where they lie. This accurate observer could easily distinguish these animals from plants by their progressive motion, by the means they make use of to seize their prey, and to defend themselves, by their deglutition, digestion, and evacuations, and also by the propagation of their species. He accordingly classes them among spontaneous animals.

The *anemones* have a wonderful faculty of reproduction; for, by many experiments, M. Dicquemarre ascertained this property, and he conjectures that it is owing to their gelatinous texture. Their limbs budded out successively after several amputations. Nay, some of them were dissected through the body; and the basis, together with that part of the stump which was left, survived, projected new limbs, and the animal moved and eat bits of muscles, which are its usual nourishment. They appeared to bear a considerable degree of heat, and to live in a vacuum, at least in a very rare air; and they require, for a very considerable time, no other food than what they find disseminated in sea water.

Anemones are irritable to such a degree, that light very much affects them, though to appearance they have no eyes; and by means of this property, the abbé has made use of them for indicating the different changes of temperature in the atmosphere; and he gives the following account of this new kind of *barometers*. The sea-water, in which the *anemones* are placed, must be renewed every day, and this must be their only nourishment; and the observation should be made at intervals equally distant from the renewals of the water. If the *anemones* be shut and contracted, there is reason to apprehend an approaching storm; that is, high winds, and a rough, agitated sea. When they are all shut, but not remarkably contracted, they foretoken a weather somewhat less boisterous, but still attended with gales, and a rough sea. If they appear in the least open, or alternately and frequently opening and closing, they indicate a mean state both of winds and waves. When they are quite open, tolerably fine weather, and a smooth sea, may be expected. And lastly, when their bodies are considerably extended, and their limbs divergent, they surely prognosticate fixed, fair weather, and a very calm sea. The glass in which they are deposited may be swung at sea, in the same manner as the compass, so that the rolling of the ship may agitate the water as little as possible. These animals are viviparous; for several of them brought forth eight, ten, and twelve young ones, in the hand. They feed upon wandering nettles, or sea-jellies; and they are all fit for food. Upon being removed in fresh water, they acquired a pale colour, their coat becomes flabby, and they soon die. Phil. Trans. vol. lxiii. part ii. vol. lxv. part ii. and vol. lxvii. part i. See ACTINIA, ANIMAL *flower*, URTICA *Marina*, &c.

ANEMOSPERMOS, in *Botany*. See ANEMONE.

ANEMOSCOPE is sometimes used for a machine invented to foretel the changes of the wind.

The word is derived from ἄνεμος, *wind*, and σκοπέω, *I consider*.

It has been observed, that HYGROSCOPES made of cat's-gut, &c. prove very good *anemoscopes*; for from falling, by the turning of the cord a-thort, to foretel the shifting of the wind. See an account of two different *anemoscopes*; one by Mr. Pickering, Phil. Trans. vol. xlii. part ii. p. 9. the other by Mr. Martin, in his Philos. Brit. vol. ii. p. 211. See ANEMOMETER, and WIND *machine*.

The *anemoscope* used by the ancients seems, by Vitruvius's description of it, to have been intended rather to shew which way the wind actually blew, than to foretel into which quarter it would change.

Otto de Guericke also gave the title *anemoscope* to a machine invented by him, to foretel the change of the weather, as to fair and rain.

It consisted of a wooden little man, who rose and fell in a glass tube, as the atmosphere was more or less heavy. —Accordingly, M. Conners has shewn, that this *anemoscope* was only an application of the common BAROMETER. See WIND.

The *anemoscope* of Vitruvius is famous. It is made of the bird *lunck*, whose feathers are picked, the skin stripped off, *viscera* taken out, and the skin in this state drawn anew over the bones; this being hung up in the chimney, is said always to direct its bill to the point from whence the wind is like to blow. Ephem. Acad. N. C. Dec. 3. An. 9. App. p. 245.

ANETHUM, in *Botany*. See DILL.

ANETHUM, *oleum vel, simis anethi*, are procured by mere coagulation. They are commended by Galen in humid ulcers, especially about the *pudenda*.

ANETHUM, *water of*, *aqua anethi*, is procured from the leaves, while in flower, by distillation in *balneo Mariæ*. It is accounted stomachic, carminative, and anodyne.

ANETHUM, *oil of*, is either procured by infusion, or distillation. The former kind is prescribed by Dioscorides, as a proper emollient for disorders of the privities; also a warm discutient, digestive, &c. The latter is held to be aromatic, stomachic, &c.

ANEURYSM, ANEURYSMA, in *Surgery*, a soft, throbbing, ruddy tumor, occasioned by a dilatation, or by a wound of an artery.

The word comes from ἀνευρύνω, *dilato*, *I dilate*.

Surgeons distinguish two kinds of *aneurism*, which they call the true and the spurious. The true *aneurism* is formed by a dilatation only of the artery, either all round, or only one side, much in the manner of the *varices*, or tumors of the veins; this has always a pulsation.

This kind of *aneurism* is seldom fatal; though reckoned, when large, incurable; the chief inconveniencies are, the magnitude of the tumor, and the pulsation.

Mr. Littre gives us the history of an *aneurysma* of this kind, in the *aorta*; the cause whereof he attributes to an extraordinary diminution of the cavity of the axillary and subclavian arteries. Hist. de l'Acad. Roy. an. 1712.

Another history of an *aneurysma* of the same part we have, by Mr. Lafage, in the Philosophical Transactions. It was occasioned by some violent shocks the patient received on the breast, which threw him into spitting of blood, and soon after formed the tumor, whereof he died. Upon dissection, the *aneurysma* was found so big, that it filled the whole cavity of the thorax on the right side.

There is another remarkable history of an *aneurism*, in the London Medical Observations. There is also a remarkable case of the same kind, with an account of the uncertainty of discovering the symptoms of the disease, by Jos. Warner, F. R. S. Phil. Trans. vol. l. part i. N° 44. an. 1757.

The spurious *aneurism* is, when the artery having been opened, by puncture or incision, or other accident, the blood is extravasated between the muscles and integuments, and the limb appears swelled and livid, and there is little or no pulsation. The most common seat of an *aneurism* is in the brachial artery, and its most common occasion a puncture of that artery in bleeding; but the same accident may happen to any artery, and from various causes, and is often the case in the internal arteries, from falls, blows, and violent strains; in the arm is often happens from the outer coat only of the artery having been cut in bleeding, and the inner one giving way by degrees, as not of strength to bear the impulse of the blood. These are at first very small, and disregarded by the patient, but they grow at length to the size of an egg, and sometimes even to that of a man's head.

The *aneurisms* of the great internal arteries are the most fatal of all; those of their external branches are often remedied, but those in the arm frequently after the operation are attended with a wasting of the arm, and an amputation becomes necessary. The natural bursting of an *aneurism* is very dangerous, as the patient may be lost in a minute's time, if the artery be not compressed above; sometimes surgeons have also opened the larger *aneurisms*, mistaking them for abscesses.

The method of curing a slight *aneurism* in the arm, or elsewhere, is either by deligation and compression, or by incision; the first ought always to be first tried, and is done either by strait bandages with compresses, or by an engine invented for that purpose. Small *aneurisms* are often thus cured; but when large and dangerous, the operation by the knife must be used. In this the first care is to stop the course of the blood by the tourniquet; the second to denude the artery, and free it from the adjacent integuments, and the last to contract or contrunge it either by medicine or ligature.

The spurious *aneurism* is often produced by the bursting of the true kind, under the integuments; and in this case it is to be treated as the true, and cured by the operation with the knife, and by ligature, or caustics; but in all these cases, the ligature seems the best method.

When any part of an artery has lost its spring, it is less capable than before to resist the impulse of the blood. This part of a canal, which is continually pushed by the blood, must therefore become gradually more and more dilated; until by degrees there becomes formed in the part that sort of tumor which surgeons and anatomists call an *aneurism* by dilatation, or the true *aneurism*, and this dilated part of the vessel is, properly speaking, a kind of bag through which the blood that first formed it is continually passing.

When an artery has been by any means wounded, the blood which escapes through the orifice causes another sort of tumor; and this is called an *aneurism by wounding*, or a spurious *aneurism*. Heister.

The most common *aneurisms* by wound happen from bleeding in the arm; in these, if the artery be but slightly wounded, and the bandage and compress properly applied, the cure is often performed, so that no farther mischief ensues; but if the wound is larger or the compression less regular, bad symptoms come on sooner or later, and there often is a necessity at last of submitting to the operation of opening the skin, dispersing the blood, and closing the vessel. Mem. Acad. Scienc. Par. 1736.

Dr. Hunter, who has treated largely on this subject, divides *aneurisms* into four kinds, the *true*, the *false*, the *mixed*, and the *varicose*. The *true aneurism* is formed by a dilatation of the artery, and may happen in any part of the body. The *false aneurism* is formed by a rupture, or wound, in the coats of the artery, and may be either *diffused* or *circumscribed*. The *mixed aneurism* is formed partly by wound, or rupture, in the artery, and partly by dilatation.

The *varicose aneurism* is owing to the wound of an artery through a vein, so that the blood passes from the trunk of the artery into the trunk of the vein, and so back to the heart. See Lond. Med. Obf. and Inq. vol. i. art. 26. vol. ii. art. 30 and 36. vol. iii. art. 37. 12.

If an artery happens to be cut, the blood gushes out impetuously by ſtarts, and is not eaſily ſtopped; and an inflammation and diſcoloration of the part ſucceed, with a tumor, and inability to move the part. The ſymptoms are nearly the ſame in caſe of a corroſion of the coats of the artery; only in this caſe they are leſs violent.

If the blood ceaſe to flow from the wounded artery, and pour itſelf between the interſtices of the muſcles, recourſe is had to manual operation; which being neglected, the extirpation of the limb frequently becomes unavoidable. See caſes of *aneuriſms*, with remarks, by Dr. Donald Monro, in the third volume of Eſſ. Phyſ. and Liter. Edinb. 1771. art. 12. p. 178.

ANFELDTYHDE, or ANFEALTHILF, in *Law*, a ſimple accuſation; for the Saxons had two ſorts of accuſation, viz. *ſimples* and *triples*. That was called ſingle, when the oath of the criminal, and of two more, were ſufficient to diſcharge him: but his own oath, and the oaths of five more, were required to free him *a triplici accuſatione*.

ANGARI, or ANGARII, in *Antiquity*, denote public couriers, appointed for the carrying of meſſages.

The ancient Perſians, Budæus obſerves, had their *ἀγγαρήιον δρόμον*, which was a ſet of couriers on horſeback, poſted at certain ſtages or diſtances, always in readineſs to receive the diſpatches from one, and forward them to another, with wonderful celerity, anſwering to what the moderns call poſts, q. d. *poſiti*, as being poſted at certain places or ſtages. Herod. lib. viii.

The *angari* were alſo called by the Perſians *oſandæ*; by the Greeks *ἐπισπέμπτοι*, on account of the long journies they made in one day, which, according to Suidas, amounted not to leſs than 1500 ſtadia.

ANGARI is alſo applied figuratively to porters, and others employed in laborious offices, as bearing burdens.

ANGARIA is uſed, in a general ſenſe, for any burden, or incumbrance, forcibly impoſed on perſons.

Some define *angariæ*, by perſonal ſervices, which a party is compelled to diſcharge in his own perſon, or to ſerve at his own expence.—Or, ſuch ſervices impoſed on lands, whereby a perſon is obliged to work for another, either with his horſe, tea ats, or the like.

ANGARIA, in the *Civil Law*, denotes a duty required of the ſubjects to furniſh out horſes and carriages for conveying of corn for the ſoldiers, and ſuch things as belonged to the *fiſcus*.

This duty goes by the name of *curſus publicus*, *angaria*, *parangaria*, *tranſlatio*, and *veitio*. The horſes uſed in this ſervice are particularly called *paraveredi*, and *equi curſuales*.

Angariæ are generally underſtood as excluſive of ſhips; though, on ſome occaſions, theſe were preſſed into the ſervice for tranſporting proviſions and the like.

Angariæ differ from *parangariæ*, in that the former are confined to public or main roads, the latter to oblique or croſs roads.

In the Book of Feuds, the performance of *angariæ* and *parangariæ* is ranked in the number of royal ſervices. Lib. ii. tit. 56.

The clergy were exempted from this ſervice by two laws of Conſtantius; but he revoked this privilege in 360. The privilege was reſtored in 382, and confirmed by Honorius in 412, but was taken away again in 440. Bingh. Orig. Eccleſiaſt. lib. v. cap. 3. § 10.

ANGARIA, is alſo uſed, in *Ancient Military Writers*, for a guard of ſoldiers poſted in any place for the ſecurity of it. Veget. lib. i. cap. 3. lib. ii. cap. 19. lib. iii. cap. 8.

ANGEIOGRAPHIA, the knowledge, or deſcription, of all kinds of ancient inſtruments, veſſels, and utenſils, both domeſtic, military, and nautical.

The word is compounded of *ἀγγεῖον*, an, *veſſel*, and *γράφω*, *ſcribo*, *I deſcribe*.

Angeiography alſo includes the conſideration of the WEIGHTS, MEASURES, &c. uſed by the ſeveral nations.

ANGEIOLOGY, ANGEIOLOGIA, in *Anatomy*, the hiſtory or deſcription, of the veſſels in a human body; i. e. gr. the nerves, veins, and lymphatics.—See *Tab. Anat.* part ii.

The word is derived from *ἀγγεῖον*, a *veſſel*, and *λόγος*, *diſcourſe*.

Angeiology is a branch of SARCOLOGY.

ANGEIOTOMY, in *Surgery*, is uſed by ſome to denote an artificial ſection of the veſſels, as in bleeding.

The word is formed of *ἀγγεῖον*, *veſſel*, and *τέμνω*, *ſeco*, *I cut*.

In this ſenſe *angeiotomy* may be divided into PHLEBOTOMY and ARTERIOTOMY.

ANGEL, a ſpiritual intelligent ſubſtance; the firſt in rank and dignity among created beings.

The word *angel*, *ἄγγελος*, is not properly a denomination of nature but of office; denoting as much as *nuncius*, *meſſenger*, a perſon employed to carry one's orders, or declare his will.—Thus it is St. Paul repreſents *angels*, Heb. i. 14. where he calls them *miniſtring ſpirits*; and yet cuſtom has prevailed ſo much, that *angel* is now commonly taken for the denomination of a particular nature.

The exiſtence of *angels* is ſuppoſed in all religions, though it is incapable of being proved *a priori*.—Indeed, the ancient Sadducees are repreſented as denying all ſpirits; and yet the Samaritans and Caraites, who are reputed Sadducees, openly allow them: witneſs Abuſaid, the author of an Arabic verſion of the Pentateuch; and Aaron, a Caraite Jew, in his comment on the Pentateuch; both extant in manuſcript in the king of France's library.

In the Alcoran, we find frequent mention of *angels*.—The Muſſulmen believe them of different orders or degrees, and to be deſtined for different employments both in heaven and on earth. They attribute exceeding great power to the angel Gabriel; as to be able to defcend in the ſpace of an hour from heaven to earth; to overturn a mountain with a ſingle feather of his wing; &c. The *angel* Aſrael, they ſuppoſe, is appointed to take the ſouls of ſuch as die; and another *angel*, named Eſraphil, they ſay, ſtands with a trumpet ready in his mouth to proclaim the day of judgment.

The heathen philoſophers and poets were alſo agreed as to the exiſtence of intelligent beings, ſuperior to man; as is ſhewn by St. Cyprian, in his treatiſe of the vanity of idols, from the teſtimonies of Plato, Socrates, Trimegiſtus, &c.

Authors are not ſo unanimous about the nature as about the exiſtence of *angels*.—Clemens Alexandrinus believed they had bodies; which was alſo the opinion of Origen, Cæſarius, Tertullian, and ſeveral others. Athanaſius, St. Baſil, St. Gregory Nicene, St. Cyril, St. Chryſoſtom, &c. hold them to be mere ſpirits.

Eccleſiaſtical writers make an HIERARCHY of nine orders of *angels*.

By the ancient councils, men are forbid to frame or give particular names to *angels*; the only names owned by the church are Michael, Gabriel, and Raphael, to which is ſometimes added Uriel. Du-Cange.

Before the Babylonish captivity the Jews did not know the name of any *angel*; at least we find none mentioned in the books written before this event. Calmet. Dict. Bib.

Authors are divided as to the time of the creation of *angels*; some will have it to have been before the creation of our world, or even before all ages, that is, from eternity; this was Origen's opinion, who, according to Leontius, held that all spirits, *angels*, devils, and even human souls, were from eternity.

Others hold *angels* to have been created before the world, yet not from eternity; of which opinion are Nazianzen, and others. Others again maintain that they were created at the same time with our world, but on what day is disputed. Theodoret and Epiphanius fix their date first on the first day.

Good *angels* are called *angels of light*, and *guardian angels*; and those on the contrary, who are the *devil's* ministers, *angels of darkness*, and *fallen angels*.

ANGEL is more particularly understood of a spirit of the ninth and lowest class, or order of the HIERARCHY, or heavenly choir.

There was an officer of the Synagogue, among the Jews, who had the name of *angel*; and he was called INT, or *episcopus*, because he overlooked the reader of the law.

In the Apocalypse, the denomination *angel* is also given to the pastors of several churches: who are called, the *angel* of the church of Ephesus, the *angel* of the church of Smyrna, &c. Du-Cange adds, that the same name was anciently given to certain popes, and bishops; by reason of their singular sanctity, &c.

ANGEL is also used, in *Commerce*, for an ancient gold coin struck in England; so called from the figure of an *angel* impressed upon it.

Its value in 1 Hen. VI. was 6*s.* 8*d.* in 1 Hen. VIII. 7*s.* 6*d.* in 34 Hen. VIII. 8*s.* in 6 Edw. VI. it was 10*s.* in 2 Eliz. it was 10*s.* and in 23 Eliz. the same.—And the *half angel*, or, as it was sometimes called, the *angelet*, was the moiety of this; and the *quarter angelet*, proportionable.

The *angel* now subsists no otherwise than as a money of account; denoting 10*s.*

The French have also had their *angels*, *demi-angels*, and *angelots*; but they are now disused.

ANGEL-*fish*, in *Ichthyology*, the English name of the fish called by the generality of authors the SQUATINA, and by some the SQUATUS and RHINA. It is also called the MONK-*fish*, and is, according to the Artedian system, a species of the *squalus*, distinguished from the others of that genus by the name of the *squalus* with no *pinna ani*, and with the mouth placed in the top of the head.

ANGELIC, or ANGELICAL, something belonging to, or that partakes of the nature of *angels*.

We lay an *angelical* life, &c.—St. Thomas is styled the *angelical doctor*.—The *angelical* salutation is called by the Romanists *Ave Maria*; sometimes simply *angelus*.

ANGELIC *garment*, ANGELICA *vestis*, among our *Anabaptists*, was a monkish garment, which laymen put on a little before their death, that they might have the benefit of the prayers of the monks.

It was from them called *angelical*, because they were called *angeli*, who by their prayers *animæ salutis procurrebant*.—Hence, where we read the plural *monachos ad succurrendum* in our old books, it must be understood of one who had put on the habit when he was at the point of death.

ANGELICA, in *Botany*, a genus of the *pentandria digynia* class, a medicinal plant, of which the characters are, that it is umbelliferous, the greater umbel being composed of many small ones; the empalement of the flowers is indented into five parts; the flowers of the whole umbel are uniform. The germen is situated below the flower, which afterward becomes a roundish fruit, splitting into two, and composed of two seeds, which are plane on one side, convex on the other, and are bordered.

Mr. Miller enumerates *five* species.

It grows in gardens, and flowers and seeds in June and July: the root perishing after the ripening of the seed, which is in the second year of its growth. It is of a sweet smell, of an aromatic taste, and is loaded with a highly exalted oil, and volatile salt.

The roots of the garden *angelica* are of considerable use in medicine: the leaves also are sometimes used, and the seeds. It is a stomachic, a cordial, a sudorific; it is good in flatulencies, and is by many ranked among the vulnerary herbs. It is prescribed in malignant diseases of all kinds, against the effects of poison, and in the plague.

It has been a custom with some physicians, in the times of contagion of this kind, to make a paste of the fresh roots beaten with vinegar, and to carry this in a box about them, readily to be applied to the nose occasionally; others prefer the holding a piece of the dry root in the mouth, and others the drinking a glass of strong vinegar, in which it has been infused, fasting.

It has also been a custom to sprinkle the powder of the root over the cloaths of persons who go among the infected, through an opinion that it preserves them from imbibing the effluvia, which otherwise they might carry elsewhere.

A dram of the powder of the root alone, or half that quantity with a dram of Venice treacle are recommended to be given as a remedy in the plague, to be repeated every six hours, and a gentle sweat to be kept up all the time.

The root is used in many of our shop compositions, as in the plague-water, &c. and the dried leaves are a principal ingredient in the ladies red-powders famous in England for the cure of fevers.

The Laplanders are extremely fond of *angelica*, and use it in great abundance, both in meat and medicine. They use only the fibres, never meddling with the roots or seed, in which we find the highest flavour, and greatest virtue. They gather the large stalks before the plant is run to seed, and roast them or bake them till they are thoroughly tender, and then eat them as a delicate dish.

When they are sick, they boil either these fibres or the roots of the roots, which they call *jerth*, in water, and in worse cases in whey made of rein-deer milk, and give large draughts of this decoction to keep up a breathing sweat.

ANGELICA, *berry-bearing*. See ARALIA.

ANGELICA, *wild*. See ARCHANGEL.

ANGELICA *water* is one of the compound waters of the shops: thus called from the *angelica* root, which is the chief ingredient in the composition, and the most active part of that plant. Neumann.

ANGELICA *grass*, a technical name given to Anderson's Scots pills.

ANGELICA was also a celebrated dance among the ancient Greeks, performed at their feasts.

It was thus called, from ἄγγελος, *nuncius*, *messenger*; because, as Pollux assures us, the dancers were dressed in the habit of messengers.

ANGELICI, an ancient order of knights, instituted in 1190, by Isaacus Angelus Flavius Comnenus, emperor of Constantinople.

They were divided into three classes; but all under direction of one grand-master.—The *first* were called *turquois*, from a collar which they wore, and these were fifty in number.—The *second* were called the *knights of justice*, and were ecclesiastics.—And the *third* were called *knights servitors*.

Justinani will have this order to have been instituted in the year 313, by Constantine; and supposes the occasion thereof to have been the appearance of an angel to that emperor, with the sign of a cross, and these words, *In hoc signo vinces*; but that there was such a thing as any military order in those days, is a mere fable.

ANGELICI were also a sect of ancient Christians.—St. Augustine supposes them thus called from their yielding an extravagant worship to angels, and such as tended to IDOLATRY; though Epiphanius derives the name from their holding that the world was created by angels.

ANGELINA *manna arabica*, in *Botany*. This is a tree of vast size, sometimes above fifteen feet thick, growing on rocky and sandy places in Malabar, in the East Indies. It bears ripe fruit in December, and continues bearing for a whole century.

The dried leaves heated, alleviate pains and stiffness in the joints, and discuss an intumescence of the *testes* occasioned by a contusion, or any external violence; as also an *hydrocele*, or *pneumatocele*. It is effectual likewise in some venereal complaints, and incommodious fluxes.

ANGELICÆ, *Angelitæ*, in *Ecclesiastical History*, certain Christians, thus denominated from *Angelion*, the name of a place in Alexandria, where their first assemblies were held.

The *Angelitæ* appear to have been the same with what are otherwise called *Severitæ*, sometimes *Theodosiani* and *Domitiani*, from the names of their leaders: sometimes also *Tabennisiotæ*.

They made their first appearance in the time of the emperor Anastasius, and pope Symmachus, about the year of Christ 492.

The distinguishing tenets of the *Angelitæ* were, that the several persons of the Trinity had no distinct essence, substance, or deity; but only a subsistence or deity in common, or indivisible among them.

ANGELOLATRIA, from ἄγγελος, *angel*, and λατρεία, *I worship*, the superstitious worship, or adoration of angels.

ANGELOLOGIA, from ἄγγελος and λόγος, *discourse*, the doctrine or science of angels, their nature, office, &c. Gerhard has published a sacred *Angeiologia*. Mulinus an apocryphal *Angeiologia*.

Some use the term *Angelosophia* in a sense much the same.

A. Varenius has given an *Angelosophia*.

ANGELOGRAPHIA, from ἄγγελος and γράφω, *I describe*, a description of angels, their orders, names, discipline, &c.

This amounts to much the same with what others call *angeiologia*.

Cassianus and Manilius have published *Angeiographies*.

ANGELOT, an ancient English gold coin, struck at Paris while under subjection to the English.

It was thus called from the figure of an angel supporting the escutcheon of the arms of England and France.

There was another coin of the same denomination struck under Philip de Valois.

ANGELOT is also used in commerce to denote a small, fat, rich sort of cheese, brought from Normandy.

Skinner supposes it to have been thus called from the name of the person who first made it up in that form, and perhaps stamped it with his own name. Menage takes it to have been denominated from the resemblance it bears to the English coin called *angelus*.

It is made chiefly in the Pays de Bray, whence it is also denominated *angelot de Bray*.

It is commonly made in vats, either square or shaped like a heart.

ANGELUS, in the *Church History* of France, denotes a prayer to the Holy Virgin, established by Louis XI. to be repeated three times a day, at the sound of a bell rung for that purpose.

The *angelus* is the same with what is otherwise called *Ave Maria*, or the angelic salutation.

ANGER.—Hutcheson defines *anger*, a propensity to occasion evil to another, arising upon an apprehension of an injury done by him.

Anger is either deliberative or instinctive; and the latter kind is rash and ungovernable, because it operates blindly, without affording time for deliberation or foresight. Bishop Butler very justly observes, that *anger* is far from being a selfish passion, since it is naturally excited by injuries offered to others, as well as to ourselves; and was designed by the Author of nature not only to excite us to act vigorously in defending ourselves from evil, but to interest us in the defence or relief of the injured and helpless, and to raise us above the fear of the proud and mighty oppressor. Butler's Sermons, Serm. viii.

Anger is of such a nature, that it quickly throws the whole nervous system into preternatural commotions, by a violent structure of the nervous and muscular parts; and surprisingly augments not only the *systole* of the heart, and of all contiguous vessels, but also the tone of the fibrous parts in the whole body. It is also certain, that this passion, by the spasmodic structure it produces in the parts, exerts its power principally on the stomach and intestines, which are highly nervous and membranous parts; whence the symptoms are more dangerous, in proportion to the greater consent of the stomach and intestines with the other nervous parts, and almost with the whole body.

The unhappy influence of *anger* likewise, on the biliary and hepatic ducts, is very surprising; since by an intense constriction of these, the liver is not only rendered schirrhous, but stones also are often generated in the gall-bladder, and biliary ducts; these accidents have scarcely any other origin than an obstruction of the free motion and efflux of the bile, by means of this violent structure. From such a structure of these ducts likewise proceeds the jaundice, which in process of time lays a foundation for calculous concretions in the gall-bladder. Lastly, by increasing the motion of the fluid, or the spasms of the fibrous parts, by means of *anger*, a larger quantity of blood is propelled with an *impetus*, to certain parts; whence it happens, that they are too much distended, and the orifices of the veins distributed there, opened. It is evident from experience that *anger* has a great tendency to excite enormous haemorrhages, either from the nose, the aperture of the pulmonary artery, the veins of the arms; or in women, from the uterus; especially in those previously accustomed and disposed to such evacuations.

For the influence of this passion on the perspiration and urine of human bodies, see PERSPIRATION, &c.

ANGERONALIA, in *Antiquity*, solemn feasts held by the Romans, the 21st of December, in honour of Angerona, or Angeronia, the goddess of patience and silence.

Festus and Julius Modestus, quoted by Macrobius, Saturn. lib. i. cap. 10. derive the name from *angina*, *squinancy*; and suppose the goddess to have been thus denominated, because she presided over that disease.—Others suppose it formed from *angor*, *grief*, *pain*; to intimate that she gave relief to those afflicted therewith. Others deduce it from *angeo*, *I press*, *I chafe*; as being required the goddess of silence, &c.

ANGETENAR, in the *Arabian Astronomy*, denotes a fixed star of the fourth magnitude, in the body of CETUS, or the WHALE.

ANGIGLOSSII, from ἀγγεῖον, *conferva*, and γλῶσσα, *lingua*, denotes those who speak with difficulty, hesitation, or even stammering.

ANGILDUM, in our *Old Writers*, denotes a simple gild, that is, the simple value of the man, or other thing.

The word is compounded of the Saxon, *an*, *one*, and *gild*, *payment*, *price*, or *compensation*.

In this sense, *angildum* stands contradistinguished from *twigildum*, a *double compensation*; *trigildum*, a *triple compensation*.

ANGINA, in *Medicine*, an inflammation about the muscles of the *larynx* or *pharynx*, attended with an acute fever, difficulty of swallowing, and danger of suffocation.

The word is derived immediately from the Latin *ango*, *I vex*, formed of ἄγχω, *suffoco*, *strangle*.

The *angina* is the same with what we popularly call QUINZY, or *squinancy*. It is an inflammation in the parts of the throat subservient to respiration, speech, and deglutition. When the disorder is epidemic, it is usually between spring and Summer, after a long continuance of cold and rainy weather. The true *quinzy* is an acute inflammatory disorder; the ballard *quinzy* is a symphatic, catarrhal disorder; and the fever that accompanies it is not acute, but rather chronical. See QUINZY.

ANGINA *gangrena*, or *aphtha*, the ulcerated, malignant, putrid, *sore* THROAT; on which there are various treatises by Fothergill, Huxham, Northcote, &c.

ANGINA *hirci*, in *Botany*, a name used by some of the later Greek writers to express what the more ancient writers of this nation called *linaceftis*, and the Latins *ephimum*; this was the *cuscuta* or *dodder* growing on the flax, as that on the thyme was called *epithymum*. It was called *angina lini*, the quinzy of flax, from its choaking that plant.

ANGINA *pectoris*, in *Medicine*, a name given to a disease, dangerous, and not extremely rare, first described by Dr. W. Heberden, and so called from the seat of the disorder, and the sense of strangling and anxiety with which it is attended. The doctor's account of it is in the second volume of the London Medic. Transf. p. 59. &c. See also Medic. and Phil. Comment. vol. ii. p. 65. The patient while walking, especially if soon after eating, is affected with a painful sensation in his breast; at first, it is removed by his standing still, but afterwards it does not go off so suddenly; it comes on in bed, obliges the patient to get up, and continues for an hour or more; sometimes, though rarely, it attacks the patient standing or sitting still. It is brought on by trivial accidents, coughing, &c. or any slight disturbance. In some it is worst in winter, in others in summer. The pulse, sometimes at least, is not disturbed, consequently the heart is not affected by the pain. People affected with it often die suddenly, but some continue subject to it for twenty and odd years. The seat of it seems to be in or about the *os sternum*, towards the left side, and a pain in the middle of the left arm sometimes accompanies it. The cause is probably a spasm, or cramp, or an ulcer, or both. Wine, or other *cordials*, taken at bed-time, prevent or weaken night-fits, but opium is the most effectual relief; ten, fifteen, or twenty drops of the thebaic tincture, taken at bed-time, may be safely continued as long as requisite.

This disease has been since accurately described, and suitable preventives or remedies proposed, by Dr. Fothergill. Med. Obs. and Inq. vol. v. p. 233. 252.

ANGIOSPERMIA, in *Botany*, a term used by Linnæus, to express a certain series of the DIDYNAMIA or plants of the verticillate kind, which have their seeds not lodged naked within the cup. They are by this distinguished from the *gymnospermia*, which have them so; whereas the *angiospermia* have them inclosed in a capsule, and adhering to a *placenta* placed in the middle of that capsule. The class of DIDYNAMIA contains the labiated and perforated plants. The *angiospermia* are the perforated, the others the labiated kind. This order, or series, contains sixty-three genera, comprehending those that have a simple stigma, and perforate cuspule; those with a double stigma, and such as have many petals.

ANGLE, ANGULUS, in *Geometry*, the aperture or mutual inclination of two lines, which meet, and form an *angle* at their point of intersection.

Such is the *angle* BAC (*Tab.* IV. *Geometry*, *fig.* 91.) formed by the lines AB and AC, meeting in the point A.—The lines AB and AC, are called the *legs* of the *angle*; and the point of the intersection, the VERTEX.

Angles are sometimes denoted by a single letter affixed to the *vertex*, or angular point, as A; and sometimes by three letters, that of the vertex being in the middle, as BAC.

The measure of an *angle*, whereby its quantity is expressed, is an ARCH, DE, described from its vertex A, with any radius at pleasure, between its legs, AC and AB. See MEASURE.

Hence

Hence *angles* are diſtinguiſhed by the ratio of the arches which they thus ſubtend, to the CIRCUMFERENCE of the whole CIRCLE.—And thus an *angle* is ſaid to be of ſo many degrees, as are the degrees of the arch DE.

Hence alſo, ſince ſimilar arches, AB and DE, *fig.* 87, have the ſame ratio to their reſpective circumferences; and the circumferences contain each the ſame number of degrees; the arches AB and DF, which are the meaſures of the two *angles* ACB, and DCE, are equal; and therefore the *angles* themſelves muſt be ſo too.—Hence, again, as the quantity of an *angle* is eſtimated by the ratio of the arch, ſubtended by it, to the periphery, it does not matter what radius that arch is deſcribed with: but the meaſures of equal *angles* are always either equal arches, or ſimilar ones; and contrarily.

It follows, therefore, that the quantity of the *angles* remains ſtill the ſame, though the legs be either produced or diminiſhed.—And thus in ſimilar triangles, and in ſimilar figures, the homologous or correſponding *angles* are alſo equal.

The *taking of angles* is an operation of great uſe and extent in ſurveying, navigation, geography, aſtronomy, &c. The inſtruments chiefly uſed for this purpoſe are quadrants, theodolites, circumferentors, &c.

Mr. Hadley has invented a new and excellent inſtrument for taking *angles*, uſeful where the motion of the object, or any circumſtance cauſing the unſteadineſs in the common inſtruments, renders the making obſervations difficult or uncertain. Phil. Tranſ. N° 420, and N° 425.

Mr. Dolland has likewiſe contrived an inſtrument for meaſuring ſmall *angles*. Phil. Tranſ. vol. xlviii. N° 74. See MICROMETER.

In the practice of ſurveying, no *angles* of leſs than thirty degrees ſhould be taken: nor ſhould any be aſſumed but ſuch as are actually meaſured. See Hiſt. Acad. Scienc. 1740.

ANGLE, *to meaſure the quantity of an.*—1. On paper. Apply the centre of a protractor on the vertex of the *angle* O, (*Tab.* III. *Surveying*, *fig.* 49) ſo that the radius OB lie on one of the legs: the degree ſhown in the arch, by the other leg of the *angle*, will give the *angle* required.—To do the ſame with a line of chords, ſee SECTOR.

2. On the ground.—Place a ſurveying inſtrument, e. g. a ſemicircle (*fig.* 50) in ſuch a manner as that a radius thereof CG may lie over one leg of the *angle*, and the centre C over the vertex.—The firſt is obtained by looking through the ſights F and G, towards a mark fixed at the end of the leg; and the latter, by letting fall a plumbet from the centre of the inſtrument.—Then, the moveable index HI being turned this way and that, till through its ſights you diſcover a mark placed at the extreme of the other leg of the *angle*; the degree it cuts in the limb of the inſtrument ſhews the quantity of the *angle*.

To take the angle with a QUADRANT, THEODOLITE, PLAIN TABLE, CIRCUMFERENTOR, COMPASS, &c. ſee the ſeveral articles.

To plot or lay down any given *angle*, i. e. the quantity of the *angle* being given, to deſcribe it on paper. See PLOTTING and PROTRACTOR.

To biſect a given *angle*, as HIK, (*Tab.* IV. *Geometry*, *fig.* 92.) from the centre I, with any radius at pleaſure, deſcribe an arch LM. From L and M, with an aperture greater than half LM, ſtrike two arches, mutually interſecting each other in N. Then drawing the right line IN, we have HIN=NIK.

To trifect an *angle*, ſee TRISECTION.

ANGLES are of various kinds and denominations.

With regard to the form of their legs, they are divided into *rectilinear*, *curvilinear*, and *mixed*.

ANGLE, *rectilinear*, or *right lined*, is that whoſe legs are both right lines: as BAC. (*Tab.* IV. *Geometry*, *fig.* 91.)

ANGLE *curvilinear*, is that whoſe legs are both of them curves.

ANGLE *mixt*, or *interlinear*, is that, one of whoſe ſides is a right line, and the other a curve.

With regard to their quantity, *angles* are again divided into *right*, *acute*, *obtuſe*, and *oblique*.

ANGLE, *right*, is that formed by a line falling perpendicularly on another; or that which ſubtends an arch of 90 degrees.—Such is the *angle* KLM (*fig.* 93.)

The meaſure of a right *angle*, therefore, is a quadrant of a circle; and conſequently all right *angles* are equal to each other.

ANGLE, *acute*, is that which is leſs than a right *angle*, or than 90°.—as AEC (*fig.* 86.)

ANGLE, *obtuſe*, is that greater than a right *angle*, or whoſe meaſure exceeds 90°.—as AED.

ANGLE, *oblique*, is a common name both for acute and obtuſe *angles*.

With regard to their ſituation in reſpect of each other, *angles* are divided into *contiguous*, *adjacent*, *vertical*, *alternate*, and *oppoſite*.

ANGLES *contiguous*, are ſuch as have the ſame vertex, and one leg common to both.—Such are FGH and HGI (*fig.* 94.)

ANGLE *adjacent*, is that made by producing one of the legs of another *angle*. Such is the *angle* AEC (*fig.* 86.) made by producing a leg, ED, of the *angle* AED, to C. Two *adjacent angles*, *x* and *y*, or any other number of *angles* made on the ſame point E, over the ſame right line CD, are together equal to two right ones; and conſequently to 180°. And hence, one of two adjacent *angles* being given, the other is likewiſe given; as being the complement of the former to 180°.

Hence alſo, to meaſure an inacceſſible *angle* in a field, taking an adjacent acceſſible *angle*, and ſubtracting the quantity thereof from 180°, the remainder is the *angle* required.

Again, all the *angles*, *x*, *y*, *o*, E, &c. made round a given point E, are equal to four right ones; and therefore all make 360°.

ANGLES, *vertical*, or *oppoſite*, are thoſe whoſe legs are continuations of each other. Such are the *angles* *x* and *x*, (*fig.* 86.)

If a right line AB, cut another, CD, in E, the vertical *angles* *x* and *o*, as alſo *y* and E, are equal. And hence, if it be required to meaſure, in a field, or any other place, an inacceſſible *angle*, *x*; and the other vertical *angle*, *o*, be acceſſible; this latter may be taken in lieu of the former.

ANGLE, *alternate*. See ALTERNATE. Such are the *angles* *x* and *y*, (*fig.* 36)

The alternate *angles* *y* and *x* are equal.

ANGLES, *external*, are the *angles* of any right-lined figure made without it, by producing all the ſides ſeverally.

All the external *angles* of any figure, taken together, are equal to four right *angles*; and the external *angle* of a triangle is equal to both the internal and oppoſite ones, as is demonſtrated by Euclid, lib. i. prop. 32.

ANGLES, *internal*, are the *angles* made by the ſides of any right-lined figure within.

The ſum of all the internal *angles* of any right-lined figure is equal to twice as many right *angles* as the figure hath ſides, excepting four. This is eaſily demonſtrated from Euclid, prop. 32. lib. i.

The external *angle* is demonſtrated to be equal to the internal oppoſite one; and the two internal oppoſite ones are equal to two right ones.

ANGLES, *homologous*, are ſuch *angles* in two figures, as retain the ſame order from the firſt, in both figures.

ANGLE *at the periphery* is an *angle* whoſe vertex and legs do all terminate in the periphery of a circle. Such is the *angle* EFG (*Tab.* IV. *Geom. fig.* 95.)

ANGLE *in the* SEGMENT, is the ſame with that at the periphery.

It is demonſtrated by Euclid, that all the *angles* in the ſame ſegment are equal to one another; that is, any *angle* EFG, is equal to any *angle* E F G in the ſame ſegment EFG.

The *angle* at the periphery, or in the ſegment, is comprehended between two chords EF and FD, and ſtands on the arch ED. See CHORD, &c.

The meaſure of an *angle* without the periphery X (*fig.* 96.) is the difference between half the concave arch LM, whereon it ſtands, and half the convex arch NO intercepted between its legs.

ANGLE *in a ſemicircle*, is an *angle* in a ſegment of a circle, whoſe baſe is a diameter thereof.

It is demonſtrated by Euclid, that the *angle* in a ſemicircle is a right one; in a ſegment greater than a ſemicircle, it is leſs than a right one; and in a ſegment leſs than a ſemicircle, is greater than a right one.

Since an *angle* in a ſemicircle ſtands on a ſemicircle, its meaſure is a quadrant of a circle; and therefore is a right *angle*.

ANGLE *of a ſemicircle*, in *Geometry*, the *angle* which the diameter of a circle makes with the circumference. The chief property of this *angle* is, that it is leſs than a right *angle*, and greater than an acute right-lined *angle*.

ANGLE *at the centre* is an *angle* whoſe vertex is in the centre of a circle, and its legs terminated in the periphery thereof. Such is the *angle* CAB (*fig.* 95.)

The *angle* at the centre is comprehended between two radii, and its meaſure is the arch BC.

Euclid demonſtrates, that the *angle* at the centre BAC is double of the *angle* BDC, ſtanding on the ſame arch BC. And hence, half of the arch BC is the meaſure of the *angle* at the periphery.

Hence, alſo, two or more *angles* HLI, and HMI (*fig.* 97.) ſtanding on the ſame, or equal arches, are always equal.

ANGLE *without the centre*, HKI, is that whoſe vertex K is

not in the centre, but its legs HK and IK are terminated in the periphery.

The measure of an *angle* without the centre is half of the arches HI and LM, wherein it and its vertical O do stand.

ANGLE *of contact* is that made by the arch of a circle and a tangent in the point of CONTACT.—Such is the *angle* HAD, (*fig.* 10.)

The *angle* of contact, in a circle, is proved by Euclid to be less than any right-lined *angle*; but from hence it does not follow, that the *angle* of contact is of no quantity, as Peletarius, Wallis, and some others, have imagined. V. Wall. Algeb. p. 70, &c. Sir Isaac Newton shews, that if the curve HAE (*fig.* 97.) be a cubic parabola, where the ordinate DF is in the subtriple ratio of the abscisse AD, the *angle* BAF, contained under the tangent AB in its vertex, and the curve, is infinitely greater than the circular *angle* of contact BAC; and that, if other parabolas of higher kinds be described to the same axis and vertex, whose abscisses AD are as the ordinates DF², DF³, DF⁴, &c. you will have a series of *angles* of contact going on infinitely, of which any one is infinitely greater than that next before it.

ANGLE *of a segment* is that made by a chord with a tangent, in the point of contact. Such is the *angle* MLH (*fig.* 10.)

It is demonstrated by Euclid, that the *angle* MLH is equal to any angle M *a* L in the alternate segment M *a* L.

ANGLES, *for the effects, properties, relations, &c. of, when combined into triangles, quadrangles, and polygonous figures*, see TRIANGLE, QUADRANGLE, SQUARE, PARALLELOGRAM, POLYGON, FIGURE, &c.

ANGLES are again divided into PLANE, SPHERICAL, and SOLID.

ANGLES, *plane*, are those we have hitherto been speaking of; which are defined by the inclination of two lines in a plane, meeting in a point.

ANGLE, *spherical*, is the inclination of the planes of two great circles of the sphere.

For the properties of spherical *angles*, see SPHERICAL *Angle*.

ANGLE, *solid*, is the mutual inclination of more than two planes, or plane *angles*, meeting in a point, and not contained in the same plane. For the measure, properties, &c. of solid *angles*, see SOLID *Angle*.

We also meet with other less usual sorts of *angles* among some geometricians; as,

ANGLE, *horned*, *angulus cornutus*, that made by a right line, whether a tangent or secant, with the periphery of a circle.

ANGLE, *lunular*, *angulus lunularis*, is that formed by the intersection of two curve lines; the one concave, and the other convex.

ANGLE, *cissoid*, *angulus cissoides*, is the inner *angle* made by two spherical convex lines intersecting each other. See CISSOID.

ANGLE, *sistroid*, *angulus sistroides*, is that in figure of a SISTRUM.

ANGLE, *peleoid*, *angulus* PELECOIDES, is that in figure of a hatchet.

ANGLE, in *Trigonometry*. See TRIANGLE and TRIGONOMETRY.

For the sines, tangents, and secants of *angles*, see SINE, TANGENT and SECANT.

ANGLE, in *Mechanics*. *Angle of* DIRECTION, is that comprehended between the lines of direction of two conspiring forces.

ANGLE *of* ELEVATION is that comprehended between the line of direction of a projectile, and a horizontal line. Such is the *angle* RAB (*Tab.* IV. *Mechanics*, *fig.* 47.) which is comprehended between the line of direction of the projectile AR, and the horizontal line AB.

ANGLE *of incidence* is that made by the line of direction of an impinging body, in the point of contact. Such is the angle DCA (*fig.* 66.)

ANGLE *of reflection*, is that made by the line of direction of the reflected body, in the point of contact from which it rebounds. Such is the *angle* ECF.

ANGLE, in *Optics*. *Visual*, or *optic angle*, is the *angle* included between the two rays drawn from the two extreme points of an object to the centre of the pupil.—Such is the *angle* ABC (*Tab.* IV. *Optics*, *fig.* 69.) comprehended between the rays AB and BC.

Objects seen under the same, or an equal *angle*, must always appear equal.

The least *visible angle*, according to Dr. Hook, is one minute; though Dr. Jurin shews, that at the time of his debate with Hevelius on this subject, the latter could probably discover a single flat under so small an *angle* as 20″. Dr. Jurin states the grounds of this controversy, and discusses the question at large in his Essay upon distinct and indistinct vision, published in Smith's *Optics*, p. 148, &c.

ANGLE *of the interval*, of two places, is the *angle* subtended by two lines directed from the eye to those places.

ANGLE *of incidence*, in *Catoptrics*, is the lesser *angle*, made by an incident ray of light, with the plane of a speculum; or, if the speculum be concave or convex, with a tangent to the point of incidence. Such is the *angle* ABD (*fig.* 26.) Or, as some define it, it is the *angle* which a ray of light makes with a perpendicular to that point of the surface of any *medium* on which it falls.

Every incident ray, AB, makes two *angles*, the one acute, ABD, the other obtuse, ABE, though sometimes both right. The lesser of such *angles* is the *angle* of incidence. See INCIDENCE.

ANGLE *of incidence*, in *Dioptrics*, is the *angle* ABI (*fig.* 56.) made by an incident ray, AB, with a lens, or other refracting surface, HI.

ANGLE *of inclination* is the *angle* ABD, contained between an incident ray, AB, and the axis of incidence, DB. See AXIS, &c.

ANGLE *of reflexion*, ANGLE, *reflected*, } in *Catoptrics*. See REFLECTION.

ANGLE, *of refraction*, ANGLE, *refracted*, } in *Dioptrics*. See REFRACTION.

ANGLE, in *Astronomy*. ANGLE *of commutation*. See COMMUTATION.

ANGLE *of elongation*, or ANGLE *at the earth*. See ELONGATION.

ANGLE, *parallactic*. See PARALLACTIC *angle*.

ANGLE *at the Sun*, is the *angle* RSP (*Tab. Astronomy*, *fig.* 25.) under which the distance of a planet P, from the ecliptic PC, is seen from the sun.

ANGLE *of the East*. See NONAGESIMAL.

ANGLE *of obliquity*, of the ecliptic, or the *angle* of inclination of the *axis* of the earth, to the *axis* of the ecliptic, is 23° 28′, and remains the same in all points of the earth's annual orbit. By means of this inclination, such inhabitants of the earth as live beyond 45° of latitude have more of the sun's heat, taking all the year round; and those who live within 45° have less of his heat, than if the earth always moved in the equinoctial. See OBLIQUITY and ECLIPTIC.

ANGLE *of longitude* is the *angle* which the circle of a star's longitude makes with the meridian, at the pole of the ecliptic.

ANGLE *of right ascension*, is the *angle* which the circle of a star's right ascension makes with a meridian at the pole of the world. See *Right* ASCENSION.

ANGLE, *in Navigation*.—ANGLE *of the thumb*, or *lunidromic* ANGLE. See RHUMB, and LOXODROMY.

ANGLES, in *Fortification*, are understood of those formed by the several lines used in fortifying, or making a place defensible.

These are of two sorts; *real* and *imaginary*.—*Real angles* are those which actually subsist and appear in the works. Such are the *flanked angle*, *angle of the epaule*, *angle of the flank*, and the *re-entering angle of the counterscarp*. *Imaginary*, or *vacuit angles*, are those which are only subservient to the construction, and which subsist no more after the fortification is drawn. Such are the *angle of the centre*, *angle of the polygon*, *flanking angle*, *salliant angle of the counterscarp*, &c.

ANGLE *of*, or *at*, *the centre*, is the *angle* formed at the centre of the polygon, by two semidiameters drawn thither from the two nearest extremities of the polygon. Such is the *angle* CKF (*Tab. Fortification*, *fig.* 1.)

ANGLE *of the circumference* is the next *angle* made by the arch drawn from one gorge to the other.

ANGLE *of the counterscarp* is that made by the two sides of the counterscarp, meeting before the middle of the CURTIN.

ANGLE *of the curtin*, or *of the flank*, is that made by, or contained between, the curtin and the flank; such is the *angle* BAE.

ANGLE *of the complement of the line of defence*, is the *angle* arising from the intersection of the two complements one with another.

ANGLE, *diminished*, is the *angle* which is made by the meeting of the exterior side of the polygon with the face of the BASTION. Such is the *angle* BCF.

ANGLE *of the polygon* is the *angle* GHM, intercepted either between the two internal sides GH and HM, or the two external sides.

ANGLE *of the epaule*, or *shoulder*, is that formed by the flank and the face of the bastion. Such is the *angle* ABC.

ANGLE *of the interior figure* is the *angle* GHM, made in H, by the centre of the bastion, by the meeting in the innermost sides of the figure GH, and HM.

ANGLE *of the tenaille*, or *flanking* ANGLE *inwards*, is that made by the two rasant lines of defence, i. e. the two faces of the bastion when prolonged.

ANGLE *flanking inward*, is the *angle* CIH, made by the flanking line with the curtin.

ANGLE, *flanked*, by some called the ANGLE *of the bastion*, is the *angle* BCS, made by the two faces of the bastion, BC, CS; being the outermost part of the bastion, and that most exposed to the enemy's batteries, and therefore by some called the *point of the bastion*.

ANGLE *of the flank* is that formed by the *flank* and the *curtin*.

ANGLE *forming the flank* is that consisting of one flank, and one DEMI-*gorge*.

ANGLE *forming the face*, is that composed of one flank and one face.

ANGLE *of the triangle*, in *Fortification*, is half the *angle* of the *polygon*.

ANGLE *of the moat* is that made before the *curtin*, where it is intersected.

ANGLE, *re-entering*, or *re-entrant*, is that whose vertex is turned inwards, towards the place.

ANGLE, *salient*, is that which advances its point towards the field.

ANGLE *of the tenaille*, or *the outward flanking angle*, called also *the angle of the moat*, or *the dead angle*, is made by the two lines *flotant* in the faces of the two bastions, extended till they meet in an *angle* towards the *curtin*.—This always turns its point in towards the work.

ANGLE *of a wall*, in *Architecture*, is the point or corner where the two sides or faces of a wall meet.

ANGLES *of a battalion*, in the *Military Art*, are those soldiers placed where the ranks and files terminate. See BATTALION.

The *angles* of a battalion are said to be *blunted*, when the soldiers at the four corners are removed, so that the square battalion becomes octagonal; this was an evolution very common among the ancients, though now disused.

ANGLES, in *Anatomy*, are understood of the *canthi* or corners of the eye, where the upper eye-lid meets with the under.

That next the nose is called the *great* or *internal* and that towards the temples, the *less*, or *external angle*, or CANTHUS.

ANGLES, in *Astrology*, denote certain houses of a figure, or scheme of the heavens. Thus the *horoscope* of the first house is termed the *angle of the east*.

ANGLER, a fisherman, or other person, who practises ANGLING.

Anglers are to be distinguished from poachers. Some make the same difference between them that is between the fair trader and smuggler. Accordingly the legislature has made the latter penal, but laid no restraint on the former. *Angling* can do no prejudice to the fish of a river. *Anglers* fish for their recreation, not for lucre; whereas poachers make it their livelihood.

The tackle necessary for an *angler* is various, according to the branch of the art he applies himself to. He must be equipt with variety of books, and a competent quantity of every sort; he must not be without wax, silk, a pair of scissars or pen-knife, a basket or bag, and landing-net, plummets, shot, and floats of every kind, needles and thread, lines, hair, Indian-grass, variety of feathers, more particularly those taken from the neck of a mallard, the wing of a partridge, a capon's neck, the top of a plover, or the hackle of a red cock. He must likewise be furnished with twist, and bedding for dubbing his artificial flies; he must have a landing hook, reels for his silk lines, a pouch or book for his hair-lines, a convenient place wherein to repoſit his small craft, viz. flies, hooks, wax, shot, silk, &c. a bag for his worms, a tin-box for his gentles.

When he takes his stand, he is to shelter himself under some bush, or tree, or stand so far from the brink of the river that he can only discern his float; because fish are timorous, and easily frighted. The best way of *angling* with the fly is down the river, and not up; neither need the *angler* ever make above half a dozen of trials in one place, either with fly or ground-bait, when he angles for trout; by that time the fish will either offer to take, or refuse the bait and not stir at all.

ANGLICANÆ *guttæ*. See GUTTÆ.

ANGLICANUS *sudor*. See SWEATING *sickneſs*.

ANGLICISM, a word, or phrase, in the English IDIOM; or manner of speech peculiar to the English tongue.

ANGLING, the art of catching fish, by means of a rod, with a line, hook, and bait, fitted thereto.

There are several prudential rules observed by thorough anglers; such as, not to wear any white or shining apparel, but be cloathed in a dark ſky colour: to invite the fish to the place intended for *angling*, by casting in, from time to time, proper foods, as boiled corn, worms, and garbage: to keep them together in the time of *angling* by throwing in grains of ground malt: or sinking a box of worms with small holes for them to creep slowly out at, &c. To draw salmon or trout together, *anglers* use a composition of fine clay incorporated with blood, and ground malt.

To learn what bait is best for any fish at any time; after having caught one, they slit his gills, and take out the stomach; and thus find what he last fed on.

The several methods of *angling* for salmon, trout, carp, tench, perch, pike, dace, gudgeons, roach, flounder, &c. see under *Salmon*-FISHING, *Trout*-FISHING, &c.

The angler's first business is to prepare for catching the fish by inviting them about him; the method of doing this in standing waters, by throwing in grains, chopped worms and the like, is well known; but the chief difficulty is in running rivers and brooks. The method in this case is to prepare a tin-box capable of holding some hundred of worms, bored on all sides, and full of holes of such a size as they may be just able to crawl out at: there must be a plummet fastened to this box to sink it, and a line to draw it back at pleasure; in this case it is to be thrown into the water at a proper place, above which the angler may stand under cover. The worms will slowly and gradually crawl out of this box, and the fish will be gathered about to feed on them; the baited hook is to be thrown in higher up, and carried down by the stream. If this method does not bring the fish about the place in a little time, there is reason to suspect that some pike lies lurking thereabout, and deters them; in this case, it is proper to throw out a baited hook, and he will generally be taken: after this the attempt will succeed.

The *angling* rod must be kept in a moderate state neither too dry nor too moist: in the first case it will be brittle, in the other rotten. When pastes are used, it is proper to mix a little tow with them, and rub them over with honey; finally, a small anointing them with butter is of great use to keep them from being washed off the hook. The eyes of any fish that is taken are an excellent bait, for almost any other kind of fish.

In a pond, the best place for the *angler* to take his stand is usually that where the cattle go into the water; in rivers, if breams are fished for, it should be in the deepest and most quiet places; if eels, under the banks of rivers that hang over; pearch are to be expected in clean places, where the stream is swift; and chub in deep-shaded holes: roach are mostly found where the pearch are, and trout only in swift and clear streams. Places where there are many weeds, or old stumps of trees, harbour fish in great numbers, and they usually bite freely there, but there is danger of entangling the line, or fastening the hook to the weeds.

In case of this accident, recourse is to be had to a ring of lead, of about six inches round, fastened to a small pack-thread; this ring is to be thrust over the rod, and let to fall into the water. It will descend to the place where the hook is entangled, and then by pulling the pack-thread gently, the hook will be soon disengaged, or at the worst it can only be broke off near the end of the line; whereas when this is not employed, the rod itself is sometimes broken, or the line nearer its upper end.

Deep waters are best for *angling* in, for the fish do not love to be disturbed by wind and weather.

The best season is from April to October, for in very cold stormy weather the fish will not bite; the best times of the day are from three till nine in the morning, and from three in the afternoon till sun-set.

In an easterly wind there is never much sport for the angler; the southerly winds are the best for his purpose, and a warm but louring day is most of all to be chosen: a gentle wind after a sudden shower to disturb the water makes a very good opportunity for the angler; the cooler the weather in the hottest months, the better, but in winter on the contrary the warmer the day the better. A cloudy day after a bright moon-light night is always a good day for sport, for the fish do not care to go after prey in the bright moon-shine, and are therefore hungry the next morning.

The openings of sluices and mill-dams always bring fish up the current to seek for the food which is brought with the stream, and *angling* in these places is usually successful.

Those who are fond of *angling* might save themselves some fruitless trouble, by observing when small fish in a jar take or refuse food.

It is very good *angling* a little before the fish spawn, for then their bellies being full, they frequent sandy fords, to rub and loosen their bellies; at which time they will bite freely. In waters which ebb and flow, it is best *angling* at the ebb; but if the tide be not strong, the flood is to be preferred.

ANGLING, *ground*, the art of catching fish under water without a float, only with a plumb of lead, or a bullet.

This

This method is moſt expedient in cold weather, when the fiſh ſwim low. The bullet is to be placed nine inches from the baited hook; the top of the rod is to be very gentle, that the fiſh may more eaſily run away with the bait, and not be ſcared with the ſtiffneſs of it. The angler in this way is not to ſtrike as ſoon as he feels the fiſh bite, but ſlacken his line a little, to give the fiſh an opportunity to ſwallow the hook.

The tackle here is to be fine and ſlender, ſtrong and big lines being apt to fright the fiſh. Morning and evening are the chief ſeaſons for the *grounding* line for trout, but in a cloudy day, or a muddy water, you may fiſh at *ground* from morn to night.

ANGLING, *night*, a method of catching large and ſhy fiſh in the night. Trout, and many other of the beſt ſorts of fiſh, are naturally ſhy and fearful; they therefore prey in the night, as the ſecureſt time.

The method of taking them on this plan is thus: the tackle muſt be ſtrong, and need not be ſo fine as for day-fiſhing, when every thing is ſeen; the hook muſt be baited with a large earthworm, or a black ſnail, and thrown out into the river; there muſt be no lead to the line, ſo that the bait may not ſink, but be kept drawling along, upon, or near, the ſurface.

Whatever trout is near the place will be brought hither by the noiſe, and motion of the water, and will ſeize the worm or ſnail. The angler will be alarmed by the noiſe which the fiſh makes in riſing, and is to give him line, and time to ſwallow the hook; when a ſlight twitch ſecures him. The beſt and largeſt trouts are found to bite thus in the night, and they riſe moſtly in the ſtill and clear deeps, not in the ſhallow ſwift currents. Sometimes, though there are fiſh about the place, they will not riſe at the bait; in this caſe, the angler muſt put on ſome lead to his line, and ſink it to the bottom.

ANGLING *fly*. See FISHING *fly*.

ANGLING *hook*. See FISHING *hook*.

ANGLING *line* is either made of hair twiſted, or of ſilk, or of the Indian weed. The beſt colours are the ſorrel, white, and grey; the two laſt for clear waters, the firſt for muddy ones. Nor is the pale watery green deſpiſable: this colour is given artificially, by ſteeping the hair in a liquor made of allum, ſoot, and the juice of wallnut-leaves boiled together. See *angling* LINE.

ANGLING *rod*. See FISHING *rod*.

In *angling*, they obſerve, after having ſtruck a large fiſh, to keep the rod bent; which will hinder him from running to the utmoſt length of the rod-line, by which he would be enabled to break his hold, or the hook.

ANGLO-CALVINISTS, a name given by ſome *Eccleſiaſtical Hiſtorians* to the members of the church of England, becauſe their doctrinal articles are built on the ſyſtem of Calvin; though ſome modern writers, without ſufficient reaſon, pretend that the doctrinal ſyſtem of the Engliſh church is Arminian.

The *Anglo-Calviniſts* make one of the four branches or diviſions of Calviniſts: and as ſuch ſtand diſtinguiſhed from the pure CALVINISTS, the PISCATORIANS, and the ARMINIANS.

ANGLO-SAXON *language*, that ſpoke by the ancient Angli or Saxons, who ſettled in England.

It was thus called from the people, who were partly Angli, partly Saxon.

It is otherwiſe denominated ſimply *Saxon*.

The *Anglo-Saxon*, or Engliſh-Saxon, is properly the original Engliſh; being the language which our Saxon anceſtors firſt eſtabliſhed in this iſland.—It is now called *Anglo-Saxon*, to diſtinguiſh it from the modern or preſent Engliſh.

ANGON, in the *Ancient Writers on Mechanics*, denotes a military engine of the bow-kind. Others again ſpeak of it as a kind of javelin uſed by the French, the iron head of which reſembled a *fleur de lys*. It is the opinion of ſome writers, that the arms of France are not *fleurs de lys*, but the iron points of the *angon*, or *javelin* of the ancient French.

ANGON.ÆUS, in *Anatomy*, a name given by Riolanus, and others, to a muſcle called by the generality of other writers *anconæus*, and *cubitalis minor*.

ANGOR is uſed by ſome phyſicians to denote a ſhrinking inwards of the native heat of the body, or its retiring to the centre; upon which enſues a pain, and palpitation of the heart, attended with faintneſs and melancholy.

In this ſenſe, *angor* amounts to much the ſame with what the Greeks call *anguoin*.

The *angor* is reputed a bad ſymptom, when it happens in the beginning of an acute fever.

ANGSANA, or ANGSAVA, in *Botany*, names by which ſome authors have deſcribed the DRACO *arbor*, or *dragon-tree*; one of the trees ſaid to afford the *ſanguis draconis*, or *dragon's blood* of the ſhops.

It is eſteemed an aſtringent, and an excellent remedy in the *epiphor*.

ANGUELLA, in *Ichthyology*, a name given by ſome authors to the fiſh more uſually called HEIRETUS, and ATHERINA, a ſmall fiſh caught about the ſhores of the Mediterranean, and ſome other places, and eſteemed a delicate taſted one.

ANGUILLA, in *Ichthyology*. See EEL.

ANGUILLIFORM, *anguilliformis*, in *Ichthyology*, the term for a very large claſs of fiſhes, which are luſt and lubricous like the eel, and have no ſcales.

The word is derived from *anguilla*, an *eel*, and *forma*, *ſhape*, or *appearance*. Moſt of the fiſh comprized in this claſs are long-bodied alſo like the eel. Some of them have neither fins at their gills nor belly, as the *muræ* and *lampreys*; others have fins at their gills, but none on their bellies, as the *ſea-ſerpents*, *eel*, *conger*, *ophidion*, and *unimaculus*. And others have both, as the *tænia*, *muſtela*, *anguis*, and the like.

ANGUILLIFORM is ſometimes alſo applied to land animals, which bear a reſemblance to eels, but do not properly belong to that claſs.

In this ſenſe, we read of *anguilliform* worms. C. Elſtrus maintains that eels are viviparous; having found in ſome of them certain membranes full of *anguilliform* worms.

ANGUINA, in *Botany*, the name of a genus of plants deſcribed by Michell, and mentioned by Plumier, and in the Malabar Garden. It is the ſame genus with the TRICHOSANTHES of Linnæus, deſcribed in his *Genera Plantarum*, p. 466.

ANGUINEAL *hyperbola*. See HYPERBOLA and CURVE.

ANGUINEI *verſus*, in *Poetry*, thoſe which may be read backwards.

Theſe are otherwiſe called recurrent verſes. Such, e. g. are,

Optimum jus, lex amica, vox diſerta.
Diſerta vox, amica lex, jus optimum.

ANGUINUM *ovum*, among *Ancient Writers*, denotes an extraordinary ſort of an egg, ſaid to be produced by the joint *ſaliva* of a cluſter of ſnakes; being toſſed up on high by the hiſs, and thus caught in the air by the druids. It was endued, they ſaid, with many marvellous virtues.

ANGUIS, the SNAKE, in the Linnæan ſyſtem of *Zoology*, makes a diſtinct and large genus of the order of ſerpents, and claſs of amphibious animals; the character of which is, their having no feet, and a ſcaly body of a cylindric figure. See SNAKE.

ANGUIS *Æſculapii*. See COLUBER.

ANGUIUM *lapis*, a name given to a ſuppoſed ſtone in Germany, which is of a cylindric figure, and has a cavity capable of admitting a finger, and of a yellow colour, with a great many variegations. The vulgar call it *duchaneck*, and have an idle opinion of its having its origin in ſome manner from a ſerpent-nut. Dr Boot, who had ſeen many of them, declares them to be fictitious, and made of glaſs tinged with two or three colours.

ANGULAR, ſomething that relates to, or hath, *angles*.

Angular objects or a diſtance appear round; the little inequalities diſappearing at a much leſs diſtance than the bulk of the body.

ANGULAR *motion* is a compound kind of motion, wherein the moveable both glides and revolves at the ſame time. Such is the motion of the wheel of a coach, or other vehicle.

The phenomena, &c. of ſuch motion, ſee accounted for under the article ROTA *Ariſtotelica*.

ANGULAR, *acute*, *ſcalene*, ſee ACUTE.

ANGULAR, *capital*, ſee CAPITAL.

ANGULAR *column*, ſee COLUMN.

ANGULAR *niche*, ſee NICHE.

ANGULAR *motion*, in *Aſtronomy*, is the meaſure of the diſtance between any two planets, revolving round any body as the common centre of their motion.

The quantity of this motion is expreſſed by two right lines, drawn from the ſaid centre to the revolving bodies; which will open wider, and conſequently the angle will grow greater, as the revolving bodies part farther and farther from one another.

ANGULARIS *ſcapulæ*, in *Anatomy*, a name given by Winſlow, and ſome others, to the muſcle of the ſhoulder generally called the LEVATOR *ſcapulæ*.

ANGURIA, in *Botany*, ſee *Water*-MELON.

ANGUSTICLAVIA, or ANGUSTUS CLAVUS, in *Antiquity*, a *tunica*, embroidered with little purple ſtuds, worn by the knights.

The word is compounded of *anguſtus*, *ſmall*, and *clavus*, *ſtud*; becauſe thoſe ornaments were ſmaller in this garment than in the *laticlavia*, which was worn by the ſenators.

ANHALDIN, *anhaldinum*, an epithet given to various medicines, formerly kept as ſecrets in the family of Anhalt. Three of the moſt celebrated medicines under this denomination are a corroſive, a water, and a ſpirit.

The corrosive, as described by Burggrave, is compounded of calcined antimony, sublimate mercury, sal ammoniac, and calcined tartar, distilled and rectified.

The description of the *Anhaltin* water is given in the common dispensatories, and that of the spirit may be found in De Spina.

ANHELITUS signifies a shortness and thickness of breath; as in an ASTHMA. See RESPIRATION.

The word is Latin, formed of the verb *anhelo*, *I breathe with difficulty*.

ANHIMA, in *Ornithology*, the name of a Brasilian bird, somewhat resembling the crane-family, but not regularly of it. It is distinguished in a very singular manner from all other birds, having a long single horn on its head, inserted a little above the origin of the beak, and standing forwards, and a little bent downwards. This is of two or three fingers breadth long, and is slender and round, as if nicely turned, and is of a bony substance, and fine white colour; and on the front of each wing it has two other such horns growing from the substance of the bone. It is found about waters, and is a very voracious bird, but feeds only on vegetables. It is longer than a swan; and is of a mixed colour of black, grey, and white, with a very little yellow in some places. It is always seen male and female together; and the male is twice as large as the female, which is here described, and is larger than our swan. It makes a very loud noise, often repeating the notes, *vyha*, *vyha*. Marcgrave's Hist. Brasil. This, in the Linnæan system, is a species of *palamedea*. See SCREAMER.

ANHINGA, in *Ornithology*, the name of a very elegant Brasilian water fowl. It is about the size of our common duck; its beak is straight, very sharp, not thick, and about three fingers breadth long, and has all along the middle, as well above as below, long series of hooked prickles all bending backwards; its head is small, and its neck slender and long, not less than a foot in length; its legs are short, and its toes connected by a membrane, as in the cormorant and duck-kind; its tail is ten fingers breadth long; its wings, when folded, reach not more than half the length of the tail; its head and neck are yellowish, and covered with extremely soft velvet-like feathers; its breast, belly, and thighs, are of a silvery white; the upper part of its back is brown spotted with yellow, and the rest all black; it is common on the Brasilian shores, and feeds on fish. Marcgrave's Hist. Brasil.

ANHLOTE, in *Law*, a single tribute or tax. The words *anhlote*, and *onlot*, are mentioned in the laws of William the Conqueror; and their sense is, that every one should pay, according to the custom of the country, his part and share, as scot and lot, &c. Leg. W. I. *cap.* 64.

ANHUIBA, in *Botany*, a name by which some authors call the SASSAFRAS tree, the wood of which is so much used in medicine.

ANHYDROS, in *Botany*, a name given by the ancient Greeks, and from them copied by the Romans in the time of Pliny, to express one of those kinds of the STRYCHNA, or night-shades, which, when taken internally, caused madness.

ANIL, in *Ornithology*, the name of a Brasilian bird, somewhat allied to the PARROQUET kind. It is about the size of a thrush, and is all over black. It is very common in the woods, but is not eaten. Marcgrave's Hist. Brasil.

ANIL, in *Natural History*, the shrub from whose leaves and stalks INDIGO is prepared. It is also called NIL. For the method of preparing *indigo* from it, see INDIGO.

ANIMA, a SOUL; whether rational, sensitive, or vegetative.

The word is pure Latin, formed of *anima*, *breath*.

ANIMA is sometimes used by physicians to denote the principle of life in the body.

In which sense Willis calls the blood *anima brutalis*.

ANIMA is also figuratively used by chemists for the volatile principles in bodies, whereby they are capable of being raised by the fire.

In which sense we meet with *anima jaspidis*, the soul of JASPER, &c. Phil. Trans. N° 74. p. 2233.

ANIMA is more particularly applied to simple medicines, carefully exalted by solution and extraction to a high degree of power.

In which sense, we meet with *anima aloes*, *anima rhabarbari*, *anima tartari*, &c.

Sometimes also it denotes *medicines* which are peculiarly salutary to particular parts of the body. Thus we meet with

ANIMA *articulorum*, which is a denomination sometimes given to HERMODACTYLI; on account of their efficacy in disorders of the joints.

ANIMA *hepatis*, *soul of the liver*; a term applied by the chemists to the *sal martis*, salt of iron or steel; on account of its use in distempers of that part.

It is most usually prescribed under the name of *vitriolum martis*.

ANIMA *pulmonum*, used for *crocus*, or saffron; by reason of its supposed great use in diseases of the lungs.

ANIMA *mundi*, *q. d. soul of the world*, or *of the universe*, denotes a certain pure ethereal substance or spirit diffused, according to many of the ancient philosophers, through the mass of the world, informing, actuating, and uniting the divers parts thereof into one great, perfect, organical, and vital body or animal.

Plato treats at large of the *anima mundi*, in his Timæus; and is even supposed to be the author of the *dogma*; yet are interpreters much at a loss about his meaning. Aristotle, however, taking it in the common and obvious sense, strenuously opposes it.

The modern Platonists explain their master's *anima mundi* by a certain universal ethereal spirit, which in the heavens exists perfectly pure, as retaining its proper nature; but on earth, pervading elementary bodies, and intimately mixing with all the minute atoms thereof, it assumes somewhat of their nature, and becomes of a peculiar kind. So the poet:

Spiritus intus alit, totaque infusa per artus
Mens agitat molem, & magno se corpore miscet.

They add, that this *anima mundi*, which more immediately resides in the celestial regions as its proper seat, moves and governs the heavens in such manner, as that the heavens themselves first received their existence from the fecundity of the same spirit: for that this *anima*, being the primary source of life, every where breathed a spirit like itself, by virtue whereof various kinds of things were framed conformable to the divine ideas.

The notion of an *anima mundi* is rejected by most of the modern philosophers; though M. du Hamel thinks, without any great reason, since the generality of them admit something very much like it. Thus the Peripatetics have recourse to celestial influxes, in order to account for the origin of forms, and the secret powers of bodies.

The Cartesians have their subtile matter, which answers to most of the uses and intentions of Plato's *anima mundi*; being supposed to flow from the sun, and the other heavenly bodies, and to be diffused through all the parts of the world, to be the source or principle of all motion, &c. Some later philosophers in the place of these substitute fire; and others a subtile elastic spirit, or *medium*, diffused through all parts of space.

The principal thing objected, on the Christian scheme, against Plato's doctrine of the *anima mundi*, is, that it mingles the Deity too much with the creatures; confounds, in some measure, the workman with his work, making this, as it were, a part of that, and the several portions of the universe so many parts of the godhead. Yet is the same principle asserted by Seneca, Epist. 92. *Totum hoc quo continemur, & unum est, & Deus. Et socii sumus, & membra.*

ANIMA *gemmarum*, a term used by Becher, and some others, to express that principle, to which the gems, and other beautiful stones, owe their colours.

This *anima lapidum* is no more than the metalline sulphur to which these stones and gems, naturally colourless, owe their tinges; and, like other metalline sulphurs, it may be raised and evaporated by fire. Becher, Phys. Sect.

ANIMA *saturni*, *the soul of lead*, a preparation of lead, serving to many purposes in the enamel work. The method of making it is this; put litharge, powdered fine, into a glazed earthen vessel, and pour distilled vinegar upon it to the height of four fingers; let it stand till the vinegar is of a white or milky hue: pour off this coloured vinegar, and put on fresh, and so do till the vinegar will no longer be coloured by the litharge; then set these liquors together in open glazed earthen vessels, that the white powder may subside, and the vinegar be poured off clear. This white substance is the *anima saturni*. Sometimes this white matter will not precipitate without the addition of water; and sometimes it is necessary to evaporate the liquors; but by that means, it is always prepared. Neri's Art of Glass, p. 184.

ANIMADVERSION sometimes signifies *correction*; and sometimes remarks or observations made on a book, &c. and sometimes, a serious consideration and reflection on any subject, by the rules of criticism.

The word is formed of *animus*, the *mind*; and *adverto*, *I turn to*.

ANIMAL, a being, which, besides the power of growing, increasing, and producing its like, which vegetables likewise have, is farther endowed with sentation, and spontaneous loco-motion.

The word is derived from *anima*, *soul*; and literally denotes something endued with a soul.

An *animal*, respect being only had to the body not the soul, may be defined, with Boerhaave, to be an organical body,

body consisting of vessels and juices, and taking in the matter of its nutriment by a part called the *mouth*; whence it is conveyed into another called the *stomach*, into which it has roots implanted, whereby it draws in its nourishment, after the manner of plants.

Some have defined *animals* from their loco-motion, as being capable of shifting from place to place; and plants, from their sticking fast to the same subject: but on this principle, oysters, muscles, cockles, &c. would be almost excluded from the class of *animals*, inasmuch as they usually adhere, or grow to rocks, &c. yet it is certain that those creatures are real *animals*, as they have mouths and stomachs to take in their food, and lacteals and mesenteric veins to receive it, and sometimes can even move from place to place on occasion. Indeed, muscles seem an exception from the former definition; if, as it is said, that anomalous creature breathes, and receives its nourishment, not at the mouth, but by the *anus*: the part which we account its head, though without either eyes, ears, or tongue, or any other *apparatus*, save a hole, which we may call its mouth, is an immoveable part; being fastened to one of the shells, so that it cannot seek for food, but the food must come to seek it. This food is water, which, as the shell opens, enters in at the *anus* of the muscle, which opens at the same time; and passing thence into certain canals, between the inner surface of the shell, and the outer surface of the *animal*, is said to be conveyed thence into its mouth, by a certain motion, which the *animal* can produce at pleasure.

We may, therefore, with Dr. Tyson, fix the *criterion* of an *animal* in a *ductus alimentalis*, i. e. a *gula*, stomach, and intestines; all which make but one continued canal.

All *animals*, according to the most probable and received opinion, come from eggs; and are there inclosed, as it were, in *epitome*, till the seed of the male penetrate their covering, and stretch them so that they become ready for hatching.

There then enters, into their vessels, a chylous juice; which being pushed forwards by the spirits, circulates through the whole habit of the little body, nourishes and dilates it by little and little, and thus produces what we call *growth*.

This circulation repeated several times, refines and attenuates the juices, till at length they become of a red colour, and are converted into what we call *blood*. This natural operation bears a great resemblance to several chemical processes, by which, in attenuating and dissolving oily or sulphureous substances, they assume a red colour.

The philosophers comprehend man under the species of *animals*: and define him a reasonable *animal*; though among naturalists, &c. the term *animal* is usually restrained to irrationals.

Man, says Litter, is as very an *animal* as any quadruped of them all; and most of his actions are resolvable into instinct, notwithstanding the principles which custom and education have superinduced.

ANIMALS are ordinarily divided into *terrestrial*, *aquatic*, *volatile*, *amphibious*, *insects*, *&c.*

Terrestrial animals are either *quadrupeds* or *reptiles*.—Quadrupeds have either the feet cloven, as the bullock; or entire, as the horse; or divided into several toes or claws, as the dog, lion, &c. The other divisions will be found under the words FISH, BIRD, &c.

For a general account of the various kinds of *animals*, we shall here subjoin Mr. Ray's scheme.

Animals are either,

Sanguineous, that is, such as have blood, which breathe either by
- Lungs, have either
  - Two ventricles in the heart, and those either
    - Viviparous.
      - Aquatic, as the whale kind. See WHALE.
      - Terrestrial, as quadrupeds.
    - Oviparous, as birds.
  - But one ventricle in the heart, as frogs, tortoises, and serpents.
- Gills, as all sanguineous fishes, except the whale-kind.

Exsanguineous, or without blood, which may be divided into
- Greater; and those either
  - Naked,
    - Terrestrial, as naked snails.
    - Aquatic, as the poulp, cuttle-fish, &c.
  - Covered with a tegument, either
    - Crustaceous, as lobsters, and cray-fish.
    - Testaceous, either
      - Univalve, as limpets.
      - Bivalve, as oysters, muscles, cockles, &c.
      - Turbinate, as periwinkles, snails, &c.
- Lesser as insects of all sorts.

Terrestrial hairy *animals*, or quadrupeds, are either
- Hoofed, which are either
  - Whole-footed, or hooved, as the horse and ass:
  - Cloven-footed, having the hoof divided into
    - Two principal parts, called *digits*, either
      - Such as chew not the cud, as swine.
      - Ruminant, or such as chew the cud, divided into
        - Such as have perpetual and hollow horns:
          - Beef-kind,
          - Sheep-kind,
          - Goat-kind.
        - Such as have solid, branched, and deciduous horns, as the deer kind.
    - Four parts, or *quadrifidum*, as the rhinoceros and hippopotamus.
- Clawed or digitate, having the foot divided into
  - Two parts or toes, having no nails, as the camel kind.
  - Many toes or claws, either
    - Undivided, as the elephant.
    - Divided, which have either
      - Broad nails, and an human shape, as apes.
      - Narrower and more pointed nails, which, in respect of their teeth, are divided into such as have
        - Many fore-teeth or cutters in each jaw:
          - The greater, which have
            - A shorter snout, and rounder head, as the cat-kind.
            - A longer snout and beard, as the dog-kind.
          - The lesser, the vermin or weazel kind.
        - Only two large and remarkable fore-teeth; all which are phytivorous, and are called the hare kind.

Some have objected to Ray's division of *animals*, that all *animals are* sanguineous, since all have a vital fluid circulating through veins and arteries, though it be not of a red colour in all, the essential character of the blood lying not in its crimson colour, but in its office: in which view every fluid, by whose motion through vessels the life of an *animal* is sustained, may be denominated blood.

But this is rather a dispute about words than things.

The celebrated Linnæus has distributed *animals* into six classes, viz. *mammalia*, *aves*, *amphibia*, *pisces*, *insecta*, *vermes*. Each class is divided into a certain number of orders, and each order is again subdivided into *genera*, or kinds, each of which contains a variety of species. The system of this ingenious naturalist includes 354 kinds, and near 6000 known species. *Systema Naturæ.*

For particulars relating to *animals*, their numbers, analogous structure, sagacity, instinct, &c. see CREATION, ARK, HEAD, NECK, TAIL, FOOT, HORN, HOOF, STORGE, INSTINCT, &c.

ANIMALS consist of *solids*, or firm parts, as flesh, bones, membranes, &c. and *fluids*, as blood, &c. Of an intermediate kind may perhaps be reckoned fat, &c.

The solids are mere earth, bound together by some oily humour; and accordingly they are reducible by fire into such earth again.

Thus a bone, being perfectly purged of all its moisture by calcination, is found a mere earth, which the least force will crumble into dust, for want of the natural gluten: yet the same bone, by immerging it in water or oil, becomes firm and strong again; and more so in oil than in water. And thus cupels are made of animal earth, which will sustain the utmost effect of fire.

The fluid parts of *animals* are the cruder as they are less distant from the lacteals, and absorbent vessels. Thus chyle is little else but a vegetable juice; but in its farther progress, it gradually lays aside its vegetable characters; till after a number of circulations it becomes a perfect animal juice under the denomination of blood, from whence the humours are all derived.

Animal substances have been distinguished from those of vegetables by two circumstances: the first, that when burnt they are found perfectly insipid; all animal salts being volatile, and flying off with heat: the contrary of which is found in vegetables, which constantly retain some fixed salt in all their ashes.

The second, that no pure acid is contained in any animal juice; nor can any acid salt be extracted from the same: the contrary of which is found in all vegetables. See ACID.

Yet are *animals* converted into their vegetable nature, by putrefaction.

ANIMALS, *oviparous*. See OVIPAROUS.

ANIMALS, *rapacious*. See RAPACIOUS.

ANIMALS, *generation of*. See GENERATION.

ANIMALS make the subject of that branch of natural history called *Zoology*.

The structure of *animals*, with their disorders, remedies, &c. make the subject of anatomy, medicine, &c.

ANIMALS make the principal figures in heraldry; both as bearings, and as supporters, &c.

ANIMAL is also used adjectively, to denote something that belongs to, or partakes of, the nature of an *animal* body. Thus we say *animal* food, *animal* œconomy, &c.
Moralists frequently oppose the *animal* part, which is the sensible, fleshy part of a man, to the rational part, which is the understanding.

ANIMAL *actions* are those peculiar to *animals*; or which belong to *animals*, as such.
Such are SENSATION, and *muscular* MOTION.

ANIMAL *flower*, in *Zoology*, a name given by Mr. Griffith Hughes, to an *animal*, or *zoophyte*, somewhat resembling the flower of the marygold, but of a paler yellow.
This name seems well adapted to the *animal*; for its *claws*, or *tentacles*, being disposed in regular circles, and tinged with a variety of bright lively colours, very nearly represent the beautiful petals of some of our most elegantly fringed and radiated flowers: such as the carnation, marygold, and anemone. Phil. Transf. abr. vol. ix. p. 110.

ANIMAL *functions*, among *Physicians*. See FUNCTION.

ANIMAL *glue*, see GLUE.

ANIMAL *gods*, *ibid animalia*, in *Mythology*, those into which human souls are converted by means of certain religious ceremonies.
Labeo has written expressly on the *animal gods*.

ANIMAL *heat*. See HEAT.

ANIMAL *hunger*. See HUNGER.

ANIMAL *liquors*.—The common opinion is, that all the *animal liquors*, excepting chyle and milk, are of an alcalescent nature; but M. Quefnay, in his book Sur l'Oeconomie Animale, affirms, that our gelatinous liquors contain a very acefcent falt, capable of refilling a heat of two hundred degrees. The proof of which, fays he, offers itfelf daily to every one. Who is it that has not remarked, that broth made with flefh well freed from fat, when corrupted, becomes as four as verjuice? The foundation on which M. Quefnay builds his doctrine concerning *animal liquors*, is the feparation of milk into its oily, cheefy, and watery fubftances. Med. Eff. Edinb.

ANIMAL *motion* is the fame with what we call *mufcular motion*.
It is divided into two branches; natural or involuntary, and fpontaneous.

ANIMAL *œconomy*, see OECONOMY.

ANIMAL *oil*, see OIL.

ANIMAL *fecretion* is the act whereby the divers juices of the body are fecreted or feparated from the common maſs of blood, by means of the glands. See SECRETION.

ANIMAL *fpirits* are a fine fubtile juice or humour in animal bodies; fuppofed by many to be the great inſtrument of muſcular motion, fenſation, &c.
The ancients diſtinguiſhed fpirits into three kinds, viz. *animal*, *vital*, and *vegetative*: but the moderns have reduced them to one ſort, viz. *animal*: about the nature of which, and the matter whence they are formed, great diſputes have ariſen among anatomiſts, though their very exiſtence has never been fatisfy proved.
In the Hiſtory of the Royal Academy of Sciences at Paris, an. 1750, there is an ingenious memoir on this ſubject by M. Bertin. He undertakes to prove that the nervous fluid, or *animal ſpirits*, circulate; that if they depart from the brain they return to it by the nerves. In ſhort, he propoſes to form the courſe of this fluid into a ſyſtem of circulation, leſs demonſtrable, indeed, to the ſenſes than that of the circulation of the blood, but in other reſpects, grounded on equally ſolid reaſons.
As it is hard to define what could never yet be brought under the judgment of our *ſenſes*, all that we ſhall here offer concerning them, is, that they muſt needs be extremely ſubtile bodies, which eſcape all manner of examination by the ſenſes, though ever ſo well aſſiſted; and pervade the tracts of the nerves, which yet have no diſcovery of cavity or perforation; nor could ever by any experiment be collected; yet are conſtantly moving in vaſt quantities, as they muſt of neceſſity be, to perform all thoſe mighty operations which are aſcribed to them. However, the antiquity of the opinion claims ſome reverence.
By the help of theſe ſpirits we are furniſhed with a vaſt number of ſpontaneous motions of great *promptneſs*; and without them we muſt leave a great chaſm in the philoſophical hiſtory of *animal* bodies; but after all, the *phænomena* that would in this caſe be unexplained, are, it may be, to us inexplicable.
They are ſuppoſed to be ſeparated in the brain, from the ſubtileſt parts of the blood, and thence carried, by the nerves, to all the parts of the body, for the performance of all *animal* and vital functions.

ANIMAL *ſubſtances* comprehend all the component parts of *animals*, of what uſe or intention ſoever they may be.

ANIMAL *foſſile ſubſtances*, thoſe found buried in the earth at various depths, and embodied among various *ſtrata*.
Theſe are principally of four kinds: 1. Sea-ſhells. 2. The teeth, bony palate, and bones of fiſhes. 3. The bones of land *animals*. And, 4. Complete fiſh. See *Foſſile* BONES, *Foſſile* SHELLS, MARINE *remains*, and *Foſſile* IVORY.

ANIMAL *ſubſtances*, *fermentative quality of*. See FERMENT, and FERMENTATION.

ANIMAL *ſyſtem* imports the whole claſs of beings endowed with *animal* life.
In which ſenſe *animal ſyſtem* amounts to the ſame with what chemiſts and others call the *animal kingdom*.

ANIMAL is alſo ſometimes applied, in a figurative ſenſe, to artificial or moral things.
Hobbes conſiders government as a huge complex *animal*, under the denomination of *Leviathan*.
The reaſon of the appellation is founded on the analogy between an *animal* and a political body. The ſovereign or legiſlative power anſwers to the *head*; the magiſtrates to the limbs or members; rewards and puniſhments are the nerves; riches, the ſtrength; counſellors, the faculty of memory; equity, reaſon; ſedition, ſickneſs; civil war, death.

ANIMALCULE, ANIMALCULUM, a diminutive of animal, ſignifying ſuch a minute creature as is either ſcarce, or not at all diſcernible by the naked eye.
Such are thoſe numerous inſects which crowd the water in the ſummer months; changing it ſometimes of a deep or paleneſs colour; ſometimes of a yellow, &c. Theſe often ſeem to be of the ſhrimp-kind, and the moſt common one is called by Swammerdam, *pulex aquaticus arborefcens*. The cauſes of their concourſe, at this time, Dr. Derham obſerves, is to perform their *coat*. He adds, that they afford a comfortable food to many water animals. The green ſcum, on the top of ſtagnant waters, is often nothing elſe but prodigious numbers of another ſmaller order of *animalcules*; which, in all probability, ſerve for food to the *pulices aquatici*.
The MICROSCOPE diſcovers legions of *animalcules* in moſt liquors, as water, wine, vinegar, beer, dew, &c. In the Philoſophical Tranſactions, we have obſervations of the *animalcules* in rain water, in ſeveral chalybeat waters, infuſions of pepper, bay berries, oats, barley, wheat, &c. The human ſeed has been obſerved by divers authors to contain great numbers of *animalcules*.
Thoſe who have made the moſt minute reſearches, and the moſt accurate inquiries, into the natures of the ſeveral objects ſubjected to their ſenſes, have found that the ſubſtances upon which they employed their curioſity, were often quite different from what at firſt view they appeared to be. Thus for inſtance, the whole earth has been found replenished with an inexhauſtible ſtore of what we ſhould leaſt of all ſuſpect: that is, an infinite number of *animalcules* floating in the air we breathe, ſporting in the fluids we drink, or adhering to the ſeveral objects we ſee and handle. The conjectures and hypotheſes relating to the production, generation, ſtructure and uſes of theſe *animalcules*, have been as various as were ever contrived by caprice, or embraced by credulity. Not to bewilder ourſelves, however, in theſe labyrinths, but to confine our aſſertions to actual diſcoveries; by the aſſiſtance of the MICROSCOPE we not only perceive that ſuch *animalcules* exiſt, but are alſo enabled, in ſome degree, to determine their ſhapes, and the various peculiarities of their motion.
The contemplation of *animalcules*, has made the ideas of infinitely ſmall bodies extremely familiar to us. A mite was anciently thought the limit of littleneſs; but we are not now ſurpriſed to be told of animals twenty-ſeven millions of times ſmaller than a mite.
Minute animals are found proportionably much ſtronger, more active and vivacious than large ones. The ſpring of a flea in its leap, how vaſtly does it out-ſtrip any thing greater animals are capable of? A mite, how vaſtly faſter does it run than a race horſe? M. de l'Iſle has given the computation of the velocity of a little creature ſcarce viſible by its ſmallneſs, which he found to run three inches in half a ſecond; ſuppoſing now its feet to be the fifteenth part of a line, it muſt make 500 ſteps in the ſpace of three inches; that is, it muſt ſhift its legs 500 times in a ſecond, or in the ordinary pulſation of an artery. Hiſt. Acad. Scienc. 1711. p. 23.
Dr. Hill, in his Hiſtory of Animals, has arranged *animalcules* under three claſſes: 1. Such as have no tails, nor any viſible limbs. 2. Thoſe which have tails, but no viſible limbs. And, 3. Thoſe which have viſible limbs: and each claſs is ſubdivided into ſeveral diſtinct *genera*. Hiſt. Anim. p. 1, &c.

ANIMALCULES, *viſible*, thoſe which may be diſcerned by the naked eye.
Such, e. gr. are mites, divers ſpecies of inſects, reptiles, and other vermin.

ANIMALCULES, *invisible*. Naturalists suppose another species or order of invisible *animalcules*, viz. such as escape the cognizance even of the best microscopes, and give many probable conjectures in relation to them. Reason and analogy give some support to the existence of infinite imperceptible *animalcules*.

The naked eye, some say, takes in from the elephant to the mite; but there commences a new order reserved only for the microscope, which comprehends all these from the mite, to those twenty-seven millions of times smaller; and this order cannot be yet said to be exhausted, if the microscope be not arrived at its last perfection.

ANIMALCULES, *microscopical*, those only discoverable by the help of a large magnifier. These, according to some, come under the denomination of *invisible animalcules*.

The excessive minuteness of these *animalcules* conceals them from the human eye unarmed. One of the wonders of the modern philosophy is, to have invented means for bringing creatures, to us so imperceptible, under our cognizance and inspection. An object a thousand times too little to be able to affect our sense, should seem to have been very safe. Yet we have extended our views over animals, to whom these would be mountains. In reality, most of our microscopical *animalcules* are of so small a magnitude, that through a lens, whose focal distance is the tenth part of an inch, they only appear as so many points; that is, their parts cannot be distinguished, so that they appear from the vertex of that lens under an angle not exceeding a minute. If we investigate the magnitude of such an object, it will be found nearly equal to $\frac{1}{1000}$ of an inch long. Supposing therefore these *animalcules* of a cubic figure, that is, of the same length, breadth, and thickness, their magnitude would be expressed by the cube of the fraction $\frac{1}{1000}$, that is, by the number $\frac{1}{1000000000}$, that is, so many parts of a square inch is each *animalcule* equal to. It is strictly true of these *animalcules*, that many thousands of them may dance on the point of a small needle.

These are in some liquors *animalcules* so small, that upon calculation the whole magnitude of the earth is not found large enough to be a third proportional to these minute floating animals, and the whales in the ocean.

With regard to their structure and economy, *animalcules* are found of divers sorts; some formed like fish, others reptile, others hexapedal, some horned, &c. In several kinds however small, it is easy to discover the form of their mouths, their proboscides, horns, &c. the motions of their hearts, lungs, and other parts.

Every *animalcule* being an organized body, how delicate and subtile soever the parts be, that are necessary to constitute it, and to preserve its vital actions? It is hard to conceive, how, in so narrow a compass, there should be contained a heart to be the fountain of life, muscles necessary to its motions, glands for the secretion of its fluids, stomach and bowels to digest its food, and other innumerable members, without which an *animalcule* cannot subsist. But since every one of these members is also an organical body, they must likewise have parts necessary to their actions. For they consist of fibres, membranes, coats, veins, arteries, nerves, and an almost infinite number of fine tubes like those, whose smallness seems to exceed all efforts of imagination. But there are some parts that ought always to be infinitely less than these, as the fluids that flow along these fine tubes, the blood, lymph, and animal spirits, whose subtilty, even in large animals, is incredible.

Leewenhoeck calculates that a thousand millions of *animalcula*, which are discovered in common water, are not altogether so large as a common grain of sand. This author, upon examining the male sperm of various animals, discovered in many infinite numbers of *animalcula*, not larger than those above mentioned. In the milt of a single cod-fish, there are more animals than there are men upon the whole earth; and yet a grain of sand is bigger than four millions of them. The white matter also, which sticks to the teeth, abounds with *animalcula* of various figures, to which vinegar is fatal; and it is known that vinegar consists *animalcules* in the shape of eels. In short, according to this author, there is scarce any thing which corrupts, without producing *animalcules*. *Animalcula* are said to be the cause of various disorders. The itch, from several experiments, is affirmed to be a disorder arising from the irritation of a species of *animalcula* found in the pustules of that ailment; whence the communication of it by contact from one to another is easily conceived, as also the reason of the cure being effected by cutaneous applications. On this foundation some have attributed the small-pox and measles, and infectious diseases; others the epilepsy, &c. to *animalcules*. Langius goes farther, and pretends to reduce all diseases in general to the same principle. A late writer at Paris, who assumed the title of an English physician, has done more. He not only accounts for all diseases, but for the operations of all medicines, from the hypothesis of *animalcules*. He has peculiar animals for every disease: scorbutic *animalcules*, podagrical *animalcules*, variolous *animalcules*, &c. all at his service. Journ. des Sçav. tom. lxxiii. p. 535. &c.

But as most discoveries in natural philosophy, have laid a foundation for the warm imaginations of some men to form visionary theories, to the great prejudice of real knowledge: so those relating to *animalcula* have been drawn in, however improperly, to support the most whimsical and chimerical systems.

See a variety of microscopical objects, *animal*, *vegetable*, and *mineral*, delineated in table, *Microscopical Objects and Discoveries*.

ANIMATE, ANIMATED, something endued with life, or a living soul.

In mechanics, *animate power* is used to denote a man, or brute; in contradistinction to *inanimate power*, as springs, weights, &c.

Naturalists and philosophers vary extremely in assigning the characters, subjects, and species of *animate* bodies. Some include flocks and stones in this rank; others exclude brutes themselves.

Some of the philosophers have held all nature to be *animated*; that the sun, the earth, the plants, rivers, trees, stones, &c. are so many animals; others, that the whole system is only one huge animal, informed with a soul, or *anima mundi*. Plato, in Timæo. Motholf. Polyh. Phil. lib. ii. p. 1. cap. 11.

ANIMATED *horse hairs*. See HAIR *hairs*.

ANIMATED is also used to denote a thing impregnated with vermin or ANIMALCULES.

In this sense the whole earth may seem to be *animated*; since in every part of it we meet with an infinite number of animals, either visible or invisible; they are found in air, water, earth, plants, and even in the hardest stones; and there is perhaps no animal known, which does not breed numbers of others in the different parts of its body.

ANIMATED *mercury*, among *Chemists*, signifies quicksilver, impregnated with some subtile and spirituous particles, so as to render it capable of growing hot when mingled with gold.

ANIMATED *needle*, a needle touched with the load-stone, or MAGNET.

ANIMATION, signifies the informing of an animal body with a soul.

Thus the *fœtus* of the womb is said to come to its *animation*, when it begins to act as a true animal: or after the female that bears it is *quick*, as the common way of expression is.

The learned are not agreed about the time when the female becomes quick; some compute it at forty days after conception; others fix it about the middle of the term of GESTATION.

T. Fienus Gardinius, Verde, Fort. Licetus, F. de Bonnonia, have written expressly on the *animation* of the FŒTUS; Fr. Zamellia on the *animation* of the SEED.

ANIMATION is also used by some *mechanical philosophers*, for the act of soliciting the descent of a body so as to give it continually new degrees of ACCELERATION.

ANIMATION is also used by *Alchemists* for the operation of fermenting a white foliated earth, with a kind of philosophical or celestial water or sulphur.

ANIMATION is also used in a moral or figurative sense, for the act of giving life and force to a discourse, or the like.

ANIMATION is also used by *hermetic philosophers*, to denote a certain state of perfection to which a body is brought by some appropriate process, in virtue whereof it becomes capable of producing some extraordinary phænomena.

ANIME, ANIME *& cancamum*, in *Pharmacy*, a kind of resin, wherof there are two kinds, the *western*, and *eastern*. This resin is the produce of an American tree, of which we have no certain account.

The *western* flows from an incision of a tree in New Spain, called *courbaril*; it is transparent, and of a colour like that of frankincense; its smell is very agreeable, and it easily consumes in the fire.

The eastern gum *anime* is distinguished into three kinds: the first is white; the second blackish, in smell like myrrh; the third pale, resinous, and dry.

Anime, according to Neumann, is a resin totally soluble in spirit of wine. It is called improperly *gum anime*. Other authors mention two substances, to which this name is given, one of which is brought from India, and is resinous; the other is brought from Brasil, and is similar in appearance and insolubility in spirit of wine, or in water, to the substance called *gum copal*. All the *anime* which is to be found in shops of druggists is of this latter kind; and if it does not proceed from the same tree as *gum copal*, is scarcely distinguishable from it.

The small tears are the purest; it has little taste, but an agreeable smell; it easily breaks between the teeth; but if chewed for some time it softens, and becomes adhesive. Laid on red-hot iron, it melts immediately, catches flame, and burns quickly away, leaving a little white ashes. In our shops, we have only the American sorts of this resin.

The best *gum anime* ought to be white, dry, friable, clean, of a good smell, that soon consumes when thrown into the fire; and that contains a great deal of oil and essential salt.

It is proper to discuss, to soften and dissipate cold humours, and is therefore good for the head-ach; to strengthen the brain they apply it to the top of the head, and perfume night-caps with it: it is also used for cleansing and cicatrising wounds.

Its principal use in medicine is external; in cold, painful, rheumatic, flatulent affections of the head, nerves, and joints: palsies, contractions, relaxations, contusions, &c. It is an ingredient in plasters and cerates, for these purposes.

ANIME, in *Heraldry*, is where the eyes, &c. of a rapacious creature are borne of a different colour from the rest of the creature.

The French say *animé*, the English *incensed*, the Latins *insensus*, of such or such a colour.

ANIMELLÆ, the glands under the ears, &c. called also *tonsillæ*.

ANIMETTA, in *Ecclesiastical Writers*, denotes the pall or cloth wherewith the cup is covered in the eucharist.

ANIMI *obliquium*. See LIPOTHYMIA and SWOONING.

ANINGA, in *Commerce*, a root growing in the Caribbee islands, of use in the refinement of sugar.

The decoction of this root is found a more certain, as well as more innocent means of clarifying sugar, than the sublimate and arsenic used for this purpose, before the discovery of the *aninga*.

ANISATUM, a name given to ANISE-SEED water.

ANJOU *cabbage*, in *Botany*. See CABBAGE.

ANISCALPTOR, in *Anatomy*, a muscle, otherwise called LATISSIMUS *dorsi*.

ANISE-SEED, a medicinal seed, produced by an umbelliferous plant of the same name, common in some gardens, of the *pentandria digynia* class.

The outer thin skin of the seeds of this plant contains an essential oil; and the kernel itself contains an inodorous expressible oil. It can only operate as a mere resinous substance, and may therefore be, not improperly, supplied by cheaper resins. Neumann, p. 397.

The plant which produces it, is a species of *pimpinella*, or *Burnet* SAXIFRAGE. It is a small tender plant, producing one stalk, seldom rising above two feet high. It flowers and seeds in July, the root dying every year after it has yielded seed. It is cultivated in Germany; but the best seed, which is a smaller sort, comes from Spain. The seed only is used, being one of the four greater hot seeds.

Anise-seed is carminative, expelling wind out of the stomach and bowels, both given at the mouth, and in clysters.

It is frequently put into children's victuals for the gripes and wind. It is very useful against cold affections of the lungs, difficulty of breathing, and asthma. Some commend it much to be taken frequently by nurses to increase their milk. It is often used as a corrector of the stronger purgative medicines. The oil distilled from the seed is used for the same purposes; and is often applied outwardly in carminative and anodyne liniments: particularly for the pleurisy, and other pains in the side.

ANISE-SEED, *star*, *anisum stellatum*, is a seed brought chiefly from Tartary; thus called from the affinity it bears in smell to the common *anise-seed*, and the star-like figure of its *capsula seminalis*.

It was first brought into Europe from the Philippine islands by an English mariner, named Thomas Candy. In his return from a voyage round the world in the year 1603.—The natives call it *aimor* and *ginge*; the Europeans sometimes FORNICULUM *Sinense*, or Chinese FENNEL; botanists, ANISUM *indicum*, ANISUM *peregrinum*, ANISUM *asiaticum Philippinarum insularum*, CARDAMOMUM *silvestre*, BADIANUM, &c.

Its virtues are of the same kind with those of the common *anise-seed*, only that it is sweeter, more grateful, penetrating, and aromatic. It is reputed a general cordial and strengthener.

The Chinese use it in the preparation of their tea; and after their example the Dutch also use it in this liquor, pretending it makes it more pleasant.

The wood is also imported into Europe, where it is employed in works of marquetry and mosaic. It is also called ANIL.

In distilling the anise-seed for the oil, there is procured a limpid water, called *anise-seed* water; which has much the same virtues with the oil.

See Neumann's chemical history of these plants, and his account of their chemical differences from each other, and of the peculiarities of the essential oil of *anise-seed*, in his Works, p. 393, & seq.

ANKER, ANCHOR, a liquid measure chiefly used at Amsterdam, &c.

The *anker* is the fourth part of the *aum*, and contains two *stekan*; each *stekan* consists of sixteen *mengles*; the *mengle* being equal to two Paris pints.

ANNALE, in some *Middle Age writers*, denotes a day held every year in commemoration of the dead.

In which sense *annale* amounts to the same with what is otherwise called *anniversarium*.

ANNALE is more particularly applied to the masses celebrated during the space of a year for the dead.

ANNALIS *actio*, in the *Civil Law*, denotes an action which may be put in practice any time within the year. In the like sense we meet with *annalis declaratio*, or *negotium*, *annalis officium*, &c.

ANNALIS *cursus*, in *Roman Antiquity*, the nail which the prætor, consul, or dictator, fixed every year in the wall of Jupiter's temple, on the ides of September, to shew the æra or number of years from the building of Rome. This custom was afterwards changed, and the years were reckoned by the CONSULS.

ANNALIS *exceptio*, a kind of privilege anciently granted the people of Italy, that whoever had made a contract could not be compelled to the performance, or payment of what had been agreed on within the year. Some extend this privilege so as to render it still more grievous, by computing the year exclusive of all holidays.

ANNALES *libri*, in the *Civil Law*, denote books wherein the acts, and proceedings of a whole year, were contained.

In which sense *annales* stand opposed to *semestres libri*, wherein the acts and constitutions of six months were contained.

ANNALES *laicæ*, denote a kind of woollen almanacs used among our ancestors, called also *runstocks* or *clogs*.

ANNALES, in *Middle Age Writers*, denote yearlings, or young cattle of a year old, or under two.

ANNALES also denote a kind of rent, or annual revenue.

ANNALS, an historical account of the affairs of a state, digested in the order of years.

The difference between *annals* and *history* is variously assigned by various authors. Some say that *history* is properly a recital of things which the author has seen, or been a by-stander to. What they build upon is, the etymology of the word; *history*, in the Greek, signifying the knowledge of things present, and, in effect, *seeing* properly signifies *to see*. On the contrary, *annals*, say they, relate to the transactions of others, and such as the writer never saw.

Of this opinion the great *annalist*, Tacitus himself, seems to have been; because the first part of his work, which treats of former times, he calls *annals*; but when he comes down to his own times, he changes his title, and calls it *history*.

According to Sempronius Asellio, *annals* are a bare relation of what passes each year; whereas *history* relates not only to the transactions themselves, but also the causes, motives, and springs of them. The *annalist* merely states his facts, but the historian reasons and descants on them.

Of this last opinion seems Cicero to be, when speaking of *annalists*, he says, *Usam diurnis tandem putant esse brevitatem, non exornatores rerum, sed earum narratores*. He adds, that *history*, in its original, was the composition of *annals*.

Cicero relates the origin of *annals*: to preserve the memory of transactions, the *pontifex maximus*, says he, wrote what passed each year; and exposed it on a table, in his own house, where every one was at liberty to read it.—This they called *annales maximi*; and this custom was kept up till the year of Rome 620.

Annales maximi consisted of eighty books. They were most of them destroyed in the burning of the city by the Gauls.

The like *annals* were kept from the earliest times by the Egyptians, Babylonians, Persians, Chaldeans, &c. Several other writers, in imitation of these, adopted this simple and naked way of relating facts; and were hence denominated *annalists*.—Such were Cato, Pictor, Fabius Antipater, &c.

The *Annals* of Grotius is a book finely written, and contains excellent materials. He is not so particular as Strada, but more profound, and comes much nearer to Tacitus.

ANNATES, ANNATA, in *Ecclesiastical Writers*, denotes a year's income, due anciently to the pope upon the death

of

of any bishop, abbot, or parish-priest; and to be paid by his successor.

Annates are also called from the Latin *annus*, *year*, because their rate is after the value of one year's purchase. *Annates* are the same with what of later days are called *primitiæ*, or *first-fruits*; with this only difference, that first fruits with us are paid to the king.

The invention of *annates* is ascribed, by a late writer, to Anthonin, bishop of Ephesus, who exacted from all bishops consecrated by him, a sum proportionate to the annual revenues of their sees. The council of Ephesus, held in 400, condemned this exaction, but not till Anthonin was dead. It was long after that *annates* got footing in the western church. The time when they were first introduced is very obscure; some refer it to the pontificate of Alexander IV. others to that of John XXII. who, in the first year of his papacy, obtained a year's revenue of all the cathedral benefices. Clement V. is said to have been the first pope who imposed *annates* on England. In 1309, during the schism of the antipopes, Benedict IX. exacted a year's revenue of all the archbishoprics, bishoprics, and abbies. But in the time of these popes, the *annates* were not fixed; and the clergy often refused to pay them. There were even popes who condemned *annates*; and the secular princes frequently objected to the payment of them, forbidding any money to be carried out of their dominions on this account.

Nic. de Clemangis, A. Massa, Gallesius, Campegius, and Fernandus Conchensis, have written expressly concerning *annates*.

Matthew Paris, in his History of England, for the year 740, relates, that the archbishop of Canterbury, in virtue of a grant or concession of the pope, received *annates* of all the benefices that became vacant in England. Before this time, among the laws of king Ina, who began his reign in the year 712, there is an order for the payment of them. But, in after-times, the holy see thought fit to take these away from the bishops and archbishops, and appropriate them to themselves. And from the popes the parliament under Henry VIII. took them, and gave them to the crown. 25 H. VIII. cap. 20. Finally queen Anne restored them to the church, by appropriating them to the augmentation of poor livings.

ANNEALING, or, as it is popularly called, *nealing*, see NEALING.

ANNEXATION, in a legal sense, the act of joining or uniting some less considerable thing to a greater.

ANNEXED, something joined to, or dependent on another. —Thus we say, such a farm, such an advowson, is *annexed* to such a see, such a manor, &c. Charles VIII. in the year 1486, *annexed* Provence to the crown of France.

ANNIENTED, or rather ANIENTED, a term sometimes used in law-books, in the sense of frustrated, or annulled.

It is formed of the verb *annentir*, *to bring to nothing*, or *to annihilate*.

ANNIHILATION, the act of reducing a substance into nothing; or of totally destroying and taking away its existence.

The word is compounded of *ad*, *to*, and *nihil*, *nothing*.

Annihilation stands opposed to creation: the one supposes something made out of nothing, the other something reduced to nothing.

All *annihilation* must be metaphysical or supernatural: bodies naturally admit of changes and alterations in their forms, but not of *annihilation*.

The ancient philosophers in effect denied all *annihilation* as well as creation, resolving all the changes in the world into new modifications, without supposing the production of any thing new, or destruction of the old.

By daily experience they saw compounds dissolved, and in their dissolution nothing perished, but their union or connection of parts; when in death the body and soul were separated, the man they held was gone, but the spirit remained in its original, the great soul of the world, and the body in its earth from whence it came; these were again wrought by nature into new compositions; and entered new states of being, which had no relation to the former.

According to some, nothing is so difficult as *annihilation*; it requires the infinite power of the Creator to effect it; some go farther, and seem to put it out of the power of God himself. According to others, nothing is so easy: existence is a state of violence; all things are continually endeavouring to return to their primitive nothing; it requires no power at all, say they, what is more, it requires an infinite power to prevent it.

The Talapoins hold it the supreme degree of happiness to have the soul totally *annihilated*, and freed from the burden and slavery of transmigration.

Some Christians maintain, that God will *annihilate* the souls of the damned, after a certain time of punishment; and this *annihilation*, they say, is the second death. Irenæus, according to M. du Pin, was of this opinion.

ANNIHILATION is also used, in *Political Arithmetic*: thus, when the capital stock of any public fund is reduced, so much is is reduced is said to be *annihilated*.

ANNI *nubiles*, among *Law Writers*, the legal age at which a maid becomes fit for marriage; which is at twelve years.

ANNIS *communibus*. See COMMUNIBUS.

ANNISEED. See ANISE-SEED.

ANNIVERSARY, is properly the yearly return of any remarkable day; anciently also called a *year-day*, or *mind-day*, that is, a memorial day.

The word is formed from *annus* and *verto*, on account of its returning every year.

ANNIVERSARY *days*, *dies anniversarii*, among our ancestors, more particularly denote those days wherein the martyrdoms of the saints were yearly celebrated in the church: as also days whereon, at every year's end, men were wont to provide for the souls of their deceased friends.—*Anniversaria dies vota repetitur defunctis, quantum minimus qualibet eorum causa habeatur in ambito*.—This was the reason given by Alcuinus in his divine offices.

ANNIVERSARY *winds*, are those which blow constantly at certain seasons of the year.

These are otherwise called Etesian winds: such are the TRADE *winds* and MONSOONS.

ANNIVERSARY is more particularly used for the *anniels*, or mass, rehearsed daily for the space of a year after a person's death.

ANNO *Domini*, q. d. in the *year of our Lord*; the computation of time from the EPOCHA of the incarnation of Jesus Christ.

ANNOISANCE, in *Law*. See NUISANCE.

ANNOMINATION, *annominatio*, in *Rhetoric*, the same with what is otherwise called PARONOMASIA.

ANNONA, in *History*. See *Cura d'Apia*.

ANNONA, in *Ancient Writers*, denotes victuals or provisions of corn for a year.

ANNONA *civilis*, the corn with which the granaries of cities were filled every year, for the subsistence of the citizens.

ANNONA *militaris*, the corn and other provision laid up in the magazines for the subsistence of an army during the campaign.

In ancient writers, we also meet with the phrases *singulæ annonæ*, *binæ annonæ*, *ternæ annonæ*; with regard to which Salmasius lays down this rule, that when *annona* occurs in the singular number, it includes not only corn, but flesh, wine, oil, and other necessaries; whereas, when it is used in the plural number, it imports bread alone. Aquinus is not contented with this rule, but instead of it advances another, viz. that *annona* in the singular number includes all kinds of provision; and, in the plural, imports so many rations or pittances of bread, flesh, and the like, distributed to so many men.

In this sense, soldiers are sometimes said to have risen to the benefit of five or more *annonæ*, that is, were entitled to so many rations. The emperors Arcadius and Honorius took great pains to reduce this profusion. Hence we read of *annonæ præfectus*, or *curator*, who superintended the sale of corn; *annonæ Augustæ*, who managed the military provisions; *annonarius*, an officer appointed to distribute provisions to the soldiers; and *annonarii*, denoting monopolists.

ANNONAGE, *annonagium*, a tax on corn.

ANNONAGE is much the same with *frumentage*.

ANNOTATION, a succinct commentary, or remark on a book, or writing; in order to clear up some passages, or to draw some induction, or consequence from it.

The word is formed of *ad*, and *nota*, *note*.

ANNOTATION, in *Medicine*, denotes the very beginning of a febrile paroxysm, when the patient grows chill, shudders, yawns, is drowsy, and the like.

It is also used for a symptom peculiar to hectic fevers, when the patient, an hour or two after eating, finds himself hot, his pulse quickened, &c. without any inducement.

ANNOTATION, in the *Civil Law*, denotes a kind of rescript or grant of the emperor, signed with his own hand. But this *annotation* differed from a mere rescript, and a pragmatic sanction.

It took its name from the note or subscription at the bottom, which was in red letters.

ANNOTTO, in *Commerce*, a kind of red dye, brought from the West Indies. This is otherwise denominated *anotta* and *arlate*.

It is procured from a red flower, produced by a shrub, which grows seven or eight feet high. This flower being thrown into tubs and cisterns, for the purpose, is treated much after the manner of INDIGO; and the red matter extracted by this infusion and fermentation from the pellicles of the seed.

The *annotto*, is now only prepared by the Spaniards. The English had formerly a manufacture at St. Angelo, now ruined. The drug is preferred by the dyers to indigo, and sold one fourth dearer. The double Gloucester cheese is coloured with this dye, not with marygolds.

To water it gives only a pale brownish yellow colour, and is very little soluble in that liquid. It readily dissolves in spirit of wine, and gives a bright orange colour; hence it is useful as an ingredient in varnishes and lacquers. Wool and silk boiled in a solution of it, by alkaline salts in water, acquire a deep, but not a durable orange dye; for though it is not changed by alum or acids, it is discharged by soaps, and destroyed by exposure to the air. It is said to be an antidote to the poisonous juice of *aconitum*, or *cocculus*.

See more of this artificial preparation, and the manner of making it, in Dr. Lewis's Commercium Phil. Tech. p. 224, &c. or Neumann's Works, p. 433, &c.

ANNUAL, something which returns every year, or closes at the end of the year.

Thus we say, an *annual*, or yearly feast, office, commission, rent, revenue, income, &c.

The *annual* motion of the earth, see proved under EARTH.

ANNUAL is sometimes used for the yearly rent, or income of a prebendary, &c.

In which sense *annuals* amounts to the same with what we otherwise call *annates*.

ANNUAL is also used, in *Ecclesiastical Writers*, to denote a yearly office, said for the soul of a person deceased on the day of his obit, or anniversary.

ANNUAL, in the Scottish *Law*, denotes any yearly revenue, or due, paid at certain times, either legal, as Martinmas and Whitsuntide, or conventional, as the parties agree.

In the acts of parliament, made by queen Mary, mention is made of *ground-annuels*, *fee-annuel*, and *top-annuel*, the meaning whereof is somewhat uncertain.

ANNUEL, *ground*, according to Skene, it, when the property of any land, whether built or unbuilt, is let or sold for a yearly rent, to be paid either to the proprietor, or to some chaplain, or priest.

ANNUEL, *fee*, is either when the mail or due is disposed of as a yeadly revenue; or, when the land or tenement is let in fee-farm hereditary, for a certain yearly sum to be paid under the denomination of *feuda firma*.

ANNUEL, *top*, is a due given or assigned out of houses or buildings, where the property remains with the former owner, only with the condition of his paying the said *annuel*.

ANNUEL *of Norway*, of which mention is made in the acts of parliament of king James the Third, was an *annuel* payment of a hundred marks sterling, which the kings of Scotland were obliged to pay to the kings of Norway, in satisfaction for some pretensions which the latter had to the Scottish kingdom, by virtue of a conveyance made thereof by Malcolm Canmore, who usurped the crown after his brother's decease.

This *annuel* was first established in 1266; in consideration whereof the Norwegians renounced all title to the succession of the isles of Scotland. It was paid till the year 1468, when the *annuel*, with all its arrears, was renounced in the contract of marriage between king James the Third, and Margaret daughter of Christian the First, king of Norway, Denmark, and Sweden. See Skene de Verb. Signif.

ANNUAL *argument of longitude*. See ARGUMENT.

ANNUAL *epacts*. See EPACTS.

ANNUAL *equation* of the mean motion of the sun and moon, and of the moon's apogee and nodes. See EQUATION.

ANNUAL *leaves*, are such leaves of plants, as come up afresh in the spring, and perish in winter. These stand opposed to *ever-greens*.

ANNUAL *plants*, called also simply *annuals*, are such as only live their year, i. e. come up in the spring, and die again in autumn; and accordingly are to be recruited every year.

ANNUAL *meadow-grass*, called in some parts of England Suffolk grass, is a species of grass, which makes the finest turf, and seems well adapted to dairy-farms.

ANNUALIA, yearly oblations anciently made by the relations of deceased persons on the day of their death.

This day they called *year-day*, &c. and on it masses were celebrated with great solemnity.

ANNUENTES *muscles*, in *Anatomy*, a pair of transverse muscles, at the root of the *vertebræ* of the back, called also by Sir. Cowper RECTI *interni minores*, because they lie under the RECTI *majores*.

They are called *annuentes*, from *annuere*, *to nod* or *to assent*, because they help to nod the head, or draw it directly downwards and forwards.

ANNUITIES, signify any interest of money, rents, or pensions, payable from time to time, at particular periods.

The most general division of *annuities* is into *annuities certain*, and *annuities*, the payment of which depends on a *contingency*; such, in particular, as the continuance of a life.

Annuities have been also divided into *annuities in possession* and *annuities in reversion*; the former meaning such as either have commenced, or are to commence *immediately*: and the latter such as will not commence till some particular future event has happened, or till some given period of time has expired.

Annuities may be farther considered, as *payable yearly*, *half-yearly*, or *quarterly*.

The present value of an *annuity* is that sum which, being improved at interest, will be sufficient to pay the *annuity*.

The present value of an *annuity certain*, payable yearly, and the first payment of which is to be made at the end of a year, is calculated in the following manner.

Let the *annuity* be supposed to be 100*l.* the present value of the first payment of it, or of a hundred pounds to be received a year hence, is that sum in hand, which being put out to interest, will increase to 100*l.* in a year. In like manner, the present value of the second payment, or of 100*l.* to be received two years hence, is that sum in hand, which being put out to interest, will increase to 100*l.* in two years. The like is true of the value of the 3d, 4th, 5th, &c. payments; and the sum of the values of all the payments is the value of the *annuity*.

Let the interest be supposed to be 4 *per cent.* The sum which improved at 4 *per cent.* interest for a year will produce 100*l.* at the end of the year, is the sum which bears the same proportion to 100*l.* that 100*l.* bears to 100*l.* with 4 added to it, that is, to 104*l.* Say then as 104*l.* is to 100*l.* so is 100*l.* to a fourth proportional, which will be 96*l.* 15*s.* or 96*l.* 3*l.* which is the value of the first payment.

Again, the sum which improved at 4 *per cent.* for two years will produce 100*l.* at the end of two years, is the sum which being now put out to interest, will produce in a year that sum which in one year more will produce 100*l.* that is, it is the sum that will produce in a year 96*l.* 3*l.* for it has been just shewn, that 96*l.* 3*l.* will in a year produce 100*l.* Say then as 104*l.* is to 100*l.* so is 96*l.* 3*l.* or 96*l.* 15*s.* to a fourth proportional, which will be 92*l.* 4*s.* or 92*l.* 9*s.* The value therefore of the second payment is 92*l.* 9*s.*

By proceeding in this method it will be found, that the values of the 3d, 4th, 5th, &c. payments, are £88. 8*s.* £85. 4*s.* £82. 19*s.* &c. The sum of 10, 20, or 100 of these values, is £811, £1359. £2450, respectively, or the present value of an *annuity* of 100*l.* payable for 10, 20, or 100 years. The sum of an infinite number of these values is 2500*l.* or the value of a perpetual *annuity* of 100*l.* at 4 *per cent.*

In general: suppose r to denote 1*l.* increased by its interest for a year, or the amount of 1*l.* in a year. Then $\frac{1}{r}$ will be the present value of 1*l.* to be received a year hence: for r is to 1 as 1 is to $\frac{1}{r}$. Also $\frac{1}{r^2}$ will be the value of 1*l.* to be received at the end of two years: for r is to 1, as $\frac{1}{r}$ is to $\frac{1}{r^2}$. In like manner, $\frac{1}{r^3}$, $\frac{1}{r^4}$, $\frac{1}{r^5}$, &c. will be the values of 1*l.* to be received at the end of 3, 4, 5, &c. years respectively; and $\frac{1}{r^n}$ will be the value of 1*l.* to be received at the end of n years. The value, therefore, of an *annuity* of 1*l.* for n year is $\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3} + \frac{1}{r^4}$, &c. continued to n terms.

And the value of the perpetuity is the series continued *in infinitum*.

In order to find the sum of n terms of this series, put S equal to it, or $S = \frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3}$, &c. $+ \frac{1}{r^n}$.

Then,

$Sr = 1 + \frac{1}{r} + \frac{1}{r^2}$, &c. $+ \frac{1}{r^{n-1}}$. And

$Sr - 1 = \frac{1}{r} + \frac{1}{r^2}$, &c. $+ \frac{1}{r^{n-1}} = S - \frac{1}{r^n}$. Therefore

$Sr - 1 = S - \frac{1}{r^n}$. And consequently

$Sr - S = 1 - \frac{1}{r^n}$, and $S = \frac{1}{r-1} - \frac{1}{r^n} \times \frac{1}{r-1}$.

This is the general theorem for finding the sum of any given number of the first terms of the series $\frac{1}{r} + \frac{1}{r^2} + \frac{1}{r^3}$, &c. that is, for finding from the rate of interest given, the value of an *annuity certain*, payable yearly for any number of years. If the *annuity* is a perpetuity, it

is plain, that $\frac{1}{r^n}$, or the laſt term vaniſhing, $\frac{1}{r^n} \times \frac{1}{r-1}$, alſo vaniſhes; and, conſequently, that the expreſſion becomes $S = \frac{1}{r-1}$: from whence it reſults that the value of a perpetuity is always unity divided by the intereſt of 1*l.* for a year, or 100*l.* divided by the rate of intereſt.

The value of the *reverſion* of a perpetual *annuity*, to be entered upon after a particular term, is "the value of the *annuity* for the given term ſubtracted from the perpetuity." For example: the value of an *annuity* to be entered upon ten years hence is (reckoning intereſt at 4 *per cent.*) 8.111, i. e. the value of an *annuity* certain for ten years, ſubtracted from 25 the perpetuity, or 16.893 that is, 16 $\frac{7}{8}$ years purchaſe nearly. If the *annuity* is to be entered upon at the end of 18 years, the value will be 12.34.

If the reverſion is not a perpetuity, but an *annuity* certain for a given term, to be entered upon after another given term, the value will be the value of the perpetuity after both terms ſubtracted from the value of the perpetuity after the firſt term; that is, ſuppoſing the reverſion an *annuity* for 8 years, to be entered upon after 10 years, the value is (reckoning intereſt at 4 *per cent.*) the difference between 16.89, and 12.34, or 4.551, that is, 4 $\frac{1}{2}$ years purchaſe nearly.

Annuities certain differ in value, as they are made payable *yearly*, *half-yearly*, or *quarterly*. The following theorems, founded on the general theorem juſt given, will ſufficiently explain this ſubject. Let r denote, as before, 1*l.* increaſed by its intereſt for a year, and n the term or number of years during which any *annuity* is to be paid. Let P denote the perpetuity, or $\frac{1}{r-1}$: let y denote the value of an *annuity* for n years, ſuppoſing it paid *yearly*, or $\frac{1}{r-1} - \frac{1}{r-1} \times \frac{1}{r^n}$; b its value payable *half-yearly*; and q its value payable *quarterly*.

THEOREM I.

$$y = P - P \times \frac{1}{r^n}.$$

THEOREM II.

$$b = P - P \times \frac{1}{1 + \frac{r-1}{4}\Big|^{2n}}$$

THEOREM III.

$$q = P - P \times \frac{1}{1 + \frac{r-1}{4}\Big|^{4n}}$$

Example I.

Let the rate of intereſt be 4 *per cent.* and the term five years; and conſequently $r = 1.04$, $n = 5$, $P = 25$ and $\frac{1}{r^n}$, or the value of 1*l.* payable at the end of five years, .8219.

Then, $y = 25 - 25 \times .8219 = 4.4518$
$b = 25 - 25 \times .82034 = 4.4913$
$q = 25 - 25 \times .8196 = 4.5120$

Example II.

Let the rate of intereſt be the ſame, and the term for which the *annuity* is payable 25 years.

Then, $y = 15.6220$.
$b = 15.7818$.
$q = 15.7694$

Example III.

Intereſt being the ſame, let the term be 50 years.

Then, $y = 21.4822$
$b = 21.5491$
$q = 21.5820$

Example IV.

Intereſt being the ſame, let the term be 100 years.

Then, $y = 24.505$
$b = 24.523$
$q = 24.532$

TABLES for finding the values and amounts of ſums and *annuities* for any number of years not exceeding a hundred, at any rates of compound intereſt from 3 to 6 *per cent.*

TABLE I.

Shewing the amount of 1*l.* principal.

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	1.030000	1.035000	1.040000	1.045000	1.050000	1.060000
2	1.060900	1.071225	1.081600	1.092025	1.102500	1.123600
3	1.092727	1.108718	1.124864	1.141166	1.157625	1.191016
4	1.125509	1.147523	1.169859	1.192519	1.215506	1.262477
5	1.159274	1.187686	1.216653	1.246182	1.276282	1.338226
6	1.194052	1.229255	1.265319	1.302260	1.340096	1.418519
7	1.229874	1.272279	1.315932	1.360862	1.407100	1.503630
8	1.266770	1.316809	1.368569	1.422101	1.477455	1.593848
9	1.304773	1.362897	1.423312	1.486095	1.551328	1.689479
10	1.343916	1.410599	1.480244	1.552969	1.628895	1.790848
11	1.384234	1.459970	1.539454	1.622853	1.710339	1.898299
12	1.425761	1.511069	1.601032	1.695881	1.795856	2.012196
13	1.468534	1.563956	1.665074	1.772196	1.885649	2.132928
14	1.512590	1.618695	1.731676	1.851945	1.979932	2.260904
15	1.557967	1.675349	1.800944	1.935282	2.078928	2.396558
16	1.604706	1.733986	1.872981	2.022370	2.182875	2.540352
17	1.652848	1.794676	1.947900	2.113377	2.292018	2.692773
18	1.702433	1.857489	2.025817	2.208479	2.406619	2.854339
19	1.753506	1.922501	2.106849	2.307860	2.526950	3.025600
20	1.806111	1.989789	2.191123	2.411714	2.653298	3.207135
21	1.860295	2.059431	2.278768	2.520241	2.785963	3.399564
22	1.916103	2.131512	2.369919	2.633652	2.925261	3.603537
23	1.973587	2.206114	2.464716	2.752166	3.071524	3.819750
24	2.032794	2.283328	2.563304	2.876014	3.225100	4.048935
25	2.093778	2.363245	2.665836	3.005434	3.386355	4.291871
26	2.156591	2.445959	2.772470	3.140679	3.555673	4.549383
27	2.221289	2.531567	2.883369	3.282009	3.733456	4.822346
28	2.287928	2.620172	2.998703	3.429700	3.920129	5.111687
29	2.356566	2.711878	3.118651	3.584036	4.116136	5.418388
30	2.427262	2.806794	3.243398	3.745318	4.321942	5.743491
31	2.500080	2.905031	3.373133	3.913857	4.538039	6.088101
32	2.575083	3.006708	3.508059	4.089981	4.764941	6.453387
33	2.652335	3.111942	3.648381	4.274030	5.003189	6.840590
34	2.731905	3.220860	3.794316	4.466361	5.253348	7.251025
35	2.813862	3.333590	3.946089	4.667348	5.516015	7.686087
36	2.898278	3.450266	4.103933	4.877378	5.791816	8.147252
37	2.985227	3.571025	4.268090	5.096860	6.081407	8.636087
38	3.074783	3.696011	4.438813	5.326219	6.385477	9.154252
39	3.167027	3.825372	4.616366	5.565899	6.704751	9.703507
40	3.262038	3.959260	4.801021	5.816365	7.039989	10.285718
41	3.359899	4.097834	4.993061	6.078101	7.391988	10.902861
42	3.460696	4.241258	5.192784	6.351615	7.761588	11.557033
43	3.564517	4.389702	5.400495	6.637438	8.149667	12.250455
44	3.671452	4.543342	5.616515	6.936122	8.557150	12.985482
45	3.781596	4.702359	5.841176	7.248248	8.985008	13.764611
46	3.895044	4.866941	6.074823	7.574420	9.434258	14.590487
47	4.011895	5.037284	6.317816	7.915268	9.905971	15.465917
48	4.132252	5.213589	6.570528	8.271456	10.401270	16.393872
49	4.256219	5.396065	6.833349	8.643671	10.921333	17.377504
50	4.383906	5.584927	7.106683	9.032636	11.467400	18.420154
51	4.515423	5.780398	7.390954	9.439105	12.040770	19.525364
52	4.650886	5.982713	7.686604	9.863864	12.642808	20.696885
53	4.790412	6.192113	7.994087	10.307738	13.274949	21.938698
54	4.934125	6.408857	8.313880	10.771580	13.938696	23.255020
55	5.082149	6.633206	8.646474	11.256303	14.635631	24.650321
56	5.234613	6.865443	8.992333	11.762836	15.367412	26.129340
57	5.391651	7.105883	9.352026	12.292165	16.135783	27.697100
58	5.553399	7.354837	9.726107	12.845312	16.942572	29.358926
59	5.720000	7.612652	10.115151	13.423351	17.789701	31.120462
60	5.891600	7.879695	10.519757	14.027400	18.679186	32.987690
61	6.068348	8.156366	10.940547	14.658633	19.613145	34.966951
62	6.250398	8.443040	11.378169	15.318271	20.593802	37.064968
63	6.437910	8.740147	11.833296	16.007593	21.623492	39.288866
64	6.631047	9.048102	12.306628	16.727940	22.704667	41.646198
65	6.829979	9.367345	12.798893	17.480717	23.839900	44.144870
66	7.034878	9.698326	13.310849	18.267350	25.031895	46.793562
67	7.245924	10.041517	13.843283	19.089351	26.283490	49.601176
68	7.463302	10.397400	14.397014	19.948321	27.597665	52.577247
69	7.687201	10.766481	14.972895	20.845895	28.977548	55.731882
70	7.917817	11.149289	15.571810	21.783809	30.426425	59.075795
71	8.155351	11.546374	16.194683	22.763900	31.947746	62.620343
72	8.400012	11.958317	16.842470	23.788078	33.545133	66.377564
73	8.652012	12.385718	17.516169	24.858441	35.222390	70.360218
74	8.911572	12.829218	18.216816	25.977171	36.983510	74.581831
75	9.178919	13.289481	18.945489	27.146564	38.832686	79.056741
76	9.454286	13.767205	19.703309	28.369057	40.774320	83.800145
77	9.737914	14.263107	20.491441	29.647244	42.813036	88.828154
78	10.030052	14.777916	21.311099	30.983870	44.953688	94.157843
79	10.330954	15.312393	22.163543	32.381855	47.201372	99.807314
80	10.640882	15.867327	23.050085	33.844338	49.561441	105.795753
81	10.960109	16.443533	23.972088	35.374633	52.039513	112.143498
82	11.288912	17.041864	24.930972	36.976291	54.641489	118.872108
83	11.627579	17.663194	25.928211	38.653123	57.373563	126.004434
84	11.976407	18.308446	26.965340	40.409205	60.242241	133.564700
85	12.335699	18.978566	28.043954	42.248934	63.254353	141.578582
86	12.705770	19.674560	29.165712	44.176999	66.417070	150.073297
87	13.086943	20.397470	30.332340	46.198414	69.737924	159.077695
88	13.479551	21.148400	31.545633	48.318542	73.224820	168.622357
89	13.883937	21.928534	32.807458	50.543177	76.886061	178.739698
90	14.300455	22.739133	34.119756	52.878500	80.730364	189.463980
91	14.729469	23.581553	35.484546	55.331113	84.766882	200.831819
92	15.171353	24.457253	36.903928	57.908014	89.005226	212.881728
93	15.626494	25.367806	38.380085	60.616675	93.455487	225.654632
94	16.095289	26.314903	39.915288	63.464018	98.128261	239.193910
95	16.578147	27.300371	41.511899	66.458479	103.034674	253.545545
96	17.075491	28.326184	43.172375	69.608111	108.186408	268.758278
97	17.587756	29.394481	44.899270	72.921676	113.595728	284.883775
98	18.115389	30.507589	46.695241	76.407655	119.275514	301.976802
99	18.658851	31.668033	48.563051	80.075251	125.239290	320.095410
100	19.218617	32.878564	50.505573	83.933388	131.501254	339.301135

Conſtruction of Table I.

The numbers in this table are the powers of 1*l.* increaſed by its intereſt for a year: that is, they are the powers of the *amount* of 1*l.* in a year, at the ſeveral rates of intereſt: ſuppoſing r to be that amount, they are r, r^2, r^3, r^4, &c.

Use. *To find the amount of any sum in any number of years, not exceeding* 100. Anſ. Oppoſite to the given number of years, and under the rate of intereſt, is the amount of 1*l.* in that time, which, multiplied by the given ſum, produces the required amount.

Examples.

1. What will 18*l.* amount to in 100 years at 4 *per cent. per ann.* compound intereſt? *Anſ.* 50.504948, multiplied by 10, is 505*l.* 1*s.*

2. What will 250*l.* amount to in 50 years, at 5 *per cent. per ann.* compound intereſt? *Anſ.* 11.467400, multiplied by 250, is 2886*l.* 17*s.*

TABLE II.

Shewing the principal that will amount to 1*l.* in any number of years not exceeding 100; or the preſent value of 1*l.* to be received at the end of any number of years not exceeding 100; diſcounting at any rate of compound intereſt from 3 to 6 *per cent.*

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	.970874	.966184	.961538	.956938	.952381	.943396
2	.942596	.933511	.924556	.915730	.907029	.889996
3	.915142	.901943	.888996	.876297	.863838	.839619
4	.888487	.871442	.854804	.838561	.822702	.792094
5	.862609	.841973	.821927	.802451	.783526	.747258
6	.837484	.813501	.790315	.767896	.746215	.704961
7	.813092	.785990	.759918	.734828	.710681	.665057
8	.789409	.759412	.730690	.703185	.676839	.627412
9	.766417	.733731	.702587	.672904	.644609	.591898
10	.744094	.708919	.675564	.643927	.613913	.558395
11	.722421	.684946	.649581	.616199	.584679	.526788
12	.701380	.661783	.624597	.589664	.556837	.496969
13	.680951	.639404	.600574	.564272	.530321	.468839
14	.661118	.617782	.577475	.539973	.505068	.442301
15	.641862	.596891	.555265	.516720	.481017	.417265
16	.623167	.576706	.533908	.494469	.458112	.393646
17	.605016	.557204	.513373	.473176	.436297	.371364
18	.587395	.538361	.493628	.452800	.415521	.350344
19	.570286	.520156	.474642	.433302	.395734	.330513
20	.553676	.502566	.456387	.414643	.376889	.311805
21	.537549	.485571	.438834	.396787	.358942	.294155
22	.521893	.469151	.421955	.379701	.341850	.277505
23	.506692	.453286	.405726	.363350	.325571	.261797
24	.491934	.437957	.390121	.347703	.310068	.246979
25	.477606	.423147	.375117	.332731	.295303	.232999
26	.463695	.408838	.360689	.318402	.281241	.219810
27	.450189	.395012	.346817	.304691	.267848	.207368
28	.437077	.381654	.333477	.291571	.255094	.195630
29	.424346	.368748	.320651	.279015	.242946	.184557
30	.411987	.356278	.308319	.267000	.231377	.174110
31	.399987	.344230	.296460	.255502	.220359	.164255
32	.388337	.332590	.285058	.244500	.209866	.154957
33	.377026	.321343	.274094	.233971	.199873	.146186
34	.366045	.310476	.263552	.223896	.190355	.137912
35	.355383	.299977	.253415	.214255	.181290	.130105
36	.345032	.289833	.243669	.205028	.172657	.122741
37	.334983	.280032	.234297	.196197	.164436	.115793
38	.325226	.270563	.225285	.187744	.156605	.109239
39	.315754	.261414	.216621	.179653	.149148	.103056
40	.306557	.252572	.208289	.171908	.142046	.097222
41	.297628	.244028	.200278	.164494	.135282	.091719
42	.288959	.235771	.192575	.157399	.128840	.086527
43	.280543	.227791	.185168	.150607	.122704	.081630
44	.272372	.220080	.178046	.144105	.116861	.077009
45	.264439	.212628	.171198	.137881	.111297	.072650
46	.256737	.205427	.164613	.131922	.105997	.068538
47	.249259	.198468	.158282	.126217	.100949	.064658
48	.241999	.191744	.152195	.120756	.096142	.060998
49	.234950	.185247	.146341	.115528	.091564	.057546
50	.228107	.178970	.140713	.110524	.087204	.054288
51	.221463	.172906	.135301	.105735	.083051	.051215
52	.215012	.167048	.130097	.101153	.079096	.048316
53	.208749	.161390	.125093	.096769	.075330	.045582
54	.202670	.155925	.120282	.092574	.071743	.043006
55	.196767	.150647	.115656	.088564	.068327	.040576
56	.191036	.145550	.111207	.084729	.065073	.038285
57	.185470	.140628	.106930	.081062	.061974	.036118
58	.180068	.135875	.102817	.077557	.059023	.034074
59	.174824	.131285	.098863	.074207	.056212	.032146
60	.169733	.126853	.095060	.071005	.053535	.030324
61	.164791	.122573	.091404	.067945	.050986	.028607
62	.159991	.118440	.087889	.065021	.048558	.026983
63	.155332	.114449	.084509	.062225	.046246	.025455
64	.150807	.110595	.081259	.059553	.044044	.024010
65	.146413	.106873	.078134	.056998	.041946	.022651
66	.142147	.103278	.075129	.054555	.039949	.021369
67	.138003	.099806	.072240	.052220	.038047	.020159
68	.133979	.096453	.069461	.049986	.036235	.019018
69	.130067	.093214	.066789	.047849	.034509	.017941
70	.126276	.090086	.064220	.045804	.032866	.016926
71	.122596	.087063	.061750	.043847	.031301	.015969
72	.119027	.084142	.059375	.041973	.029810	.015065
73	.115562	.081319	.057091	.040178	.028391	.014212
74	.112196	.078589	.054895	.038459	.027039	.013407
75	.108928	.075951	.052784	.036813	.025752	.012649
76	.105755	.073401	.050754	.035236	.024526	.011933
77	.102674	.070936	.048802	.033725	.023358	.011258
78	.099684	.068552	.046925	.032278	.022246	.010620
79	.096781	.066248	.045120	.030891	.021187	.010018
80	.093962	.064020	.043385	.029563	.020178	.009451
81	.091226	.061866	.041716	.028290	.019217	.008916
82	.088569	.059784	.040112	.027071	.018302	.008411
83	.085990	.057771	.038569	.025903	.017430	.007936
84	.083486	.055826	.037086	.024784	.016600	.007487
85	.081056	.053946	.035659	.023712	.015809	.007064
86	.078697	.052129	.034287	.022685	.015056	.006664
87	.076406	.050373	.032968	.021702	.014339	.006287
88	.074182	.048676	.031700	.020761	.013656	.005931
89	.072021	.047036	.030481	.019860	.013006	.005596
90	.069923	.045451	.029309	.018998	.012387	.005279
91	.067886	.043919	.028182	.018173	.011797	.004980
92	.065909	.042439	.027098	.017383	.011235	.004698
93	.063990	.041008	.026056	.016627	.010700	.004432
94	.062126	.039626	.025054	.015904	.010190	.004181
95	.060317	.038290	.024091	.015213	.009705	.003944
96	.058560	.037000	.023165	.014552	.009243	.003721
97	.056854	.035754	.022274	.013921	.008803	.003510
98	.055199	.034551	.021417	.013318	.008384	.003312
99	.053592	.033389	.020593	.012742	.007985	.003124
100	.052031	.032268	.019801	.012192	.007605	.002947

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	.970874	.966184	.961538	.956938	.952381	.943396
2	.942596	.933511	.924556	.915730	.907029	.889996
3	.915142	.901943	.888996	.876297	.863838	.839619
4	.888487	.871442	.854804	.838561	.822702	.792094
5	.862609	.841973	.821927	.802451	.783526	.747258
6	.837484	.813501	.790315	.767896	.746215	.704961
7	.813092	.785990	.759918	.734828	.710681	.665057
8	.789409	.759412	.730690	.703185	.676839	.627412
9	.766417	.733731	.702587	.672904	.644609	.591898
10	.744094	.708919	.675564	.643927	.613913	.558395
11	.722421	.684946	.649581	.616199	.584679	.526788
12	.701380	.661783	.624597	.589664	.556837	.496969
13	.680951	.639404	.600574	.564272	.530321	.468839
14	.661118	.617782	.577475	.539973	.505068	.442301
15	.641862	.596891	.555265	.516720	.481017	.417265
16	.623167	.576706	.533908	.494469	.458112	.393646
17	.605016	.557204	.513373	.473176	.436297	.371364
18	.587395	.538361	.493628	.452800	.415521	.350344
19	.570286	.520156	.474642	.433302	.395734	.330513
20	.553676	.502566	.456387	.414643	.376889	.311805
21	.537549	.485571	.438834	.396787	.358942	.294155
22	.521893	.469151	.421955	.379701	.341850	.277505
23	.506692	.453286	.405726	.363350	.325571	.261797
24	.491934	.437957	.390121	.347703	.310068	.246979
25	.477606	.423147	.375117	.332731	.295303	.232999

Conſtruction of Table II.

The numbers in this table are the reciprocals of the correſponding numbers in the laſt, or the quotients of unity divided by thoſe numbers; that is $\frac{1}{r}$, $\frac{1}{r^2}$, $\frac{1}{r^3}$, $\frac{1}{r^4}$, &c. Suppoſing r to denote 1*l.* with its intereſt for a year.

Uſe. *To find what the preſent value is of any ſum payable in any future time: and alſo what principal will amount to a given ſum in any number of years.* Anſ. Oppoſite to the given number of years, and under the rate of intereſt, is the preſent value of 1*l.* to be received at the end of the given time, or the ſum that will amount to 1*l.* in that time, which, multiplied by the given ſum, produces the required value or principal.

1. What is the preſent value of 1000*l.* to be received 10 years hence, reckoning compound intereſt at 5 *per cent.*? *Anſ.* 613913, multiplied by 1000, is 613*l.* 18*s.* 6*d.* nearly.

2. What principal will amount to 1000*l.* in 10 years at 5 *per cent. per ann.* compound intereſt? *Anſ.* 613913, multiplied by 1000*l.* is 613*l.* 18*s.* 3*d.*

3. What ſum put out for 25 years at 4½ *per cent.* intereſt, will clear a debt of 4000*l.*? *Anſ.* 332731, multiplied by 4000, is 1330*l.* 18*s.* 6*d.*

TABLE III.

The preſent value of an *annuity* of 1*l.* for any number of years not exceeding 100, at any rate of compound intereſt from 3 to 6 *per cent.*

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	.970874	.966184	.961538	.956938	.952381	.943396
2	1.913470	1.899694	1.886095	1.872668	1.859410	1.833393
3	2.828611	2.801637	2.775091	2.748964	2.723248	2.673012
4	3.717098	3.673079	3.629895	3.587526	3.545951	3.465106
5	4.579707	4.515052	4.451822	4.389977	4.329477	4.212364
6	5.417191	5.328553	5.242137	5.157872	5.075692	4.917324
7	6.230283	6.117463	6.002055	5.888232	5.786373	5.582381
8	7.019692	6.873956	6.732745	6.595886	6.463213	6.209794
9	7.786109	7.607687	7.435332	7.268791	7.107822	6.801692
10	8.530203	8.316605	8.110896	7.912718	7.721735	7.360087
11	9.252624	9.001551	8.760477	8.528917	8.306414	7.886875
12	9.954004	9.663334	9.385074	9.118581	8.863252	8.383844
13	10.634955	10.302738	9.985648	9.682852	9.393573	8.852683
14	11.296073	10.920520	10.563123	10.222825	9.898641	9.294984
15	11.937935	11.517411	11.118387	10.739546	10.379658	9.712249
16	12.561102	12.094117	11.652296	11.234015	10.837770	10.105895
17	13.166118	12.651321	12.165669	11.707191	11.274066	10.477260
18	13.753513	13.189682	12.659297	12.159992	11.689587	10.827603
19	14.323799	13.709837	13.133939	12.593294	12.085321	11.158116
20	14.877475	14.212403	13.590326	13.007936	12.462210	11.469921
21	15.415024	14.697974	14.029160	13.404724	12.821153	11.764077
22	15.936917	15.167125	14.451115	13.784425	13.163003	12.041582
23	16.443608	15.620410	14.856842	14.147775	13.488574	12.303379
24	16.935542	16.058368	15.246963	14.495478	13.798642	12.550358
25	17.413148	16.481515	15.622080	14.828209	14.093945	12.783356
26	17.876842	16.890352	15.982769	15.146611	14.375185	13.003166
27	18.327031	17.285365	16.329586	15.451303	14.643034	13.210534
28	18.764108	17.667019	16.663063	15.742874	14.898127	13.406164
29	19.188455	18.035767	16.983715	16.021889	15.141074	13.590721
30	19.600441	18.392045	17.292033	16.288889	15.372451	13.764831
31	20.000428	18.736276	17.588494	16.544391	15.592811	13.929086
32	20.388766	19.068865	17.873551	16.788891	15.802677	14.084043
33	20.765792	19.390208	18.147646	17.022862	16.002549	14.230230
34	21.131837	19.700684	18.411198	17.246758	16.192904	14.368141
35	21.487220	20.000661	18.664613	17.461012	16.374194	14.498246
36	21.832252	20.290494	18.908282	17.666041	16.546852	14.620987
37	22.167235	20.570525	19.142579	17.862240	16.711287	14.736780
38	22.492462	20.841087	19.367864	18.049990	16.867893	14.846019
39	22.808215	21.102500	19.584485	18.229656	17.017041	14.949075
40	23.114772	21.355072	19.792774	18.401584	17.159086	15.046297
41	23.412400	21.599104	19.993051	18.566109	17.294368	15.138016
42	23.701359	21.834883	20.185626	18.723550	17.423208	15.224543
43	23.981902	22.062689	20.370795	18.874210	17.545912	15.306173
44	24.254274	22.282791	20.548841	19.018383	17.662773	15.383182
45	24.518713	22.495450	20.720040	19.156347	17.774070	15.455832
46	24.775449	22.700918	20.884654	19.288371	17.880066	15.524370
47	25.024708	22.899438	21.042936	19.414707	17.981016	15.589028
48	25.266707	23.091244	21.195131	19.535607	18.077158	15.650027
49	25.501657	23.276564	21.341472	19.651303	18.168722	15.707572
50	25.729764	23.455618	21.482185	19.762008	18.255925	15.761861
51	25.951227	23.628615	21.617485	19.867936	18.338976	15.813076
52	26.166241	23.795765	21.747582	19.969294	18.418073	15.861393
53	26.374992	23.957260	21.872675	20.066285	18.493403	15.906974
54	26.577661	24.113289	21.992957	20.159091	18.565146	15.949976
55	26.774428	24.264022	22.108612	20.247896	18.633472	15.990543
56	26.965464	24.409631	22.219819	20.332869	18.698545	16.028814
57	27.150937	24.550279	22.326749	20.414178	18.760519	16.064920
58	27.331007	24.686121	22.429566	20.491980	18.819542	16.098981
59	27.505831	24.817304	22.528429	20.566431	18.875754	16.131114
60	27.675564	24.943968	22.623490	20.637678	18.929289	16.161429
61	27.840355	25.066250	22.714894	20.705861	18.980275	16.190029
62	27.995345	25.184274	22.802783	20.771115	19.028833	16.217013
63	28.155674	25.298164	22.887291	20.833568	19.075079	16.242470
64	28.306473	25.408032	22.968549	20.893339	19.119123	16.266481
65	28.452867	25.513986	23.046682	20.950544	19.161070	16.289124
66	28.594978	25.616128	23.121809	21.005292	19.201019	16.310470
67	28.732920	25.714554	23.194047	21.057686	19.239066	16.330585
68	28.866806	25.809354	23.263507	21.107825	19.275301	16.349532
69	28.996744	25.900613	23.330295	21.155805	19.309810	16.367370
70	29.122839	25.988410	23.394514	21.201713	19.342676	16.384151
71	29.245184	26.072817	23.456263	21.245634	19.373977	16.399926
72	29.363878	26.153902	23.515637	21.287648	19.403788	16.414741
73	29.479009	26.231729	23.572728	21.327833	19.432179	16.428642
74	29.590660	26.306358	23.627623	21.366260	19.459218	16.441671
75	29.698913	26.377845	23.680407	21.402999	19.484969	16.453869
76	29.803846	26.446242	23.731161	21.438115	19.509494	16.465274
77	29.905531	26.511598	23.779962	21.471671	19.532851	16.475923
78	30.004040	26.573959	23.826886	21.503726	19.555096	16.485851
79	30.099437	26.633368	23.872006	21.534335	19.576282	16.495091
80	30.191784	26.689866	23.915390	21.563552	19.596459	16.503674
81	30.281141	26.743491	23.957106	21.591427	19.615675	16.511630
82	30.367563	26.794279	23.997217	21.618008	19.633976	16.518986
83	30.451104	26.842264	24.035786	21.643341	19.651405	16.525766
84	30.531813	26.887478	24.072871	21.667469	19.668005	16.531994
85	30.609740	26.929952	24.108530	21.690434	19.683814	16.537690
86	30.684931	26.969715	24.142817	21.712274	19.698870	16.542874
87	30.757428	27.006795	24.175786	21.733027	19.713210	16.547564
88	30.827270	27.041218	24.207487	21.752729	19.726867	16.551778
89	30.894497	27.073010	24.237969	21.771408	19.739873	16.555531
90	30.959142	27.102195	24.267278	21.789098	19.752260	16.558839
91	31.021244	27.128796	24.295460	21.805826	19.764057	16.561717
92	31.080833	27.152835	24.322558	21.821620	19.775292	16.564179
93	31.137941	27.174334	24.348613	21.836505	19.785992	16.566238
94	31.192597	27.193313	24.373666	21.850504	19.796183	16.567907
95	31.244831	27.209792	24.397756	21.863639	19.805888	16.569197
96	31.294672	27.223789	24.420919	21.875931	19.815131	16.570121
97	31.342147	27.235322	24.443191	21.887398	19.823934	16.570689
98	31.387284	27.244408	24.464607	21.898059	19.832318	16.570911
99	31.430109	27.251062	24.485199	21.907930	19.840303	16.570796
100	31.470647	27.255300	24.504999	21.917027	19.847908	16.570353

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
2	2.030000	2.035000	2.040000	2.045000	2.050000	2.060000
3	3.090900	3.106225	3.121600	3.137025	3.152500	3.183600
4	4.183627	4.214943	4.246464	4.278191	4.310125	4.374616
5	5.309136	5.362466	5.416323	5.470710	5.525631	5.637093
6	6.468410	6.550152	6.632975	6.716892	6.801913	6.975319
7	7.662462	7.779408	7.898294	8.019152	8.142008	8.393838
8	8.892336	9.051687	9.214226	9.380014	9.549109	9.897468
9	10.159106	10.368496	10.582795	10.802114	11.026564	11.491316
10	11.463879	11.731393	12.006107	12.288209	12.577893	13.180795
11	12.807796	13.141992	13.486351	13.841179	14.206787	14.971643
12	14.192030	14.601962	15.025805	15.464032	15.917127	16.869941
13	15.617790	16.113030	16.626838	17.159913	17.712983	18.882138
14	17.086324	17.676986	18.291911	18.932109	19.598632	21.015066
15	18.598914	19.295681	20.023588	20.784054	21.578564	23.275970
16	20.156881	20.971030	21.824531	22.719337	23.657492	25.672528
17	21.761588	22.705016	23.697512	24.741707	25.840366	28.212880
18	23.414435	24.499691	25.645413	26.855084	28.132385	30.905653
19	25.116868	26.357180	27.671229	29.063563	30.539004	33.759992
20	26.870374	28.279681	29.778079	31.371423	33.065954	36.785591
21	28.676486	30.269471	31.969202	33.783137	35.719252	39.992727
22	30.536780	32.328902	34.247970	36.303378	38.505214	43.392290
23	32.452884	34.460414	36.617889	38.937030	41.430475	46.995828
24	34.426470	36.666528	39.082604	41.689196	44.501999	50.815577
25	36.459264	38.949857	41.645908	44.565210	47.727099	54.864512
26	38.553042	41.313102	44.311745	47.570645	51.113454	59.156383
27	40.709634	43.759060	47.084214	50.711324	54.669126	63.705766
28	42.930923	46.290627	49.967583	53.993333	58.402583	68.528112
29	45.218850	48.910799	52.966286	57.423033	62.322712	73.639798
30	47.575416	51.622677	56.084938	61.007070	66.438848	79.058186
31	50.002678	54.429471	59.328335	64.752388	70.760790	84.801677
32	52.502759	57.334502	62.701469	68.666245	75.298829	90.889778
33	55.077841	60.341210	66.209527	72.756226	80.063771	97.343165
34	57.730177	63.453152	69.857909	77.030256	85.066959	104.183755
35	60.462082	66.674013	73.652225	81.496618	90.320307	111.434780
36	63.275944	70.007603	77.598314	86.163966	95.836323	119.120867
37	66.174223	73.457869	81.702246	91.041345	101.628139	127.268119
38	69.159449	77.028895	85.970336	96.138205	107.709546	135.904206
39	72.234233	80.724906	90.409150	101.464304	114.095023	145.058458
40	75.401260	84.550278	95.025516	107.029598	120.799774	154.761966
41	78.663298	88.509537	99.826536	112.845271	127.839763	165.047684
42	82.023196	92.607371	104.819598	118.922809	135.231751	175.950545
43	85.483892	96.848629	110.012382	125.274050	142.993339	187.507577
44	89.048409	101.238331	115.412877	131.911182	151.142006	199.758032
45	92.719861	105.781673	121.029392	138.846667	159.700106	212.743514
46	96.501457	110.484031	126.870568	146.093268	168.685164	226.508125
47	100.396501	115.350973	132.945390	153.664102	178.119422	241.098612
48	104.408396	120.388257	139.263206	161.572637	188.025393	256.564529
49	108.540648	125.601846	145.833734	169.832727	198.426663	272.958401
50	112.796867	130.997910	152.667084	178.458623	209.347996	290.335905

Construction of Table III.

The 2d, 3d, 4th, &c. numbers in this table are the sums of the first 2, 3, 4, &c. numbers in the second; that is, the sums of $\frac{1}{r}+\frac{1}{r^2}$, of $\frac{1}{r}+\frac{1}{r^2}+\frac{1}{r^3}$, of $\frac{1}{r}+\frac{1}{r^2}+\frac{1}{r^3}+\frac{1}{r^4}$, &c.

Use. *To find the present worth of any annuity.* Multiply the present value opposite to the given number of years, and under the rate of interest, by the given annuity, and the product will be the answer. If the annuity is in reversion, multiply the number opposite to the time of reversion in the 2d table, the number opposite to the time of continuance in this table, and the annuity together: or, when the sum of both these times does not exceed 100, from the number in this table opposite to that sum take the number opposite to the reversionary time, and multiply the remainder by the annuity.

Examples.

1. What is the present value of an annuity of 50*l.* to continue 20 years at 4 *per cent.*? *Ans.* 13.590326, multiplied by 40, is 543*l.* 12*s.* nearly.

2. What is the present value of an annuity of 40*l.* to continue 20 years, but not to commence till the end of 5 years, at 4 *per cent.*? *Ans.* 18.21957, multiplied by 13.590326, multiplied by 40, is 494*l.* 15*s.* Or 4.631822, subtracted from 13.590326, and the remainder multiplied by 40, is 494*l.* 16*s.* as before.

TABLE IV.

The amount of an annuity of 1*l.* at compound interest.

Years	At 3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.	6 per Cent.
1	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
2	2.030000	2.035000	2.040000	2.045000	2.050000	2.060000
3	3.090900	3.106225	3.121600	3.137025	3.152500	3.183600
4	4.183627	4.214943	4.246464	4.278191	4.310125	4.374616
5	5.309136	5.362466	5.416323	5.470710	5.525631	5.637093
6	6.468410	6.550152	6.632975	6.716892	6.801913	6.975319
7	7.662462	7.779408	7.898294	8.019152	8.142008	8.393838
8	8.892336	9.051687	9.214226	9.380014	9.549109	9.897468
9	10.159106	10.368496	10.582795	10.802114	11.026564	11.491316
10	11.463879	11.731393	12.006107	12.288209	12.577893	13.180795
11	12.807796	13.141992	13.486351	13.841179	14.206787	14.971643
12	14.192030	14.601962	15.025805	15.464032	15.917127	16.869941
13	15.617790	16.113030	16.626838	17.159913	17.712983	18.882138
14	17.086324	17.676986	18.291911	18.932109	19.598632	21.015066
15	18.598914	19.295681	20.023588	20.784054	21.578564	23.275970
16	20.156881	20.971030	21.824531	22.719337	23.657492	25.672528
17	21.761588	22.705016	23.697512	24.741707	25.840366	28.212880
18	23.414435	24.499691	25.645413	26.855084	28.132385	30.905653
19	25.116868	26.357180	27.671229	29.063563	30.539004	33.759992
20	26.870374	28.279681	29.778079	31.371423	33.065954	36.785591
21	28.676486	30.269471	31.969202	33.783137	35.719252	39.992727
22	30.536780	32.328902	34.247970	36.303378	38.505214	43.392290
23	32.452884	34.460414	36.617889	38.937030	41.430475	46.995828
24	34.426470	36.666528	39.082604	41.689196	44.501999	50.815577
25	36.459264	38.949857	41.645908	44.565210	47.727099	54.864512
26	38.553042	41.313102	44.311745	47.570645	51.113454	59.156383
27	40.709634	43.759060	47.084214	50.711324	54.669126	63.705766
28	42.930923	46.290627	49.967583	53.993333	58.402583	68.528112
29	45.218850	48.910799	52.966286	57.423033	62.322712	73.639798
30	47.575416	51.622677	56.084938	61.007070	66.438848	79.058186
31	50.002678	54.429471	59.328335	64.752388	70.760790	84.801677
32	52.502759	57.334502	62.701469	68.666245	75.298829	90.889778
33	55.077841	60.341210	66.209527	72.756226	80.063771	97.343165
34	57.730177	63.453152	69.857909	77.030256	85.066959	104.183755
35	60.462082	66.674013	73.652225	81.496618	90.320307	111.434780
36	63.275944	70.007603	77.598314	86.163966	95.836323	119.120867
37	66.174223	73.457869	81.702246	91.041345	101.628139	127.268119
38	69.159449	77.028895	85.970336	96.138205	107.709546	135.904206
39	72.234233	80.724906	90.409150	101.464304	114.095023	145.058458
40	75.401260	84.550278	95.025516	107.029598	120.799774	154.761966
41	78.663298	88.509537	99.826536	112.845271	127.839763	165.047684
42	82.023196	92.607371	104.819598	118.922809	135.231751	175.950545
43	85.483892	96.848629	110.012382	125.274050	142.993339	187.507577
44	89.048409	101.238331	115.412877	131.911182	151.142006	199.758032
45	92.719861	105.781673	121.029392	138.846667	159.700106	212.743514
46	96.501457	110.484031	126.870568	146.093268	168.685164	226.508125
47	100.396501	115.350973	132.945390	153.664102	178.119422	241.098612
48	104.408396	120.388257	139.263206	161.572637	188.025393	256.564529
49	108.540648	125.601846	145.833734	169.832727	198.426663	272.958401
50	112.796867	130.997910	152.667084	178.458623	209.347996	290.335905

Construction of Table IV.

The first number of each column in this table, is unity. The second is the first number in this table added to the first number in the first table. The third number is the second in this table added to the second in the first table, and so on; that is, the numbers in this table are 1, $1+r$, $1+r+r^2$, $1+r+r^2+r^3$, &c.

Use. *To find the amount of an annuity forborn any number of years at compound interest.* Multiply the amount in the table opposite to the given number of years, and under the rate of interest, by the given annuity. The product is the answer.

Examples.

1. What will an annuity of 50*l.* amount to in 15 years, at 3 *per cent.* compound interest? *Ans.* 17.293780, multiplied by 50*l.* is 864*l.* 13*s.* 9*d.*

2. What is the amount of an annuity of 40*l.* in 28 years at 4 *per cent.*? *Ans.* 49.967675, multiplied by 40, is 1998*l.* nearly.

3. A person is possessed of a 1000*l.* principal, bearing 4 *per cent.* interest, and in order to increase his income, resolves to take out of his principal 20*l.* the first year, and afterwards as much more as will be necessary to make a constant income of 80*l. per ann.* In what time will he reduce his principal to nothing? *Ans.* In the same time that an *annuity* of 20*l.* would increase at 4 *per cent.* compound interest to 1000*l.* that is, in 28 years, by the preceding question.

The preceding observations, rules, and tables, contain all that is most important in the doctrine of *annuities certain*. He that would gain further information should consult Malcolm's Arithmetic, from page 395 to the end; Simpson's Algebra, fect. 18; Mr. Dodson's Mathematical Repository, p. 298, &c. Jones's Synopsis, chap. 1. Phil. Trans. vol. lvii. p. 109, &c.

For an explanation of the doctrine of *annuities on lives*, see ASSURANCE, COMPLEMENT, EXPECTATION, LIFE *Annuities*, REVERSIONS.

ANNULAR, ANNULARIS, something that relates to, or resembles a ring, by the Latins called *annulus*.

ANNULAR *cartilage*, or ANNULARIS, is the second cartilage of the *larynx*, being round, and investing the whole *larynx*; called also *cricoides*.

ANNULAR *ligament*, *ligamentum* ANNULARE, is a strong ligament, encompassing the CARPUS OF WAIST; after the manner of a bracelet.

Its use is to connect or bind the two bones of the arm together; and also to restrain the tendons of the several muscles of the hand and fingers, and prevent their flying out of their places, when in action.

The ligament of the TARSUS is also denominated *annular* ligament.

Add, that the sphincter muscle of the *anus* is also called *annularis*, or *annular* muscle, from its figure.

ANNULAR *process*, or *protuberance*, is a process of the MEDULLA *oblongata*: thus called by Dr. Willis, because it surrounds the same, much like a ring.

ANNULAR is also an epithet given the fourth finger, popularly called the *ring* FINGER.

ANNULATA, in *Zoology*. See COLUBER.

ANNULET, *little ring*, in *Heraldry*, is a DIFFERENCE or mark of distinction, which the fifth brother of any family ought to bear in his coat of arms.

Annulets are also part of the coat armour of several families. They were anciently reputed a mark of nobility and jurisdiction; it being the custom of prelates to receive their investiture *per baculum & annulum*.

ANNULETS, in *Architecture*, are small square members, in the Doric capital, placed under the quarter round. See *The Architect*, pl. 25. n. 17. They are also called *fillets*, *listels*, &c.

ANNULET is also used for a narrow flat moulding, common to other parts of a column; viz. the base, &c. as well as the capital; so called, because it encompasses the column around. In which sense *annulet* is frequently used for *taenia*, or list of a column.

ANNULUS, a species of the VOLUTA.

ANNULLING, the abolishing of an act, procedure, sentence, or the like.

The word is compounded of *ad* and *nullus*, *none*; q. d. *making none*.

ANNUNTIATE, ANNUNTIADA, or ANNUNTIATA, a denomination common to several orders, both religious and military; instituted with a view to the Annunciation.

The first religious order of this kind was instituted in 1232, by seven Florentine merchants. These are also called *Servites*, q. d. *Servantes*.

The second was a nunnery at Bourges, founded by Joan, queen of France, after her divorce from Lewis XII.

The third was also a nunnery, founded by a Genoese lady in 1600. The fourth was a friery, founded by cardinal Torrecremata, at Rome, in 1460; which last are grown so very rich, that they give fortunes of forty Roman crowns to above four hundred girls, on the anniversary of the Annunciation.

ANNUNCIATA, *or knights of the* ANNUNTIADA, was a military order, instituted in 1362, by Amadeus VI. duke of Savoy; in memory of Amadeus I. who defended the isle of Rhodes against the Turks.

It was at first called the order of the True Lovers Knots; in memory of a bracelet of hair presented to the founder by a lady; but upon the election of Amadeus VIII. to the pontificate, it changed its name for that of the *Annunciata*, in 1434. The great collar of the order, which the knights wear on public occasions, weighs 250 crowns of gold, and the following letters are engraven on it: *F. E. R. T.* signifying *Fortitudo ejus Rhodum tenuit*.

ANNUNCIATION, the tidings which the angel Gabriel brought to the Holy Virgin, of the mystery of the incarnation.

The word is compounded of *ad* and *nuntio*, *I declare*. The Greeks call it ευαγγελισμος, *glad tidings*; and ταξεις, *salutation*.

ANNUNCIATION is also the name of a feast, celebrated annually on the 25th of March, popularly called *Lady-day*, in commemoration of that wonderful event.

Some authors are of opinion, that the feast was originally solemnized in honour of our Saviour; and that the holding it in the name and honour of the Virgin is of a much later standing.

Several of the eastern churches celebrate the *Annunciation* at a different season from those of the West. The Syrians call it *Basserah*, q. d. *search*, *inquiry*: and mark it in the calendar for the first day of December. The Armenians hold it on the fifth of January: thus anticipating the time, to prevent its falling in Lent; but the Greeks make no scruple of celebrating the festival even in Lent.

The Jews also give the title *Annunciation* to part of the ceremony of their passover; viz. that, wherein they explain the origin and occasion of that solemnity. This explanation they call הגדה, *Haggada*, q. d. the *Annunciation*.

ANNUNCIATOR, in the *Greek Church*, an officer whose business is to give notice of the feasts, and holy days to be observed.

ANOCHUS, an imaginary name of a *medicine*, concerning which many fruitless conjectures have been made. The word occurs only in Gaza's translation of the account which Theophrastus has left us of the RUDNYNUS of those times. The author says, that the goats which eat the leaves and fruits of the *rudnynus* were killed by it, and that they died of a stoppage of the bowels, which he has expressed by the word ανοχος, derived from the verb ανεχω, which signifies a retention of the stools.

It is to be observed by the way, that the *rudnynus* of the Greeks could not be the same plant known at this time by that name, since the cattle eat our *rudnynus* or FUSANUS whenever they can get it, and that without any danger; but the descriptions of these plants in the ancient and modern authors shew also that they were very different.

ANOCTORON, in *Ecclesiastical Antiquity*, a name used by some writers for a church.

Anactora properly import Roman halls, divers of which were converted into churches.

In which sense *anactora* amount to much the same with BASILICÆ.

ANOCYSTI, in *Natural History*, the name of a class of the ECHINI *marini*, which have an aperture of the *anus* at the top of the shell.

Some of these approach to a hemispheric or spheroidal figure, others flatter, and in shape somewhat resembling a shield.

ANODUS is used by some *Chemical Writers* to denote a nutritious matter separated by the kidneys.

In this sense *anodus* stands contradistinguished from the superfluous part, that is the urine.

ANODYNE, in *Physic*, is understood of such remedies, as calm and assuage pain.

The word is derived from the privative α, and οδυνη, *dolor*, *to be in pain*.

Anodynes are of two kinds; the first proper, called also *paregorics*.

The second *spurious*, or improper, which rather stupefy than alleviate; acting only by inducing a stupor, drowsiness, or sleep.

These are more properly called *narcotics*, *hypnotics*, or *opiates*.

The true *anodynes* are applied externally to the part affected. Such, among the class of simples, are, the onion, lily, root of mallows, leaves of violets, elder, &c. Camphor is the best *anodyne* in nervous cases, and at the decline of fevers.

Anodynes should not be given without great caution, nor on a full stomach, nor in droppies. Hemlock procures ease and sleep, without causing that head-ach next morning, usually complained of after taking opium. If the pulse be strong a larger dose is safe; if weak, a less dose must be given.

We have also certain compound medicines in the shops, prepared with this intention, and called by this name. Such is the *anodyne balsam*, made of Castile soap, camphor, saffron, and spirit of wine, digested in a gentle heat. It is recommended not only for procuring ease in the most racking extremities of pain, but also for assisting in discharging the peccant matters that occasioned it.

This balsam is much the same with the modern *opodeldoc*.

A ready way of preparing an useful, safe, and efficacious *anodyne*, is as follows: take half an ounce of opium, dissolve it in a gentle heat in three ounces of water, strain the solution, and evaporate it to a dry substance. Grind this to powder in a glass mortar with twice the quantity of

of lead-sugar, and you have an excellent preparation of opium, to be given three or four grains for a dose. Shaw's Lect. p. 133.

The dissolving the opium thus in water, we see will not only of its gross and foul parts, but also of its virulous, which are found much more pernicious than the rest; and by dividing its parts afterwards with sugar, the medicine is rendered more uniform, resoluble, and miscible with animal fluids.

But however opium is prepared, it still must be acknowledged that it retains qualities that make it little less than a poison in a very large dose; whence it were much to be wished something could be found that would be more innocent, and yet answer the same purpose. Add this camphire and nitre will do on many, though not on all occasions.

ANOINTED. See CHRIST and MESSIAH.

ANOINTERS, a religious sect in some parts of England, so called from the ceremony they used in anointing all persons before they admitted them into their church. They founded their opinion of anointing upon the fifth of James, verses 14 and 15. See Plott's Oxfordsh. 268.

ANOLE, in *Zoology*, the name of a species of lizard common in the West Indies, about houses and plantations. It is the size of the common lizard of Europe, but its head is longer, its skin of a yellowish colour, and its back variegated with green, blue, and grey lines running from the neck to the tail. They creep into holes for the night, and there make a continual and very disagreeable noise, in the day time they are always in motion.

ANOLYMPIADES, in *Antiquity*, a name given by the Eleans to those Olympic games, which had been celebrated under the direction of the Pisæans and Arcadians. The Eleans claimed the sole right of managing the Olympic games, in which they sometimes met with competitors. The hundred and fourth Olympiad was celebrated by order of the Arcadians, by whom the Eleans were at that time reduced very low; this, as well as those managed by the inhabitants of Pisa, they called unlawful Olympiads, and left them out of their annals, wherein the names of the victors, and other occurrences, were registered. Potter, Arch. Græc.

ANOMALISTICAL *year*, in *Astronomy*, called also *periodical year*, is the space of time wherein the earth passes through her orbit.

The *anomalistical*, or common year, is somewhat greater than the tropical year; by reason of the PRECESSION of the equinox.

ANOMALOUS, *irregular*, something that deviates from the ordinary rule and method of other things of the same kind.

The word is not compounded of the privative a and νομος, *lex*, as is usually imagined: for whence, on such supposition, should the last syllable *al*, arise? But it comes from the Greek ανωμαλος, *aureos, rugis, irregular*, formed of the privative a and ομαλος, *planus, æquus*.

ANOMALOUS *verbs*, in *Grammar*, are such as are irregular in their conjugations; deviating from the rules or formulas observed by others.

There are *anomalous* verbs, or irregular inflexions of verbs, in all languages. In the English, all the irregularity in our *anomalous* verbs lies in the formation of the preter tense, and passive participle; though this only holds of the native Teutonic or Saxon words, and not of the foreign words, borrowed from the Latin, French, &c.

The principal irregularity arises from the quickness of our pronunciation, whereby we change the consonant *d* into *t*, putting off the regular ending *ed*.

Thus for *mend*, we write *ment* or *mend*; for *dwelled*, *dwelt*, or *dwell'd*; for *snatched*, *snatch'd*, &c. But this properly is rather of the nature of a contraction than an irregularity; and is complained of by some of our polite writers as an abuse, to the disadvantage of our language, tending to disfigure it, and turn a tenth part of our smoothest words into clusters of consonants; which is the more intolerable, because our want of vowels has been the general complaint of the best writers.

Another irregularity relates to the preter tense, and passive participle. Thus *grow*, if it were regular, or formed according to the rule, would make *growed*, in the preter tense, and the passive participle; whereas it makes *grew* in the preter tense, and *grown* in the passive participle.

ANOMALY, in *Grammar*, denotes an irregularity in the accidents of a word, whereby it deviates from the common rules of paradigm whereby other words of the like kind are governed.

ANOMALY, in *Astronomy*, is the distance of a planet from the APHELION or APOGEE; or it is an irregularity in the motion of a planet, whereby it deviates from the aphelion or apogee.

Kepler distinguishes three kinds of these *anomalies*; *mean*, *eccentric*, and *true*.

ANOMALY, *mean* or *simple*, in the *Ancient Astronomy*, is the distance of a planet's mean place from the apogee.

In the modern astronomy, it is the time wherein the planet moves from its aphelion A, to the mean place or point of its orbit I. (*Tab. Astronomy, fig.* 1.)

Hence, as the area, or the angle, of the elliptic area ASI, is proportional to the time wherein the planet describes the arch AI; that area may represent the mean *anomaly*. Or thus, the area SKA, found by drawing a line LK, through the planet's place, perpendicular to the line of the aphsides PA, till it cuts the circle DA, and drawing the line SK, may represent the mean *anomaly*; for this area is every where proportional to the former area SIA, as is demonstrated by Dr. Gregory. Phil. Trans. N° 247.

ANOMALY *of the excentre*, or *of the centre*, in the *New Astronomy*, is an arch of the excentric circle AK (*fig.* 2.) included between the aphelium A, and a right line KI, drawn through the centre of the planet I, perpendicularly to the line of the apsides AP. See ECCENTRIC.

In the ancient *Astronomy*, it is an arch of the zodiac, terminated by the line of the apsides, and the line of the mean motion of the centre. See the methods of finding the *anomaly of the excentric*, in Phil. Trans. N° 247.

ANOMALY, *true* or *equated*, is the angle at the sun ASI, which a planet's distance from the aphelium AI, appears under; or it is the angle or area, taken proportional to the time in which the planet moves from the mean place I, to its aphelion A.

And hence, in the sun's motion, it will be the distance of his true place from the apogee.

The true *anomaly* being given, the mean one is easily found; but less difficult to find the true *anomaly* from the mean one given.

The geometrical methods of Wallis and Newton, by the protracted cycloid, are not fit for calculation; nor yet the method of series, as being too laborious. Hence astronomers are forced to have recourse to approximations. Ward, in his Astronomia Geometrica, takes the angle ABI, at the focus where the sun is not, for the mean *anomaly*; which will nearly represent it, if the orbit of the planet be not very excentric: and thus easily solves the problem. But this method does not hold of the orbit of Mars, as being more excentric than those of the other planets.

Sir Isaac Newton shews how to effect even this; and when his correction is made, and the problem solved according to Ward's hypothesis, he thence affirms, that, even in the orbit of Mars, there will scarce ever be an error of above a second.

ANOMOEANS, ANOMOEI, in *Church History*, a sect of Christians who denied any similitude between the essence of the Father and that of the Son. See TRINITY.

The word is composed of the privative a and ομοιος, *similar, resembling*; q. d. *different, dissimilar*.

Anomœans was the name whereby the pure Arians were distinguished in the fourth century, because they not only denied the consubstantiality of the Word, but even asserted, that he was of a nature different from that of the Father; in contradistinction to the Semi-Arians, who indeed denied the consubstantiality of the Word, but who owned, at the same time, that he was like the Father.

ANOMIA, a genus of worms, ranged by Linnæus under the order of *testacea*; including twenty-seven species.

ANOMORHOMBOIDIA, in *Natural History*, the name of a genus of spars.

The word is derived from ανωμαλος, *irregular*, and ρομβος, a *rhomboidal figure*.

The bodies of this genus are pellucid crystalline spars of no determinate regular external form, but always breaking into regularly rhomboidal masses; easily fissile, and composed of plates running both horizontally and perpendicularly through the masses, but cleaving more readily and evenly in an horizontal than in a perpendicular direction; the plates being ever composed of irregular arrangements of rhomboidal concretions.

Of this genus there are five known species, which have all, in some degree, the double refraction of the Iceland crystal.

ANONIS, in *Botany*, See REST-HARROW.

ANONYMOS, See GNEOMON.

ANONYMOUS, something that is nameless, or to which no name is affixed.

It is formed of the privative a, and ονυμα, *name*.

The term is chiefly applied to books which do not express their author's name, and to authors whose names are unknown. Decker, advocate of the imperial chamber at Spires, and Placcius of Hamburgh, have given catalogues of *anonymous* books. Bate, Gotth. Struvius and others of learned men who have endeavoured to investigate the authors of *anonymous* books.

ANONYMOUS, in *Anatomy*, a name sometimes given to parts newly discovered, or first taken notice of.

ANONYMOUS is also an appellation anciently given to the second

second cartilage of the throat, by later writers called *cricoides*, or *annulariformis*.

ANONYMOUS, in *Commerce*. Partnerships in trade in France are styled *anonymous*, when they are not carried on under any particular name, but wherein each of the partners trades visibly on his own account, and in his own name; after which all the partners give one another an account of their profit or loss in trade. These sorts of partnerships are concealed, and known only to the parties themselves.

ANONYMOUS *partnerships in trade*, are also in France such, wherein persons of fortune and quality deposit sums of money, in order to share of the profits and loss. To this end those who furnish the capital have no trouble in carrying on the trade, but do their names appear to be any way interested therein.

ANONYMOUS, in *Law*, the sending *anonymous* letters demanding money, &c. is felony by the Black Act, 9 Geo. I. cap. 22.

ANOREXY, ANOREXIA, in *Medicine*, an inappetency, or loss of appetite.

The word is compounded of the privative *a*, and *orexis*, *appetite*, *I desire*.

Anorexia is properly a longer continuance than is natural without a desire to eat.

If the thought, or the sight, of proper food create a sickness in the stomach, or a tendency to vomit, the case is more properly called a *nausea*.

Anorexia is chiefly considered as a symptom of some other disorder, from which the curative indications are to be taken, and afterwards themselves used.

ANOTTA, in *Botany*. See BIXA.

ANPITS, in the *Saxon Laws*, or some *Middle Age Writers*, denotes a breast-work, answering to what is otherwise called *herlarum*.

ANSÆ, ANSES, in *Astronomy*, those apparently prominent parts of the planet Saturn's ring, discovered in its opening, and appearing like handles to the body of that planet. The Latin word literally signifies *handles*, or *ears*, of divers utensils.

ANSARIUM, in the *Civil Law*, a duty imposed on all provisions carried in vessels with *ansæ*. This was otherwise called *anfarium*, and the collectors of it *anfarii*.

ANSATUM *ferrum*, according to some, denotes a dart or javelin, with an *ansa* fastened to it.

Others rather take the *ansa* of a javelin to be those two eminences about the middle of the *cuspis*, or point, which hinders the weapon from passing through the whole body.

ANSCOTE, in our *Ancient Law-Books*, the same with *ambitus*. See SCOT.

ANSEL *weight*. See AUMEL *Weight*.

ANSELM's *art*. See ART.

ANSER, in *Astronomy*, a small star, of the fifth or sixth magnitude, in the Milky Way, between the Swan and Eagle; first brought into order by Hevelius.

ANSER *Americanus*. See TOUCAN.

ANSERES comprehends one of the six orders of birds in the Linnæan system, distinguished by a smooth beak, covered with a skin, globose at the tale, and enlarged towards the apex; the jaw is denticulated, and the tongue fleshy; the feet are formed for swimming, having three toes connected by a membrane; the legs are thick and shorty the body is bulky, and covered with a thin skin and feathers. This order of birds is analogous to the *bellua*, in the class of *mammalia*. See GOOSE.

ANSES. See ANSÆ.

ANSPESSADES, or LANSPESSADES, a kind of inferior officers in the foot, below the corporals, and yet above the common centinels.

The word is formed of the Italian *lanciè spezzate*, q. d. *broken lances*; which was occasioned hence, that they were originally disbanded *gendarmes*, who, for want of other subsistence, fell for a place of some distinction in the infantry.

There are usually four or five in each company.

ANSWER, in a law-sense, *&c.* See REJOINDER.

ANT, *formica*, a genus of insects belonging to the order of *hymenoptera*, famous in *Natural History*. It is distinguished from the other genera of this order, by having an erect *squama*, or scaly body, placed between the thorax and abdomen. The male and female *ants* have wings, but the neutral have none. The sting of the female and neutral is concealed. There are five species common in England. 1. The hill *ant*, called also the great *hymenopterous*, or horse *ant*. 2. The jet *ant*. 3. The red *ant*. 4. The common yellow *ant*. 5. The small black *ant*. These several species possess, in common, a double jaw, a mouth, a pair of articulated antennæ, or horns, two eyes, and a neck, which connects the head with the breast. They are visibly distinguished with respect to both their colour and size. The hill *ant* take their name from their usual habitations, which are the sunny banks of hills, for the advantage of bringing their young to maturity. They are also fond of the decayed roots of trees, where they may with greater ease form their apartments. These are considerably larger than any of the rest; their head and body are fine brown, and their breast a faint red. The jet and red *ants* are of equal size, and they derive their name from their respective colours. The former usually nest at the bottom of old trees, and the latter under broad stones, and other rubbish. The common yellow and small black *ants* are about half as big as the jet or red *ants*; and most frequently chuse their habitation in those eminences cast up by moles, which, on account of the size they make of them, are called *ant-hills*. Nevertheless, *ants* of different species may take up their residence in any of the situations above mentioned, but they never associate with each other. *Ants* of a particular species never go into any nest but their own; the consequence of an attempt of this kind would be his Bane-death; even when pursued, they will never fly into another hole for shelter, except in the last extremity, and will sometimes rather suffer themselves to be taken. They do not seem to know what hospitality is. Sir Edmund King affures us, that if a red *ant* be put into a black *ant's* bank, war immediately enfues; the black seize their prey, and never leave pinching him on the head with their forceps, or claws, till they have destroyed him; after which they drag the dead body out of the verge of the bank. If a black *ant* be put into a red *ant's* bank, he immediately feels his fafety by flight. Phil. Transf. N° 23. or Abr. vol. ii. p. 189.

Ants of each species form feparate colonies; and they adapt the fituation and ftructure of their cells to the feasons of the year. In winter they dig deep, and in fummer rife nearer to the furface of the ground. Their fubterraneous habitation is divided into a number of different cells of an oval figure, all communicating with one another by circular and fmooth paffages, for the convenience of draining off the water, and furnifhing entries into their different apartments. The hill and jet *ants*, being protected by the trees under which they lodge, are not at the trouble of digging thefe channels for carrying off the water. They take great care in keeping their apartments clean, and remove any of their colony that dies out of their fettlement. Pliny relates, that the *ants* of his country buried their dead; but that circumftance has not been obferved among us.

Each colony is ufually compofed of a large female, which Mr. Gould, for diftinction fake, calls the queen, and various companies of workers. Befide thefe, they are joined by a number of winged *ants*, which are commonly known by the name of *ant-flies*. The common *ants* are of neither fex, but feem entirely deftined to take care of the young which are committed by the queen to their protection. The queen is the mother of the whole brood, and is diftinguifhed from them by her fuperior fize and particular colour, as well as by the refpect that is fhewn her by her fubjects. The colour of the queen is different in the feveral colonies. Her head is furnifhed like thofe of the common *ants*. She has likewife three bald fpecks on her front, placed in a triangular form, which ferve to her eyes of the fame ftructure with thofe of the fpider. The queen of the red colony is provided with a fting, in which fhe differs from thofe of the other fpecies. The queen, as foon as fhe has depofited a parcel of her eggs, leaves them to the affection and care of the workers, and withdraws to a feparate apartment. Two or three yellow queens have been fometimes found in the fame colony; and in the red colony there are feldom fewer than two; and in this refpect they differ from the hill and fmall black *ant*, which have only one.

Mr. Gould made a great number of experiments and obfervations in order to evince this fact, that the queen alone fupplies every particular colony with its inhabitants; and he adds, that the firft three different forts of eggs, the male, female, and neuter. The two firft are depofited in the fpring, and the laft in July and Auguft. When the queen has furnifhed an apartment with eggs, the common *ants* difcover the greateft tendernefs and care in breeding over them, and preferving them from moifture. After the eggs have continued for fome time in this ftate, cherifhed and protected by the workers, they begin to lofe their tranfparency; they are covered over with a number of fmall hairs; they are extended with feveral rings, and appear in the fhape of vermicles, or little worms. In procefs of time a black fpeck is obfervable in them, which Mr. Lewenhoeck, and Mr. Gould, take to be their digefted food. Thefe *ant-vermicles* grow very ſlowly in the firſt ſummer; and in the fucceeding winter they ſeem not to increaſe at all: but from April to June in the ſecond year they grow very faſt,

fall, and are prepared for another change into the nymph, or aurelia state. They are previously transferred by the workers to a proper situation near the surface of the colony, where they weave in the manner of silk-worms, and infold themselves in a kind of silken tissue; and in this state they are vulgarly denominated *ant-eggs*. The process from this state to that of *ants* is gradual and slow, and not usually completed in less than a month. But the manner of their transformation cannot be accurately observed, because they will not arrive, like most other aurelias, to maturity under glasses. The female sorelles are generally the first which transform, and are those that make their appearance in the shape of large flies. These give birth to new colonies, and intitle themselves to the dignity of queens. The male, or small *ant-flies*, appear next, and early enough to be contemporary with the others. Last of all, the neutral aurelia change into common *ants*, or workers, without wings, but not till moult, or all the flies, have forsook the settlement. The male *ants* are furnished with two or more small hooks near their extremities, like those of other insects of the fly-kind, which are the external parts of generation, whereby they fasten to the females; they have likewise a triangle of eyes in the same position with those of the large flies. These *ant-flies*, both large and small, are of very short duration; they seldom continue above three weeks. Those of the female kind, which are not necessary for the propagation of new colonies, together with the male, are destroyed either by a worm, which is generated in their bodies, or by furnishing a repast for other creatures.

The labouring *ants* are incessantly employed by night as well as by day, in preparing and carrying materials for their respective cells. The house *ants* make their nests of large quantities of sticks, straws, and fragments of leaves, which they place together in heaps, for the convenience of suddenly sheltering themselves on the approach of an enemy, as well as for promoting the maturity of the young nymphs. The common *ants* build only with small pieces of dry earth, which, after it is cut by their double saw, they intrull with blades of grass, and form into conical mounts about half a foot high, for the purpose of favouring the growth of the vermicles, and the transformation of the nymphs. Another part of the employment of the labouring *ants* respects the young; in every stage of their progression from eggs to perfect *ants*, the workers remove them every day into different parts of the colony, in the morning they transfer them to cells nearer the surface, for the benefit of the sun's influence, and in the evening to such as are more remote and guarded. They are likewise employed in collecting the juices of various fruits and insects for the nutriment of the vermicles; which they convey full into their own alvus, and then into the bodies of the vermicles, or maggots. Another part of their employment is that of dismantling the nymphs at the time of their transformation.

It has been mentioned by many naturalists, ancient and modern, from the time of Solomon to our own, that *ants* provide for winter; that accordingly they lay up magazines or granaries of corn, and other provisions; and that to prevent the sprouting of corn, they cut off all the buds before they lay it up; and in order to preserve it from rotting, it has been said, that they bring it out of their hoards in the middle of the day, and spread it on dry earth at the entrance of their nests, for the benefit of the air and sun. But this theory has been contradicted by later experiments and observations. Leewenhoeck is of opinion, that they do not eat at all in the winter, but spend that season like dormice, and many other sorts of animals, in a state of sleep; and that the provision they collect together seems intended for present use; and not so much for themselves as for their young. Mr. Gould confirms this opinion by a great variety of observations. He never could discover any reservoirs of corn, or of other aliment; and for farther satisfaction, he placed in several flower-pots, and other convenient receptacles, different colonies of yellow, small black, red, and hill *ants*, with their respective queens, attendants, and vermicles. They continued in this situation through the whole summer, autumn, and winter; they carried on the operations as in other settlements; formed their apartments, nourished their young, and brought them to perfection. Had it been their usual custom, he presumes that they should have laid up their provisions; but upon gradually removing the earth, and searching the lodgments, there was no appearance of magazines, corn, or any sort of collected food; and he concludes from a number of trials, that English *ants* have no storehouse for their corn, nor require any other food in the winter than water. In excess of cold, he says, they are half benumbed; and at other times they are contented to regale themselves with the common moisture of the earth. However, he intimates, that the customs of foreign *ants* may, in this and various instances, deviate from ours: though the contrary opinion has never been clearly and demonstratively ascertained.

In 1749, M. Carre published a Dissertation on the Policy of *Ants*, the result of above thirty years observation; in which he concurs with Mr. Gould in rejecting the whole theory of their forecast and storehouses as fabulous; and M. Soriniere likewise, after having paid particular attention to the oeconomy of *ants* for twenty years, adopts the same opinion.

It has been a vulgar notion, that *ants* bite; but they have not strength enough in their jaws and teeth to penetrate the cuticula. However the red *ants* have a sting in the posterior part of their bodies, which they thrust out, and plunge into any thing that offends them, by a kind of vibratory motion, which injects an acrid, corrosive sort of liquor, that occasions a smart but momentary pain, and raises an inflammation. The other *ants* have no sting.

Ants furnish sustenance for many species of animals; and particularly for young pheasants and partridges; if the latter be bred under a hen, and supplied with *ant*-hills and fresh water, and at proper intervals a mixture of millepedes and ear-wigs, they will not fail to come to maturity. *Ants* also supply a resin, an oil, and an acid, which have been deemed of considerable service in the art of physic.

These small animals are very injurious to gardens and pasture lands; as well by feeding on the fruit as by making hills for their habitation. In the hotter countries, as Italy, Spain, and the West Indies, *ants* are the great pest of the fields and plantations; and no method has yet been discovered for effectually destroying them. Trees may be preserved from them by incompassing the stem for four fingers breadth, with a roll of wool, newly pulled from the sheep's belly; or by laying saw-dust all around the stump of in. Some smear the tree with tar, which has the same effect, but then tar is prejudicial to the tree. In Dr. Hawkesworth's Account of the Voyages for making Discoveries in the Southern Hemisphere, mention is frequently made of black, white, and green *ants*; their stings were sharper than those of the common biting *ant*. The white *ants* resembled those of the East Indies, which are the most pernicious of all animals; and their nests were of a pyramidal form, from a few inches to six feet high. See TERMES. Professor Kalm, in his North-American Travels, speaks of a small *ant* in Pensylvania, whose length is one geometrical line, and colour either black, or dark-red. These live in swarms under ground, and in walls: and as Mr. Franklin apprehends, have a peculiar method of communicating their thoughts and desires to one another. Neumann observes, that *ants* may be made use of for obtaining skeletons of small animals, such as mice, frogs, &c. exquisitely beautiful and perfect; far surpassing any thing that can be executed by artificial anatomy. The subject is for this purpose to be inclosed in a wooden box, and properly distended, to prevent the parts from collapsing, or being crushed together by the earth. The box is to be penetrated with a number of holes, through which the *ants* will presently find their way.

See more on this subject in Swammerdam's Bib. Nat. vol. i. Ray's Hist. of Insects, p. 70. Bibl. Univ. t. ix. Melange's D'Hist. Nat. t. i. Gould's Account of English *Ants*, 12mo. 1747, *passim*.

ANT-*bear*. See ANT-*eaters*.

ANT-*eater*, *Myrmecophaga*, the name given by Linnæus to the creature called by others, the *tamandua-guira*, or ant-bear.

The name is derived from the Greek μυρμηξ, an *ant*, and φαγω, *to eat*. The creature is so called, because his food is *ants*, which he eats by thrusting his long tongue into nests, and drawing it back into his mouth, when covered with them.

This, in the Linnæan system of Zoology, is a distinct genus of animals, the characters of which are, that they have no teeth; have feet formed, not for climbing, but walking, and have eight abdominal paps, six on the belly, and two on the breast.

There are two species, one of them covered with hair, the other with scales. The first is called by Linnæus *myrmecophaga*, and the other *manis*; of this latter species there are two sorts; the first, having five toes on both hind and fore feet, is called *manis pentadactyla*; the other with four toes, is called *manis tetradactyla*.

ANT-*eggs* is a name popularly given to a kind of little white balls, found in the banks or nests of *ants*, ordinarily supposed to be the ova of this insect.

Sir Ed. King opened several of those vulgarly reputed eggs, in some of which he found only a maggot in the circumstances as above described; while in another the maggot had begun to put on the shape of an *ant* about

the head, having two little yellow specks, where the eyes were to be. And in others, a farther progress was observed, the included maggot being furnished with every thing to complete the shape of an *ant*, but wholly transparent, the eyes only excepted, which were as black as bugles. Lastly, in others, he took out every way perfect and complete ants, which immediately crept about among the rest.

The true *antcreps* are the white substance which upon opening their hillocks appears to the eye like the scatterings of fine white sugar, or salt, but very soft, and tender. Examined by a microscope, it is found to consist of several pure white appearances in distinct membranes, all figured like the lesser sort of bird eggs, and as clear as a fish's bladder.

The same substance is found in the bodies of the ants themselves.—This spawn, when emitted, they lie in multitudes on, to brood; till in some time it is turned into little vermicles, as small as mites, commonly called *ant-eggs*.

ANT-*hills* are little hillocks of earth, which the *ants* throw up for their habitation and the breeding of their young. They are a very great mischief to dry pastures, not only by wasting so much land as they cover, but by hindering the scythe in mowing the grass, and yielding a poor hungry food, pernicious to cattle.

The manner of destroying them is to cut them into four parts from the top, and then dig into them so deep as to take out the nest below, so deep that when the turf is laid down again it may lie somewhat lower than the level of the rest of the land; by this means it will be wetter than the rest of the land; and this will prevent the *ants* from returning to the same place, which otherwise they would certainly do. The earth that is taken out must be scattered to as great a distance every way as may be, otherwise they will collect it together, and make another hill just by. Some collect the hills together in heaps, and burn them for manure.

The proper time for doing this is winter: and if the places be left open, the frost and rains of that time of the year will destroy the nest; but in this case care must be taken, that they are covered up early enough in the spring, otherwise they will be less fertile in grass than the other places. Human dung has been found a more effectual remedy than any other.

Ants are likewise destroyed by scattering a good quantity of unslacked lime about their hills. Some make use of quicksilver, as a general poison to insects.

ANT-*lion*. See FORMICA-*leo*.

ANT, *mash*, the name given, by Linné and Ray, to a particular species of *ant*, which is of the number of the perfumed insects. It is found on dry banks, and is so much smaller than the common *ant*, that it needs no other distinction. Those of this species which are without wings are of a yellowish colour, and when bruised or crushed emit a sharp and acid smell, as the common *ant* does; but those which have wings are coal-black, and these, instead of the sour smell of the others, emit a perfume not to be endured for its strength. The smell of all the perfumed insects goes off in burning; and these little creatures, after they have been dead one day some time, are found to smell less strongly, but much more agreeably. Phil. Trans. N° 77. or Abr. vol. ii. p. 792.

ANT, *wolving*. At Paramaribo, a Dutch colony in the province of Surinam, there are *ants*, which the Portuguese call *visiting-ants*; they march in troops; and as they appear, all the cupboards and chests of drawers we have open, which they clear of rats, mice, and a peculiar sort of insect in that country called *cacarelas*, and of other noxious animals. If any one chance to molest them, they fall upon him, and tear in pieces his stockings and shoes. These visits are rare: and they do not sometimes appear for three years. Tempelman's Obs. vol. i. p. 30.

ANTA, in the *Ancient Architecture*, a square column, or pilaster, placed at the corners of the walls of temples, and other edifices.

These took their name, according to M. Perrault, from the preposition *ante*, *before*; because placed before the walls and coins of buildings, to secure or strengthen them.

The *ante* stood out of the wall, with a projecture equal to one eighth of their face, provided there were no ornament that had a greater projecture; but it was a rule, that the projecture of the *ante* should always equal that of the cornishment.

There are also *ante* at doors and gates. Pedius confines these use to this last place.

Vitruvius calls those that have but two faces out of the wall angular *ante*, to distinguish them from others which have three faces discouged, and which are placed at the ends of the walls of porticos.

ANTÆ. See ANTIQUÆ.

ANTÆUS, in *Mythology*, a name first given by the Greek writers Ælian and Strabo to the *ichthyocolla piscis*, the fish-glass-fish, or HUSO: and afterwards, by Jonston and others, not only to this fish, but to the common STURGEON.

ANTACHATES is used by some naturalists, for a kind of bituminous stone, of the nature of amber, though of a different colour, which in burning yields a smell like myrrh.

ANTACIDS, is used by some writers to denote medicines proper to quality and resist acid humours.

Antacids are chiefly of the absorbent kind.

Under the class of *antacids* come, 1. *Absorbents*, as chalk, coral, *testa*-shells, hammites and fossil-stones. 2. *Obtunders*, as oils, and fats. 3. *Innutants*, as nitrous salts and soaps.

ANTAGONIST, ANTAGONISTA, among the *Ancients*, denotes an adversary in battle.

The word is formed from ἀντι, *contra*, *against*; and ἀγωνιζομαι, *I contend*.

In this sense the word is rather used in speaking of sportive combats, or games, than of serious fighting.

ANTAGONIST also denotes one of the parties in literary disputes.

ANTAGONIST *muscles*, in *Anatomy*, are those which have opposite functions.

Such are the *flexor* and *extensor* of any limb, the one of which contracts it, and the other stretches it out.

Solitary muscles are those without any *antagonists*, as the heart, &c.

ANTALGIC, from ἀντι, and ἀλγος, *pain*, an epithet given by some writers to medicines proper to abate pain.

In this sense *anodyne*, *antalgic*, *antalgia*, amount to the same with EMPHYTI.

ANTALIUM, in *Natural History*, a small sea-shell of a tubular form, whence it is also denominated TUBULUS *marinus*.

The *antalium*, otherwise written *entalis*, and *entalus*, is about an inch and half long; the thickness of a large quill at one end, and of a small one at the other; fluted from end to end, of a white or greenish-white colour, and is found on rocks, and at the bottom of the sea. Du-Cange.

It is an *alkali*, and said to be of some medicinal use as a resolvent and diuret, at least by the ancients.

The *antalium* bears a near affinity both in origin, structure, and use, with the DENTALIUM.

ANTANACLASIS, a figure in *Rhetoric*; whereby the same word is repeated but in a different, and sometimes double signification.—As, *Let the dead bury the dead.*

The word comes from ἀντι, *rursus*, and ἀνακλασις *repercussio*, *I strike again*.

ANTANAGOGE, from ἀντι, and ἀναγωγη, *retortion*, a figure in *Rhetoric*; when, not being able to answer the accusation of the adversary, we return the charge, by loading him with the same or other crimes: which is usually called RECRIMINATION.

ANTANISOPHYLLUM, in *Botany*. See HOG-WEED.

ANTAPHRODISIAC, from ἀντι, and ἀφροδισια, *Venus*, an epithet given to medicines, which diminish the lewd, and extinguish the stimula or incitements to venery.

ANTAPOCHA, in the *Civil Law*, denotes one's acknowledgment in writing of money paid, in the way of rent, pension, interest, and the like incumbrances. Such instrument or *antapocha*, the debtor gives upon making payment to the creditor, to serve as a proof of the charge or incumbrance for futurity, and exclude any claim of prescription against the payment of it. The *antapocha* differs from the *apocha*, in that this latter is given by the creditor to the debtor, the former *vice versâ*.

ANTARCTIC *pole*, denotes the southern POLE, or end of the earth's axis.

The word is compounded of ἀντι, *contra*; and αρκτος, *ursa*, *bear*; as being opposite to the arctic pole.

The stars near the *antarctic* pole never appear above our horizon.

ANTARCTIC *circle* is one of the lesser circles of the sphere, parallel to the equator, at the distance of 23 deg. 30 min. from the south pole.

It takes its name from its being opposite to another circle, parallel likewise to the equator, and at the same distance from the north pole, called the ARCTIC *circle*.

ANTARES, in *Astronomy*, the scorpion's heart; a fixed star of the first magnitude, in the constellation SCORPIO.

ANTASTROPHE, from ἀντι, and στρεφω, *I turn*, in *Rhetoric*, a species of ANTAPODOSIS.

ANTEAMBULONES, from ante, *before*, and ambulo, *I walk*, in *Antiquity*, a kind of state-servants, who walked before their masters to clear the way, and keep off the crowd.

The *formula* used by these was *Date locum domino meo*.

ANTECANIS is used by some *Astronomers*, to denote the constellation otherwise called CANIS *minor*, or the star PROCYON. It is thus denominated as preceding, or be-

ing the forerunner of the CANIS *major*, and rising a little before it.

ANTECEDENT, in the schools, something that precedes, or goes before, another, in respect of time.

The word is compounded of *ante*, *before*, and *cedere*, *to go*. In which sense it stands opposed to *subsequent*.

ANTECEDENT, in *Grammar*, the word which a relative refers to.

ANTECEDENT, in *Logic*, denotes the first proposition of an *enthymeme*, or of an argument which only consists of two members.

In opposition to this, the latter is called the *consequens*.

Thus, in the argument, *cogito, ergo sum, I think, and therefore I exist*; *cogito* is the *antecedent*: being thus called because it precedes the *ergo*, or the *copula* of the argument.

ANTECEDENT *of a* RATIO, in *Mathematics*, denotes the first TERM, or that which is compared with the other.

Thus, if the *ratio* be *a* : *b*, or of *a* to *b*; *a* is said to be the *antecedent*.

ANTECEDENT *signs*, in *Medicine*, are such symptoms of disorder as appear before a distemper is so formed as to be reducible to any particular class, or proper denomination.

ANTECEDENTS, in *Rhetoric*, are such things as being once allowed, others necessarily or very probably follow. This is one of the fifteen topics or common places enumerated by Cicero and Quintilian.

ANTECEDENT *decree*, in *Theology*, is a decree preceding some other decree or some action of the Creator, or the provision of action. It is a point much controverted, whether predestination be a decree *antecedent* to faith, or subsequent to it.

ANTECEDENT *will*, or *desire*, is that which precedes some other will or desire, or some knowledge or prevision. Thus some divines say, God by a sincere, but *antecedent* desire, wills all men to be saved; that is, this sincere desire of God precedes, and does not suppose, the knowledge of their faith and repentance.

ANTECEDENT *necessity*. See NECESSITY.

ANTECENCY, ANTECEDENCE. See ANTECEDENT, and ANTECEDENTIA.

ANTECEDENTIA, among *Astronomers*. When a planet appears to move westward, contrary to the order of the signs; as from Taurus towards Aries; *it is* said to move *in antecedentia*.

On the contrary, when it goes eastward, or forward, from Aries towards Taurus; *it* is said to move *in consequentia*.

ANTECESSOR, one that goes before, or that leads another. See PRECURSOR, PREDECESSOR, &c.

The term is particularly used in some universities for a public professor, who teaches or lectures the civil law.

ANTECESSORS, in the ancient art of *War*, is an appellation given to a party of horse, dispatched before the *agmen* or body of an army, partly by way of intelligence, and partly to choose out a proper place for encamping on, as well as the most convenient roads for the soldiery to travel in.

These are also denominated *antecursores*.

They amount to the same with what the Greeks call *prodromi*.

ANTECHAMBER, or ANTICHAMBER, an outer chamber, before the principal chamber of an apartment; where the servants wait, and where strangers stay, till the person to be spoken with is at leisure, &c.

The word is formed of *ante*, *before*, and *camera*, a CHAMBER.

ANTECHRIST. See ANTICHRIST.

ANTECURSORES. See ANTECESSORS.

ANTEDATE, in *business affairs*, prior to the true date of a writing, instrument, act, deed, or the like.

Antedates, in *Commerce*, are of very dangerous consequence in matters of trade. To *antedate* is to set down a false date; to date from a day prior to that on which the business is transacted, the note or bill drawn, or letters written, &c.

In France it was formerly the ill custom to have blank orders on the backs of bills of exchange, that is, to indorse them merely with a name, so that they could easily be antedated; which in case of failures was liable to cause very great abuses. But by the regulations for commerce of 1673, it is ordered that the signatures on the backs of bills of exchange shall not serve for orders, unless dated: and *antedates* are punished as forgery.

ANTEDILUVIAN, or ANTIDILUVIAN, something that existed or happened before the DELUGE.

In this sense, those generations from Adam till Noah's flood, are called *Antediluvians*; and those since descended from Noah to the present time, are called *Postdiluvians*.

Dr. Burnet and Dr. Woodward differ very widely about the *Antediluvian* world; the former imagines its face and appearance to have been smooth, equable, and in all respects different from what we now find it to be. The latter, on the contrary, endeavours to prove, that the face of the terraqueous globe before the deluge was the same as it is now, viz. unequal, distinguished into mountains, and dales, and having likewise seas, lakes, and rivers; that the sea was salt, as ours is; was subject to tides; and possessed nearly the same space and extent that it now does; and that the *Antediluvian* world was stocked with animals, vegetables, minerals, &c. that it had the same position, in respect of the sun, which now now has, its axis not being perpendicular, but inclined, as at present, to the plane of the ecliptic; consequently, that there were then the same succession of weather, and the same vicissitudes of seasons as now.

ANTEJURAMENTUM, from *ante*, *before*, and *juramentum*, *oath*, or PRÆJURAMENTUM, by our ancestors also called *juramentum communia*; an oath which both the accuser and accused were anciently obliged to make before any trial or purgation.

The accuser was to swear, that he would prosecute the criminal; and the accused was to make oath on the very day that he was to undergo the ordeal, &c. that he was innocent of the fact with which he was charged.

If the accuser failed, the criminal was discharged; if the accused, he was understood to be guilty, and was not to be admitted to purge himself by the ordeal.

ANTEJUSTINIANEAN, an appellation sometimes given to the ancient Roman law, as it stood before the time of the emperor Justinian.

Tribonian has been often condemned for perverting the writings of the *Antejustinianean* lawyers. Schulting, a celebrated professor at Leyden, has a dissertation on the equity of this censure. Fabricius gives a catalogue of the ancient *Antejustinianean* lawyers. Schulting has published a collection of the *Antejustinianean* writers.

ANTELIUS, or ANTHELIUS, in *Ancient Writers*, denotes an idol placed over the doors of houses, supposed to have the guardianship or protection of them.

The word is originally *anthelios*, q. d. *against the sun*, as being exposed thereto.

ANTELOPE, *gazella*, in *Zoology*, the name of an animal of the goat kind, of which there are three known species.

1. The *gazella Africana præstantior Bibiæ*. This is the species we usually see under the name of the *antelope*; it is called the *addax* in Africa, and in the *decas leptica* of Ælian. Its horns are slender and erect, black, transversely radiated, and twisted into the appearance of spiral lines; though these are in reality so many annular circles, they are toward the middle bent a little outwards, and thence they turn in again, so that they in some measure represent the ancient lyre.

2. The *gazella Indica*, or *Indian antelope*, with very long straight horns, which are annulated only in that part near the head. The horns of this creature are sometimes three feet long, and are perfectly smooth and glossy, except near the head, and black. The creature is the size of our common deer, and is of a greyish colour; its tail is a foot long, and has longer hairs on it than those on the rest of the body. The horns of this species are very common in the museums of the curious. This creature seems to be the animal which produces the bezoar stone so much valued in medicine.

3. The African kind, which has flat horns annulated to the very top, and crooked near the middle; these has been seen alive sometimes in England. It was much smaller than our deer, and of a sandy colour; its belly is white, and its sides where the white and sandy colour met, of a dusky appearance. Its tail is blacker and longer than that of the deer, is covered with a smaller number of hairs than those of our deer, and is white on their part next the body. Its horns grow out of the middle of the forehead near the eyes, and are very long; sharpening at the ends, and all the way marked with *semicircular ridges* or furrows, and a little bent upwards. Its ears are large, and its legs very slender.

The hoofs and horns are used in medicine, being esteemed good against the epilepsy and hysterics.

ANTELUCAN, from *ante*, and *lux*, *light*, in *Ecclesiastical Writers*, is applied to things done in the night or before day.

We find frequent mention of the *antelucan* assemblies, *cœtus antelucani*, of the ancient Christians in times of persecution for religious worship.

ANTELUDIA, from *ante*, and *ludus*, *game*, in *Antiquity*, a day of show or parade preceding the exercises, wherein the preparations made for those solemnities were exposed in great form and pomp.

ANTEMURALE, from *ante*, and *murus*, *wall*, in *Middle Age Writers*, denotes a kind of outer wall environing the other walls and works of a place, and preventing the too near access of the enemy to them.

This is also called by Isidore, *aremurale*, as being *pro munitione muri*, *for the defence of the wall*.

In some writers we find it denominated *antepectoralis mus*, in others *anconæus*.

ANTEMURALE is also used to denote any work without side the rampart or wall of the place.

In this sense, *antemurale* amounts to the same with what we otherwise call OUTWORK.

ANTEMURALE is also used in *Ecclesiastical Writers* for the vestibule or entrance of the *presbyterium*, or BEMA.

ANTENATUS is used in some *Latin Writers* for the first-born, or eldest son, answering to what we call *aisné*.

ANTENATUS, from *ante* and *natus*, *born*, is also sometimes used for a son, the issue of a former marriage.

In which sense, *antenatus* amounts to the same with *privignus*.

ANTENATI, in the modern *English History*, is chiefly understood of the subjects of Scotland, born before king James the First's accession to the English crown, and alive after it.

In relation to these, those who were born after the accession were denominated POSTNATI.

The *antenati* were considered as aliens in England, whereas the *postnati* claimed the privilege of natural subjects.

ANTENCLEMA, *ἀντεγκλημα*, in *Oratory*, is where the whole defence of the person accused turns on criminating the accuser.

Such is the defence of Oreſtes, or the oration for Milo, *Oreſtes ſic ſed iratus. Expellus ſed rapter.* See RECRIMINATION.

ANTENICENE, in *Eccleſiaſtical Writers*, denotes a thing or perſon prior to the firſt council of Nice.

We ſay the *Antenicene* faith, *Antenicene* creeds, *Antenicene* fathers.

ANTENNÆ, in *Natural Hiſtory*. See FEELERS.

ANTENUPTIAL, ſomething that precedes marriage.

In this ſenſe, we ſay *antenuptial* promiſes, *antenuptial* preſents, *antenuptial* covenants, *antenuptial* fornication, &c.

Noodt has a treatiſe *De Pactis Antenuptialibus*.

ANTEPAGMENTA, or ANTEPAGMENTUM, in the *Ancient Architecture*, the jambs of a door, or lintels of a windows

The word is alſo uſed for the entire *chambranle*, i. e. the *door-caſe*, or *window-frame*.

ANTEPENULTIMA, or ANTEPENULTIMATE, in *Grammar*, the third ſyllable of a word, reckoning from the latter end; or the laſt ſyllable except two.

The word is compounded of the propoſition *ante*, *before*; and *penultimate*, *laſt but one*, or *pene ultimam*.

It was upon this ſyllable, that the Greeks placed their acute accents, and alſo on the laſt and laſt but one; but they never placed the accent before the *antepenultima*.—The *antepenultimate* of a dactyle is always long.

ANTEPILANI, among the ancient Romans, denote the *haſtati*, or *principes* of a legion.

They are ſuppoſed to have been thus called becauſe ranged before the *triarii*, who were alſo called *pilani*.

Some will have the word to be a corruption for *ante ſignani*.

ANTEPILEPTIC, in *Medicine*, denotes a quality in bodies, whereby they reſiſt or oppoſe the epilepſy and convulſive motions.

The chief *antepileptics* from the vegetable kingdom are, the roots of peony, valerian, the flowers of the lime tree, muſtetoe of the oak, hazel, and lime.

The animal kingdom affords a great number of *antepileptics* either real or imaginary. Such are elks claws, caſtoreum, divers parts of the deer, ſwallow-hearts, the human *cranium*, blood, ſecundines, &c. the *hippomanes*, ſtarch, frogs and moles liver and *ſpina*, lions and peacocks dung, earth-worms, &c.

The mineral kingdom affords hyacinths and ſmaragds prepared, alſo tinctura of lunæ.

ANTEPOSITION, from *ante* and *pono*, *I place*, a grammatical figure, whereby a word which by the ordinary rules of ſyntax ought to follow another, comes before it. As when in Latin the adjective is put before the ſubſtantive, the verb before the nominative caſe, &c.

Antepoſition ſtands oppoſed to *poſtpoſition*. One caſe or ſpecies of this figure is called by a particular name, *anaſtrophe*.

ANTEPRÆDICAMENTS, ANTEPRÆDICAMENTA, in *Logic*, certain previous matters, requiſite to a more eaſy and clear apprehenſion of the doctrine of PREDICAMENTS or CATEGORIES.

Such are definitions of common terms; as equivocals, univocals, &c. See DEFINITION, DIVISION, &c.

They are alſo called, becauſe treated by Ariſtotle, before the predicaments; that the thread of the diſcourſe might not elſewhere be interrupted.

ANTERIDES, in the *Ancient Architecture*, denote buttreſſes erected to ſupport a wall.

Theſe are ſometimes called *antæ*, ſometimes *criſpidæ*, and by the Greeks *ἀντερεισεις*.

Anteridæ anſwer to what the modern builders call *counterforti*, *arcboutants*; the Italians *barbicani*, and *ſproni*, or ſpurs.

ANTERIOR, or ANTERIOUR, ſomething before another, chiefly in reſpect of place.

The word is formed of the propoſition *ante*, *before*.

In which ſenſe the term amounts to the ſame with *prior*, and ſtands oppoſed to *poſterior*.

ANTERIOR *Romæ*. See RAMUS.

ANTEROS, in *Mythology*, one of the two Cupids who were the chief of the number. They are placed at the foot of the Venus de Medici; this is repreſented with a heavy ſullen look, agreeably to the poetical deſcription of him, as the cauſe of Jove's ceaſing. The other was called *Eros*. Ovid. Rem. Amor. V. verſe 549 to 576.

ANTEROTES, a name given by ſome of the ancient writers on gems to a ſpecies of the amethyſt. Some have imagined they meant by it a ſort of opal; but Pliny expreſly contradicts this, making the *anteretes* the fifth kind of AMETHYST in value.

ANTES, in *Architecture*, ſee ANTA.

ANTESIGNANI, in the Roman armies, a kind of ſoldiery poſted before the eagles, and other enſigns of the legions, whence their appellation.

The *antiſignani* ſtand contradiſtinguiſhed from the *ſubſignani*, who were ranged in the ſame line with the enſigns; and from the *poſtſignani*, who were placed behind them.

ANTESTATURE, in *Fortification*, a ſmall retrenchment, made of palliſadoes, or ſacks of earth, ſet up in haſte, to diſpute with the enemy the remainder of a piece of ground, part whereof hath been already gained.

ANTHALUM, among the *Ancients*, a root growing in dry places, and about the bignels of the fruit of the medlar; it was dug up for food, and eſteemed very pleaſant and wholſome.

ANTHELION, from *ἀντι* and *ἡλιος*, *ſun*, in *Phyſics*, ſignifies a mock or ſpurious ſun, and denotes a meteor, but very common, of a luminous appearance, ſomewhat reſembling the ſun, ſeen through clouds, bigger, ſometimes four or five times, than the ſolar diſk. In its moſt reſulgent ſtate, it is as yellow as the ſun; but the lucid tract ſurrounding it is of a paler yellow, or whitiſh caſt, interſperſed ſometimes with a few reddiſh or ſubfuſcous ſpots. The moſt received opinion relative to the formation of this kind of meteor, attributes the *phenomenon* to a multitude of minute icy or ſnowy particles ſuſpended in the air, and either refracting or reflecting the ſolar rays in ſuch a manner, as to multiply the image of the ſun. But the theory of *anthelia*, for want of a proper number of obſervations, ſeems not yet to be brought to ſuch a degree of ſatisfaction as by every lover of phyſiology could be deſired. The inſtances of them are but rare. See Phil. Tranſ. vol. lii. part i. N° 16. an. 1761. See HALO and PARHELION.

ANTHELIX, in *Anatomy*, the inner circuit of the auricle; thus called from its oppoſition to the outer circuit, called the HELIX.

ANTHELMIA, Indian PINK.

ANTHELMINTICS, medicines good to deſtroy worms.

The word is compounded of *ἀντι*, *contra*, *againſt*, and *ἑλμινς*, *worms*.

Purgatives ſeem to be the only proper *anthelmintics*.

ANTHEM, from *ἀντι* and *ὑμνος*, a *hymn*, a church-ſong, performed in cathedral and other ſervice, by the choriſters, divided for that purpoſe into choruſes, who ſing alternately. The word was originally uſed both for pſalms and hymns, when thus performed.

Socrates reporteth St. Ignatius as the author of this way of ſinging among the Greeks; and St. Ambroſe among the Latins.—Theodoret attributes it to Diodorus and Flavian.

Amalarius Fortunatus has written expreſly of the order of *Anthems*, "*De antiphonarum ordine.*"

At preſent the term is uſed in a ſomewhat narrower ſenſe; being applied to certain paſſages taken out of the pſalms, &c. and often accommodated to the particular ſolemnity in hand.

Anthems were firſt introduced into the reformed ſervice of the Engliſh church in the beginning of the reign of queen Elizabeth.

ANTHEMIS, ſee CHAMOMILE.

ANTHERÆ, in *Botany*, a term uſed by ſome authors for the yellow, or ruddy globules in the middle of certain flowers, as of lilies, ſaffron, &c.

Some confine the *anthera* to the yellowiſh globules in the middle of roſes.—Theſe are held more aſtringent than the reſt of the plant.

Others apply the name ANTHERÆ to thoſe little tufts or knobs which grow on the tops of the *ſtamina* of all other flowers; more uſually called APICES.

The *anthera* or apex of the ſtamen, in the Linnæan ſyſtem, is a principal part of the male organ of generation in plants, and contains within it a fine powder called *pollen* or *farina fecundans*, deſtined for the impregnation

of

of the *germen*, and which, when come to maturity, it discharges.

ANTHERICUM, in *Botany*. See SPIDERWORT.

ANTHESPHORIA, in *Antiquity*, a feaſt celebrated in Sicily, in honour of Proſerpine.

The word is derived from ἄνθος, *flower*, and φέρω, *I carry*; in relation to Pluto's having forced away that goddeſs, when ſhe was gathering flowers in the fields. Yet Feſtus does not aſcribe the feaſt to Proſerpine; but ſays it was thus called, becauſe cars of corn were carried on this day to the temples.

Anthesphoria ſeems to be the ſame thing with the *floriferium* of the Latins; and anſwers to the *harvest-home* among us.

ANTHESTERIA, in *Antiquity*, was a feaſt celebrated by the Athenians, in honour of Bacchus.

The moſt natural derivation of the word is from ἄνθος, *flos*, a *flower*; it being the cuſtom of this feaſt to adorn garlands of flowers to Bacchus.

Some are of opinion it took its name from the month *Anthesterion*, in which it was celebrated. Others pretend, that this was not the name of any particular feaſt, but that all the feaſts of Bacchus were called *anthesteria*.

The *anthesteria* laſted three days, the eleventh, twelfth and thirteenth days of the month: each of which day had a name ſuited to the proper office of the day. The firſt day of the feaſt was called πίθοιγια, i. e. opening the veſſels, becauſe on this day they tapped the veſſels, and taſted the wine. The ſecond they called χόες, *cœs*, the name of a meaſure, containing the weight of about ten pounds: on this day they drank the wine prepared the day before. The third day they called χύτροι, *kettles*: on this day they boiled all ſorts of pulſe in kettles; which, however, they were not allowed to taſte, as being all to be offered to Mercury.

ANTHESTERION, in *Ancient Chronology*, the ſixth month of the Athenian year. It contained twenty-nine days, and anſwered to the latter part of our November and beginning of December. The Macedonians called it *Dæſius* or *Dyſius*.

It had its name from the feſtival ANTHESTERIA kept in it.

ANTHIA, in *Ichthyology*, a name by which ſome improperly call the *faba Veneturum*, or fickle fiſh, a long anguilliform fiſh of the TAENIA kind.

ANTHIAS, in *Ichthyology*, the name of a fiſh ſeeming to approach to the TURDUS or wraſſe kind, of which Rondeletius and ſome other authors have deſcribed four ſpecies. Linnæus makes it a ſpecies of the LABRUS. See SACER.

ANTHINE, among *Ancient Naturaliſts*, is an appellation given to certain ſpecies of wine and oil.

In this ſenſe the word is alſo written *anthinus*.

Vinum anthinus, οἶνος ἄνθινος, was that prepared with certain fragrant flowers to give it the more agreeable odour.

Oleum anthinum is alſo denominated *liliacum*, ſometimes *ſuſinum*.

Some alſo give the appellation *anthine* to the compoſition otherwiſe called CYCEON.

ANTHOCEROS, in *Botany*, the name of a genus of moſſes, of the *cryptogamia algæ* claſs, in the Linnæan ſyſtem.

The name was given by Micheli; and Linnæus characteriſes it, as having male and female flowers: the calyx of the male is ſeſſile, cylindric, and entire; the anthera is fubulated, very long, and furniſhed with two valves; the calyx of the female is divided into ſix ſegments, and contains three ſeeds. He reckons three ſpecies.

ANTHOLOGION, a church book in uſe among the Greeks.

It was called ἀνθολογίον, q. d. *florilegium*, or a collection of flowers.

The *anthologion* is a ſort of breviary or maſs-book, containing the daily offices addreſſed to our Saviour, the Virgin, and the principal ſaints; with other common offices of prophets, apoſtles, martyrs, pontiffs, and confeſſors, according to the Greek rite. See BREVIARY, MASS, and OFFICE.

ANTHOLOGY, ANTHOLOGIA, a diſcourſe or treatiſe of flowers; or of beautiful paſſages from any authors.

Thus called from ἄνθος, *flos*, a *flower*, and λόγος, *ſermo*, *diſcourſe*. Though others chooſe rather to derive it from ἄνθος, *flos*, a *flower*, and λέγω, *I gather*; and uſe it to ſignify a collection of flowers.

ANTHOLOGY is frequently uſed for a collection of epigrams of divers Greek poets.

ANTHOLYZA, in *Botany*, a genus of the *triandria monogynia* claſs; we have no Engliſh name for this plant.

The characters are, that it hath an imbricated ſheath, which is permanent; the flower is of one leaf, and opens above with compreſſed jaws. The under lip is trifid and ſhort; the middle ſegment turns downward; under the flower is ſituated the *germen*, which afterward becomes a roundiſh three-cornered veſſel, having three cells, in which are lodged many triangular ſeeds. Mr. Miller enumerates two, and Linnæus four ſpecies.

They are a great ornament to the green-houſe when they are in flowers; and as they require but little culture, they deſerve a place in every good garden.

ANTHONY—Knights of St. *Anthony*, an order of knighthood, eſtabliſhed in 1382, by Albert of Bavaria, &c. who had then taken a reſolution to make war againſt the Turks.

The knights of this order wore a collar of gold, with a hermit's girdle, to which hung a crutch and a little bell. Some authors mention another order of *St. Anthony* in Ethiopia, inſtituted in 370, by Preſter John.

St. *Anthony* alſo gives the denomination to an order of religious founded in France about the year 1095, under the pontificate of Urban II. to take care of thoſe afflicted with St. *Anthony's fire*.

The *Anthonins*, or monks of St. *Anthony*, are by ſome ſaid to be of the begging kind. Their founder was Gaſton Frank, who erected a monaſtery for them at La Motte, near Vienne, where the general ſtill lives; they follow the rule of St. Auguſtine. Others give a different account of their origin, and ſuppoſe them thus called, not on account of St. *Anthony's fire*, but becauſe inſtituted by a St. *Anthony*, prior of a monaſtery in that neighbourhood. The friars of this order came into England in the reign of king Henry III. and had one houſe in London, and another at Hereford.

It is ſaid that, in ſome places, theſe monks aſſume to themſelves a power of giving, as well as removing the *ignis ſacer*, or ERYSIPELAS, a power which is uſually employed for keeping the poor people in ſubjection and extorting alms.

St. ANTHONY'S *Fire*. See ERYSIPELAS.

ANTHOPHYLLI, a denomination given to the larger ſpecies of cloves.

The word is otherwiſe written *antophylli*.

ANTHORA, a medicinal plant, of the ACONITE kind, having yellow flowers, reſembling helmets; growing chiefly on the mountains of Switzerland and Savoy.

This is otherwiſe called *antithora*, as being reputed an antidote againſt the *thora*: ſometimes ACONITUM *ſalutiferum*, in Engliſh the HELMET-*flower*.

The root, *anthoræ radix*, has been chiefly in uſe. It holds a place in the catalogues of the *Materia Medica*, but is not kept at this time in the ſhops. It is of a duſky brown without, and whitiſh within, of a warm bitteriſh taſte, and is reputed a cardine and alexipharmic, much of the ſame qualities with CONTRAYERVA root; on which account ſome alſo denominate it the *German contrayerva*, though it now only obtains in a few officinal compoſitions.

ANTHORISMUS, in *Rhetoric*, denotes a counter definition or deſcription of a thing.

Thus, if the plaintiff urge, that to take any thing away from another, without his knowledge or conſent, is a theft; this is called ὅρος, or definition. If the defendant reply, that to take a thing away from another, without his knowledge or conſent, provided it be done with deſign to return it to him again, is not theft, this is an ἀνθόρισμος.

ANTHOS, in its original Greek, ſignifies *flower*: but by way of excellence is appropriated to roſemary, ſo as to expreſs only that plant.

ANTHOS, in *Chymiſtry*, is uſed to denote the quinteſſence or elixir of gold; and ſometimes for a medicine extracted from pearls.

ANTHOS *philoſophorum* is more particularly uſed to denote a method of tranſmuting metals by means of vitriol.

ANTHOSMIAS, in ſome *Ancient Naturaliſts*, denotes a rich odoriferous kind of wine.

In this ſenſe *anthosmias* differs from *anthinus*, as the latter imports a medicated wine, ſcented with odoriferous herbs, whereas the former derived its fragrancy from the native grapes.

ANTHOSPERMUM, in *Botany*. See AMBER-*tree*.

ANTHOXANTHUM, in the Linnæan ſyſtem of *Botany*, the name of a ſort of graſs which makes a diſtinct genus of plants, of the *diandria digynia* claſs. The characters of this are, that the *calyx*, or flower-cup, is compoſed of two glumes, the exterior containing one flower compoſed of two valves, of an oval figure, pointed, hollow, and the one larger than the other; the interior glume is compoſed of two valves of the ſame length with the exterior large valve, and each ſending out a fine beard or acorn from its hinder part; this alſo contains one flower, which is compoſed of two unequal ſized valves, and is extremely thin in its whole ſtructure, and quickly falls off.

ter; the *stamina* are three capillary filaments; the *antheræ* are long, and split at their ends; the *germen* of the *pistillum* is oblong; the styles are capillary, two in number, and hairy; the *stigmata* are simple; the interior glume grows firmly to the seed, which is single, oblong, and pointed at each end.

ANTHRACIS, in *Natural History*, a word used for a gem by the ancients, but in several different senses: all which seem evidently to refer to the cat's eye, or *asterio* kind.

Many of the ancients have also called the HÆMATITES, or blood-stone, by this name, *anthracitis*, because of its being of the colour of a burning coal.

ANTHRACOSIS, a disease of the eyes, occasioned by a corrosive ulcer, either in the balls of the eye, or the eyelids, covered with skin, and attended with a general swelling of the parts adjoining.

The word denotes an inflammation resembling a coal; ἀνθρακ signifying a coal.

ANTHRAX, in the *Natural History* of the *Ancients*, was a word used by the most early writers for the substance we now call pit-coal and *lithanthrax*. Theophrastus plainly tells us, that the substance strictly and properly called *anthrax* (for they also knew a gem by the same name, used in a metaphorical sense) was an earthy fossil substance, which was broken in pieces to be used and kindled well, and burnt almost like wood-coals, and was used by the smiths.

ANTHRAX, ἀνθρακ, in *Medicine*, means figuratively, a seals or blotch, made by a corrosive humour, which as it were burns the skin, and occasions sharp pricking pains.

The *anthrax* is the same with what is otherwise denominated *carbo* and *carbunculus*.

Some pretend to make a distinction between the *anthrax* and CARBUNCLE, limiting this latter to the glandular parts, and the former to all the others. But the distinction is scarce worth the making.

Riverius, Tolius, Gemma, and Meurerus, have discourses expressly on the *anthrax*.

ANTHROMETRICA *machina*. See ANTHROPOMETRICA.

ANTHROPODÆMON, in *Ancient Writers*, a demon concealed under the figure or appearance of a man.

ANTHROPOGLOTTUS, in *Natural History*, something that has a tongue, or speech resembling that of man.

The parrot kind are denominated *anthropoglotti*, on account of their broad, thick, and muscular tongues, by which they are enabled to speak, and to roll their meat from side to side under the edges of their bills.

ANTHROPOGRAPHIA, a description of man; more particularly, of the structure of his body and the parts thereof.

ANTHROPOLATRÆ, a title given to the Nestorians, on account of their believing Christ to be a mere man, yet paying him the honour of a God.

ANTHROPOLATRIA, the paying divine worship or honours to a man. *Anthropolatria* is supposed by some to have been the most ancient species of IDOLATRY.

ANTHROPOLOGY, a discourse, or treatise upon man, or human nature; considered as in a sound, or healthy state.

It is compounded of ἀνθρωπος, *man*, and λογος, *discourse*.

Anthropology includes the consideration both of the human body and soul, with the laws and effects of their union; as sensation, motion, &c.

It is particularly used in *Theology*, for a way of speaking of God after the manner of men; by attributing human parts and passions to him; as eyes, hands, ears, anger, joy, &c.

We have frequent instances of *anthropology* in Holy Scripture; by which we are only to understand the effect, or the thing which God does, and he had hands, &c.

ANTHROPOMANCY, a method of divination, performed by inspecting the *viscera* of a person deceased.

The word is compounded of ἀνθρωπος, *man*, and μαντια, *divination*.

ANTHROPOMETRIA, a description of the human body, with its several parts and members, according to the three dimensions, length, breadth, and thickness, both considered in themselves, and comparatively to each other.

ANTHROPOMETRICA *machina*, a name which Sanctorius gave to his weighing chair, contrived for measuring the quantity of *insensible* PERSPIRATION.

ANTHROPOMORPHA, in the Linnæan system of nature, a class of animals in some degree resembling the human form.

The word is derived from ἀνθρωπος, *a man*, and μορφη, *form*.

This author makes it comprehend the monkey, the *ignavus*, or sloth, and the *tamandua guaco*, or ant-bear, as it is usually called.

ANTHROPOMORPHITE, in a general sense, one who attributes to God the figure of a man.

The word comes from the Greek ἀνθρωπος, *man*, and μορφη, *shape*.

ANTHROPOMORPHITES were a sect of ancient heretics, who, taking every thing spoken of God in the scriptures in a literal sense, imagined he had real hands, feet, &c. The passage they chiefly insisted on was that in Genesis, where it is said, that God made man after his own image.

Even philosophers, for want of a better acquaintance with metaphysics, seem to have fallen into *anthropomorphism*, representing God much after the manner of a human soul, without considering the difference between a finite and an infinite being, limited and absolute perfections. Wolfius has laboured hard to avoid this rock, by having the difference still present on his mind, and proceeding according to the ancient rule, *Quæ de Deo dicuntur affirmative, ea intelligi oportet eminenter.*

The whole sect of Stoics held God to be corporeal; and, not to mention Tertullian and others among the fathers, Hobbes and his followers assert the same among ourselves. Leibnitz charges Sir Isaac Newton and his followers with representing God under the condition of a man. But with what justice it would be hard to say.

Those who held the contrary, viz. that God is incorporeal, and without any bodily form, the *Anthropomorphites* branded by the name of *Origenists*, because Origen taught how to allegorize these expressions.

Epiphanius calls the *Anthropomorphites*, *Audiani*, or *Odiani*, from *Audius*, the supposed founder of the sect; who lived, about the time of Arius, in Mesopotamia. St. Augustine calls them *Vadiani*.

This System was revived in 939.

ANTHROPOMORPHOUS, something that bears the figure or resemblance of a man. Naturalists give instances of *anthropomorphous* plants, *anthropomorphous* minerals, &c. These generally come under the class of what they call *lusus naturæ*, or monsters.

Anthropomorphous stones make a species of those called figured stones.

ANTHROPOMORPHOUS is an appellation more peculiarly given to MANDRAGORA, or *mandrake*.

ANTHROPOPATHY, a figure, expression, or discourse, whereby some passion is attributed to God, which properly belongs only to man.

It is compounded of ἀνθρωπος, *man*, and παθος, *passion*. *Anthropathy* is frequently used promiscuously with *anthropology*; yet in strictness, they ought to be distinguished as the genus from the species. *Anthropology* may be understood of any thing human attributed to God; but *anthropopathy*, only of human affections, passions, fondnesses, &c.

ANTHROPOPHAGI, people who feed on human flesh. Compounded of the Greek ἀνθρωπος, *man*, and φαγειν, *eat*, *to eat*.

The Cyclops, the Lestrygons, and Scylla, are all represented in Homer as *anthropophagi*, or man-eaters; and the female phantoms, Circe and the Syrens, first bewitched with a shew of pleasure, and then destroyed.—This, like the other parts of Homer's poetry, had a foundation in the manners of the times preceding his own. It was still in many places the age spoken of by Orpheus,

> When men devoured each other like the beasts,
> Gorging on human flesh.——

Some remains of the usage subsisted much longer, even among the most civilized nations, in the practice of offering human sacrifices.

History gives us divers instances of persons driven by excess of hunger to eat their own relations. Others commence *anthropophagi* out of revenge and hatred; these are many instances of soldiers, who in the heat of battle have been carried to such excess of rage, as to tear their enemies with their teeth.

The violence of love has sometimes produced the same effect as the excess of hatred. The *Issedi eat* the bodies of their friends and nearest relations to preserve them from worms and putrefaction, thinking they do not only bestow afford them an honourable grave, but even a new life, a kind of revivification in themselves. Artemisia did something like this when she swallowed the ashes of her dead husband, Mausolus. Among the Scythians, when a man's father died, his neighbours brought him several beasts, which they killed, minced, and mixed up with the flesh of the deceased, and made a feast.

Among the *Massagetæ*, when any person grew old, they killed him and eat his flesh; but if the party died of sickness, they buried him, esteeming him unhappy.

Idolatry and superstition have occasioned the eating more men, than both love and hatred put together. There are few nations but have offered human victims to their deities; and it was an established custom to eat part of the sacrifices they offered.

The Jagos and the subjects of the great Macoco, are said to be *anthropophagi*. This prince is very powerful, having ten kings for his vassals; his court is so numerous, that there are two hundred men butchered every day to supply the table; part of this number are criminals, the rest slaves furnished in the nature of tribute.

It appears pretty certain from Dr. Hawkesworth's Account of the Voyages to the South Seas, that the inhabitants of the island of New Zealand, a country unfurnished with the necessaries of life, eat the bodies of their enemies. It appears also to be very probable, that both the wars and *anthropophagy* of these savages take their rise, and owe their continuance to irresistible necessity, and the dreadful alternative of destroying each other by violence, or of perishing by hunger. See vol. III. p. 447, & seq. and vol. II. p. 389, &c.

M. Petit has a learned dissertation on the nature and manners of the *anthropophagi*. Among other things, he disputes whether or no the *anthropophagi* act contrary to nature? The philosophers Diogenes, Chrysippus, and Zeno, followed by the whole body of Stoics, held it a very reasonable thing for men to eat each other.

According to Sextus Empiricus, the first laws were those made to prevent men from eating each other, as had been done till that time. The Greek writers represent *anthropophagy* as universal before Orpheus. To shew farther, that *anthropophagy* is not contrary to nature, a modern author urges, that cats, dogs, rabbits, and other animals, feed on each other. Pliny, after Aristotle, affirms, that swans eat each other; and the bees also eat their *nymphæ*, which are their young. The Dutch in Nova Zembla saw bears devour each other, and the like has been observed in the fish kind: the *tiburonis*, according to Ovid, are caught with a hook baited with their own flesh. Leonardus Florventius having fed a hog with hog's flesh, and a dog with dog's flesh, found a repugnancy in nature to such food; the former lost all his bristles; and the latter its hair, and the whole body broke out in blotches. The origin of the venereal disease is by some attributed to the eating of human flesh.

It may be said, that whether the dead body of an enemy be eaten or buried, is a matter perfectly indifferent; but whatever the practice of eating human flesh may be in itself, it certainly is, relatively and in its consequences, most pernicious. It manifestly tends to eradicate a principle, which is the chief security of human life, and more frequently restrains the hand of the murderer, than the fear of duty, or the dread of punishment. If even this horrid practice originates from hunger, still it must be perpetuated from revenge. Death must lose much of its horror among those who are accustomed to eat the dead; and where there is little horror at the sight of death, there must be less repugnance to murder. See some farther observations on this subject, equally just and ingenious, by Dr. Hawkesworth, *ut supra*.

It may be asked, whether the use which is made of certain parts of the human body in physic, come under the denomination of *anthropophagy*? How often have tombs been violated on this occasion? To say nothing of mummies and the like. Pliny assures us, that in his time the physicians ordered their epileptic patients to apply their lips to the wounds of gladiators, and swallow the blood as it streamed from them.

Some carry their respect for dead bodies a great length. M. Petit does not think it lawful for anatomists to dissect human bodies, in order to learn their structure, except those of condemned criminals, and such as are denied the rites of burial. The Arabs went farther; notwithstanding all their curiosity and desire to be acquainted with the human structure, they could never be induced to make one dissection; they were contented to borrow all their knowledge of this kind from the Greek physicians.

Some maintain it impossible, whatever precaution is used, to prevent the ingress of the parts of dead bodies with our food and drink. Add, that if we do not feed on our own species, we feed on plants and animals, which derive a great part of their nutriment from us. Whence the impossibility of the RESURRECTION of the same body has been inferred.

ANTHROPOPHAGIA, the act or habit of eating human flesh.

This is pretended by some to be the effect of a disease, which leads people affected with it to eat every thing alike. Some choose only to consider it as a species of PICA.

The annals of Milan furnish an extraordinary instance of *anthropophagy*. A Milanese woman, named Elizabeth, from a depraved appetite, like what women with child, and those whose *menses* are obstructed, frequently experience, had an invincible inclination to human flesh, of which she made provision by enticing children into her house, where she killed and salted them; a discovery of which having been made, she was broken on the wheel and burnt in 1519.

Some physicians vainly think they have discovered the principle of *anthropophagy*; and that it consists in an acid atrabiliary humour, which being lodged in the coats of the ventricle, produces this voracity. And they give several instances of this inhuman hunger, even among their own patients.

ANTHROPOSCOPIA, the art of judging or discovering a man's character, disposition, passions, and inclinations, from the lineaments of his body.

In which sense, *anthroposcopia* seems of somewhat greater extent than PHYSIOGNOMY, or METOPOSCOPY.

Otho has published an ANTHROPOSCOPIA, *sive judicium humanis de hominis ex lineamentis externis*.

ANTHROPOSOPHIA, the science of the nature of man, and his structure and composition, both internal and external.

In this sense, *anthroposophia* amounts to much the same with the medical *physiology* or *anatomy*.

The word is used by Charleton, but with no great propriety; since *sophia*, or wisdom, imports the science of using means to obtain an end, which is foreign to Charleton's intention.

ANTHROPOTHYSIA, in *Ancient Writers*, denotes the offering of human victims.

The *anthropothysia* was a frequent practice among the ancients. Some have imagined that the sacrifice of Abraham was the first instance. Many reasonings and disquisitions have been founded on this supposition; by which the severity of Abraham's trial is thought by some to have been somewhat exaggerated. Human sacrifices were in use among the Gentiles before that time; practised by kings as well as by private persons; nay by entire nations, as the Egyptians, Phœnicians, Canaanites, &c.

ANTHUMON, in the *Materia Medica* of the *Ancients*, a name given to the EPITHYMUM, or *dodder*, growing upon THYME.

ANTHUS, in *Ornithology*, a name by which Aldrovand and some other authors have called that species of the ORNANTHE known in England by the name of the WHINCHAT.

ANTHYLLIS, in *Botany*. See LADY's *finger*.

ANTHYPOMOSIA, in *Ancient Writers*, an oath taken by a prosecutor or accuser, declaring that the absence of the party accused is not for any just cause, and therefore demanding that judgment may no longer be delayed on that account.

ANTHYPOPHORA, in *Rhetoric*, a figure whereby we covertly obviate a reason or objection.

In this sense *anthypophora* stands opposed to *hypophora*, e. g. if the HYPOPHORA be, grammar is very difficult to obtain; the *anthypophora* may be, grammar is indeed a little difficult to obtain, but then its use is infinite.

ANTI, *Anti*, is a preposition used in composition with several words, both in Greek, Latin, English, &c. in different senses. In English, it sometimes happens before; as in *anti-chamber*, a place before the chamber.—In which case it has the same meaning with the Latin *ante, before*.

Sometimes, again, it signifies *contrary*, or *opposite*; and is then derived from *ante, contra, against*.

In this latter sense, the word makes part of the name of various medicines, to denote some peculiar or specific virtue in them against certain *diseases*: such, e. gr. are antivenereals, antiscorbutics, antisephritics, &c.

The preposition is frequently, however, omitted on these occasions, without any alteration of the sense; as in nephritics, arthritics, asthmatics, &c.

ANTI, in matters of *Literature*, is a title given to divers pieces written by way of answer to others, whose names are usually annexed to the *anti*.

See the *Anti* of M. Baillet; and the *Anti-Baillet* of M. Menage: there are also *Anti-Menagiana*, &c. Cæsar the dictator wrote two books by way of answer to what had been objected to him by Cato, which he called *Anti-Catones*; there are mentioned by Juvenal, Cicero, &c. Vives assures us, he had seen Cæsar's *Anti-Catones* in an ancient library.

ANTIADES, a term used by some writers for the glandules, and kernels, more commonly called TONSILS, and ALMONDS *of the ears*.

ANTIADIAPHORISTS, ANTIADIAPHORISTS, opposite to the ADIAPHORISTS.

The word is compounded of *αντι*, *contra*, *against*, and *αδιαφορος*, *indifferent*.

This name was given, in the fourteenth century, to the rigid Lutherans, who disavowed the epiſcopal juriſdiction, and many of the church-ceremonies, retained by the moderate LUTHERANS.

ANTIBACCHIUS, in the *Ancient Poetry*, a foot, conſiſting of three ſyllables; the two firſt whereof are long; and the third ſhort.

Such are the words *cantare*, *virtute*, Ελληνες.

It is ſo called as being contrary to the BACCHIUS, the firſt ſyllable whereof is ſhort, and the two laſt long.

Among the ancients, this foot is alſo denominated *Paean-bacchius*, and *Saturnius*; and, by ſome, *Propontiacus*, and *Theſſalus*. Diom. III. p. 475.

ANTIBARBAROUS, a title given to ſeveral works levelled againſt the uſe of barbarous terms and phraſes, chiefly in the Latin Tongue.

Eraſmus, Nizolius, and Cellarius, have publiſhed *Antibarbara*. Noltenius has given us a Lexicon *Anti-barbarum*, conſiſting of obſervations made by the grammarians of late ages in relation to the purity and corruption of Latin words.

Siat. Amama has given an *Antibarbarus Biblicus*, wherein he pretends to have diſcovered ſeven ſources of the barbariſms which have got footing of late ages in the BIBLE.

Peter de Moulin uſed the title *Antibarbarus* for a book againſt the uſe of an unknown tongue in divine ſervice.

ANTIBIBLOS, in the *Civil Law*, an inſtrument or ſignature, whereby the defendant owns he has received the libel, or copy of it, and notes the day whereon he received it. This is uſually done on the back of the LIBEL.

ANTICADMIA denotes a ſpecies of mineral CADMIA, ſometimes alſo called *pſeudo-cadmia*.

It takes the denomination *anticadmia*, not as being oppoſite in quality to the *cadmia*, but becauſe it is uſed as a ſubſtitute for it.

ANTICARDIUM, in *Anatomy*, &c. that hollow part under the breaſt, juſt againſt the heart, commonly called the *pit of the ſtomach*: called alſo *ſcrobiculus cordis*.

The word is compounded of *αντι*, *contra*, *againſt*; and *καρδια*, *cor*, *heart*.

ANTICATARRHAL, an epithet given to medicines preſcribed for catarrhs.

ANTICATEGORIA, in *Oratory*, denotes a recrimination or mutual accuſation; where the two parties charge each other with the ſame crime.

Apollodorus conſiders the *anticategoria* as two ſeveral cauſes or actions.

ANTICAUSOTICS, among *Phyſicians*, denote medicines againſt burning fevers.

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Hippolitus, and others, held that the devil himſelf was the true *Antichriſt*, that he was to be incarnate, and make his appearance in human ſhape before the conſummation of things.

How endleſs are conjectures? Some of the Jews, we are told, actually took Cromwell for Chriſt, while ſome others have laboured to prove him *Antichriſt* himſelf. Peſſius aſſures us that he ſaw a folio book in the Bodleian library, written on purpoſe to demonſtrate this latter poſition.

ANTICHRISTIANISM, a ſtate or quality in perſons or principles, which denominates them antichriſtian, or oppoſite to the kingdom of Chriſt, and the genius and ſpirit of his religion.

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ANTICHTHON, in its primitive aſtronomic ſenſe, denotes a kind of globe, or earth, reſembling ours, and like it, ſuppoſed to be moving round the ſun, but inviſible to us, becauſe on the oppoſite ſide of the ſun, that luminary being ſtill exactly interpoſed between this other earth and ours.

In this ſenſe it is, that Pythagoras and his diſciples aſſerted an *antichthon*; for which we have the teſtimonies of Ariſtotle, Plutarch, &c.

By reaſon of the perfection of the number ten, they concluded there muſt be juſt ſo many ſpheres; and as our ſenſes only diſcover nine, viz. the ſeven planets, the ſphere of the fixed ſtars, and our earth, they imagined a tenth oppoſite to ours.

Some of the fathers, who endeavoured to accommodate the doctrine of the heathen philoſophers to thoſe of Chriſtianity, aſſert that this Pythagorean earth is no other than the heaven of the righteous.

Thomaſius has a diſſertation on the Pythagorean *antichthon*.

ANTICHTHONES, in *Geography*, are thoſe people who inhabit countries diametrically oppoſite to each other.

The word is compounded of *αντι*, *contra*, and χθων, *terra*, *earth*. They are alſo ſometimes called, by ſome writers, *antigeae*.

In which *ſenſe*, *antichthones* amount to much the ſame with what we more uſually call *antipodes*.

ANTICHTHONES is alſo uſed in *Antient Writers*, to denote the inhabitants of contrary hemiſpheres.

In which ſenſe *antichthones* differs from *antœci*, and *antipodes*.

The ancients conſidered the earth as divided by the equator into two hemiſpheres, the northern and ſouthern; and all thoſe who inhabited one of theſe hemiſpheres, were reputed *Antichthones* to thoſe of the other.

ANTICIPATION, from *ante*, *before*, and *capio*, *I take*, the act of preventing, or being before hand with a perſon, or thing; or of doing a thing before the time.

Anticipating a payment denotes the diſcharging it before it falls due. Such a debt was not yet become due; he *anticipated* the time of payment.

ANTICIPATION is alſo uſed in a *logical* ſenſe, for a preſumption, prejudice, or preconceived opinion.

This is alſo denominated preconception, preſentation, or inſtinct.

ANTICIPATION, in a medicinal ſenſe, is applied to diſeaſes, wherein ſome of the ſymptoms which regularly belong to ſome future period, appear in the beginning; or the word may be underſtood of thoſe diſeaſes, which having their acceſſes and remiſſions at ſtated hours, gain in point of time, and finiſh their period ſooner than ordinary.

In this ſenſe *anticipation*, or *anticipated* diſeaſes, by the Greeks called προλαμβανουσαι, ſtands oppoſed to hyſteretic, υστερουσαι, which come after the time.

ANTICIPATION, in the *Epicurean Philoſophy*, denotes the firſt idea, or definition of a thing, without which we can neither name, think, doubt, or even inquire, concerning it.

This is otherwiſe denominated PRENOTION.

Anticipation, in this ſenſe, makes the ſecond of Epicurus's criterions of truth.

ANTICIPATION is alſo uſed by Shaftesbury, in ſpeaking of painting, to denote the expreſſion of ſome future action, reſolution, or the like.

ANTICIPATION, in *Rhetoric*, a figure otherwiſe called PROLEPSIS.

ANTICK, in *Sculpture* and *Painting*, denotes a fantaſtical compoſure of figures of different natures, ſexes, &c. as men, beaſts, birds, flowers, fiſhes, and even things merely imaginary, or which have no exiſtence in the nature of things.

Antick amounts to much the ſame thing with what the Italians call *groteſco*, and the French *groteſque*.

ANTICLIMAX, from ανα and κλιμαξ, *gradation*, in *Rhetoric*, is a figure, whereby the progreſs of a diſcourſe deſcends from great to little; and this is ſometimes rendered peculiarly agreeable by ſuch a concord between the ſenſe and ſound as may contribute to make diminutions appear ſtill more diminutive. Horace affords a ſtriking example.

Parturiunt montes, naſcetur ridiculus mus.

ANTICNEMION, from αντι, and κνημη, *tibia*, *the ſhin-bone*, in *Anatomy*, denotes the ſhin; or the fore prominent part of the *tibia*.

This is otherwiſe called ακανθα, by the Latins *prima tibiæ*, or *anterior tibia*, and ſtands oppoſed to the *ſura*, or calf of the leg, ſometimes called *nerva*.

ANTICOR, from αντι and κορ, *the heart*, ANTICEUR, or *avant cœur*, among *Farriers*, is uſually deſcribed as a preternatural ſwelling, of the ſize and figure of an apple, occaſioned by a ſanguine and bilious humour, and appearing in a horſe's breaſt, oppoſite to his heart. A late writer affirms, that the generality of authors on that ſubject have been miſtaken as to this diſeaſe, attributing it to the heart; whereas it is by Solleyſel called the *ſwelling of the forecordium*: whereas it is really an inflammation in the gullet and throat; and in the ſame that, in human bodies, is called the *angina*, or *ſquinancy*.

The cure of this diſeaſe ſhould be attempted by copious bleedings, in order to reduce the inflammation. Emollient clyſters ſhould alſo be injected twice or thrice a day, with an ounce of ſal primella in each. The ſwelling ſhould be bathed with marſhmallow ointment; and an opening poultice, with onions boiled in it, ſhould be daily applied to it. If the inflammation be hereby removed, the ſwelling ſhould be brought, if poſſible, to maturation; for this purpoſe the poultice muſt be continued, and two ounces of Venice treacle, diſſolved in a pint of beer, muſt be given to the horſe every night. When the ſwelling is ſoftened, it muſt be opened with a knife, and dreſſed with turpentine digeſtive. But if the ſwelling cannot be brought to matter, and ſhould endanger ſuffocation, Solleyſel, and others, adviſe opening the ſkin, in order to introduce a piece of black hellebore-root ſteeped in vinegar, and to confine it there for twenty-four hours. In order to ſtimulate and promote a diſcharge, the adjacent parts ſhould be fomented, and bathed with ointment of marſhmallows.

ANTICUM, in *Architecture*, a porch before a door; alſo that part of a temple, which is called the outer temple, and lies between the body of the temple and the portico.

It is ſometimes called *antæ*.

ANTICUS, *ſerratus minor*. See SERRATUS.

ANTICUS, *peronæus*. See PERONÆUS.

ANTICUS, *tibialis*. See TIBIALIS.

ANTIDACTYLUS, from αντι, and δακτυλος, *dactyl*, a name given by ſome to a kind of poetical foot, which is the reverſe of a dactyl, as conſiſting of three ſyllables, whereof the firſt two are ſhort, and the laſt long.

ANTIDÆMONICI, from αντι, and δαιμων, *damon*, in *Eccleſiaſtical Hiſtory*, a ſect who denied the exiſtence of devils, or evil ſpirits; alſo all ſpectres, incantations, witch-crafts, &c.

ANTIDICOMARIANITES, from αντιδικος, *adverſary*, and Μαρια, *Mary*, a ſect of ancient Chriſtians who thought that the Holy Virgin did not preſerve a perpetual virginity, but that ſhe had ſeveral children by Joſeph after our Saviour's birth.

Theſe are otherwiſe called *antidicomarianæ*; and *antidicomarites*, and *antidicmarianiſts*; ſometimes alſo *antimarians*.

The opinion was grounded on ſome expreſſions of our Saviour, wherein he mentions his brothers, and his ſiſters; and on that text of St. Matthew, wherein he ſays, that Joſeph knew not Mary till ſhe brought forth her firſt-born ſon.

The *antidicomarianites* were the diſciples of Helvidius and Jovinian, who appeared in Rome towards the cloſe of the fourth century.

ANTIDISMA, in *Botany*, a genus of the *Eucia pentandria* claſs, without any Engliſh name.

ANTIDORON, in *Eccleſiaſtical Writers*, a name given by the Greeks to the conſecrated bread, out of which the middle part, marked with the croſs, wherein the conſecration conſiſted, being taken away by the prieſt, the remainder is diſtributed, after maſs, to the poor.

On the ſides of the *antidoron* are impreſſed the words *Jeſus Chriſtus vicit*.

The word is formed from δωρον, *donum*, *a gift*, as being given away *ex mutuis* or *in charity*.

The *antidoron* is alſo called *panis præſanctificatus*.

Some ſuppoſe the *antidoron* to be diſtributed in lieu of the ſacrament, to ſuch as were prevented from attending in perſon at the celebration; and thence derive the origin of the word, the euchariſt being denominated *doron*, *gift*, by way of eminence.

ANTIDOSIS, from αντι, and δωσις, *I give*, in *Antiquity*, denotes an exchange of eſtates, practiſed by the Greeks on certain occaſions with peculiar ceremonies, and firſt inſtituted by Solon.

When a perſon was nominated to an office, the expence of which he was not able to ſupport, he had recourſe to the *antidoſis*, that is, he was to ſeek ſome other citizen of better ſubſtance than himſelf, who was free from this, and other offices; in which caſe, the former was excuſed. In caſe the perſon thus ſubſtituted denied himſelf to be the richeſt, they were to exchange eſtates, after this manner; the doors of their houſes were cloſe ſhut up and ſealed, that nothing might be conveyed away; then both took an oath to make a faithful diſcovery of all their effects, except what lay in the ſilver mines; which by the law was excuſed from all impoſts; accordingly, within three days, a full diſcovery and exchange of eſtates was made. Porter, Archeol. lib. 1. cap. 15.

ANTIDOTARY is uſed by ſome writers for what we more uſually call a DISPENSATORY.

We have *antidotaries* extant of ſeveral authors, as thoſe of Nicolaus, Meuſe, Myrepſus, Rhaſis, &c.

ANTIDOTE, a remedy taken either to prevent, or cure, ſome contagious, malignant, or other dangerous diſeaſe.

The word is borrowed from αντι, *againſt*, and δωμι, *I give*; as being ſomething given againſt poiſon, either by way of cure or preſervative.

ANTIDOTE, in alſo uſed to ſignify a medicine taken to prevent the ill effects of ſome other; for inſtance, poiſon.

In which ſenſe the word has the ſame ſignification with alexipharmic, alexiterial, and counterpoiſon.

The Indian phyſic conſiſts much in the uſe of *antidotes*; viz. the root *mungo*, and the viper-ſtone; both held ſovereign againſt the bite of the *cobras de capello*, and other venomous creatures.

ANTIDOTE is alſo uſed, in a more general ſenſe, for any compounded medicine.

In which ſenſe, Peter Damian ſpeaks of a perſon who in his whole life never took an *antidote*.

ANTIDOTE is alſo uſed in a leſs proper ſenſe for any remedy againſt any diſeaſe, chiefly if it be inveterate, and ariſe from ſome ulcer or abſceſs.

ANTIDOTE is alſo uſed for a perpetual form of medicines, otherwiſe called *opiates*, or more properly CONFECTIONS.

ANTIDOTE is alſo *myſtically* applied to the philoſopher's ſtone.

ANTIENT. See ANCIENT.

The word is compounded of *anti*, *contra*, *against*, and *διάφορος*, *indifferent*.

This name was given, in the fourteenth century, to the rigid Lutherans, who disavowed the episcopal jurisdiction, and many of the church-ceremonies, retained by the moderate LUTHERANS.

ANTIBACCHIUS, in the *Ancient Poetry*, a foot, consisting of three syllables; the two first whereof are long; and the third short.

Such are the words *cántârê*, *vîrtûtê*, Ἑλλῆνες.

It is so called as being contrary to the BACCHIUS, the first syllable whereof is short, and the two last long.

Among the ancients, this foot is also denominated *Palim-bacchius*, and *Saturnius*; and, by some, *Prepontius*, and *Theſſalius*. Diom. III. p. 475.

ANTIBARBAROUS, a title given to several works levelled against the use of barbarous terms and phrases, chiefly in the Latin Tongue.

Erasmus, Nizolius, and Cellarius, have published *Antibarbaro*. Noltenius has given us a Lexicon *Anti-barbarum*, consisting of observations made by the grammarians of late ages in relation to the purity and corruption of Latin words.

Sixt. Amama has given an *Antibarbarus Biblicus*, wherein he pretends to have discovered seven sources of the barbarisms which have got footing of late ages in the BIBLE.

Peter de Moulin used the title *Antibarbarus* for a book against the use of an unknown tongue in divine service.

ANTIBIBLOS, in the *Civil Law*, an instrument or signature, whereby the defendant owns he has received the libel, or copy of it, and notes the day whereon he received it. This is usually done on the back of the LIBEL.

ANTICADMIA denotes a species of mineral CADMIA, sometimes also called *pſeudo-*CADMIA.

It takes the denomination *anticadmia*, not as being opposite in quality to the *cadmia*, but because it is used as a substitute for it.

ANTICARDIUM, in *Anatomy*, &c. that hollow part under the breast, just against the heart, commonly called the *pit of the ſtomach*: called also *ſcrobiculus cordis*.

The word is compounded of *anti*, *contra*, *against*; and καρδία, *cor*, *heart*.

ANTICATARRHAL, an epithet given to medicines prescribed for catarrhs.

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In this sense it is, that Pythagoras and his disciples asserted an *antichthon*; for which we have the testimonies of Aristotle, Plutarch, &c.

By reason of the perfection of the number ten, they concluded there must be just so many spheres; and as our senses only discover nine, viz. the seven planets, the sphere of the fixed stars, and our earth, they imagined a tenth opposite to ours.

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In which ſenſe *antichthones* differs from *antoeci*, and *antipodes*.

The ancients conſidered the earth as divided by the equator into two hemiſpheres, the northern and ſouthern; and all thoſe who inhabited one of theſe hemiſpheres, were reputed *Antichthones* to thoſe of the other.

ANTICIPATION, from *ante*, *before*, and *capio*, *I take*, the act of preventing, or being before hand with a perſon, or thing; or of doing a thing before the time.

Anticipating a payment denotes the diſcharging it before it falls due. Such a debt was not yet become due; he *anticipated* the time of payment.

ANTICIPATION is alſo uſed in a *logical* ſenſe, for a preſumption, prejudice, or preconceived opinion.

This is alſo denominated preconception, preſentation, or inſtinct.

ANTICIPATION, in a medicinal ſenſe, is applied to diſeaſes, wherein ſome of the ſymptoms which regularly belong to ſome future period, appear in the beginning: or the word may be underſtood of thoſe diſeaſes, which having their acceſſes and remiſſions at ſtated hours, gain in point of time, and finiſh their period ſooner than ordinary.

In this ſenſe *anticipation*, or *anticipated* diſeaſes, by the Greeks called προτεριανοι, ſtands oppoſed to hyſteretic, υστεριανοι, which come after the time.

ANTICIPATION, in the *Epicurean Philoſophy*, denotes the firſt idea, or definition of a thing, without which we can neither name, think, doubt, or even inquire, concerning it.

This is otherwiſe denominated PRENOTION.

Anticipation, in this ſenſe, makes the ſecond of Epicurus's criterions of truth.

ANTICIPATION is alſo uſed by Shaftesbury, in ſpeaking of painting, to denote the expreſſion of ſome future action, reſolution, or the like.

ANTICIPATION, in *Rhetoric*, a figure otherwiſe called PROLEPSIS.

ANTICK, in *Sculpture* and *Painting*, denotes a fantaſtical compoſure of figures of different natures, ſexes, &c. as men, beaſts, birds, flowers, fiſhes, and even things merely imaginary, or which have no exiſtence in the nature of things.

Antick amounts to much the ſame thing with what the Italians call *groteſca*, and the French *groteſque*.

ANTICLIMAX, from αντι and κλιμαξ, *gradation*, in *Rhetoric*, is a figure, whereby the progreſs of a diſcourſe deſcends from great to little; and this is ſometimes rendered peculiarly agreeable by ſuch a concord between the ſenſe and ſound as may contribute to make diminutions appear ſtill more diminutive. Horace affords a ſtriking example.

Parturiunt montes, naſcetur ridiculus mus.

ANTICNEMION, from αντι, and κνημη, *tibia*, *the ſhin-bone*, in *Anatomy*, denotes the ſhin; or the fore prominent part of the *tibia*.

This is otherwiſe called αναξων, by the Latins *primo tibia*, or *anterior tibia*, and ſtands oppoſed to the *ſura*, or calf of the leg, ſometimes called *acra*.

ANTICOR, from *ante* and *cor*, *the heart*, ANTICEUR, or *avant cœur*, among *Farriers*, is uſually deſcribed as a preternatural ſwelling, of the ſize and figure of an apple, occaſioned by a ſanguine and bilious humour, and appearing in a horſe's breaſt, oppoſite to his heart. A late writer affirms, that the generality of authors on that ſubject have been miſtaken as to this diſeaſe, attributing it to the heart; whence it is by Solleyſel called the *ſwelling of the pericardium*: whereas it is really an inflammation in the gullet and throat; and is the ſame that, in human bodies, is called the *angina*, or *ſquinancy*.

The cure of this diſeaſe ſhould be attempted by copious bleedings, in order to reduce the inflammation. Emollient clyſters ſhould alſo be injected twice or thrice a day, with an ounce of ſal prunella in each. The ſwelling ſhould be bathed with marſhmallow ointment; and an opening poultice, with onions boiled in it, ſhould be daily applied to it. If the inflammation be hereby removed, the ſwelling ſhould be brought, if poſſible, to maturation: for this purpoſe the poultice muſt be continued, and two ounces of Venice treacle, diſſolved in a pint of beer, muſt be given to the horſe every night. When the ſwelling is ſoftened, it muſt be opened with a knife, and dreſſed with turpentine digeſtive. But if the ſwelling cannot be brought to matter, and ſhould endanger ſuffocation, Solleyſel, and others, adviſe opening the ſkin, in order to introduce a piece of black hellebore-root ſteeped in vinegar, and to confine it there for twenty-four hours. In order to ſtimulate and promote a diſcharge, the adjacent parts ſhould be ſomented, and bathed with ointment of marſhmallows.

ANTICUM, in *Architecture*, a porch before a door; alſo that part of a temple, which is called the outer temple, and lies between the body of the temple and the portico. It is ſometimes called *antæ*.

ANTICUS, *ſerratus minor*. See SERRATUS.

ANTICUS, *peronæus*. See PERONÆUS.

ANTICUS, *tibialis*. See TIBIALIS.

ANTIDACTYLUS, from αντι, and δακτυλος, *dactyle*, a name given by ſome to a kind of poetical foot, which is the reverſe of a dactyl, as conſiſting of three ſyllables, whereof the firſt two are ſhort, and the laſt long.

ANTIDÆMONICI, from αντι, and δαιμων, *daemon*, in *Eccleſiaſtical Hiſtory*, a ſect who denied the exiſtence of devils, or evil ſpirits; alſo all ſpectres, incantations, witch-crafts, &c.

ANTIDICOMARIANITES, from αντιδικος, *adverſary*, and Μαρια, *Mary*, a ſect of ancient Chriſtians who thought that the Holy Virgin did not preſerve a perpetual virginity, but that ſhe had ſeveral children by Joſeph after our Saviour's birth.

Theſe are otherwiſe called *antidicomarite*; and *antidicomarites*, and *antidicomarianiſts*; ſometimes alſo *antimarians*.

The opinion was grounded on ſome expreſſions of our Saviour, wherein he mentions his brothers, and his ſiſters; and on that text of St. Matthew, wherein he ſays, that Joſeph knew not Mary till ſhe brought forth her firſt-born ſon.

The *antidicomarianites* were the diſciples of Helvidius and Jovinian, who appeared in Rome towards the cloſe of the fourth century.

ANTIDISMA, in *Botany*, a genus of the *dioecia pentandria* claſs, without any Engliſh name.

ANTIDORON, in *Eccleſiaſtical Writers*, a name given by the Greeks to the conſecrated bread, out of which the middle part, marked with the croſs, wherein the conſecration reſides, being taken away by the prieſt, the remainder is diſtributed, after maſs, to the poor.

On the ſides of the *antidoron* are impreſſed the words *Jeſus Chriſtus vincit*.

The word is formed from δωρον, *donum*, *a gift*, as being given away *ita nuncupatis or in charity*.

The *antidoron* is alſo called *panis præſanctificatus*.

Some ſuppoſe the *antidoron* to be diſtributed in lieu of the ſacrament, to ſuch as were prevented from attending in perſon at the celebration; and thence derive the origin of the word, the euchariſt being denominated *doron*, *gift*, by way of eminence.

ANTIDOSIS, from αντι, and διδωμι, *I give*, in *Antiquity*, denotes an exchange of eſtates, practiſed by the Greeks on certain occaſions with peculiar ceremonies, and firſt inſtituted by Solon.

When a perſon was nominated to an office, the expence of which he was not able to ſupport, he had recourſe to the *antidoſis*, that is, he was to ſeek ſome other citizen of better ſubſtance than himſelf, who was free from this, and other offices; in which caſe, the former was excuſed. In caſe the perſon thus ſubſtituted denied himſelf to be the richeſt, they were to exchange eſtates, after this manner; the doors of their houſes were cloſe ſhut up and ſealed, that nothing might be conveyed away; then both took an oath to make a faithful diſcovery of all their effects, except what lay in the ſilver mines; which by the law was excuſed from all impoſts; accordingly, within three days, a full diſcovery and exchange of eſtates was made. Porter, Archæol. lib. 1. cap. 15.

ANTIDOTARY is uſed by ſome writers for what we more uſually call a DISPENSATORY.

We have *antidotaries* extant of ſeveral authors, as thoſe of Nicolaus, Meuſe, Myrepſus, Rhaſis, &c.

ANTIDOTE, a remedy taken either to prevent, or cure, ſome contagious, malignant, or other dangerous diſeaſe. The word is borrowed from αντι, *againſt*, and διδωμι, *I give*; as being ſomething given againſt poiſon, either by way of cure or preſervative.

ANTIDOTE, is alſo uſed to ſignify a medicine taken to prevent the ill effects of ſome other; for inſtance, poiſon.

In which ſenſe the word has the ſame ſignification with alexipharmic, alexiterial, and counterpoiſon.

The Indian phyſic conſiſts much in the uſe of *antidotes*; viz. the root *mungo*, and the viper-ſtone; both held ſovereign againſt the bite of the *cobras de capello*, and other venomous creatures.

ANTIDOTE is alſo uſed, in a more general ſenſe, for any compounded medicine.

In which ſenſe, Peter Damian ſpeaks of a perſon who in his whole life never took an *antidote*.

ANTIDOTE is alſo uſed in a leſs proper ſenſe for any remedy againſt any diſeaſe, chiefly if it be inveterate, and ariſe from ſome ulcer or abſceſs.

ANTIDOTE is alſo uſed for a perpetual form of medicines, otherwiſe called *opiates*, or more properly CONFECTIONS.

ANTIDOTE is alſo *myſtically* applied to the philoſopher's ſtone.

ANTIENT. See ANCIENT.

ANTIGRAPHE, from ἀντι, and γραφω, *I write*, in *Antiquity*, denotes a law-fuit about kindred, whereby a perfon claimed relation to fuch or fuch a family.

The *antigraphe* appears to have been the fame with the ἀφανειας δικη.

ANTIGRAPHUS, in *Antiquity*, an officer of Athens, who kept a counterpart of the *apodexis*, or chief treasurer's accounts, to prevent miftakes, and keep them from being falfified. Potter Arch. lib. i. cap. 14.

ANTIGRAPHUS is alfo ufed, in *Middle Age Writers*, for a fecretary or chancellor. He is thus called, according to the old glofsariſts, on account of his writing anfwers to the letters fent to his maſter. The *antigraphus* is fometimes alfo called *archigraphus*; and his dignity *antigraphia*, or *archigraphia*. Du-Cange.

ANTIGRAPHUS is alfo ufed in Iſidorus for one of the notes of fentences, which is placed with a dot to denote a diverſity of fenſe in tranſlations.

ANTIGRAPHUS is alſo applied in *Eccleſiaſtical Writers* to an ABBREVIATOR of the papal letters.

In which fenſe the word is ufed by pope Gregory the Great in his Regiſter.

Of late days the office of *antigraphus* conſiſts in making minutes of bulls from the petitions given in to him by his holineſs, and renewing the BULLS after engroſſing.

ANTIGUGLER, is a crooked tube of metal, ſo bent, as eaſily to be introduced into the necks of bottles, and uſed in decanting liquors, without diſturbing them. For this purpoſe the bottle ſhould be a little inclined, and about half a ſpoonful of the liquor poured out, ſo as to admit an equal quantity of air; let one end of the bent tube be ſtopped with the finger, whilſt the other is thruſt into the body of the liquor near to the bubble of air already admitted. When the finger is taken off, the bottle will have vent, and the liquor will run out ſteadily and undiſturbed. See SIPHON.

ANTIHECTICS, remedies againſt hectical diſorders.

ANTIHECTICUM *Poteri*, in *Pharmacy*, a celebrated chemical preparation, made of equal quantities of tin and chalybeated regulus of antimony, by melting them in a large crucible, and putting to them, by little and little, three times the quantity of nitre: the DETONATION being over, the whole is to be waſhed with warm water till no ſaltneſs remains.

This has been formerly eſteemed as a very penetrating medicine, making way into the minuteſt paſſages, and ſearching even the nervous cells; whence its uſe in hectic diſorders, from which it derives its name. It has been accordingly recommended in heavineſs of the head, giddineſs and dimneſs of ſight, from whence proceed apoplexies, and epilepſies; and in all affections and foulneſſes of the viſcera of the lower belly; and alſo in the jaundice, dropſies, and all kinds of cachexies. Quincy adds, that there is ſcarce a preparation in the chemical pharmacy of greater efficacy in moſt obſtinate chronic diſtempers. But Neumann obſerves, that it has no claim to antihectic virtues, nor indeed to any ſalutary operation; and it is now generally diſregarded. See Neumann's Chem. Works, p. 89, and 138.

It is alſo called *antimonium diaphoreticum ſolidi*.

There are divers methods of preparing it, given by Wedelius, Etmuller, &c.

A learned author ſpeaks of it as fatal to conſumptive perſons.

ANTILEXIS, from ἀντιλεγω, *I contradict*, in *Antiquity*, denotes a new trial granted in the Athenian judicatories, where judgment had before paſſed againſt a party for non-appearance.

ANTILOGARITHM, the COMPLEMENT of the LOGARITHM of a ſine, tangent, or ſecant.

ANTILOGY, a contradiction between two expreſſions, or paſſages, in an author.

The word is ἀντιλογια, q. d. *contrary ſaying*.

Tirinus has publiſhed a large index of the ſeeming *antilogies* in the BIBLE, i. e. of texts which apparently contradict each other, but which are all explained and reconciled by him, in his comments on the Bible. Dom. Magri, a Malteſe of the *Oratory* in Italy, has attempted the like; but he has done little more than rehearſe what occurs of that kind in the principal commentators.

ANTILUTHERANS, a ſect or party among the ancient reformers, who maintained opinions, chiefly in relation to the euchariſt, different from thoſe of Luther.

Such were Carolofadius and his followers, called alſo *Sacramentarians*; and thoſe of Zuinglius denominated *Zuinglians*.

The ſect of *Antilutherans*, at firſt confined within narrow bounds, in a few years time ſubdivided into ſix or ſeven inferior ſects, and ere long into an infinite number more variouſly denominated.

ANTILYSSUS *pulvis*, in *Medicine*, is compoſed of equal parts of the LICHEN *cranei terreſtris* & *piper nigr.* It is reckoned uſeful in preventing the RABIES *canina*. Phil. Tranſ. N° 448.

ANTIMENSIUM, a kind of conſecrated table-cloth, occaſionally uſed in the Greek Church, in places where there is no proper altar.

F. Goar obſerves, that in regard the Greeks had but few conſecrated churches, and that conſecrated altars are not things eaſy to be removed; that church has, for many ages, made uſe of certain conſecrated ſtuffs, or linens, called *antimenſia*, to ſerve the purpoſes thereof.

ANTIMENSIUM, in the Greek *Church*, anſwers to the *altare portabile*, or portable altar, in the Latin Church. They are both only of late invention, though Habertus would have them as old as St. Baſil. But Durant and Bona do not pretend to find them in any author before the time of Gregory and Charlemagne.

ANTIMENSIA is alſo applied to other tables, uſed in offices of religion, beſides thoſe whereon the euchariſt is adminiſtered: ſuch, e. gr. are thoſe whereon the hoſt is expoſed, &c. The origin of the *antimenſia* is deſcribed by Meurſius; when the biſhop had conſecrated a church, the cloth which had been ſpread on the ground, and over the communion table, was torn in pieces, and diſtributed among the prieſts, who carried each a fragment away, to ſerve to cover their tables in their churches and chapels. Not that it was neceſſary that ſuch cloths ſhould be laid on all tables: but only on thoſe which either were not conſecrated, or at leaſt whoſe conſecration was doubted of.

ANTIMENSIUS, an ancient officer in the Greek church, whoſe buſineſs was to introduce and place the communicants at the euchariſt.

Some have imagined that he had the care of the *antimenſia*. But this rather belonged to the office of great *ſecretophylax*. He is otherwiſe called chief of the *antimenſia*.

ANTIMERIA, from ἀντι, and μερος, *a part*, in *Grammar*, a figure whereby one part of ſpeech is uſed for another; e. gr. *velle ſuum cuique eſt*, for *voluntas ſui cuique eſt*. Alſo *populus late rex*, for *populus late regnans*.

ANTIMERIA, in a more reſtrained ſenſe, is a figure whereby the noun is repeated inſtead of the pronoun.

The *antimeria* is frequent in the Hebrew, and is ſometimes retained in our verſion of the Old Teſtament accordingly: e. gr. *Hear my Voice, ye wives of Lamech*, for *my voice*. Gen. ch. iv. ver. 23.

ANTIMETABOLE, in *Rhetoric*, a figure which ſets two things in oppoſition to each other.

The word is compounded of ἀντι, *againſt*, and μεταβαλλω from μεταβολη, *I ſhift*, or *tranſfer*; i. e. a ſhifting, or ſetting two things over-againſt each other.

This figure is twice exemplified in an apophthegm of Muſonius; which, on account of its excellence, is called *aurcum monitum*, the golden maxim or precept.

Ἀν τι πραξῃς καλὸν μετὰ πόνου, τὸ μὲν πόνος ἔρχεται, τὸ δὲ καλὸν μένει. Ἂν τι πονήσῃς αἰσχρὸν μετὰ ἡδονῆς, τὸ μὲν τῆδε ἔρχεται, τὸ δὲ αἰσχρὸν μένει.

In Engliſh thus:

Allowing the performance of an honourable action to be attended with labour; the labour is ſoon over, but the honour immortal: whereas, ſhould even pleaſure wait on the commiſſion of what is diſhonourable, the pleaſure is ſoon gone, and the diſhonour eternal.

ANTIMETATHESIS, from ἀντι, and μετατιθημι, *I tranſfer*, in *Rhetoric*, is the inverſion of the parts or membeis of an ANTITHESIS. Such is that of Cicero, in Verrem, lib. iv. cap. 52. 'Compare this peace with that war; 'the arrival of this governor with the victory of that ge'neral; his profligate troops with the invincible army of 'the other; the luxury of the former with the tempe'rance of the latter: you will ſay, that Syracuſe was 'founded by him who took it; and taken by him, who 'held it when founded.'

ANTIMISIUM, in *Antiquity*, a table placed before the Roman tribunal, or judgment-ſeat.

What relation this has to the *antimenſia* in the Greek church does not appear. Some writers confound them together as the ſame thing.

ANTIMONARCHICAL, from ἀντι, and μοναρχια, of μονος, *alone*, and ἀρχω, *dominion*, ſomething that oppoſes, or ſtands againſt, monarchy, or kingly government.

Antimonarchical is frequently uſed in the ſenſe of *republican*.

ANTIMONARCHIST, a perſon who maintains *antimonarchical* principles.

Buchanan, Milton, Hottoman, Languet, Ludlow, Sydney, and others, are celebrated *antimonarchiſts*.

ANTIMONARCHOMACHI, from ἀντιμοναρχος, and μαχη, *conteſt*, *antimonarchomachiſts*, is uſed by ſome political writers to denote maintainers of monarchical or abſolute power veſted by divine right in the perſons of princes. In which ſenſe, *antimonarchomachi* ſtand oppoſed to *monarchomachi*.

King James the firſt, Salmaſius, Peter du Moulin, biſhop Bramhall, Albericus Gentilis, Ziegler, William and George Barclay, Bochart, &c. have diſtinguiſhed themſelves in the claſs of *antemonarchomachiſts*. Acker has treated profeſſedly of the *monarchomachiſts* and *antimonarchomachiſts*.

ANTIMONIALS, in *Medicine*, denote preparations of antimony; or remedies whereof *antimony* is the baſis, or principal ingredient.

Antimonials are chiefly of an emetic tendency; though they may be ſo qualified, as to become either cathartic, or diaphoretic, or even only alterative. See WARD's *Pill*.

Quincy aſſures us, that there are no medicines in pharmacy to be compared with theſe in *maniacal* affections; for that there are no emetics, or cathartics, of any other tribe, that are ſtrong enough for ſuch patients, unleſs in an over-doſe; which might be dangerous.

An *antimonial* cup, made either of glaſs of *antimony*, or of *antimony* prepared of ſalt-petre, though a ſubſtance indiſſoluble by the ſtomach, will give a ſtrong cathartic, or emetic quality to any liquor poured into it, without any diminution of its own weight.

Beſides thoſe numerous preparations which take their denominations from *antimony*, the chief of which are enumerated under that article, there are ſeveral other *antimonial* medicines. Such are the *crocus metallorum*, Poterius's cordial, the TINCTURA *metallorum*, *mercurius vitæ*, or powder of ALGAROT, *bezoardicum minerale*, *ſulphur metallorum*, the Carthuſian powder, or KERMES mineral, &c.

Lemery deſcribes ſeveral other preparations of this mineral.

ANTIMONIATED, ſomething tinged with the qualities, or reſembling the appearances, of *antimony*.

Dr. Woodward ſpeaks of a kind of ſtriated, or *antimoniated*, lead-ore.

ANTIMONY, in *Natural Hiſtory*, a mineral ſubſtance of a metalline nature; having all the ſeeming characters of a real metal, excepting only *malleability*. It is of a ſhining lead colour, and its maſſes have no determinate figure, but are compoſed of long brittle parallel needles. It is made up of a ſemi-metallic ſubſtance, called its *regulus*, united with ſulphur, as moſt metallic ſubſtances are in their mineral ſtate.

There are two kinds of *antimony*; 1. *Antimony native* or *mineral*, which is in the ſame ſtate as when dug out of the earth. 2. *Antimony fuſed*, ſo called, becauſe it has been actually *fuſed*, to ſeparate it from adhering to ſtones and earth. This operation which ought rather to be called *liquation* than *fuſion*, conſidering theſe words in their metallurgic ſenſe, is made in great perfection upon the grounds whence *antimony* is dug. The proceſs is very ſimple and eaſy. It conſiſts in placing the minerals in earthen pots, pierced in their bottoms with ſmall holes, and put into a furnace, where they receive the neceſſary heat for the *fuſion* of the *antimony*. As it is very *fuſible*, for it melts before it is red, this heat is much leſs than is neceſſary for the fuſion of the earthy and ſtony matters mixed with it; when it is thus melted, it runs through the holes above mentioned, into other pots below, defended from the heat as much as poſſible. In theſe receivers the *antimony* is allowed to cool and fix, and from them it takes the form of cakes, in which it is ſold.

Hungary and Auvergne furniſh moſt *antimony*, though it is alſo found in other countries and in different forms.

Antimony is the *ſtibium* of the ancients; by the Greeks called, *ευιμι*.—The reaſon of its modern denomination, *antimony*, is uſually referred to Baſil Valentine, a German monk, who, as the tradition relates, having thrown ſome of it to the hogs, obſerved, that, after purging them violently, they immediately grew fat upon it. This made him think, that, by giving his fellow-monks a like doſe, they would be the better for it. The experiment, however, ſucceeded ſo ill, that they all died of it; and the medicine, thenceforward, was called *antimony*, q. d. *anti-monk*.

Its ſingular properties and effects have occaſioned it various other denominations; as *Proteus*, by reaſon of its various forms and appearances, *lupus devorator*, SATURN *of the philoſophers*, *balneum ſolis*, *lavacrum leproſorum*, *radix metallorum*, *magneſia Saturni*, &c. all chiefly reſpecting its faculty of deſtroying and diſſipating whatever metals are fuſed along with it, except gold; whence its great uſe in refining and purifying.

Antimony is found in mines of all metals; but chiefly in thoſe of ſilver and lead: that in gold mines is uſually held the beſt.—It has alſo its own peculiar mines.

Antimony is found in clods of ſeveral ſizes, bearing a near reſemblance to black lead; only that it is lighter and harder; whence alſo it is called *marcaſita of lead*; and its metalline part has been by ſome ſuppoſed to be of the ſpecies.

Its texture is ſomewhat particular, being full of little ſhining veins or threads like needles, brittle as glaſs.—Sometimes there are veins of a red, or golden colour intermixed, from which it is called *male antimony*; that without them being denominated *female*.

Antimony ores are found in fiſſures and veins at different depths, and often near the very ſurface, and variouſly accompanied with ſpars, cryſtals, ſulphurs, and other ſubſtances. Sometimes the veins of it are every way ſurrounded by a tolerable pure yellow native ſulphur; ſometimes with a more debaſed matter, made of a mixture of ſulphur, earth, and ſpar, differing according to the different diſpoſition and admixture of theſe bodies.

Antimony is found in great abundance in England and Germany; we have ſeveral mines of it in Cornwall; and many other parts of the world afford it in very great abundance.

ANTIMONY, *ore of*. The way of running down *antimony* out of its ore by the *aſſayers*, is as follows. Take a crucible that will hold ſome pounds of *antimony* ore broken into pieces of the ſize of a hazel-nut, and bore at the bottom of [illegible] place this bottom in the mouth of another ſmaller crucible, put in the ore, and cover the orifice with a tile; then lute all the junctures, and place this on the pavement of the hearth, making a circle of ſtones all round it, at ſix inches diſtance; fill this intermediate ſpace with aſhes ſo high, that the lower pot may be covered up to its rim, then put freſh burning coals upon the whole, and blow the fire ſtrongly with a pair of hand-bellows, to make the upper veſſel red-hot: when it has been ſo a quarter of an hour, take away the fire, and when the veſſels are cold, open them, and the *antimony* will be found in form of a *regulus* in the under veſſel. Cramer's Art of Aſſaying, p. 356.

The moſt ready method of ſuſing *antimony*, yet known, is by means of that mineral ſubſtance called CAWK. A lump of this, of the bigneſs of a wallnut, thrown red-hot into a pound of *antimony* in fuſion, converts almoſt the whole ſubſtance of it into glaſs, fifteen ounces of clear and fine glaſs being thus produced; and what is very remarkable, the *cawk* itſelf never melts in the metal.

ANTIMONY, *texture of*. M. de Reaumur gives the following account of the contexture of *antimony*, or *ſtibium*.

Nothing is more common, than to obſerve on the ſurface of broken *antimony* long and ſhining needles, as it were; and that *antimony*, on which theſe are moſt diſtinct and viſible, is eſteemed the beſt. Sometimes theſe ſtreaks are ranged with ſo much order, and branch out ſo regularly in certain directions, that thoſe who are ever ſo converſant with it, cannot but admire its beauty. The figures of the conſtituent molecules of this mineral may poſſibly contribute ſomething to the formation of theſe needles, but the texture, and configuration of the conſtituent parts, will not alone account for the diſpoſition of theſe ſtreaks, and their arrangements, in regard to one another; ſince upon breaking different lumps of the ſame *antimony*, and thoſe of the ſame ſhape, we frequently obſerve quite different configurations of the needles. Let us take, for inſtance, equal maſſes of *antimony* of a regular conic figure, theſe being moſt frequent, from the ſhape of the veſſel they cool in, which reſembles a funnel, or inverted cone; let ſeveral of theſe conical maſſes be broken into different parts, and we ſhall ſee the needles in very different directions in theſe ſeveral parts. Notwithſtanding, however, all theſe varieties in form, the cauſe of all the appearances is wholly the ſame, and is no other than that refrigeration, by which the maſs is changed from a fluid into a ſolid ſtate; and to the progreſs of this the needles plainly owe their different directions.

All melted metals cool firſt at the tops and ſides, and thence by degrees through the whole body of the maſs: the particles at the ſides and top, which firſt cool, becoming fixt to thoſe which are neareſt them, affix thoſe, and they are the next that cool, and ſo on, in ſucceſſive order; now *molecular*, of whatever ſhape, thus affixed ſucceſſively to each other, form a kind of threads or needles, the ſeveral directions of which ſhew the order in which the refrigeration has been carried on.

If the crucible, or other veſſel, in which the melted *antimony* is ſuffered to cool, were in the ſhape of a hollow bowl; if its ſides were every where equally thick, and equally warm, and acted equally upon by an air equally cold; and if the melted ſubſtance were of the ſame uniform nature, alſo, in all its parts, all the needles or fibres would be then ſo many rays, terminating in the centre of the bowl; and if the ſubſtance were ſuch, that

its

its fixed particles were naturally all of a length, we ſhould find ſo many concentrical beds of needles, formed by parcels of each ray, and lying at equal diſtances from the centre.

But ſo many regular circumſtances do not concur in the cooling of melted *antimony*; and hence the before mentioned irregularities muſt neceſſarily ariſe. In melting *antimony* in conical crucibles, and ſuffering it to cool in them, the needles may be determined ſeveral ways, to any direction one may chooſe.

Lead, when heated to a certain degree, ceaſes to be ductile, and is brittle, and broken at this juncture is found to be granulared, appearing like broken ſteel; there is no reaſon to doubt, but that this is alſo the caſe, when that metal is perfectly cold, but that the force required to ſeparate, or break it, deſtroys its proper ſtructure.

M. Reaumur melted lead in a conical crucible, and ſuffering it to cool to a certain degree only, he broke the maſs into ſeveral large lumps by a ſmart blow of a hammer, and in theſe found the ſame needles as in *antimony*, the granules having cohered in long trains, juſt as the *moleculæ* of the *antimony*; and the diſpoſitions of the ſeveral groups of needles in the lead, in regard to the ſides and bottom of the crucible, were the very ſame with thoſe of *antimony*. But there is this manifeſt difference between the needles of lead, and thoſe of *antimony*, that whereas the latter are flat and extremely gloſſy, the former are viſibly round, and much leſs bright. Mem. Acad. Scienc. Par. 1724.

Antimony is ſuppoſed, by many of the *chemiſts*, to contain the ſeminal principles of all kind of metals; and accordingly the character whereby it is denoted in their writings, is the ſame with the character of the earth; to denote that *antimony* is a kind of microcoſm.

There have not been wanting perſons, who have pretended to extract mere running *mercury* from *antimony*, and Mr. Boyle believed it might be done; but this is one of the many great things pretended to by chemiſtry, of which we have yet no ſufficient proof.

The uſes of *antimony* are very numerous, and important. It is a common ingredient in *ſpecula*, or *burning* CONCAVES, ſerving to give the compoſition a finer texture. It makes a part in BELL *metal*; and renders the ſound more clear. It is mingled with TIN to make it more hard, white, and ſounding; and with LEAD, in the caſting of printers letters, to render them more ſmooth and firm. It is alſo a general help in the melting of metals, and eſpecially in the caſting of cannon balls.

The purification of gold, by means of *antimony*, is performed in this manner. Before you enter on the proceſs, if it is neceſſary to aſſeſs, as nearly as may be, at the alloy of the gold, by the TOUCH *needles*, or otherwiſe. If the quantity of gold in the maſs is not leſs than three quarters, that is, eighteen carats, the maſs muſt be melted in a wind-furnace, and the crucible muſt be covered, to prevent coals falling in; this done put into it, at ſeveral times, double the quantity of crude *antimony* in fine powder, as ſoon as one portion of the *antimony* is melted, putting in another: let the whole continue in fuſion a few minutes, then pour it into a melting cone, warmed, and rubbed with tallow, and ſtrike with a hammer on the floor, near where the cone ſtands, that the heavier part may ſink to the bottom. When all is cold, invert the cone, and ſtrike it, and a maſs will fall out, having at bottom a *regulus*, more or leſs yellow, according to the quantity of the gold in the mixture; this will with a few blows be ſeparated from the ſulphureous cruſt, which is at top. Melt in a ſmaller fire this *regulus*, and when in fuſion add to it a double quantity of crude *antimony* in powder, and pour it out into the cone again a little after; ſeparate the *regulus* from the *antimony* at top, and then repeat this operation once more. When this is done, put the ſeparated *regulus* into a thick good teſt, place this in the furnace immediately before the bellows, put coals round it, and one or two pieces of wood upon them, and make a middling fire, ſuch as is ſufficient to melt the *regulus*, the reguline part of the *antimony* will vaniſh in a thick ſmoak; then increaſe the fire, and keep it ſo, till the fumes are over, and the ſurface of the gold is of a fine green; and afterwards give the gold another fuſion with borax and nitre, and it will be perfectly pure. But gold cannot be ſeparated from *platina* in this way; and ſometimes a little ſilver will remain, which has been defended by the gold from the action of the *antimony*.

When the gold to be purified by this proceſs is impure, to an alloy of eight carats, it is not proper to perform the precipitation by *antimony* alone, but there ſhould be added as many times two carats of common ſulphur, as the alloy of the gold is ſo many carats leſs than eighteen. Cramer's Art of Aſſaying, p. 270.

Mr. Homberg being well aſſured, that water was a *menſtruum* capable of diſſolving all the metals, if properly applied, uſed it, in ſeveral different ways, in his *analyſis* of *antimony*. He made an *infuſion of antimony* in water, putting into ſeveral glaſs veſſels crude *antimony*, coarſely powdered, five pounds into each veſſel, and to each of theſe quantities he added two pints of rain-water; after the *antimony* had ſtood thus for ſix months, the ſeveral parcels were uſed on different occaſions, one only excepted, which had been forgotten, and had at length ſtood two winters and a ſummer; having at length found this veſſel, he obſerved that its inſide was every where coated over with configurations of leaves; he at firſt ſuppoſed this to be owing to ſome ſalts of the *antimony*, which had been diſſolved in the water, and had afterwards cryſtallized themſelves in this manner, as the *butter of antimony* is ſometimes known to do in ſublimation; but on rubbing the ſides of the veſſel with a finger, and afterwards ſcraping them with a knife, he found that they were covered with a yellowiſh pellicle, without the leaſt appearance of ſalt, and that the configurations of the leaves were not raiſed upon this pellicle, but ſunk, as if graved by a tool. The water taſted ſomewhat acid, and being tried on *turnſol*, and on different metallic ſolutions, it turned the *turnſol* to a light red, and turned a ſolution of ſilver white; whence it appeared to be an acid, and of the nature of that of ſea-ſalt. The ſunſhine had turned this water four, had made it act upon the *antimony*, and taken up a part of its ſalt. This ſalt, in the winter, was probably afterwards concreted into figures of leaves, formed upon the mud depoſited by the water on the ſides of the veſſel; and theſe ſalts being afterwards diſſolved again in ſome hotter weather, had eaten their way into this ſediment of mud, in the form of the leaves, &c. in which they had concreted. Mem. Acad. Par. 1693.

Antimony, at firſt, was of ſervice only in the compoſition of paint. Scripture deſcribes it to us as a ſort of paint, with which the women blacken their eye-brows. Jezebel underſtanding that Jehu was to enter Sumaria, painted her eyes with *antimony*, or, according to the Hebrew, "put her eyes in *antimony*."

As large black eyes were thought the fineſt, they of both ſexes, who were careful of their beauty, rubbed their eyes, eye-lids, and round the eyes, with a needle dipped in a box of paint made of *antimony*, with a deſign of blackening them.

At this day the women of Syria, Arabia, and Babylonia, anoint and blacken themſelves about the eyes; and both men and women put black upon their eyes in the Deſert, to preſerve them from the heat of the ſun, and the piercing of its rays. M. Darvieux tells us, that the Arabian women border their eyes with a black colour made of *nuts*, which the Arabians call *rehek*. They draw a line of this kind of blacking without the corner of their eyes, to make them appear larger. Iſaiah, in his enumeration of the ſeveral ornaments belonging to the daughters of Sion, has not forgot the needles which they made uſe of in painting their eyes and eye-lids: nor has this practice eſcaped the laſh of Juvenal.

Ille ſupercilium madida fuligine ſimtum
Obliqua producit acu, pingitque tremontes
Attollens oculos.

Ezekiel, deſcribing the irregularities of the Jewiſh nation under the idea of a debauched woman, ſays, that ſhe bathed, and perfumed herſelf, and that ſhe anointed her eyes with *antimony*. Job ſhews ſufficiently how much *antimony* was in eſteem, by calling one of his daughters a veſſel of *antimony*, or a box to put paint in, *cornu ſtibii*. Tertullian and St. Cyprian have declaimed very warmly againſt this cuſtom of painting the eyes and eye-brows.

ANTIMONY, *medicinal hiſtory of*. Before the fourteenth century, *antimony* had no place in *Medicine*. But, about that time, Baſil Valentine, having found a method of preparing and correcting the dangerous qualities of its ſulphur, publiſhed a book, intituled *Currus triumphalis Antimonii*, wherein he maintained it a ſure remedy for all diſeaſes.—But, in ſpite of all he could ſay in its behalf, though confirmed by experience, *antimony* remained in a general neglect upwards of an hundred years: till about the beginning of the ſixteenth century, when it was brought into vogue by Paracelſus.—The parliament of Paris, immediately upon this reſtoration, condemned the uſe of it in form; and a phyſician, named Belnier, having been found delinquent herein, was expelled the faculty. It ſeems, a great deal of miſchief had been done by it, for want of knowing the proper ways of g[illegible]ing it; ſo that the *arrêt* of parliament repreſents it [illegible]

mere poiſon, incapable of being corrected by any method of preparation, and not to be taken inwardly, without the utmoſt damage.

Several learned men complained of ſo ſevere and unjuſt a prohibition; and, by a courſe of happy experiments, at length brought it into eſteem again: whence, in ſpite of all the inveſtives made againſt *antimony* by divers authors, it was at length replaced, in the year 1637, by public authority, among the number of purgative drugs; and was inſerted, accordingly, in the Pharmacopœia, publiſhed by the faculty that ſame year.

Patin did all he could to decry *antimony*: in his letters we find an unuſual vehemence expreſſed againſt it.—He had even compiled a large regiſter of perſons whom the phyſicians had killed by it; which he called *the Martyrology of Antimony*.

Antimony, in *Medicine*, &c. is not only given in ſubſtance, but many preparations of it are uſed; which are either emetic, cathartic, diaphoretic, or ſudorific. *Crude antimony* in powder is found good for diſſolving viſcidities, in cutaneous diſeaſes, and, as ſome very confidently aſſert, in convulſions and epilepſies.

Crude antimony is recommended in palſies, pains and numbneſs, which come on after a ſalivation, and is ſaid to have cured ſeveral who were paralytic from other cauſes. The method of giving it, is to begin with three grains, increaſing the doſe with three grains every day, to half a drachm; after which the doſe is diminiſhed three grains every day, till it comes down to the quantity of the firſt doſe. Externally, in ointments, it is commended for drying up ulcers, curing the itch, and in plaſters for reſolving of tumors.

There appears no reaſon for people's being afraid of giving crude *antimony* internally; experience ſhews it to be a ſafe medicine, unleſs by accident the acid of the ſtomach ſhould be ſufficient to act as a *menſtruum* to it.

The preparations of *Antimony* are, 1. *Sulphur præcipitatum antimonii*. 2. *Crocus antimonii*, called alſo *crocus metallorum*. 3. *Crocus antimonii lotus*. 4. *Cake antimonii*, called *antimonium diaphoreticum*. 5. *Tartarum emeticum*. 6. *Cauſticum antimoniale*. 7. *Cinnabaris antimonii*. 8. *Regulus antimonii martialis*. 9. *Tinctura antimonii*. 10. The *Kermes* mineral, or *Carthuſian* powder. See theſe articles ſeparately.

The virtues of *antimony*, in the diſeaſes of animals, are very great, and very evident on any trial. Pigs that have the meaſles are at all times recovered by it, which proves it a great purifier of the blood. Horſes who have running heels, that cannot be cured by the common methods uſed by the farriers, will generally be cured by this medicine in a little time. The manner of uſing it is this: mix one drachm with every feeding of oats which the horſe has in a morning; it is beſt put together in one place, buried under a few oats, and the horſe's head being with-held a little, and then let go juſt againſt that place, he will take it all in at a mouthful. Some horſes do not diſlike it, others obſtinately refuſe it, but to theſe it may eaſily be given in balls. The virtues of this drug, in fattening of cattle, have by many been thought imaginary, but experiment proves it to be a real truth. A horſe that is lean and ſcabby, and not to be fatted by any other means, will become fat on taking a doſe of *antimony* every morning, for two months together. A boar fed for brawn, and having an ounce of *antimony* given him every morning, will become fat a fortnight ſooner than others put into the ſtye at the ſame time, and fed in the ſame manner, but without the *antimony*. Phil. Tranſ. N° 39.

It is generally ſuppoſed, that the vapours of *antimony* are poiſonous when raiſed by fire, but it appears otherwiſe from the operations M. Geoffroy made on it; he having once gone through ſixty calcinations of twelve ounces of *antimony*, without receiving any harm from it; whence it is very evident, that the common opinion of the fumes of *antimony* containing an arſenical ſulphur, is an erroneous one; and it may be added, that one great mark of *antimony*'s being good, is, that it loſes a great deal of its weight in calcination. It has more ſulphur in this caſe, which the fire raiſes in a vapour, and leſs of the terreſtrial matter or ſpar, which are uſually very abundant in it. Mr. Geoffroy, by theſe nice obſervations and experiments, diſcovered that *antimony* contained much leſs common ſulphur than had been generally ſuppoſed, ſince it can be made to loſe, at the utmoſt, only three ounces and five drachms in the pound in calcination. The emetic quality of the *regulus* proves, however, that it yet contains a very large ſhare of ſulphur, though of another kind: this Mr. Geoffroy diſtinguiſhes from the common ſulphur, by the name of the *metallic* SULPHUR. Mem. Acad. Scienc. Par. 1736.

It is evident, that whatever acid *antimony* contains, muſt be of the nature of ſpirit of ſulphur, ſince ſulphur ſo greatly abounds in the compoſition of that mineral, and its ſulphur is wholly the ſame with the common brimſtone. Whatever acid, therefore, of this kind could be produced, would be wholly the produce of the common ſulphur in that mineral, and not of the *regulus* part, which alone is properly *antimony*. Experiments prove the truth of this opinion, the *acid of antimony*, truly ſeparated from it, being no way different, in any particular, from that of crude ſulphur.

There are ſeveral ways by which it may be made; however, it is but little that can be obtained, and then it is aſſuredly the pure acid of the ſulphur of *antimony*. The operation, however perfect, is of little value. Mem. Acad. Par. 1700.

ANTIMONY, *butter of*, is a white and thick liquor; otherwiſe called *icy oil of antimony*; compoſed of marine acid united to the reguline part of *antimony*, whence its property of attracting moiſture from the air, and its cauſticity. It is uſually prepared of *crude* (though ſometimes of *regulus* of) *antimony*, and corroſive ſublimate, by pulveriſing, mixing, and diſtilling them by a gentle heat: upon which the butter riſes into the neck of the retort; from which, when full, it is to be melted down into a receiver, by the application of live coals.

It is a very [illegible] metallic taſte, and a poiſon when uſed internally. Externally it is applied as a cauſtic to ſtop gangrenes, and cure carieſes, cancers, &c. This *butter* may be converted into an oil, called alſo *rectified butter of antimony*, by gently diſtilling it a ſecond time; which renders it more fluid, ſubtile, volatile, and efficacious.

This, digeſted with thrice its weight of *alcohal*, makes the purple tincture of *antimony*; a ſecret highly valued by Mr. Boyle, as an excellent vomit.

Of *butter of antimony* are alſo prepared the BEZOAR *mineral*, and *powder of* ALGAROT.

The operation of making *butter of antimony* furniſhes an influence of the power of the Newtonian principle of attraction. When *mercury ſublimate* is ſublimed from *antimony*, or from *regulus of antimony*, the ſpirit of ſalt lets go the *mercury*, and unites with the *antimonial* metal, which attracts it more ſtrongly, and ſtays with it till the heat be great enough to make them both aſcend together, and then carries the metal with it in the form of a *butter of antimony*; though the ſpirit of ſalt alone be almoſt as volatile as water, and the *antimony* alone as fixed as lead.

ANTIMONY, *calx of*, is obtained by expoſing *crude antimony*, groſly powdered, in a flat and ſhallow earthen veſſel, to the action of a moderate fire, taking care to ſtir it conſtantly. During this *calcination* the ſulphur, being leſs fixed than the metalline part, is gradually evaporated, and the *calcination* is continued, till no more ſulphureous vapour ariſe. What remains is the metallic part, ſeparated from the mineral ſulphur, and even deprived of part of its own inflammable principle. This ſubſtance is more fixed and leſs fuſible than *antimony*, as in general all metallic earths are, becauſe deprived of more of their inflammable principle. It is called CALX *of antimony*, and is of a grey aſh colour. This is violently emetic, and purgative. The native *calx of antimony* was lately diſcovered by Mr. Monges; it conſiſts of a group of white cryſtallized filaments diverging from a common centre: urged with a blow-pipe or charcoal, it will be diſſipated; which, together with its infuſibility in nitrous acid, is ſufficient to diſtinguiſh it. Kirwan's El. Min. p. 325.

ANTIMONY, *ceruſs of*, is the *regulus* diſſolved with ſpirit of nitre, in a ſand-furnace; what remains after the fumes are all ſpent, is a white powder; which, being waſhed ſweet, is the *ceruſs* required.—It is diaphoretic; and, by many, is ſet on a footing with the *mineral kermes*.

ANTIMONY, *cinnabar of*, is prepared of mercury, ſulphur, and *antimony*, mixed and ſublimed in a luted bolt-head, and a naked fire.—It is a good diaphoretic and alterative.

There is alſo a *cinnabar of antimony* procured after the *butter of antimony* has done riſing, by increaſing the degree of fire.—This, ſublimed a ſecond time, makes yet a better *cinnabar*.

ANTIMONY, *elyſſus of*. See CLYSSUS.

ANTIMONY, *crocus of*, is the ſame with what we otherwiſe call *crocus metallorum*; excepting that this latter is more mild, and leſs emetic; being made by repeated lotions of the former, in warm water, and then drying it again to a powder. See CROCUS *metallorum*.

It is alſo called *opaline magneſia, terra ſanctæ Rulandi, terra aurea, terra rubra*, &c.

ANTIMONY, *crude*, or *antimony in ſubſtance*, is the native mineral *antimony*, melted down and caſt in cones as above mentioned.—It is much uſed in diet-drinks, and decoctions of the woods, and in compoſitions againſt the ſcurvy, as a diaphoretic, and deobſtruent.

ANTIMONY, *diaphoretic*, is prepared of *antimony*, powdered, and mixed with three times the quantity of nitre; and the mixture thrown, at several times, into an ignited crucible: upon which a detonation enfues. What remains, being kept in fufion a quarter of an hour, turns into a white mafs, called *antimonium diaphoreticum nitratum*, or *diaphoretic antimony with nitre*; the *antimony* being hereby bereaved of its emetic and purgative virtue, and rendered only diaphoretic.

If the air have acceſs to it, it will again become emetic. There is alſo a kind of fweet diaphoretic *antimony*, made of the former, by pulverizing, boiling it in water, and filtrating the decoction: upon which a white powder will be left in the filtre; which being waſhed by repeated affuſions of warm water, and dried, is the *dulcified diaphoretic antimony*.—This is given as an alexipharmic in malignant fevers, fmall-pox, &c. particularly in caſe of deliriums. It is alſo applied in fcorbutic and venereal diſorders: but the learned Boerhaave abſolutely decries it, as a mere metallic calx, deſtitute of all medicinal virtue, and only fit to load and choak up the body, by its inactivity and weight.

ANTIMONY, *diaphoretic nitre of*, is made by exhaling the ſolution of the preceding preparation over a gentle fire, [illegible] compoſed of nitre, and the *ſulphur* of the *antimony*, called *nitrum antimoniatum*.—It is no other than a ſort of SAL *prunelle*, or SAL *polychreſtum*; and accordingly is found aperitive, cooling, diuretic; and good in inflammatory fevers, &c.

ANTIMONY, *eſſence of*. An emetic wine made with *glaſs of antimony*; to which is ſometimes added a ſpicy ſtomachic.

Dr. Huxham ſays, he never found any antimonial preparation better, ſafer, and more efficacious than this ſimple infuſion of the *glaſs of antimony* in a generous white wine, with a little ſpice to render it more grateful to the ſtomach. This medicine given to twenty or thirty drops, operates by gentle ſweats, and purges in larger doſes very mildly. The judicious phyſician, here mentioned, recommends it in obſtinate *rheumatiſms*.

ANTIMONY, *flowers of*, is *antimony* pulveriſed, and ſublimed in an aludel; the volatile parts whereof then ſtick to the ſubliming pot.

This is alſo a powerful vomitive; and is of ſingular efficacy in maniac caſes; being the Herculean remedy, by which ſome have gained ſo much reputation.

Another ſort of flowers are made of the *regulus of antimony*, with SAL *ammoniac*, ſublimed as before; which make a remedy ſomewhat gentler than the former.—Helmont alſo gives us a preparation of purging *flowers of antimony*.

ANTIMONY, *glaſs of, vitrum antimonii*, is crude *antimony*, ground and calcined by a vehement fire, in an earthen crucible, till it ceaſe to fume; which is a proof, that its ſulphur is evaporated. The calx is then vitrified in a wind-furnace; upon which it becomes tranſparent, ruddy, and ſhining, and of a more or leſs deep hyacinthine colour.

This is the ſtrongeſt emetic of any preparation of *antimony*. Yet, if diſſolved in ſpirit of nitre, it ceaſes to be either *emetic* or *cathartic*; even though the *menſtruum* be afterwards drawn from it. See VITRUM *antimonii ceratum*.

ANTIMONY, *liver of*. The *calx*, when fuſed and cooled, ſometimes becomes an opake brown maſs, which is called by this name. This is ſtrongly emetic.

ANTIMONY, *magiſtery of*, is crude *antimony* digeſted with *aqua regia* eight or ten days; to which water is then put, but poured off again ere it ferment: this to be repeated till there remain nothing behind but a yellowiſh powder; which, being ſuffered to ſettle, and the water decanted off, becomes by repeated ablution, an inſipid magiſtery. Its operation is rather cathartic than emetic, though ſometimes only ſudorific.

ANTIMONY, *Ward's pill of*. See WARD's *pill*.

ANTIMONY, *powder of*, is a mixture of two grains of emetic tartar, finely pulveriſed, with half a dram of any of the teſtaceous powders.

This is a ſubſtitute for Dr. James's febrifuge powder; and has the ſame virtues with the antimonial wine above deſcribed, and EMETIC *tartar*.

ANTIMONY, *regulus of*. See REGULUS.

Antimony, purified by ſimple fuſion, is called *regulus of antimony*; or *regulus antimonii philoſophorum*.—But the more common way of reducing it into a *regulus*, is with the addition of FLUX *powders*, as tartar and nitre.

The curious may ſee in the *Arts & Metiers*, an account of the fabrication of the *regulus* and of the *glaſs* of *antimony*, under the *Art du Diſtillateur des Eaux fortes*, p. 141, & ſeq. See ibid. a farther account of *antimony*, and of the utenſils proper for its fabrication, p. 136.

The *ſcoria* found at the top of this *regulus* is violently emetic, as well as the *regulus* itſelf, whereof if cups of drinking-veſſels be caſt, the wine put into them will become ſtrongly vomitive.

Of this *regulus* caſt in moulds are made thoſe commonly called the *antimonial pills*, weighing about eight or ten grains each, one of which being ſwallowed, will operate conſiderably more by vomit and ſtool.

Theſe pills having thus performed their office, and having been diſcharged from the body, will ſerve the ſame purpoſe again and again; whence they have obtained the name of *perpetual pills*.—The virtue of this *regulus* is not however inexhauſtible, as has been imagined: for by repeated infuſions in wine, though the liquor be made violently emetic at firſt, yet by degrees it loſes its force, and at length ceaſes to be vomitive.

ANTIMONY, *martial regulus of*, is made by a mixture of little bits of iron, as the nails of boſſes ſhoes melted with the *regulus*.

In this operation, the iron diſſolving and abſorbing the ſulphureous parts of the *antimony* more ſtrongly than the fluxes in the former caſe, and turning it into a CROCUS, the *antimony* is hereby brought to a greater degree of purity, and rendered more efficacious than in the common *regulus*.

This *regulus* is ſometimes farther purified by repeated fuſions and detonations, with the addition of freſh *antimony*, and more nitre, alternately; in which caſe it becomes *regulus antimonii ſtellatus*, or the *ſtarry regulus of antimony*.

Mr. Geoffroy has been the inventor of a new method of treating this mineral, by which it yields much more *regulus* than according to thoſe preſcribed by Kunkel and Stahl, and is purified without the addition of ſalts, and with very little loſs.

ANTIMONY, *golden ſulphur of*, is made of the *ſcoria* which ariſes in preparing the REGULUS: by boiling it, filtrating the hot decoction, and adding diſtilled vinegar: upon which the whole coagulates, changes into a brown colour, emits a ſtercoraceous odour, and precipitates a red powder. The whole maſs being waſhed by repeated affuſions of water, till the liquor come away freeſtilled and inſipid, and then dried, it becomes a red powder, called the *golden ſulphur*, or *præcipitate of antimony*, either on account of its own colour, or the yellow one it gives to glaſs, metals, &c.

This is alſo called the *panacea of antimony*, and is ſaid to be the baſis of Lockyer's pills.—It either proves emetic, cathartic, diuretic, or ſudorific, as its force happens to be determined.

ANTIMONY, *prepared*, is either crude *antimony* levigated, or that which has undergone ſome chemical proceſs, whereby its nature and powers are altered or abated; and this oftentimes, according to the circumſtances of the preparation.

Antimony, ſays Mr. Boyle, alone, or aſſociated with one or two other ingredients, by a variety of operations and compoſitions, might be brought to furniſh a whole apothecary's ſhop: it will anſwer the phyſician's intention, whether he wants to employ a cathartic, or an emetic, a diuretic, diaphoretic, deobſtruent, bezoardic, or cordial.

ANTIMONY, *revivified, antimonium reſuſcitatum*, is prepared of flowers of *antimony* and SAL *ammoniac*, digeſted in diſtilled vinegar: then exhaled, and the remainder ſweetened by ablution.—It is emetic, and ſometimes alſo ſudorific, and is good in maniacal caſes, &c.

ANTIMONY, *tincture of*. See TINCTURE.

All theſe preparations of *antimony*, how ſevere ſoever alone, may yet be ſo managed as to operate little or nothing at all in the *prima via*, nor be perceived till they are got into the ſmalleſt veſſels.—And then it is they are qualified to combat the gout, pox, evil, &c. See Neumann's Chemical Works. p. 128, &c. And Macquer's Chemical Dictionary, under *Antimony*.

ANTINOEIA, in *Antiquity*, annual ſacrifices, and quinquennial games, in memory of Antinous the Bithynian.

They were inſtituted at the command of Adrian the Roman emperor, at Mantinea, in Arcadia, where Antinous was honoured with a temple and divine worſhip.

ANTINOMIANS, in *Church Hiſtory*, denote thoſe who maintain the law of no uſe or obligation under the goſpel diſpenſation, or who hold doctrines that clearly ſuperſede the neceſſity of good works and a virtuous life.

The *Antinomians* took their origin from John Agricola about the year 1538, who taught that the law is no ways neceſſary under the goſpel; that good works do not promote our ſalvation, nor ill ones hinder it; that repentance is not to be preached from the decalogue, but only from the goſpel.

This sect sprung up in England during the protectorate of Oliver Cromwell; and extended their system of libertinism much farther than Agricola, the disciple of Luther. Some of their teachers expressly maintained, that the elect cannot fall from grace, nor forfeit the divine favour, the wicked actions they commit are not really sinful, nor are to be considered as instances of their violation of the divine law; and that consequently they have no occasion either to confess their sins, or to break them off by repentance. According to them, it is one of the essential and distinctive characters of the elect, that they cannot do any thing which is either displeasing to God, or prohibited by the law.

Luther, Rutherford, Schlusselburg, Sedgwick, Gataker, Wittius, Bull, Williams, &c. have written refutations; Crisp, Richardson, Saltmarsh, &c. defences of the *Antinomians*; Wigandus, a comparison between ancient and modern *Antinomians*.

The doctrine of Agricola was in itself obscure, and perhaps represented worse than it really was, by Luther, who wrote with acrimony against him, and first styled him and his followers *Antinomians*. Agricola stood on his own defence, and complained, that opinions were imputed to him, which he did not hold. Nicolas Amsdorf fell under the same odious name and imputation, and seems to have been treated more unfairly than even Agricola himself. It is rather hard to charge upon a man all the opinions that may be inferred from things that have hastily dropped from him, when he himself disowns such inferences.

ANTINOMY, ANTINOMIA, a contradiction between two laws, or between two articles of the same LAW.

The word is derived from ἀντι, *contra*, and νομος, *lex*.

ANTINOMY, sometimes also signifies an opposition to all law. Whence a sect of enthusiasts, who are for carrying gospel liberty above all moral regards, and who slight the motives of virtue as insufficient to salvation, are called *Antinomians*; and sometimes *Antinomi*.

ANTINOUS, in *Astronomy*, a part of the constellation AQUILA, or the eagle.

ANTIOCHIAN *sect*, or *academy*, a name given to the fifth academy, or branch of academics.

It took the denomination from its being founded by Antiochus, a philosopher, contemporary with Cicero.

The *Antiochian* academy succeeded the Philonian.—As to point of doctrine, the philosophers of this sect appear to have restored that of the ancient academy, except that in the article of the *criterion* of truth, Antiochus was really a Stoic, and only nominally an Academic.

ANTIOCHIAN *epocha*, a method of computing time from the proclamation of liberty granted the city of Antioch, about the time of the battle of Pharsalia.

ANTI-PÆDO-BAPTISTS, derived from ἀντι, *against*, παις, παιδος, *child*, and βαπτισμα, *baptism*, whence βαπτιστης, is a distinguishing denomination given to those who object to the baptism of infants; because, they say, infants are incapable of being instructed, and of making that profession of faith, which entitles them to this ordinance, and an admission into church communion. See ANABAPTISTS and BAPTISTS.

ANTIPAGMENTS, *Antipagmenta*. See ANTEPAGMENTA.

ANTIPAPINIANUS, ἀντιπαπινιανος, a title given by the Greek lawyers to the fourth part of the Digest, including four books, beginning with the title *De pignoribus*.

This is otherwise called *antipapianus*.

The *Antipapinian* was thus denominated, not as being intended in opposition to Papinian, but because it was to serve in the schools of the civil law in lieu of the books of that lawyer, pursuant to an edict of the emperor Justinian; so that the *Antipapinian* was so far from being a refutation of Papinian, that it was only a substitute for his writings, which were not fo proper for the use of the younger fort of students.

ANTIPARALELS, in *Geometry*, are those lines joining the two legs of an angle, which make the same angles like parallel lines, but in opposite directions. M. Leibnitz, however, calls those lines *antiparallels*, which cut two parallels so, that the outward angle being added to the inward one, the sum may be equal to a right angle.

ANTIPARASTASIS, from ἀντι and παραστασις, of παριστημι, *I exhibit*, in *Rhetoric*, a reply made to an opponent, by allowing part of his argument, and denying the rest, e. gr. you may paint whatever you please, provided the public suffer no prejudice from it; but you must not, if it does.

ANTIPASCHA, in *Ecclesiastical Writers*, denotes the first Sunday after Easter.

This is otherwise called DOMINICA *in albis*.

ANTIPATHES, among the *Ancient Naturalists*, was used to express any stone or gem, which, according to their superstitious ideas of the virtues of gems at that time, was supposed to have a power of resisting the force of enchantments. Pliny mentions a very valuable gem, called by the ancients *antipathes* for this very reason; and the black coral had the same name, on the same account.

ANTIPATHES, a species of the *gorgonia*, in the order of *zoophytes*.

ANTIPATHY, a natural enmity or aversion of one body to another.—In which sense the word stands opposed to SYMPATHY.

The word is compounded of ἀντι, *contra*, *against*, and παθος, *passion*.

Such an aversion is commonly said to be between the salamander and the tortoise, the vine and the elm, the toad and the weasel, the sheep and the wolf, the olive and the oak, &c. Phil. Transf. N° 339.

The Peripatetics account for *antipathies*, from certain occult qualities inherent in the bodies.

Some think that the term *antipathy* can only be applied to any certain purpose, when used with the restriction of modern philosophers; among whom it signifies no more than a *vis centrifuga*, or repelling power.

A large part of the instances of *antipathies* are, perhaps, no better [illegible] and leave them on no other footing than vulgar errors.

ANTIPATHY is sometimes also used in a *moral* sense, to denote a contest between the mind and the body, or between reason and inclination.

ANTIPATHY is used in *Painting*, for an opposition between the qualities of colours.

This *antipathy* is chiefly observed between colours, which endeavour, as it were, to predominate over each other, and which by their mixture destroyed each other, e. gr. *ultramarine* and *vermilion*. This does not obtain in the *clare obscure*; for, though there be nothing more opposite to each other than black and white, as the one represents light, and the other darkness; yet they each preserve themselves in the mixture, and form together a grey which partakes of both.

ANTIPELARGIA, among the *Ancients*, a law, whereby children are obliged to furnish necessaries to their aged parents.

The *ciconia*, or stork, is a bird famous for the care it takes of its parents when grown old.

Hence, in some Latin writers, this is rendered LEX *ciconiarum*, or the storks law. Passavant has published a dissertation De *Antipelargia*. Basil, 1672, 4to.

ANTIPERISTALTIC, in *Anatomy*, a motion of the intestines contrary to the PERISTALTIC motion.

The word is derived from ἀντι, *against*, περι, *about*, and στελλω, *that which bids the power of compressing*.

As the *peristaltic* motion is a contraction of the fibres of two intestines from above, downwards; the *antiperistaltic* motion is their contraction from below, upwards.

Physicians, ancient as well as modern, have usually had recourse to the notion of an *antiperistaltic* motion, to account for the action of vomiting, and the *phenomena* of the *miserere mei*, or *iliac passion*. In behalf of the former Mr. Littre alledges, that as the *œsophagus*, the stomach, and intestines, are but one and the same continued canal every where lined with the same fleshy fibres, and as it is allowed, that the intestines, besides their natural or PERISTALTIC motion (whereby, being successively contracted from above downwards, they expel their contents in this direction) have also an *antiperistaltic* or preternatural motion, whereby they contract from below upwards, and thus eject their contents; it is highly probable that the other members of the same canal, viz. the stomach, and *œsophagus*, are also sometimes subject to the like *antiperistaltic* motion; and return their contents to the mouth. Hist. Acad. Scienc. ann. 1700.

The cause of the *antiperistaltic* motion is usually assigned to be a stoppage of some of the intestines, but chiefly of the *ilium*.

Some late ingenious authors seem to have over-turned the whole *antiperistaltic* system, and shewn this motion imaginary, as well as unnecessary for accounting for their disorders. Mess. Chirac and Du Verney have endeavoured to prove this in respect of vomiting; and M. Haguenot, and after him M. St. Andre, in the iliac passion. Mem. Acad. Scienc. an. 1713. Phil. Transf. N° 351.

ANTIPERISTASIS, in *Philosophy*, the action of two contrary qualities; one whereof is supposed, by its opposition, to excite and heighten the force of the other.

The word is formed of ἀντι, *contra*, *against*, and περιστασις, *to stand round*, or *to restrain*; q. d. *circumstantia*.

Antiperistasis is usually defined, "the opposition of a "contrary

" contrary quality, whereby the quality it oppoſes be-
" comes heightened, or intended: or the action where-
" by a body attacked by another, collects itſelf, and
" becomes ſtronger by ſuch oppoſition; or it is an in-
" tention of the activity of one quality, cauſed by the
" oppoſition of another."

Thus cold, ſay the ſchool-philoſophers, on many occaſions, exalts the degree of heat, and dryneſs that of moiſture.

Thus it is, that quick-lime is ſet on fire by the affuſion of cold water: and ſo water becomes warmer in winter than in ſummer, by *antiperiſtaſis*: and to the ſame cauſe it is owing, that thunder and lightning are excited in the middle region of the air, which is continually cold.

This *antiperiſtaſis* was a principle of great uſe and extent in the Peripateticic philoſophy.

Mr. Boyle has canvaſſed this doctrine thoroughly, in his Hiſtory of Cold.—It is certain, that *a priori*, or conſidering the reaſon of the thing abſtracted from the experiments alledged to prove an *antiperiſtaſis*, it appears highly abſurd; ſince, according to the courſe of nature, one contrary ought to deſtroy, not to ſtrengthen another.

It is commonly, indeed, alledged, as a proof of a power in nature has given bodies of flying their contraries, that drops of water, falling on a table, collect into little globules, to avoid the contrary quality in the table, and keep themſelves from being ſwallowed up by the dry wood; but this we can account for on more intelligible principles, viz. the power of ATTRACTION and REPULSION.

In effect, not only reaſon, but experiment alſo, concludes againſt the notion of an *antiperiſtaſis*: the leading argument urged in behalf of it is, the heating of quick-lime in cold water: now how aſtoniſhing the laxineſs and credulity of mankind, who have ſo long and generally acquieſced in what they might ſo eaſily have found to be falſe! for if, inſtead of cold water, the lime be quenched with hot water, the ebullition will always be far greater than if the liquor were cold.

Again; in freezing a baſon to a joint-ſtool, with a mixture of ſnow and ſalt, by the fire-ſide, it is pretended, that the fire ſo intends the cold, as to enable it to congeal the water that ſtagnated upon the ſurface of the ſtool, betwixt that and the bottom of the veſſel. But how little need there is of an *antiperiſtaſis* in this experiment, appears hence, that Mr. Boyle has purpoſely made it with good ſucceſs, in a place where there neither was, nor ever, probably, had been, a fire.

As to the refreſhing coolneſs which ſubterraneous places afford in ſummer, it may be denied, that they are then really colder than in winter; though, if the contrary were allowed, it would not neceſſarily infer an *antiperiſtaſis*. The ſmoking of waters, drawn from deep places in froſty weather, does not neceſſarily infer ſuch water to be warmer than at other times when it does not ſmoke, ſince that effect may proceed, not from the greater warmth of the water, but from the greater coldneſs of the air. For a man's breath in a cold ſummer, or in mild winter weather, becomes very viſible; the cold ambient air ſuddenly condenſing the fuliginous ſteams diſcharged by the lungs; which in warm weather are readily diffuſed in inſpercepible particles through the air. See COLD and EVAPORATION.

ANTIPHERNA, among the ancient Greeks, denoted a kind of ſettlement made on a wife in caſe of ſurviving her huſband, as an equivalent for her dowry.

This word ſeems to anſwer what in our law is called a JOINTURE.

ANTIPHONALLY, from ἀντὶ, and φωνὴ, *voice*, in reſpect of church muſic, imports as much as alternately, or anthem-wiſe.

The Greeks have a method of ſinging *antiphonally*, *antiphonatim*, called by them ψαλμῳδίαν, wherein two perſons ſing together, and then are ſilent, and ſucceeded by two others, who ſing a while and then are ſilent, and ſo on.

ANTIPHONARY, *antiphonarium*, a ſervice book which contained all the invitatories, reſponſories, collects, and whatever elſe was ſaid or ſung in the choir, except the leſſons.

This is otherwiſe called *reſponſarium*, from the reſponſes therein contained.

The author of the Roman *antiphonary* was pope Gregory the Great.

We alſo find mention of nocturnal and diurnal *antiphonaries*, for the uſe of the daily and nightly offices; *ſummer* and winter *antiphonaries*; alſo *antiphonaries* for country churches, &c. By the provincial conſtitutions of archbiſhop Winchelſea, made at Merton, A. D. 1305, it is required that one of theſe ſhould be found in every church within the province of Canterbury.

The uſe of theſe, and many other popiſh books, was forbid by the 3d and 4th of Edward VI. c. 10.

ANTIPHONY, ANTIPHONA, the anſwer made by one choir to another, when the pſalm or anthem is ſung between two.

ANTIPHONY, ſometimes denotes a ſpecies of pſalmody, wherein the congregation, being divided into two parts, repeats the pſalms, verſe for verſe, alternately.

In this ſenſe, *antiphony* ſtands contradiſtinguiſhed from SYMPHONY, where the whole congregation ſings together.

Antiphony differs from *reſponſorium*, becauſe in this latter the verſe is only ſpoken by one perſon, whereas in the former, the verſes are ſung by the two choirs alternately. The original of *antiphonal* ſinging in the weſtern churches is referred to the time of St. Ambroſe, about the year 374. That father is ſaid to have firſt introduced it into the church of Miſan, in imitation of the cuſtom of the eaſtern church, where it appears to be of greater antiquity, though as to the time of its inſtitution, authors are not agreed. It was moſt probably introduced at Antioch, between the year of Chriſt 347 and 356.

ANTIPHONY, is alſo uſed to denote the words given out at the beginning of the pſalm, to which both the choirs are to accommodate their ſinging.

ANTIPHONY, in a more modern ſenſe, denotes a kind of compoſition made of ſeveral verſes extracted out of different pſalms, adapted to expreſs the myſtery ſolemnized on the occaſion.

ANTIPHONA *ad introitum*, that anciently ſung in the introit of the maſs.

ANTIPHONA *invitatoria*, that repeated at the pſalm *Venite exultemus*.

ANTIPHONÆ *majores*, thoſe ſeven uſed to be ſung in the time of Advent, at the Magnificat, and during the ſeven days before Chriſtmas.

ANTIPHONÆ *proceſſionales*, thoſe ſung at proceſſions.

ANTIPHONÆ *regulares*, thoſe rehearſed at rogations.

ANTIPHRASIS, a ſort of figurative expreſſion, which has a contrary meaning to what it carries in appearance. Or, a kind of irony, wherein we ſay one thing, and mean the contrary.

The word is derived from ἀντὶ and φράσις, of φάσω, *I ſpeak*.

Sanctius defines *antiphraſis* to be a form of irony, whereby we ſay a thing, by denying what we ought rather to affirm it to be: as when we ſay, *it did not diſpleaſe me*; or, *he is no fool*; meaning, *I was pleaſed with it*; or, *he is a man of ſenſe*.—On this principle, the *antiphraſes* ought to be ranked among the figures of ſentences, and not among thoſe of words.

It is a common error, to make *antiphraſes* conſiſt in ſingle words; as when we ſay, that the Parcæ are thus called by *antiphraſes*, becauſe they ſpare nobody, PARCÆ, *quia nemini parcunt*.—St. Jerom, in his epiſtle to Riparius againſt Vigilantius, ſays, he ought rather to be called *Dormitantius per antiphraſin*, than Vigilantius, becauſe he oppoſed the Chriſtians holding wakes at the tombs of the martyrs.

Sanctius holds it improper to call theſe *antiphraſes*; becauſe *phraſis* is not applicable to a ſingle word, but ſignifies *orationem, aut loquendi modum*.

ANTIPODES, in *Geography*, a relative term, denoting ſuch inhabitants of the earth as live diametrically oppoſite to one another.

The word comes from ἀντὶ, *againſt*, and πὺς, ποδὸς, *a foot*.

The *Antipodes* are thoſe who live in parallels of latitude equally diſtant from the equator, the one toward the north, the other to the ſouth; and under the ſame meridian, though 180°, or juſt half of that meridian, diſtant from one another.

The *Antipodes* have nearly the ſame degree of heat and cold; and the ſame length of night and day; but at contrary times: it being midnight with one, when it is noon with the other; and the longeſt day with one, when it is the ſhorteſt with the other.

Again, as the horizon of any place is 90° diſtant from its zenith, the *Antipodes* have the ſame HORIZON. And hence, when the ſun riſes to one, he ſets to the other.

Plato is ſaid to have firſt ſtarted the notion of *Antipodes*; and likewiſe to have given them the name: as he conceived the earth to be of a ſpherical figure, it was eaſy for him to infer, that there muſt be *Antipodes*.

Many, and particularly Lactantius and Auguſtine, laughed at the notion.—The latter of theſe fathers is ſtrangely perplexed to think how men and trees ſhould hang pendulous in the air, with their feet uppermoſt, as he thought they muſt do in the other hemiſphere.

And if we may believe Aventine, Boniface, archbiſhop of Mentz, and legate of pope Zachary, in the eighth century, declared a biſhop of that time, called Virgilius, heretic, for maintaining that there was ſuch a thing as *Antipodes*.

But this piece of history is controverted by the authors of the Mem. de Trevoux; as having been made use of, it seems, by some persons, to shew, that the church has been mistaken in its decisions.

As to the sentiments of the primitive Christians with regard to the *Antipodes*, some, rather than admit the conclusions of the philosophers, absolutely denied the whole, even the demonstrations of the geometricians relating to the sphericity of the earth: which is Lactantius's way. Instit. lib. iii. cap. 24. Others only called in question the conjectures of the philosophers; which is St. Auguſtine's method. De Civit. Dei, lib. xvi. cap. 9.—After putting the question, whether there ever were nations of the cyclopes, or pigmies, or of people whose feet stood outward, &c. he comes to the point of *Antipodes*, and asks, "whether the lower part of our earth be inhabited by *Antipodes*?" He made no doubt of the earth's being round, nor of there being a part diametrically oppoſite to ours; but only diſputes its being really inhabited. And the conſiderations he ſuggeſts for that purpoſe are juſt enough; as that they who aſſerted *Antipodes* had no hiſtory for it; that the lower part of the earth may be covered with water; and that to place *Antipodes* there, of a different origin from us (as muſt have been the opinion of the ancients, ſince they thought it impoſſible to go from our world to theirs), is to contradict ſcripture, which teaches, that the whole race deſcended from one man. Such are the ſentiments of that father. It may be added, that the Chriſtian fathers were not the only perſons who diſputed the truth of the *Antipodes*. Lucretius had done it before them, at the end of his firſt book, v. 1063, &c. See alſo Plutarch, lib. De facie in orbe lunæ; and Pliny, who refutes the opinion, lib. ii. cap. 5.

ANTIPOPE, a falſe or pretended pope; or, one that is, or is pretended to be, irregularly elected in oppoſition to another.

Geddes gives the hiſtory of no leſs than twenty-four ſchiſms in the Romiſh church, cauſed by *antipopes*; ſome took their riſe from a diverſity of doctrine of belief, which led different parties to elect each their ſeveral pope; but the greater part from dubious controverted rights of election, the fruits of chicane and ambition.

ANTI-PORTICO is uſed by ſome for a veſtibule, or porch, at the entrance of an edifice.

ANTIPRAXIA, from ἀντὶ and πρᾶττω, *I perform*, in the *Ancient Phyſic*, denotes a contrariety of functions, temperaments, &c. in different parts of the body; invented to account for that contrariety of ſymptoms which frequently concur in hypochondriac caſes, when, e. gr. the liver is charged with being immoderately hot, and the ſtomach exceſſively cold.

The moderns, particuly Etmuller, refute the notion of an *antipraxia*, on this principle, that the blood circulating duly through the whole body, warms all the parts, as well the ſtomach as liver proportionably. To which ſome advocates for the ancient ſyſtem object, that this is confounding the preternatural ſtate with the natural.

ANTIPREDICAMENTS, in *Logic*. See ANTEPREDICAMENT.

ANTIPROBABILISM, the doctrine or ſyſtem of thoſe who hold it unlawful to follow the leſs probable opinion, in oppoſition to the more probable one.

There have been vigorous advocates for *anti-probabiliſm*; for even among its greateſt enemies, the Jeſuits, F. Gilbert has a treatiſe expreſly in favour of *antiprobabiliſm*, viz. ANTIPROBABILISMUS, ſeu tractatus theologicus fidelem totius probabiliſmi ſtateram continens, &c. Par. 1703. 4to.

ANTIPROBOLE, in *Rhetoric*, a figure whereby the defendant adopts or admits the charge brought againſt him by the proſecutor.

E. gr. ſuppoſing the proſecutor's μάκλον to be, *Titus has killed Caius*; the defendant's *antiprobole* may be, *I have killed him, but undeſignedly*.

ANTIPROPEMPTICON, in *Poetry*, a poem wherein a perſon going a journey addreſſes himſelf to his friends. Such is that of Ovid, lib. i. Triſt.

Cum ſubeat illius triſtiſſima noctis imago, &c.

It is oppoſed to PROPEMPTICON.

ANTIPROTASIS, in *Rhetoric*, a ſolution of the PROTASIS.

ANTIPSORA, from ἀντὶ and ψώρα, *itch*, in *Pharmacy*, remedies proper againſt the itch.

ANTIPTOSIS, a figure in *Grammar*, whereby one caſe is put for another.

The word comes from ἀντὶ, *pro*, and πτῶσις, *caſus*.

ANTIPYRETON, from ἀντὶ and πῦρ, *fire*, among *Phyſicians*, an appellation given to the medicines againſt fevers.

ANTIQUARE, among Roman lawyers, properly denotes the rejecting of a new law, or refuſing to paſs it.

In which ſenſe, *antiquating* differs from *abrogating*; as the latter imports the annulling an old law, the former the rejecting a new one. See A.

ANTIQUARE is alſo uſed for a law's growing obſolete, or into diſuſe, either by age or non-obſervance.

ANTIQUARIUM, among the *Ancients*, denoted a place or apartment, wherein their *antique* monuments were preſerved.

ANTIQUARIUM is uſed by ſome modern practitioners, for a ſpecific againſt the quartan ague.

Hence ſome call the Jeſuits bark *antiquartinus Peruvianus*.

Wedelius alſo ſpeaks of an *eſſentia antiquartiæ*.

The *antiquartan* of Riverius is a preparation of *mercurius dulcis, curam fuminans*, ſulphur of antimony, and ſcammony.

ANTIQUARY, ANTIQUARIUS, a perſon who ſtudies and ſearches after monuments and remains of the ancients: as, old medals, books, ſtatues, ſculptures, and inſcriptions: and, in general, all curious pieces that may afford any light into *antiquity*.

Formerly there were ſeveral other kinds of *antiquaries*. The LIBRARII, or copiſts, i. e. thoſe who tranſcribed in fair legible characters, what had been before written in notes, were called by this name. They were alſo denominated *antigraphi*. They were alſo employed in repairing books injured by age.

In the chief cities of Greece and Italy, there were other perſons of diſtinction, called *antiquarii*, whoſe buſineſs it was to ſhew ſtrangers the antiquities of the place, to explain the ancient inſcriptions, and to give them all the aſſiſtance they could in this way of learning.

This was a laudable and uſeful inſtitution; and might well deſerve to be re-eſtabliſhed.—Pauſanias calls theſe *antiquariæ Exegetæ*. The Sicilians call them *mythagogi*.

There was an ancient college of *antiquaries* erected in Ireland by Ollamh Fodhla, 700 years before Chriſt, for compoſing a hiſtory of that country. And to this, ſay the Iriſh hiſtorians, it is owing, that the hiſtory and antiquities of that kingdom may be traced back beyond thoſe of moſt other nations.

Foundations of this kind have often been wiſhed for, and ſometimes alſo attempted in England.

Sir H. Spelman ſpeaks of a ſociety of *antiquaries* in his time, to whom his treatiſe of the terms, written in the year 1614, was communicated, he himſelf being one of the number.

The ſociety was formed by archbiſhop Parker, Camden, ſir Robert Cotton, Stowe, and others; in 1598, R. Carew was admitted into it. Application was made to queen Elizabeth for a charter and houſe, wherein they might hold their meetings, erect a library, and the like. But by the death of that princeſs, their application proved abortive. Her ſucceſſor, king James I. was far from ſavouring their deſign.

In the year 1717, this ſociety was revived again, ſince which time no interruptions having happened, it is at preſent in a very flouriſhing condition; conſiſting of many learned and ingenious men, of the nobility, gentry, clergy, &c. whoſe buſineſs, as members, is to diſcover the antiquities of their own, as well as thoſe of other nations.

This ſociety was incorporated by the king's charter in the year 1751, by the name of the Preſident, Council, and Fellows of the Society of *Antiquaries* of London; their council conſiſts of twenty-one perſons, ten of whom are annually changed: the election of members is by ballot, a certificate ſigned by three or more fellows being previouſly exhibited for ſix ordinary ſucceſſive meetings, except in the caſe of peers, members of the privy council, and judges, who may be propoſed by a ſingle member and balloted for the ſame day: and the choice is determined by a majority of two thirds. Every member pays an admiſſion-fee of five guineas, and two guineas a year, or an additional ſum of twenty-one guineas. They have weekly meetings on Thurſday, from ſeven of the clock in the evening till nine. This ſociety began to publiſh its diſcoveries, &c. in 1770, under the title of *Archæologia*.

ANTIQUARY is alſo uſed, by *ancient Writers*, for the keeper of the *antiquarium*, or cabinet of antiquities.

This officer is otherwiſe called *archæta* or *antiquary* of a king, a prince, a ſtate, or the like.

Henry VIII. gave John Leland the title of his *antiquary*, a title which, ſays the author of his life, no body ever enjoyed beſides himſelf. But the reſtriction, we ſuppoſe, was only intended to be underſtood in reſpect of the kings of England; M. Schott, we find, had the title of *antiquary* to the king of Pruſſia; P. Pedruzzi, that of *antiquary* of the duke of Parma; M. Galland reſided ſome time in Turky, under the title of *antiquary* of the king of France.

The univerſity of Oxford have ſtill their *antiquary*, under the denomination of *cuſtos archivorum*.

The kings of Sweden have been at great expences in order to illuſtrate the *antiquity* of their country, having eſtabliſhed an academy of *antiquaries* with this ſingle view.

The office of the ancient Iriſh *antiquaries* was to preſerve the genealogies of the kings of Ireland, to correct the

regal tables of succession, and deliver down the pedigree of every collateral branch of the royal family.

P. Labbe and Petavius have publiſhed pieces expreſly concerning the apparatus of *antiquaries*.

ANTIQUATED, ANTIQUATUS, ſomething obſolete, or grown out of date, or uſe.

ANTIQUE, ANTIQUUS, in a general ſenſe, ſomething that is ancient.

ANTIQUE is chiefly uſed among architects, ſculptors, and painters; who apply it to ſuch pieces of buildings, ſculpture, painting, &c. as were made at the time when the arts were in their greateſt perfection, among the ancient Greeks and Romans; viz. from the age of Alexander to the time of the emperor Phocas, about the year of Chriſt 600, when Italy became over-run by the Goths and Vandals.

In this ſenſe the word ſtands oppoſed to *modern*. Thus we ſay, an *antique* building, or a building after the *antique*; an *antique* buſt, or baſs-relievo; the *antique* manner, taſte, &c.

The ſcience of *antiques* is alſo called by Spon ARCHÆOGRAPHIA.

Under this is included the knowledge of ancient coins, medals, inſcriptions, buildings, ſtatues, ſculptures, MSS. veſſels, weights, meaſures, &c.

ANTIQUE is ſometimes alſo contra-diſtinguiſhed from *modern*, which denotes the leaſt degree of antiquity, when the art was got to its utmoſt purity.

Thus *antique architecture* is frequently diſtinguiſhed from *ancient architecture*.

Some writers alſo uſe the compound, ANTIQUO-MODERN, in reſpect of the old Gothic churches, and other buildings; to diſtinguiſh them from thoſe of the Greeks and Romans.

ANTIQUITY, ANTIQUITAS, is uſed to denote the times or ages paſt long ago.

Thus we ſay, the heroes of *antiquity*, the marks or footſteps of *antiquity*, monuments of *antiquity*, &c.

ANTIQUITY is alſo uſed to denote the works or remains of ancient times. See MONUMENT, REMAINS, RUINS, &c.

Thus we ſay, a fine curious piece of *antiquity*; Italy, France, and England, abound in *antiquities*.

ANTIQUITY is alſo uſed to denote the great age of a thing, or its duration from times of old.

In this ſenſe we ſay, the *antiquity* of a kingdom, a cuſtom, or the like; moſt nations lay claim to an *antiquity* much greater than they can truly warrant. The preſent age may be ſaid to be the *antiquity* of the world, which was but new in what are commonly called the ancient days, according to the received chronology.

There are great diſputes concerning the *antiquity*, or age of the world.

Ariſtotle carried it even to eternity; and Parmenides, Pythagoras, and the Chaldeans, were of the ſame opinion: but the generality of philoſophers, as well as divines and hiſtorians, have always held an origin of it; though where to fix that origin, is the difficulty. The different ſyſtems of the chronology of the Greeks, the Egyptians, the Jews, the Hebrew text, and the Septuagint verſion, of Scaliger, of Perron, of Sir Iſaac Newton, &c. in ſay nothing of the Chineſe annals, leave the point infinitely embarraſſed.

Dom. Perron thinks he has merited well of the public by adding 2000 years to the age of the world, which had been taken from it by Scaliger and others; but this did not hinder F. Mariana from entering a proſecution againſt him in the archbiſhop's court of Paris, for hereſy.—His crime was following the brethen rather than the Hebrew chronology, in which however he was preceded by the generality of the Fathers and primitive writers of the church; among whom it appears to have been a common practice, to make 3500 years between the creation and the incarnation. In reality, the Jews are charged with having corrupted their chronology; by which the moderns have been miſled.

Some have propoſed to trace out the *antiquity* of the earth, by an obſervation of the ſaltneſs of the ſea; others by obſerving the elevation of the bottom of the ſea, or the growth of its ſtrata.—One mark or proof of *antiquity* that has been ſtarred by Rudbeck, which he pretends to have carried to a demonſtration; it is taken from the thickneſs of a certain black ſtuff, called in the Swediſh tongue, *mo-mulder* and *fiorn-mylla*, which covers the ſurface of the earth, being formed of a mixture of rotten graſs, and other herbs, with duſt and a kind of mud, which the melted ſnow leaves behind it. According to this antiquary, there are at leaſt 300 years requiſite to form an inch thick of this ſtuff, which in many places of Sweden is found to be upwards of ſeven inches thick, where urns have been dug up full of bones and aſhes. From whence it follows, according to this author, that it is upwards of 3500 years ſince burning the dead was practiſed in Scandinavia.

Recupero, the hiſtoriographer of Ætna, ſuggeſts an argument in favour of the *antiquity* of the earth from the ſeveral ſtrata of lava, that have iſſued at different times from this mountain. A ſtream of lava, which Diodorus Siculus relates to have burſt out in the time of the ſecond Punic war, is covered at this day only with a very ſcanty ſoil; and in digging pits and wells, ſeveral ſtrata of lava have been diſcovered with earth to a conſiderable thickneſs over the ſurface of each ſtratum; in one inſtance, ſeven diſtinct ſurfaces of this kind were pierced; and allowing 2000 years for the interval between two eruptions, the lava that compoſed the firſt or loweſt ſtratum, muſt have flowed from the mountain above 14000 years ago. Brydone's Tour, &c. vol i. p. 131.

But this argument is very fallacious, becauſe we learn from ſir William Hamilton's remarks on the ſoil of Naples, that, ſince the firſt eruption of Veſuvius, which deſtroyed the ancient town of Herculaneum in the year 79, there have been ſix eruptions of lava, forming as many different ſtrata, with veins of good ſoil between them. Phil. Tranſ. vol. lxi. N° 1.

There is ſcarce a nation under heaven but lays claim to a greater degree of *antiquity* than the reſt of its neighbours; the Scythians, the Phrygians, the Chaldeans, Egyptians, Greeks, Chineſe, &c. pretend each to have the honour of being firſt inhabitants of the earth; ſeveral of theſe nations, leſt they ſhould be outſtripped in their pretenſions by any of the reſt, have traced up their origin to ages long before the received account of the creation. Hence the appellation *aborigines*, *indigenæ*, *terrigenæ*, *autochthones*, &c. The Athenians were not aſhamed to pretend to be *autochthones*; and what is moſt remarkable, Socrates himſelf gives them this ridiculous appellation, which, as ſome others of the philoſophers have wiſely obſerved, only put them on a level with ants and graſhoppers. Mem. Acad. Inſcr. tom. viii. p. 468.

The Chaldeans pretend to aſtronomical obſervations of 470,000, or 473,000 years; they mention the preciſe king who reigned over them at the time of the deluge, whoſe name was Xiſuthrus, and attribute to him ſeveral things which we aſcribe to Noah.

The Chaldaic *antiquities* of Beroſus are loſt, except a few fragments which have been collected by Joſ. Scaliger, and ſince more fully by Fabricius. Annius of Viterbo, a Dominican monk, towards the cloſe of the fifteenth century, would not ſuffer us to want ſuch a treaſure, but officiouſly went to work, and forged a Beroſus out of his own brain, which he publiſhed at Rome in 1498. The monk went further, and found from the ſame ſhop another produced Manetho's ſupplement to Beroſus, from the time of Ægyptus king of Egypt, to the origin of the Roman ſtate. The misfortune is, Manetho lived before Beroſus; this anachroniſm alone had ſufficed to betray the cheat.

St Auguſtine laughs at the folly of the Egyptians who preſent to obſervations of the ſtars above 100,000 years old: in effect, no people appear to have been warmer in the conteſt for *antiquity* than thoſe of Egypt. They preſent two periods of time; one ſhorter, during which the throne of Egypt had been filled by men, the other almoſt infinite, wherein gods, and demi-gods had worn the crown. From Iſis and Oſiris to Alexander they reckoned a ſpace of 23000 years, the time before that, while the gods reigned, made 42984 years more; the whole duration from the beginning of their monarchy amounting to 66984. De Civ. Dei, lib. xviii. c. 40.

The compilation of their dynaſties as given by Manetho, a writer of their own (of whom we have extracts in Syncellus, taken from Julius Africanus and Euſebius), extends to 5550 years before Alexander's time; and the Egyptian chronicle, cited by the ſame Syncellus, goes farther, reckoning 36525 years. Diogenes Laertius makes no leſs than 48863 years from the reign of Vulcan. Yet the Scythians, the Phrygians, the Ethiopians, and ſome others, ſtill inſiſted on their priority to the Egyptians; and in the judgment of many ſeem to have carried their point. Juſtin, after Trogus, gives the precedency to the Scythians; and affirms, that they were always allowed to have been before the Egyptians.

It is no wonder that their cataloguers ſhould be ridiculouſly incredible, when the Egyptians made their firſt kings reign 1200 years a-piece; and the Aſſyrians theirs about 2000.

But the Chineſe is eſteemed the moſt ancient monarchy in the univerſe; having cultivated the ſciences from the earlieſt ages, and ſubſiſted at leaſt theſe 4000 years with the ſame laws, manners, and uſages.

Some indeed have called in queſtion the truth and authenticity of the Chineſe annals; yet we find them confirmed, at leaſt as high as 660 years before Chriſt, by

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the annals of Japan. At worst the Chinese *antiquities* stand on as good a footing as those of either Greece or Rome. Their annalists both for order and chronology are not inferior to any of those ancients so much admired among us; but far surpass them in point of *antiquity*, and have a better title to be credited, as having written by public authority, which can be said of few Greek or Roman pieces, except perhaps the Capitoline Marbles, which are not properly a history.

We have no inconsiderable confirmation of the truth of the Chinese account, from an ancient observation of a grand conjunction of the planets under Chuen-Hio, emperor of China, related by Martinius. That prince lived 2513 years before Christ. M. Kirchius has defended the observation against Cassini, and shewn a conjunction must really have happened at the time mentioned by the Chinese annals.

But the authenticity of this observation, and the whole of the *Chinese* CHRONOLOGY, has been lately attacked by an ingenious author, Mr. Costar.

Dionysius Halicarnassæus has traced the Roman *antiquities*, Josephus the Jewish *antiquities*, Berosus the Chaldaic *antiquities*, Sanconiathon the Phœnician *antiquities*, Manetho and Marsham the Egyptian *antiquities*.

The Phœnician *antiquities* of Sanconiathon are preserved in part by Eusebius. We have an English translation of Sanconiathon, with notes, by Bishop Cumberland, and a continuation from the canon of Eratosthenes. Lond. 1720, 8vo.

Dionysius gave his book the title of Roman *Antiquities*, on account of the curious inquiries he had made concerning the origin of the Romans, by tracing them back to the remotest ages. For fidelity as well as instruction he is generally preferred to Livy; his accounts are more ample, and his facts described with more particulars; he gives a full idea of the Roman ceremonies, the worship of their gods, sacrifices, manners, customs, discipline, policy, courts, laws, &c.

To the class of suppositious *antiquities* belong the Hetrurian *antiquities*, pretended to have been found by Scortelli near Volaterra, and published in 1646 by Curtius Inghiramus, who is generally supposed to have been the forger of them. A great number of fictitious names of ancient authors are cited in this book to give the better face to the cheat, but the style betrayed it. Allatius and Eraftius early detected the imposture. Vide Bibl. Lat. lib. iv. cap. 13.

The British *antiquities* before Cæsar's invasion are utterly dubious, not to say fabulous. Old chronicles speak of Samothes, the son of Japhet, as the founder of the British monarchy; Albion, a descendant of Cham, invaded it three hundred years after; and about 600 years after this, Brute, grandson of Æneas, came and took possession of the island in the year of the world 2880, giving it the name which it still retained when Cæsar made his attempt. This is Geoffry of Monmouth's system of the *antiquities* of the British nation, which the generality of our historians admit, for want of a better. It has been defended by A. Thomson of Queen's College, in the preface to his English translation of that writer.

It must not be forgot what the Irish also pretend to be the most ancient of all nations; they trace their origin without interruption up to Japhet. But the Scots still dispute their priority with them, holding themselves to be an elder branch of the Scythians, the first of men.

The *antiquity* of religion has been often urged as a proof of the truth of it. Jews, Gentiles, Christians, Protestants, Papists, have all in their turns made use of the argument from *antiquity*. It is indeed of the inartificial kind; and comes rather under the denomination of a presumption than a proof; on the whole it seems to have served the cause of error as much, if not more, than that of truth.

ANTIQUITY is more peculiarly used to denote the ceremonies, customs, and usages, which obtained in ancient times, either with regard to persons, places, or things.

Antiquities, in this sense, are usually divided into sacred, political, military, literary, and domestic; sometimes only into civil and ecclesiastical.

ANTIQUITIES, *sacred*, those relating to the religious worship, discipline, and belief of ancient times and people. These may be subdivided into heathen, Christian, and Mahometan, &c.

Reland has a treatise expressly on the sacred *antiquities* of the Jews; Struvius on those of the Romans; Lakemacher on those of the Greeks; and Stillingfleet on those of the British churches.

Fabricius has given two plans of a thesaurus or body of *antiquities*; the one of Hebrew *antiquities*, after the manner of Grævius and Gronovius; the other of ecclesiastical *antiquities*, divided into twelve books. He gives the names and titles of 156 authors to be included in the first, and 101 authors for the second.

ANTIQUITIES, *Christian*, those which relate to the ancient state of the Christian church.

These are the same with what we otherwise call *ecclesiastical antiquities*.

The Magdeburg centuries are looked upon by protestants as a library of Christian *antiquities*.

Mr. Bingham has published a learned system of Christian *antiquities*.

As a principal branch of Christian *antiquities*, we may reckon,

ANTIQUITIES, *Biblical*, the notices of ancient laws, ceremonies, events, &c. occurring in the Scriptures.

These make a branch of *ecclesiastical antiquities*, and bear a near relation to the Jewish, &c. *antiquities*.

Some pretend to deduce most of the heathen *antiquities* from the Bible; others, as Spencer, &c. take the contrary course, and deduce the *antiquities* of the Bible from those of *heathenism*.

To interpret Scripture it is absolutely necessary regard be had to the heathen *antiquities* alluded to in them, and these not only such as are directly aimed at, or approved, but also such as are purposely opposed.

Dr. Cave has published a treatise of apostolical *antiquities*, *Antiquitates Apostolicæ*; or the Lives, Acts, &c. of the Apostles, Evangelists, &c. Lond. 1674, fol. 1684, and 1686.

ANTIQUITIES, *civil*, all that belong not to the head of *ecclesiastical*.

ANTIQUITIES, *political*, those relating to the origin of states, governments, magistrates, and laws.

ANTIQUITIES, *national*, those employed in tracing the origin, ancient actions, usages, monuments, remains, &c. of some nation of people.

Gronovius has given a collection of the chief writers on the Greek *antiquities*; Rosse, Pfeiffer, Pitt, and Bishop Potter, have given shorter systems; the last is the best esteemed, though found too short by some in what relates to the religion, the gods, vows, and temples of Greece.

The best system of Roman *antiquities* yet extant is that of Rosinus, with Dempster's notes.

We have compendiums and introductions to the Roman *antiquities* by Hoepfner, Nieuport, Godwin, Castellius, Bayl, Kenner, &c.

Heinec

Jewish sabbath, was only of ceremonial not moral obligation: and consequently is abolished by the coming of Christ.

ANTISAGOGE, in *Rhetoric*, a figure differing little from that called CONCESSION. The following passage from Cicero is an instance of it: *Difficilis ratio belli gerendi, at plena fidei, plena pietatis; et si dicas, magnus labor, multa pericula proponuntur; at gloria ex his immortalis est consecutura.*

ANTISCEPTIC, something opposed to the reasonings and system of Pyrrhonists, or Scepties.

ANTISCII, in *Geography*, denominates people who dwell in the opposite hemispheres of the earth, and whose shadows at noon fall in contrary directions.

The word is compounded of *ανθ*, *against*, and σκια, a *shadow*.

Thus the people of the north are *antiscii* to those of the south. The one project their shadows at mid-day towards the arctic pole; and the others towards the antarctic pole.

The *antiscii* are very often confounded with the ANTÆCI, though the former term is more general than the latter. The *antiscii* stands contradistinguished from *periscii*, &c.

ANTISCII is sometimes also used, among *Astrologers*, for two points of the heavens, equally distant from the tropics.—Thus the sign Leo and Taurus are held *antiscii* to each other.

ANTISCORBUTICS, medicines proper for the cure of the scurvy.

ANTISEPTIC, from *ανθι*, and σηπω, *putrid*, of σαπω, *to putrify*, an appellation given to such substances as resist PUTREFACTION.

We have some curious experiments in relation to *antiseptic* substances by Sir John Pringle, who has ascertained their several virtues. Thus, in order to settle the *antiseptic* virtue of salts, he compared it with that of common sea-salt; which being one of the weakest, he supposes equal to unity, and expresses the proportional strength of the rest by higher numbers, as in the following table.

Salts, their antiseptic virtue.		Salts, their antiseptic virtue,	
Sea salt	1	Saline mixture	3
Sal Gemmæ	1 +	Nitre	4 +
Tartar vitriolated	2	Salt of hartshorn	4 +
Spiritus Mindereri	2	Salt of wormwood	4 +
Tartarus Solubilis	2	*Borax*	12 +
Sal febrifugum	2 +	Salt of amber	20 +
Crude *Sal Ammoniac*	3	Alum	30 +

In this table the proportions are marked in integral numbers; only to some there is added the sign +, to shew, that these have are possessed of a stronger *antiseptic* virtue than the number in the table expresses, by some fractions; unless in the three last, where the same sign imports, that the salt may be stronger by some units.

Some resinous and other substances even exceed the *antiseptic* virtues of the neutral salts; thus myrrh, *asa-fœtida*, *terra Japonica*, and aloes, are at least twelve times more *antiseptic* than sea salt. Two grains of camphor are equivalent to fifty grains of that salt. An infusion of a few grains of Virginia snake-root, in powder, exceeds twelve times its weight of sea-salt. Chamomile flowers have nearly the same extraordinary quality. The Jesuits bark has it also. Besides these, pepper, ginger, saffron, contrayerva-root, are twelve times more *antiseptic* than sea-salt. Dried sage, rhubarb, the root of the wild valerian, mint, angelica, ground-ivy, tea, green-tea, red roses, wormwood, mustard, and horse-radish, were likewise found more *antiseptic* than the standard.

To the class of *antiseptics* medicines may likewise be added fermented liquors, acids, spirits, and even those plants called anti-acids, and erroneously supposed hasteners of putrefaction, particularly horse-radish. Now, vegetables, possessing this virtue are the more valuable, in that, being usually free of acrimony, they may be taken in much greater quantities than either spirits, acids, resins, or even the neutral salts.

Antiseptics are prescribed in all putrid, malignant, and pestilential cases. It is to be remarked, however, that different kinds of them are to be given in different diseases, and even in different stages of the same disease. Thus, the bark is a specific in a gangrene, when the vessels are relaxed, and the blood resolved or disposed to putrefaction; but will fail, if the vessels are too full, or the blood be too thick. With the same caution is the bark to be used in wounds, viz. chiefly in cases of absorbed matter, when it infects the humours, and brings on a hectic fever.

By the great *antiseptic* virtue of alum, the bark, and other astringents, it should seem, that affliction had no small share in the cure of putrid disorders; and, indeed, the very nature of putrefaction consists in a separation or disunion of the parts. But as astringents are improper to be administered in many cases, contrayerva-root, snake-root, camphor, &c. may supply their place; which though highly *antiseptic*, have very little, or any, of an astringent quality. Pringle's Obs. on the Diseases of the Army. See Dr. Macbride's Essay on the respective Powers, &c. of *Antiseptics*.

ANTISIGMA, among the *Ancient Grammarians*, signifies one of the notes of sentences affixed to those verses whose order was to be changed.

ANTISPASMODICS, or medicines proper for the cure of spasms and convulsions. Opium, balsam of Peru, and the essential oils of many vegetables, are the principal in this class of medicines. Opium excels, for its immediate effects. Peruvian balsam, in many instances, produces more lasting benefit than opium, and sometimes succeeds where opium fails. As *antispasmodics*, the essential oils differ in this from opium, that they act more on a particular part than on the system in general, and have no soporific effect. Some medicines remove spasms by immediate contact, as ales milk, cream, oil of almonds; others by repelling heat, as gas, sulphur, nitre, sal ammoniac, &c. And where the strictures are produced by inanition, and a defect of vital heat, spasms are removed by those medicines that restore the *tuni vitæ*, such as valerian, castor, musk, &c.

ANTISPASTUS, a poetical foot, consisting of four syllables, whereof the first is short, the second and third long, and the fourth short.

ANTISPODIUM. See SPODIUM.

ANTI-STANCARIANS, a sect of German protestants who oppose the doctrine of Stancarius, who asserted that justification was the sole effect of Christ's human nature, exclusive of his divinity.

ANTISTASIS, in *Oratory*, a defence of an action from the consideration, that had it been omitted worse would have ensued.

This is called by Latin writers *comparationum argumentum*; such, e. gr. would be the general's defence, who had made an inglorious capitulation, that without it the whole army must have perished.

ANTISTAUS, in *Antiquity*, denotes the gibbous part of the liver in the Grecian victims.

ANTISTES, from *ανθι*, *before*, and *στω*, *I stand*, in *Ecclesiastical Writers*, a title usually given to bishops, though sometimes also to priests or presbyters. Among the ancient Romans, *antistes* was an appellation given to the chief or first orders of the priests in the provinces.

In which sense, *antistes* stands distinguished from *patres* and *magistri*.—In the more usual sense, notwithstanding, *antistes* denotes the same with *sacerdos*.

There were also females of this quality, under the title of *antista*.

ANTISTITIUM, is a term used in ancient chronicles for an abbey or monastery.

ANTISTŒCHON, from *ανθι*, *and* στοιχος, *letter*, a grammatical figure whereby one letter is used instead of another. This is otherwise called *antistichon*, by some writers.

ANTISTROPHE, a kind of dance in use among the ancients; wherein they stepped sometimes to the right and sometimes to the left, still doubling their turns or conversions.

The motion towards the left they called *antistrophe*; from *ανθι*, *against*; and στροφη, of στρεφω, *I turn*.

It was customary among the Greeks, on some occasions, to dance round the altars, whilst they sung the sacred hymns which consisted of three stanzas, or parts; the first of which called *strophe*, was sung in turning from east to west; the other, named *antistrophe*, in returning from west to east. Then they stood before the altar, and sung the epode, which was the last part of the song.—Hence

ANTISTROPHE is also used, in *Lyric Poetry*, in speaking of the ODE, which is usually divided into the *strophe*, *antistrophe*, and *epode*.

The *antistrophe* is a kind of echo, or replication to the *strophe*; and the *epode* is a launching out from them both.

ANTISTROPHE is also a figure in *Grammar*, whereby two terms or things, mutually dependent one on another, are reciprocally converted.

As if one should say, the master of the servant, and the servant of the master.

ANTISTROPHE, in *Rhetoric*, the same with what is more commonly called EPISTROPHE.

ANTISYLLOGISM, in *Logic*, a syllogism, which infers a contrary conclusion to that of another SYLLOGISM.

ANTITACTÆ, or ANTITACTICI, in *Antiquity*, a kind of Gnostics, who owned that God, the Creator of the universe, was good and just; but asserted, also, that one of his creatures had created evil, and had engaged us to follow it, in order to set us in opposition to God the creator; and that it becomes our duty to oppose this author of evil, in order to avenge God of his enemy.

Hence the name; which is derived from *αντιτασσω*, *I oppose*.

ANTITHENAR in *Anatomy*, a name given to divers muſcles, otherwiſe called ADDUCTORS, or *adducent muſcles*. The word is compounded of ἀντὶ, *againſt*, and θένας, because theſe muſcles act as antagoniſts to the *thenars*, or *abductors*.

ANTITHENAR is likewiſe a muſcle called alſo the *ſemi-interoſſeus pollicis*. It is ſmall, flat, and fleſhy, and is ſituated obliquely between the firſt phalanx of the thumb, and firſt bone of the *metacarpus*; it is fixed by one end towards the baſis of the firſt metacarpal bone, near the firſt bone of the ſecond row of the *carpus*; from thence it runs obliquely toward the head of the firſt phalanx of the thumb, and is inſerted in the lateral external part of that bone, or on that ſide which is turned to the firſt metacarpal bone. It croſſes over the *ſemi-interoſſeus indicis*; this muſcle lying toward the back of the hand, the *antithenar* here deſcribed toward the palm.

ANTITHENAR *pedis*, a ſmall compound muſcle lying obliquely under the metatarſal bones, fixed poſteriorly on the lower parts of the ſecond, third, and fourth of theſe bones, near their baſes; in the ligaments of theſe bones, and thoſe of the *tarſus*, and in a lateral *aponeurosis* of the *hypothenar*, all theſe portions contracting into a ſmall compaſs, are inſerted in the outſide of the external ſeſamoide bone of the firſt phalanx of the great toe.

ANTITHESIS, from ἀντιτίθημι, *I oppoſe*, in *Rhetoric*, a ſetting two things together by way of oppoſition to each other, that the different qualities of each may appear the more ſtrongly.

Such is that of Cicero, in the ſecond Catilinarian: 'On 'the one ſide ſtands modeſty, on the other impudence; 'on the one fidelity, on the other deceit; here piety, 'there ſacrilege; here continency, there luſt.' &c.—Such alſo is that of Auguſtus to ſome ſeditious young men; *—audiit, juvenes, ſenem, quem juvenis jones audiere*—Such again is that of Seneca: *Curæ lætis loquuntur, ingentes ſtupent.* And that of Virgil:

Fluctus ſi nequeo ſuperare, Aboreanda movebo.

St. Auguſtine, Seneca, Salvian, and many other ancient writers, ſeem greatly to affect *antitheſes*; but among the moderns they are generally deſpiſed. Deſmaretes repreſents them as the favourites of young writers.

ANTITHESIS is ſometimes uſed for controverſy.

In this ſenſe we meet with *antithetic* method, *antithetic* diſcourſe, &c.

ANTITHESIS is alſo a figure in *Grammar*, whereby one letter is ſubſtituted in the room of another; as *ais* for *illi*.

ANTITHETARIUS, a term occurring in the title of a chapter in the laws of Canutus, but not in the chapter itſelf.

The meaning of the word is, a man who endeavours to diſcharge himſelf of the fact of which he is accuſed, by recriminating, i. e. by charging the accuſer with the ſame fact.

ANTITHETON, in *Rhetoric*, a figure wherein contraries are ſet in oppoſition to each other.

Some diſtinguiſh between the *antitheſis* and *antitheton*. Voſſius thinks that in the *antitheton* nouns and verbs are oppoſed, but in the *antitheſis* epithets only. Others comprehend the *antitheſis* under *antitheton*.

ANTITHORA. See ANTHORA.

ANTITRAGICUS, in *Anatomy*, a name given by Albinus to one of the muſcles of the eye, called by Santorini and others *muſculus auricularis*.

ANTITRAGUS, in *Anatomy*, is the thicker part of the *anthelix*, or that ridge juſt above the TRAGUS.

A ramification of the hard portion of the auditory nerve, running on the back of the *antitragus*, is ſometimes ſucceſsfully cauterized in the tooth-ach. Phil. Tranſ. N° 299. p. 1981.

ANTITRINITARIANS, thoſe who deny the Trinity, and teach, that there are not three perſons in the Godhead.

Thus the Samoſatenians, who do not believe the diſtinction of perſons in God, the Arians, who deny the divinity of the Word, and the Macedonians, who deny that of the Holy Spirit, are all properly *Antitrinitarians*. Among the moderns, *Antitrinitarians* are particularly underſtood of Socinians, called alſo Unitarians.

The *Bibliotheca Antitrinitariorum*, or *Antitrinitarian* Library, is a poſthumous work of Chriſtopher Sandius, an eminent *Antitrinitarian*; wherein he gives a liſt, digeſted in order of time, of all the Socinian or modern *Antitrinitarian* authors, with a brief account of their lives, and a catalogue of their works. See UNITARIAN.

ANTITYPE, a Greek word, properly ſignifying a type or figure correſpondent to ſome other type.

The word *antitype* occurs twice in the New Teſtament; viz. in the Epiſtle to the Hebrews, *ix.* 24. and in St. Peter, 1 Ep. *iii.* 21. where its genuine import has been much controverted.—The former ſays, that 'Chriſt is 'not entered into the holy places made with hands, 'which are ἀντίτυπα, the figures or *antitypes* of the 'true—now to appear in the preſence of God for us.'—Now τύπος, as is elſewhere obſerved, ſignifies the pattern by which another thing is made; and as Moſes was obliged to make the tabernacle, and all things in it according to the pattern ſhewed him in the Mount; the tabernacle ſo formed was the *antitype* of what was ſhewn to Moſes: any thing, therefore, formed according to a model, or pattern, is an *antitype*.

In the latter paſſage, the Apoſtle, ſpeaking of Noah's flood, and the deliverance only of eight perſons in the ark from it, ſays, 'Ὃ καὶ ὑμᾶς ἀντίτυπον νῦν σώζει βάπτισμα, *baptiſm, being an antitype to that, now ſaves us*; 'not putting away the filth of the fleſh, but the anſwer of a 'good conſcience towards God, &c. The meaning is, that righteouſneſs, or the anſwer of a good conſcience towards God, now ſaves us by means of the reſurrection of Chriſt, as formerly righteouſneſs ſaved thoſe eight perſons by means of the ark, during the flood. The word *antitype*, therefore, here ſignifies a general ſimilitude of circumſtances; and the particle ὃ, *whereunto*, refers, not to the immediate antecedent, ὕδατος, *water*, but to all that precedes.

ANTITYPE, among the *Ancient* Greek *Fathers*, and in the Greek *Liturgy*, is alſo applied to the ſymbols of bread and wine in the Sacrament.

Hence it hath been argued, by many proteſtants, that the Greeks do not really believe the doctrine of tranſubſtantiation; becauſe they call the bread and wine *antitypes*, ἀντίτυπα, q. d. figures, ſimilitudes, and this even after the conſecration.

ANTLER, among *Hunters*, the firſt of the pearls that grow about the bur of a deer's horn.

There are alſo ſur-*antlers*, brow-*antlers*, &c.

ANTLIA, an ancient machine, ſuppoſed to be the ſame with our pump.

Hence the phraſe, *in antliam condemnari*, according to the critics, denotes a kind of puniſhment, whereby criminals were condemned to drain ponds, ditches, or the like.

ANTŒCI, in *Geography*, thoſe inhabitants of the earth who live under the ſame meridian, and at the ſame diſtance from the equator; the one toward the north, and the other toward the ſouth.

The word is formed of ἀντὶ, *contra*, and οἶκος, *I inhabit*.—The *Antœci* are contradiſtinguiſhed from the *Periœci*.

Hence the *Antœci* have the ſame longitude, and equal latitudes, only of a different denomination.

The inhabitants of Peloponneſus are nearly *Antœci* to the Hottentots of the Cape of Good Hope.—*Antœci* are frequently confounded with ANTIPODES.

The *Antœci* have preciſely the ſame hour of the day and night, but oppoſite ſeaſons: when it is 12 o'clock in the longeſt ſummer's day with one, it is 12 o'clock of the ſhorteſt winter's day with the other; and hence the night of the one is equal to the day of the other.

ANTOMOSIA, from ἀντὶ and ὄμνυμι, *I ſwear*, in *Ancient Writers*, an oath taken by both the parties in a criminal acculation; whereby the accuſer charges the other with the fact, and the accuſed in his turn denies the ſame.

In which ſenſe *antomoſia* amounts to the ſame with *diomoſia*, though ſome diſtinguiſh between the two, reſtraining *antomoſia* to the oath of the perſon accuſed, whereby he engages to make no other than a fair defence; and *diomoſia* to the proſecutor's oath, whereby he ſwears that his accuſation is juſtly founded.

Others will have *antomoſia* properly to denote a law-ſuit about things to which there are no witneſſes, and which can only be decided by the oaths of the parties. Others again will have it to be, where the accuſed party alleging ſickneſs for his non-appearance, the proſecutor takes an oath, that the ſickneſs is only feigned, upon which the judges proceed to ſentence.

ANTONIAN *water*, in the *Materia Medica*, the name of a medicinal water of Germany, remarkably pleaſant to the taſte, and of ſervice in many caſes as a medicine.

This water, if mixed with any acid liquor, raiſes a conſiderable effervescence, and, when mixed with Rhenish wine and ſugar, which is a common way of drinking it, makes a great hiſſing and bubbling, and becomes turbid and milky. If powder of galls be added to it, it ſuffers no change, but remains limpid and colourleſs; whence it is plain that it contains no iron, nor vitriol. Syrup of vitriol mixed with it, turns the whole green, whence it is plain that it contains an alkali; and if oil of tartar be added to it, it becomes turbid and milky, and precipitates a white ſediment, whence it appears that there is either common ſalt, or a calcareous earth in it. If it be expoſed ſome time to the air in an open veſſel, it, like all the other mineral waters, loſes its pungent taſte and petrifactive quality, becoming turbid and vapid. A quart of it evaporated with a very gentle heat, leaves two ſcruples of a very dry ſediment, which being ſeparated by

another solution, is found to be one half of an alkaline salt, and the other a calcareous earth. Oil of vitriol mixed with the salt, produces a great effervescence, and a penetrating scent arises like that produced by the mixing oil of vitriol and common salt. Hence it appears, that these waters contain a small portion of an alkaline salt, a larger portion of sea-salt, and a yet larger of a calcareous earth, and with these a very considerable quantity of a subtile and penetrating mineral spirit.

It is a very temperate water, not too strongly operating either by stool or urine; and hence it is a very proper drink for persons in chronic and in many acute cases, either alone, or mixed with wine, to supply the place of malt liquor, which is proper but in very few illnesses.

A draught of it alone may also prove of considerable service in hypochondriac cases.

ANTONINE *column*. See COLUMN.

ANTONOMASIA, a figure in rhetoric, whereby a noun appellative is used instead of a proper name, or *vice versa*.

The word is compounded of *ante*, *for*, and *onoma*, *name*. Thus we say, the Philosopher, instead of Aristotle: the Orator, for Cicero: the Apostle, for St. Paul: the Prophet, for Moses, &c.—Thus also we call a voluptuous person, a Sardanapalus, &c. And thus the French say, Henry the Great, meaning Henry IV. of France.

ANTOPHYLLUS, in *Botany*, signifies the fruit of the CLOVE-*tree*.

ANTOSIANDRIANS, a sect of rigid Lutherans, who oppose the doctrine of Osiander relating to justification. These are otherwise denominated *Osiandro-mystics*.

The *Antosiandrians* deny that man is made just, with that justice wherewith God himself is just; that is, they assert, that he is not made essentially, but only imputatively just; or, that he is not really made just, but only pronounced so.

ANTRUM *hocinosum* is used by some anatomists for the COCHLEA of the ear.

ANTRUM *genæ*, a large cavity in the fourth bone of the upper jaw, communicating with the *foramina narium*.

It was thus called by Casserius, but by Dr. Highmore *antrum maxillæ superioris*.

The *antrum genæ* is near two inches long, and above an inch in depth, seated between the lower margin of the orbit of the eye, and *dentes molares* of the same side. Backwards the thin bony parts of this cavity, with the *os sphenoides*, make the *foramen lacrymo-nasale*; its lower surface makes a thin covering to all the roots of the *dentes molares*, as well as the *dens caninus* of the same side. It is very thin, and, on drawing any teeth to which it sticks, is frequently taken along with them, whereby this cavity is opened into the *alveolus*, and consequently into the mouth, to the great terror and surprise of the patient.

The *antrum genæ* appears to be the chief seat of the *ozæna*. Dr. Drake mentions an operation which he put in practice for the cure of that disease; taking out the foremost *dens molaris*, and not finding any aperture from its *alveolus*, as is frequently observed, he bored a hole through the *alveolus* into the *antrum genæ*, whereby the *pus*, which before lay in the *antrum*, run out, and the medicines daily injected by this aperture passed into the nostrils, whereby the patient was cured.

ANTRUM *Highmorianum* is a cavity discovered within the sinus of each maxillary bone.

Surgeons sometimes mistake this for a *caries* of the bone; finding they can penetrate so deep into it with a probe.

ANTRUM *pylori*, a large cavity at the bottom of the PYLORUS.

Antrum pylori was thus denominated by Willis, who assigned it the office of keeping the first digested chyle, till that which was later taken into the stomach be digested; though, if what Dr. Wharton suggests, that there are ladicals at the bottom of the stomach, be true, such a provision seems unnecessary.

ANTYLION, in the *Ancient Pharmacy*, a kind of astringent MALAGMA, described by Ægineta.

ANTYX, from *ante*, in *Antiquity*, the outermost round, or circumference of a shield.

ANVIL, a smith's utensil, serving to place the work on, to be hammered or forged.

The face, or uppermost surface of the *anvil*, must be very flat and smooth, without flaws; and so hard, that a file will not touch it. At one end there is sometimes a pike, bickern, or beak-iron, for the rounding of hollow-work. The whole is usually mounted on a firm wooden block.

Forged *anvils* are better than those of cast work; and the best have the upper part made of steel. Locksmiths have a smaller kind of *anvil*, called the STAKE, which is moveable, and placed ordinarily on their work bench. Its use is for setting small cold work straight, or to cut or punch on with the cold chisel, or cold punch.

ANUBIS, one of the deities of the Egyptians, painted with a dog's head, holding in one hand a branch of palm, and a *caduceus*, or Mercury's wand, in the other.

ANUS, in *Anatomy*, the lower extremity of the *intestinum rectum*; or the orifice of the fundament. See *Tab. Anat. (Splanch.) fig. 9. litt. n.*

The Philistines sent golden *emerods* back with the ark, to be cured of a disease which afflicted them in the *anus*. 1 Sam. ch. vi.

ANUS, *muscles of the*, are the *sphincter*, *levator*, and *sphincter*, or *constrictor ani*.

The *anus* is found to have various uses in different animals. In the pond muscle the same aperture serves indifferently for *mouth* and *anus*. In fowl the *anus* has apparently some concern in the action of respiration; there are found many vesicles extended from the *bronchiæ* through the abdomen to the *anus* of fowls; which may be the cause of its constant motion, the air having both ingress and egress there. Whence it is that they are also found to have an attractive power, and such are used by some to draw out the poison and malignity in certain diseases. It may be added, that a kind of alternate *ejectio* and *deglutio* is perceived, at least on many occasions, in the *anus* of divers quadrupeds, as cows, mares, &c. Hist. Acad. Scienc. 1. 10.

The *ani* of fowls, applied in malignant distempers to draw the infection out of the body, act like cupping-glasses; insomuch that the fowl has often stuck by its *anus* to the part till it died. Mr. Temple affirms he has seen seven chickens thus applied to the groin of one person seized with the plague, which all stuck till they died. The eighth went quickly off and lived. Phil. Trans. N° 86. p. 5031. and Ephem. Acad. N. C. Dec. 2. An. 9. Obs. 138.

The *anus* of birds and quadrupeds is generally constant and regular as to the place it occupies in the body; in fish it confiderably differs in the various kinds, and makes one of their marks of distinction.

Some authors speak of attempts made not without success, for conveying nourishment to the human body by nutritive clysters conveyed up the *anus*, where the common canal by the *gula* has been rendered impassible. Mem. Acad. Scienc. 1716. p. 237.

It may be added, that we have instances of births or deliveries by the *anus*; dead *fœtuses* long detained *in utero*, finding no other out-let, have been frequently voided piece-meal at the *anus*. Dr. Wallis's and Halley's case is much more extraordinary, who speak of a female greyhound delivered of an entire whelp the same way. For *calculi* or stones, instances of their being voided by the *anus* are frequent. Phil. Trans. N° 385 and 380. Mem. Acad. Scienc. an. 1702.

ANUS, *fistules of the*, are a fistula, and the *procidentia*, or *prolapsus ani*; to which may be added the hæmorrhoids, or piles.

ANUS, *imperforate*.—When children are born without an *anus*, it is very difficult to hit on the right part for making a perforation in the *rectum*, because the extremity of the gut is generally formed into a knot. For performing such a perforation, M. Petit recommends a trocar, the *cannula* and circular plate of which are so slit open, as to serve as a groove for a bistoury to be run in, to enlarge the aperture after the trocar has been pushed into the gut. See Mem. de l'Acad. de Chirurg. tom. 1. Affections about the *anus* are difficult to be cured for many reasons. The part is endued with a very tender sense, and therefore is easily irritated by acrimonious and austere medicines. Besides, the superfluities of the aliment in their passage, are not only acrid in themselves, but much more so on account of the bilious, and sometimes serous humours, which pass along with them. Moreover, the physician can fix no certain time for attending his patients, who sometimes cure nature this way at very inconvenient seasons. The humidity and heat of the place also, which require drying as well as cooling remedies, are no small obstacles to the cure of ulcers in those parts; for astringents are acrid, which the place, by reason of its exquisite sense, is not able to bear. Wherefore such remedies agree with them as are astringent without asperity; of this quality are principally metals, which are neither acrimonious nor extremely rough; these, washed, answer the intention effectually, without mordacity. Vegetables, and drastic purges, such as the oil of castor, &c. are best; and aloes exceedingly hurtful to those that are subject to the piles, and the *procidentia ani*.

ANI *speculum*. See SPECULUM.

ANUS is also used for a small hole in the third ventricle of the brain, which leads into the fourth ventricle of the *cerebellum*.

It is properly the posterior orifice of the canal called *aqueductus Sylvii*.

ANUS, in *Botany*, denotes the posterior opening of a monopetalous flower.

ANUS, a species of *murex* in the class of *worms*.

AONIDES, in *Mythology*. See MUSE.

AORISTIA, in the *Sceptic Philosophy*, denotes that state of the mind, where we neither assert nor deny any thing positively, but only speak of things as seeming or appearing to us in such a manner.

The *aoristic* is one of the great points or terms of *scepticism*, to which the philosophers of that denomination had continual recourse by way of explication, or subterfuge. Their adversaries, the *dogmatists*, charged them with dogmatizing, and asserting the principles and positions of their sect to be true and certain.

AORISTUS, in the Greek *Grammar*, an indefinite and indeterminate kind of tense, which sometimes expresses the present, sometimes the future, but most frequently the past time.

The word is compounded of *a* privative, and *ὁρίζω*, to *limit*.

The Greeks have two *aoristi*; the Latins have none.

AORTA, in *Anatomy*, the great ARTERY proceeding from the left ventricle of the heart; from which all the other arteries either mediately or immediately proceed, and by which the whole mass of blood is conveyed to all parts of the body. V. *Tab. Anat. (Angeiol.) fig.* 1. *n.* 1. and *fig.* 3. *(Splanch.) fig.* 12. *lit. r.* and 6. and *fig.* 1. *lit. n.* and *Angeiol. fig.* 1. *n.* 28.

The word is formed of *αειρω*, which signifies a *bag*, *chest*, &c.

Anatomists treat of the structure of the *aorta*, compression of the *aorta*, valves, coats, ramifications, &c. of the *aorta*. Vieussens also speaks of a kind of vesicular glands in the *parietes* of the *aorta*. Dr. Keil gives a computation of the velocity of the blood in the *aorta*.

The *aorta* issuing from the heart by only one trunk, is furnished with three semi-lunar valves, to prevent the blood's regurgitating: immediately above these it sends out to the heart two arteries called *coronariæ*; and afterwards bending down in form of a bow, divides itself into what they call its ascending and descending parts. Phil. Trans. N° 280.

AORTA, *ascending*, or rather trunks of the *aorta*, are those which take their course toward the upper and lateral parts of the body. Such are the two carotids, the subclavian, cervical, scapular, upper intercostal, mediastinal, upper diaphragmatic, mammary, axillary, and brachial arteries.

AORTA, *descending*, or trunk of the *aorta*, sometimes also called simply *aorta*, is that which takes its course downwards, through the thorax and *abdomen* to the *os sacrum*. From this arise Ruysch's bronchial artery, the lower intercostals, œsophageous, lower diaphragmatic, cœliac, epiploic, emulgent, spermatic, mesenteric, and hypogastric arteries.

The division of the *aorta* into ascending and descending trunks, though generally received by anatomists, is excepted to by Heister as less natural; and suited rather to the structure of quadrupeds, as dogs, calves, and the like, from which it seems to have been originally taken, than to that of the human body. In reality the ascending *aorta* is not one single trunk, as the name should import, but consists of three large branches or trunks: in some instances there have even been four observed, scarce ever only two, and never one; which, however, is usually the case in quadrupeds.

The flexure of the *aorta*, after its quitting the heart, and before its division into ascending branches, is noted by Dr. Lower as an instance of the wisdom of the Creator, to effect a more equable and gentle distribution of the blood to the several parts of the body. For whereas the orifice of the heart opens right upwards, if the *aorta*, which receives the first impulse, were continued in a straight line up to the region of the head, the blood would be poured too swiftly and plentifully on the brain, and the inferior parts be defrauded of their vital liquor. To obviate this, the *aorta* is so disposed, that the blood does not run directly into the ascending branches, the axillaries and carotids, but fetches as it were a compass by means of the flexure, which sustains the first effort of the ejected blood, and directs the greatest torrent towards the descending trunk.

The disposition of the *aorta* is varied according to the kinds of animals, their different postures, and other occasions: in man, by reason of his erect situation, the blood tends to flow faster and more plentifully by the descending, than by the ascending trunks; in brutes, which bend downwards, the contrary: in both, proper provisions are made for an equable distribution. In the male sex of our species, Dr. Piccairn assures us, the descending *aorta* has fewer ramifications, and consequently the blood will flow slower proportionably, than in that of the female sex, where there are more ramifications, and consequently the blood finding less resistance will flow more largely to the lower parts of women than men, from which cause arise the menies.

The *descending aorta* is liable to compressions from the stomach and intestinal tube, and that either ordinarily or extraordinarily. The first happens, whenever the stomach, &c. is full; the second, when it is dilated beyond measure, by the *pneumora* and ebullition excited in fevers. The effect in either case will be an interruption or diminution of the flux of blood to the lower parts of the body; and an increase of that to the head, and higher parts. The ordinary, according to Dr. Woodward, is necessary to supply the business of cogitation, furnish matter for animal spirits, &c. The extraordinary serves M. Silva to account for the violent head-aches, deliriums, and other symptoms of fevers.

The *aorta* is found in divers states, natural, morbid, ossified, cartilaginous, aneurismatical, polypose, calculose, &c.

Ossifications or petrifactions of the coats of the *aorta*, as it rises from the heart, are so frequent, that some think it a constant case.—Mr. Cowper, however, has an express discourse to shew, that whenever such ossifications happen in man, they are a disease, and incommode the part in the due execution of its office.

Of this he gives us several instances: one, in which an intermission of pulse was produced; in another, a coldness of the extremes, with a gangrene, &c. Phil. Trans. N° 299.

Some will have ossifications of the *aorta* one of the great causes of sudden deaths. Hist. Acad. Scienc. an. 1701.

In an old man who died at the age of 130, Dr. Keil found the *aorta*, in the abdomen and iliacs to be for the greatest part cartilaginous, which apparently was one cause of his death. Phil. Trans. N° 300.

The academists Naturæ Curiosi give an instance of six nail-like stones, or *calculi*, found in a prominence of the *aorta*, under the kidneys of a person who had died of a most acute pain in the region of the loins. At each pulsation of the artery, these would be driven against the membranous *fibrillæ* of the coat of the vessel, and hence those shooting pains; the cause of concretion is attributed to the too frequent use of the viperine powder, taken for an ulcerated breast. Ephem. Acad. N. C. Cent. 9.

For disorders of the *aorta*, see ANEURISM and SINUS.

AOUTA, the name of the paper mulberry tree at Otaheite, in the South Sea, from which a cloth is manufactured, that is worn by the principal inhabitants. The bark of the trees is stripped off and deposited to soak in running water; when it is sufficiently softened, the fibres of the inner coat are carefully separated from the rest of the bark; they are then placed in lengths of about eleven or twelve yards, one by the side of another, till they are about a foot broad; and two or three layers are laid one upon the other. This is done in the evening; and by the next morning the water is drained off, and the several fibres adhere together in one piece. It is afterwards beaten on a smooth piece of wood with instruments marked longitudinally, with small grooves of different degrees of fineness; and by means of this operation, becomes as thin as muslin; and after bleaching it in the air, in order to whiten it, it is fit for use. If the cloth breaks in the beating, it is easily repaired by putting on a patch with a gluten that is prepared from the root of the *ava*, which is done so nicely that it cannot be discovered. This cloth is cool and soft, but as liable to be rent as paper. The colours with which it is dyed are principally red and yellow. The red is a beautiful scarlet, and produced by mixing the juices of two vegetables, viz. the fruit of the fig called *matte*, and the leaves of the *cordia sebestina*, or *etoo*. The yellow is made of the bark of the root of the *morinda citrifolia*, called *nono*, by scraping and infusing it in water. The inhabitants of the island also dye yellow with the fruit of the *tamanu*. Hawkesworth's Voyages, &c. vol. ii. p. 210. &c.

APÆDUSIA, from *a* and *παιδεια*, *instruction*, denotes ignorance or unskilfulness in what relates to learning and the sciences.

Hence also persons uninstructed and illiterate are called *apædeutæ*.

The term *apædeutæ* was particularly used among the French in the time of Huet; when the men of wit at Paris were divided into two factions, one called by way of reproach, *apædeutæ*, and the other *erudits*.

The *apædeutæ* are represented by Huet, as persons who, finding themselves either incapable or unwilling to undergo a severe course of study, in order to become truly learned, conspired to decry learning, and turn the knowledge of antiquity into ridicule, thus making a merit of their own incapacity.

The *apædeutæ*, in effect, were the men of pleasure; the *erudits* the men of study.

APAGMA, a term uſed, by ſome writers in *Chirurgery*, for the ſhrinking of a bone, or other part out of its proper place. But it is more properly uſed for a fracture of a bone at or near the part whereby it is articulated with another.

APAGOGE, from ἀπο, and ἀγω, *I bring*, or *bear*, in the *Athenian laws*, the carrying a criminal taken in the fact, to the magiſtrate. If the accuſer was not able to bring him to the magiſtrate, it was uſual to take the magiſtrate along with him to the houſe where the criminal lay concealed, or defended himſelf.

APAGOGE, in *Logic*, ſee ABDUCTION.

APAGOGE, in *Mathematics*, is ſometimes uſed to denote a progreſs or paſſage from one propoſition to another; when the firſt having been once demonſtrated, is afterwards employed in the proving of others.

APAGOGICAL *demonſtration*, is ſuch as does not prove the thing directly, but ſhews the impoſſibility and abſurdity which ariſes from denying it.

Hence it is alſo called, *reductio ad impoſſibile*, or *ad abſurdum*.

APALACHINE, in *Botany*, a name given by ſome authors to the ſhrub *taſſino vero Plinianorum* of other writers. This plant is uſed as tea, and celebrated for many virtues.

APANAGE, APENAGE, APPANAGE, APANNAGE, or APENNAGE, in the *French Laws*, the fortune of a king's younger ſon; or a ſettled portion of land, &c. aſſigned for the ſubſiſtence of the cadets, or younger ſons of a ſovereign prince.

Nicod and Menage derive the word from *panis*, *bread*; which frequently includes all other ſorts of proviſion neceſſary for ſubſiſtence.

Some will have the *apanages*, at the firſt inſtitution, to have been only penſions, or annual payments, of a certain ſum of money.—The younger ſons of England have no certain *apanages*, as in France; but only what the good pleaſure of the king beſtows upon them.

Even in France, during the firſt and ſecond races of kings, the right of primogeniture and *apanages* were unknown; but the domains were divided pretty equally among all the children.

Great inconveniences ariſing hence, it was at length found proper to put off the younger-born with counties, duchies, or other diſtricts; on condition of their paying homage and fealty for the ſame, and of their reverting, in defect of heirs male, to the crown.

This has happened, accordingly, to the firſt and ſecond branch of the dukes of Burgundy.—The duchy of Orleans is the *apanage* of the ſecond ſon of France.

The *apanage* is unalienable: collateral branches do not inherit it. The eldeſt ſon alone is heir to the whole *apanage*; but is to allow the younger an honourable maintenance.

In France, *apanages* are of two kinds, *royal* and *cuſtomary*; the firſt only granted to males the king's brothers, exclusive of the females. Theſe are not ſo properly alienations of the king's demeſne, as diſmembering of them.

Cuſtomary apanages are thoſe granted to women, the king's ſiſters.

Joach. Meierus has publiſhed a body of all the writers on *apanage* and *parage*, in one volume in folio.

APARINE, in *Botany*, ſee CLEAVERS.

APARITHMESIS, from ἀπαριθμεω, *I number*, or *enumeration*, in *Rhetoric*, is a figure, whereby that which might be expreſſed in few words is branched out into ſeveral particulars, to enlarge the idea and render it the more affecting; and ſometimes it denotes the anſwer to the *proteſis* or propoſition itſelf. Thus if the *proteſis* be *appellandi tempus non erat*, the *aparithmeſis* is *a town, nor you nor I*.

APARTISMENUS, in the *Ancient Poetry*, an appellation given to a verſe, which comprehended an entire ſenſe or ſentence in itſelf.

This is ſometimes alſo written *apartimenus*, i. e. ſuſpended, as not needing any following verſe.

APARTMENT, a portion of a large houſe, wherein a perſon may lodge ſeparately; having all the conveniences requiſite to make a complete habitation.

The word comes from *apartimentum*, of the verb *partiri*, *to divide*; or, as ſome imagine, *a parte manſionis*, *making part of a dwelling*.

A complete *apartment* muſt conſiſt of a hall, a chamber, an antechamber, a cloſet, and a cabinet or wardrobe.

APATHY, in a moral ſenſe, denotes an inſenſibility; or a privation of all paſſion, all emotion, or perturbation of mind.

The word is formed of the privative α, and παθος, *paſſion*.

The Stoics affected an entire *apathy*: their wiſdom was to enjoy a perfect calmneſs or tranquillity of mind, incapable of being ruffled, and above the reach of any ſenſe either of pleaſure or pain.

In the firſt ages of the church, the chriſtians adopted the term *apathy* to expreſs a contempt of all earthly concerns; a ſtate of mortification, ſuch as the goſpel preſcribes. Clemens Alexandrinus, in particular, brought it exceedingly in vogue; thinking, hereby, to draw the philoſophers to Chriſtianity, who aſpired after ſuch a ſublime piece of virtue.

Quietiſm is only *apathy* diſguiſed under the appearance of devotion.

APATURIA, in *Antiquity*, a ſolemn feaſt celebrated by the Athenians in honour of Bacchus.

The word is uſually derived from ἀπατωρ, *fraud*.

It is ſaid to have been inſtituted in memory of a fraudulent victory obtained by Melanthus, king of Athens, over Xanthus, king of Boeotia, in a ſingle combat, which they agreed upon, to put an end to a debate between them relating to the frontiers of their countries.—Hence Buddeus calls it *feſtum deceptionis*, *the feaſt of deceit*.

Other authors give a different etymology of this feaſt, from what we have now related: they tell us, that the young Athenians were not admitted into the tribes on the third day of the *Apaturia*, till their fathers had firſt ſworn, that they were their own children; and that, till that time, they were ſuppoſed in ſome meaſure, to be without fathers, ἀπατορες: whence the feaſt, they ſay, took its name.

Xenophon, on the other hand, informs us, that the relations and friends met on this occaſion, and joined with the fathers of the young people who were to be received into the tribes; and that from this aſſembly the feaſt took its name: that in ἀπατορια, the α, far from being a privative, being here a conjunctive, ſignifies the ſame thing with συν, *together*.

This feaſt laſted four days: the firſt day, thoſe of the ſame tribe made merry together; and this they called δορπια. The ſecond day, which they called ἀναρρυſις, they ſacrificed to Jupiter and Minerva. The third day which they called κουρεωτις, ſuch of their young men and maids as were of age were admitted into their tribes.

The fourth day they called ἑορτη.

APAULIA, in *Antiquity*, the third day of a marriage ſolemnity.

It was thus called, becauſe the bride, returning to her father's houſe, did ἀπαυλιζεσθαι τον γαμον, lodge apart from the bridegroom. Some will have the *apaulia* to have been the ſecond day of the marriage, viz. that whereon the chief ceremony was performed; thus called by way of contradiſtinction from the firſt day, which was called ὁρμιαιον. On the day called ἀπαυλια, (whenever that was) the bride preſented her bridegroom with a garment called ἀπαυλιαμα.

APE. See SIMIA.

APECHEMA, Ἀπεχημα, in *Medicine*, the ſame with CONTRAJUSURE.

APEDIA, a ſpecies of ape.

APEIBA of the Braſilians. See SLOANEA.

APELLA, among *Phyſicians*, a name given to thoſe whoſe prepuce is either wanting or ſhrunk, ſo that it can no longer cover the glans.

APELLA, a ſpecies of ape found in America.

APELLITÆ, in the *Primitive Church*, denote thoſe who taught in the ſecond century, that Chriſt left his body diſſolved in the air; and ſo aſcended into heaven without it.

APENE, ἀπενη, *chariot*, in *Antiquity*, a kind of chariot wherein the images of the gods were carried in proceſſion on certain days, attended with a ſolemn pomp, ſongs, hymns, dancings, &c.

The *apene*, or ſacred chariot of the Greeks, is called *tenſa*.

It was very rich, made ſometimes of ivory, or of ſilver itſelf, and variouſly decorated.

APENNAGE. See APANAGE.

APENNIS, in *Ancient Laws*, a deed or inſtrument made in favour of a perſon, who has loſt the title-deeds to his houſe or land by fire. Du-Cange.

In ſuch caſe, an aſſembly of the people of the neighbourhood being called, and an exact enquiry made before the judge, another inſtrument was framed to confirm and ſecure the unhappy perſon's right.

APEPSY, in *Medicine*, denotes crudity, or a want of digeſtion.

The word is formed from the privative particle α, and πεπτω, *I concoct*.

Apepſia may be defined a defect in the ſtomach, which prevents the aliment taken in from affording a proper chyle for ſupplying the blood, and nouriſhing the body. Abſtemiouſneſs and exceſs are alike cauſes of indigeſtion.

The method of treatment in the *apepſy*, is the ſame as in the *anorexy*. The COLUMBO root is particularly uſeful, when the ſtomach is languid, and digeſtion difficult, &c. It may be given in ſubſtance with any grateful aromatic, or in Madeira wine, now and then interpoſing gentle doſes of rhubarb in tinctura. A mixture of muſtard ſeed with the *columbo* root, is of great utility in caſes of this nature.

nature, where acidity and flatulence prevail much in the *prima via*. See Percival's Essays, &c.

APER, *boar*, in *Zoology*. See BOAR and HOG.

APER is also used for the name of a sea-fish, called by some *streulla* and *rondo*. It approaches very much in shape to the *faber* or DORRE, but is much smaller. See *Tab.* II. *of Fish*, N°. 19.

APER *mexicanus*, a name by which many authors have called the TAJACU of America.

APER *piscis*, a name by which some authors have called the sea-fish more usually called the CAPRICUS.

APEREA, in *Zoology*, the name of a small American animal, of the rabbit kind, and seeming to be of a mixt nature between the rabbit and the mouse, having exactly the short roundish ears of the mouse kind, and all the other particulars of the rabbit. It grows, at its full size, to ten or twelve inches long, and its hair is just of the colour of our hares on the back and sides, and whitish on the belly.

APERIENS *Os*, in *Anatomy*, a name given by some writers to a muscle of the mouth, called by Albinus *levantor maxillæ inferioris*, and by others BIGASTRICUS.

APERIENS *palpebram rectus*, in *Anatomy*, is a muscle, which, rising in the orbit of the eye, near the entrance of the optic nerve, passes over the attollent muscle of the eye, and is at last inserted into the whole superior part of the upper eye-lid, which it serves to open.

APERIENTS, or APERITIVE *medicines*, from *aperio*, *I open*, are such as open the obstructed passages of the small nerves, glands, and pores; and, by that means, promote a due circulation of the contained juices.

Aperients, then, coincide with what we otherwise call openers, ANASTOMATICS, and DIOBSTRUENTS.

The five lesser *aperient* or opening roots, are grass, madder, rryngo, capers, and chammoc.

The greater *aperient* or opening roots, are smallage, fennel, asparagus, parsley, and butchers-broom.

APERIENS, *crocus martis*, opening saffron of iron, is a preparation of iron-plates or filings, made by exposing them to the rain or dew, till they contract a rust; which is the medicine required. It is a good *aperient*. See CROCUS.

APERISTATON, from *a*, *without*, and *περισασις*, *unfavourable circumstance*, in the *Ancient Physic*, denotes an ulcer of a mild or benign kind, and not attended with any severe symptom.

APERTIONS, in *Architecture*, are the openings in a building; as doors, windows, flair-cases, chimneys, out-lets and inlets for light, smoke, &c.

The *apertion* should be as few as may be; it being a rule, that all openings are weakenings: and they should not approach too near the angles of the walls.

APERTOR *oculi*, in *Anatomy*, a name given by Spigelius and others to the muscle called the APERIENS *palpebram* and LEVATOR *palpebræ superioris* by others.

APERTURE, the *opening* of any thing; or a hole, cleft, or vacant place, in some otherwise solid or continuous subject. It comes from *aperire*, *to open*.

In *Geometry*, *aperture* is used for the space left between two lines, which mutually incline towards each other to form an angle.

In *Optics*, *aperture* is the hole next the object-glass of a telescope, or microscope: through which the light and image of the object come into the tube, and are thence carried to the eye.

APERTURE is also understood of that part of the object glass itself which covers the former, and which is left pervious to the rays. See TELESCOPE.

A great deal depends on having a just *aperture*.—To find it experimentally; apply several circles of black smutted paper, each bigger than the other, upon the face of the glass, from the breadth of a straw to such as leave only a small hole in the glass; and with each of these, separately view several distinct objects; as the moon, stars, &c. that through which they appear the most distinctly is to be pitched upon.

M. Auzout affirms, that he found, that the *apertures* of telescopes ought to be nearly in the subduplicate ratio of their lengths: but Huygens, who first introduced the use of *apertures*, assures us, he found by experience, that the *aperture* of an object-glass, e. gr. of 30 feet, is to be determined by this proportion; as 30 to 3, that is, as 10 to 1, so is the root of the distance of the focus of any glass multiplied by 30, to its *aperture*: and the focal distances of the eye-glasses are to be proportional to the *apertures*.—A table of *apertures* for telescopes of various lengths, &c. see under the article TELESCOPE.

The greater or less *aperture* of an object-glass, it is to be noted, does not increase or diminish the visible area of the object; all that is effected by this is, the admittance of more or fewer rays, and, consequently, the more bright or obscure appearance of the object; but the largeness of the *aperture* or focal distance, causes the irregularity of its refractions. See ABERRATION.

Hence in viewing Venus through a telescope, a much less *aperture* is to be used than for the Moon, Jupiter, or Saturn, because her light is so vivid and glaring.—Which consideration does a little invalidate and disturb M. Auzout's proportion, as is shewn by Dr. Hook. Philos. Trans. N°. 4.

APERTURA *tabularum*, in *Ancient Law-Books*, signifies the breaking open a last WILL and TESTAMENT.

APERTURA *feudi* denotes the loss of a feudal tenure, by default of issue to him to whom the feud or FEE was first granted.

APETALOUS, or APETALOSE *plants*, are such as are without, or have an imperfect or flamineous flower. They are so called because not composed of those tender, fugacious, coloured leaves called PETALA; but only of a calyx or cup, and of flamina or capillamenta or styles. Phil. Trans. N°. 286.

The word comes from the privative particle *a*, and *πεταλον*, *folium*, *a leaf*.

The *apetalous* kind is subdivided by Ray, 1 Into such whose fruits are not contiguous to their flowers, as in hops, hemp, nettle, spinach, mercury, *palma Christi*, the American phytic nut, &c. 2. Such as have a triquetrous or triangular seed, as the docks, sorrels, asparagus, knot-grass, snake-weeds. 3. Those which have round, compressed, and otherwise figured seeds, as the pond-weeds, oraches, sea-purslane, the bites, the amaranths, the beets, some kalies, &c. *See Tab.* X. *of Botany*, *Class* 15 *and* 18. See LEAF.

APEUCTIC, from *απευχομαι*, *I deprecate*, in the *Ancient Poetry*, denotes a kind of poem or prayer preferred to God for the averting some evil.

In which *tenue sapuddicum* stands contradistinguished from *prosecticum carmen*, which begs for some good, e. gr. *dii prohibete minas*, *dii talem avertite casum*, *et placidi servate pios*.

APEX, the vertex or summit of any thing.

APEX is peculiarly used in *Antiquity*, for a kind of cap or covering of the head, worn by the flamens, or priests of Jupiter. This was otherwise denominated *pileus pistrensis*, or *albanus*.

The *apex* is described as a flitched cap in form of a helmet, with the addition of a little flick fixed on the top, and wound about with white wool.

The other flamens only wore the *apex*, in the time of performing divine service; the flamen dialis always wore it out of doors; for within it was allowed him to be bare-headed. See APICULUM.

APEX was also used among the Romans for the creft of a helmet.

APEX is also used by *Grammarians*, for a long accent or mark, to denote that a syllable is to be pronounced long. Quintilian condemns the practice of putting the *apex* on all long syllables; yet in some cases he allows the *apex* necessary, e. gr. where the different lengths of a syllable distinguish the different senses of a word, as in *malus*, which, as long, or short denotes *an ill man*, or *an apple-tree*. See ACCENT.

APHÆRESIS, from *αφαιρεω*, *I take away*, in *Grammar*, a figure, whereby something is taken away from the beginning of a word.

Thus *eicosmo*, by *aphæresis*, is written *cosis*; *contemnere*, *temnere*; *omittere*, *mittere*, &c.

A like retrenchment at the end of a word is called APOCOPE.

APHÆRESIS, in *Medicine*, denotes a necessary taking away or removing of something that is noxious.

In *Surgery*, it fignifies an operation whereby something superfluous is taken away.

APHANES, *Parsley-piert*, in the Linnæan system of *Botany*, the name of a genus of plants, of the *tetrandria digynia* class: the characters of which are these: the cup is a tubular *perianthium*, remaining till the seeds are ripe; it consists of one leaf divided at the extremity into eight segments, which are extremely small, and alternately different in size; there are no petals; the *flamina* are four erect, pointed, and very small filaments, inserted on the rim of the cup; the *antheræ* are roundish; the pistillum has two germina of an oval figure, and two styles of the same length with the flamina inserted on the basis of these germina; the stigmata are headed; the cup supplies the place of a fruit, shutting together at its mouth, and containing two oval, pointed, compressed seeds, of the length of the styles. There is one species.

APHASIA, from *a*, and *φημι*, *I speak*, in the *Sceptic Philosophy*, denotes a state of doubt, wherein a person not knowing what to determine on, it is best for him to be silent.

In this sense, *aphasia* stands opposed to *phasis*, under which are included both affertion and negation.

APHELIA, from *απλους*, *simple*, in *Rhetoric*, is used to denote simplicity of DICTION.

APHELION, in *Astronomy*, that point of the earth's or a planet's orbit, in which it is at the greatest distance from the sun.

The word comes from *απο*, *from*, and *ηλιος*, *sun*.

Thus a planet being in A (*Tab. Astron. fig.* 1.) its utmost distance from the sun S, is said to be in its *aphelion*. In the system or supposition of the sun's moving round the earth, the point in which he appears when the planet is in its *aphelion*, is called *apogee*. The *aphelion* stands opposed to the *perihelion*.

The aphelia of all the primary planets are at rest; excepting that those planets nearest the sun, viz. Mercury, Venus, the Earth, and Mars, being acted upon by Jupiter and Saturn, their *aphelia* move a small matter in consequentia with respect to the fixed stars, and this in the sesquiplicate ratio of the distances of those planets from the sun.

Hence, if the *aphelion* of Mars move 35 minutes in consequentia in respect of the fixed stars in 100 years; the *aphelia* of the Earth, Venus, and Mercury, will move, in 100 years, 18 min. 36 sec. 11 min. 27 sec. and 4 min. 27 sec.

The method of finding the place of the *aphelion* is, by observing several of the greatest digressions of the planet from the sun; till by two or three repeated observations it be found to remain at a stand.—In the Phil. Transf. N° 128, we have a geometrical method of finding the *aphelia* of the planets, given by Dr. Halley.

Kepler places the *aphelion* of Saturn for the year 1700, in 28° 3′ 44″ of Sagittarius: De la Hire, in 29° 14′ 41″.—The *aphelion* of Jupiter in 8° 10′ 40″ of Libra: De la Hire, in 10° 17′ 14″.—The *aphelion* of Mars in 0° 51′ 29″ of Virgo: De la Hire in 0° 35′ 25″.—The *aphelion*, of the earth in 8° 25′ 30″ of Cancer.—The *aphelion* of Venus in 30° 24′ 25″ of Aquarius: De la Hire in 5° 56′ 10″. And the *aphelion* of Mercury in 15° 44′ 29″ of Sagittarius: De la Hire in 13° 3′ 40″.

The annual motion, according to Kepler, of the *aphelion* of Saturn is 1′ 12″, of Jupiter, 47′ Mars, 1° 7″, of Venus, 1′ 18″, and of Mercury, 1′ 45″. According to de la Hire, that of Saturn is 1′ 22″, of Jupiter, 1′ 34″, of Mars, 1′ 7″, of Venus, 1′ 26″, and of Mercury, 1′ 39″.

APHERNOUSIA, a species of pine growing wild on the *Alps*. The timber is large, and the planks made of it are of a finer grain, and more beautifully variegated than deal; and may therefore be applied to many uses. It grows in bleak and barren ground, and much resembles that which is called in England the Weymouth pine.

APHESIS, from ἀφιημι, *I remit*, in the *Athenian Laws*, was applied to the case of a person deeply indebted, who desired the people to remit part of the debt, on account of his disability to make payment.

Voetius has a dissertation express on the words *aphesis* and *paresis*, and their difference.

APHETERIA, in the *Ancient Military Art*, a kind of engines used in the besieging of towns.

Suidas does not mention their particular form or structure. Aquinas takes them to have been of the projectile kind.

APHILANTHROPY, from α, φιλος, *friend*, and ανθρωπος, *man*, among *Physicians*, denotes the state or disorder, wherein a person has an unnatural distelish for mirth and society, and indulges solitude and melancholy.

APHIOCEM, a composition made principally of the buds of hemp before they flower. It is much in use among the Arabs, and has the intoxicating quality of OPIUM.

APHIS, in the history of insects, the name of a genus of animals, otherwise called *pediculus arborum*, and in English the *tree-louse*. The *aphis* belongs to the *hemiptera insecta* of Linnæus.

The trunk of the *aphis* is reflex; the body terminates in two horns behind; the wings are four, and erect, or altogether wanting; and the legs are formed for walking, not leaping.

Of this genus there are a great many species, denominated from the trees and bushes on which they are found. According to Dr. Richardson's observations, the *aphides* are at one time of the year viviparous, and at another time oviparous. Those of the rose-tree came immediately under his notice; and of ten generations of them, which he observed regularly to succeed each other in the course of one spring, summer, and autumn, the first proceeds from eggs laid during the preceding autumn; the eight following are all produced viviparous, and consist entirely of females, as does likewise the first. In the tenth generation, which usually comes forth before the middle of September, a few male insects appear. Their arrive at their full growth in about three weeks, and have an intercourse with the females, who soon afterwards lay their eggs which are hatched in the spring. Phil. Trans. vol. lix. N° 32.

APHLASTUM, from α and φαω, *frangibile*, in the *Ancient Navigation*, a wooden instrument, shaped like a plume of feathers, fastened on the poops's or swan's neck used by the ancient Greeks in the heads of their ships.

The *aphlastum* had much the same office and effect in a ship that the creft had on a helmet. It seems also to have had this further use, viz. by the waving of a party-coloured ribband fastened to it, to indicate from what quarter the wind blew.

The *aphlastum* was the proper ornament of the head, as the *acrostolium* was of the stern.

The Greek *aphlastum* answered to, and was probably the origin of the Latin *aphractes*.

APHONIA, in *Medicine*, the state of a person who is deprived of voice.

The word is compounded of the privative α, and φωνη, *voice*, q. d. a loss of speech or voice.

Hippocrates, Lib. de Rat. Vict. in Morb. Acut. says, "a Hippocrates, Lib. de Rat. Vict. in Morb. Acut. says, "stop not to the circulation of the blood and spirits, "cause a sudden loss of voice." Here Galen observes, that by this one symptom *aphonia*, are denoted the epilepsy, apoplexy, and cardiacal *syncope*. He adds, that an *aphonia* in sick persons is sometimes caused by a disorder affecting the organs of voice or respiration, with a resolution, or by some other depravation of the faculty. An *aphonia* sometimes proceeds from a disorder of the brain, a refrigeration of the natural heat, and total cessation of the loco-motive powers: when the organs of voice are in such a state of resolution, that the patient can neither cry, groan, nor utter any sound. It is more accurate, therefore, to render ἀφωνος, *deprived of voice (voce defectus as privatus)*, rather than dumb (*mutus*): since Hippocrates, περι Σκοπων, and Aristotle, lib. iv. Hist. Anim. attribute voice to the dumb. Foesius.

Among other causes which contribute to an *aphonia*, are the wanton abuse of spirituous liquors, and frequent furfeits. The prognostics vary, according to the respective causes from which they proceed. That species which owes its origin to worms, hysteric disorders, or a different eruption of the *menses*, is eafily cured; whereas, that kind of it which proceeds from a palsy of the tongue, either entirely fruftrates the ufe of all means, or being cured, eafily returns, and proves the direful harbinger of a more terrible disorder of the brain.

The method of cure muft be varied, according to the particular fpecies of the disorder.

Menjotius has a dissertation expreſs *De Aphonia*.

APHORISM, a maxim, general rule, or principle, of a fcience; or a brief fentence, comprehending a great deal of matter in a few words.

The word comes from ἀφοριζω, *I feparate*, q. d. a choice or feleft fentence.

The term is chiefly ufed in *Medicine* and *Law*. We fay, the *aphorifms* of Hippocrates, of Sanctorius, of Boerhaave, &c. *aphorifms* of the civil law, &c.

APHORISM is ufed in *Ecclefiaftical Writers* for the leffer excommunication, by which the delinquent was cut off from the benefit of the facrament and the prayers of the faithful; but allowed to bear a part in the reft of the fervice.

APHORISM is alſo ufed for a kind of figure in *Rhetoric*, whereby fomething that has been faid is limited and corrected. This is otherwife called *diorifmus*.

APHORISTIC, fomething relating to, or partaking of the nature of *aphorifms*.

The *aphoriſtic* method ſtands contradiſtinguiſhed from the *ſyſtematic*, or methodical, as alſo from the *dialectic*, or *diſcurſive way*.

The *aphoriſtic* method has great advantages, as containing much matter in a ſmall compaſs; ſentiments are here almoſt as numerous as expreſſions; and doctrines may be counted by phraſes. Every thing is cloſe and pertinent, no room for uſeleſs diſcuſſions, or for languiſhing connections, and tranſitions; there is hardly a word to be loſt.

APHRACTI, from α, and φραττω, *includo*, in the *Ancient Military Art*, denotes open veſſels, without decks or hatches, furniſhed only at head and ſtern with croſs planks, whereon the men ſtood to fight.

The *aphracti*, or open veſſels, ſtood contradiſtinguiſhed from *cataphracti*, or covered ones.

APHRODISIA, in *Antiquity*, feſtivals in honour of the goddeſs Aphrodite, or Venus. There were ſeveral of theſe *Aphrodiſia* obſerved in divers parts of Greece; the moſt remarkable was that at Cyprus, firſt inſtituted by Cinyras, out of whoſe family certain prieſts of Venus were elected, and for that reaſon named Κινυραδαι. At this ſolemnity ſeveral myſterious rites were practiſed: all who were initiated to them offered a piece of money to Venus as an harlot, and received as a token of the goddeſs's favour a meaſure of ſalt, and a φαλλος; the former, becauſe ſalt is a concretion of ſea-water, to which Venus was thought to owe her birth; the latter, becauſe ſhe was the goddeſs of wantonneſs.

APHRODISIA, or APHRODISIASMUS, in *Medicine*, denotes the uſe of venery, or the act of copulation between male and female.

APHRODISIA is also used for the age of venery, more frequently denominated *puberty*.

APHRODISIACS, in *Pharmacy*, denote medicines proper to increase the feed, and promote luft, or an inclination to venery.

In which fenfe *aphrodifiacs* ftand contradiftinguifhed from *antaphrodifiacs*.

Some authors give the appellation *aphrodifiacs* to the EPILEPSY.

APHRODISIACE, in the writings of the ancients, a name given to a gem, fuppofed, according to the idle traditions of thofe times, to have a power of procuring love to the perfon who wore it about him; all the defcription we have of it is, that it was of a pale flefh-colour; but the ftone, as well as its virtues, are wholly unknown to the world at prefent.

APHRODISIUS, in *Chronology*, denotes the eleventh month in the Bithynian year, commencing on the 24th of July in our's.

APHRODITA, in the *Hiftory of Infects*, a genus of fea-infects about two inches in length and one in breadth, of an oval figure, and aculeated; it has alfo a perforation in the middle of the back, and is called in Engliih the *fea-moufe*. It is one of the *gymnobranchia*, or infects with naked bodies, and may be met with in great abundance on the Kentifh coaft, among rocks. There are feveral fpecies of it. It belongs to the order of *mollofca*, in the Linnæan arrangement of worms.

Columna calls it *pudendum marinum*; Bartholine, *vermis aureus*; others, *erinaceus marinus*; *griffo fufcus*; and fome *mus marinus*, or the *fea-moufe*.

APHRODITARIUM, in the *Ancient Pharmacy*, denotes a kind of dry medicine, compounded of frankincenfe, the fcales of copper, ceruft, ftarch, and pomegranates, mixed in equal quantities.

The name is alfo given to a kind of *collyrium*, mentioned by Galen.

APHRODITE, in *Mythology*, a name of VENUS, derived from ἀφρος, *froth*, becaufe, according to the poets, Venus is fuppofed to be produced from the froth or foam of the fea.

APHRODITES, in *Natural Hiftory*, a name given by fome authors to the fineft fpecies of amethyft. See GEMMA *Veneris*.

APHROGALA, from ἀφρος, *froth*, and γαλα, *milk*, in the *Ancient Phyfic*, denotes a kind of whipt cream, or milk agitated till it be converted wholly into froth.

The *aphrogala* is directed by Galen, as proper againft hot diforders of the ftomach.

APHROLITRUM, in the *Ancient Phyfic*, denotes the fpume, or froth of *litrum*.

In which fenfe, *aphrolitrum* feems to amount to the fame with *aphronitrum*. Hoffman affirms, that the *nitron* and *litron* only differ in dialect. It appears, however, there was a great difference between the two medicines, *aphrolitrum* refembling meal, or farina, and being of a kind of intermediate virtue between *aphronitrum* and fait.

APHRONITRE, a kind of nitre, mentioned by the ancients; fuppofed to be the fpume, or the lighteft and fubtileft part thereof, emerged to the top.

The word is compounded of αφρος, *froth*, and νιτρον, *nitre*. Some modern naturalifts rather take the ancient *aphronitre* to have been a native falt-petre, gathering like an efflorefcence on old walls, &c. now called *falt-petre of the rock*. Greek authors expreffed two different fubftances by the word *aphronitrum*; the one only a particular appearance of the NATRUM, or native nitre of thofe ages; and the other a fcalious fubftance, the froth or fpume of the veffels in which they boiled and purified their nitre. The earlieft authors, however, diftinguifhed thefe two, calling the factitious fubftance *aphros nitron*, and the native *aphronitron*; and Galen plainly tells us, that there were two different fubftances.

APHROSELENOS, among *Ancient Naturalifts*, a denomination given to the SELENITES, or *lapis fpecularis*.

APHTHÆ, in *Medicine*, little ulcers or pimples rifing in the mouth, the palate, gums, and at the root of the tongue; attended with inflammation, and a difficulty of fwallowing. The word feems derived from φθω, *I corrupt*; or from απτω, *I kindle*.

Hippocrates applied the word to ulcers in the *pudenda* of women, alfo to thofe in the *afpera arteria*; and Galen fpeaks of the tefticles as fubject to the fame diforder.

Sucking children are particularly fubject to *aphthæ*, when either the nurfe's milk is corrupted, or the child's ftomach becomes unfit for digeftion: for, in thefe cafes, the fharp acrimonious parts of the milk rifing up, eafily exulcerate thofe tender and delicate parts.

There are fome *aphthæ* white, others red, others livid and blackifh; the white and red forts are the leaft dangerous, and the moft eafily cured; the livid and black often prove mortal. The black THRUSH very rarely occurs; but when it does, it is always a mortal fymptom, and not an original diforder. Dr. Hunter thinks thefe white fpecks are inflammatory exudations, and not ulcers, which appears probable from their dropping off in fucceffion to each other.

When they happen in grown perfons, they are owing to thin, ferous, and fharp humours, turned from the feveral parts of the body to the mouth.

External caufes alfo frequently concur to the production of *aphthæ*; and efpecially a neglect of keeping the tongue and fauces clean; the pernicious and prepoſterous method of curing fevers, and other inflammatory diſeaſes, by hot medicines; and expoſing the bodies of children, when over-heated, to a cold air, which by checking perſpiration, has an almoſt unavoidable tendency to accumulate and hoard up ſaline and ſulphureous *feces* in the maſs of humours. Nor ought we on this occaſion to exclude other cauſes, which have an immediate and direct influence on the lax compages of the *fauces*; ſuch as crumbs of bread or ſugar wrapt up in a piece of linen cloth in form of a teat, as alſo a piece of bread dipped in ale, and given to children to be ſucked.

A liniment of *mel roſatum* and oil of vitriol is eſteemed a good remedy for the *aphthæ*: plantane-water is alſo in uſe on the ſame occaſion. Dr. Cantance recommends the *alvum citius* as a purge in this diſorder, for infants, and the ipecacuanha in the interval of purging, as a perſpiration.

APHTHARTODOCETÆ, a ſect, ſworn enemies to the council of Chalcedon.

The word is derived from αφθαρτος, *incorruptible*, and δοκεω, *I imagine*; and was given them, becauſe they imagined the body of Jeſus Chriſt was incorruptible and impaſſible, and not capable of death.

They aroſe among the Eutychians, and made their firſt appearance in the year 535.

APHUA *cobitis*, in *Ichthyology*, the name of a ſmall fiſh common in the Mediterranean and ſome other ſeas, and called by us the ſea-loach. It never exceeds three or four inches in length, its body is round, and flatted a little on the back; its colour is white, variegated with black ſpots. Rondeletius.

APHYLLANTHES, in *Botany*, the name of a genus of plants, of the *hexandria monogynia* claſs; the characters of which are theſe: the flower is of the liliaceous kind, and is compoſed of ſix petals, which ariſe from the centre in a ſquamoſe, and in ſome degree tubular form; the piſtil ariſes alſo from the cup, and finally becomes a trigonal turbinated fruit, which when ripe burſts into three parts or cells, which contain roundiſh ſeeds.

There is only one known ſpecies of this plant, which is the Montpelier *aphyllanthes*, called by ſome the blue Montpelier *jacinth*.

APHYLLON, in *Botany*. See *Bromus* RAPE.

APIARIA, in *Natural Hiſtory*, the name given by authors to a fly found only in autumn, and frequently met with on parſley; it is a two-winged fly, of a deep and ſhining black, and gathers wax on its legs in the manner of the bee. It is a ſpecies of the ATTELABUS.

APIARY, *bee-houſe*, a place where bees are kept; and furniſhed with all the apparatus neceſſary for that purpoſe.

The word comes from *apis*, a *bee*.

The *apiary* ſhould be ſecured from high winds on every ſide, either naturally or artificially; and well defended from poultry, &c. whoſe dung is offenſive to bees. Columella gives ſeveral directions reſpecting the ſituation of an *apiary*. He recommends a ſouth aſpect, and a proper medium between extreme heat and extreme cold: he prefers a low ſituation to an eminence, that the loaded bees *may* more eaſily deſcend to their habitation. The *apiary* ſhould likewiſe be near the dwelling-houſe, that the bees may be more conveniently watched; and they ſhould be provided with *water*, if they are not ſituated near a running ſtream; and the garden in which the *apiary* ſtands, ſhould be well furniſhed with ſuch plants as afford a proper ſupply of food. Of theſe he ſpecifies thyme, the oak, the pine, the ſweet-ſmelling cedar, and all fruit-trees. Furze, broom, muſtard, clover, heath, buck wheat, &c. are excellent for this purpoſe.

Celſus adviſed that bees ſhould be removed, as occaſion required, to places abounding with autumnal flowers: and this method was practiſed by conveying the bees from Acharia to Attica, from Rubœa and the Cyclad iſlands to Scyrus, and alſo in Sicily, where they were brought to Hybla from other parts of the iſland. The ancient inhabitants of Lower Egypt, likewiſe, obſerving that plants bloſſomed, and fruits ripened, about ſix weeks ſooner in Upper Egypt than with them, availed themſelves of this circumſtance, and removed their bees thither, that they might reap the benefit of the more forward vegetation: and the ſame practice is continued in that country to the preſent day. About the end of October, hives of bees are embarked upon the Nile, and conveyed into Upper Egypt, where they arrive juſt as the inundation ſubſides, and the flowers begin to bud. When they have remained for ſome time at their fartheſt ſtation,

ſtation, they are brought two or three leagues lower down; and thus they are ſucceſſively removed, as the vegetation advances, from one ſtation to another, collecting, as they journey, the rich produce of the banks of the Nile, and return home about the beginning of February. This method of tranſporting bees from place to place, for the convenience of paſture, is practiſed in France, and might be adopted with great advantage in this kingdom. See BEE and HIVE.

APIASTELLUM, in *Botany*, the name of two different ſpecies of plants with different authors; Dodonæus expreſſing by it the common baum, and Apuleius the black bryony.

APIASTER, in *Zoology*, a name given by ſome authors to the bee-eater, called by the generality of authors MEROPS.

APIASTRUM, in *Botany*, a name given by the ancients to two different plants, of ſuch contrary form and qualities, that it is unlikely they ſhould have given occaſion of confounding them together, as miſtaken about them might be of fatal conſequence. The one of theſe plants was the poiſonous *water-CROWFOOT*; which they called *apiaſtrum*, becauſe of its having leaves that ſomewhat reſembled ſmallage. The other *apiaſtrum* is the common garden baum, ſo called by theſe writers, from their having obſerved that the bees were very fond of it. Beſides this they have in ſome places called the SELINUM by this name, from its reſembling parſley, which they alſo called *apium*; and ſome of them have extended the name even to the animal world, and given it to a ſort of bird that feeds on bees.

APICES, *ſummits*, in *Botany*, little knobs growing on the tops of the *ſtamina* or chives in the middle of flowers.

The word is the nominative plural of *apex*, *the top* or *ſummit* of any thing.

They are commonly of a roundiſh figure.—By the microſcope they have been diſcovered to be, as it were, a ſort of *capſulæ ſeminales*, or ſeed-veſſels, containing in them ſmall globular, and often oval particles of various colours, and exquiſitely formed; called the FARINA *fecundans*.

Theſe particles are a kind of male ſperm, which, falling down into the flower, fecundates and ripens the ſeed. See *Generation of* PLANTS.

APICULUM, in *Antiquity*, a kind of thread or filet which the ſtamens were, in the heat of ſummer, in lieu of the APEX.

Feſtus ſpeaks of the *apiculum*, as a cover for the *apex*; but the paſſage ſeems to be corrupt.

APINEL, the name of a gentleman given to an American root called by the natives *Tabaccoui*. See Hiſt. de l'Acad. Roy. an. 1724. Hiſt. 19.

APIOS, in *Botany*, a name given by many authors, to thoſe ſpecies of the EUPHORBIA, or ſpurge, which have tuberous or knobby roots.

APIOS is alſo the name given by Boerhaave to ſome of the leguminous plants, comprized by Linnæus under the name GLYCINE.

APIS. *muſca*, the *bee*, or *fly*, in *Aſtronomy*, a ſouthern conſtellation, containing the following ſtars:

Situation of the ſtars.	Sign.	Long.		Lat.		Magn.
		°	′	°	′	
In the head, - -	♏	16	20	55	11	4
In the right wing,		16	36	29	56	4
In the left ditto,		22	22	15	56	43	27	5
In the tail,		20	14	18	58	47	43	5

APIS, or APES, in *Zoology*, a genus of four winged inſects with wings entirely membranaceous, and their tails furniſhed with a ſting; comprehending the BEE, HORNET, WASP, and HUMBLE-BEE.

This genus is ranged under the *hymenoptera* of Linnæus; and includes a great variety of ſpecies.

APIS, *in Mythology*, a divinity worſhiped by the ancient Egyptians at Memphis. It was an ox, having certain exterior marks; in which animal the ſoul of the great Oſiris was ſuppoſed to ſubſiſt. This animal had the preference to all others, as being the ſymbol of agriculture, the improvement of which that prince had ſo much at heart.

The Egyptians conſulted him as an oracle. If he accepted what was preſented him to eat, it was a good preſage; his refuſal was a bad omen. *Dr.* Bryant apprehends that the name of *api* was an Egyptian term for a father; that it referred to the patriarch Noah; and that the creſcent which was uſually marked on the ſide of the animal, was a repreſentation of the ark. Ancient Myth. vol. ii. p. 426.

APITES, APITES VINUM, from *apios*, *the poma-tree*; *perry*, wine of pears. It is thus prepared by ſome:

Cut and pound the pears, and having preſſed out the juice, to every twelve pints thereof add one pint of honey, and let it ferment.—After the ſame manner are prepared wines of *corbis*, *mediars*, and *ſervices*. All theſe kinds are aſtringents, have a grateful ſourneſs, are good for the ſtomach, and reſtrain inward fluxes. Dioſcorides, lib. v. cap. 32.

APIUM, PARSLEY, in *Botany*, a genus of the *pentandria digynia* claſs. The characters are, that it is a plant with an umbelliferous flower; each flower has five ſtamina; under the flower is ſituated the germen, which afterwards becomes an oval channelled fruit, dividing into two parts, having two oval ſeeds channelled on one ſide, and plain on the other.

There are ſeven ſpecies; 1. *Common parſley*. 2. *Curled parſley*. 3. *Large ſtalked parſley*. 4. *Smallage*, or *water-parſley*. 5. *Upright celery*. 6. *Celeriac*, or *turnip-rooted celery*. 7. *Greateſt Portugal parſley*, *with a ſtony baccy three lobes and a yellowiſh flower*. See CELERY, PARSLEY, &c.

APIUM *anthoſcium*. See CELERY, *wild*.

APIUM *Alexandrinum*. See BUBON.

APIUM *anglicum ſilveſtre*. See ANISE.

APIVORUS BUTEO, in *Ornithology*, the name by which authors call the bird known in England by the name of the *honey-BUZZARD*. It is ſomewhat larger than the common buzzard; its beak is black, very much hooked, and protuberant in the middle, and covered to the noſtrils with a black wrinkled ſkin; its mouth open very wide, and is yellow within. It builds its neſt with ſticks covered with wool, and ſometimes uſes the deſerted neſt of a kite to lay and breed its young in; which it feeds principally with the nymphs, or maggot-worms of bees and waſps; and it is common to find pieces of honey-combs in the neſts. It feeds on newts, frogs, and other ſmall animals, and is remarkable for running very ſwiftly on the ground: the female is larger than the male, as in moſt other birds of prey. Ray.

APLUDA, in *Botany*, a genus of the *polygamia monœcia* claſs of plants.

The calyx is a common bivalve glume, with a female floſculus, and male petaliferous.

APLUSTRE, or APLUSTRA, in the *Ancient Naval Architecture*, a carved table; ſomewhat after the manner of a ſhield, fixed by way of decoration to the extremity of a ſhip's head.

The *roſtra* or beaks of ſhips were ſometimes alſo called *apluſtra*.

But ſome think that the *apluſtre* anſwered to what we call the ſtag, or enſign.

APNOEA, from *a* and πνεω, *I breathe*, in *Medicine*, denotes a want of breath, or loſs of reſpiration.

In this ſenſe is the word uſed among the ancients, not as importing a total privation of breath, which would only be another name for death; but to denote the reſpiration very ſmall, and ſlow, ſo as to ſeem quite gone, as in the caſe in ſuffocation of the *uterus*, apoplexies, ſyncopes, lethargies, &c.

APOBAMINA, is uſed by ſome phyſicians for a liquor wherein pieces of gold, or chains heated red-hot, have been extinguiſhed, in order to fortify the ſpirits and principal members.

APOBATERION, from ἀποβαινω, *I depart*, among the *Ancients*, a farewel ſpeech, or poem, made by a perſon on his departure out of his own country, or ſome other place where he had been kindly received, and entertained.

Such is that of Æneas to Helenus and Andromache. Æn. lib. iii.—The *apobaterian* ſtands oppoſed to the EPIBATERION.

APOBATHRÆ, in *Antiquity*, a kind of little bridges, or ſtairs, joining the land to ſhips, or one ſhip to another.

APOBEE, in *Botany*, a name given by the natives of Guinea to a ſpecies of corn-marygold, called by Petiver CHRYSANTHEMUM *annuum Guineenſe foliis longis anguſtis*, from its having long and narrow leaves, and no ſtalk to ſupport the flower. The people of the place uſe this in the ſmall-pox, and other eruptive fevers, boiled in water, and the liquor drank warm. Phil. Trans. N° 232.

APOBOMIOI, from πως, *below*, and βωμος, *altar*, in *Antiquity*, ſacrifices offered on the bare earth, without altars.

APOCALYPSE, *Revelation*: the name of the laſt book in the canon of Scripture.

The word is formed of ΑΠΟΚΑΛΥΠΤΩ, *I reveal*.

The *Apocalypſe* contains diſcoveries or revelations made to the apoſtle St. John, in the iſle of Patmos, during his baniſhment there, under the perſecution of Domitian.

This, of all the books of the New Teſtament, is that about which the ancient fathers, and the practice of the church, were the moſt, and the longeſt, divided.—When it was firſt univerſally received as canonical, it is not eaſy to decide. St. Jerom relates, that the Greek church doubted of its authenticity, even in his days: St. Baſil and Gregory Nazianzen abſolutely reject it; and the council of Laodicea never mention it in their canon of the ſacred writings.

Some attribute it to Cerinthus; and others, to another John, diſciple of St. John. Dionyſius Alexandrinus cenſures it as written in bad Greek, though he allows

is to contain a mystic sense, which, he says, he admires, even where he does not understand it.

On the other hand, St. Justin, Irenæus, Theophilus, Antiochenus, Melito, Apollonius, Clemens Alexandrinus, and Tertullian, make no doubt of its being canonical. The third council of Carthage, held in 397, placed it in the canon of the New Testament; and the churches both of the East and West have acknowledged it ever since.

The Alogians are represented, by ecclesiastical writers, as great exclaimers against the *Apocalypse*, many of the figures whereof they turned into ridicule; particularly the visions of the seven trumpets, the four angels bound on the river Euphrates, &c. So Epiphanius, besides it against them: the book, he observes, is not a mere history, but a prophecy; so that it is no wonder the author should express himself after the manner of the prophets, whose style is mostly figurative.

Of all their objections against the authority of this book, that seems the best grounded which is drawn from those words in chap. ii. ver. 18, *Write to the angel of the church of Thyatira*: where was not, say they, any Christian church at Thyatira at that time. St. Epiphanius, who grants them this point, is forced to have recourse to the prophetic spirit; as it St. John had foreseen there would be a church there in course of time.

Some late authors have made a good amendment to St. Epiphanius's answer: it is probable, in the time of that father, the catalogue of the bishops, with other acts, which shew that there had been a church established there from the time of the apostles, might not be known. Grotius adds, that though there was not, indeed, any church of Gentile converts at Thyatira when St. John wrote; yet there was one of Jews, as there had been another at Thessalonica, before St. Paul preached there.

Several orthodox writers have rejected the *Apocalypse*, as a book which countenanced the reveries of Cerinthus, touching the carnal reign of Christ on earth.

Though Dionysius Alexandrinus (ap. Euseb. Hist. Eccl. vii. 25.) allowed the *Apocalypse* to be an inspired writing, yet he took it for the work of another John, different from St. John the Evangelist, which he endeavours to make appear from the diversity of style. But we all know how precarious the arguments are, which are drawn from the mere consideration of style. It is true, in most of the ancient Greek copies, both printed and manuscript, we find the name *John the Divine*; but they who put this title, meant no more thereby than to denote the apostle St. John, whom the Greek fathers call *the Divine*, by way of eminence, as distinguishing him from the other Evangelists. There have been several other works published under the title of *Apocalypses*. Sozomen mentions a book titled in the churches of Palestine, called the *Apocalypse*, or *Revelation of St. Peter*. He also mentions an *Apocalypse* of St. Paul; which the Copbtes retain to this day. Eusebius also speaks of both these *Apocalypses*. St. Epiphanius mentions an *Apocalypse* of Adam; Nicephorus, an *Apocalypse* of Esdras; Grotius and Cedrenus, an *Apocalypse* of Moses, another of St. Thomas, and another of St. Stephen; St. Jerom, an *Apocalypse* of Elias.

Porphyry, in his life of Plotin, makes mention of the *Apocalypses* or revelations of Zoroaster, Zostrian, Nicotheus, Allogenes, &c.

APOCARITES, from ἀποκαμνω, *I cut off*, in *Ecclesiastical History*, denotes those who denied that the human soul is part of, or derived from, the substance of God.

The *Apocarites* are ranked as a branch of the Manichæans.

APOCARPASUM, in *Natural History*, a name given by the ancient Greeks to a poisonous drug, called also sometimes simply *carpasum*; it was the exudation of a tree growing in the country of the Abyssines, and was so like the finest myrrh, that it was often mixed with it, and many lives were lost by administering it as myrrh. The wood of the tree which produced it was also poisonous, though in a less degree, and was called by the same writers *apocarpasum*, as the wood of the balm of Gilead tree is *abobalsamum*.

APOCATASTASIS, from ἀποκαθιστημι, *I restore*, denotes the entire restitution, or redintegration of a thing.

In this sense, we read of the *apocatastasis* of the world, or of all things.

APOCATASTARIS, among *Astronomers*, denotes the period of a planet, or the time wherein it returns to the same point of the zodiac from which it set out.

APOCATASTASIS is also used in *Medicine*, to denote the subsiding, or sinking of a thing.

In this sense, we read of the *apocatastasis* of urine, the *apocatastasis* of tumours; and other diseases.

APOCATHARSIS, in a general sense, denotes the same with *catharsis*, or expurgation.

In this sense, we read of *apocathartics* of bile, a symptom mentioned by Thucydides in the plague of Athens.

Quincy defines *apocathartics* a purging upwards and downwards, but without sufficient authority. Hence also *apocatharticks*, a denomination sometimes given to what we otherwise call simply CATHARTICS.

APOCHA, from ἀπο and ἐχω, *I have*, in *Civil Law*, denotes an acquittance, or receipt given by the creditor to his debtor for money paid: in which sense, the word stands contradistinguished from *anapocha*, which is given by the debtor to the creditor. Reasner and Zierlerus have dissertations *de apochâ*.

APOCHYLISMA, from ἀπο, and χυλος, *I extract the juice*, in *Pharmacy*, denotes an inspissated vegetable juice; answering to what is called in the shops a ROB.

APOCOPE, a figure in *Grammar*, wherein part of the end of a word is cut off; as in *ait* for *dicit*, *fac* for *face*, *ait* for *aiebat*, *fop* or *hypo* for *hypocrisis* usual.

The word is compounded of the preposition απο, and the verb κοπτω, *I cut*.

A like retrenchment at the beginning of a word is called *aphæresis*.

When the *apocope* is marked with a superior comma (called an *apostrophus*), the word is said to be *apostrophated*: as *th'* for *through*.

APOCRISIARIUS, in *Antiquity*, an officer appointed to carry or deliver the messages, orders, and answers of a prince or emperor.

The word is formed from ἀποκρισις, *responsum*, *answer*. Hence he is usually called *responsalis*, q. d. *answerer*.

The *apocrisiarius* afterwards became the emperor's chancellor, and kept the seal. In the barbarous latin we sometimes meet with *apocrisiarius*, for *apocrisiary*. Zosimus defines *apocrisiarius*, secretary for foreign affairs; being the same with what Vopiscus, in the life of Aurelian, calls *susceptor secretorum*.

The title of *apocrisiary* became at length appropriated, as it were, to the pope's deputy, or agent, who resided at Constantinople to receive the pope's orders, and the emperor's answer.

St. Gregory was *apocrisiary* of pope Pelagius, at the time when he composed his morals on Job. The *apocrisiary* did the office of the modern NUNTIO. Sometimes, however, he held the rank and quality of the pope's LEGATE.

The institution of *apocrisiaris* seems to have been in the time of Constantine, or not long after, when the emperors being become Christians, foreign churches had some occasion to promote their suits at court than formerly, at least we find the office established by law in the time of Justinian. In one of the Novels it is ordered, that as no bishop was to be long absent from his church without special command from the emperor, if any one had occasion to negociate any ecclesiastical cause at court, he should prefer his petition either by the *apocrisiarius* of his church, appointed for such purpose, or by the ecclesiarchs, or some of his clergy sent on affairs. In imitation of the *apocrisiaris* of churches, almost every monastery had their *apocrisiarius* likewise, whose business was not to reside in the royal city, as the former did, but to act as proctors for their monastery, or any member of it, when they had occasion to enter any appearance at law, before the bishop, under whose jurisdiction they were. This appears from another of Justinian's Novels, which requires the Alcetics in such cases to answer by their *apocrisiarii*, or *responsales*. Du-Cange. Bingham. Orig. Eccles. lib. iii. cap. 13. sect. 6.

The heresy of the Monothelites, and afterwards that of the Iconoclasts, broke off the custom of having a papal *apocrisiary* at Constantinople.

APOCRISIS, ἀποκρισις, literally denotes an *answer*. Under this denomination were anciently included, not only the rescripts of the emperor to the petitions of parties, but all kinds of decrees and mandates.

We have several books extant under the title of *Apocrisis*, and some in opposition to these under the title of *Anapocrisis*.

APOCRUSTICS, in *Medicine*, remedies endued with a repelling and astringent power, whereby they prevent the too great influx of humours to a part distended.

The word is derived from ἀποκρουω, *pello*, *pulso*, *I drive*. *Apocrustics* are usually cold and astringent, and consist of large particles, wherein they differ from drawing medicines, which are hot, and consist of more subtile parts.

APOCRYPHAL, something dubious; or that comes from an uncertain author, on which account credit cannot be reposed. We say, an *apocryphal* book, passage, history, &c. meaning such as are of suspected authority.

Vossius observes, that, with regard to the sacred books, none are to be pronounced *apocryphal*, except such as have neither been admitted into the synagogue, nor the church, so as to be added to the canon, and read in public.

For this reason, also, the books of Sibyls were anciently called *apocryphal*, as being committed to the trust of the *decemviri* alone, and for the like reason the annals of the Egyptians and Tyrians were called by the same name.

Before the Septuagint version, the books of the Old Testament were all *apocryphal* in this sense. But in process of time, the sense of the word was changed, and those books

alone were called *apocryphal*, which were of doubtful or suspected authority.

In the original meaning of the word, all the writings deposited in the temple were called *apocryphal*: because they were kept secret from the people.

When the Jews published their sacred books, they only gave the appellation of *canonical* and *divine* to such as they thus made public; and such as were still retained in their archives they called *apocryphal*, for no other reason, but because they were not public; so that they might be really sacred and divine, though not promulgated as such. Thus, in respect of the Bible, all books were called *apocryphal*, which were not inserted in the Jewish canon of Scripture; and it is to this sense that St. Epiphanius is to be understood, when he says, that the *apocryphal* books are not put in the ark among the other inspired writings.

There has been a great dispute between the Romanists and the Reformed, about the authority of those books, now called, by the latter *apocryphal*; and by the former, *uncontroverted canonical*; as Judith, Tobit, Esdras, Maccabees, &c. the one having the opinions of many of the primitive fathers for their vouchers, and the others, the tradition of their church.

The word is derived from ἀπόκρυπτω, *to hide*; because the origin of such books was unknown, or because they contain some mysteries not fit to be known.

M. Simon contends, that they must have been read in Greek, even by the apostles themselves; which he infers from divers passages in their writings. He adds, that the church received them, with the other books of Scripture, from the Hellenist Jews; and that if the churches of Palestine never admitted them, it was not for their accounting them *apocryphal* in the sense the word is now used, but because they read none but what was written in Hebrew.

To this may be opposed the authority of the greatest part of writers in all ages, till the council of Trent; which makes a precise distinction between the books now called *apocryphal*, and those contained in the Jewish canon. This council, sess. 4. declared six of them to be canonical, viz. Tobit, Judith, Wisdom, Ecclesiasticus, and the 1st and 2d of Maccabees; but joined Baruch with Jeremiah, which makes in all seven.

The *apocryphal* books are also called *canonical*, and by some writers, *ecclesiastical books*, because, though not held of divine authority, they were allowed to be read in churches, as containing many things tending to edification, and godly instruction; on which account they continue still in use in the church of England, though forbidden in the other reformed churches.

Wolfius gives the literary history of the *apocryphal* books, their various editions, translations, commentaries, &c.

We meet with numerous *apocryphal*, or suppositious books, published under the names of patriarchs, prophets, evangelists, apostles, primitive fathers, saints, martyrs, &c. *Apocryphal* prophecies, *apocryphal* gospels, *apocryphal* epistles, *apocryphal* acts, *apocryphal* apocalypses, &c.

The writings of both under spurious names, and obtruding them for the works of inspired authors, though once reputed laudable, and confecrated under the name of pious fraud, was condemned very early by an apostolical canon, in the instance of a priest, who was deposed for forging the acts of Paul and Thecla. Bing. Orig. Eccles. lib. xiii. cap. 5.

Fabricius has published the fragments and remains of the *apocryphal* books both of the Old and New Testament. Fabric. Codex Pseudepigraphus Veteris Testamenti Hamb. 1722 & 1723 8vo. 2 vol. Codex Apocryphus Novi Testamenti, 2 vol. Hamb. 1719. &c. 8vo.

APOCYMA, from ἀπό, and κύμα, *wave*, in the *Materia Medica* of the *Ancients*, a name given by the Greek authors to a sort of cement, used to flush over the bottoms of their ships, to preserve them from injuries by the water; they call this also by the name of ZOPISSA, and Aetius and Serapion call it *hirsa*, *hirra*, or *alithion*. It was a mixture of bees-wax and pitch melted together, and after it had been soaked some time in the sea-water, it was supposed to have peculiar virtues, and was used in many compositions.

APOCYNUM, in *Botany*. See DOGS-BANE.

APODACRYTICA, from ἀπό, and δάκρυον, a *tear*, in *Pharmacy*, medicines proper to excite tears.

Some also use the term *apodacrytica*, for remedies proper to suppress tears.

APODECTÆ, from ἀποδέχομαι, *I receive*, in *Antiquity*, a denomination given to ten general receivers, appointed by the Athenians, to receive the public revenues, taxes, debts, and the like.

The *apodectæ* had also a power to decide controversies arising in relation to money and taxes, all but those of the most difficult nature and highest concern, which were reserved to the courts of judicature.

APODECTÆ, in the Athenian government, officers appointed to see that the measures of corn were just.

The *apodectæ* were nearly related to the *agoranomi*.

APODEMICA, from ἀποδημέω, *I travel*, the doctrine or science of travelling, whether for knowledge or devotion's sake.

Jo. Merckor has published an *Apodemica*. Ramzovius a *Methodus apodemica*.

APODES, in the general sense, from α and πους, denotes things without feet. Zoologists apply the name to a fabulous sort of birds, said to be found in some of the islands of the new world, which being entirely without feet, suppose themselves on the branches of trees by their crooked bills.

The Germans and Dutch have also their *apodes*, a sort of birds somewhat like swallows, whose legs and feet are so very small, that they seem rather formed for creeping than running.

APODES, is one of the four orders of fishes in the Linnean distribution of animals, comprehending eight genera, and 30 species. Their character is, that they have no belly fins.

APODICTICAL *argument*, or SYLLOGISM, signifies a clear, convincing proof, or demonstration of a thing.

The word is formed of ἀποδείκνυμι, *I demonstrate*.

APODICTICAL *method* is used by some writers, to denote the systematical or scientifical method of teaching or writing.

APODIOXIS, from ἀποδίωκω, *I exclude*, in *Rhetoric*, a figure whereby we either pass over a thing slightly, or refer treating of it to some other time or place.

This is also called by Latin writers, *reticentia*, e. gr. *Quid ego summum defendam judicem? Equidem debeo, &c.* Again. *Quid ego tertium hoc loco defendam, judices? Post ad reditum, cum quem, &c.*

APODIOXIS, in *Logic*, the rejection of such things as do not necessarily belong to the question to be considered.

APODIXIS, from ἀποδείκνυμι, in *Rhetoric*, denotes an evident proof, or demonstration of a point.

We have several books extant under the names of *apodixes*, and some by way of answer to these, under that of *antapodixes*.

APODIXIS, in *Middle age Writers*, denotes a receipt for money paid.

In which sense it amounts to the same with *apocha*.

APODIXIS is also sometimes used for a specimen or proof of a thing.

APODOSIS, from ἀποδίδωμι, *I apply*, in *Rhetoric*, makes the third part of a complete *exordium*, being properly the application, or restriction of the *protasis*.

The *apodosis* is the same with what is otherwise called *auxesis*, and stands opposed to *protasis*; e. gr. *protasis*, all branches of history are necessary for a student; *catasterne*, so that without these he can never make any considerable figure; *apodosis*, but literary history is of a more especial use, which recommends it, &c.

APODOSIS is also used, in speaking of similes, for that part which makes the application of them.

APODOSIS is also used, in a rhetorical period, for the consequent opposed to *protasis*, or antecedent preceding.

APODOSIS is also used for a return to something antecedent, or that went before.

This is otherwise called *anaphora*.

APODYTERIUM, in *Antiquity*, a stripping-room, or apartment at the entrance of baths, wherein persons dressed and undressed.

This was otherwise denominated *exedrum*, *gymnasterium*, and *spoliarium*.

Some will have the *apodyterium* to have been the same with the *conisterium*; but Vossius shews they were two different places.

The word is formed of ἀπόδυσις, *to undress*.

APOGEE, APOGEUM, in *Astronomy*, that point in the orbit of the sun, or a planet, which is farthest distant from the earth.

The word is formed of ἀπό, *from*, and γῆ, *earth*.

In the corrupt Latin, *apogæ* sometimes signifies a grotto, or subterraneous vault.

The *apogee* is a point in the heavens at the extreme of the line of the apsides; in which the sun, or a planet, is at the greatest distance that it can be at, from the earth, in its whole revolution.

The opposite point to this is called the PERIGEE.

The ancient astronomers, regarding the earth as the centre of the system, chiefly considered the *apogee* and *perigee*; the moderns, making the sun the centre, change the *apogee* and *perigee* for APHELION and PERIHELION. See SYSTEM.

The quantity of the motion of the *apogee* may be found by comparing two observations thereof made at a great distance of time; converting the difference into minutes, and dividing it by the number of years elapsed between the two observations: the quotient gives the annual motion of the *apogee*. Thus, from an observation made by Hipparchus in the year before Christ 140, whereby the sun's *apogee* was found 5° 30′ of ♋; and another made by Ricciolus, in the year of Christ 1646, wherein

it was found 7° 36′ of ♑; the annual motion of the *apogee* is found to be 1′ 2″.

APOGEE *of the moon*. See MOON.

APOGEE *of the equant*, is its farthest distance from the earth; or that point where the circumference of the EQUANT is intersected by the line of the *absides*, in the remotest part of the diameter.

So the *perigee* of the *equant* is the opposite point, or the nearest part of the diameter.

The mean *apogee* of the *ecliptic* is a point where the epicycle is cut above, by a right line drawn from its centre to the centre of the *equant*, or the point of the epicycle most remote from the earth.

APOGRAPH, a copy or transcript of some book or writing.

The word is formed of ἀπο, *ab, from*, and γραφω, *I write*. In this sense *apograph* stands opposed to *autograph*; as a copy to an original.

APOGRAPSE, in the *Ancient Law*, was, when a person being sued for money supposed due to the public, pleaded that the charge was unjust, and withal produced all the money he was possessed of, and declared by what means it came to his hands.

Suidas adds, that it is sometimes taken for an action against such as neither paid the fines laid upon them before the ninth *prytanis* following their sentence, nor were able to give sufficient security to the city. Potter Arch. Græc. lib. 1. cap 23.

APOGRAPHE, in the Roman *Law*, denotes a catalogue, or inventory of goods.

APOLEPSIS, from ἀπολαμβανω, *I have*, in the Athenian *Law*, an action of divorce; brought when a woman had fled from her husband.

APOLEPSIS, from ἀποκατεχω, *I retain*, in the *Ancient Physic*, denotes a retention of the urine, or any other matter which ought to be evacuated.

APOLEPSIS is also understood of an interception of the blood or spirits, or an extinction of the native heat of the veins.

APOLEPSIS is also a denomination of a species of apoplexy, wherein the speech, sense, motion, &c. suddenly fail.

This seems to coincide with what is otherwise called a CATALEPSIS.

APOLEIDES, from ἀ, and πολις, *city*, in *Antiquity*, those condemned for life to the public works, or exiled into some island, and thus divested of the privileges of Roman citizens.

APOLLINARIANS, APOLLINARISTS, called also by Epiphanius *Demaritæ*, ancient heretics, who denied the proper humanity of Christ, and maintained that the body which he assumed was endowed with a sensitive, and not a rational soul, but that the Divine Nature supplied the place of the intellectual principle in man.

This sect derived its name from Apollinaris, bishop of Laodicea, in the fourth century.

The *Apollinarians* have been charged with other opinions, such as, the *Millenarian* and *Sabellian*, the pre-existence of the body of Christ, and the passion of his Deity; but ecclesiastical writers are not agreed with respect to these and other particulars. Their doctrine was first condemned by a council of Alexandria, in the year 362, and afterwards in a more formal manner by a council at Rome in 375; and by another council in 378, which deposed Apollinaris from his bishoprick. Notwithstanding these censures, his doctrine spread through most of the churches of the East; and his followers were subdivided into various sects. In 388, the emperor Theodosius enacted a law, forbidding them to hold assemblies, to have any ecclesiastics or bishops, or to dwell in cities. The rigorous execution of this law, in concurrence with the decrees of different councils, reduced them to a very small number, and their doctrine had no long duration.

APOLLINARIAN *games*, *ludi Apollinares*, in *Antiquity*, games at Rome, celebrated yearly in honour of Apollo, on the fifth day of July, under the direction of the prætor, in the *Circus maximus*.

The occasion was a kind of oracle delivered by the prophet Marcus, after the fatal battle at Cannæ, declaring that, to expel the enemy, and cure the people of an infectious disease, which then prevailed, sacred games were to be annually performed in honour of Apollo. And that the prætor was to have the direction of them; and the *decemviri* were to offer sacrifices after the Grecian rite.

The senate ordered that this oracle should be observed, because another of the same Marcus, wherein he had foretold the overthrow at Cannæ, had been verified; for this reason they gave the prætor twelve thousand *asses* out of the public cash to defray the solemnity. There were sacrificed an ox to Apollo, as also two white goats, and a cow to Latona; all with their horns gilt. Apollo had also a collection made for him, besides what the people, who were spectators, gave voluntarily. The first prætor by whom they were held, was P. Cornelius Sylla. For some time they were moveable or indictive, but at length were fixed, under P. Licinius Varus, to the fifth of July, and made perpetual.

The men, who were spectators at these games, wore garlands on their heads; the women performed their devotions in the temples at the same time, and at last they caroused together in the vestibules of their houses, the doors standing open.

The tradition reports, that, at the first celebration hereof, the people were suddenly invaded by the enemy, and obliged to take to their arms: upon which occasion a cloud of darts and arrows falling upon their enemies, the Romans soon returned victors to their sports.

The *Apollinarian* games were only scenical; and at first only observed with singing, piping, and other sorts of music; but afterwards there were also introduced all kinds of mountebank-tricks, dances, and the like, yet so as that they still remained scenical, no chariot races, wrestlings, or the like laborious exercises of the body, being ever practised at them. Danet, and others, confound the *ludi Apollinares* with the ACTIACI.

APOLLINARES *ludi* was also a general name given to all SCENICAL games.

These were also called *ludi literales*, and *fatrici*.

They differed from the *ludi theatrales*, in that the former were celebrated with all sorts of plays, farces, poems, recitations, &c. the latter only by dancing and music.

This kind of *Apollinarian* had their share in almost all the solemn games.

APOLLINARIS, in *Botany*, a name given by some authors to henbane.

APOLLO, in *Mythology*, a pagan deity worshipped by the Greeks and Romans. He was the God of light and poetry, and was regarded as the inventor and patron of the fine arts. He had a famous temple at Delphos, where his oracles were in great estimation.

Apollo is principally distinguished in ancient statues by the beauty of his face, and the gracefulness of his figure. Accordingly Virgil calls him, the beautiful: and Tibullus, the well-shaped god. *Æn.* iii. ver. 119. Tibullus, lib. ii. *El.* iii. ver. 11.

APOLLO *Belvedere*, one in the first class of the ancient statues. The excellence of this statue consists in the expression of something divine, whereas the rest excel only in things that are common to men. This statue may, perhaps justly enough, claim the preference, even in the superior and distinguished class of the best remains of all antiquity. There are about twenty ancient statues, which the moderns have discovered, that are referred to the first class; and considered each as the chief beauty in its kind.

APOLLONIA, in *Antiquity*, feasts sacred to Apollo at Egiales.

APOLLONIAN *hyperpola* and *parabola*. See HYPERBOLA, &c.

APOLOGETIC, APOLOGETICAL, something said or written by way of excuse or *apology*, for any action or person.

The *Apologetic* of Tertullian is a work full of strength and spirit. He there vindicates the Christians from all that had been objected to them; particularly from the abominable crimes said to be perpetrated at their meetings, and their want of love and fidelity to their country. The ground of this last accusation was, their refusing to take the accustomed oaths, and swear by the tutelary gods of the empire. Tertullian addresses his *Apologetic* to the magistrates of Rome; the emperor Severus being then absent.

APOLOGUE, APOLOGUS, a moral FABLE; or a feigned relation, intended to inform and amend the manners. Jul. Scaliger derives the name απο λογου, inasmuch as the *apologue* means something more than what at first sight it expresses.

Such are the fables of *Æsop*: whence, moral fables are usually denominated *Æsopic Fables*.

F. De Colonia makes it essential to the *apologue*, that it contain what passes among brutes; and distinguishes it from the *parable* by this, that the latter, though feigned, consists of possible circumstances, which the former does not, since beasts cannot speak. There is this further difference between them, that the latter is a similitude drawn from natural, moral, or any other branches of knowledge; the former only from moral topics.

Apologue, according to some, differs from FABLE, as the former is used in speeches and harangues, to persuade; the latter in tragedies, comedies, and other pieces of poetry, to instruct and correct the manners. *Apologue* also differs from *anus*, as the latter is only calculated for the use of men, and carries a graver and weightier admonition; whereas *apologues* are proposed to children. We find many things in authors concerning the origin of *apologues*, the distinguishing characters of *apologists*, the use and advantages of the way of teaching by *apologues*. See Bayle, Dict. Crit. in voc. & Shaftesb. Charact. tom. iii.

APOLOGY, APOLOGIA, *defence*; a discourse or writing in vindication of a person.

The

The word is formed of ἀποδίδωμι, *to refute*.

The principal ancient *apologies* in favour of the Christians are those of Quadratus, written about the year 124, and addressed to the emperor Adrian; of Aristides, written soon after the former; two of Justin Martyr, one of which was written in the year 150, and addressed to Antonine, and the other in 166, addressed to the Roman senate; one of Athenagoras, in 166, to the emperors M. Aurelius, and Lucius Verus; the APOLOGETIC of Tertullian; and the dialogue of Minutius Felix, called *Octavius*, written in the third century.

APOLYSIS, from ἀπολύω, *I resolve*, in a general sense, the solution, or resolution of any thing. Thus we read of the *apolysis* of a disease, the *apolysis* of a bandage, or the like.

APOLYSIS, in a more particular sense, denotes the exfoliation of any thing. Thus we read of the *apolysis* of the bone, the lenticulæ, and the like.

APOMELI, in *Medicine*, a kind of decoction prepared of honey, or a honey-comb mixed with vinegar, and boiled a short time, till the qualities of both be united, and the acrimony of the vinegar allayed.

The *apomeli* is esteemed as a kind of medium between mulse and oxymel. It was ancientily great use among the Greeks, as a detergent, promoter of stool, urine, &c.

APOMYOS, *Deus*, from ἀπὸ and μυῖα, *fly*, in the *Heathen Mythology*, a name under which Jupiter was worshipped at Elis, and Herculeus well as Jupiter at the Olympic games.

These deities were supplicated under this name, to destroy or drive away the vast number of flies which always attended at the great sacrifices; and in those which accompanied the Olympic games, the first was always to the *Apomyos*, or *Muscarus Deus*, that he might drive away the flies from the rest. The usual sacrifice was a bull.

APONEUROSIS, among *Anatomists*, the spreading or expansion of a nerve, or tendon, breadth-ways in manner of a membrane.

The word is compounded of ἀπὸ, *from*, and νεῦρον, a *nerve*.

APONEUROSIS sometimes also signifies the cutting off a nerve or tendon.—And in some writers we find it used for a TENDON itself.

APONEUROTICUS *musculus*, in *Anatomy*, a name given by Spigelius, and some others, to a muscle of the thigh, called by Cowper and Winslow the *musculus iste tendinis*, and *musculus fasciæ latæ*. Winslow has called it, with more propriety, the *musculus vaginæ femoris*.

APONIA, from α, and πονος, *labour*, among *Physicians*, a state of indolence, or the absence of pain. In which sense, the word answers to the same with *anodynia*. Hence also *aponia* is used by some for medicines which do not excite pain.

APONOGETON, in *Botany*, a name given by Pomedera to a genus of plants, called by Micheli and Linnæus ZANNICHELLIA.

APOPEMPTIC, from ἀποπέμπω, *I dismiss*, in the *Ancient Poetry*, a hymn addressed to a stranger on his departure from a place to his own country.

The ancients had certain holy days, wherein they took leave of the gods with *apopemptic* songs, as supposing them returning each to his own country.

APOPHASIS, from ἀποφημι, *I declare*, and *I deny*, in the *Civil Law*, an answer or rescript of the prince.

Among *Logicians* the word is also used for a negation or denial.

APOPHASIS was also used for the account given of estates, at the exchange of them for the avoiding public employments. When any man would excuse himself from any troublesome and chargeable suit, by calling it on another rather than himself, the person produced had power to challenge him to make an exchange of estates, and thereby compel him to undergo the office he had before refused.

APOPHASIS, in *Rhetoric*, a figure whereby we really say or advise a thing, under a feigned show of passing over, or dissuading it.

Quintilian makes the *apophasis* a species of ironY. Scaliger holds it the same with what is otherwise called *exceptio*.

APOPHLEGMATISM, in *Medicine*, the operation of purging phlegm or *pituita* of the head.

APOPHLEGMATIZANTS, denote medicines proper to purge the head and brain of superfluous phlegm, or serous humours.

These are also, by many writers, denominated *apophlegmatisms*. The word is compounded of ἀπὸ, *from*, and φλεγμα, *phlegm*.

Apophlegmatisms are of two kinds, one administered by the way of the mouth, and intended to operate by spitting; the other given by the nostrils, to operate by sneezing, &c.

APOPHORETA, from ἀποφερω, *I carry away*, in *Antiquity*, presents made to the guests at a feast, or other entertainment which they carry away with them.

APOPHRADES, from ἀποφραδες, ἀποφραδων, derived again from ἀπὸ, and φραδω, *I speak*, in *Philology*, a sort of unhappy days, wherein either no *affairs*, or an ill one is to be expended.

APOPHTHEGM, from ἀπὸ, and φθεγγομαι, *I speak*, a short, wise, and pithy saying.

Such is that of Cyrus: *He is unworthy to be a magistrate, who is not better than his subjects.* Or this: *He that will not take care of his own affairs, will be forced to take care of those of others.* Or that of Artaxerxes Mnemon, when reduced to hunger by the loss of his baggage: *How much pleasure have I had to-day a stranger to it!* Or that of Cato, *Homines nihil agendo discunt male agere.* Or, finally, that of Augustus, *festina lente.* The *apophthegms* of Plutarch are well known.

APOPHYGE, in *Architecture*, that part of a column where it begins to spring out of its base, and shoot upwards.

The word in its original Greek, signifies *flight*, whence the French also call it *congé*, *congé*, &c. and we, sometimes, the *spring* of the column.

The *apophyge*, in its original, was no more than the ring or term wherefore fastened to the extremities of wooden pillars, to keep them from splitting; which afterwards was imitated in stone-work.

It is properly a large concave or arched member, serving either to connect two flat members together, or to join a flat member to another not flat.

In this sense we may dislinguish two *apophyges*, the upper and lower.

APOPHYGE, *upper*, in *Architecture*, that part or sweep, whereby a large flat member of the upper part of an order is connected to the lower.

This is also called by the French *le congé d'enhaut*, and by the Italians *il cavo di sopra*.

APOPHYGE, *lower*, *apophyge inferior*, is a concave member, which connects two flat parts in the lower part of an order. This the French call *le congé d'enbas*, and the Italians, *il cavo di sotto*, sometimes also *il cavo di sotto*.

APOPHYSIS, in *Anatomy*, a protuberance of a bone; or a part eminent, and jutting out beyond the rest.

The word literally denotes a production outwards; formed from ἀπὸ and φυω, *to grow from*.

It is the same with what we otherwise call process, eminence, probole, projecture, protuberance, ecphysis, head, and the like.

Apophyses differ from *epiphyses*, as these latter are only appendages adhering or contiguous to a bone; whereas the former are productions or continuations of the bone itself, shooting out from it like branches from the trunk of a tree.

Apophyses, with regard to figure, may be reduced to two kinds, *round* and *long*.

The former are called by the general name of *heads*. These may be subdivided into two sorts: if the head be large, oblong, and very prominent, it is called simply, *apophysis*; if flat and low, *condylus*.

The long kind are also subdivided into *acute* and *obtuse*; the *acute*, terminating in a point, is called *styloid*. There are divers species of this, distinguished according to their figure, by different names. The obtuse kind terminating in a head, is called *cervix*, *collum*, or neck.

The general use of *apophyses* is, 1. For the greater convenience of articulation, whether it be with or without motion. 2. To afford a more commodious origination and insertion to the muscles; and, 3. To defend other parts. Hether. Their particular use will be indicated under the proper articles of each bone, &c.

APOPHYSES *mammillares* are the beginnings of the olfactory nerves, as far as the *os cribrosum*, where they divide into little fibres, which pass through those bones, and spread themselves through the upper part of the nose.

APOPHYSES *mammillaris* or *mastoides*, also denotes one of the external eminences of the *os petrosum*.

APOPHYSES *styloides* denotes the larger process of the MALLEUS of the ear, into which the muscles of the bone are inserted.

APOPHYSIS is also applied by Hippocrates to certain fleshy excrescences found in males and female *foetuses* of seven months, as appearing rather processes, and origins of members, than distinct members, such as he says may be found in male *foetuses*.

APOPHYSIS, in *Botany*, an excrescence from the receptacle of the *mosses*.

APOPLANESIS, from ἀποπλανάω, *I deceive*, in *Oratory*, a kind of fallacious defence, and flurring over, darkening and concealing things, in order to blind the judges, or thou sulheer.

APOPLANESIS, in a more particular sense, denotes a sort of confutation, wherein the speaker promises to answer what the adversary objects in another place, but which being too difficult to answer, is afterwards forgot, and left to pass unanswered.

APOPLECTIC, relating to an apoplexy. Thus we say, an *apoplectic* fit, an *apoplectic* water, &c.

APOPLECTIC *veins*, a name sometimes given to the *jugulars*.

These are sometimes also denominated among ancient writers, *superiores*.

Some writers reſtrain *apoplectic* to the internal jugular aſcending by the ſide of the *trachea*.

APOPLECTICA, *apoplectical medicines*, a name uſed by ſome for what we more properly call *antapoplectics*.

APOPLECTICAL *balſams* is a name give by ſome writers to a ſort of ſweet-ſcented balms, prepared of diſtilled oils, and uſed by way of perfume.

APOPLEXY, in *Medicine*, a ſudden privation of all the ſenſes, and all the ſenſible motions of the body, excepting thoſe of the heart and lungs; attended with a great depreſſion, or ſuſpenſion of the principal faculties of the ſoul.

The word comes from ἀποπλήσσειν, *to ſtrike*, or *aſtoniſh*; this diſtemper ſtriking ſuddenly; and, as it were, like a thunder-bolt.

Hippocrates diſtinguiſhes two kinds of *apoplexies*; the *one ſtrong*, the other *weak*; only differing in the greater or leſs difficulty of reſpiration, and pulſation: in the former the pulſe and breath ſeem almoſt entirely ſtopped; in the latter there are conſiderable remains of them.

The more modern authors diſtinguiſh *apoplexies* from their cauſe, into *ſanguineous* and *ſerous*, to which may be added the *ſpaſmodic*, *ſymptomatic*, &c.

The fit of an *apoplexy* is uſually preceded by a violent pain in the head, a dimneſs and loſs of ſight or memory: ſometimes by an univerſal indolence; and ſometimes by a flux of pituitous matter by the noſe and mouth.—It is attended with a ſnotting and difficulty of breathing; ſometimes with a fever, rarely with a foaming at the mouth, frequently with a ſweat, hæmorrhoids, or diarrhœa.

A multitude of the moſt accurate obſervations have made it appear, that this diſorder ariſes from any cauſe that is capable of preventing either totally, or in part, the influx of the nervous fluid, ſecreted in the *cerebrum*, to the organs of ſenſe and voluntary motion; and the reflux of the ſame fluid from the above mentioned organs to the common ſenſory in the brain: whilſt the progreſs, and perhaps the return of the fluid, ſupplied by the *cerebellum* to and from the heart and organs of reſpiration, is preſerved in a degree ſufficient to ſupport in ſome meaſure their functions.

All theſe cauſes, as obſerved and delivered by authors, may for the greater perſpicuity be reduced to claſſes; in the firſt of which may be reckoned,

1. The natural make of the body: thus, when the head is naturally large, the neck ſhort, and as it ſometimes happens, conſiſting only of ſix *vertebræ*, whereas there ought to be ſeven; this ſtructure diſpoſes to an *apoplexy*, as it favours the congeſtion of blood and humours in the head. Thus alſo, if the body is corpulent, the capillary arteries will in general be ſubject to compreſſions, and in conſequence thereof a greater quantity of blood and humours will flow into the veſſels which convey them to the brain. Thus alſo a plethoric habit, and a redundancy of pituitous humours in the blood, lay a foundation for a ſtagnation of the juices, and a ſubſequent rupture of the veſſels of the brain.

2. To the ſecond claſs belong all thoſe cauſes which induce ſuch a change in the blood, lymph, and nervous fluid, as to render them incapable of circulating freely through their reſpective veſſels in the brain; among with are—polypous concretions in the carotid or vertebral arteries, whether formed originally about the heart, or within the *cranium*; theſe are diſcovered by a palpitation of the heart, an unequal pulſe, a vertigo, and temporary loſs of ſight often recurring, and which are increaſed by motion or heat: an inflammatory ſtateneſs of the blood, which may be known by an acute continual fever, an inflammatory pain in the head, eyes, &c. —a thick, glutinous, pituitous, and ſluggiſh diſpoſition of the whole maſs of blood; whence old people, thoſe who are much ſubject to catarrhs, whoſe conſtitutions are cold and moiſt, and who are pale and leucophlegmatic, are very ſubject to *apoplexies*. It is not difficult to preſage an *apoplexy* from this cauſe, as it is generally preceded by an univerſal liſtleſſneſs, and dulneſs of the ſenſes, unuſual ſlowneſs of ſpeech, tremors, ſtertors, *incubi* (night mares), frequent diſcharges of pituitous humours by vomit, vertigoes, ſhortneſs of breath on the leaſt motion, with a compreſſion of the cartilages of the noſe.

3. To the third claſs belongs whatever compreſſes the arteries themſelves, or the nervous veſſels of the brain, ſo as to prevent a free circulation of the fluids through them. People who are plethoric and bloated are much ſubject to this ſpecies of *apoplexy*; eſpecially if extraordinary motion or heat increaſe the velocity of the circulation. To ſuch, therefore, high feeding, ſpirituous liquors, acrid medicines, intenſe and long-continued thought, are pernicious. All humours ariſing within the *cranium* properly belong to this claſs; as alſo a too great velocity of the blood in the veſſels of the head, determined by ſome impediment to the circulation in the arteries of the inferior parts, which may ariſe from an infinite number of cauſes. Hither alſo may be referred all compreſſions from whatever cauſe, of the veins without the head, which convey the reſluent blood from the contents of the *cranium* toward the heart; as alſo effuſions of blood, *pus*, *ichor*, or lymph, which preſs externally on the *dura* or *pia mater*.

4. To the fourth claſs belong all thoſe cauſes, which by any means ſo diſſolve the texture of the arteries, veins, or lymphatics, belonging to the internal parts of the *cerebrum*, as to cauſe an extravaſation of their reſpective fluids, which then preſs upon and injure the medullary origins of the nerves of the *cerebrum*.

5. Some ſorts of poiſons, which are ſuddenly deleterious, may be ranked in the fifth claſs: but theſe may either be reduced to the ſecond, third, or fourth, or may be more properly ſaid to act on the lungs than the brain. Among theſe are the fumes of mineral ſulphurs, of charcoal, or that *gas ſylveſtris*, or inconcretible ſpirit which exhales from vegetable juices during fermentation.

The anatomical inſpection of bodies which have died of *apoplexies*, and the hiſtorical obſervation of ſuch circumſtances as occur in the treatment of theſe caſes, furniſh us with a knowledge of their cauſes; and a due reflection upon theſe naturally leads us to a diſtribution of them into the preceding claſſes, which are admirably adapted to the inveſtigation of the beſt methods of cure.

The part affected in a perfect *apoplexy* is the entire common ſenſory of the brain; but in a *paraplexy* thoſe parts only of the common ſenſory which are more compreſſed than the reſt; whilſt the *cerebellum*, and its dependencies, remain in the beginning of the diſorder unaffected. Boerhaave.

As to the prevention and cure of an *apoplexy*, no invariable rules can be laid down; for as the *prediſpoſing* and exciting cauſes, together with the parts principally affected, are various, the method of relief muſt alſo vary; and muſt be attempted before the diſorder grows inveterate; otherwiſe ſucceſs will be very precarious.

In general, however, to prevent an *apoplexy*, wine, hard labour, exceſs of eating, and ſleeping after dinner, are to be avoided: exerciſe is to be kept up, and care and chagrin to be reſtrained. To cure an *apoplexy*, medicines muſt be uſed that occaſion large evacuations, and nothing of the opiate or aſtringent kind ſhould be taken.—During the fit, if the *apoplexy* be of the *ſanguineous* kind, copious bleeding in the jugulars is to be uſed, and the patient laid on his back; applying ſtrong volatiles to the noſe; alſo blow up ſtrong ſternutatories, and rub the temples with cephalic mixtures. A mixture of common ſalt diſſolved in a pint of water, has been ſometimes adminiſtered as the means of recovery. A hot iron may alſo be applied near the *vertex* or *occiput*; and an epiſpaſtic to the neck; to which are to be added powerful purgatives, clyſters, &c. Cupping and ſcarification on the head are recommended by ſome, in lieu of veneſection. In the *ſerous* kind of *apoplexy*, bleeding ſhould rarely be admitted.

Dr. Fiemyng recommends trepanning for the cure of *apoplexies*. Med. Muſ. vol. II. p. 300, &c.

The diſeaſe ſometimes degenerates into a *paraliſis*. And ſometimes only half the head is affected; in which caſe the diſeaſe is called ſimply a *hemiplexy*.

Apoplexy differs from *coma*, *lethargy*, and *ecma*, as in thoſe three diſtempers the *ſenſes* are not ſo profound, nor is all ſenſation quite deſtroyed.

It differs from *ſyncope*, in that there is no ſenſible pulſe in this laſt; whereas in an *apoplexy*, the pulſe is perceptible almoſt till death.

It differs from an *epilepſy*, becauſe all motion is not aboliſhed in that, as in this; and it differs from the *palſy*, inaſmuch as the palſy is not attended with any *ſtupor*, nor does it deprive the patient of ſenſe and perception.

APOPLEXY is alſo reckoned among the diſeaſes of hawks, being a diſtemper which ſeizes their heads, occaſioned by too much greaſe and blood, or their having ſtood too long expoſed to the heat of the ſun, or having taken too long flights in the heat of the day.

Horſes are alſo ſaid to be ſubject to *apoplexies* occaſioned by want of exerciſe, or too ſplentiful feeding.

The diſtemper ſhews itſelf by a giddineſs, reeling, trembling, and ſometimes falling ſuddenly down, without ſenſe or motion. The cure is by taking a large quantity of blood from the neck, and applying volatile ſpirits to the noſtrils.

APOLISTÆ, from ἀπο, and ὁπλον, *arms*, in *Ancient Law*, a ſort of officers in the country, appointed to diſarm all private perſons, or thoſe not entitled to have arms; for the prevention of miſchief and violence.

APOPOMPÆ, in *Antiquity*, certain days in which ſacri-

fices were offered to the gods called *pompæ*. Who these deities were, is doubtful.

APOPSYCHIA, from ἀπόλλυμι, *I expire*, is sometimes underlood of effluvia, emitted from the sun, moon, and other heavenly bodies; to which their influence on sublunary things was ascribed by astrologers.

APORIA, from ἄπορος, *I doubt*, in *Rhetoric*, denotes a state of doubt or wavering, wherein the orator appears undetermined whether to say any thing or not: e. gr. *Eloquar an silebo?* Shall I speak out, or hold my tongue?

APORON, or APORIME, a problem difficult to resolve, and which has never been resolved, though it be not, in itself, impossible.

The word is derived from ἄπορος, which signifies something very difficult and impracticable; being formed from the privative α and πορος, *passage*.

Such we conceive the quadrature of the circle; the duplicature of the cube; the trisection of an angle, &c.

When a question was proposed to any of the Greek philosophers, especially of the sect of academics; if he could not give a solution, his answer was, ἄπορον ἐστι μοι, *I cannot see through it.*

This word is also used by some law-writers for an inexplicable speech or discourse.

APORRHŒA, APOZEMATA, in *Philosophy*, sulphureous effluvia, or exhalations, emitted from the earth, and subterraneous bodies.

The word is formed from ἀπορρέω, *defluo*, *to flow from.*

APORRHŒA, in *Physic*, is sometimes particularly used for morbid or contagious *miasmata*, or effluvia from unwholesome bodies. The word is also used to denote a shedding or falling of the hair. See ALOPECIA.

APOS, in *Ornithology*. See the SWALLOW.

APOSCEPARNISMUS, a species of fracture of the skull or other bone, wherein a piece is taken clearly off, as if cut out with a hatchet; from σκεπάρνιον, *an ax, or hatchet.*

APOSIOPESIS, in *Rhetoric*, otherwise called *reticence*, and *suppression*; a figure, by which a person really speaks of a thing, at the same time that he makes a show as if he would fay nothing of it. See PRETERITION.

The word comes from σιωπάω, *I am silent.*

It is commonly used to denote the same with ELLIPSIS. Jul. Scaliger distinguishes them. The latter according to him, being only the suppression of a word; as *nec, mea si non ea fuit*; the former the omitting to relate some part of the action; as

Diserat, atque illam media inter talia ferro
Collapsam aspicient——————

Where the poet does not mention how Dido killed herself. This figure is of use to keep up the grandeur and sublimity of a discourse.

APOSITION, from ἀπο, and σιτος, *food*, in *Medicine*, an aversion to food. It amounts to much the same with *anorexia*; though some make a difference, alledging that the latter imports, no other than an inappetency, or want of desire to eat; the former an aversion or loathing of it.

APOSPASMA, from ἀποσπάω, *I tear off*, in *Medicine*, denotes a solution of continuity in some organical part, as a membrane, ligament, or the like.

APOSPARMA is also applied to mitralline excrements, as *tofi*, *melanoides*, mily, fory, or the like.

APOSPHACELISIS, from ἀποσφακελίζω, *I occasion a mortification*, &c. in the *Ancient Physic*, denotes a mortification of a fleshy part, happening in cases of wounds, and fractures, from too tight a ligature.

APOSPHRAGISMA, from ἀπο and σφραγίζω, *I seal*, in *Antiquity*, the figure or impression of a seal.

It was forbid among the ancients to have the figure or image of God on their rings and seals. To this purpose the precepts of Pythagoras, το μὴ ἐπὶ δακτυλίου ἔχειν θεὸν ἀποσφραγισμα? But in process of time, this was little regarded; it was usual enough to have the figures of Egyptian and other deities, as well as of heroes, monarchs, friends, ancestors, and even brutes, on their *bagues*, or ring-seal. Thus Cæsar had the image of Venus, Pollio of Alexander, Augustus of the *Sphinx*, Pompey of a frog, Lentulus of his grandfather, &c.

APOSPONGISMUS, among *Ancient Physicians*, the application of a sponge, whether dry or soaked with water, either to cleanse the filth from a part, or to ease pains, allay itching, or refresh the spirits.

APOSTAGMA, from ἀποστάζω, *I distil*, in *Natural History*, the must or juice which runs from the grapes before they are trodden or pressed.

This is otherwise called *apolagma*.

APOSTASIS, from ἀφίστημι, *I depart*, &c. in *Physic*, usually signifies the same with abscess. See IMPOSTHUMATION.

In which sense, the word is used by Hippocrates and others, promiscuously with ἀπόστημα, *apostema*.

APOSTASIS in a more particular sense, denotes a departure or removal of the morbid matter, in the crisis or solution of a disease.

APOSTASIS is also used by Hippocrates for a fracture of a bone, wherein some part is entirely separated from the rest.

APOSTACY, a deserting or abandoning of the Christian religion.

The word is borrowed from the Latin *apostatare*, or *apostare*, to *desert*, or *violate*, any thing. Hence *apostates* anciently signified to transgress the laws. *Apostatæ terræ fines sui apud regem.* LL. Inæ.

The Latin *apostatare*, again, comes from ἀπο, *from*, and ἱστημι, *I stand.*

Among the Romanists *apostacy* also signifies the quitting of a religious order, whereof a man had made profession, without a lawful dispensation.

The ancients distinguished three kind of *apostates*: the first, a *superstitione*, is committed by a person religious, who abandons his profession, and returns to lay state; the second, a *mandatis Dei*, by a person of any condition, who abandons the commands of God, though he retains his faith; the third, a *fide*, by him who not only abandons his good works, but also the faith.

There is this difference betwixt an *apostate* and a *heretic*, that the latter only abandons a part of the faith, whereas the former renounces the whole.

Apostacy is said to have been anciently punishable, in England, by burning and tearing to pieces by horses. Thus Flets, lib. 1. cap. 37. §. 2. *Apostatæ & sacrilegi, & incendiarii, detentiores debent et comburi.* And, § 4. *Si inde convincantur, decrucientur, & suspendantur.* Where Du Cange interprets, *excruciari*, by *torqueri quæstionem.*

APOSTATA *capiendo*, a writ which anciently lay against one, who, having entered and professed some order of religion, broke out again, and wandered the country, contrary to the rules of the order.

APOSTATE, in a general sense, signifies a deserter from the true religion.

In which sense *apostata* amounts to much the same with lapsed, perverted, &c.

APOSTERIGMA, from ἀπο and στηρίζω, *I support*, in the *Ancient Physic*, denotes a roll or support for a diseased part, without binding.

Such are pillows, cushions, and the like.

The word seems also to have been used by Hippocrates for a stoppage, or obstruction of some vascular part.

A POSTERIORI. Demonstration *a posteriori*. See DEMONSTRATION.

APOSTHUME, or APOSTEME, APOSTEMA, in *Medicine*, a preternatural tumor; called also ABSCESS, and IMPOSTHUME.

The word comes from ἀφίστημι, *I depart from the place and go to another*, alluding to the manner wherein the tumor is usually formed of a translated humour.

APOSTHUME is particularly used for a *disease of hawks*, which occasions swellings in the head, arising from a redundancy of humours, and a preternatural heat of that part.

The *apostheme* discovers itself by a swelling of the eyes, a moisture issuing from the ears, and their wings extremely slothful.

APOSTIL, *apostilla*, in *Matters of Literature*, a marginal addition, or note to a book, passage, or the like.

APOSTLE, ἀπόστολος, one of the twelve disciples of Jesus Christ, commissioned by him to preach his gospel, and propagate it to all the parts of the earth. They were limited in the number twelve, in allusion to the twelve tribes of Israel.

The word originally signifies a person *delegated*, or *sent*; from ἀποστέλλω, *mitto*; in which sense it occurs in Herodotus, and other profane authors. Hence, in the New Testament, the term is applied to divers sorts of delegates; and to the twelve disciples by way of eminence.

St. Paul is frequently called the *apostle*, by way of eminence; and the *apostle of the Gentiles*, because his ministry was chiefly made use of for the conversion of the Gentile world, as that of St. Peter was for the Jews, who is therefore styled the *Apostle of the Circumcision.*—The several *apostles* are usually represented with their respective badges or attributes: St. Peter with the keys; St. Paul, with a sword; St. Andrew, with a cross or fasces; St. James minor, with a fuller's pole; St. John, with a cup, and a winged serpent flying from it; St. Bartholomew, with a knife; St. Philip, with a long staff, whose upper end is formed into a cross; St. Thomas, with a lance; St. Matthew, with a hatchet; St. Matthias, with a battle-ax; St. James major, with a pilgrim's staff, and a gourd bottle; St. Simon with a saw; and St. Jude, with a club.

This appellation was also given to the ordinary travelling ministers of the church. Thus St. Paul, in the epistle to the Romans, xvi. 7. says, *Salute Andronicum and Junia my kinsmen and fellow-prisoners, who are of note among the* APOSTLES.

It was likewise a title given to those sent by the churches to carry their alms to the poor of other churches. This usage they borrowed from the synagogues, who called those whom they sent on this message, by the same name; and the function or office itself *apostole*, *apostolè*, q. d. *missi*. Acts Thus St. Paul, writing to the Philippians, tells them, that Epaphroditus, their *apostle*, had ministered to his wants, ch. ii. 25. It is applied in like manner to those persons who first planted the Christian faith in any place. Thus Clonyius of Corinth is called the *apostle of France*; Xavier the *apostle of the Indies*, &c. In the East Indies the Jesuit missionaries are also called *apostles*.

In some ages of the church, the pope was peculiarly denominated the *apostle*.

APOSTLE is also used among the *Jews*, for a kind of officers anciently sent into the several parts and provinces in their jurisdiction, by way of visitor, or commissary; to see that the laws were duly observed, and to receive the monies collected for the reparation of the temple, and the tribute payable to the Romans.

The Theodosian code, lib. xiv. *De Judæis*, calls those *apostoli, qui ad exigendum aurum atque argentum à patriarcha certis temporibus diriguntur*. Julian, the apostate, remitted the Jews the *apostle*, *aurum*, that is, as he himself explains it, the tribute they had been accustomed to send him.

These *apostles* were a degree below the officers of the synagogues, called *patriarchs*, and received their commissions from them. Some authors observe, that St. Paul had borne this office; and that it is this he alludes to in the beginning of the Epistle to the Galatians: as if he had said, Paul, no longer an *apostle* of the synagogue, not sent thereby to maintain the law of Moses, but now an *apostle* and envoy of Jesus Christ, &c. St. Jerom, though he does not believe that St. Paul had been an *apostle* of this kind; yet imagines, that he alludes to it, in the passage just cited.

APOSTLE, in the Greek *Liturgy*, is particularly used for a book containing the Epistles of St. Paul printed in the order wherein they are to be read in churches, through the course of the year. Another book of the like kind, containing the Gospels, is called Εὐαγγέλιον, *Gospel*.

The *apostle*, of late days, has also contained the other canonical Epistles, the Acts of the *Apostles*, and the Revelations. Hence it is also called, *Acts of the Apostles*, Πραξαπόστολος, that being the first book in it.

APOSTLE is also thought by many to have been the original name for bishops, before the denomination *bishop* was appropriated to their order. Thus Theodoret says expressly, the same persons were anciently called promiscuously both bishops and presbyters, whilst those who are now called bishops were called *apostles*.

In the arsenal of Bremen, there are twelve pieces of cannon, called the *Twelve Apostles*, on a supposition, that the whole world must be convinced, and acquiesce in the preaching of such *apostles*.

APOSTLE'S *Creed*. See CREED.

APOSTOLÆUM, or APOSTOLIUM, in *Ecclesiastical Writers*, denotes a church dedicated to, and called by, the name of an *apostle*.

Sozomen speaks of the *apostoleum* of St. Peter at Rome, and the *apostoleum* of St. Peter and St. Paul at Quercus, near Chalcedon.

In this sense *apostoleum* stands distinguished from *prophetæum*, *martyrium*, &c.

APOSTOLARE, APOSTOLICARE, *apostolizing*, in some *Middle Age Writers*, denotes the being preferred to the dignity of POPE.

APOSTOLATE, in a general sense, is used for mission.

In this sense, Olearius has a discourse concerning the *apostolate* of Christ. Lipf. 1681. 4to.

APOSTOLATE more properly denotes the dignity or office of an apostle of Christ; but it is also used, in ancient writers, for the office of a bishop.

In this sense, we meet with several letters, petitions, requests, &c. directed to bishops under the title of your *apostolate*, or *apostolatus vester*.

But as the title *apostolicus* had been appropriated to the pope, so that of *apostolate* became at length restrained to the sole dignity of the popedom.

Every bishop's fee was anciently dignified with the title of *sedes apostolica*, an apostolical see, which is now the peculiar denomination of the see of Rome.

APOSTOL, in *Law*, denote those letters missive, which are demanded in cases of appeal.

APOSTOLIC, APOSTOLICAL, something that relates to the *apostles* or descends from them.

Thus we say, the *apostolical* age, *apostolical* doctrine, *apostolical* character, constitutions, traditions, &c.

APOSTOLIC, in the *Primitive Church*, was an appellation given to all such churches as were founded by the *apostles*; and even to the bishops of those churches, as being the reputed successors of the *apostles*.—These were confined to four, viz. Rome, Alexandria, Antioch, and Jerusalem.

In after-times, other churches assumed the same quality, on account, principally, of the conformity of their doctrine with that of the churches which were *apostolical* by foundation, and because all bishops held themselves successors of the apostles, or acted in their diocese with the authority of apostles.

The first time the term *apostolical* is attributed to bishops, as such, is in the letter of Clovis to the council of Orleans, held in 511, though that king does not there expressly denominate them *apostolical*, but *(apostolica sede dignissimi)* highly worthy of the *apostolical* see. In 581, Guntram calls the bishops, met at the council of Maion, *apostolical* pontiffs, *apostolici pontifices*.

In progress of time, the bishop of Rome growing in power above the rest; and the three patriarchates of Alexandria, Antioch, and Jerusalem, falling into the hands of the Saracens, the title *apostolical* was restrained to the pope, and his church alone. Though some of the popes, and St. Gregory the Great, not contented to hold the title by his tenure, began, at length, to insist, that it belonged to them by another and peculiar right, as being the successors of St. Peter. The council of Rheims in 1049 declared that the pope was the sole *apostolical* primate of the universal church.

And hence a great number of *apostolical*; *apostolical* see, *apostolical* nuncio, *apostolical* notary, *apostolical* brief, *apostolical* chamber, *apostolical* vicar, &c.

APOSTOLIC *tiara*, see TIARA.

APOSTOLICAL *constitutions*, see CONSTITUTION.

APOSTOLICAL *traditions*, see TRADITION.

APOSTOLICAL *fathers* is an appellation usually given to the writers of the first century who employed their pens in the cause of Christianity. Of these writers, Cotelerius, and after him Le Clerc, have published a collection in two volumes, accompanied with both their own annotations, and the remarks of other learned men.

APOSTOOLIANS, a sect of the Mennonites, which first sprung up in the year 1664, and derived its name from Apostool, one of the Mennonite ministers at Amsterdam. They concurred with them in doctrine, and admitted to their communion those only who professed to believe all the sentiments which are contained in their public confession of faith.

APOSTOLICI, APOSTOLI, or APOSTLES, was a name assumed by three different sects, on account of their pretending to imitate the manner and practice of the apostles. The first *Apostolici*, otherwise called *Apotactitæ*, and *Apostactici*, rose out of the Encratitæ, and Cathari, in the third century. They made profession of abstaining from marriage, and the use of wine, flesh, money, &c.

Gerhard Sagarelli was the founder of the second sect; he obliged his followers to go from place to place as the *apostles* did, to wander about clothed in white, with long beards, dishevelled hair, and bare heads, accompanied with women, whom they called their *spiritual sisters*. They likewise renounced all kinds of property and possessions, inveighed against the growing corruption of the church of Rome, predicted its overthrow, and the establishment of a purer church on its ruins. Sagarelli was burnt alive at Parma in the year 1300, and was afterwards succeeded by Dulcinus, who added to the character of an apostle those of a prophet and a general, and carried on a bloody and dreadful war for the space of more than two years against Raynerius, bishop of Vercelli; he was at length defeated, and put to death in a barbarous manner, in the year 1307. Nevertheless, this sect subsisted in France, Germany, and in other countries, till the beginning of the fifteenth century, when it was totally extirpated under the pontificate of Boniface IX.

The other branch of *Apostolici* were of the twelfth century. These also condemned marriage, professing celibacy, and calling themselves the chaste brethren and sisters; though each was allowed a spiritual sister, with whom he lived in a domestic relation; and on this account they have been charged with concubinage: they held it unlawful to take an oath; they set aside the use of baptism; and in many things imitated the Manichees. Bernard wrote against this sect of *Apostolici*.

APOSTOLICUM is a peculiar name given to a kind of song or hymn, anciently used in churches.

The *Apostolicum* is mentioned by Greg. Thaumaturgus as used in his time. Vossius understands it as spoken of the apostles creed. Suicer thinks this impossible, because this creed was then unknown in the churches of the East.

APOSTOLORUM *unguentum*, the *apostles ointment*, in *Pharmacy*, is a kind of detergent, or cleansing unguent, compoled of twelve drugs, the number of the apostles; whence its name.

It was invented by Avicenna, and is otherwise called *unguentum veneris*. The principal ingredients are turpentine,

pine, resin, wax, gum ammoniac, birth-wort roots, olibanum, bdellium, myrrh, and galbanum, opopanax, verdegris, litharge, oil of olives, and vinegar.

APOSTROPHE, in *Rhetoric*, a figure, whereby the orator, in an extraordinary commotion, turns his discourse from the audience, and directs it to some other person, present or absent, living or dead, or to inanimate nature.

The word is formed of ἀπὸ, *ab, from*; and στρέφω, *verto, to turn*.

Thus Cicero, in his oration for Milo, addresses himself to the great patriots who had shed their blood for the public; and calls them to the defence of his client. So the same orator in his first *Catilinarian* directs himself to Jupiter the protector of the city and empire, and beseeches him to repel the parricide, &c.

The *apostrophe* is also frequently addressed to inanimates, as tombs, monuments, defuncts, &c. Cicero's *apostrophe* to Tubero, in his oration for Ligarius, is judged one of the finest passages in his works.

That *apostrophe* of Demosthenes, wherein he addresses himself to the Greeks slain at the battle of Marathon, is also famous; Cardinal Perron says, it has procured the orator as much glory as if he had raised them from the dead.

APOSTROPHE, or APOSTROPHUS, in *Grammar*, also denotes a note or character placed over a letter, in lieu of a vowel, to denote that the vowel is cut off, and not to be pronounced.

As *ev'n* for *even*; *th'angelic host*, for *the angelic*, &c.

The affectation of frequent *apostrophes*, so usual among some late English writers, is a great abuse.

In prose, *apostrophes* are indefensible, and tend to vitiate the language; their use in poetry is to reduce a line to the proper measure.

APOSTROPHE, in *Medicine*, denotes a loathing or aversion for food.

In which sense the word amounts to the same with APOSITION.

APOSYRMA, from ἀποσύρω, *I take off*, in *Medicine*, denotes a disquamination or scaling of the skin.

In which sense the word amounts to much the same with ABRASION.

Greek writers use the word *apospasmata*, for what the Latins call *abrasa*, viz. a superficial kind of exulcerations, which raise the skin.

APOTACTITÆ, or APOTACTICI, an ancient sect, who, affecting to follow the evangelical counsels of poverty, and the examples of the apostles, and primitive Christians, renounced all their effects and possessions.

The word is formed from ἀποτάσσω, or ἀποτάομαι, to *renounce*.

It does not appear, that they gave into any errors during their first state; some ecclesiastical writers assure us, they had divers holy virgins, and martyrs, under the persecution of Diocletian, in the fourth century; but they afterwards fell into the opinions of the Encratitæ, and taught, that the renouncing of all riches was not only a matter of counsel and advice, but of precept and necessity. And hence the sixth law in the Theodosian Code joins the *Apotactitæ* with the Eunomians and Ariane.

APOTEICHISMUS, from ἀποτειχίζω, derived from ἀπὸ, and τεῖχος, *I raise a wall*, or τοῖχος, in the *Ancient Military Art*, a kind of line of circumvallation drawn round a place, in order to besiege it.

This was also called *periteichismus*.

The first thing the ancients went about when they designed to lay close siege to a place, was the *apoteichismus*; which sometimes consisted of a double wall, or rampart, raised of earth; the innermost to prevent sudden sallies from the town; the outermost to keep off foreign enemies from coming to the relief of the besieged. This answered to what we call lines of contravallation and circumvallation, among the moderns.

APOTELESMA, from ἀποτελέω, *I perform*, in a general sense, denotes an effect of some cause. It is also used for a prognostic, or natural prediction of an event.

In which sense, Scaliger speaks of the *apotelesmata* of Hippocrates. The answers of astrologers deduced from the considerations of the stars are particularly called *apotelesmi*, or *apotelesmata*; which were the expressions they used, to denote the effects of the stars and planets on sublunary bodies.

In which sense *apotelesmata* amount to the same with influences.

APOTELESMATICA, the science of *apotelesmi*, or the art of foretelling future events, from the aspects and configurations of the heavenly bodies.

In this sense the word amounts to the same with what we otherwise call *judicial astrology*.

Sozomen denominates this *apotelesmatical astronomy*.

Hence also astrologers are called *apotelesmatici*, as synonymous with *mathematici*, *genethliaci*, *Chaldæi*, &c.

APOTHECARY, a person who professes the practice of pharmacy, or that part of physic which consists in the preparation and composition of medicines.

The word is derived from ἀποθήκη, *shop*, the place where he makes up and exposes his medicines to sale.

The *apothecaries* in England are obliged to make up their medicines according to the formulas prescribed in the college dispensatory.

Their shops are subject to the visitation of the censors of the college; who are empowered to destroy such medicines as they think not good.

The company of *apothecaries* were incorporated by charter from James I. procured at the solicitation of Dr. Mayerne and Dr. Arkins; till that time they were only a part of the grocers company; plums, [illegible] Venice-treacle, mithridate, &c. were sold in the same shop, and by the same person. The reason for uniting them was, that medicines might be better prepared, and in opposition to divers persons who sold unwholesome remedies on the people. Observ. on Case of Will. Rose, sect. 2.

In the year 1712, the 10th of queen Anne, an act passed for reviving and continuing several acts therein mentioned, one whereof was for exempting the apothecaries from serving the offices of constable and scavengers, and other parish and ward offices, and from serving upon juries; which act was made perpetual in the ninth year of George I.

They have a hall in Black-Friars, where there are two fine laboratories, out of which all the surgeons chests are supplied with medicines for the royal British navy.

To his majesty belong two *apothecaries*: the salary to the first, 320*l.* to the second, 275*l.* To the houshold belong also two.

Bartholin complains of the too great numbers of *apothecaries* in Denmark; though there are but two allowed in all Copenhagen; and one in every other considerable town.

In Muscovy, we are told, there are no *apothecaries* at all; but then there are no physicians, except two or three retained by the court, and those rather for state than service.

Travellers speak of a famous *apothecary*'s shop at Dresden, furnished with four thousand silver pots, all filled with the choicest drugs.

It is strange, to what an height *apothecaries* have found means to carry their favourite polypharmacy, considering what a few simple easy medicines will answer all the purposes of their vast shops. The physicians of Paris, toward the beginning of the seventeenth century, began to oppose the growing evil. Patin was one of the warmest. They went so far, as at length to exclude the ministry of the *apothecaries* in almost all cases. A valet, or chambermaid, prepared and administered the purges, clysters, &c. The bookseller of the *Medicin Charitable* (which they had procured to be written for the purpose) made up and sold most of the medicines directed in it; and even the physicians, when they wanted, sent to him for them. Patin, Lett. 17. à Berlin.

The charitable dispensation of medicines by the Chinese is well deserving notice. They have a stone, which is ten cubits high, erected in the public squares of their cities; and on this stone are engraven the name of all sorts of medicines, with the price of each; and when the poor stand in need of any relief from physic, they go to the treasury, where they receive the price each medicine is rated at.

APOTHECARY, *apothecarius*, in *Writers of the Middle Age*, denotes a shop-keeper, or ware-house-keeper.

APOTHECARIUS is also used to denote a store-keeper, or officer appointed to have the direction of a magazine, GRANARY, &c.

In which sense *apothecarii* is sometimes rendered by *horrearii* and *cellarii*.

APOTHEOSIS, in *Antiquity*, a heathen ceremony, whereby their emperors and great men were placed among the gods.

The word is derived from ἀπὸ and θεὸς, *God*.

After the *apotheosis*, which they also called *deification* and *consecration*, temples, altars, and images, were erected to the new deity; sacrifices, &c. were offered, and colleges of priests instituted. Dio 47. 56, 59. Suet. Aug. 5. Tib. 40. Paterc. 1. Ovid, Pont. 4.

Images were erected to them, with the attributes of divinity (Lucan 7. Dio 53. Capitolin. Antonin). And to demolish them was deemed treason (Venul. lib. vi. De ad Leg. Jul. Mal.) And even the senate decreed that oaths should be taken in their names (Dio 44. 59. 60. Tac. Ann. 1.) Vide Kirchm. de Fun. Rom. 4. 14.

It was one of the doctrines of Pythagoras, which he had borrowed from the Chaldees, that virtuous persons, after their death, were raised into the order of gods.

And hence the ancients deified all the inventors of things useful

useful to mankind; and those who had done any important service to the commonwealth. Tiberius proposed to the Roman senate the *apotheosis* of Jesus Christ, as is related by Eusebius, Tertullian, and Chrysostom. Juvenal, railing at the frequent *apotheoses*, introduces poor Atlas, complaining that he was ready to sink under the burden of so many new gods as were every day added to the heavens. Seneca ridicules the *apotheosis* of Claudius with admirable humour. Herodian, lib. iv. in speaking of the *apotheosis* of Severus, gives us a very curious description of the ceremonies used in the *apotheosis* of the Roman emperors. After the body of the deceased emperor, says he, had been burnt, with the usual solemnities, they placed an image of wax perfectly like him, but of a sickly aspect, on a large bed of ivory, covered with cloth of gold, in the vestibule of the palace. The greatest part of the day, the senate sat ranged on the left side of the bed, dressed in robes of mourning; the ladies of the first rank sitting on the right side in plain and white robes, without any ornaments. This lasted for seven days successively, during which the physicians came from time to time to visit the sick, always making their report, that he grew worse; till at length they published it that he was dead.

This done, the young senators and Roman knights took the bed of state upon their shoulders, carrying it through the Via Sacra to the Old Forum, where the magistrates were used to divest themselves of their offices. There they set it down between two kinds of amphitheatres, in the one whereof were the young men, and in the other the maidens of the first families of Rome, singing hymns set to solemn airs, in praise of the deceased. These hymns ended, the bed was carried out of the city into the Campus Martius, in the middle of which place was erected a kind of square pavilion, the inside whereof was full of combustible matters, and the outside hung with cloth of gold, and adorned with figures of ivory, and various paintings.

Over this edifice were several others, like the first in form and decoration, but less; always diminishing and growing slenderer towards the top. On the second of these was placed the bed of state; and a great quantity of aromatic perfumes, and odoriferous fruits and herbs, were thrown all around, after which, the knights made a procession or cavalcade in solemn measures around the pile; several chariots also ran round it, those who conducted them being clad in purple robes, and bearing the images of the greatest Roman emperors and generals.

This ceremony ended, the new emperor came to the *catafalco*, or pile, with a torch in his hand; and, at the same time, fire was set to it on all sides; the spices and other combustibles kindling all at once.

While this was doing, they let fly from the top of the building, an eagle, which, mounting into the air with a fire-brand, carried the soul of the dead emperor along with it into heaven, as the Romans believed; and thenceforward he was ranked among the gods. It is for this reason that the medals, wherein *apotheoses* are represented, have usually an altar with fire upon it; or else an eagle taking its flight into the air, and sometimes two eagles.

APOTHERAPIA, from ἀποθεραπεύω, *I cure*, in *Physic*, properly denotes a complete or finished cure.

APOTHERAPIA is also used in the *Gymnastic Art*, for the last part of all regular exercise, viz. friction or unction with oil, before, as well as after bathing.

The design of this was partly to cleanse the skin from any filth or dust it might have contracted during the exercise, and partly to remove weariness.

APOTHERMUM, from ἀπο, and θερμὸς, *hot*, in *Ancient Writers*, a sharp kind of sauce, like that prepared of mustard, oil, and vinegar, or of vinegar alone.

APOTOME, in *Mathematics*, the remainder or difference of two incommensurable quantities.

The word is derived from ἀποτέμνω, *I cut off*.

A An *apotome*, in *Geometry*, is an irrational residue, as CB, arising, when from a rational line AC, called *a*, you cut off a rational part AB, called *b*, only com-
B mensurable in power to the whole line AC. It may be expressed thus, $a - \sqrt{b}$. Such is the difference between the side of an equilateral triangle, and perpen-
C dicular, from the vertex to the base.

Euclid makes six sorts of *apotomes*.

APOTOME *prima*, is when the greater number is a rational number, and the difference of the squares of both numbers is a square number, e. g. $3 - \sqrt{5}$.

APOTOME *secunda*, is where the lesser number is a rational number, and the square root of the difference of the squares of both numbers has a ratio expressible in numbers to the greater number; such is $\sqrt{18} - 4$, since the difference of the squares 18 and 16 is 2, and $\sqrt{2}$ is to $\sqrt{18}$ as 1 to 3, because $\sqrt{18} = 3\sqrt{2}$.

APOTOME *tertia*, is when both the numbers which are subtracted from each other are irrational numbers, and the square root of the difference of their squares has a ratio in numbers to the greater. This holds in $\sqrt{24} - \sqrt{18}$, for the difference of their squares 24 and 18 is 6, and $\sqrt{6}$ is to $\sqrt{24}$ as 1 is to 2, for $\sqrt{24} = 2\sqrt{6}$.

APOTOME *quarta*, is when the greater number is a rational number, and the square root of the difference of the squares of both numbers has no ratio to it in numbers. Such is $4 - \sqrt{3}$ for the difference of the squares 16 and 3, is 13, but the square root of 13, viz. $\sqrt{13}$ has no numerical ratio to 4.

APOTOME *quinta*, is when the lesser number is a rational number, and the square root of the difference of the squares of both numbers has no ratio in numbers to the greater number. Such is $\sqrt{6} - 2$, for the difference of the squares 6 and 4, is 2, and $\sqrt{2}$ has to $\sqrt{6}$ no ratio in numbers.

APOTOME *sexta*, is where both numbers are irrational, and the square root of the difference of their squares has no ratio in numbers to the greater. Such is the case in $\sqrt{6} - \sqrt{2}$, for the difference of the squares 6 and 2 is 4, and the root thereof 2 has to the $\sqrt{6}$ no ratio in numbers. Peter Ramus censures Euclid's doctrine of *apotomes*, and even all the rest delivered in the tenth book concerning irrational lines.

APOTOME, in *Music*, is the difference of the tone *major* and LIMMA, expressed by $\frac{2187}{2048}$.

The Greeks thought that the greater tone could not be divided into two equa parts; for which reason they called the first part *apotome*, and the other λειμμα; in this imitating Pythagoras and Plato.

The *apotome* is by some authors, as Boethius, called *semitonium majus*; and the *limma*, *semitonium minus*. He also calls the difference of these two, *comma*. The interval of two sounds expressed by $\frac{524}{512}$ was called by the ancients *apotome major*, and that expressed by $\frac{2187}{2048}$, *apotome minor*.

APOTRAGOPOGON, in the *Materia Medica*, a name given by some of the old authors to the LADANUM.

APOTROPÆA, from ἀποτρέπω, *I avert*, in the *Ancient Poetry*, verses composed for averting the wrath of incensed deities; and the deities invoked for averting any threatened misfortune were called *Apotropeans*: they were also called *Alexiari*, from ἀλέξω, *I drive away*; and *averruncæ* from *averrunco*, which denotes the same.

APOZEM, in *Medicine*, a form of remedy, otherwise called a DECOCTION.

The word is derived from ἀποζέω, *fervefacio, I make hot*. *Apozems* are a class of liquid medicines, composed of the juices of divers plants, roots, woods, flowers, leaves, fruits, and seeds, drawn out by boiling of water, and sweetened and clarified. An *apozem* differs from a *syrup*, in thickness and consistence; the *syrup* being more dense and viscous than the *apozem*, from the quantity of sugar. It differs from a *julap*, in that it is thicker and more viscous; and is not made with distilled waters, as *julaps* are, but only with common water.

There are purging *apozems*, cephalic *apozems*, hepatic *apozems*, antarthritic, diuretic, styptic, &c. *apozems*.

Apozem differs from *infusion*, on account of the greater degree of heat made use of in preparing the former, whereby the *apozem* becomes more fully impregnated with those parts of the subject which are readily soluble in boiling water.

Apozems are medicines of the extemporaneous kind, and therefore the less used, because that which is once made up will not keep. What is directed in this form, is generally sent to the patient in the quantity of a quart at a time, to be drunk off plentifully as common drink.

APPANAGE, or APPENAGE. See APANAGE.

APPARATOR. See APPARITOR.

APPARATUS, from *apparo*, *I prepare*, properly signifies a formal preparation for some public and solemn action.

We say, the *apparatus* of a feast, coronation, &c. The prince made his entry with great *apparatus* and magnificence.

APPARATUS is also used for the utensils and appendages belonging to some more considerable machine. As, the furniture or *apparatus* of an air-pump, microscope, &c.

APPARATUS is sometimes also used in *Chirurgery*, for the bandages, medicaments, and dressings of a part; or the several matters applied for the cure of a wound, ulcer, or the like.

There is no judging of the quality of a hurt, till after taking off the first *apparatus*, or coverings.

APPARATUS is frequently used for the operation of cutting for the stone.

For this there are three sorts of *apparatus*, viz. the *small* (1), *great* (2), and *high apparatus* (3): which see described under the article LITHOTOMY.

APPARATUS is also used as a title of several books composed in form of catalogues, bibliothecas, dictionaries, &c. for the ease and convenience of study.

The *apparatus* to Cicero, is a kind of concordance, or

collection of Ciceronian phrases, &c. The *apparatus sacer* of Pasevin, is a collection of all kinds of ecclesiastical authors, printed in 1611, in three volumes.—Glossaries, comments, &c. are also frequently called *apparatuses*.

APPARENT, from *apparet, I appear*, that which is visible, or evident to the eye, or the understanding.

APPARENT *conjunction* of the planets is, when a right line, supposed to be drawn through the centre of two planets, does not pass through the centre of the earth, but through the eye of the spectator.

APPARENT *Altitude, Diameter, Distance, Hour, Horizon, Magnitude, Motion, Place, Time*, &c. See the several substantives.

APPARITION, in *Astronomy*, denotes a star's or other luminary's becoming visible, which before was hid.

In which sense the word stands opposed to OCCULTATION.

The HELIACAL rising is rather an *apparition* than a proper rising.

APPARITION, *circle of perpetual*. See CIRCLE *of perpetual apparition*.

APPARITION, in a general sense, is the appearance or semblance of a thing.

APPARITION is also used to denote a spectre, or preternatural appearance of some spirit, or the like.

We read of *apparitions* of angels, genii, demons, fairies, witches, departed souls, &c. *apparitions* of God, of Christ, the Virgin, saints, prophets, and of the devil himself.

Many of the *apparitions*, we are told of by writers, are doubtless mere delusions of the sense; many others were seen but in dreams or deliquiums; many others are fictions, contrived merely to amuse, or answer some purpose. *Apparitions*, it is certain, are machines that, on occasion, have been of good service to generals, to ministers of state, to priests, and others. It has been controverted, whether an *apparition* be any proof of a future state.

The abbé de St. Pierre has a discourse expressly on the physical method of solving or accounting for *apparitions*: he makes them the effect of feverish dreams, disturbed imaginations, &c.

APPARITOR, or APPARITOUR, or APPARATOR, a BEADLE in an UNIVERSITY, who carries the mace before the masters and the faculties.

APPARITOR is also used in some ancient English laws, for a judge or justice.

APPARITOR *exmitatus*. There was formerly an officer called by this name, for which the sheriffs of Buckinghamshire had a considerable yearly allowance; and in the reign of queen Elizabeth, there was an order of court for making that allowance. But the custom and reason of it are now altered.

APPARITORS also denote messengers, who cite men to appear in the ecclesiastical courts.

Among the Romans *apparitors* were the same with serjeants, or tipstaffs, among us; or rather *apparitor* was a general term, and comprized under it all the ministers and attendants of the judges and magistrates, appointed to receive and execute their orders. And hence, they say, the name was derived, viz. from *apparere, to be present, to be in waiting*.

Under the name *apparitores* were comprehended the *scribæ, accensi, interpretes, præcones, viatores, lictores, flatores*, and even the *carnifices*, or hangmen.

They were usually chosen out of the freedmen of the magistrates, and their condition was held in so much contempt, that as a mark of ignominy, the senate appointed a city that had revolted from them to furnish them with *apparitors*.

There were also a kind of *apparitors of cohorts*, called *cohortales*, or *conditionales*, as being attached to a cohort, and doomed to that condition. The *apparitors* of the *prætors, prætoriani*, were those who attended the prætors, or governors of provinces; and who, on their master's birth-day, were always changed, and preferred to better posts. Add, that the pontifices had also their *apparitors*, as appears from an inscription of an ancient marble in the *Via Appia*.

APPARATORI
PONTIFCVM
PARMVLARIO.

APPAUME, from the French *paume, palm of the hand*, in *Heraldry*, denotes one hand extended with the palm appearing, and the thumb and fingers at full length.

APPEAL, in *Law*, signifies the removal of a cause from an inferior judge to a superior; or the having recourse to a superior judge to rectify what is amiss in a sentence passed by an inferior.

Appeals to Rome were first introduced into England in the reign of king Stephen; and though they were not strictly regarded in the succeeding reigns, they continued till the time of king Henry the Eighth, when [illegible] finally abolished by the 24th H. VIII. c. 12. and 25 H. VIII. c. 19.

Appeals lie from the archdeacon or his official to the bishop, and again from the bishop or his [illegible] to the archbishop; and by the 25th H. VIII. [illegible] of justice in the archbishop's courts, the [illegible] to the king in chancery, where commissioners [illegible] and by reason of this appointment they are [illegible] *gates*: and after the decision of this court, [illegible] of review has been sometimes appointed.

Appeals lie from all the ordinary courts of [illegible] house of lords, who judge *en dernier ressort*. [illegible] peal lies from them.

There are *appeals* from ecclesiastical judges [illegible]. The first instance of this is that of Paulus Samosatenus, who being condemned and deposed by the second council of Antioch, refused to surrender the episcopal house to Domnus, who had been elected his successor; and *appealed* to the emperor.

APPEAL is also used in *Common Law* in the same sense with *accusatio* among the *Civilians*. For as, in the *Civil Law*, cognizance in criminal cases is taken either upon *inquisition, accusation*, or *denunciation*; so in ours, it is taken either upon *indictment* or *appeal*.

Indictment comprehends both *inquisition* and *denunciation*. *Appeal* or accusation is a lawful declaration of another man's crime (which, by Bracton, must be felony at the least) before a competent judge, by one that setteth his name to the declaration, and undertakes to make it good on the penalty that may otherwise ensue.

An *appeal* is commenced two ways; either by WRIT or by BILL.

APPEAL by *writ is*, when a writ is purchased out of chancery by one to another; to this end, that he *appeal* a third of some felony committed by him, finding pledges that he shall do it, and deliver this writ to the sheriff to be recorded.

APPEAL by *bill* is, when a man of himself gives up his accusation in writing to the sheriff or coroner, offering to undergo the burden of *appealing* the person therein named.

This practice is drawn from the Normans, as appears from the Grand Customary, wherein is a solemn discourse both of the effects of this *appeal*, viz. the order of the combat, or the trial by inquest, which, by our law, was in the choice of the defendant.

APPEAL *of mayhem* is an accusing one that hath maimed another. But this being heretofore no felony, the *appeal* thereof was but in manner of an action of trespass; so that there was nothing recovered but the damages.

Bracton calls this, *appellum de plagiis mahemio*, and has a whole chapter of it. In king John's time, there is recorded an *appeal* against a Jew, *qui fecit cementiori quendam nepotem suum*.

APPEAL *of rape* lies where a rape is committed on the body of a woman.

APPEAL *of robbery* is a remedy given by the common law, whereby a person robbed of his goods may obtain restitution of them. But the three last kinds of *appeal* are now much out of use, because of the intricacy of the pleadings, and the charge of prosecution; and the method of indictment is generally adopted.

APPEAL *of suing imprisonment* is used by Bracton for an action of wrong or false imprisonment.

APPEAL is more particularly used for a private accusation of a murderer, by one who had interest in the murdered party; or of any felon by one of his accomplices in the fact.

An *appeal* of death, which is now chiefly in use, is a vindictive action, which the law gives to a wife during widowhood, against the murderer of her husband, or to the male heir at law, against one who kills his ancestor. The *appeal* must be lodged in a year and a day after the death of the person murdered. If the person *appealed* be acquitted, the appellant shall be imprisoned for a year, restore damages to the party, and pay a fine to the king. 13 Ed. I. st. 1. c. 13.

If an *appeal* of murder or felony be used by any common person against a peer, he shall be tried by commoners, and not by his peers.

The person who brings an *appeal* is called the *appellant*; and the person *appealed*, the *appellee*.

In an *appeal*, the king cannot pardon.

APPEARANCE, the exterior surface of a thing; or that which first strikes the sense, or the imagination.

The Academics maintain, that the sensible qualities of bodies are only *appearances*; and the like doctrine is held by some later philosophers.

Our errors arise chiefly from a too hasty and precipitate assent of the will, which acquiesces too easily in the *appearances* of truth.

APPEARANCE, in *Law*, is the defendant's engaging to answer

answer a cause or action entered against him in some court of justicature.

Appearance, in the King's Bench, is the defendant's filing either of common or special bail, if the action be by bill. If it be by original, the *appearance* must be with the PHILAZER of the county where the arrest was. *Appearance*, in the Common Pleas, must be entered with the PHILAZER there; but if it be by bill, with the PROTHONOTARY.

APPEARANCE, in *Perspective*, is the representation or projection of a figure, body, or like object, upon the perspective plane.

The *appearance* of an objective right line is always a right line. See PERSPECTIVE. The *appearance* of an opake body and a luminary being given, to find the *appearance* of the shadow. See SHADOW.

APPEARANCE *of a star or planet*. See APPARITION.

APPEARANCES, in *Astronomy*, &c. are more usually called *phænomena* and *phases*.

In *Optics* we use the term *direct appearance* for the view or sight of any object by direct rays; without either refraction or reflection.

APPEARANCES, *to save*, is to discharge one's duty seemingly, or acquit himself of the formalities and externals thereof; so as to save his character, and avoid giving scandal or offence.

APPEARANCES, in *Physiology*. See PNAIMATA.

APPEASING *remedies*, in *Medicine*, are those which assuage the pain in a disease, and give the patient some rest, or respite: and at the same time contribute to the cure.

These amount to the same with what we otherwise call PAREGORICS, ANODYNES, &c.

APPELLANT. See APPEAL.

APPELLANTS is particularly used in our time, for those among the French clergy, who refused to subscribe the constitution or bull *unigenitus*, issued by Clement XI. in 1713, and appeal from it, either to the pope better informed, or a general council.

The French bishops, priests, monks, and even nuns, are divided into *appellants*, and *non-appellants*. The Jansenists and their followers are generally *appellants*.

APPELLATIVE, or NOUN APPELLATIVE, in *Grammar*, a common name; or a name which belongs or is applicable to things of a certain kind.

The word is formed of *appellare, to name a thing*.

Such are the names, *man, angel, horse, plant, tree*, &c. *Appellatives* stand opposed to PROPER names, which belong only to individuals; as *Peter, Gabriel, Bucephalus*, &c.

APPELLEE, in the *Common Law*. See APPEAL.

In the *Civil Law*, *appellee, appellatus*, properly belongs only to the judge before whom an appeal is brought.

APPENAGE. See APANAGE.

APPENDANT, from *appendo, I hang by*, in *Law*, is understood of such things as by time of prescription have belonged, appertained, and been joined, to some other principal thing.

Thus an hospital may be *appendant* to a manor; a common of fishing to a freehold; a seat in a church, to a house; or the like.

APPENDANT, *advowson*. See ADVOWSON.

APPENDANT, *common*. See COMMON.

APPENDICULA denotes a little or diminutive APPENDIX.

The word is seldom used, except by anatomists, in the following phrase.

APPENDICULA *vermiformis*, in *Anatomy*, a name given by some to the intestine *cæcum*, which they consider only as an appendage of the *colon*, and not as the true *cæcum* of the ancients.

APPENDICULÆ *ad arteriarum, venæ & arteriæ*, a name given by the writers on *Natural History*, to certain small branches which are placed in a circular order at different distances upon the columns of the *arteriæ*. *Tab.* III. *Fasc.* 1. fig. 10.

APPENDIX, or APPENDAGE, a thing necessary to, or dependent on another.

The term is chiefly used in matters of literature, for an additional discourse, placed at the end of any piece, or writing; to explain or prosecute something there left deficient, or to draw conclusions therefrom. In which sense the word coincides with SUPPLEMENT.

APPENDIX, in *Anatomy*, is a part, in some measure, detached from another part, to which, however, it adheres, or is contiguous.

There are membranous *appendices*, of various figures, in most of the inner parts of the body.

The *cæcum* is by some writers called *appendix*, or *appendicula vermiformis*.

Mr. Monro assures us, he never saw the *appendix vermiformis* of any of the human fœtuses which he dissected, distended with *meconium*, and therefore he cannot allow it as a reservoir of the *fæces* during gestation. From the numerous mucous *lacunæ* in the human *appendix*, and the like structure in the *cæcum* of brutes, its use seems to be to furnish *mucus* to lubricate the internal surface of the great sac of the *colon*, and to moisten the *fæces* in it, that they may be more easily pushed forward out of this part of the gut, where there is the greatest difficulty in their progress, and where, by stagnating too long, they may bring on troublesome symptoms. Witness the disease called PLACENTA *intestinalis*. Med. Ess. Edinb. vol. iv. art. 12.

APPENDIX is more particularly used in the same sense with EPIPHYSIS.

APPENSA, or APPENDED *remedies*, such as are outwardly applied, by hanging about the neck.

The word comes from *ad*, and *pendo, I hang to*.

Such are divers amulets, necklaces, phylacteries, &c.

APPERCEPTION, or ADPERCEPTION, is used by Leibnitz and his followers, for an attribute of the mind, considered as conscious of, or reflecting on its own perceptions.

In which sense, the word amounts to the same with what Des Cartes and others call CONSCIENCE, or CONSCIOUSNESS.

APPERTINANCES. See APPURTENANCES.

APPETITE, APPETITUS, APPETENCY, in *Philosophy*, a desire of enjoying something wanted; or a complacency in the fruition of a thing present.

The word is formed of *ad, to*, and *peto, I crave*.

Some philosophers define *appetite*, more generally, an inclination of the soul towards some object considered as good; or a propensity to an object, in respect of the good that is apprehended in it.

The Schoolmen distinguish *appetite* into *voluntary* and *natural*.

The first is the will itself, acting under a competent knowledge or information of the thing in hand: such is the *appetite* or desire of being happy. The second is a kind of instinct, whereby we are mechanically driven to consult our own preservation.

Natural *appetite* is subdivided into *concupiscible*, and *irascible*.

Others again divide it into *sensitive* and *rational*.

APPETITE, *sensitive*, is that which arises from a notion of goodness in the object, as impressed by the impulse of the *senses*.

APPETITE, *rational*, is that which arises from an apprehension of good in the object; as conceived by the understanding.

APPETITE is restrained, by Hutcheson, to such of our desires as have a previous, painful, and uneasy sensation, antecedently to any opinion of good in the object; nay, so as that the object is often chiefly esteemed good only for its allaying this pain or uneasiness, or if it give also positive pleasure, yet the uneasy sensation is previous to, and independent of this opinion of good in it.

APPETITES are passions directed to general objects, in contradistinction to passions directed to particular objects, which retain their proper name. Thus we say, an *appetite* for fame, for glory, for conquest, for riches; but we say the *passion* of love, of gratitude, of envy, &c. *Appetite* may be also distinguished from *passion*, since the latter has no existence till a proper object be presented; whereas the former exists first, and then is directed to an Object. Elem. Crit. vol. i. p. 44.

APPETITE, in *Medicine*, is more particularly used to denote a natural periodical call or desire to eat and drink, in order to repair what had been wasted by the several excretions of the body.

A loss or prostration of *appetite* is called ANOREXIA. A preposterous *appetency* of things not proper for food is called PICA.

An immoderate *appetite* is called BULIMIA, or *fames canina*. Some, however, distinguish between the *fames*, and canine *appetite*; making it the distinguishing character of the latter, that it is attended with a hemery, or other coeliacal flux.

APPETITE, *excessive*. See OREXIS.

APPETITE, *defective*. The defect of *appetite* is of two kinds, and is usually divided, by medical writers, under two names, the *anorexia* and *nausea*.

The *anorexia* is a too great abstinence from foods, which sometimes has its origin from depravation of the stomach, sometimes from other causes more remote.

The *nausea* is defined to be a plenary abstinence from foods, being a complaint of the same nature and origin with the *anorexia*, but differing in degree.

The signs are very obvious so far as a distaste to food, which is common to both; but there is this difference, that in an *anorexia*, the patients usually eat something, though without *appetite*, and are troubled always with a pain and uneasiness in the stomach after it; but in the *nausea*, there is a greater dislike of food of all kinds, and frequent straining to vomit. Men of idle lives, and such as drink too freely of strong liquors, are subject to

collection of Ciceronian phrases, &c. The *apparatus sacer* of Pofcevin, is a collection of all kinds of eccleſiaſtical authors, printed in 1611, in three volumes.—Gloſſaries, comments, &c. are alſo frequently called *apparatuſes*.

APPARENT, from *apparet, I appear*, that which is viſible, or evident to the eye, or the underſtanding.

APPARENT *conjunction* of the planets is, when a right line, ſuppoſed to be drawn through the centre of two planets, does not paſs through the centre of the earth, but through the eye of the ſpectator.

APPARENT *Altitude, Diameter, Diſtance, Hour, Horizon, Magnitude, Motion, Place, Time, &c.* See the ſeveral ſubſtantives.

APPARITION, in *Aſtronomy*, denotes a ſtar's or other luminary's becoming viſible, which before was hid.

In which ſenſe the word ſtands oppoſed to OCCULTATION.

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APPARITION is alſo uſed to denote a ſpectre, or preternatural appearance of ſome ſpirit, or the like.

We read of *apparitions* of angels, genii, daemons, fairies, witches, departed ſouls, &c. *apparitions* of God, of Chriſt, the Virgin, ſaints, prophets, and of the devil himſelf.

Many of the *apparitions*, we are told of by writers, are doubtleſs mere deluſions of the ſenſe; many others were ſeen but in dreams or deliquiums; many others are fictions, contrived merely to amuſe, or anſwer ſome purpoſe. *Apparitions*, it is certain, are machines that, on occaſion, have been of good ſervice to generals, to miniſters of ſtate, to prieſts, and others. It has been controverted, whether an *apparition* be any proof of a future ſtate.

The abbé de St. Pierre has a diſcourſe expreſsly on the phyſical method of ſolving or accounting for *apparitions*; he makes them the effect of ſeverith dreams, diſturbed imaginations, &c.

APPARITOR, or APPARITOUR, or APPARATOR, a BEADLE in an UNIVERSITY, who carries the mace before the maſters and the faculties.

APPARITOR is alſo uſed in ſome ancient Engliſh laws, for a judge or juſtice.

APPARITOR *comitatus*. There was formerly an officer called by this name, for which the theriffs of Buckinghamſhire had a conſiderable yearly allowance; and in the reign of queen Elizabeth, there was an order of court for making that allowance. But the cuſtom and reaſon of it are now altered.

APPARITORS alſo denote meſſengers, who cite men to appear in the eccleſiaſtical courts.

Among the Romans *apparitors* were the ſame with ſergeants, or tipſtaffs, among us; or rather *apparitor* was a general term, and comprized under it all the miniſters and attendants of the judges and magiſtrates, appointed to receive and execute their orders. And hence, they ſay, the name was derived, viz. from *apparere, to be preſent, to be in waiting*.

Under the name *apparitores* were comprehended the *ſcribæ, accenſi, interpretes, præcones, viatores, lictores, ſtatores*, and even the *carnifices*, or hangmen.

They were uſually choſen out of the freedmen of the magiſtrates, and their condition was held in ſo much contempt, that as a mark of ignominy, the ſenate appointed a city that had revolted from them to furniſh them with *apparitors*.

There were alſo a kind of *apparitors of cohorts*, called *cohortales*, or *conditionales*, as being attached to a cohort, and doomed to that condition. The *apparitors* of the prætors, *prætorieni*, were thoſe who attended the prætors, or gove nors of provinces; and who, on their maſter's birth-day, were always changed, and preferred to better poſts. Add, that the pontifices had alſo their *apparitors*, as appears from an inſcription of an ancient marble in the *Via Appia*.

APPARATORI
PONTIFCVM
PARMVLARIO.

APPAUME, from the French *paume, palm of the hand*, in *Heraldry*, denotes one hand extended with the palm appearing, and the thumb and fingers at full length.

APPEAL, in *Law*, ſignifies the removal of a cauſe from an inferior judge to a ſuperior; or the having recourſe to a ſuperior judge to rectify what is amiſs in a ſentence paſſed by an inferior.

Appeals to Rome were firſt introduced into England in the reign of king Stephen; and though they were not ſtrictly regarded in the ſucceeding reigns, they continued till the time of king Henry the Eighth, who finally aboliſhed by the 24th H. VIII. c. 12. and 25th VIII. c. 19.

Appeals lie from the archdeacon or his official to the biſhop, and again from the biſhop or his official to the archbiſhop; and by the 25th H. VIII. from the court of juſtice in the archbiſhop's courts, the party appealing to the king in chancery, where commiſſioners are named, and by reaſon of this appointment they are called *delegates*: and after the deciſion of this court, a court of review has been ſometimes appointed.

Appeals lie from all the ordinary courts of juſtice to the houſe of lords, who judge *en dernier reſſort*. From this *appeal* lies from them.

There are *appeals* from eccleſiaſtical juſtice to Rome. The firſt inſtance of this is that of Paulus Samoſatenus; who being condemned and depoſed by the ſecond council of Antioch, refuſed to ſurrender the epiſcopal houſe to Domnus, who had been elected his ſucceſſor; and *appealed* to the emperor.

APPEAL is alſo uſed in *Common Law* in the ſame ſenſe with *accuſation* among the *Civilians*. For as, in the *Civil Law*, cognizance in criminal cauſes is taken either upon *inquiſition, accuſation*, or *denunciation*; ſo in ours, it is taken either upon *indictment* or *appeal*.

Indictment comprehends both *inquiſition* and *denunciation*. *Appeal* or accuſation is a lawful declaration of another man's crime (which, by Bracton, muſt be felony at the leaſt) before a competent judge, by one that ſetteth his name to the declaration, and undertakes to make it good on the penalty that may otherwiſe enſue.

An *appeal* is commenced two ways; either by WRIT or by BILL.

APPEAL by *writ is*, when a writ is purchaſed out of chancery by one to another; to this end, that he *appeal* a third of ſome felony committed by him, finding pledges that he ſhall do it, and deliver this writ to the theriff to be recorded.

APPEAL by *bill* is, when a man of himſelf gives up his accuſation in writing to the theriff or coroner, offering to undergo the burden of *appealing* the perſon therein named.

This practice is drawn from the Normans, as appears from the Grand Cuſtomary, wherein is a ſolemn diſcourſe both of the effects of this *appeal*, viz. the order of the combat, or the trial by inqueſt; which, by our law, was in the choice of the defendant.

APPEAL *of mayhem* is an accuſing one that hath maimed another. But this being heretofore no felony, the *appeal* thereof was but in manner of an action of treſpaſs; ſo that there was nothing recovered but the damages.

Bracton calls this, *appellum de plagiis mahemii*, and has a whole chapter of it. In king John's time, there is recorded an *appeal* againſt a Jew, *qui fecit emaſculari quendam nepotem ſuum*.

APPEAL *of rape* lies where a rape is committed on the body of a woman.

APPEAL *of robbery* is a remedy given by the common law, whereby a perſon robbed of his goods may obtain reſtitution of them. But the three laſt kinds of *appeal* are now much out of uſe, becauſe of the intricacy of the pleadings, and the charge of proſecution; and the method of indictment is generally adopted.

APPEAL *of wrong imprisonment* is uſed by Bracton for an action of wrong or falſe imprisonment.

APPEAL is more particularly uſed for a private accuſation of a murderer, by one who had intereſt in the murdered party; or of any felon by one of his accomplices in the fact.

An *appeal* of death, which is now chiefly in uſe, is a vindictive action, which the law gives to a wife during widowhood, againſt the murderer of her huſband, or to the male heir at law, againſt one who kills his anceſtor. The *appeal* muſt be lodged in a year and a day after the death of the perſon murdered. If the perſon *appealed* be acquitted, the appellant ſhall be impriſoned for a year, reſtore damages to the party, and pay a fine to the king. 13 Ed. I. ſt. 1. c. 13.

If an *appeal* of murder or felony be uſed by any common perſon againſt a peer, he ſhall be tried by commoners, and not by his peers.

The perſon who brings an *appeal* is called the *appellant*; and the perſon *appealed*, the *appellee*.

In an *appeal*, the king cannot pardon.

APPEARANCE, the exterior ſurface of a thing; or that which firſt ſtrikes the ſenſe, or the imagination.

The Academics maintain, that the ſenſible qualities of bodies are only *appearances*; and the like doctrine is held by ſome later philoſophers.

Our errors ariſe chiefly from a too haſty and precipitate aſſent of the will, which acquieſces too eaſily in the *appearances* of truth.

APPEARANCE, in *Law*, is the defendant's engaging to anſwer

answer a cauſe or action entered againſt him in ſome court of juſticature.

Appearance, in the King's Bench, is the defendant's filing either of common or ſpecial bail, if the action be for bail. If it be by original, the *appearance* muſt be with the PHILAZER of the county where the arreſt was. *Appearance*, in the Common Pleas, muſt be entered with the PHILAZER there; but if it be by bill, with the PROTHONOTARY.

APPEARANCE, in *Perſpective*, is the repreſentation or projection of a figure, body, or like object, upon the perſpective plane.

The *appearance* of an objective right line is always a right line. See PERSPECTIVE. The *appearance* of an opake body and a luminary being given, to find the *appearance* of the ſhadow. See SHADOW.

APPEARANCE *of a ſtar or planet*. See APPARITION.

APPEARANCES, in *Aſtronomy*, &c. are more uſually called *phenomena* and *phaſes*.

In *Optics* we uſe the term *direct appearance* for the view or ſight of any object by direct rays; without either refraction or reflection.

APPEARANCES, *in law*, is to diſcharge one's duty ſeemingly, or acquit himſelf of the formalities and externals thereof; ſo as to ſave his character, and avoid giving ſcandal or offence.

APPEARANCES, in *Phyſiology*. See PHASMATA.

APPEASING *remedies*, in *Medicine*, are thoſe which aſſuage the pain in a diſeaſe, and give the patient ſome reſt, or reſpite: and at the ſame time contribute to the cure. Theſe amount to the ſame with what we otherwiſe call PAREGORICS, ANODYNES, &c.

APPELLANT. See APPEAL.

APPELLANTS is particularly uſed in our time, for thoſe among the French clergy, who refuſed to ſubſcribe the conſtitution or bull *unigenitus*, iſſued by Clement XI. in 1713, and appeal from it, either to the pope better informed, or a general council.

The French biſhops, prieſts, monks, and even nuns, are divided into *appellants*, and *non-appellants*. The Janſeniſts and their followers are generally *appellants*.

APPELLATIVE, or *Noun* APPELLATIVE, in *Grammar*, a common name; or a name which belongs or is applicable to things of a certain kind.

The word is formed of *appellare, to name a thing*.

Such are the names, *man, angel, horſe, plant, tree*, &c. *Appellatives* ſtand oppoſed to PROPER names, which belong only to individuals; as *Peter, Gabriel, Bucephalus*, &c.

APPELLEE, in the *Common Law*. See APPEAL.

In the *Civil Law*, *appellee, appellatus*, properly belongs only to the judge before whom an appeal is brought.

APPENAGE. See APANAGE.

APPENDANT, from *appendo, I hang by*, in *Law*, is underſtood of ſuch things as by time of preſcription have belonged, appertained, and been joined, to ſome other principal thing.

Thus an hoſpital may be *appendant* to a manor; a common of fiſhing to a freehold; a ſeat in a church, to a houſe; or the like.

APPENDANT, *advowſon*. See ADVOWSON.

APPENDANT, *common*. See COMMON.

APPENDICULA denotes a little or diminutive APPENDIX.

The word is ſeldom uſed, except by anatomiſts, in the following phraſe:

APPENDICULA *vermiformis*, in *Anatomy*, a name given by ſome to the inteſtine *cæcum*, which they conſider only as an appendage of the *colon*, and not as the true *cæcum* of the ancients.

APPENDICULÆ *ſeu lacinulæ, uteri & arteriæ*, a name given by the writers on *Natural Hiſtory*, to certain ſmall bunches which are placed in a circular order at different diſtances upon the columns of the *arteriæ*. *Tab.* III. *Foſſils. el.* 10.

APPENDIX, or APPENDAGE, a thing neceſſary to, or dependent on another.

The term is chiefly uſed in matters of literature, for an additional diſcourſe, placed at the end of any piece, or writing; to explain or proſecute ſomething there left deficient, or to draw concluſions therefrom. In which ſenſe the word coincides with SUPPLEMENT.

APPENDIX, in *Anatomy*, is a part, in ſome meaſure, detached from another part, to which, however, it adheres, or is contiguous.

There are membranous *appendices*, of various figures, in moſt of the inner parts of the body.

The *cæcum* is by ſome writers called *appendix*, or *appendicula vermiformis*.

Mr. Monro aſſures us, he never ſaw the *appendix vermiformis* of any of the human ſexes which he diſſected, diſtended with *meconium*, and therefore he cannot allow it as a reſervoir of the *fæces* during geſtation. From the numerous mucous *lacunæ* in the human *appendix*, and the like ſtructure in the *cæcum* of brutes, its uſe ſeems to be to furniſh *mucus* to lubricate the internal ſurface of the great fac of the *colon*, and to moiſten the *fæces* in it, that they may be more eaſily puſhed forward out of this part of the gut, where there is the greateſt difficulty in their progreſs, and where, by ſtagnating too long, they may bring on troubleſome ſymptoms. Witneſs the diſeaſe called PLACENTA *inteſtinalis*. Med. Eſſ. Edinb. vol. iv. art. 12.

APPENDIX is more particularly uſed in the ſame ſenſe with EPIPHYSIS.

APPENSA, or APPENDED *remedies*, ſuch as are outwardly applied, by hanging about the neck.

The word comes from *ad*, and *pendo, I hang to*.

Such are divers amulets, necklaces, phylacteries, &c.

APPERCEPTION, or APPERCEPTION, is uſed by Leibnitz and his followers, for an attribute of the mind, conſidered as conſcious of, or reflecting on its own perceptions.

In which ſenſe, the word amounts to the ſame with what Des Cartes and others call CONSCIENCE, or CONSCIOUSNESS.

APPERTINANCES. See APPURTENANCES.

APPETITE, APPETITUS, APPETENCY, in *Philoſophy*, a deſire of enjoying ſomething wanted; or a complacency in the fruition of a thing preſent.

The word is formed of *ad, to*, and *peto, I crave*.

Some philoſophers define *appetite*, more generally, an inclination of the ſoul towards ſome object conſidered as good; or a propenſity to an object, in reſpect of the good that is apprehended in it.

The ſchoolmen diſtinguiſh *appetite* into *voluntary* and *natural*.

The firſt is the will itſelf, acting under a competent knowledge or information of the thing in hand: ſuch is the *appetite* or deſire of being happy. The ſecond is a kind of inſtinct, whereby we are mechanically driven to conſult our own preſervation.

Natural *appetite* is ſubdivided into *concupiſcible*, and *irraſcible*.

Others again divide it into *ſenſitive* and *rational*.

APPETITE, *ſenſitive*, is that which ariſes from a notion of goodneſs in the object, as impreſſed by the impulſe of the *ſenſes*.

APPETITE, *rational*, is that which ariſes from an apprehenſion of good in the object; as conceived by the underſtanding.

APPETITE is reſtrained, by Hutcheſon, to ſuch of our deſires as have a previous, painful, and uneaſy ſenſation, antecedently to any opinion of good in the object; may, ſo as that the object is often chiefly eſteemed good only for its allaying this pain or uneaſineſs, or if it give alſo poſitive pleaſure, yet the uneaſy ſenſation is previous to, and independent of this opinion of good in it.

APPETITES are paſſions directed to general objects, in contradiſtinction to paſſions directed to particular objects, which retain their proper name. Thus we ſay, an *appetite* for fame, for glory, for conqueſt, for riches; but we ſay the *paſſion* of love, of gratitude, of envy, &c. *Appetite* may be alſo diſtinguiſhed from *paſſion*, ſince the latter has no exiſtence till a proper object be preſented; whereas the former exiſts firſt, and then is directed to an *Object*. Elem. Crit. vol. i. p. 44.

APPETITE, in *Medicine*, is more particularly uſed to denote a natural periodical call or deſire to eat and drink, in order to repair what had been waſted by the ſeveral excretions of the body.

A loſs or proſtration of *appetite* is called ANOREXIA. A prepoſterous *appetency* of things not proper for food is called PICA.

An immoderate *appetite* is called BULIMIA, or *fames canina*. Some, however, diſtinguiſh between the *bulimia*, and canine *appetite*; making it the diſtinguiſhing character of the latter, that it is attended with a lientery, or other coeliacal flux.

APPETITE, *exceſſive*. See OREXIS.

APPETITE, *deficient*. The defect of *appetite* is of two kinds, and is uſually divided, by medical writers, under two names, the *anorexia* and *naufea*.

The *anorexia* is a too great abſtinence from foods, which ſometimes has its origin from depravation of the ſtomach, ſometimes from other cauſes more remote.

The *naufea* is defined to be a plenary abſtinence from foods, being a complaint of the ſame nature and origin with the *anorexia*, but differing in degree.

The ſigns are very obvious ſo far as a diſtaſte to food, which is common to both; but there is this difference, that in an *anorexia*, the patients uſually eat ſomething, though without *appetite*, and are troubled always with a pain and uneaſineſs in the ſtomach after it; but in the *naufea*, there is a greater diſreliſh of food of all kinds, and frequent ſtraining to vomit. Men of idle lives, and ſuch as drink too freely of ſtrong liquors, are ſubject to

idiopathic defects of *appetite*, from actual injuries in the ſtomach; others labouring under the different diſeaſes before mentioned, are as often ſubject to the *ſymptomatic*. People of a ſanguine habit, when afflicted with a loſs of *appetite*, always find great relief in acids of the milder kind; and thoſe of a leucophlegmatic habit are often cured by taking ſmall doſes of *elixir proprietatis* every day before dinner. Some perſons are very fond of external applications to the ſtomach in thoſe caſes, but theſe are rarely found to be of any great ſervice. The beſt of them is a plaiſter of *tacamahaca*, with oil of maſtic.

APPLADES, in *Mythology*, five divinities ſo called becauſe their temples were at Rome near the fountains of Appius; viz. Venus, Pallas, Veſta, Concord, and Peace.

APPIAN *Way*, a great Roman highway, paved by Appius Claudius, cenſor of Rome, in the 444th year of that city. It commenced at the gate Capenna, now called St. Sebaſtian's, and paſſing over the mountain called St Angeli, croſſes the plain of Valdranus, the *Palus Pontina*, and ends at Capua.

Caius Gracchus placed the ſmall columns called *termini*, which marked the miles.

APPLAUSE, properly ſignifies an approbation of ſomething, witneſſed by clapping of hands.

The word comes from the verb *plaudere, to clap the hands*. The ancient way of *applauding* by clapping the hands is ſcarce retained any where but in colleges and theatres. Such a tragedy was acted with great *applauſe*, ſuch a ſtudent maintained a theſis with *applauſe*, &c.

There were three ſpecies of *applauſe*, denominated from the different noiſes made in them, viz. *bombus*, *imbrices*, and *teſtæ*; the firſt a confuſed din, made either by the hands or the mouth; the ſecond and third by beating on a ſort of ſounding veſſels, placed in the theatres for this purpoſe.

Perſons were inſtructed to give *applauſe* with ſkill; and there were even maſters who profeſſed to teach the art. The proficients in this way let themſelves out for hire to the vain-glorious among the poets, actors, &c. and were properly diſpoſed to ſupport a loud *applauſe*. Theſe they called *laudicenæ*.

At the end of the play, a loud peal of *applauſe* was expected, and even aſked of the audience, either by the chorus, or the perſon who ſpoke laſt. The *formula* was, *ſpectatores plaudite, or valete & plaudite*.

The *plauſores*, or applauders, were divided into *chori*, and diſpoſed in theatres oppoſite to each other, like the choriſters in cathedrals; ſo that there was a kind of concert of *applauſes*.

APPLE-*tree*, *malus*, in *Botany*. In the Linnæan ſyſtem, this is a ſpecies of *pyrus*, and belongs to the genus of *icoſandria pentagynia*. The characters of it are, that the branches ſpread, and are more depreſſed than thoſe of the pear-tree. The flower conſiſts of five leaves, which expand in form of a roſe. The fruit is hollowed about the foot-ſtalk, and is for the moſt part roundiſh, and umbilicated at the top; is fleſhy, and divided into five cells or partitions, in each of which is lodged one oblong ſeed. There are three ſpecies; the *wild apple*, with a very four fruit, commonly called *crab*: the *wild crab* of Virginia, with a ſweet-ſcented flower: and the *dwarf apple*, commonly called *Paradiſe apple*.

Apples are no natural fruit, but the mere creatures of art. The way of propagating them, is by ſowing kernels in the ground, which only produce crabs or wildings, different in figure and taſte from the parent fruit. To turn theſe to apples of any particular kind, is the buſineſs of engrafting. A cyon of an *apple*-tree inſerted into a crab-ſtock, occaſions the crab-tree from that time to produce *apples* of the ſame quality with thoſe from whence the cyon was taken. Mr. Ray lays it down as a rule, that the fruit always follows the cyon.

In the nurſeries, there are three ſorts of ſtocks generally uſed to graft *apples* upon; the firſt are called *free-ſtocks*, which are raiſed from the kernels of all ſorts of *apples* indifferently, and by ſome theſe are alſo termed crab-ſtocks; for all thoſe trees which are produced from the ſeeds before they are grafted, are termed crabs without any diſtinction. But ſuch ſtocks ſhould always be preferred, as are raiſed from the kernels of crabs, where they are preſſed for verjuice; and ſeveral old writers on this ſubject are of the ſame opinion. Auſten, who wrote a hundred years ago, ſays, "The ſtock which he accounts beſt for *apple* grafts is the crab, which is better than ſweeter *apples* to graft on, becauſe they are uſually free from canker, and will become very large trees, and, I conceive, will laſt longer than ſtocks of ſweeter *apples*, and will make fruits more ſtrong and hardy to endure fruſts."—It is very certain, that by frequent grafting ſome ſorts of *apples* upon free-ſtocks, the fruits have been rendered larger, but leſs firm, poignant, and of ſhorter duration. The ſecond ſort of ſtocks is the *Dutch creeper*; theſe are deſigned to ſtint the growth of trees, and keep them within compaſs for dwarfs or eſpaliers. The third ſort is the *Paradiſe apple*, which is a very low ſhrub; ſo only proper for trees which are kept in pots by way of curioſity, for theſe do not continue long in the method of grafting, ſee ENGRAFTING.

For the method of planting orchards to the greateſt profit, the ſoil and ſituation are of great importance. The beſt ſituation is the aſcent of gentle hills, facing the ſouth or ſouth-eaſt; but this aſcent muſt not be too ſteep, leſt the earth ſhould be waſhed down by heavy rains.

The ground intended to be planted ſhould be well prepared the year before, by thorough ploughing; wherein ſome dung be laid on, it will be of great ſervice to the trees. If, in the preceding ſpring, a crop of peas or beans is planted on the ground, ſo as that the ground between the rows may be horſe-hoed, it will deſtroy the weeds, looſen the ground, and prove a good preparation for the trees; for the earth cannot be too much wrought or pulverized for this purpoſe. Theſe crops will be off the ground before the ſeaſon for planting the trees, which is to be performed when they begin to ſhed their leaves.

In chuſing the trees, ſuch as are but of two years growth from the graft are to be preferred; old trees, or ſuch as are grafted upon old ſtocks, ought never to be planted. The diſtance they ſhould be planted at, where the ſoil is good, muſt be fifty or ſixty feet; though forty feet may be ſufficient, where the land is not ſo good: nothing can be of worſe conſequence than the crowding trees too cloſe together.

When the trees are planted they ſhould be ſtaked, to prevent their being ſhaken or blown out of the ground by ſtrong winds. But in doing this, particular care ſhould be taken to put ſtraw, hay-bands, or woollen cloth between the trees and the ſtakes, to prevent them from being rubbed or bruiſed by the ſtakes, for if their bark ſhould be rubbed off, it will occaſion wounds which will not heal in ſeveral years, if they ever recover from them. If the winter ſhould prove very ſevere, it will be proper to cover the ground about their roots with ſome muck, to prevent the young fibres from being injured.

It is a common practice in many parts of England, to lay the ground down for paſture, after the trees are grown pretty large in the orchards; but this is by no means adviſeable, for trees of above twenty years growth have frequently been almoſt deſtroyed by horſes in the compaſs of one week: and if ſheep are put into the orchards, they will conſtantly rub themſelves againſt the trees, and their greaſe ſticking to the bark, will ſtint their growth, and finally ſpoil them. Therefore, wherever orchards are planted, it will be much better to keep the ground in tillage; but whatever crops are ſown, ſhould not be too near the trees, leſt the nouriſhment ſhould be drawn away from them: nor ſhould the plough come too near the ſtems, leſt the roots and bark ſhould be injured. But it will be of great ſervice to dig the ground about the trees, where the plough does not come, every ſpring and autumn, for five or ſix years after planting; by which time the roots will have extended themſelves to a greater diſtance.

In pruning orchard trees, nothing more ſhould be done, but to cut out all thoſe branches which croſs each other, and which if left, would rub and tear off the bark from each other; as alſo decayed branches; but never to ſhorten any of their ſhoots. Branches broken by the wind ſhould be cut off, either down to the diviſion of the branch, or cloſe to the ſtem from which it proceeds; all ſuckers or ſhoots from their ſtem ſhould be entirely taken off: the beſt time for this work is in November, for it ſhould not be done in fruſty weather, nor when the ſap begins to be in motion.

In the planting eſpaliers, if there is an extent of ground in the kitchen-garden, it will be proper to plant in this manner not only ſuch ſorts as are for the uſe of the table, but alſo a quantity of trees to ſupply the kitchen. Where the kitchen-garden is but ſmall, the latter muſt be ſupplied from the ſtandard-trees; but as many of theſe kitchen apples are large, and hang late in the autumn they are much more expoſed to ſtrong winds on ſtandards than in eſpaliers: for which reaſon, where the ground will admit of it, eſpaliers are to be preferred. The proper diſtance for theſe trees is not leſs than twenty-five or thirty feet, for ſuch ſorts as are of a moderate growth (if upon crab or free ſtocks); but the larger growing ſorts ſhould not be allowed leſs room than thirty-five feet; which will be found near enough, if the ground is good, and the trees properly trained: for, as their branches ſhould not be ſhortened, but trained at their full length, in a few years they will be found to meet.

The next thing to be obſerved, is the making proper choice of ſuch ſorts of fruit as grow nearly alike, to

plant in the ſame eſpalier. This is of great conſequence to the diſtance to be allowed them; otherwiſe the eſpalier will make an irregular appearance.

The choice of trees is the next article, which ſhould be but one, or at moſt but two years old from the graft. The ſtocks ſhould be young, ſound, and ſmooth, free from canker, which have not been cut down in the nurſery: when taken up, all the ſmall fibres ſhould be entirely cut off from their roots, which, if left on, would turn mouldy, decay, and obſtruct the new fibres in their growth; the extremities of their roots ſhould be ſhortened, and all bruiſed and miſplaced roots ſhould alſo be cut away. As to pruning the heads of theſe trees, nothing more need be done, than to cut off thoſe branches which cannot be trained to the line of the eſpalier. In planting, the roots ſhould not be placed too deep in the ground, eſpecially if the ſoil be moiſt, but rather elevated on a little hill, which it will be neceſſary to allow for the raiſing of the borders afterward. Theſe trees ſhould be ſtaked like thoſe in the orchard, until the eſpalier is put to them.

In pruning theſe trees, the chief point is, never to ſhorten any of the branches, unleſs there is an abſolute want of ſhoots to fill the eſpalier; for where the knife is much uſed, it only multiplies uſeleſs ſhoots, and prevents their fruiting: ſo that the beſt method to manage theſe trees, is to go over them three or four times in the growing ſeaſon, and rub off all ſuch buds and ſhoots as are irregularly produced, training the others down to the ſtakes where they are to remain. If this is carefully minded in the ſummer, there will be little left to be done in the winter. The diſtances at which theſe branches ſhould be trained from each other, are, for the larger ſorts of fruit ſeven or eight inches, and for the ſmaller, five or ſix. If, contrary to theſe plain inſtructions, the trees are ſuffered to grow rude in ſummer, there will be much difficulty to bring down the ſtubborn ſhoots afterward, without breaking. All the ſorts of *apples* produce their fruit upon curſons or ſpurs, ſo that theſe ſhould never be cut off, as they will continue fruitful for ſeveral years. The method of making ESPALIERS is exhibited under that article; it need only therefore be obſerved, that it will be beſt to defer making the eſpalier, till the trees have had three or four years growth: for before that time, the branches may be ſupported by a few upright ſtakes, until there is a ſufficiency of them to furniſh the lower part.

The beſt method of preſerving *apples* for winter uſe, is to let them hang upon the trees until there is danger of froſt, to gather them in dry weather, and then to lay them in large heaps to ſweat for a month or ſix weeks. They ought then to be carefully looked over, all which have the leaſt appearance of decay taken out, the ſound fruit wiped dry, and packed up in large oil jars, which have been thoroughly ſcalded and dry, and then ſtopped cloſe, to exclude the air. If this plan is duly obſerved, the fruit will keep a long time ſound, and their fleſh remain plump; whereas when expoſed to the air, their ſkins will ſhrivel, and their pulp ſoften. See CYDER, and ORCHARD.

Among the various kinds of *apples*, ſome are uſed for the deſert, ſome for the kitchen, and ſome for cyder-making. Thoſe uſed for the deſert, are the following, placed as they ſucceſſively ripen after one another: the white juncating, the margaret *apple*, the ſummer pearmain, the ſummer queening, the embroidered *apple*, the golden rennet, the ſummer white calville, the ſummer red calville, the ſilver pippen, the aromatic pippen, *la reinette griſe*, *la haute boute*, the royal ruſſeting, Wheeler's ruſſet, Sharp's ruſſet, the ſpine *apple*, the golden pippen, the nonpareil, the *d'api*, or *pome d'api*.

Thoſe for the kitchen uſe, in order of their ripening, are theſe; the codling, the ſummer margygold, the ſummer red pearmain, the Holland pippen, the Kentiſh pippen, the courpendu, Loan's pearmain, the French rennet, the French pippen, the royal ruſſet, the monſtrous rennet, the winter pearmain, the *pome violette*, Spencer's pippen, the ſtone pippen, and the oaken pippen.

Thoſe moſt eſteemed for cyder are, the Devonſhire royal wilding, the redſtreak *apple*, the whitſour, the Herefordſhire under-leaf, and the John *apple*, or *dene annet*, everlaſting hanger, and gennet moyle. Miller.

The *apple* is compoſed of four diſtinct parts, viz. the pill, *the parenchyma*, the branchery, and the core. The pill or ſkin, is only a dilatation of the outermoſt ſkin or rind of the bark of the branch on which it grew. The *parenchyma* or pulp, as tender and delicious as it is found, is only a dilatation, or, as Dr. Grew calls it, a ſwelth or ſuperbience of the inner part of the bark of the branch. This appears not only from the viſible continuation of the bark from the one through the pedicle or ſtalk to the other, but alſo from the ſtructure common to both.

The branchery or veſſels, are only ramifications of the woody part of the branch, ſent throughout all the parts of the parenchyma, the greater branches being made to communicate with each other by inoſculations of the leſs. Grew's Anat. of Veget. lib. i. cap. 6. lib. iv. cap. 1.

The *apple* core is originally from the pith of the branch; the ſap of which finding room enough in the parenchyma, through which to diffuſe itſelf, quits the pith, which by this means hardens into core.

The juice of *apples* is a *menſtruum* for iron. A ſolution of iron in the juice of the *apples* called *golden rennets*, evaporated to a thick conſiſtence, proves an elegant chalybeate, which keeps well.

Dr. Lewis obſerves, that the young ſhoots of monk's rhubarb in the ſpring, approach in taſte to ſome ſorts of *apples*, and that of late they have been employed in that early ſeaſon, as a *ſuccedaneum* to *apples* for culinary purpoſes. Newman's Works, p. 316, 4to.

Mr. Boyle has given ſeveral experiments on *apples* in the air-pump, and the production of air, &c. thereby. Vide Phil. Works abridg. tom. ii. p. 367, ſeq. 609, 630, ſeq. 645, ſeq.

APPLE is alſo a name given to divers fruits, bearing ſome reſemblance in figure, rotundity, and the like, to the orchard *apple*.

APPLE, *Adam's*. See CITRON, and *Pomum* ADAMI.

APPLE, *bitter*, a name ſometimes given to the fruit of the COLOCYNTHIS.

APPLE, *blad*, *cactus*. See *Melon* THISTLE.

APPLE, *cuſtard*, *annona*, in *Botany*, a genus of the *polyandria polygynia* claſs. Its characters are theſe: the flower hath in ſome ſpecies three, in others ſix petals, three large, and three alternately ſmaller; the germen becomes an oval or oblong fruit, having a ſcaly rind and one cell, in which are lodged many oval ſmooth ſeeds. There are eight ſpecies.

Theſe plants, which are natives of the warm parts of America, are too tender to produce fruit in this country, where they are only preſerved for the beauty of their leaves.

APPLE, *dwarf*. See DWARF-*trees*.

APPLE-*fly*, in *Natural Hiſtory*, the name given by authors to a ſmall green fly found ſometimes within an *apple*, and hatched of a worm or maggot, very frequently found infeſting that fruit.

APPLE, *love*. See LYCOPERSICON.

APPLE, *mad*. See MAD *apple*.

APPLE, *male balſam*, *momordica*. See *Male* BALSAM *apple*.

APPLE, *marchoſite*, ſo called by Dr. Grew, on account of its figure, as being round except on one ſide, where it falls in, and has a ſtalk like a young *apple*. Muſ. Reg. Soc. P. 3. § 2. cap. 3.

Among the ancient ornaments of churches we read of *golden apples*, *poma aurea*; by which it ſhould ſeem, we are to underſtand the globular parts of candleſticks. Du-Cange.

Some ancient cuſtomaries alſo ſpeak of *apples* of wax, POMA *de cera*.

APPLE, *Moy*. See DUCK's *foot*.

APPLES, *oak*, are a kind of excreſcences or exudations of the nutritious juice of that tree, joined with ſome degree of putrefaction.

The like are ſometimes alſo found in willows.

APPLE *of the eye*. See PUPIL.

APPLE, *pine*. See PINE *apple*.

APPLE, *prickle*, is remarkable for the ſeveral tuſſocks or bunches of thorns, with which it is armed all around; each bunch conſiſting of ſix or eight thorns, ſome erect, others couched a little, and crooked outward, of ſeveral lengths, from one inch to above two.

APPLE, *ſoap*, *ſapindus*. See SOAP *berry tree*.

APPLE, *ſtar*, *chryſophyllum*, in *Botany*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: it hath a bell-ſhaped flower, cut at the brim into ten ſegments, which are alternately ſpread open; and five ſhort ſtamina, with a roundiſh germen which becomes a pulpy fruit with ten cells, in four or five of which is lodged a ſingle ſeed. There are two ſpecies, natives of the Weſt-Indies.

APPLE, *thorn*. See THORN *apple*.

APPLICATE, APPLICATA. *Ordinate* APPLICATE, in *Geometry*, is a right line drawn acroſs a curve, ſo as to be biſected by the diameter thereof.

Applicate is the ſame with what we otherwiſe call *ordinate*.

APPLICATE *number*. See CONCRETE.

APPLICATION. the act of applying one thing to another by approaching or bringing them nearer together.

Motion is defined by a ſucceſſive *application* of any thing to different parts of ſpace.

The *application* of a veſicatory to the neck, or other part, produces an irritation of the bladder.

The true and great secret in physic is, *how to apply a* medicine, not how to make it.

APPLICATION is also used for the adjusting, accommodating, or making a thing quadrate to another.

Thus we say, the *application* of a fable, &c.

APPLICATION, in *Theology*, is particularly used, by some *divines*, for the act whereby our Saviour *transfers*, or makes over to us, what he had earned or purchased by his holy life, and death.

Accordingly it is by this *application* of the merits of Christ, that we are to be justified, and intitled to grace and glory.

The sacraments are the ordinary means, or instruments, whereby this *application* is effected.

APPLICATION is sometimes also used in *Geometry*, for what in *Arithmetic* we call DIVISION.

APPLICATION also signifies the fitting or applying of one quantity to another, whose area, but not figures, are the same.

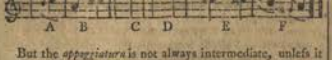
Thus Euclid shews how, on a right line given, to *apply* a parallelogram that shall be equal to a right lined figure given.

APPLY, among *Mathematicians*, sometimes signifies to transfer a line given into a circle, most commonly, or into any other figure; so that its ends may be in the perimeter of the figure.

APPLY denotes also as much as *divide*, especially among Latin writers; who, as they say, *duc* AB *in* CB, draw AB into CB, when they would have AB multiplied by CB; or rather when they would have a right-angled parallelogram made of those lines: so they say, *applica* AB *ad* CB, *applo* AB *in* CB, when they would have CB divided by AB;

which is thus expressed, $\frac{CB}{AB}$.

APPOGGIATURA, in *Music*, according to Grassineau, is when in any part of a song, there are two notes at some distance from one another, as a third, or fifth; and in singing such passage, the musicians put in small intermediate notes, ascending, or descending; as in the example A.



But the *appoggiatura* is not always intermediate, unless it be in the order of time (see the examples B and C); nor is it confined to distant notes. It may be used in passing from a note to the nearest sound either above or below it. See the examples D, E, and F.

The *appoggiatura* is commonly marked by a smaller kind of note, as in the examples before given, and is essential to musical taste and expression.

The word is derived from *appoggiare, to lean on.*

APPOINTEE, a foot-soldier, in the French army, &c. who for his long service, and bravery, receives pay above private centinels.

These have been *suppressed* in France, except in the regiment of French guards, where forty *appointees* are still retained to each company of 150 men.

Till the year 1670, they had also captains and lieutenants under the appellation of *appointees*, who, without residing in the regiment, received their pay. See ANSPESSADES.

APPOINTEE, in *Heraldry*, is when two or more things are placed touching each other at the points or ends.

APPOINTMENT, a pension or salary given by great lords and princes to persons of worth and parts, in order to *retain* them in their service.

The term is chiefly used among the French.—The king of France gives large *appointments* to several of the officers in his service.

Appointments differ from wages, in that the latter are fixed and ordinary, being paid by the ordinary treasurers; whereas *appointments* are annual gratifications granted by *brevet* for a time uncertain, and are paid out of the privy purse.

APPORTIONMENT, or APPORCIONMENT, APPORTIONAMENTUM, *in Law*, a dividing of a rent into two or more parts, or portions, according as the land whence it issues is divided among two, or more proprietors.

Thus if a man, having a rent-service issuing out of land, purchase a part of the land; the rent shall be *apportioned* according to the value of the land.—So if a man let lands for years, reserving rent, and a stranger afterward recover part of the land, the rent shall be *apportioned*.

But a rent charge cannot be *apportioned*, nor things that are entire; as if one hold land by service, to pay to his lord yearly at such a feast a horse, or a rose; there, if the lord purchase a part of the land, this service is totally extinct; because such things cannot be divided without hurt to the whole.—But if a part of the land, out of which a rent-charge issues, descends to the grantee of the rent, this shall be *apportioned*.—A man may have part of the land where he hath common appendant, the common shall be *apportioned*: of common appurtenant it is otherwise; and if by the act of the party, the common is extinct. Common appendant and appurtenant may be *apportioned* on alienation of part of the land to which it is appendant or appurtenant.—Conditions generally are entire, and cannot be *apportioned* by the act of the party; a contract may not be divided or *apportioned*, so as to subject a man to two actions. Davis, 61. 1 Roll. 149.

APPOSAL *of sheriffs*, is the charging them with money received on their account in the exchequer, 23 and 24 Car. II.

APPOSER signifies an examiner. In the court of exchequer, there is an officer called the foreign *apposer*.

In the office of confirmation, in the first liturgy of Edward VI. the rubric directs the bishop, or such as he shall appoint, to *oppose* a child; and a bishop's examining chaplain was anciently called his *poser*.

APPOSITION, from *ad*, *to*, and *pono*, *I put*, the act of putting or applying one thing to another.

APPOSITION is used in *Physics*, in speaking of bodies which derive their growth from the adjunction or union of neighbouring bodies.

Most bodies of the fossile or mineral kingdom are formed by *juxta-positions*, or the *appositions* of parts, brought to join and adhere to each other.

APPOSITION, in *Grammar*, denotes the putting two or more substantives together in the same case, and without any copulative conjunction between them.

Thus, Flanders, bloody theatre, horrible scene of war; love, enemy of human quiet; peace, parent of riches, source of faction, &c.

APPOSITORIUM, in *Chemistry*, denotes a vessel made of earthen ware or glass, of a conical figure, whose bigger end receives the neck of a retort, while the narrower is inserted into the receiver.

Its use is, where a strong open fire is required, to prevent the red-hot retort, by the immediate contact of its neck, from burstling the receiver.

APPRAISER, from *ad*, *to*, and *pretium*, *value*, one who rates, or sets a value upon goods, &c. He must be a skilful and honest person. It is not a business of itself, but is practised by brokers of household furniture, to which set of men the word is chiefly applied. Yet upholsterers and other brokers are employed, or even any person or persons who are supposed to be skilled in the commodities to be appraised or valued. They are employed in case of death, executions brought in upon goods, or of stock to be turned over from one person to another, or divided between copartners; and are called *sworn appraisers*, from their making an oath to do justice between party and party.

They sometimes appraise on behalf of both sides, each party agreeing to have the same *appraiser* or *appraisers*; sometimes in opposition, each party chusing one or more of a side; and sometimes by commission or deputation of trustees, masters in chancery, &c.

APPREHENSION, in *Logic*, denotes the simple attention of the mind to an object either presented to our sense, or our imagination, without passing a judgment, or making any inference.

The word literally denotes the action of the hand, whereby it takes hold of, and grasps any thing; being formed of *ad*, and *prehendo*, *I catch*.

In this sense, *apprehension* differs from *notion*, as the act of the mind whereby a *notion* is formed, differs from an act of the mind whereby we attend to a notion already formed.

APPREHENSION is likewise used to express an inadequate and imperfect idea: and thus it is applied to our knowledge of God, in contradistinction to *comprehension*.

APPREHENSION, in *Law*, signifies the seizing a criminal, in order to bring him to justice. See ARREST.

APPRENDRE, in our *ancient Law-Books*, a fee or profit to be taken or received.

APPRENTICE, from *apprendre*, *to learn*, one who is bound by covenant to serve a tradesman or artificer a certain time, usually seven years, upon condition of the master's instructing him in his art or mystery.

Apprentices may likewise be bound to husbandmen, or even to gentlemen; and they, as well as tradesmen, are compellable to take the children of the poor, whom the overseers, with the consent of two justices, may bind till the age of twenty-four years. *Apprentices* may be discharged on reasonable cause; but if any, whose premium has been less than ten pounds, run away from their masters, they are compellable to serve out the time of absence, or give satisfaction for it, at any period within seven years after expiration of the original contract. *Apprentices gain* a settlement in that parish where they last served forty days; and by the 5th of Elizabeth,

c. 4. they have an exclusive right to exercise the trade in which they have been instructed, in any part of England. However, the resolutions of the courts have in general rather confined than extended the restriction of this statute. See Blackstone's Com. vol. i. p. 426, &c.

In France, the sons of tradesmen, living in their father's house till seventeen years of age, are reputed to have served an *apprenticeship*. In that country, the times of serving are different in the different professions, from three years to eight.—After serving out an *apprenticeship*, the person becomes what they call an *aspirant*, or candidate for master-ship, and is to be examined by proper officers as to his skill and proficiency, and also to exhibit a *chef d'œuvre* or master-piece in the art he has been bred to, before he be suffered to set up to practise for himself. And the custom of France in regard to *apprentices*, is not unworthy the imitation of other nations.

Anciently, benchers in the inns of court were called *apprentices of the* LAW, in Latin *apprentitii juris nobiliores*; as appears by Mr. Selden's note on Fortescue; and so the learned Plowden styles himself. See BENCHER.

Sir Henry Finch in his *Nomotechnia*, writes himself, *apprentice de ley*: sir Edward Coke, in his Inst. says *apprentitii legis*, in pleading, are called, *homines consiliarii, & in lege periti*; and in another place, *apprentices*, and other counsellors of law.

APPROACH. See ACCESS and APPROXIMATION.

The *curve of equable approach*, *accessus æquabilis*, first proposed by M. Leibnitz, has given the annalists some trouble.—The business is to find a curve, wherein a body descending by the sole power of gravity shall approach the horizon equally in equal times.—This curve has been found by Bernoulli, Varignon, Maupertuis, and others, to be the second cubical parabola, so placed as that its point of regression is uppermost. Vide Hist. Acad. R. Sciences, an. 1699. p. 82. Idem, an. 1730, p. 129. Mem. p. 333.

APPROACH, in *Gardening*, is used in speaking of the method of inarching or INOCULATING, which is called GRAFTING by *approach*.

Some physicians also speak of a method of curing diseases by touching or *approach*. See APPROXIMATION.

APPROACHES, in *Fortification*, the several works made by the besiegers for advancing or getting nearer to a fortress, or place besieged. See *Tab. Fortif. fig.* 21.

Such are trenches, mines, saps, lodgments, batteries, galleries, epaulements, &c.

APPROACHES, or *Lines of* APPROACH, are particularly used for trenches dug in the ground, and their earth thrown up on the side next the place besieged; under shelter or defence whereof the besiegers may approach, without loss, to the parapet of the covered ways, and plant guns &c. wherewith to cannonade the place.

The lines of approach are to be connected by PARALLELS or lines of communication.

The besieged frequently make COUNTER-*approaches*, to interrupt and defeat the enemies *approaches*.

The ancients made their *approaches* towards the place besieged, much after the same manner as the moderns. M. de Folard shews, that they had their trenches, their saps, parallels, &c. which, though usually held of modern invention, appear to have been practised long before, by the Greeks, Romans, Asiatics, &c. In Polyb. t. ii. p. 161.

APPROACHING, in *Fowling*, a term used to express such devices as are contrived for the getting within shot of shy birds. It is principally used in marshy low places.

The best method of *approaching* is by means of three hoops, tied together at proper distances, according to the height of the man that is to use it, and having boughs of trees tied all round it, with cords to hang it over his shoulders; a man getting into this, conceals himself, and approaches by degrees towards his game in the form of a moving bush.

Geese, ducks, and teal, quit the waters in the evening, and pass the night in the fields, but at the approach of morning they return to the water again, and even when on the water they will retire to great distances, on the approach even of a horse or cow, so that the business of the stalking horse is of little use; but this device of *approaching* by the moving bush, succeeds tolerably well with them.

APPROBATION, a state or disposition of the mind wherein we put a value upon, or become pleased with, some person or thing. Moralists are divided on the principle of *approbation*, or the motive which determines us to approve and disapprove. The Epicureans will have it to be only SELF-*interest*; according to them, that which determines any agent to approve his own action, is its apparent tendency to his private happiness: and even the *approbation* of another's action flows from no other cause but an opinion of its tendency to the happiness of the approver, either immediately or remotely. Others resolve *approbation* into a moral sense, or a principle of benevolence, by which we are determined to approve every kind affection either in ourselves or others, and all publicly useful actions, which we imagine to flow from such affection, without any view to our own private happiness.

Dr. Adam Smith thinks it needless to introduce any new power of perception, in order to account for the principle of *approbation*; and apprehends, that *sympathy* is sufficient to account for all the effects ascribed to this peculiar faculty. This system places virtue in utility, and accounts for the pleasure with which the spectator surveys the utility of any quality from *sympathy* with the happiness of those who are affected by it. This *sympathy*, he observes, is different both from that by which we enter into the motives of the agent, and from that by which we go along with the gratitude of the persons who are benefited by his actions: and he says, it is the same principle with that by which we approve of a well-contrived machine.

According to others, reason or the understanding, the same faculty by which we distinguish between truth and falsehood, enables us to distinguish between what is fit and unfit, amiable and odious, both in actions and affections: and they argue, that such are the natures of certain actions, that when perceived, as they are, by a reasonable being, there must result in him certain emotions and affections. An excellent writer adds, that in contemplating the actions and affections of moral agents, we have both a perception of the understanding, and a feeling of the heart; and the latter, or the effects in us accompanying our moral perceptions, are deducible from two springs. They partly depend on the positive constitution of our natures; but the most steady and universal ground of them is the essential congruity between the object and the faculty.

Hutcheson's Inquiry, &c. Tract. 2. Sect. 4. and Ess. on Pass. p. 207. Smith's Theory of Mor. Sent. Part iv. and vi. Cudworth's Immut. Mor. B. i. Price's Review, &c. ch. 2.

APPROBATION, in *Civil Law*. It is a maxim among civilians, *Approbare dicitur qui non improbat. He is judged to approve who does not disapprove.*

By the civil law, a mere *approbation* of a crime after commission, does not make a person guilty, but an *approbation* attended with fact, is equivalent to a command.

APPROBATION is more particularly used, in speaking of recommendations of books, given by persons qualified or authorized to judge of them.

Those appointed to grant licenses, and imprimaturs, frequently express their *approbation* of books.

Books were formerly subjected to a license in England, see 13 Car. II. cap. 33. which act is long since expired; and being incompatible with the noble principles of the REVOLUTION, has never since, and we hope never will be, revived.

APPROPRIARE *ad honorem*, in *Law*, signifies to bring a MANOR within the extent and liberty of such an HONOUR.

APPROPRIARE *communam*, in *Law*, signifies to discommon, i. e. to separate and inclose any parcel of land, which before was open common.

APPROPRIATE, APPROPRIATED, in *Philosophy*, is understood of something which is indeed common to several; yet, in some respects, is peculiarly attributed to one.

APPROPRIATE, in *Law*, is understood of a church or benefice, the patronage whereof is annexed to some church-dignitary, who appoints a vicar to serve the cure; the patron receiving the chief produce of it.

There are computed to be in England 3845 churches *appropriate* and *impropriate*.

APPROPRIATION, the act of *appropriating*, i. e. of applying a church-benefice, which of its own nature is *juris divini*, and no person's patrimony, to the proper and perpetual use of some religious community, to enjoy for ever.

This contrivance seems to have sprung from the interested policy of the monastic orders, who begged and bought, for masses and obits, and sometimes even for money, all the *advowsons* within their reach, and then *appropriated* the benefices to their own corporation. By a clause in the statutes 27 Hen. VIII. cap. 28. and 31 Hen. VIII. cap. 13. which dissolved the monasteries, the *appropriations* of the several parsonages were given to the king, in as ample a manner as they were before held by the abbots, &c. The *alien* PRIORIES had in former reigns been dissolved, and assigned to the crown: and from these two sources have arisen all the lay *appropriations* or secular parsonages now in the kingdom; these having been afterwards granted from time to time by the crown.

Appropriation is where the advowson of a parsonage is given

given or belongs to any bishoprick, religious houſe, college, &c. and to their ſucceſſors; ſo that the houſe or body is both patron and parſon, and ſome one of the members officiates as vicar.

It is called *appropriation*, becauſe the profits of the living are appropriated to the uſe of the patrons; ſo that parſons, though they are not ordinarily accounted *domini ſubfructuarii*, having no right of fee-ſimple; yet, by reaſon of the perpetuity of their ſucceſſion, are here reputed owners of the fee-ſimple, and are therefore called *proprietarii*.

To make an *appropriation*, after licenſe obtained of the king in chancery, the conſent of the dioceſan, patron, and incumbent, is neceſſary, if the church be full: if it be void, the dioceſan and the patron, upon the king's licence, may conclude it.

To diſſolve an *appropriation*, it is enough to preſent a clerk to the biſhop, and for him to inſtitute and induct him: for, that once done, the benefice returns to its former nature. This is called *diſappropriation*. See Blackſtone's Com. vol. i. p. 385, &c. ed. 4.

APPROVEMENT, APPROVEMENTUM, or APPROVIAMENTUM, is ſometimes uſed in ancient writers for an improvement, or riſe of the VALUE and worth of a thing.

Thus to *approve*, *approbare*, is to make the beſt benefit of a thing, by increaſing the rent, &c. *Cum communibus* approviamentis, *& aliis pertinentiis ſuis. &c.*

Hence, in ſome ancient ſtatutes, bailiffs of lords in their franchiſes are called their *approvers*.

A bailiff is not to think it below him to *approve*, *approbare*, his maſter's goods; but of his barley to make malt, of his wool to make cloth, &c.

APPROVEMENT is more particularly uſed where a man hath common in the lords waſte, and the lord incloſeth part of the waſte for himſelf; leaving ſufficient common, with egreſs and regreſs for the commoner. Reg. Jud. 8, 9.

APPROVER, in our *Laws*, one who, confeſſing felony in himſelf, appealeth or impeacheth another or more of his accomplices.

He is ſo called from the French, *approuver*, *comprobare*, becauſe he muſt prove what he hath alledged in his appeal. This proof was anciently either by battle, or by the country, at the choice of the appellee: and the form of this accuſation may be found in Crompt. Juſt. 250. See alſo Bracton, lib. 3. Staundf. Pl. Cor. 52.

APPROVERS of the king, are thoſe who have the feeding of the king's DEMESNES in ſmall manors, &c.

In the ſtatute of the 18. of Ed. 3. c. 8. ſheriffs are called the king's *approvers*.

It being in the diſcretion of the courts to ſuffer one to be an *approver*, this method of late hath ſeldom been practiſed. But we have in caſes of burglary and robbery on the highway, what ſeems to amount to the ſame by ſtatute; it being ordained, that where perſons charged with ſuch crimes out of priſon, diſcover two others concerned in the crime, they ſhall have a pardon, &c. Stat. 5 Anne, c. 31.

APPROVER is particularly uſed in *Ancient Law Writers*, for a bailiff or land ſteward, appointed to have the care of a manor, franchiſe, or the like, and improve and make the moſt of it for the benefit of his maſters.

In this ſenſe, the word is alſo written, *apprower*.

APPROVERS are called, in *Middle-age writers*, *probatores* and *approbatores*.

APPROXIMATION, from *ad*, and *proximus*, *near to*, in *Arithmetic* and *Algebra*, a continual approach ſtill nearer and nearer to a root or quantity ſought, without a poſſibility of ever arriving at it exactly.

We have divers methods of *approximation* delivered by Wallis, Raphſon, Halley, &c. all of them being no other than ſeries's infinitely converging, or approaching ſtill nearer to the quantity required, according to the nature of the ſeries.

It is evident, that if a number propoſed be not a true ſquare, it is in vain to hope for a juſt quadratic root thereof, explicable by rational numbers, integers or fractions; whence, in ſuch caſes, we muſt content ourſelves with *approximations*, ſomewhat near the truth, without pretending to accuracy: and ſo for the cubic root, of what is not a perfect cube; and the like for ſuperior powers.

This the ancients were aware of, and accordingly they had their methods of *approximation*; which, though ſcarce applied by them beyond the quadratic, or perhaps the cubic root, are yet equally applicable, by due adjuſtments, to the ſuperior powers alſo, as is ſhewn in the Philoſoph. Tranſact. N° 215. or Ph. Tr. abr. vol. i. p. 98. ib. vol. iv. p. 80.

If there be a non-quadratic, or non-cubic number; the former being expreſſed by $aa+b$, and the latter by $aaa+b$, where a and aaa are the greateſt ſquare and cube in the propoſed numbers; then $\sqrt{aa+b}=a+\frac{b}{2a}-\frac{bb}{8a^3}$, &c. and $\sqrt[3]{aaa+b}=a+\frac{b}{3aa}-\frac{2bb}{9a^5}$, &c. will be eaſy and expeditious *approximations* to the ſquare and cube root.

To extract the root of an equation by APPROXIMATION.—1°. For a quadratic equation ſuppoſe the equation $x^2-5x-31=0$; let the root be $8+y$, ſo that y may denote the fraction, whereby the aſſumed number either exceeds or comes ſhort of the root; then

$$\begin{array}{r} x^2=64+16y+y^2 \\ -5x=-40-5y \\ -31=-31 \\ \hline -7+11y+y^2=0. \end{array}$$

Since the powers of fractions are continually decreaſing; and we only here want a root nearly true; y^2 is caſt away: upon which

$$\begin{array}{r} -7+11y=0 \\ \hline y=\frac{7}{11}=\frac{4}{7}\text{ nearly}=0.6 \end{array}$$

Wherefore $x=8+0.6=8.6$

Suppoſe $x=8.6+y$. Then

$$\begin{array}{r} x^2=73.96+17.2y+y^2 \\ -5x=-43-5y \\ -31=-31 \\ \hline 73.96-43-31+17.2y-5y=0 \\ -0.04+12.2y=0 \\ \hline 12.2y=0.04 \\ \hline y=0.04\div 12.2=0.0032 \end{array}$$

Therefore $x=8.6+0.0032=8.6032$

Suppoſe $x=8.6032+y$; then will

$$\begin{array}{r} x^2=74.01505024+17.2064+y^2 \\ -5x=-43.0160-5y \\ -31=-31.00000000 \\ \hline -0.00094976-12.2064y=0 \\ \hline y=0.00094976\div 12.2064000 \\ =0.00007808 \end{array}$$

Therefore $x=8.6032+0.00007808=8.60327808$.

Suppoſe, again, the root of a cubic equation $x^3+2x^2-23x-70=0$ be required by *approximation*; here let the root be $5+y$, ſince the terms are omitted wherein y^3 and y^2 are found; there is no neceſſity for expreſſing them in the tranſformation of the equation. Wherefore, we find

$$\begin{array}{r} x^3=125+75y\ldots \\ +2x^2=50+20y\ldots \\ -23x=-115-23y \\ -70=-70 \\ \hline -10+72y=0 \\ \hline y=\frac{10}{72}=0.1\text{ nearly.} \end{array}$$

Therefore $x=5+0.1=5.1$

Suppoſe $x=5.1+y$: Then will

$$\begin{array}{r} x^3=132.651+78.03y\ldots \\ +2x^2=52.02+20.4y \\ -23x=-117.3-23y \\ -70=-70 \\ \hline -2.629+75.43y=0 \\ 75.43y=2.629. \\ \hline y=2.269\div 75.43=0.0348 \end{array}$$

Wherefore $x=5.1+0.0348=5.1348$.

And after the ſame manner might one proceed to infinity, *approximating* by every ſucceſſive operation nearer to the exact value of the root of the propoſed equation. The *rectification* and *quadrature* of the circle, together with many other problems both in geometry and algebra, afford inſtances of *approximation*. See EQUATION.

APPROXIMATION, in *Medicine*, denotes a magnetical kind of cure or method of tranſplanting a diſeaſe into ſome other ſubject, whether animate or vegetable, by bringing it in immediate contact with the patient.

APPUI, in the *Manege*, q. d. reſt or ſtay upon the hand, is the reciprocal effort between the horſe's mouth and the bridle hand; or the ſenſe of the action of the bridle on the hand of the horſeman.

A juſt *appui* of the hand is the nice bearing up or ſtay of the bridle; ſo that the horſe being awed by the ſenſibility and tenderneſs of his mouth, dares not reſt too much upon the bit-mouth, nor check or beat upon the hand to withſtand it.

A dull *appui*, is when a horſe hath a good mouth, but his tongue is ſo thick, that the bit cannot work, or bear upon the bars; the tongue not being ſo ſenſible as the bars

burs; though the like effect is sometimes owing to the thickness of his lips. A horse is said to have no *appui*, when he dreads the bit-mouth, is too apprehensive of the hand, and cannot bear the bit. He is said to have too much *appui*, when he rests or throws himself too much or too hardily upon the bit. Horses designed for the army, ought to have a full *appui* upon the hand.

APPULSE, from *ad*, and *pulso*, *I act on*, in a general sense, a thing's being brought to, or in contact with another.

Articulation is either by *appulse*, i. e. when one of the moveable organs touches and rests on some of those which are immoveable; or without *appulse*, only by inclination of the moveable organ to the immoveable.

APPULSE *of cattle*, *appulsus pecoris*, in the *Civil Law*, the right of driving them to water.

APPULSE, in *Astronomy*, the approach of any planet to a conjunction with the sun, or a star.

It is a step towards a transit, occultation, conjunction, eclipse, &c.

Mr. Flamsteed, M. de la Hire, and others, have given observations of the moon's *appulses* to the Pleiades. Phil. Trans. N° 76. p. 361. M. Acad. Scienc. an. 1708.

The *appulses* of the planets to the fixed stars have always been of great use to astronomers, in order to fix the places of the former. The ancients, wanting an easy method of comparing the planets with the ecliptic, which is not visible, had scarce any other way of fixing their situations, but by observing their tract among the fixed stars, and remarking their *appulses* to some of those visible points. Hist. Acad. Scienc. an. 1710. p. 417.

Dr. Halley has published a method of determining the places of the planets, by observing their near *appulses* to the fixed stars. Phil. Trans. N° 369.

The best method of discovering the longitude at sea, is by observations of the *appulses* of the moon to the fixed stars. See LONGITUDE.

Of all the celestial observations hitherto made, none are capable of so perfect an exactness, as the near *appulses* of the moon and planets to the fixed stars; for though the places of the stars have not as yet attained their ultimate precision, yet such observations are ever good, the places of the planets being thereby ascertained in proportion to the correctness of any catalogues that may be made hereafter. But the ordinary number of stars, with which the planets may be thus compared, being small, the opportunities of observing are consequently rare; whence appears the great use of a full catalogue of all the telescopal stars within the zodiac, viz. that thereby opportunities of observing *appulses* may be more frequent. Since the royal observatory at Greenwich was put under Dr. Halley's care, he endeavoured to put himself in a condition to supply the many and great vacancies to be met with in the present zodiac; and for the service of astronomy published a map, or planisphere of the starry zodiac; wherein are accurately laid down all the stars, to which the moon's *appulse* has been ever observed in any part of the world. Phil. Trans. abr. vol. vi. p. 170.

APPURTENANCES, or APPERTINANCES, in *Common Law*, signify things belonging to some other as their principal.

The word is formed of *ad*, *to*, and *pertinere*, *to belong*. *Appurtenances* may either be things corporeal, as hamlets belonging to a chief manor: or incorporeal, as liberties and services of tenants. See APPENDANT.

APRICOT *Armeniaca*, or *Prunus mala*, in *Botany*, a well-known fruit. The characters of this tree are, that the flower is composed of five large roundish petals, which spread open, whose base is inserted in the empalement: in the centre is placed a round germen, attended by upwards of twenty awl-shaped stamina; the germen afterwards becomes a roundish pulpy fruit, having a longitudinal furrow, inclosing a roundish nut, which is a little compressed on the sides. The specific title given by Linnæus to the *apricot*, is *prunus floribus subsessilibus solitariis subcordatis*: and he ranges it in the class of plants, intitled *icosandria monogynia*.

There are seven varieties; the Masculine, Orange, Algier, Persian, Turky, Breda, and Brussels, *apricots*: and they ripen in the order here enumerated.

The method of cultivating and propagating the several sorts of this fruit, is this: they are all to be propagated by GRAFTING them on plum-stocks, and will readily take with almost any species of plum, provided that the stock be in a thriving condition.

The Breda and Brussels *apricots*, are best to be made standard trees; all the rest are to be propagated against walls, and should have an east or west aspect. The borders under these walls should be six feet wide at least, and should be two feet deep in earth. If the place where they are planted be a loamy soil, the beds are to be raised pretty high above the level of the ground, and if chalk or gravel, it must be removed to a considerable width, to make room for fresh soil to be put in, but it need not be dug more than two feet deep. The best soil for them is fresh earth from a pasture ground, taken to ten inches deep, and laid with the turf among it to rot together, for a twelvemonth before it is used.

Such trees should be chosen for planting as are but of one year's growth from the budding; and where the soil is dry, or moderately so, October is the best season for planting. For the manner of planting, see PLANTING.

No part of the head should be cut off at this time, unless there are some foreright shoots which will not come near the wall. In a good strong soil, or against a low wall, these trees should be planted at eighteen feet asunder; the stem is to be placed four inches from the wall, and the head inclined toward the wall; the branches should be then nailed up to the wall, and the surface of the earth must be covered with rotten dung, to keep out the frosts. In February the dung is to be removed, and the tree being held very steady, the top is to be cut off to about three eyes above the bud, leaving the sloping side towards the wall. If the weather proves dry after this, they must be gently watered, and some turf or mulch laid round the root to keep off the sun's heat: and when branches are produced must be nailed up, except such as are produced foreright, which must be cut off.

At Michaelmas, when the trees have done growing, the branches must be again unnailed, and cut off to a proper length, the stronger shoots being left of nine or ten inches long, the weaker five or six inches. After they are thus shortened, they must be again nailed up, and that as much in an horizontal direction as possible. The second and third summer the same rules must be observed, all the foreright shoots must be displaced as they are produced, nailing in the others horizontally to the wall; so that the middle of the tree may be kept open; and never shorten any of the shoots in summer, unless to furnish branches for some vacant spaces on the wall; and this should never be done later than April.

The *apricot* produces its blossom buds not only on the last year's wood but also on the cursons or spurs from the two years old wood; great care must therefore be taken not to injure or displace these.

The Brussels and Breda *apricots* being planted for standards, require very little management, only in autumn or spring cut away all the dead wood, and such branches as cross one another. The Brussels *apricot* is the finest of all the kinds: it is ripe in the middle of August. Miller.

APRICOT-*water*. To a quart of water, put six or eight *apricots* sliced, and the kernels bruised; boil the whole to extract the taste; and when cold, add four or five ounces of sugar. When that is dissolved, strain it.

APRIL, the fourth month of the YEAR, according to the common computation; but the second, according to that of the astronomers.

The word is derived from *Aprilis*, of *aperio*, *I open*; because the earth, in this month, begins to open her bosom for the production of vegetables.

In this month the sun travels through the sign Taurus.

APRIORI, *Demonstration*. See DEMONSTRATION.

APRON, in *Naval Architecture*, is a piece of curved timber fixed behind the lower part of the stern, immediately above the foremost end of the keel.

APRON is also a name given to a platform or flooring of plank, raised at the entrance of a dock, against which the dock-gates are shut.

APRON, in *Gunnery*, a piece of lead, which caps or covers the vent or touch-hole of a great gun.

APSINTHIATUM, in *Physic*, a kind of potion to strengthen the stomach. See ABSINTHIATUM.

APSIS, or ABSIS, signifies the bowed or arched roof of a house, room, or oven, &c. as also the ring or compass of a wheel.

APSIS, in *Ecclesiastical Writers*, denotes an inner part in the ancient churches, wherein the clergy sat, and where the altar was placed.

It is supposed to have been thus called, because covered with an arch or vault of its own, by the Greeks called *αψις*, and by the Latins *absis*. Isidore, with less probability, imagines it so called as being the most luminous part; from *ardere*, *to give light*.

Apsis, in this sense, amounts to the same with what is otherwise called *choir*, *concha*, *camera*, and *presbyterium*; and stands opposite to the *nave*, or body of the church.

APSIS is more particularly used for the bishop's seat, or throne, in ancient churches.

This was more peculiary called *apsis gradata*, becauſe raiſed on ſteps above the ordinary ſtalls. It was alſo denominated *cecdra*, and in latter times *tribuna*.

APSIS is alſo uſed for a reliquary, or caſe, wherein the relics of ſaints were anciently kept.

It took the name *apſis*, from its being round, or arched at the top; or perhaps from the place where it was kept.

The *apſis* was commonly placed on the altar: it was uſually of wood, ſometimes alſo of gold and ſilver, with ſculptures, &c.

APSIS, in *Aſtronomy*, is applied to two points in the orbits of planets, wherein they are at the greateſt, and the leaſt, diſtance from the ſun, or earth.

The *apſis* at the greateſt diſtance is called the *higher*, or *ſumma apſis*; that at the leaſt diſtance, the *lower*, *ima apſis*, or *infima*.

The two *apſides* are alſo called *auges*.

The higher *apſis* is more particularly denominated the *aphelion*, or *apogee*; the lower, the *perihelion*, or *perigee*.

The diameter which joins theſe two points is called the *line of the apſides*, and this paſſes through the centre of the orbit of the planet, and the centre of the earth or ſun. In the modern aſtronomy this line makes the longer apſis of the elliptical orbit.—Such is the line AP (*Vide Aſtron. fig.* 1.) drawn from the aphelion A to the perihelion P. The eccentricity is reckoned in the line of the *apſides*; being the diſtance between the centre of the orbit of the planet, C, and the centre of the ſun or earth, S, according as the Copernican, or the Ptolemaic ſyſtem is followed. For the motion of the line of the *apſides*, ſee APOGEE.

The motion of a planet from one *apſis* to another, e. gr. of the moon, from apogee to perigee, and back again from perigee to apogee, is conſidered by mechanical philoſophers as oſcillations, and accounted for from the laws of the pendulum; conſequently they muſt one day ceaſe, when the equilibrium is reſtored. Vide Horreb. Clav. Aſtronom. cap. 20.

Others apprehend ſomething immechanical in the motion; and propoſe, as infoluble queſtions, How the equilibrium was firſt deſtroyed; why not reſtored again; and whence the breach is continually renewed? Vide Mem. de Trev. Avril, 1730. p. 709. ſeq. But theſe are perſons unacquainted with the ſecrets of the Newtonian philoſophy. Vide Newt. Prin. lib. i. ſeq. 9. Herman. Phoron. lib i. cap. 4. See alſo DISTANCE, GRAVITATION, ORBIT, PERIOD, and PLANET.

APSYCHIA, from *a*, and ψυχω, *I cool*, a word uſed by the ancients, as the name of a ſtone found in Arcadia, and of the colour of iron, the quality of which they ſay was, that when once heated red-hot, it would never grow cold again. It is eaſy to ſee that this is an impoſſibility; and that ſome errors among the ancients, and miſunderſtandings of their works by later writers, have given the occaſion for propagating ſo idle an opinion.

We have ſome ſtones indeed in England, that when once heated will retain a warmth a long time, but all the other accounts ſeem groundleſs; our warming ſtone, uſed in Cornwall and Yorkſhire to lay at the feet of people's beds, will retain warmth eight or ten hours; and there is a ſort of red ſtone cut out of the ſalt mountains near Cordova, and formed into broad tiles called *raggiolas* by the Italians, which being once well heated, will retain a ſenſible warmth twenty-four hours; but theſe do not all come up to the qualities of this imaginary ſtone of the ancients. See ASBESTOS.

APSYRTUS, in the *Materia Medica* of the ancients, a name given to the common *marrubium*, or horſe-hound, a plant at that time as well as now eſteemed very good, in coughs, and other complaints of the breaſt.

APTERA, from *a*, and πτερον, *wing*, in the *Hiſtory of Inſects*, a claſſical name, comprehending all thoſe INSECTS which have no wings.

They are of the ſeventh order in the claſs of inſects in the Linnæan ſyſtem, comprehending 14 genera and 297 ſpecies.

This ſeries is divided by Hill into two claſſes: 1. Such as have neither wings nor limbs called APTERA ANARTHRA. And, 2. Such as have limbs, but no wings, called, APTERA PODARIA.

AP-THANES, an ancient term for the higher nobility in Scotland. See THANE.

APTITUDE, from *aptus*, *fit*, the natural diſpoſition any thing hath to ſerve for ſuch or ſuch a purpoſe. Thus oil hath an *aptitude* to burn, and water to extinguiſh fire.

APTITUDE, or APTNESS, is often uſed in ſpeaking of the talents of the mind, for a promptitude, or diſpoſition to learn things with eaſe and expedition.

In which ſenſe *aptneſs* amounts to the ſame with what the Greeks call ευμαθια, and the Latins *bona indoles*, and we ſometimes *docility*.

Charlton divides *aptneſs* into theſe parts, viz. *acuteneſs*, *ſagacity*, and *memory*.

APTOTE, in *Grammar*, a noun indeclinable, or which is without any variation or caſe.

The word is derived from the privative *a*, and πτωσις, *caſus*.

Such are the words, *fas*, *nefas*, &c.

APUA, in *Ichthyology*, the name of a ſmall ſea-fiſh, ſuppoſed by many to be produced of the ſlime and mud of the ſhores. But all ſuch opinions are groundleſs. There are two ſpecies of this fiſh. 1. the *apua vera*, 2. the *apua phalerica*.

APUA *membras*, in *Ichthyology*, a name by which ſome have called the PILCHARD.

APUS, *Avis Indica*, in *Aſtronomy*, a conſtellation of the ſouthern hemiſphere placed near the pole, between the *triangulum auſtrale* and the chameleon, ſuppoſed to repreſent the bird of paradiſe.

The *apus* is ſuppoſed one of thoſe birds called APODES, as having no feet.

The ſtars contained in this conſtellation, according to Sharp's catalogue annexed to the Britiſh, are the following eleven.

Situation of the Stars.	Mag.	Longitude	Latitude	Magnitude
		° ′ ″	° ′ ″	
In the head	3	21 0 30	44 32 55	5
In the neck		21 24 49	46 52 22	0
In the root of the tail, northern		19 2 35	54 31 7	4
Middle		17 31 25	55 59 9	5
Southern		18 43 32	56 0 22	4
5.				
In northern part of the tail, 18.		9 45 0	52 2 56	6
2d.		10 24 10	51 51 35	6
In middle of the tail, northern		10 26 44	58 13 8	4
Middle.		9 53 26	59 45 2	6
Southern		10 48 29	60 32 10	5
10.				
Nearer the pole.		41 28 24	62 4 45	4

APUS, in *Ornithology*, a ſpecies of the *ſwallow*.

APUS, likewiſe denotes a ſpecies of the *monoculus* genus of inſects.

APUTTASY, in *Botany*, a name given by the people of Guinea to a tree, a decoction of which is in great uſe among them for waſhing the mouth to cure the ſcurvy in the gums, and preſerve the teeth. Phil. Tranſ. N° 235.

APYCNI, in the *Ancient Muſic*, was uſed for ſuch chords or ſounds of the ſcale, as could never enter the ſyſtema. They were fixed, or STABILES.

APYCNON, from *a*, and πυκνος, *nix ſpiſſatum, rarum*, in the *Ancient Muſic*, was applied to thoſe two conjunct intervals of a tetrachord which taken together were greater than the third.

This happened only in the two diatonic genera.

APYRENOS, properly ſignifies without kernels. The Greek writers, however, did not always keep up rigidly to the ſenſe of this word, but ſometimes applied it to ſuch fruits as had ſewer and ſofter kernels than others of the ſame kind.

APYREXY, in *Medicine*, the intermiſſion of a fever, or ague.

The word is formed of the privative *a*, and πυρ, *ignis*, *heat*.

APYROI, in *Antiquity*, a denomination given to ALTARS whereon ſacrifice was offered without fire.

In which ſenſe, the word ſtands contradiſtinguiſhed from EMPYROI.

APYROMETALLUM, in *Metallurgy*, a name by which ſome authors have called gold, from its refuſing the force of fire.

APYRON, ſomething that has not undergone the fire.

In this ſenſe, *ſulphur vivum*, or native ſulphur, is particularly denominated *apyron*.

Some authors alſo give the denomination *apyron* to a modern proceſs for making *æthiops* mineral without fire, by trituration alone.

APYROUS, in *Chemiſtry*, is a word applied to denote that property in ſome bodies, by which they refuſe the moſt violent fire, without any ſenſible alteration.

Apyrous bodies ought to be diſtinguiſhed from thoſe which are *refractory*.

Refractory ſubſtances, are thoſe which cannot by violent heat be fuſed, whatever other alteration they may ſuſtain.

AQUA, in *Natural Hiſtory*, *Phyſics*, *Chemiſtry*, *Medicine*, WATER, &c. which ſee.

The

The word is Latin, and ſuppoſed to be compounded of *a* and *qua*, q. d. *from which*; alluding to the opinion that water is the baſis, or matter of all bodies.

AQUA *alexiteria ſimplex*, the name now given in the London diſpenſatory to the ſimple water commonly called milk-water. It is ordered to be made in the following manner: take mint, a pound and a half; tops of ſea-wormwood, and leaves of angelica, all freſh and green, of each a pound; add as much water as is neceſſary to prevent burning, and diſtil off three gallons.

AQUA *alexiteria ſpirituoſa*, the name of a compound or cordial water, brought into uſe by the London diſpenſatory. It is ordered to be made of half a pound of green mint, and four ounces of angelica leaves, with the ſame quantity of tops of ſea-wormwood, and a gallon of proof ſpirit; adding water enough to prevent burning, and diſtilling off a gallon.

This, with a double portion of the angelica, and the addition of a pint of vinegar after the diſtillation, makes what is called the AQUA *alexiteria ſpirituoſa cum aceto*, which is intended to ſupply the place of the treacle-water, of the former diſpenſatories.

AQUA *aluminoſa Batavana*, a form of medicine in the London Pharmacopœia, compoſed in the following manner: take alum and white vitriol, of each half an ounce; water, a quart; boil the whole together, that the ſalts may be diſſolved; and then letting it ſettle, filtre it through paper.

Quincy gives another proceſs for making alum-water; as alſo its uſe in medicine; for which ſee ALUMINOUS.

AQUA *ethyſica*, a ſubtle kind of *aqua regia*, called alſo *aqua purium*. Three parts of *ſal ammoniac*, and two of nitre, injected into a tubulated retort made red-hot, yield this acid compound ſpirit. Neumann, p. 225.

AQUA *fortis* is a corroſive liquor prepared from nitre and vitriol; and ſerving as a menſtruum wherewith to diſſolve ſilver, and all other metals, except gold; whence its name. See ACID, *nitrous*.

Aqua fortis is made by diſtilling purified nitre with calcined vitriol, or rectified oil of vitriol, in a ſtrong heat: the liquor, which riſes in blood-red fumes, being collected, is the *aqua fortis*.

In preparing compound *aqua fortis*, ſome mix either ſand, or clay, or ochre, with the calcined vitriol and nitre, in order to hinder their melting too readily; and thus prevent the too haſty evaporation: when the fuſion is thus prevented, the parts of the ſalts receive more violent impreſſions from the fire, and are better converted into a volatile ſpirit, which is the *aqua fortis*.

If to the ſpirit of nitre, &c. thus diſtilled, ſea-ſalt, or ſal ammoniac, be added, it commences *aqua regia*; and will no longer diſſolve ſilver, but will now diſſolve gold. Hence, to try whether or no *aqua fortis* be pure; put a grain of a ſolution of ſilver in *aqua fortis*, into a like quantity of the water in queſtion: and, if the ſolution remains without either the water's turning milky, or the ſilver precipitating, the *aqua fortis* is pure. If theſe conſequences happen, the *aqua fortis* is bad.

The fault of ſuch *aqua fortis* happens either from the uſe of too violent and long continued fire, or, becauſe the mixture of the vitriol and the nitre have been carelefsly made, or too large a proportion of the former uſed; in this caſe, when the diſtillation draws towards the end, there appear white milky fumes in the recipient; theſe are vitriolic; and this phenomenon plainly ſhews the fault of the menſtruum, and might ſerve to prognoſticate the before mentioned precipitation. This calx of ſilver ſeldom proves fuſible in the fire, but runs into a kind of *luna cornea*, and ſhews that the nitre has been impure, and has contained ſome portion of ſea-ſalt. Cramer.

It is a liquor of various and extenſive uſe. It is very ſerviceable to refiners for parting or ſeparating of ſilver from gold. To the workers in moſaic, for ſtaining and colouring their woods. See MARQUETRY. To dyers, in their colours, and particularly in ſcarlet. To other artiſts, for the colouring of bone and ivory; which is done by ſteeping the matter therein, after firſt tinging it with copper and verdigriſe, &c.

Aqua fortis converted into *aqua regia*, by diſſolving in it a fourth of its weight of ſal ammoniac, is uſed for ſtaining ivory haſts and bones, of a fine purple colour. Bookbinders throw it on leather, and thereby make marbled covers for books. Diamond-cutters uſe it to ſeparate diamonds from metalline powders. It is, farther, of ſervice in etching copper, or braſs plates. See ETCHING.

Silver is very nicely and finely purified by means of this menſtruum in the following manner: diſſolve ſilver that has been copelled in a clean glaſs body, with a ſufficient quantity of *aqua fortis*; if the ſolution is at all turbid, filtre it through paper into another clean glaſs; pour into this ſolution, by little and little, ſpirit of ſalt, or a ſolution of common ſalt, or ſal ammoniac, enough to produce a perfect *aqua regia*. The limpid ſolution will now immediately become milky: let it reſt for ſome hours, and all the ſilver will ſubſide to the bottom in form of a white powder, which may be ſooner effected, by pouring a large quantity of pure water on the ſolution if highly charged. Waſh the powder with many freſh waters, or with the phlegm of ſpirit of ſalt or *aqua fortis* till the calx and water are both perfectly inſipid; then ſeparate the remaining water by a filtring paper, and dry the calx. Put this into a crucible well rubbed over the inſide with ſoap, and cover it with about one half of any fixed alkaline ſalt, very dry and beaten to a fine powder; ſqueeze the whole well down with a finger; cover the crucible with a tile, and ſet it in a wind furnace; make at firſt a middling fire, only to make the veſſel grow red hot, and then increaſe it to a higher degree; when the fuſion is completed take out the crucible, and let the ſilver either cool in it, or elſe pour it into an ingot. Cramer.

The beſt *aqua fortis* is often tinged with a greeniſh colour, which happens, if to *aqua fortis*, having been expoſed ſome days to the air, and having loſt its red fuming ſpirit, there be poured ſome freſh ſtrong *aqua fortis* ſtill emitting its fumes, or if *aqua fortis* be diluted with water. As this colour may however proceed from copper diſſolved in it, to be certain it does not, a little is to be poured into a cucumber, and as much of ſome alkaline liquor to be added to it as will ſaturate the acid. Then if there be ever ſo little copper in it, the colour becomes a deep blue, and there is a cloudy precipitation made, becauſe the nitre has been regenerated by this proceſs, and does not diſſolve copper ſo much as *aqua fortis* does; but if there be no copper in the *aqua fortis*, the colour diſappears.

The nice aſſayer, after having carefully proved his *aqua fortis*, muſt concentrate it to a certain degree; for, if too weak, it often retards the ſolution, and ſometimes does not even affect the ſilver: but this concentration is only to be in a certain degree; for, if it be carried too far, and the *aqua fortis* be made too ſtrong by it, it vaniſhes into fumes, which ruſh violently out of the receiver, or veſſel, in which the ſolutions are made, though ſufficiently high, and carries away a part of the ſilver with it in vapours; and if there is any thing of gold in the ſilver, it will be corroded into a fine duſt, which it is very difficult afterwards to collect together.

When *aqua fortis* is too weak, it is to be put into a deep cucurbit, and the watery parts is to be drawn from it, by a gentle fire, till yellow fumes begin to ariſe. To find out whether it be too ſtrong, the following method is to be uſed: melt together one part of gold, and four parts of ſilver; of this make a flat plate, which cut into three or more parts; roll up each part, that it may be conveniently put into the neck of a crucible; when rolled up, and gently heated at a fire, put it into a cucurbit, and pour it upon three times its weight of *aqua fortis*, ſetting it in a gentle heat: if the ſilver is expelled from the gold, and the gold retain the ſame figure of a piece of plate rolled up, and there appear no reddiſh duſt at the bottom of the veſſel, then the *aqua fortis* has its proper degree of ſtrength: but if the diſſolution has been made with ſo much violence, that the gold was eroded, or the plate almoſt broken, then the *aqua fortis* was too ſtrong. It muſt then be diluted with a tenth, or an eighth part, of *aqua fortis* phlegm, or, if that is not at hand, with the ſame quantity of common water. This done, the trial is to be repeated, by the diſſolution of a like plate rolled up; and this ſeveral times over, till the ſilver be diſſolved, without the leaſt diminution of the gold. By this the aſſayer is aſſured of a due degree of ſtrength in his menſtruum, for all the purpoſes he requires.

Aqua fortis is better than in the common ſtate, when it is recovered by fire from a metal which had been diſſolved by it. It may be almoſt entirely recovered by fire, from ſuch ſolutions. Lemery, in his curious account of the *arbor martis*, obſerves, that the experiment ſucceeds much better with *aqua fortis*, drawn once from a diſſolution of iron, than with the common kind; and Cramer gives a very accurate and ready way of obtaining ſuch a revived *aqua fortis*, in any quantity, in this manner: put into a glaſs alembic, a pound or more of any metalline ſolution in *aqua fortis*; diſtil it into a large recipient, over a gentle fire, ſo that the drops may follow one another, at the interval of ſome ſeconds. When the liquor of this quantity is thus drawn off, let ſuch another quantity be put warm into the ſame cucurbit, to the reſiduum of the former; let this be diſtilled in the ſame manner, till all its liquor is drawn off, and then more

added,

added, till the whole quantity intended to be diſtilled is thus diveſted of its liquor. After all this, when the yellowiſh vapours begin to appear from the remainder, a dram of ſuet muſt be put into the veſſel, leſt the diſſolved metal ſhould, when dried up, adhere ſo faſt to the ſides of the veſſel, as to give great trouble in ſeparating it; and when, at laſt, the calx ſhall be quite dry, let it be ſeparated and fuſed with pot-aſhes; thus will the metal be recovered, and the receiver will contain the *aqua fortis* revived from it.

AQUA *marina*, AQUE *marine*, in *Natural Hiſtory*, a gem, or precious ſtone, of a ſea-green colour; whence its name.

It is of the ſame hardneſs with the amethyſt.

Some of the critics contend for its being the ſixth ſtone in the *rationale* of the Jewiſh high-prieſt. Others will have this ſtone a *turquoiſe*; and Leo de Juda, and Huiterus, tranſlate it *hyacinthus*.

Several of the lapidaries take it, however, to be the BERYL; which coincides with the firſt opinion; the *beryl* being only another name for the *aqua marina*.—Pliny repreſents this as related to the *ſmaragdus*, but of a colour leſs brisk, and imitating a pure ſea-water green. This gem may be imitated, by adding at ſeveral different times to twenty pounds of cryſtal glaſs made with out magneſia, and well purified from glaſs-gall, ſix ounces of calcined braſs or copper, and a quarter of an ounce of prepared zaffre.

AQUA *mercurialis*, a preparation of *aqua regia*, and ſublimate of mercury, with a little mercury, placed in a ſand-heat till the ſolution of the mercury be made.

It is a mark of perfection of the *aqua mercurialis*, if it turn a piece of copper, caſt into it, of a ſilver colour.

It is by this water, that the alchemiſts pretend, all metalline bodies may be reduced to their firſt matter, or mercury.

AQUA *nephæ*, is a name given to the diſtilled water of orange-flowers.

AQUA *omnium ſterum*, in *Pharmacy*, ſignifies the diſtilled water of cows-dung, when they are at graſs. Some alſo call cows urine by this name: and, in Engliſh, *all-flower water*.

AQUA *pugilum*. See AQUA *chryſulca*.

AQUA *regia*, or AQUA *regalis*, an acid corroſive ſpirit, or water, ſerving as a menſtruum to diſſolve gold.

It is thus called, becauſe it diſſolves gold, which is vulgarly eſteemed the king of metals. It is ſometimes alſo called *aqua chryſulca*, and *ſygin*.—The baſis, or eſſential ingredient of *aqua regia*, is common, or ſea-ſalt; which is the only ſalt in nature that will operate on gold.

By mixing nitrous and marine acids in various ways, *aqua regia* is made, and a menſtruum is obtained, capable of acting upon certain bodies, which no pure acid can diſſolve, or but imperfectly.

In making common *aqua regia*, the ſalt ſhould be previouſly pulverized, in a glaſs or ſtone mortar, and a gentle warmth applied to promote its ſolution in the ſpirit. Neumann, p. 220.

GOLD and PLATINA, in their aggregated ſtate, cannot be diſſolved by any other acid; and TIN and REGULUS of *antimony* are better and moſt eaſily diſſolved by it. The only differences between the ſeveral ſorts of *aqua regia* prepared in different manners, is this, that when it is made by merely diſſolving *ſal ammoniac*, or common ſalt, in nitrous acid, it then contains *ammoniacal*, or cubic nitre; but theſe neutral ſalts do not exiſt in the *aqua regia* made by the mixture of the two acids, or by diſtillation.

The diſſolving power of *aqua regia* is not injured by its containing theſe neutral ſalts; and as the *aqua regia* in which they remain is moſt eaſily and moſt cheaply prepared, it is more generally uſed than any of the other preparations of it.

It is neceſſary, however, to obſerve, that the *ammoniacal* nitre in the *aqua regia* may occaſion conſiderable differences in the nature of the precipitates made from ſolutions of metals in this menſtruum, by ſeparating from theſe precipitates any of thoſe metallic ſubſtances, which it is capable of diſſolving, and alſo by a portion of it adhering to PRECIPITATES. For inſtance, gold precipitated by a fixt alkali from an *aqua regia* made by mixing the pure nitrous and marine acids, does not *fulminate*; but if it be precipitated from an *aqua regia* made by diſſolving *ſal ammoniac* in nitrous acid, it does *fulminate*. See AURUM *fulminans*.

As to the proportions of nitrous and marine acids, or of *ſal ammoniac*, which ought to be employed in the preparation of *aqua regia*, there are no eſtabliſhed rules. Common *aqua regia* is made by diſſolving four ounces of *ſal ammoniac* in ſixteen ounces of nitrous acid; but theſe proportions ought to be varied, according to the nature of the ſolutions intended. To diſſolve, for example, the greateſt quantity of regulus of antimony, the *aqua regia* ought to be compoſed of four parts of nitrous acid to one of marine. To diſſolve the greateſt poſſible quantity of PLATINA, the beſt proportion is equal parts of the two acids. In general, the greater proportion of marine acid, or of *ſal ammoniac*, that there is in *aqua regia*, the imperfect metals, and TIN in particular, are the leſs calcined and precipitated by it.

An *aqua regia* compoſed of two parts of ſpirit of nitre, and one part of ſpirit of ſalt, or of *ſal ammoniac*, makes a clear ſolution of nearly an equal weight of TIN, without forming any precipitate; but for this purpoſe, the operation muſt be performed ſlowly, and heat muſt be avoided as much as poſſible.

The mixture of the nitrous and marine acids, in order to make *aqua regia*, preſents a very ſingular and remarkable phenomenon. For the vapours of this mixture are more expanſive, and more difficult to be confined, than the vapours of either of the acids, before mixing them; which proves a reaction of theſe acids upon each other. This phenomenon is but very little ſenſible, when the acids employed contain much ſuperabundant water, but is more manifeſt in proportion as theſe are more concentrated. M. Macquer obſerved, that upon mixing moderately ſmoaking nitrous and marine acids, which had remained without occaſioning any diſturbance in their bottles, an *aqua regia* has been formed infinitely more ſmoaking, and which has made the ſtopper fly out of the containing bottle, particularly in weather ſomewhat warm. M. Beaumé, when diſtilling a pretty ſtrong nitrous acid upon *ſal ammoniac*, obſerved, that the vapours which paſſed were ſo elaſtic, that notwithſtanding every precaution, it was impoſſible to continue the diſtillation.

Aqua regia does not diſſolve ſilver; but when the quantity of marine acid contained in the *aqua regia* is very ſmall, the acid of nitre does then diſſolve ſilver, which is immediately afterwards attacked by the marine acid, without which it forms the metallic ſalt called LUNA *cornea*, and is precipitated. An exact ſeparation of gold and ſilver is therefore better made by *aqua fortis* than by this acid: as the former can never diſſolve gold, whereas the latter may, and very frequently does, more or leſs, corrode and diſſolve ſilver. *Aqua regia* diſſolves a greater quantity of lead than marine acid. All the other metals it perfectly diſſolves.

According to Gellert's table, the ſubſtances which *aqua regia* diſſolves, are placed in the following order, beginning with thoſe with which it moſt powerfully unites. *Phlogiſton, zinc, iron, regulus of cobalt, copper, tin, ſyderite, biſmuth, mercury, lead, regulus of antimony, gold.*

In this table, copper is erroneouſly placed before tin, as the latter metal readily precipitates the former. Macquer's Dict.

Dr. Prieſtley has found, that an *aqua regia* of much greater power in the ſolution of gold than the common ſort, may be prepared by the impregnation of ſpirit of ſalt with the nitrous vapour. Exp. and Obſ. on Air, vol. iii. p. 219.

AQUA *ſecunda*. This is nothing elſe but *aqua fortis* diluted with much pure water. It is employed in ſeveral arts, to clean the ſurface of metals, and of certain ſtones, and for various other purpoſes.

AQUA *ſicca philoſophorum*, a cant term, invented by ſome alchemiſts for the flowers of zinc, called by ſeveral other as unmeaning names, by theſe writers: as *ſericum*, philoſophic cotton, and TALC.

A preparation of theſe flowers, by means of vinegar, has alſo been called oil of talc, and many great properties aſcribed to it; but it is truly no other than the oil of the grape, from which the vinegar was made, and has no title to any thing that has been ſaid of it.

AQUA *ſulphurata*, *ſulphur water*, a new name for what was originally called *gas ſulphuris* by Van Helmont.

It is water impregnated with the fumes of burning ſulphur; and is conveniently prepared in the following manner: take a quart of water, and half a pound of brimſtone; put the water into a large glaſs receiver; place it with its mouth ſideways, and then let the ſulphur be ſet on fire, in an iron taſte fixed to a wooden plug, made to go freely into the neck of the receiver, which ſhould be pretty long. This plug muſt then keep the taſte up horizontally, that it may not dip into the water, and a cloth is to be thrown ſlightly over the mouth of the receiver, to confine the fumes. Let the burning of the ſulphur be repeated as often as the fumes from the laſt ſubſide, till the whole is burnt away. See GAS.

AQUA *vitæ* is commonly underſtood of what we otherwiſe call *brandy*, or the diſtilled *ſpirit of wine*, either ſimple,

ſimple, or prepared with aromatics, differently, according to the different intentions.

Some, however, diſtinguiſhed between them; appropriating the term *brandy* to what is procured from wine, or the grape; and *aqua vitæ* to that drawn after the ſame manner from malt, &c.

The common *aqua vitæ* is made by diſtilling wine in large copper ſtills, fitted with worms, ſo that the liquor flows out of the beak of the ſtill in a conſtant ſtream, and the diſtillation is continued till the liquor ceaſes to be inflammable. To make pure ſpirit, it ſhould be again diſtilled and rectified.

AQUA *vitriolica cærulea*, a form of medicine in the London Pharmacopœia, made in the following manner: take blue vitriol three ounces; alum and ſtrong ſpirit of oil of vitriol, of each two ounces; water a pint and a half; boil the ſalts in water till they are diſſolved, and then add the oil of vitriol, and finally ſtrain the whole through paper.

Neumann gives a different account of the *aqua cærulea*, or ſapphirina of the ſhops. He ſays, that ſal ammoniac, quick-lime, and water, kept for a night in a copper or braſs veſſel, or along with pieces of copper, diſſolve a part of the metal, by which the liquor is tinged blue, and is called *aqua cærulea*. In this compoſition the copper is diſſolved by the volatile alkali of the *ſal ammoniac*, extricated by the quick-lime. Neumann's Works, p. 220

AQUÆ *& ignis interdictio*. See INTERDICTION.

AQUÆ *bajulus*, an ancient name for the clerk officiating under the chief miniſter, whoſe buſineſs was to aſſiſt him in carrying the holy water. The office correſponding to it at preſent is that of the PARISH-*clerk*.

AQUÆ *hauſtus*, in the *Civil Law*, a right of drawing water, and carrying it through another's ground.

AQUÆ *pluvia* is uſed by ſome to denote the hydrophobia. Phil. Tranſ. N° 147.

AQUÆDUCT, AQUÆDUCTUS, q. d. *ductus aquæ, a conduct of water*, is a conſtruction of ſtone or timber, built on an uneven ground, to preſerve the level of water, and convey it, by a canal, from one place to another. There are *aquæducts* under ground, and others raiſed above it, ſupported by arches.—The Romans were very magnificent in their *aquæducts*; they had ſome that extended an hundred miles. Frontinus, a man of conſular dignity, and who had the direction of the *aquæducts* under the emperor Nerva, tells us of nine that emptied themſelves through 13,594 pipes, of an inch diameter. Vigenere has obſerved, that, in the ſpace of twenty-four hours, Rome received from theſe *aquæducts* no leſs than five hundred thouſand hogſheads of water.—The three chief *aquæducts* now in being are thoſe of the Aqua Virginea, Aqua Felice, and Aqua Paulina. The firſt was repaired by pope Paul IV. The ſecond was conſtructed by pope Sixtus V. and is called from the name which he aſſumed before he was exalted to the papal throne. The third was repaired by pope Paul V. in the year 1611.—The *aquæduct* built by Lewis XIV. near Maintenon, for carrying the river Bure to Verſailles, is perhaps the greateſt in the world. It is 7000 fathoms long, and its elevation 2560 fathoms; containing 242 arcades. Vide Phil. Tranſ. ap. Lowth. i. p. 504

AQUÆDUCT, AQUÆDUCTUS, in *Anatomy*, denotes a bony kind of canal, or paſſage, in the *os petroſum*, ſuppoſed to contribute to the purpoſes of hearing.—It is called *aquæduct*, not only on account of its form, but, as ſome alſo imagine, from its ſerving to diſcharge any foreign matters collected in the inner cavities of the ear.—It is ſometimes alſo called *aquæductus Fallopii*, from the name of its firſt diſcoverer.—Several authors confound it with the *tuba Euſtachiana*.

The *aquæductus Fallopii*, is ſometimes alſo called *meatus cæcus*; by others *meatus cochlearis*, and *meatus auditorius*; by others *canalis particularis*, *meatus auditorius internus*, and *foramen auditorium internum*, called alſo *hydrocapharyngiate*.

AQUÆMANILIS, from *aqua*, *water*, and *manus*, *hand*, is particularly uſed, in *Eccleſiaſtical Writers*, for a kind of baſon or laver, anciently placed in the veſtibules of churches, ſerving to waſh the hands in.

Aquamanilis ſtood contradiſtinguiſhed from *urceolus*, as the former was placed under the hands, the latter above them, from whence the water trickled down by a cock. The prieſt alſo, after celebrating maſs, waſhed his fingers in an *aquamanilis*.

In the inventories of church plate, we frequently find mention of *aquamanules*, *aquaminilia*, *aquaminaria*, of ſilver gilt, wrought, &c. Du-Cange.

AQUAGE, a water-courſe.

AQUALICULUS, in *Anatomy*, a name given by ſome to the region of the body, wherein the trunk terminates, and the thighs commence, and in which alſo the privities are placed.

The *aqualiculus* is the ſame with what others call FUBES, others the *hypogaſtrium*, *lumen*, *imus venter*, &c.

AQUARIANS, AQUARII, a ſect toward the cloſe of the ſecond century, who, inſtead of wine, uſed nothing but water in the ſacrament.

It is ſaid the occaſion of the abuſe was owing to the perſecution which prevailed in thoſe times: for the Chriſtians, being then obliged to celebrate the ſacrament in the night, found it neceſſary to make uſe of water, leſt the ſmell of the wine ſhould betray them to the heathens. But they afterwards went farther, and actually forbid the uſe of wine in the euchariſt, even when it might be uſed with ſafety.

Epiphanius tells us, the *Aquarians* were the followers of Tatian; and were ſo called from the word *aqua*, *water*, becauſe they abſtained wholly from wine, and did not uſe it even in the euchariſt.

AQUARIUS, in *Aſtronomy*, the eleventh ſign in the ZODIAC, reckoning from Aries; from which alſo the eleventh part of the ecliptic takes its name.

The ſun moves through *Aquarius* in the month of January; it is marked thus, ♒.

The Poets feign, that *Aquarius* was Ganymede, whom Jupiter ravithed under the ſhape of an eagle, and carried away into heaven, to ſerve as a cup-bearer, in the room of Hebe and Veſtan; whence the name.—Others hold, that the ſign was thus called, becauſe, when it appears in the horizon, the weather uſually proves rainy.

The ſtars in the conſtellation *Aquarius*, in Ptolemy's catalogue, are 45; in Tycho's 41; in Heveliu's 47; in Flamſteed's Britannic Catalogue 108; the longitudes, latitudes, &c. whereof, according to the former, are given by Hevelius: according to the laſt, they are as follows; to which are added the *informes*.

Names and ſituations of the ſtars.	Bayer's Cha.	Magnitudes.	Longitud.		Latitude.		Magnitudes.
			°	′	°	′	
Preced. in the handkerchief } againſt the hand. }	ε	4	7	24	8	66	4 N.
			8	6	18	16	5 6
			8	38	12	24	42 N. 5
			9	22	18	11	36 51 N. 7
			9	34	34	12	38 54 N. 6
5.							
Subſeq. in handkerchief.	π		8	44	13	8	16 10 N. 4-5
			9	32	59	7	17 13 N. 6
			9	19	30	3	51 52 N. 6-7
			9	25	11	3	19 30 N. 6
			11	37	44	11	05 06 N. 6
10.							
			11	51	38	11	49 00 N. 6
			12	23	54	10	30 14 N. 6
In the preced. hand.	ι		12	14	13	4	47 41 N. 5
			12	18	56	6	21 43 N. 6
			10	12	10	10	42 41 N. 6
15.							
			16	53	23	10	25 12 N. 6
			15	30	31	5	45 41 N. 6
			15	01	16	2	17 03 N. 6
			16	14	55	5	12 35 N. 6
			18	10	20	11	14 16 N. 6
20.							
			18	13	15	11	03 19 N. 6
In the preced. ſhoulder.	ξ		19	04	21	8	38 41 N. 3
Under the ſhoulder as in armpit.	ξ		19	47	16	5	59 14 N. 6
			22	50	57	13	52 28 N. 6
In the head.	φ		23	38	27	15	34 47 N. 6
25.							
			23	56	30	14	15 55 N. 6
			25	39	30	15	07 14 N. 6
			28	15	22	11	58 21 N. 6
			22	24	57	4	57 29 S. 6
			20	16	22	1	04 48 N. 6
30.							
Low. in the hind ſhoulder.	ο		17	47	1	9	10 58 N. 5
			18	35	16	10	13 14 N. 6
South in the fore hip.	ρ		24	24	01	2	03 15 S. 4
Right one in the hind ſhoulder.	ζ		19	02	11	10	40 58 N. 3
			23	19	51	6	37 47 S. 6-5
35.							
			27	04	31	2	59 48 N. 6
			26	24	11	0	20 43 N. 6
North in the preced. hip.	γ		26	09	52	0	15 37 S. 3
			25	38	45	2	52 39 S. 5
			26	40	30	6	49 12 S. 4-3
40.							
			23	34	21	9	27 45 S. 6
			27	07	35	1	59 02 S. 7
Preced. of two in the poſter. ſide.	β		28	55	44	2	43 47 N. 4
			29	51	55	4	50 30 N. 6
			27	27	48	2	36 5 S. 6
45.							
			29	42	07	2	25 30 N. 6-5
Subſeq. of the ſame.	β		26	59	31	0	33 45 S. 4-6
Moſt in the hind arm.	η	♓	2	23	11	8	14 49 N. 5
		♒	24	11	54	15	39 11 S. 5
			28	37	05	3	17 42 S. 6

Names and situations of the stars.	Signs & Chs.	Longitud.	Latitud.	Magnitude
		° ′ ″	° ′ ″	
North of three in the hind hand.	♑	1 41 40	4 49 11 N.	6
That upon the hips.	w	4 16 42	10 29 08 N.	5
	♒	27 53 23	6 22 36 S.	6
		29 58 16	1 21 25 S.	6
Preced. of the reft in the hand.	ξ	4 54 31	8 51 30 S.	4
55.	♑	-	-	
	♒	29 32 41	4 48 32 S.	6
That in the hind buttock.	v	1 03 54	1 12 33 S.	5
	♑	1 13 10	1 30 40 S.	6
South of two in the fore leg.	u	28 1 42	10 51 40 S.	5
	♑	5 11 20	6 55 47 N.	6
60.	♒	-	-	
		29 43 15	17 18 11 S.	5
Subfeq. of 5 in the hand.	κ	6 04 53	8 09 42 N.	4
Prec. in the pouring out of water.	ι	5 16 53	4 03 47 N.	5
		5 2 33	1 28 10 S.	6
		4 7 20	1 48 50 S.	6
65.		-	-	
North in the fore leg.	g	0 54 55	9 56 24 S.	6
		5 20 9	1 05 6 N.	6
Following that to the fouthward.	g	1 29 51	11 00 40 S.	6
Lower of the northern one in the hind leg.	ν	5 40 24	5 55 41 S.	5
		5 10 46	2 44 36 S.	7
70.		-	-	
Upper of north in the hind leg	τ	4 16 52	1 38 42 S.	6.5
		6 56 2	0 3 28 S.	6
South and fubfeq. in the pouring out of the water.	λ	7 14 41	0 23 00 S.	4
		5 54 23	4 11 08 S.	6
		5 49 58	4 45 24 S.	7
75.		-	-	
South in the hind leg.—*Schaat.*	g	4 33 49	8 11 27 S.	3
		4 25 11	8 37 01 S.	6
		7 50 54	0 12 44 S.	7
Laft in the water.—*Fomalhaut.*		29 28 59	21 04 56 S.	1
	♒	9 42 30	1 41 29 N.	7
80.		-	-	
		9 28 5	0 43 10 S.	7
		9 35 30	0 23 02 S.	7
First of the contig. in the flexure of the water.	δ	10 04 30	1 40 14 S.	6
Second.	δ	10 04 55	1 44 55 S.	7
3d. and fourth of the contig.	δ	10 08 41	1 57 45 S.	6
85.		-	-	
Preced. in the laft flexure.	ε	3 59 44	16 34 31 S.	6
		10 37 39	1 52 34 S.	8
North.	ε	5 40 55	14 29 07 S.	4
Subfeq. and fouth of three.	ε	5 14 53	15 41 51 S.	5.6
In the fecond flexure of the water.	φ	12 48 58	1 01 25 S.	5
90.		-	-	
North of 1 contig. in the water.	ψ	11 57 28	3 58 03 S.	5
Firſt behind the fecond flexure.	χ	11 43 56	2 49 51 S.	6
Middle of three.	ψ	12 24 17	4 15 45 S.	5
Single one more fouth than thofe.		10 58 04	8 18 02 S.	6
South of the contig.	ψ	12 21 10	4 45 39 S.	6
95.		-	-	
		14 22 28	0 33 14 S.	5.7
		28 08 02	10 07 57 S.	6
North of the three following	ξ	9 08 42	14 46 26 S.	5
Middle in the laft flexure.	ξ	9 35 12	15 34 16 S.	5
		10 30 55	16 45 48 S.	5
100.		-	-	
South of thofe three.	ξ	11 04 29	16 30 21 S.	5
Over the laft flexure but one.	ξ	15 20 30	11 01 46 S.	5
Northern of the three in the laft flexure.	ο	14 09 42	14 40 56 S.	6
Second.	ο	Unknown	Unknown S.	
Following it.	ω	15 52 17	11 36 20 S.	5
105.		-	-	
Middle, in the fame flexure.	π	14 48 24	15 10 17 S.	6
Contiguous to that.	π	14 51 40	15 42 36 S.	6
Subfeq. in the laft flexure but one	ρ	13 58 18	16 19 26 S.	6
Middle of informers behind		19 26 16	16 14 06 S.	5
North of the laft flexure.		21 57 22	15 16 01 S.	5
South		21 12 12	18 45 34 S.	5

AQUARTIA, in *Botany*, a genus of the *tetrandria monogynia* claſs; with a bell-ſhaped calyx, and a round corolla, with linear ſegments, and a many-ſeeded berry.

AQUATIA, in *Middle Age Writers*, a right of fiſhing three days in the year. Du Cange.

In ancient deeds, we find divers grants of this privilege of *aquatica*, or *aquarum*, ſometimes alſo called *aquaria*. In ſome writings *aquatica* ſeems alſo to have ſignified a fee, or other ſervice, paid for the privilege of fiſhing.

AQUATIC, ſomething which lives, breeds, or grows, in or about the water.

Thus we have *aquatic* plants, and *aquatic* animals.

Trees which grow peculiarly on the banks of rivers, or in marſhes &c. are alſo called *aquatics*.

The ancient Romans had alſo their *aquatic*, or *aquatile* gods, *dii aquatiles*, called by Catullus, *dii litorales*; concerning whom we have an inſcription in Reineſius, NEPTUNO ET DIS AQUATILIBUS.

To this claſs belonged the Tritons, the miniſters of Neptune.

AQUATIC *inſects*. See INSECTS.

AQUATIC *road*. See ROAD.

AQUATIC *ſpider*, in *Zoology*. See SPIDER.

AQUATICUM, in *Middle Age Writers*, denotes a thing dimed with water. Hence *aquaticum in ſorejis*, &c. Du-Cange.

AQUATUM, in ſome *Phyſical Writers*, denotes a thing diluted with water.

AQUATUM *acetum* is uſed by ſome naturaliſts, for what is otherwiſe called GRANDO, but more uſually CHALAZA.

AQUEOUS, AQUEOUS, ſomething that partakes of the nature of WATER, or abounds therewith.

Thus milk is ſaid to conſiſt of an *aqueous* or *ſerous*, and a butyrous part.

The chemiſts ſeparate the *aqueous* part or phlegm from all bodies by diſtillation.

AQUEOUS *bath*. See BATH.

AQUEOUS *humour*, is the firſt or outermoſt, and the rareſt of the three humours of the eye.

It lies immediately above the *tunica aranea* and ciliary ligament, and under the *cornea*, which it cauſes to protuberate a little; and is ſuppoſed to be furniſhed by certain ducts provided for that purpoſe.—It is found to ſpirituous, that it will not freeze in the ſevereſt froſt.

Anatomiſts are divided about the origin and conveyance of this humour.—It is certain the ſource muſt be pretty plentiful, inaſmuch as, if by any accident the coats it is contained in be wounded, ſo that the humour runs out, and the *cornea* collapſes, the wound readily heals, by only cloſing the eye, and the humour recruits: of which we have numerous inſtances among phyſicians.

Dr. Nuck thinks he has diſcovered the ducts in the ſclerotica, whereby this humour is furniſhed.

Others, denying the reality of thoſe ducts, ſuppoſe it immediately derived from the arteries. Dr. Drake admits the ducts, and takes them to be only branches of the excretory ducts of the glandula innominata, and lachrymalis; which piercing the tunics of the eye, deliver their liquor by ways hitherto unknown.

Mr. Warner obſerves, that this humour is ſecreted by the extremities of the moſt minute lymphatic arteries of the iris; and that a proper quantity of it is received, and occaſionally returned again, into the larger veins, and courſe of general circulation, by means of minute lymphatic, or abſorbent veins, correſponding to thoſe arteries.

AQUETTA, a name for a kind of poiſon made much uſe of by the Roman women, under the pontificate of Alexander VIII.

AQUIFOLIUM. See HOLLY, and BIRD-*lime*.

AQUILA, in *Natural Hiſtory*, &c. See EAGLE.

AQUILA, in *Aſtronomy*, a conſtellation of the northern hemiſphere; uſually joined with Antinous.

The ſtars in the conſtellation *Aquila* and Antinous, in Ptolemy's Catalogue, are 15; in Tycho's, 19; in Hevelius's 42; in the Britannic Catalogue, 71; the longitudes, latitudes, magnitudes, &c. whereof, according to the two firſt, are given by Hevelius; according to the laſt, they are as follow.

Names and ſituations of the ſtars.	Signs & Chs.	Longitud.	Latitud. North.	Magnitude
		° ′ ″	° ′ ″	
Preced. of three inform. to-	♒	29 4 40	57 14 59	07 4
South.	α	6 26 14	14 02 30	5
Subſeq.		6 48 32	14 46 55	6
		8 03 00	25 07 26	5
		8 14 05	22 00 29	0
Preced. of three inform. before Antinous's foot.	ι	8 04 40	18 13 27	4
		9 14 07	19 37 16	6
		9 17 24	19 33 22	6
Mid. of 3 before Antinous's foot.	δ	10 30 35	10 54 11	3-4
		13 30 29	36 28 51	6
10.		-	-	
		13 33 55	46 11 43	6
Subſeq. of the ſame.	ι	11 44 42	16 53 28	4
Preced. in the eagle's tail.	κ	13 56 58	37 36 42	3-4
Preced. in Antinous's heel.	ζ	12 17 25	28 52 40	6
Subſeq.	η	12 46 59	18 29 26	6
15.		-	-	
Bright one in Antinous's foot.	λ	13 02 13	17 39 58	3-4
Subſeq. in the eagle's tail.	ζ	15 28 34	36 13 48	3
		13 27 48	33 24 32	6
		15 14 46	28 23 48	6
		14 10 37	14 22 17	5.6
20.		-	-	

Names and situations of the stars.	Signs.	Bayer's Cha.	Longitud.	Latitude. North.	Nebulosities.
			° ′	° ′	
			15 58	34 24 48	5
			17 08	30 26 54	11 5
			17 05	48 25 05	48 3
			17 03	51 22 21	55 5
Preced. of 5 in the root of the tail.	ω		18 42	20 33 31	55 5
25.					
In Antinous's thigh.	ζ		16 56	51 16 36	00 5
South in Antinous's leading foot.	δ		17 20	05 22 04	44 6
Mid. and North in roof of the tail.	λ		19 23	33 14 11	27 6
			Unknown		Unknown
From right should. toward S. W.	β		19 17	21 24 50	54 3,4
30.					
			20 48	04 13 32	05 5
From right should. towards South	ι		19 00	40 12 04	17 5
			18 58	27 17 57	58 5
			19 27	28 18 24	42 6
	ε		20 03	35 23 34	00 4
35.					
In Antinous's belly.	γ		19 39	55 18 49	16 6
That below Antinous's knee.	η		19 29	24 20 58	21 6
North in the preced. shoulder.	κ		18 27	58 18 48	50 3,4
Against Antinous's hind. knee.	θ		19 31	45 14 43	05 3,4
			21 10	48 28 25	21 6
40.					
In the hind. side of Antinous.			21 30	47 20 02	5 3,4
			22 09	46 0 42	0 4
			21 52	14 19 46	20 5
South in the preceding shoulder.	σ		23 28	52 21 30	40 6
			18 41	22 20 51	04 5
45.					
			25 52	03 13 02	0 4
South in begin. of the hind. wing.			25 52	21 12 32	20 5
North.			26 48	33 14 20	06 6
That in the side below preced. Lucida.	ε		25 44	19 11 32	0 3
Preced. of two in the hind. shoulder.	γ		20 37	28 31 16	52 3
50.					
Subseq. of the same.	π		23 18	26 10 05	20 5
Between the shoulders, called Lucida Aquila.	η		27 36	29 32 19	59 1
			27 23	24 29 19	4 1,2
That over the Lucida.	κ		27 53	01 10 52	20 6 5
In Antinous's hind. shoulder.	ϑ		26 06	54 21 33	23 3,4
55.					
			24 53	02 12 03	11 5
			24 44	54 12 24	10 6
			29 32	00 10 43	4 5
Subseq. below the Lucida.			28 17	36 28 46	13 5
In the eagle's neck.			28 06	44 26 14	20 3,4
60.					
In the verge of the wing behind the shoulder.	ζ		29 36	57 11 32	17 6
			28 30	17 19 16	01 6
In the middle of the head.	ν	11	0 42	27 27 01	36 6
		12	29 47	36 19 07	27 6
In Antinous's hind. hand.	θ	13	0 35	30 18 45	35 5
65.					
			1 02	33 18 28	07 5,6
Last of the hind. wing.	ρ		5 47	33 34 06	22 5
		11	4 17	48 15 16	50 6
			4 43	44 15 39	39 5
			6 35	14 15 31	49 5
70.					
			7 24	03 16 48	56 4

AQUILA, in *Chemistry*, has several significations, according to the epithets joined with it.

AQUILA *alba*, is a name given to a combination of corrosive sublimate, with fresh mercury, called *mercurius dulcis*.

AQUILA *arbor*, in *Botany*, a name, given, by some authors, to the tree whose wood is the *agallochum*, or lignum aloes of the shops.

AQUILEGIA, in *Botany*. See COLUMBINE.

AQUILICIUM, or AQUILICIUS, in *Antiquity*, a sacrifice, celebrated among the Romans, in time of excessive droughts, to obtain rain of the gods.

Danet calls this *aquilicium*. The priests who officiated at it were denominated *aquilices*, *quia aquam excitabant*, because they brought down water: but where he finds this new order of priests, he does not tell us.

AQUILIFER, from *aquila*, *eagle*, and *fero*, *I bear*, among the Romans, an ensign-bearer, who carried the standard on which the eagle was represented.

AQUILINE, AQUILINUS, something belonging to an eagle. Hence, *aquiline* nose denotes a hooked nose, or such as is like the beak of an eagle; called also a hawk's nose.

AQUILO, is used by Vitruvius for the north-east WIND; or that which blows at 45° from the north towards the east POINT of the horizon.

The poets gave the name *aquile* to all stormy winds dreaded by the mariners.

AQUILUS, among the *Ancients*, a dark, or dusky colour, approaching to black.

Hence some of the heathen gods were called *di aquili*, q. d. *nigri*.

AQUILUS, in *Ornithology*, a species of pelican.

AQUIMINARIUM, in *Antiquity*, a kind of lustral vessel, wherein the Romans carried their holy water for expiation, and other religious offices.

AQUIQUI, in *Natural History*, the name of a particular species of monkey, called by the people of Brasil, the king monkey, as being much larger than all the other monkies.

AQUO, in *Ichthyology*, a name by which some authors have called the ACQUENS, a fish much approaching to the nature of the ALAUSA, or SHAD.

AQUOSE *ductus*, *ductus* AQUOSI *Nuckii*. See AQUEOUS *Humour*.

AQUULA, the name of a disorder of the eyes, called also *hydatis*.

ARA *thuribuli*, the *Altar of incense*, in *Astronomy*, a southern constellation, not visible in our hemisphere, consisting, according to Ptolemy, of seven stars; and according to Sharp's Catalogue, annexed to that of Mr. Flamsteed, of nine stars, as in the following table.

Situation of the stars	Signs.	Longitud.	Latitude.	Nebulosities.
		° ′	° ′	
In the base, the northern.	♐	21 35	23 5 16	5
The southern		27 18	20 36	5 5
In the middle of the altar.		26 5	20 29 31	6
In the fire-place northern.		1 47	21 30 13	3
southern.		29 27	15 2 14	4
5.				
Middle.		10 22	32 17 4	4
In the middle of the flame.		16 2	17 13 1 46	4
In the top of ditto, 18.		15 6	2 16 13 12	4
20.		21 44	38 17 17 54	4

ARA *parva*, *the little altar*, a denomination, in the *Ancient Surgery*, given to an elegant kind of BANDAGE, said to have been invented by Soslratus.

ARAB, or ARABIAN *horse*, is said to be nurled with camel's milk: there are many strange reports of this beast. The duke of Newcastle assures us, that the ordinary price of one is 1000, 2000, or 3000 pounds; and that the Arabs are as diligent in keeping the genealogies of their horses, as princes of their families. They strike medals on every occasion to keep up the pedigree. The fortune the Arabians give their sons, when arrived at manhood, is two suits of arms, with two scimeters, and a horse; which always lies in the next room to them. Yet of those of the breed brought into England few have proved very extraordinary. See HORSE.

ARABANT, from *aro*, *I plough*, in *Law*, *ad curiam domini*, was intended of those who held by the tenure of ploughing and tilling the lord's lands within the manor.

ARABESQUE, or ARABESK, something done after the manner of the Arabians.

Arabesques, GROTESQUE, and *Moresque*, are terms applied to such paintings, ornaments of freezes, &c. wherein there are no human or animal figures, but which consist wholly of imaginary foliages, plants, flasks, &c.

The word take their rise from hence, that the Moors, Arabs, and other Mahometans, use these kinds of ornaments; their religion forbidding them to make any images or figures of men, or other animals.

Arabesk is used by Stephen Riou, esq. in his book on Architecture, to denote that style of building which is vulgarly called *Modern Gothic*, which he also terms *Saracenic* and *Moresk*; the introduction of which he ascribes to the Moors, or, which he says is the same thing, to the Arabians or Saracens, who have expressed, he adds, in their architecture, the same taste as in their poetry, which are both falsely delicate, crowded with superfluous ornaments, and often very unnatural. This manner of building, he says, was introduced into Europe through Spain. The Crusades gave the Christians an idea of *Saracenic* architecture, which they afterwards imitated. Sir C. Wren distinguishes the heavy *Gothic* as *Anglo-Saxon*, the lighter as *Gothic*.

ARABIC, or ARABIAN, something that relates to Arabia, or the Arabs.

ARABIC *figures* or *characters*, are the numeral characters commonly made use of in arithmetical computations.

The *Arabic* characters stand contradistinguished to the Roman.

The learned are generally of opinion, that the *Arabic* figures were first taught us by the Saracens, who borrowed them from the Indians.—Scaliger was so satisfied of their novelty, that he immediately pronounced a silver medallion he was consulted about, modern; upon his being told that the numeral figures 254, 255, were upon it. The common opinion is, that Planudes, who lived towards the close of the 13th century, was the first Christian who made use of them. Father Mabillon even assures us, in his work *de Re Diplomatica*, that he has not found them any where earlier than the fourteenth century. Yet Dr. Wallis insists on their being of a much older standing; and concludes they must have been used in

England at leaſt as long ago as the time of Hermannus Contractus, who lived about the year 1050, if not in ordinary affairs, yet at leaſt in mathematical ones, and particularly in the aſtronomical tables. Vide Wall. Algeb. c. 4.

The ſame author gives us an inſtance of their antiquity in England, from a mantle-tree of a chimney, in the parſonage-houſe of Helmdon in Northamptonſhire, wherein is the following inſcription in *baſſo relievo*. N° 133, being the date of the year 1133. Philoſ. Tranſ. N° 154.

Mr. Luffkin furniſhes a yet earlier inſtance of their uſe, in the window of a houſe, part of which is a Roman wall, near the market-place in Colcheſter; where between two carved lions, ſtands an eſcutcheon, containing the figures 1090. Philoſ. Tranſact. N° 155.

Mr. Huet is even of opinion, that theſe characters were not borrowed from the Arabs, but from the Greeks; and that they were originally no other than the Greek letters, which we all know that people made uſe of to expreſs their NUMBERS by.

ARABIC, *gum*. See GUM.

ARABIC, or ARABIAN *learning*, is divided into two ſtates, or periods, viz. Ante-Mahometan, and Mahometan.

The *Arab* learning in this firſt period conſiſted, according to Abulpharagius, in the knowledge of their language, the propriety of diſcourſe, the compoſition of verſe, and the ſcience of the ſtars: but their chief attention ſeems to have been directed to *oratory* and *poetry*. Hiſt. Dynaſt. Renaudot de Barber. Aſiſt. Verſ. Fabricii Bibl. Græca, lib. vi. cap. 5. § 6.

The ſecond period is more diſtinguiſhed, at leaſt from the time of Al Mamon, the ſeventh caliph of the family of the Abaſſides, who flouriſhed about the year 820, and has the honour of being the founder of the modern *Arabian* learning. He ſent for all the beſt books out of Chaldea, Greece, Egypt, and Perſia, relating to phyſic, aſtronomy, coſmography, muſic, chronology, &c. and penſioned a number of learned men, ſkilled in the ſeveral languages and ſciences, to tranſlate them into *Arabic*. By this means, divers of the Greek authors, loſt in their own country and language, have been preſerved in *Arabic*. Elmac. Hiſt. Sar. lib. ii. cap. 8. Leo Africanus de Viris illuſt. ap. Arabes, cap. 1. Fabricii Bib. Græc lib. vi. cap. 9. Groſv. in Præf. ad Tab. Geog. Voſſ. de Sect. Phil. cap. 3. § 17.

From that time *Arabia* became the chief ſeat of *learning*; and we find mention by Abulpharagius, Pococke, D'Herbelot, and Hottinger, of learned men, and books without number.

The revival of *learning* in the tenth century, by Gerbert, known after his elevation to the pontificate by the title of Silveſter II. and afterwards among the Europeans in general, may be aſcribed to the inſtructions and writings of the *Arabian* doctors and philoſophers, and to the ſchools which they founded in ſeveral parts of Spain and Italy. And in the ſame century, the inquiſitive of different countries frequented the ſchools of the Saracens in Spain, and diſſeminated the knowledge which they obtained there after their return. At this time, many of the learned productions of the *Arabians* were tranſlated into Latin, which facilitated the general progreſs of ſcience.

ARABIC, or ARABIAN *logic*, was that of Ariſtotle, as explained by Avicenna and Averrhoes.

ARABIC *marble*, *Arabicum marmor*, a name given by the ancient Greeks, to a ſpecies of marble brought from Egypt and Arabia, and remarkable for its beautiful whiteneſs.

ARABIC, or ARABIAN *oratory*, according to Renaudot, conſiſted in a luxuriancy of quaint, high-flown words, epithets, and deſcriptions.

ARABIC, or ARABIAN *philoſophy*, before Mahomet, was Sabian, and included the ſyſtem and ceremonies of that ſect of idolaters. This it was that Mahomet ſet himſelf to decry; and he is even ſaid by ſome, to have carried his oppoſition ſo far as to prohibit, if not puniſh, all ſtudy of *philoſophy*. But his followers, by degrees, got over this reſtraint; the love of learning increaſed; till, under the memorable caliphate of Al Mamon, Ariſtotle's *philoſophy* was introduced and eſtabliſhed among them; and from them propagated, with their conqueſts, through Egypt, Africa, Spain, and other parts.

As they choſe Ariſtotle for their maſter, they chiefly applied themſelves to that part of philoſophy called *logic*, and this became proficient in the knowledge of words, rather than things. Whence they have been ſometimes denominated, *Maſters of the wiſdom of words*; ſometimes the *Talking ſect*. Their *philoſophy* was involved in quaint arbitrary terms and notions, and their demonſtrations drawn from theſe, as from certain principles, &c. Walch Hiſt. Logic. lib. ii. ſec. 2. § 1.

ARABIC, or ARABIAN *phyſic* and *phyſicians*, ſucceeded the Grecian, and handed down the art to us, having made conſiderable improvements, chiefly in the pharmaceutical and chemical parts.

It is certain we owe to them moſt of our ſpices and aromatics, as nutmegs, cloves, mace, and other matters of the produce of India. We may add, that moſt of the gentler purgatives were unknown to the Greeks, and firſt introduced by the *Arabs*, as manna, ſenna, rhubarb, tamarinds, caſſia, &c. They likewiſe brought ſugar into uſe in *phyſic*, where, before, only honey was uſed. They alſo found the art of preparing waters and oils, of divers ſimples, by diſtillation and ſublimation.

The firſt notice of the ſmall-pox, and the meaſles, is likewiſe owing to them. Laſtly, the reſtoration of *phyſic* in Europe took its riſe from their writings.

M. Le Clerc has given a ſketch, and Dr. Freind, an ample hiſtory of the *Arabian phyſic*. We have alſo a *diſſertation* of all the *Arabian phyſicians*, by Fabricius.

ARABIC, or ARABIAN *poetry*, may be divided into two ages. The ancient, according to Voſſius, was no other than rhiming; was a ſtranger to all meaſure, and rule; the verſes looſe and irregular, confined to no feet, number of ſyllables, or any thing elſe, ſo that they rhimed at the end; oftentimes all the verſes in the poem ended with the ſame rhime. It is in ſuch verſe that the ALCORAN is ſaid to be written.

The modern *Arabian poetry* takes its date from the cabliphate of Al Raſchid, who lived toward the cloſe of the eighth century. Under him *poetry* became an art, and laws of *proſody* were laid down. Clark, Prof. Arab. cap. 1. Their compariſons, in which they abound, are taken, with little choice, from tents, camels, hunting and the ancient manner of the *Arabs*.

ARABIC, or ARABIC *tongue*, is a branch or dialect of the Hebrew.

F. Angelo de St. Joſeph ſpeaks much of the beauty and copiouſneſs of the *Arabic*. He aſſures us it has no leſs than than a thouſand names for a ſword; five hundred for a lion; two hundred for a ſerpent; and eighty for honey. Mr. Richardſon, in his *Arabic* grammar, obſerves, as a proof of the richneſs of this language, that it conſiſts of 2000 radical words. The two principal dialects of it were thoſe ſpoken by the Himyarites and other genuine Arabs, and that of the Koreiſh, in which Mohammed writ the Koran. The old *Arabic* characters are ſaid to be of very high antiquity; for Ebn Haſhem relates, that an inſcription in them was found in Yaman as old as the time of Joſeph: whence ſome have aſcribed the invention of letters to the Arabians, and Sir Iſaac Newton ſuppoſes, that Moſes learned the alphabet from the Midianites, who were Arabians. The *Arabian* alphabet conſiſts of 28 letters, which are ſomewhat ſimilar to the ancient Kufic, in which character the firſt copies of the Koran were written. The preſent *Arabic* characters were formed by Ebn Moklah, a learned Arabian, who lived about 300 years after Mahomet. Aſſe's Origin and Progreſs of Writing, p. 43.

ARABIC *ſections*. See BIBLES.

ARABIC *year*. See YEAR.

ARABICI, a ſect who ſprung up in Arabia, about the year 207, whoſe diſtinguiſhing tenet was, that the ſoul died with the body, and alſo roſe again with it.

Euſebius, lib. vi. c. 38. relates that a council was called to ſtop the progreſs of this riſing ſect; and that Origen aſſiſted at it; and convinced them ſo thoroughly of their error, that they abjured it.

ARABACUS *teſtæ*. See COSTUS.

ARABIS, in *Botany*, a genus of the *tetradynamia ſiliquoſa*; *baſtard tower* MUSTARD.

ARABISM, ARABISMUS, an idiom, or manner of ſpeaking peculiar to the Arabs, or the Arabic language.

R. Martin maintains, that the 1 ſometimes expreſſes an oath in the Hebrew as well as the Arabic.

ARABIST, a perſon curious of, and ſkilled in the learning and languages of the Arabians: ſuch were Erpenius and Golius. The ſurgeons of the 13th century are called *Arabiſts* by Severinus. Freind. Hiſt. Phyſ. tom. ii. p. 301.

ARABLE *land*, anciently called ARALIA, is ſuch as is fit for tillage, or ploughing; or which is actually ploughed up from time to time.

It is thus called from the Latin *arare*, of *aratrum*, a PLOUGH.

ARABUM *lepra*. See LEPROSY.

ARABUS *ſomnarachs*. See SAMNARACHS.

ARAC, or ARRAC, a ſpirituous liquor, imported from the Eaſt Indies; chiefly uſed by way of dram, and in punch. The nature and compoſition of this celebrated liquor has been much controverted.—The name *arrac*, Mr. Lockyer aſſures us, is an Indian word for ſtrong waters of all kinds; for that they call our ſpirits and brandy, *Engliſh arrac*.—But what we underſtand by the name *arrac*, is really no other than a ſpirit procured by diſtillation, from a vegetable juice called *toddy*, which flows by inciſion out of the cocoa-nut tree, and ſome other trees, like the birch-juice procured among us.

The *toddy*, Mr. Lockyer adds, is a pleaſant drink of itſelf, when new, but purges thoſe not uſed to it; and, when ſtale, is heady; and finally makes good vinegar. The Engliſh at Madras uſed it as leaven to raiſe their bread with.

Others

flight caſt of the ſame braſſy yellow. It is much ſofter than any of the pellucid gems; its fineſt pieces do not excel cryſtal in hardneſs, and its coarſer are much ſofter; it takes a good poliſh, however, and in ſome of its finer ſpecimens makes a tolerable figure, though greatly inferior to the other gems.

Our jewellers take very little notice of it; and, inſtead of having two or three names for it, as they have for moſt other of the gems, they call it very often aprafius, and the leſs accurate among them often call the chryſoprafius a *chryſolite*.

The *chryſolite* is found in New Spain, and in ſeveral parts of Europe, as Sileſia, Bohemia, &c. The American, however, are greatly ſuperior to the European, but are uſually ſmall; the Bohemian are large, but very few of them are of a good colour, or free from flaws.

The *chryſolite* has been found to exhibit electrical appearances ſimilar to thoſe of the TOURMALIN. The fluid moves always along the ſlender threads or columns, which form the grain of it, without ſuffering any change from their direction; one end being electrified *plus*, and the other *minus*. Phil. Tranſ. vol. lii. p. 445.

CHRYSOLITE is alſo a general name, which the ancients gave to all precious ſtones, wherein the yellow, or golden, was the prevailing colour.

When the ſtone was green, they called it *chryſoprafius*: the red and blue too had their particular denominations, which expreſſed their colour: the gold being ſignified by *chryſo*, which ſtill began the name.

We know but few of theſe *chryſolites* now; or rather, they are referred to the ſpecies of ſtones which they approach the neareſt to: the green to the emerald, the red to the ruby; and ſo of the reſt.

CHRYSOLITE-*paſte*, the way of making an artificial *chryſolite* paſte is this: take one prepared *cryſtal* two ounces, ordinary red lead eight ounces; mix theſe well together, and add *crocus martis* made with vinegar, twelve grains: mix all together; put them into a crucible, lute it over, and bake the whole for twenty-four hours, or longer, in a potter's kiln, and it will produce a very elegant reſemblance of the true *chryſolite*.

CHRYSOMELA, in *Zoology*, a genus of inſects frequently confounded with the beetles, the *antennæ* of which are made in form of bracelets, or necklaces of beads, and are thickeſt toward their extremity: the body, in figure, approaches to oval, and the *thorax* is oblong and rounded. Of this genus Dr. Hill enumerates a great many ſpecies. See SCARABÆUS.

CHRYSOMYTHRES, in *Ornithology*, the name by which ſome call the GOLD-FINCH. See CARDUELIS.

CHRYSOPAGION, in *Natural Hiſtory*, a name by which ſome of the middle age writers have called the gem deſcribed by Pliny, under the name of the *chryſampelos*. Salmaſius is of opinion that it was only a ſoft kind of the *chryſoprafius*, of which Pliny ſays, that ſome of them were full of ſpecks, and of a variable colour.

CHRYSOPETRON, in *Natural Hiſtory*, a name given by Pliny and others to the yellower kind of the ancient topaz, that is, our chryſolite.

CHRYSOPHYLLUM, in *Botany*. See *Star*-APPLE.

CHRYSOPHRYS, in *Ichthyology*, a name given by the ancient Greek and Latin authors to a fiſh called at this time the AURATA: it is a ſpecies of SPARUS. See GILT-*head*.

CHRYSOPILON, in *Natural Hiſtory*, a name given by ſome ancients to a ſpecies of the beryl, which had a yelloviſh tinge.

CHRYSOPIS, *the golden-eye*, in *Natural Hiſtory*, the name of a ſpecies of fly, ſo called from the beautiful gold colour of its eyes. It is a long-bodied fly, with extremely thin and tranſparent wings of a ſilvery colour, with green ribs or nerves; the body is green, and the *antennæ* very ſlender and blackiſh. This is a very ſlow flyer, and is common in gardens; it is frequently found on the common elder; it is of a very ſtrong ſmell.

CHRYSOPRASUS, in *Chriſtian Antiquity*, the tenth of thoſe precious ſtones which adorned the foundation of the heavenly Jeruſalem; the colour of it was green, much like that of a leek, but ſomething inclining to that of gold, with ſome impreſſions.

CHRYSOSPLENIUM. See *Golden* SAXIFRAGE.

CHRYSOXYLON, in *Botany*, a name given by ſome to the Scytharian, or Scythicum lignum, a wood famous for its beautiful yellow colour, and for tinging the hair yellow. This was one of the many ſubſtances called by the name of THAPSUM by the ancient Greeks, from its colour, the word *thapſus* ſignifying a pale yellow, and being applied by theſe authors to every thing that had that colour in itſelf, or could give it to other things.

CHRYSTAL. See CRYSTAL.

CHRYSTAL *mineral*, the ſame as *ſal prunella*.

CHRYSTALLINE. See CRYSTALLINE.

CHRYSTALLIZATION. See CRYSTALLIZATION.

CHTHONIA, in *Antiquity*, a feſtival kept in honour of Ceres, called *Chthonia*. For the ceremonies obſerved in it, ſee Pott. Archæol. lib. ii. cap. 20.

CHUB, the Engliſh name for the fiſh called the CAPITO and CEPHALUS by authors, and by ſome of the ancient Romans *ſqualus*. It is, according to the Artedian and Linnæan ſyſtem, a ſpecies of the CYPRINUS, and the fiſh called by the French the vilain and teſtard.

The reſorts of this fiſh are eaſily found; for they are generally holes overſhaded by trees, and this fiſh will be ſeen floating in ſuch almoſt on the ſurface of the water in a hot day in great numbers. They are but a poor fiſh for the table, and are very full of bones; but they entertain the angler very much, and are of the number of thoſe that are eaſily taken. The beſt manner of fiſhing for him is thus: prepare a very ſtrong rod of a ſufficient length; fix to the hook a graſſhopper; place yourſelf ſo as to be perfectly out of ſight of the fiſh, and drop in the bait about two feet from the place where a large *chub* lies; if he does not ſee the angler he very ſeldom fails biting, and is immediately taken; but he is ſo ſtrong a fiſh that he ſhould be taken out carefully, after a great deal of playing, otherwiſe the tackle will be in danger; a beetle, or any large fly, will anſwer the purpoſe in the place of a graſſhopper; and if none of them are to be had, the method of fiſhing muſt be altered, and the line be long enough for fiſhing at the bottom. In March and April this fiſh is to be caught with large red worms; in June and July with flies, ſnails, and cherries; but in Auguſt and September the proper bait is good cheeſe pounded in a mortar with ſome taſſion, and a little butter; ſome make a paſte of cheeſe and Venice turpentine for the *chub* in winter, at which ſeaſon this fiſh is better than at any other; the bones are leſs troubleſome in this ſeaſon, and the fleſh is more firm and better taſted; the row is alſo well flavoured in general. The angler muſt keep his bait for this fiſh at the bottom in cold weather, and near the top in hot, and the fiſh will bite eagerly.

CHUCHIA, in *Zoology*, a name given by Cardan, Oviedo, and ſome others, to the OPOSSUM.

CHUNNA, in the *Salic Laws*, is uſed for a hundred; or rather a hundred pence or *denarii*: the pecuniary penalties of that law are eſtimated by *chunnæ*, and reduced to *ſolidi*, by reckoning forty *denarii* to the *ſolidum*.

CHUPMESSAHITES, a ſect among the Mahometans, who believe that Jeſus Chriſt is God, and the true Meſſiah, the redeemer of the World; but without rendering him any public, or declared worſhip.

The word, in the Turkiſh language, ſignifies *protector of the Chriſtians*.

Ricaut ſays there are abundance of theſe *Chupmeſſahites* among the people of faſhion in Turky, and ſome even in the Seraglio.

CHURCH, an aſſembly of perſons united by the profeſſion of the ſame Chriſtian faith, and the participation of the ſame ſacraments.

Bellarmin, and the Roman divines, to this definition add, *Under the ſame pope, ſovereign pontiff, and vicar of Jeſus Chriſt on earth*; in which circumſtance it is that the Romiſh and reformed notion of *church* differ.

Ameloote, and others, make a viſible head, or object, eſſential to a *church*; accordingly, among the Catholics, the pope; in England, the king; are reſpectively allowed heads of the *church*. Biſhop Hoadley ſets aſide the notion of a viſible head: Chriſt alone, according to him, is head of the *church*; which poſition he has maintained with great addreſs, in a celebrated ſermon before king George I. on theſe words: *My kingdom is not of this world*; and in the ſeveral vindications thereof.

Sometimes, we conſider *church* in a more extenſive ſenſe, and divide it into ſeveral branches. The *church militant*, is the aſſembly of the faithful on earth. *Church triumphant*, that of the faithful already in glory. To which the Catholics add the *church patient*, which, according to their doctrines, is that of the faithful in purgatory.

The term *eccleſia*, ἐκκλησία, ſynonymous with our *church*, is uſed in the Greek and Latin profane authors for any kind of public aſſembly; and even to that place where the aſſembly is held. The ſacred and eccleſiaſtical writers ſometimes alſo uſe it in the ſame ſenſe; but ordinarily they reſtrain the term to the Chriſtians; as the term *ſynagogue*, which originally ſignifies nearly the ſame thing, is in like manner reſtrained to the Jews.

Thus, in the New Teſtament, the Greek ἐκκλησία, ſignifies almoſt always, either the place deſtined for prayer, as 1 Cor. xiv. 34. or the aſſembly of the faithful diffuſed over the whole earth, as Epheſ. v. 24. or the faithful of a particular city, or province, as 2 Cor. viii. 1. or even of a ſingle family, as Rom. xvi. 5. or the paſtors or miniſters of a *church*, as Matt. xviii. 17.

The Chriſtian *church* is frequently divided into Greek and Latin.

CHURCH, *Greek, or Eaſtern*, comprehends the *churches* of

all the countries anciently subject to the Greek, or Eastern empire: and through which their language was carried: i. e. all the space extended from Greece to Mesopotamia and Persia, and thence into Egypt; which has been divided ever since the emperor Phocas from the Roman *church*.

The Greek *church*, properly speaking, is that society of Christians, who live in religious communion with the patriarch of Constantinople: and it is divided into two parties; one of which acknowledges his supreme authority and jurisdiction; whilst the other, though joined with him in communion of doctrine and worship, is governed by its own laws, under the jurisdiction of spiritual rulers, independent of all foreign authority. The former branch of the Greek *church* is divided into four provinces; Constantinople, Alexandria, Antioch, and Jerusalem; over each of which a bishop presides, under the title of patriarch, the chief of whom is the patriarch of Constantinople. The power of electing this patriarch is vested in the twelve bishops, who reside nearest this capital; but the right of confirming his election, and of empowering him to exercise his spiritual functions, belongs to the Turkish emperor. The Greeks receive the Holy Scriptures, and the decrees of the seven general councils, as the rule of their faith: but no private person has a right to explain, for himself or others, the declarations of Scripture, or the decisions of these councils; the patriarch and his brethren being the only persons authorised to consult these oracles, and declare their meaning. Many attempts have been made to unite them to the reformed *church*, but they have hitherto been unsuccessful.

CHURCH, *Latin*, or *Western*, comprehends all the *churches* of Italy, France, Spain, Africa, the North, and all other countries, whither the Romans carried their language. Great Britain, part of the Netherlands, of Germany, and of the North, have been separated hence ever since the time of Henry VIII. and constitute what we call the *reformed church*, and what the Romanists call the *western schism*, as the Greek *church* constitutes the eastern one.

The *Reformed* CHURCH is again divided into the Lutheran *church*, the Calvinist *church*, the *church* of England, &c. The denomination of *reformed* is often restricted to those protestant *churches*, which did not embrace the doctrine and discipline of Luther. The title was first assumed by the French Protestants, and afterwards became the common denomination of all the Calvinistical *churches* on the continent. But in England the term *reformed* is generally used in its genuine and extensive sense, as standing in opposition to popery alone.

CHURCH, *Gallican*, denotes the *church* of France, under the direction and government of its bishops and pastors. This *church* has always enjoyed certain immunities and franchises, not as grants from the pope, but derived to her from her first original, which she has carefully maintained. These privileges depend on two maxims; viz. 1. That the pope has no authority or right to command or order any thing, general or particular, in which the temporalities and civil rights of this kingdom are concerned. 2. That notwithstanding the pope's supremacy is owned in cases purely spiritual, yet in France his power is limited and regulated by the decrees and canons of ancient councils received in that realm.

CHURCH, *High*, was a denomination originally given to those, otherwise called NONJURORS, who refused to acknowledge the title of William III. to the crown of Great Britain, under a notion that James II. though excluded, was still their rightful sovereign. This appellation was given them, because they entertained high notions of the dignity and power of the *church*, and the extent of its prerogatives and jurisdiction. And those, on the contrary, were called *low-church* men, who disapproved of the secession and obstinacy of the nonjurors, distinguished themselves by their moderation towards dissenters, and were less ardent in extending the limits of *church* authority. The denomination of *high-church* men is now more generally applied to all who form pompous and ambitious conceptions of the authority and jurisdiction of the *church*, and who would raise it to an absolute independence on all human power.

CHURCH is also used for a Christian temple, built and consecrated to the honour of God; and, anciently, under the invocation of some particular saint, whose name it assumed. In this sense, *churches* are variously denominated, according to the rank, degree, discipline, &c. as metropolitan *church*, patriarchal *church*, cathedral *church*, parochial *church*, cardinal *church*, &c. See each under its proper article, METROPOLIS, PATRIARCH, CATHEDRAL, PAROCHIAL, CARDINAL, &c. In ecclesiastical writers, we meet with grand *church*, for the chief *church* of a place, particularly in the Greek liturgy, for the *church* of St. Sophia at Constantinople, the see of the patriarch, founded by Constantine, and consecrated under Justinian. It was at that time so magnificent, that Justinian is said to have cried out in the consecration thereof, Ἐνενίκηκά σε, Σολομών; *I have out-done thee, Solomon.* The dome, which is said to have been the first that was built, is 330 feet diameter.

The first *church* publicly built by the Christians, some authors maintain to be that of St. Saviour at Rome, founded by Constantine: others contend, that several *churches* abroad, called by the name of St. *Peter Vincu*, were built in honour of that apostle during his life-time.

CHURCH, *Mother*, *Matrix ecclesia*. See MOTHER-*churches*.

CHURCH, with regard to architecture, Da-viler defines a large oblong edifice, in form of a ship, with nave, choir, isles, chapel, belfry, &c. See each part under its proper head.

CHURCH, *simple*, is that which has only a nave and a choir.

CHURCH *with isles*, that which has a row of portico, in form of vaulted galleries, with chapels in its circumference.

CHURCH *in a Greek cross*, that where the length of the traverse part is equal to that of the nave; so called, because most of the Greek *churches* are built in this form.

CHURCH *in a Latin cross*, that whose nave is longer than the cross part, as in most of the Gothic *churches*.

CHURCH *in rotundo*, that whose plan is a perfect circle, in imitation of the Pantheon.

For the form of the ancient Greek *churches*, when they had all their parts, it was as follows: first was a porch, or portico, called the *ουαρτ-nave*, *narthex*; this was adorned with columns on the outside, and on the inside surrounded with a wall; in the middle whereof was a door, through which they passed into a second portico. The first of these porticos was destined for the *energumeni*, and penitents in the first stage of their repentance: the second was much longer, destined for penitents of the second class, and the catechumens, and hence called *narthex*, *ferula*, because those placed in it began to be subject to the discipline of the *church*. These two porticos took up about one third of the space of the *church*. From the second portico, they passed into the nave, *naos*, which took up near another third of the *church*. In the middle, or at one side of the nave, was the ambo, where the deacons and priests read the Gospel, and preached. The nave was destined for the reception of the people, who here assisted in prayers.

Near the entrance of this was the BAPTISTERY, or FONT. Beyond the nave was the choir, *χορος*, set with seats, and round: the first seat on the right, next the sanctuary, being for the chantor, or *choragus*.

From the choir, they ascended by steps to the sanctuary, which was entered at three doors. The SANCTUARY had three apsides in its length; a great one in the middle; under which was the altar crowned with a BALDACHIN, supported by four columns. Under each of the small apsides was a kind of table, or cupboard, in manner of a bench.

Though, of the Greek *churches* now remaining, few have all the parts above described; most of them having been reduced to ruins, or converted into mosques.

M. Frezier, engineer to the French king, and F. Cordemoy, a regular canon, have disputed the form of the ancient and modern *churches*, and the best manner of building them, with a good deal of learning, in the Journals de Trevoux.

For the form of the Latin *churches*, though it be various, yet may all the variety be reduced to two heads; viz. those in form of a ship, and those of a cross.

CHURCH-*yard*, a place adjoining to a *church*, employed commonly for the interment of the deceased. See CORMETERION.

CHURCH-*government*, *discipline*, &c. See ECCLESIASTICAL GOVERNMENT, DISCIPLINE, POLICY, &c.

CHURCH-*rents*. See CHURCH-*wardens*.

CHURCH-*scot*, or CHURCH-*sett*, a payment, or contribution, by the Latin writers frequently called *primitiæ frumenti*; being, at first, a certain measure of wheat, paid to the priest on St. Martin's day, as the first fruits of harvest. This was enjoined by the laws of king Malcolm IV. and Canut. c. 16. But after this, *church-scot* came to signify a reserve of corn-rent paid to the secular priests, or to the religious; and sometimes it was taken in so general a sense as to include poultry, or any other provision that was paid in kind to the religious.

CHURCH-*wardens*, anciently called CHURCH-*reves*, are officers chosen yearly in Easter week, by the parish and his parishioners, according to the custom of the place; to look to the church, church-yard, church-revenues &c. observe the behaviour of the parishioners with regard to faults that come under the jurisdiction of the ecclesiastical court; present scandalous livers to the bishop; take care none preach without licence, &c.

Counsellors and attornies, surgeons and apothecaries, and dissenting ministers, are exempt from this office; and persons who have sued a felon to conviction, and the first assignee of the certificate thereof, are exempted from the office of *church-warden*, in the parish where the offence

offence was committed. The ſame exemption extends to perſons ſerving in the militia, during ſuch ſervice. Diſſenters are allowed to execute the office by a ſufficient deputy. A perſon refuſing the office, is liable to excommunication. They are ſworn into their office by the archdeacon, who is compellable by a mandamus to admit thoſe whom the pariſh appoint.

The *church-wardens* are a kind of corporation; and are enabled by law to ſue, and be ſued, for any thing belonging to the church, or the poor of the pariſh.

CHURCHING *of women after child-birth*, took its riſe from the Jewiſh rite of purification. In the Greek church it was limited to the fortieth day after delivery; but in the weſtern parts of Europe no certain time is obſerved. There is an office in the liturgy for this purpoſe.

CHURLE, CEORLE, or CARL, in Saxon times, ſignified a tenant at will, who held of the thanes on condition of rent and ſervice. They were of two ſorts, one rented the eſtate like our farmers; the other tilled and manured the demeſnes, and were called ploughmen.

CHURN-*Owl*. See OWL.

CHURR-*Worm*, a name given by ſome to the GRYLLOTALPA.

CHYLE, in the *Animal Oeconomy*, a whitiſh juice, into which the food is immediately converted by digeſtion, or more properly by that firſt branch thereof called CHYLIFICATION.

The word comes from χυμος, *juice*.

Some think that all the groſs ſecretions are from the *chyle*, and particularly that *pus* is the product of the *chyle*, and not of the blood or ſerum. Phil. Tranſ. N° 427. § 2.

CHYLIFICATION, the formation of the *chyle*; or the act whereby the FOOD is changed into CHYLE.

Chylification is begun by comminuting, or breaking the aliment in the mouth, mixing it with ſaliva, and chewing it with the teeth.

By ſuch means, the food is reduced into a kind of pulp, which falling through the *œſophagus* into the warm ſtomach, there mixes with the juices thereof; and being thus diluted, begins to ferment, or putrefy, and aſſumes a very different form from what it had before; growing either acid or rancid.

Here it mixes with a juice ſeparated from the blood by the glands of that part, whoſe excretory ducts open into the ſtomach: as alſo with the remains of the former aliment; and thus it becomes better macerated, diluted, diſſolved, and acquires ſtill a greater likeneſs to the animal fluids, and is called *chyme*.

Add to this, that the fleſhy membrane of the ſtomach, continually contracting and preſſing its contents by its periſtaltic motion, occaſions a more intimate mixture, and by degrees works the more fluid parts through the *pylorus* into the *duodenum*; along the ſides whereof, and the reſt of the *inteſtina tenuia* the lacteals are implanted; into the minute orifices whereof, the finer part of the maſs is received.

The fabric of the ſtomach being conſidered, the heat of the circumambient parts, the pulſations of innumerable arteries, the great ſtrokes of the *aorta* underneath, the conſtant compreſſion of the *diaphragma*, and abdominal muſcles; it muſt neceſſarily follow, that the finer part of the aliment will be firſt expelled the ſtomach; and that the groſſer will remain; till, by the repeated action of the fluids, and the contraction and pulſation of the ſolids, they alſo become fine enough to go off: thus in the ſtomach left empty, and by means of its muſcular coat, reduced to a ſtate of contraction, and appetite is renewed.

Thus will even the fleſhy membranes, cartilages, &c. of animals fed on, be ſqueezed, and be obliged to give out their juices; and thus is a fluid obtained, that ſhall have in ſome meaſure the ſame properties with thoſe of our bodies.

This juice being got through the *pylorus* into the *duodenum* and ſmaller inteſtines, its liquefaction is ſtill promoted by its mixture with two other diſſolvents, the pancreatic juice and the bile; and by continued fermentation; which divide and ſubtilize thoſe parts that were left too groſs; and by the periſtaltic motion of the guts it is protruded forwards. In the paſſage through the ſmall inteſtines, the finer part of the maſs, which we call the *chyle*, enters the orifices of the lacteal veins of the firſt kind, wherewith the whole meſentery is intermixed; which either alone, or together with the meſeraic veins, diſcharge themſelves into the glands at the baſis of the meſentery.

Then the *chyle* is taken up by the lacteals of the ſecond kind, and is conveyed into glands between the two tendons of the *diaphragma*, known heretofore under the name of the *lumbary* glands, now called Pecquet's receſſory, and *receptaculum chyli*; whence, being mixed with great quantities of lymph, it is carried to the heart, by the thoracic duct, and the ſubclavian vein: wherein it begins to be mixed with the blood, and to circulate, and in time becomes aſſimilated thereto. A ſpirit or vapour, which is nothing elſe than the *fixed* AIR of the alimentary ſubſtances, is ſet free from the various mixtures during their fermentation in the firſt paſſages, enters the compoſition of the *chyle*, and is tranſmitted with it to the blood, communicating to it its inteſtine motion, and thus preventing the natural tendency of the fluids to putrefaction. See DIGESTION.

CHYLOSIS, in *Medicine*, the action whereby the aliment is converted into *chyle*, or *chyme*, in the ſtomach, &c. whether it be by a ferment in the ſtomach, or the contractile force of the ſtomach, or both.

CHYME, an animal juice, which is, according to ſome, the ſame with that commonly called CHYLE.

Some, however, diſtinguiſh between *chyme* and *chyle*; reſtraining the word *chyme* to the maſs of food, &c. while in the ſtomach, before it be ſufficiently comminuted and liquefied to paſs the *pylorus* into the *duodenum*, and thence into the lacteals, to be farther aſſuted and impregnated with the pancreatic juice; where it commences *chyle*. And others diſtinguiſh and denominate them the contrary way.

In the common ſignification of the word, it denotes every kind of humour which is increaſſated by concoction. Galen uſes it to ſignify the guſtatory faculty or quality in animals and plants.

CHYMICAL. *adj.* See *Chymical* OIL.

CHYMISTRY, or CHEMISTRY, is a ſcience, the object of which is to diſcover the properties of bodies by analyſis and by combination.

Critics are divided as to the etymology of the name *chymiſtry*: it is uſually derived from χυμος, *juice*; or from χεω, *to melt*. Boerhaave, and others, more juſtly derive it from the Egyptian *chema*, or *kema*, *black*; and write it *chemia*, not *chymia*. Others, making Cham the inventor of *chymiſtry* derive the term from his name; ſupporting their etymology on the ſignification of the word חם, *cham*, which in the Hebrew ſignifies *heat*, *hot*, *black*; all of them bearing ſome relation to the operations of *chymiſtry*.

Chymiſtry is alſo known under various other names: it is ſometimes called the *Hermetical art*, from a ſuppoſition of its being invented by Hermes Triſmegiſtus. Others call it the *Egyptian art*, from the people among whom it was firſt practiſed: others, the *ſacred*, or *divine art*; and *philoſophic* or the art of *making gold*, &c. Others call it the *ſpagyric art*; Paracelſus, the *philoſophic art*: and others, *pyrotechnia*. The chief object of *chymiſtry* is to analyſe, or decompound, natural bodies; reduce them to their firſt principles; diſcover their hidden virtues; and demonſtrate their inner contexture, or the centre, as they call it, wherein natural ſubſtances concur. In a word, *chymiſtry* is the anatomy of natural bodies, by means of fire; which is the definition Hanneman gives us of the art.

Boerhaave defines *chymiſtry* more ſcientifically: "An "art whereby ſenſible bodies contained in veſſels, or ca"pable of being contained therein, are ſo changed, by "means of certain inſtruments, and principally of fire, "that their ſeveral powers and virtues are thereby diſ"covered, with a view to philoſophy, medicine, &c."

This definition appears very prolix and circumſtantial, and more like a deſcription than a definition: but with all his endeavours, that author aſſures us, he could not frame a ſhorter, that would expreſs the full ſcope, object, and inſtruments of *chymiſtry*, ſo as to diſtinguiſh it from every other art: which is a point all the writers of *chymiſtry* have ſtumbled at.

For *chymiſtry* cannot juſtly be called the art of *refining bodies*, as Regius, Paracelſus, &c. define it; ſince mechanics will alſo do that: nor is the matter mended, by ſaying, it is the art of *analyſing bodies by fire*: as Helmont has done: nor by *ſalt*, as others would have it. Theſe definitions include only a part, inſtead of the whole. And with as little propriety is it termed, the art of *ſeparating the pure from the impure*; inaſmuch as it compounds as well as ſeparates, and frequently mixes the pure with the impure. *Chymiſtry*, on this footing, appears a very extenſive art: its object, or the *materia chymica*, is all ſenſible bodies, capable of being contained in veſſels; and is accordingly divided into three kingdoms, *foſſil*, *vegetable*, and *animal*. The operations of *chymiſtry* include all the changes produced in bodies by natural agents or inſtruments; viz. *decoction*, *infuſion*, *exhalation*, *calcination*, *extraction*, *diſtillation*, *cryſtallization*, &c.

The effects, or productions of *chymiſtry*, may be reduced to *magiſteries*, *extracts*, *tinctures*, *elixirs*, and *ſpirituous*.

The *inſtruments*, or *agents of chymiſtry*, whereby its operations are performed, are, *fire*, *water*, *air*, *earth*, *menſtruums*; and *inſtruments* properly ſo called, as *alembics*, *cucurbits*, *retorts*, *pelicans*, *furnaces*, and *lutes*. See *Table of Chemical Veſſels*.

Chymiſtry, as now conceived, is an aſſemblage of very different

different parts, which anciently subsisted separate, or at least had a subsistence prior to each other; as the preparing of metals for human uses, the attempts of transmuting the baser metals into gold, the preparing of medicines, &c. If we are to trace the antiquity of *chymistry*, as an art that teaches to convert other metals into gold, or to procure an universal remedy for all diseases, the research will not carry us far back; but as it relates to the discovery of metals in the mine, and the digging, separating, and purifying them, it challenges even the highest antiquity; and is held by some very learned persons to have been practised in the antediluvian world.

Be this as it will, *chymistry*, no doubt, was first practised in Egypt. According to Moses, Tubal Cain should be the first inventor. Profane authors refer it to Vulcan, and some of the latest and best critics endeavour to shew, that Tubal Cain and Vulcan were the same; as indeed there is a great resemblance between their names.

After Tubal Cain, the first *chymist* we read of is Moses; whose skill in *chymistry* is incontestible, from his burning and pulverising the golden calf the Israelites had set up, and giving it the people to drink; there being scarce a more difficult operation in all *chymistry*, than to make gold potable.

Democritus likewise is said to have been instructed by the Egyptian priests in many *chymical* operations; e. g. in the arts of softening ivory, vitrifying flints, and imitating precious stones. In this abstract of the history of *chymistry*, it is needless to mention the claims of Hermes Trismegistus, or to give any account of books on this subject, under his name, as they are generally reckoned to be spurious. Some authors observe, that Diocletian, after the taking of Alexandria, ordered all the books of *chymistry*, anciently written by the Egyptians, for making gold and silver, to be sought out and burnt; that they might not have the power of enriching themselves by this art, or of putting themselves, by this means, into a condition of revolting again.

Chymistry had the common fate of the other arts, at the declension of the Eastern empire; and lay buried and forgot till the time of Roger Bacon, who retrieved it. He was followed by Lully, Ripley, Basil Valentine, Paracelsus, Agricola, Van Helmont, Glauber, Boyle, Lemery, Homberg, &c. by whom the art has been carried to its present degree of perfection.

The first *chymists* confined themselves to metals: and they made many absurd and unsuccessful attempts for transmuting metals into gold; whilst some of them, as Raymond Lully, and Paracelsus in particular, were possessed with the no less extravagant notion of an universal medicine, to which, however, we may attribute the establishment of rational *chymistry* on the ruins of alchemy. In these latter ages, the bounds of *chymistry* have been greatly enlarged; and plants, animals, minerals, &c. have been taken into it.

It is but of late that *chymistry* has been applied to the preparation of medicines: Basil Valentine, and Arnoldus de Villa Nova, seem to have been the first that attempted it. Paracelsus and Van Helmont carried it to such a length, as to render medicine almost wholly *chymical*.

Authors on the subject of *chymistry* are very numerous: Borel has published a catalogue of most of them, under the title of Bibliotheca Chymica; containing the names of above four thousand. Barner, physician to the king of Poland, was one of the first who arranged the principal *chymical* experiments, and added rational explications, in a work entitled Chymia philosophica perfecte delineata, &c. Norimb. 1689. Becher, Stahl, and Boerhaave deserve to be particularly recorded; the former have established an admirable theory, which is the surest guide in *chymical* researches, and the conformity of which with the phenomena of *chymistry* successive experiments have evinced; and the latter has given both the history, theory, and practice, in an orderly and scientifical method. Dr. Freind has attempted to reduce *chymistry* to Newtonianism, and to account for the reasons of the operations on *chymical* principles. There are many later writers, who have either directly or indirectly, in various ways, contributed to the extension of this science. See Dr. Lewis's valuable edition of Neumann's Works; and the English translation of Macquer's Chemical Dictionary, with many additions and improvements annexed to it by the translator.

Chymistry is divided into *metallurgic*, *alchymic*, *chymical pharmacy*, and *chymical philosophy*. See METALLURGIA, ALCHYMY, &c.

Chymistry again is divided into,

CHYMISTRY, *commercial*, used to denote the application both of technical and philosophical *chymistry*, to the establishing, supporting, or improving any branch of trade or commerce.

CHYMISTRY, *economical*, the application of philosophical, technical or commercial *chymistry*, to the service and accommodation of the affairs of the family.

CHYMISTRY, *philosophical*. Philosophic *chymistry* consists of three parts, viz. *invention*, *ratiocinii*, and *experiment*; whence we may define it to be a particular exercise of the rational and inventive faculties of the mind, leading to experiments, and thence to the discovery of causes, so as to form axioms that shall rationally account for phenomena, and discover rules of practice for producing useful effects. And thus philosophical *chymistry* is not only the key to all the other parts, but it discovers of itself the causes of many natural phenomena, as particularly earthquakes, volcanoes, vegetation, the growth of minerals, and the like.

This branch of *chymistry* also explains the general forms and qualities of bodies, wherein their properties and effects depend; as volatility and fixedness, fluidity and firmness, colours, tastes, odours, effervescence, fermentation, solution, precipitation, congelation, extraction, and the like.

To this part of *chymistry* it also belongs to bring new inventions to the test, to discover their validity or insufficiency. Thus when any hint is started for a new trade, or method invented for the improvement of an old one, before any attempt is made to apply it in the larger way, it should be experimented in miniature; as the alchymaster tells the owner of an ore whether it will be worth the erecting large works for it, or not.

CHYMISTRY, *technical*. By technical *chymistry* is meant the application of philosophical *chymistry* to the immediate service of arts, so as by its means to invent, form, assist, promote, or perfect them in the large way of business.

CHYMISTRY, *theory of*. Under the theory of this art are to be laid down all the general truths which the particular experiments of chymists have hitherto demonstrated. These are, on this occasion, to be taken for granted, and the whole body of such truths makes the universal theory of *chymistry*, for *chymistry* is no science formed *a priori*; it is no production of the human mind, or raised by reasoning, but collected *a posteriori* from experiments; it took its rise from various operations casually made, and observing those that had one and the same uniform tendency, without any expectation of what followed; and was only reduced into an art, by collecting and comparing the effects of such uncertain experiments, and noting the tendency thereof: so far then as a number of experiments agree to establish any unquestionable truth, so far they may be considered as constituting the theory of *chymistry*. Such a theory is necessary to be premised to every art; and something equivalent to this is practised by every artisan, in teaching his disciple how to proceed orderly in the exercise of his art; and accordingly it would be impossible to teach the practice of *chymistry* to advantage, without having first given some such theory. In the forming such a theory of *chymistry*, a direct use may indeed be made of the demonstrations in physics, as particularly in mechanics, hydrostatics, and hydraulics; since the properties common to all bodies, and what farther affections certainly flow therefrom, have their place in *chymistry*. One cannot, however, be too reserved in this use, since those singular properties found in some bodies, will, if applied to others, falsify the mechanical demonstrations, which might hold true every where else.

Due regard being had to this rule, the discoveries of naturalists and mathematicians will always be advantageous, never injurious, to the art of *chymistry*.

CHYMOLOGI, among the *Botanical Students*, such as have employed their time in investigating the qualities and properties of plants from their taste and smell.

CHYMOSIS, in *Medicine*, the act of making and preparing CHYME.

The word comes from χυμος, *succus*, of χεω, *fundo*, *I melt*.

Chymosis, according to some, is the second of the concoctions made in the body; being a repeated preparation of the most impure and gross parts of the chyle, which being rejected by the lacteals, is imbibed by the meseraics, and thence carried to the liver, to be there elaborated, purified, and substituted afresh. It is of this, according to Rogers, that the animal spirits are formed.

CHYMOSIS, or rather CHEMOSIS, is also used for an inflammation of the eye-lids, which turns out their inside to sight.

In which sense, the word comes from χαινω, *hisco*, *I gape*.

CHYTLA, in *Antiquity*, a liquor made of wine and oil, and sometimes used in divination.

CHYTRI, among the Athenians, a festival in honour of Bacchus and Mercury, kept on the thirteenth of the month Anthesterion.

CIBDELOPLACIA, in *Natural History*, the name of a genus

genus of spars. The word is derived from *schistos, impure*, and *vitrum, a crust*. The bodies of this genus are terrene spars, that is, are composed of spar, debased by a very large admixture of earth, and are not therefore of the least brightness or transparency; and are found formed into thin crusts, coating over vegetable and other extraneous bodies in form of incrustations. Of this genus there are five known species, some of them used in medicine, and distinguished by particular names.

CIBDELOSTRACIA, in *Natural History*, the name of a genus of spars. The word is derived from *schistos, fouled or adulterated with extraneous matter*, and *ostracon, a crust or shell*.

The bodies of this genus are crustaceous spars, so highly debased with earth, that they appear in the naked eye mere earths: they are destitute of all brightness or transparence, and are formed into thin plates, and usually found incrusting over the sides of fissures of stones.

Of this genus there are seven known species.

CIBORIA, in *Antiquity*, the large flasks of Egyptian glass, which are said to have been so large as to serve for drinking cups; whence they had their name *ciborium*, signifying a *cup*, in the Egyptian language.

CIBORIUM, in *Ecclesiastical Writers*, the covering for the altar. This covering is supported by four high columns, and forms a kind of tent for the eucharist, in the Romish churches. Some authors call it *tecta pensilia*, and others *pyxis*. But the *pyxis* is properly the box in which the eucharist is preserved.

CIBOULS. See ONIONS.

CIBUS *ferinus*, in *Antiquity*, an entertainment peculiar to a funeral; for which purpose, beans, parsley, lettuce, bread, eggs, lentils, and salt were in use.

CICADA, the *bala cracker*, in *Zoology*, the name of a genus of insects of the order of *hemiptera*, common in Italy, and some other parts of the world, but not found in England. It has large wings, and makes a loud noise, somewhat like that of the cricket. See *Tab. of Insects*, N° 5, and HARVEST-*fly*.

They are recommended by some in medicine as remedies for colics, powdered and mixed with pepper, or burnt to ashes alone, are given in nephritic cases.

CICADA *equestris*, the *water-grasshopper*, a name very injudiciously given by Rondeletius to an animal found frequently in standing waters, of a greyish colour, with six legs, and the appearance of the rudiments of wings; it is remarkable also for having a sort of mask before the face, which it removes or lifts up at pleasure. It is a poor defenceless animal, and is a prey to almost all the other water animals, even to many that are smaller than itself: it has no sort of relation to the GRASSHOPPER; but is the hexapode, or worm state of one of the *libellæ*, or DRAGON-*flies*.

The hinder pair of legs are much longer than the others, and are used in swimming, as oars, in the manner of those of the NOTONECTA.

CICADA *of North America*. This insect is seen annually, but in no great numbers, in Pensylvania; but at certain periods of fourteen or fifteen years, they come forth in such swarms, that they are called *locusts*. They are the prey of so many animals, that their numbers soon decrease; and their duration by order of nature being short, they quickly disappear.

There are two distinct species of *cicada* in North America. See a curious account of the largest sort, by Mr. Collinson, Phil. Trans. vol. liv. N° 10 an. 1764.

CICADULA, in *Natural History*, the name given by Mr. Ray to a small species of insect, called by Swammerdam *locusta pulex*, and found in May and June on the stalks and leaves of plants, involved in a spumous white matter, commonly called cuckow-spit. This spume is not exhausted, as some suppose, from the plant, but from the mouth of the animal; and if it be well wiped away, without injuring the creature, more will be immediately seen issuing out of its mouth, till there is as large a quantity of it as before.

There are several species of this animal, and while they lie in froth they are of the shape of a louse, some being of a whitish, some of a yellowish, and some of a green colour. The hinder legs are somewhat larger than the others, and there is an appearance of the rudiments of wings at the shoulders. They often change their skins while they live in this froth, and only creep at this time; but when they leave the plant, they hop and fly, having large wings which cover the whole body.

CICATRICULA, in *Natural History*, a little whitish speck, or vesicle, in the coat of the yolk of an egg; wherein the first changes appear towards the formation of the chick. The *cicatricula* is what is otherwise called the eye of an EGG.

CICATRISIVE, CICATRIZANT, in *Medicine*, is applied to such remedies as are very deficcative; and on that account aid nature to repair the skin, and to form a cicatrix, or eschar.

Such are Armenian bole, powder of tutty, and the unguentum *diapompholygis*, *defensivum rubrum*, &c.

Cicatrisive medicines are otherwise called *ischaratica, epulotica, incrassantia, agglutinantia*, &c.

CICATRIX, in *Medicine*, &c. a little seam, or elevation of callous flesh, rising on the skin, and remaining there after the healing of a wound, &c. ordinarily called a *scar*, or *eschar*.

Some derive the word from *circa cutem*; others form *cicatrix* from *occocatrix*; the *cicatrix* being only *obductio vulneris, the covering up, or hiding of the wound*: but it is better derived from *cæcatrix*, which has the same force as of the verb *cæcare, to blind*.

The *cicatrix* is the same with regard to the joining of the fleshy parts, as a *callus* is to the bones.

In young infants, these callosities, or scars, sometimes much diminish, and oftentimes quite vanish when come to age, as particularly observed in the pits of the small pox: and, in growing, they are sometimes observed to change their situation.

In large wounds, where there has been a loss of substance, an even *cicatrix* is not to be expected, without great care in the surgeon. When an even, thick, and white matter appears in the wound, it is to be dressed either every day, or every other day, as occasion shall require: the superfluous matter must at every dressing be wiped away with a very light hand; and it is indeed much better to leave some of it in the wound, than to treat that roughly in taking it away; for wiping the wound too roughly, hinders the growth of new flesh; but a little matter being left, only performs the office of oil or balsam, in keeping the parts moist. These rules being observed, new flesh will presently spring up, and the WOUND unite: but that an even *cicatrix* may be procured, the surgeon must endeavour by degrees to lessen the new flesh, by the application of dry lint, covered with a tight bandage. When this does not prove sufficient, it may be proper to use some of the drying balsams, or drying powders, such as tutty, *lapis calaminaris*, mastich, colophony, &c. Rectified spirit of wine is frequently used for this purpose also, with great success, for it carries a very great astringent and drying virtue with it.

See observations on a deep wound of the brain that cicatrized, by Tedecius, in the Col. Acad. tom. iii. P. E. p. 407.

CICATRIZING, in *Medicine*. See CICATRISIVE.

CICCA, in *Botany*, a genus of the *monœcia triandria* class; the male flowers of which have a four-leaved calyx, and no corolla; the female have a three-leaved calyx, no corolla, four styles, and a capsule including four berries.

CICELY, in *Botany*. See CHERVIL.

CICER, the *chickpease*, in *Botany*. See CHICK-PEA.

CICERULA, in *Botany*, a name given by some authors to the common fenchus, or fow-thistle.

CICERONIANISM, or CICERONISM, an appellation given by way of contempt to those moderns, who dispute the propriety of all expressions and words not found in Cicero.

CICERUM *lapis*, the *chick-stone*, in *Natural History*, a name given by some authors to a sort of small round stones, of the nature of the pisolithe or pea-stones, but smaller than those usually are, and of a dusky grey colour. They very exactly resemble the fruit of the cicer or chick-pea, and are found in great abundance near the old Jerusalem.

CICERELLUS, in *Ichthyology*, a name given by Boccone, and some other authors, to the AMMODYTES or sand-eel; the *tobianus* of Schonevelder.

CICHORIUM, *succory*, in *Botany*. See ENDIVE.

CICINDELA, in *Natural History*, the name of the GLOW-*worm*.

CICINDELA *volans*. See GLOW-*worm*.

CICISBEO, an Italian term, which in its etymology signifies a *waiting-page*, which has been followed in Italy both on lovers, and on those who by outward appearance act as such, attending on married ladies with as much attention and respect as if they were their lovers. This Italian custom has been spoken of very reproachfully by some writers: Mr. Sareth has taken great pains to vindicate it. He ascribes it to a spirit of gallantry, derived from the ages of chivalry, and much heightened and refined by the revival of the Platonic philosophy in Italy, about the thirteenth century; and by the verses of Petrarch in complement to the beautiful Laura, and his numerous imitators. Account of the Manners, &c. of Italy, vol. i. chap. 8.

CICLA, in *Botany*, a name given by some to the white beet.

CICLA, in *Ichthyology*, a name given by Artedi, and other

late writers, to a species of fish called *chichle* by Ariſtotle and Ælian, and THUNDUS *minor* by the generality of late writers. See VERDONE.

CICONIA, in *Ornithology*, the name by which authors call the ſtork. See STORK.

CICUTA. See HEMLOCK.

There are not wanting authors among the Germans, who recommend the ſeed of the common *hemlock* againſt obſtructions in the ſpleen; but as we have already remedies enough in the ſame intention, which are not ſuſpected as poiſonous, it is beſt to be contented with them, till a great many more trials have been made of this new medicine than we have accounts of at preſent.

CICUTA is alſo uſed, chiefly among the ancients, for a poiſonous juice, or liquor, expreſſed from a plant called *cicuta aquatica*; being the common poiſon wherewith the ſtate criminals at Athens were put to death.

The *cicuta* of the ancients is a ſecret now ſcarce poſſible to be diſcovered. Wepfer in an expreſs treatiſe on the ſubject, will have it the OENANTHE *cicutæ ſuccis, foetæ virgis*; which he deſcribes by the name of *cicuta aquatica*; and of the diſmal effects of which he gives a very ample relation. At leaſt the violence of this plant makes it a much fitter inſtrument of haſty death than the common *cicuta* or hemlock, which is much leſs malignant. Though ſome have ſuggeſted, that the poiſonous draught to which the Athenians doomed their criminals, was an inſpiſſated juice compounded of the juice of *cicuta*, and ſome other *corrective* herbs. Vide Mead's Eſſay on Poiſons, 4to. Bibl. Med. tom. iii. p. 281.

Socrates drank the *cicuta*. Plato, in his Dialogue on the Immortality of the Soul, obſerves, that "The execu-"tioner adviſed Socrates not to talk, for fear of cauſing "the *cicuta* to operate too ſlowly." M. Perit, in his Obſervationes Miſcellaneæ, remarks, that this adverti ſement was not given by the executioner out of humanity, but to ſave the *cicuta*: for he was only allowed ſo much poiſon *per annum*, which if he exceeded, he was to furniſh the reſt at his own expence. This conſtruction is confirmed by a paſſage in Plutarch: the executioner who adminiſtered the *cicuta* to Phocion, not having enough, Phocion gave him money to buy more; obſerving, by the way, that it was odd enough, that at Athens a man muſt pay for every thing, even his own death.

CICUTARIA. See HEMLOCK, and CHERVIL.

CIDARIS, the mitre uſed by the Jewiſh high prieſts. Whenever there is mention of the high prieſt's mitre, the Hebrew word *mitſnephath* is uſed: but *migbaath* is uſed to ſignify the bonnet belonging to common prieſts. The rabbins ſay the ſame thing is meant by both theſe terms, and that the bonnet uſed by prieſts in general was made of a piece of linen cloth fifteen yards long, which covered their heads like an helmet or a turban: and they allow no other difference to be between the high prieſt's bonnet, and that of other prieſts, than this, the one is flatter, and more in the form of a turban, whereas the other worn by ordinary prieſts roſe ſomething more in a point. Exod. xxviii. 4.

It is to be obſerved, that the Hebrew prieſts never appeared in the temple without covering their heads. And this at this day it is reckoned an incivility in the Eaſt, and a mark of contempt, for any man to pull off his hat or turban to another, or to ſhew his naked head before any one.

CIDARIS, in *Conchyliology*. See TURBAN-*ſhell*.

CIDER, a briſk, tart, cool liquor, prepared from apples. See CYDER.

CIERGE, in *Conchyliology*, a name given by the French to a ſea-ſhell, a ſpecies of VOLUTA. This is of the colour of common yellow wax, without any variegations on the ſurface; but when its rough coat is taken off, it makes a very different appearance, having the zones and colours of the onyx. It is preſerved in many cabinets, in this ſtate, under the name of the onyx ſhell.

CIGALE, in *Natural Hiſtory*, the French name for the *cicada*, particularly for the large kind, called *achetæ* by the ancients. See HARVEST-*fly*.

CIGNE, in *Conchyliology*, the SWAN-*ſhell*, a name given by the French to that ſpecies of *voluta*, which, beſide this name, is known by two other very different ones, *cierge* and *wax*, and is taken by the generality of collectors for three different ſhells. When it has its natural coat on, it is of a rough ſurface, and yellow colour, much like that of common wax, whence it is called cierge, or the wax-ſhell. When this coat is juſt taken off, it appears of a very beautiful white, and is then called the *cygne*, or ſwan-ſhell; and when it is poliſhed further down, ſo as to ſhew its inner ſtructure, it appears zoned in the manner of the onyx, and is then called the *onyx*.

CIGALON, in *Natural Hiſtory*, the name by which the French writers call the ſmaller ſpecies of cicada, as they do the larger the cigale. The ancients were acquainted with two ſpecies of cicada; a great one, and a ſmaller one: the laſt of theſe they called *tettigonia*, and the firſt *achæta*. It has been uſually ſuppoſed, that the *cigalon* of the moderns was their *tettigonia*: but Mr. Reaumur obſerves, that we have in reality three kinds of them, a large, a middling, and a ſmall one, and that the large was their *achæta*, the middle one their *tettigonia*; and that the *cigalon*, or ſmall one, which is about the ſize of a hornet, was wholly unknown to them. See HARVEST-*fly*.

CILERY, in *Architecture*, a term uſed to denote the drapery or leavage on the heads of columns.

CILIA, in *Anatomy*, the hairs wherewith the *palpebræ*, or eye-lids, are fringed; eſpecially the upper, which are larger and ſtiffer than thoſe of the under.

Their uſe ſeems to be, to break the too fierce impreſſion of the rays of light; as alſo to keep out flies and moths, and other things floating in the air, which might annoy the eye.

Theſe *cilia* ſpring from a ſmall row of glands, which cover a thin tender cartilage, edging each eye-lid, and ſerving as a kind of rod, or ring, to ſtretch them upon.

CILIARE, in *Anatomy*, an epithet given to a pair of the eye, called *ligamentum ciliare*; becauſe of its relation to the *cilia*, or hair of the eye-lids.

The *ligamentum ciliare*, called alſo *proceſſus ciliaris*, conſiſts of a range of black fibres diſpoſed circularly; having their riſe in the inner part of the *uvea*, and terminating in the prominent part of the cryſtalline, which they encompaſs round.

Anatomiſts generally imagine their uſe to be to ſuſpend the cryſtalline in the globe of the eye, to lengthen or ſhorten its figure, and bring it nearer to, or farther from the *uvea*; and even to open or contract the pupil as occaſion requires, i. e. as near or remote objects, obſcure or bright objects, are to be viewed.

The motion of the pupil, ſome ſay, is effected by the circular and ſtrait fibres of the *uvea*; others attribute it to the *ciliary* ligament: yet, there is no great doubt, but they both concur in the ſame action; and that the *ligamentum ciliare* doth at the ſame time the pupil opens or ſhuts, dilats or compreſſes the cryſtalline, and bring it nearer, or carry it farther off the *retina*. Derham, Phyſ. Theol.

M. Mariotte denies the *ligamentum ciliare* to have any connexion with the cryſtalline, or to ſerve for any purpoſes thereof.

CILIARIS, in *Anatomy*, a muſcle, otherwiſe called ORBICULARIS *palpebrarum*.

CILIATED *leaf*, among *Botaniſts*. See LEAF.

CILICIA *terra*, in the *Natural Hiſtory of the Ancients*, a bituminous ſubſtance, though called an earth, which, by boiling, became tough like bird-lime, and was uſed inſtead of that ſubſtance to cover the flocks of the vines, for preſerving them from the worms. It probably ſerved in this office in a ſort of double capacity, *driving* thoſe animals away by its naſeous ſmell, and *entangling* them if they chanced to get among it.

CILICIUM, a ſort of habit made of coarſe ſtuff, of a black or dark colour, formerly in uſe among the Hebrews, in times of mourning or diſtreſs. It was called *Ciliciom*, becauſe it came from Cilicia, or rather becauſe the Cilicians invented this kind of habit, made of goat's hair, and uſed principally in camps and ſhips, by ſoldiers and mariners.

CIMA, or SIMA, in *Architecture*, a member or moulding, called alſo *ogee*, and *cymatium*. *See Tab. Archit. fig.* 8.

CIMELIANTHUS, in *Natural Hiſtory*, a name given by authors to a ſpecies of the *ocular ſtone*. It is deſcribed to be of a white colour, reſembling that of marble, with a yellow pupil in the middle. It was found on the ſhores of the Euphrates.

CIMELIARC, in *Church Architecture*, the room where the plate, veſtments, &c. belonging to the church are kept. In Engliſh, a veſtry.

CIMEX, BUG, in *Natural Hiſtory*, the name of a genus of inſects, the characters of which are theſe: the head is ſmall; the back, towards the ſhoulders, is broad, and is covered with a cruſtaceous ſubſtance: its ſhoulders are of an angular make; and its wings partly cruſtaceous, partly membranaceous, and are ſo formed, that they exhibit the figure of a croſs, where they meet at the middle of the back; and they have a long probocis, which is bent under the belly, and always lies ſtraight, not in a ſpiral form.

Mr. Ray divides the *cimices* into two kinds, thoſe of a ſhorter, and thoſe of a longer and narrower make. Of the firſt kind he deſcribes eight ſpecies.

Of the other kind of *cimices*, which have longer and narrower bodies, Mr. Ray mentions five kinds.

The

The house-bug, or *cimex lectularius*, so extremely troublesome about beds, is of a roundish figure, of a dark cinnamon colour; and when crushed, emits a most offensive smell.

Many are the compositions and ointments prescribed for destroying them; but it is hardly possible to eradicate them when once they get into furniture. Some recommend to wash the bedsteads with oil of turpentine, or to paint them with verdigreafe ground in linfeed and oil of turpentine: others to make an ointment of wormwood, rue, common oil, and water boiled together, and mixed with fulphur; a mixture of hemp, oil, and oxgall, has been fometimes ufed; and an ointment made of equal quantities of black and common foap, and quickfilver, has been applied to the places infefted with *bugs*. After all, cleanlinefs is the greateft fecurity againft thefe vermin.

There are alfo two fpecies of water-*cimices*.

Befide all thefe, which are properly of the *cimex* kind, there is another fet of infects mentioned by Mr. Ray, as nearly approaching to them, and defcribed under the name of the CIMICIFORMES *muſcæ*.

CIMICIFORMIS *muſca*, in *Natural Hiſtory*, a name given by Mr. Ray to a kind of infects, partly of the fly, and partly of the CIMEX kind. Of thefe there are eleven fpecies defcribed in his hiſtory. Thefe are all found about our hedges in dry places, and are a beautiful fet of infects.

CIMICIFUGA, in *Botany*, a genus of the *dioecia polyandria* clafs, bearing male and female flowers; with a five-leaved calyx, twenty ſtamina, and no corolla; the capſule is polyſpermous.

CIMIER, in the French *Heraldry*. See CREST.

CIMOLIA *terra*, in *Natural Hiſtory*, a name by which the ancients expreſſed a very valuable medicinal earth; but which later ages have ſuppoſed to be no other than our common tobacco-pipe *clay* and FULLER'S *earth*.

The *Cimolia terra* of the ancients was found in ſeveral of the iſlands of the Archipelago, particularly the iſland Cimolus, from which it had its name, and which is now called Argentiere; and was uſed with great ſucceſs in the St. Anthony's fire, inflammations, and other external affections of a like kind, being applied by way of a cataplaſm to the part. They alſo uſed, as we do, what we call *Cimolia*, or fuller's earth, for bleaching linen, and cleaning of cloaths. This earth of the ancients, though ſo long diſregarded, and by many ſuppoſed loſt, is however yet very plentiful in Argentiere, Sphanto, and many other of thoſe iſlands; and is a marle of a lax and crumbly texture, and a pure bright white colour, and very ſoft to the touch. It was evidently the ſubſtance we now call *ſteatites*, or the ſoap-rock, common in Cornwall, and alſo in the iſland of Argentiere or Cimolus.

CIMOLIA *alba*, the officinal name of the earth or clay of which we now make tobacco-pipes. Its diſtinguiſhing characters are, that it is a denſe, compact, heavy clay, of a dull white colour, and very cloſe texture; it will not eaſily break between the fingers, and ſlightly ſtains the ſkin in handling. It adheres firmly to the tongue; melts very ſlowly in the mouth, and is not readily diffuſible in water; and is not acted upon by acids. It is found in many places. That of the iſle of Wight is much eſteemed for its colour. When applied to uſe, it is mixed with another ſort of white clay, there called Hayter's clay. We have vaſt plenty of it alſo near Pool in Dorſetſhire, and near Weddenbury in Staffordſhire.

A third ſort of white *Cimolia*, differing from the former in not being unctuous, and ſuffering no change in the fire, is dug near Lymington in Hampſhire, and likewiſe applied to no uſe. A fourth ſort, tinged and veined with yellow, which turns to a pale red, acquires in the fire a whiter colour, but no hardneſs, is dug on the banks of the Medway, near Maidſtone, and uſed for the manufacture of gallypots at Vauxhall. A fifth ſort diſſolves readily in water, and burns to a greater hardneſs and a cleaner white: it is dug near Barnſtaple in Devonſhire, and uſed in making the broſely tobacco-pipes. A ſixth ſort is gleaſine; ſuffers little change in the fire: is dug near Wareham in Dorſetſhire, and called Pool clay; and uſed for tobacco-pipes.

CIMOLIA *nigra*, is of a dark lead-colour, hard, dry, and heavy; of a ſmooth compact texture, and not friſcid: it does not colour the hands, crumbles when dry, adheres to the tongue; diſſolves ſlowly in water; and is not acted upon by acids. It burns perfectly white, and acquires a conſiderable hardneſs. The chief pits for this clay are near Northampton, where it is uſed in the manufacture of tobacco-pipes. It is alſo mixed with the *cretiſe* clay of Derbyſhire, in the proportion of one part to three, in the manufacture of the hard reddiſh brown ware.

CIMÆA, in *Natural Hiſtory*, the name of a ſtone found in the head of a fiſh, of a whitiſh colour, and oblong figure. The ancients ſuppoſed it preſaged tempeſts when its ſurface looked duſky and obſcure; and, on the contrary, fair weather, when it looked bright and clear.

CINÆDOLOGIA, among the *Ancients*, a kind of ſatirical poetry, the chief ſubjects of which were the *cinædi*.

CINÆDUS, in *Antiquity*, is uſed to ſignify a dancer or pantomime.

At firſt they performed only on the ſtage, but afterwards were admitted to the entertainments of princes.

CINÆRUS, in *Ichthyology*, the name of a fiſh common in the Archipelago, about the ſhores and rocks, ſuppoſed by many to be the ſame ſpecies with the alphefiſes, and of the tunina kind, only with its back-fin prickly all its length. It is of a yellowiſh hue all over, blended and variegated with an admixture of purple; its ſcales are doubled and indented; and its teeth very ſtrong and firm, and diſpoſed in two rows in each jaw, and are long and ſharp.

CINARA, *artichoak*, in *Botany*. See ARTICHOAK.

CINCHONA, in *botany*, the name by which Linnæus calls the tree which produces the Jeſuits bark. This is a peculiar genus of plants, of the *pentandria monogynia* claſs; the characters of which are theſe: the cup is a ſmall perianthume, compoſed of one leaf, divided into five ſegments, and remaining after the flower is fallen. The flower conſiſts of one petal, and is of a funnel ſhape; it is a long and cylindric tube, terminating in a wide expanded edge, which is divided into five ſerrated and pointed ſegments: the ſtamina are five ſmall filaments, and the apices oblong, and placed within the tube of the flower; the piſtil conſiſts of a roundiſh germen placed below the cup, a ſtyle which is of the length of the flower, and a thick oblong ſimple ſtigma; the fruit is a roundiſh capſule, at the top of which ſtands the cup by way of a crown; this capſule contains two cells, and when ripe opens longitudinally into two parts. The ſeeds are very numerous, and are oblong, compreſſed, and ſurrounded with a ſulcaceous edge. See CORTEX *Peruvianus*.

CINCLUS, in *Ornithology*, a ſpecies of the FRINGA. It is given by ſome to the bird called in Engliſh the greater reed-ſparrow, and by the generality of authors JUNCO.

CINCLUS is alſo the name of a ſpecies of STURNUS or STARLING.

CINCLUS *prior*, is alſo a name given by Aldrovandus to a bird, the ſame with what we call the LINNET.

CINCLUS *tertius*. See GIARLOLO.

CINCTURE, or CINCTURE, in *Architecture*, a ring, or liſt, at the top and bottom of the ſhaft of a column; ſeparating the ſhaft, at one end, from the baſe; and at the other from the capital. *See Tab. Archit. fig.* 24. and 25.

The word, in its original French, ſignifies *girdle*; of the Latin, *cinger*, *I girt*.

That at the bottom is peculiarly called *aſtragal*; as if the pillar took its flight hence: and that at top, *collarin*, or collar.

The *cincture* is ſuppoſed to be an imitation of the girths, or ferrils, anciently uſed to ſtrengthen and preſerve the primitive wooden columns. See ORDER.

CINEFACTION. See CINERATION.

CINERARIA, *Ivy-flower*, in *Botany*, a genus of the *ſyngeneſia polygamia ſuperflua* claſs: with a naked receptacle; and ſingle, polyphyllous, equal calyx.

CINERARIA, in *Botany*, a name by which ſome authors have called the *ſtatice maritima*, or ſea-ragwort, becauſe of the grey colour of its leaves.

CINERARIUS, in *Antiquity*, an officer retained by the women, whoſe buſineſs it was to provide aſhes proper for tinging the hair with a deep yellow colour. He was otherwiſe called *cinifo*.

CINERARIUS is alſo uſed to ſignify one who paid a veneration to the aſhes and relics of martyrs and ſaints.

CINERATION, in *Chemiſtry*, the reduction of wood, or any other combuſtible matter, into aſhes, by means of fire.—This, others call *cineſaction*.

CINERES. See ASHES.

CINERES *Etnæi*, a name given by authors to a duſky and ſaline ſubſtance thrown out of mount Ætna, in form of powder, and reſembling aſhes. After an eruption of this mountain, theſe ſaline aſhes are found ſcattered about the opening itſelf, down the ſides of the mountain, and over the country for ten miles, or more, round. Thoſe aſhes, which are found thrown to the diſtance of eight or ten miles, are generally taken up in form of a very dry duſt, almoſt inſipid to the taſte: but what lie upon, and round about the ſkirts of the mountain, are very different; they are never dry, though they lie many months expoſed to the ſun's heat, which is very great there, but always feel damp and wet, and are compoſed of larger or ſmaller lumps, and not of a fine

powder,

powder, as the more distant are. They are of a very strongly vitriolic taste, resembling that of our common green copperas. From this taste, and from the great quantities of matter resembling a sort of crocus Martis, and with these a great abundance of sulphur, which is burnt away, and the vast quantities also which are sublimed about the mouths, and left unburnt, it appears, that the common pyrites is contained in vast abundance in the bowels of the mountain, since green vitriol and sulphur are its produce, and nothing is to easy as to calcine it with the purple powder resembling crocus Martis which is the third substance so frequent there. This gives great weight to the opinion of those who believe all the eruptions of the burning mountains in the several parts of the world to be owing to this mineral. See PYRITES and VOLCANO.

CINERES *clavellati*, among *Chymists*, are the ashes of tartar, or lees of wine, burnt.

CINERITIOUS, a term applied to things resembling ashes; particularly in point of colour and consistence.

Thus, the cortical part of the brain is also called the *cinerious* part.

CINGULUM *fœtorius*. See GIRDLE.

CINIFLO, in *Antiquity*, the same with CINERARIUS.

CINNA, in *Botany*, a genus of the *monandria digynia* class. The calyx is a bivalve single-flowered glume; and the corolla is a bivalve glume. The seed is single.

CINNABAR, in *Natural History*, a mineral substance, red, heavy, and brittant; found chiefly in the quicksilver mines, and being one of the ores of that mineral.

The word comes from *anaxa*, *the smell of goats*, because, says Matthiolus, in digging one kind of mineral *cinnabar*, it yields so strong a scent, that the diggers are obliged to stop their nostrils.

Some have wildly imagined *cinnabar* to be DRAGON'S-*blood*, gathered, as Pliny and Solinus have it, when the dragon and elephant fight together. This fable is refuted by Dioscorides, and Scaliger.

Cinnabar is either *native*, or *factitious*.

CINNABAR, *native*, or *mineral*, which is that above mentioned, is found in most places where there are quicksilver mines.

It may be esteemed as an ore of quicksilver, or rather as quicksilver petrified and fixed, by means of sulphur, and a subterraneous heat; chemistry being found to reduce it, without much trouble or loss, to the nature of MERCURY. Each pound of good *cinnabar* yields fourteen ounces of mercury. Accordingly, the principal property and use of this mineral is to yield a most excellent mercury; and that which the alchemists maintain to be the best disposed for attaining to the transmutation of gold.

The principal mines of *cinnabar* are those of Kremnitz in Hungary; of Hydria in Schavonia; of Horowitz in Bohemia; of Carinthia, of Friouli, and of Guancavelica in Peru. The *cinnabar* of the Philippines in Asia is of the highest colour; but the richest is that of Almaden in Spain, on the frontiers of Estramadura.

Jussieu has given a circumstantial memoir on the subject of *cinnabar*, in the A. D. B. an. 1719.

To discover whether a mineral contains mercury, or is true *cinnabar*, Jussieu recommends reddening a bit of it in the fire; and when it appears covered with a little bluish saline, to put it under a glass cover, through which we are to observe whether the vapours condense under the form of small drops of mercury adhering to the glass, or running down the sides of it. The falsification of *cinnabar*, the same author observes, may be discovered by the colour of its flame when put upon burning coals. If it be blue approaching to violet, and without smell, it is a mark of its purity; if the flame be of a reddish call, there is ground to suspect that it has been adulterated with MINIUM; and if it boils as it were on the coals, it is a presumption, if not a proof, that it contains a mixture of DRAGON'S-*blood*. Fixed alcalies, quick lime, calcareous earths, iron, copper, tin, lead, silver, bismuth, and regulus of antimony, have a greater affinity than mercury has to sulphur, and consequently are capable of decomposing *cinnabar*.

The best mineral *cinnabar* is of a high colour, brilliant, and free from heavy matter. It is used by physicians in venereal cases, and other occasioned by sharp serosities. It is esteemed a good cephalic, and accounted of service in epilepsies, and other nervous distempers: and is reckoned of efficacy in cutaneous cases, as the scurvy; and used in fumigations, when its vapours penetrate the pores of the skin, and produce similar effects to those which are produced by mercury administered by friction. Care must be taken, however, that the patient be not exposed to breathe the vapours of the mercury and burning sulphur by which he might be injured.

CINNABAR, *factitious*, or *artificial*, is formed of a mixture of mercury and sulphur, sublimed, and thus reduced to a kind of fine red globe. The best is of a high colour, and full of fibres, like needles.

The method of preparing factitious CINNABAR is thus: they take sulphur, one part, melt it in a pipkin; then put to it, by a little at a time, from six to eight parts of quicksilver, stirring them together till no mercury appears; then letting them cool, they grind the mixture, put it in a bolt-head, bake it, and place it over a naked fire, which they augment by degrees; a coloured fume arises first to the top of the subliming vessel, which, in the farther progress of the heat, becomes, at length, of a red, crimson hue. Taking it off the fire, the *cinnabar* is found at top.

Hoffman says, that *cinnabar* may be produced without sublimation, by flushing or digesting a little mercury with volatile tincture of sulphur, by which means the mercury imbibes the sulphur from the volatile spirit, and forms with it a deep red powder, not inferior in colour to ordinary *cinnabar*.

This serves for the same medicinal purposes with the *native cinnabar*: besides which it is likewise used by the farriers to make pills for their horses; and by painters, as a colour: it being a very vivid red, but drying with some difficulty.

This *cinnabar*, called also by the painters VERMILION, is rendered more beautiful by grinding it with gum-water, and a little saffron to prevent its growing black.

There is likewise a *blue cinnabar*, made by mixing two parts of sulphur with three of quicksilver, and one of *sal ammoniac*: these being sublimed, produce a beautiful blue sublimate; whereas quicksilver and sulphur alone produce a red.

The chemists prepare other kinds of artificial *cinnabar*; as,

CINNABAR *of antimony*, so called, because its sulphur has been furnished by antimony, is obtained from the decomposition of corrosive sublimate by antimony. These compound substances are mixed together, and distilled: and during the operation, the marine acid of the corrosive sublimate quits the mercury, and combines with the regulus of antimony, forming *butter of* ANTIMONY; and the mercury of the sublimate, disengaged from its marine acid, unites with the sulphur of the antimony disengaged from its regulus: these two substances, thus united, are sublimed in form of *cinnabar*, after the butter of antimony has been distilled. This kind of *cinnabar* contains more sulphur than the *factitious*, and consequently appears of a darker colour.

Mercury revived from *cinnabar* of antimony is greatly to be preferred to that obtained by any other means, both for amalgamating with metals, and for all uses in medicine; for this mercury is perfectly freed and depurated from its metallic, terrene, and heterogeneous particles, by the sulphur of antimony.

The manner of reviving mercury from *cinnabar* of antimony, is variously delivered by different authors; but most of them prefer the use of pot-ashes to any thing else on the occasion. Hoffman, however, who has written expressly on the subject, says, that filings of steel or copper are greatly to be preferred to these salts. In the making *cinnabar* of antimony, it should be sublimed often, in order to render it quite pure, and perfect: and afterwards, when it is to be given internally, it should be powdered extremely fine, since in the common way of giving these medicines grossly ground, they can only exert their operations in the *prima via*, it being impossible for them ever to reach the lacteals, and thence to be received into the mass of blood. Many ways have been thought of for exalting the virtues of this excellent medicine, such as solution, fixation, and the drawing a tincture from it. Solution in acid menstrua is wholly to be condemned, for it renders it corrosive and dangerous to be taken internally; and the other insipid and æthereal dissolvents which many chemists boast of, are not yet known. The only medicinal preparation that has been contrived of *cinnabar* on this plan, is that by pouring sweet spirit of vitriol on it. This makes only a slight and superficial solution; but the liquor becomes very rich, in virtues far exceeding the *cinnabar* itself, when taken in powder.

Many ways have been attempted to fix *cinnabar*, by means of common salt, sweet sulphur, and oil of vitriol; and Hoffman gives a method of doing this in so perfect a manner, by means of spirit of nitre and oil of vitriol, that the mercury of it will not purge gold white, and a piece of the *cinnabar* thus fixed being thrown upon burning charcoal, will burn all away, leaving no remainder. Crucifixus boasts of a preparation of *cinnabar* of this kind, with which he cured the gout; and by his own accounts this seems to be the very preparation; and the same preparation has been found an excellent cure for stubborn quartans,

quartans, mixed with extract of bark, gentian, and salt of wormwood.

The drawing a tincture from *cinnabar* of antimony seemt impracticable for many reasons; all that is pretended to be done of this kind being in reality only drawing a tincture from one part, not from the whole of the medicine; and therefore such a tincture cannot be expected to contain all its virtues.

Cinnabar is the best of all correctors of opium; and an excellent preparation of this kind is published by the same author.

Cinnabar is by some much dreaded as a medicine, in all cases of inflammation, hæmorrhages, and the like distemperatures of the body; but Stahl reports from repeated experience, that it is one of the greatest of all medicines in these very cases, nothing more efficaciously quieting the violent emotions of the blood, or supplying so happily the place of opiates; his general prescription in hæmorrhages, head-achs, and other the like affections, being nitre, crabs eyes, and *cinnabar*. Frid. Hoffman Dissert. de Cin. Ant.

It is held a diaphoretic and alterative; and is used in scrophulous, and other chronic cases.

Hoffman recommends it as a sedative and antispasmodic; Stahl makes it an ingredient in his *temperate powder*. Others deny its internal efficacy, and urge that it is unsoluble by any menstruum.

CINNAMOLOGUS, in *Natural History*, among the ancients, the name given to a bird which built its nest either in the cinnamon-tree, or upon rocks and precipices, with the broken branches of that tree. The ancients have a great many idle traditions concerning this bird: some say it is the phœnix; and others, that it is a peculiar species of fowl. The common opinion of the phœnix building its nest of spices, seems to have given birth to all the idle stories that we hear of this bird in Pliny and other credulous authors.

CINNAMON, an agreeable aromatic spice, brought from the East Indies; the whole taste and flavour of which may be extracted by digestion with spirit of wine.

Cinnamon is allowed to be the bark of a tree growing in the island of Ceylon; and, as some say, also in Java and in Malabar. It is a species of the bay; for the characters of which, see BAY-*tree*.

By *cinnamon* is now understood that only produced in Ceylon; that of Java, Sumatra, and Malabar, is called CASSIA *lignea*.

The *cinnamon*-tree grows in woods, like other trees. It never rises high: its leaves resemble those of the laurel, both as to substance and colour. The flowers, when they first begin to open, are red as scarlet; and if rubbed between the hands, they yield an odour more like that of cloves than of *cinnamon*. Seba says he found them blue, and of the bigness of the Italian bean-flower. The fruit resembles an acorn, or olive; and has neither the smell nor taste of the bark. These berries are an excellent carminative, and are much used in medicine. When boiled in water, it yields an oil, which, as it cools and hardens, becomes as firm and white as tallow; and is called by the Dutch *cinnamon wax*. Its smell is agreeable: and they make candles of it, which are only allowed to be burnt in the king's palace. It is also used in physic, as a balsamic, and healer.

The leaves of the *cinnamon*-tree are called *folia Malabathri*, and yield a bitterish aromatic oil, called *oleum Malabathri*, reputed excellent against cephalalgias, &c.—See an account of the *cinnamon*-tree, by Mr. Watson F. R. S. Phil. Trans. vol. xlvii. an. 1751 N° 46. p. 301.

The chief virtue of the *cinnamon*-tree is in its bark; which, when green, appears to be double: its exterior surface being brownish, and the inner of the common *cinnamon* colour.

It is then divisible into two barks of different colours; but these drying together become inseparable, and pass for the same bark; the brownish colour changing in proportion as it dries.

When the *cinnamon* is fresh taken from the tree, it is flat, and has little taste, smell or colour; but it twists or convolves, as it dries, in form of a stick, or cane; whence the French call it *canelle*.

By thus exhaling its superfluous humidity, it acquires a sweet brisk smell, and a sharp pungent taste. It is said, that after the tree has been stripped of its bark, in three years it forms a new one, which is as good as the first: but this is not very probable. The Ceylonese cut down their *cinnamon*-trees, as soon as they are stripped, close to the root: and from the stump there spring up new ones, which in five or six years time become trees fit for barking. A sort of pigeons which feed on the fruit of the *cinnamon*-tree, are the chief agents in propagating it. In carrying the fruit to a distance to their young, they drop it in various places, where it takes root. Vide Phil. Trans. N° 409. p. 164, &c.

Some hold that the small branches of the same tree make the CASSIA; but that is a great mistake.

The natives draw from the roots of the tree a liquor, which, as it hardens, in all respects resembles camphor; and which in reality is a true camphor.

Cinnamon, to be good, must have a brisk, agreeable taste, and a bright brown colour. Its qualities are, to heat and dry; to promote the menses, to fortify the spirits, and to help digestion: but its chief use, in medicine, is as an astringent; with which intention it is prescribed in diarrhœas, and weaknesses of the stomach.

The *cinnamon* of the ancients was different from that of the moderns; they distinguished five kinds of *cinnamon*: the *nitrites*; *cinnamon of the mountain*; *black* and *branched cinnamon*; another white and spongious; and a fifth, of less value, reddish and of a strong smell: as also a *bastard cinnamon*, called *macrober*. This last species was anciently in very high esteem, but it is now no longer known.

They extract an oil from *cinnamon*, called its *essence*, or *quintessence*, which is an excellent cardiac: it is drawn by distillation, like the oils of other vegetables. Indeed, being heavier than most other essential oils, it requires a greater heat to raise it. And for the same reason it sinks to the bottom of the water that comes over with it into the receiver; whereas others swim on the surface: the essential oil of cloves, sassafras, guaiacum, and box, excepted. The Dutch are said to have a method of preparing, or rather, adulterating oil of *cinnamon*, which is kept a secret among themselves. And the common *cinnamon* is often adulterated with that out of which this essence has been extracted.

Cinnamon, by means of fire, furnishes, besides its oil, watery, extracts, and salts; out of which are compounded syrups, and pastils, called *sico-saccharo*; together with an essence, that serves to turn all manner of wines, white and red, into hypocras.

CINNAMON-*water* is made by distilling the bark (first infused for some days) in spirit of wine, brandy, or white wine.

All the *cinnamon* consumed in Europe comes from the Dutch; who have got the whole commerce thereof in their own hands, by becoming masters of the isle of Ceylon, and destroying all the other *cinnamon*-trees about the kingdom of Cochin.

The Dutch, who are the proprietors of Ceylon, are so jealous of this tree, which affords so valuable an article of their commerce, that the fruit or young plants are forbidden by an order of the states, to be sent from thence, left other powers might avail themselves of it. But it appears, from Mr. Watson's account above referred to, that this prohibition has not been of very long standing. The Dutch, however, have been fortunate enough hitherto to keep it to themselves.

CINNAMON, *wild*, is also the bark of a tree growing in Brasil and Madagascar; where it is known under the name of *ravensara*. The Portuguese call it *arvre de marenhum*.

This bark pulverised, is sometimes substituted for real cloves, though far short of them in respect of flavour. Sassafras is sometimes also called *cinnamon-wood*. See SASSAFRAS.

CINNAMON, *white*, which some call *cortex cariocus*, or *carioxat*, or erroneously *cortex Winteri*, *Winter's bark*, from the person's name who first brought it into England, is the bark of a tree, resembling the olive-tree, frequent in the islands of St. Domingo, Guadaloupe, and Madagascar; called by the natives *simpli*.

This bark, which dries like that of *cinnamon*, is at first brownish, of a sharp biting taste, like pepper, and a smell like musk: as it dries it whitens. Some use it in lieu of nutmeg, and in medicine it is used as a stomachic, and sometimes as an antiscorbutic.

The same tree also yields a gum called *bdellium*, sometimes *bdellium*, which is no disagreeable perfume. See *White-terrene* CORTEX and WINTERANUS.

CINNAMUM, the name given by many of the old writers on the *materia medica* to *cinnamon*.

The Arabian writers, when they treat of *cinnamon*, have three words by which they express it; these are *falicha*, *falfar*, and *karfe*.

CINNUS, in *Ancient Medicine*, a drink made of the decoction of wheat, to which was added some flour of barley, honey, and wine.

CINQUEFOIL, *Quinquefolium*, or *Potentilla*, in *Botany*, a genus of the *icosandria polygynia* class. Its characters are these: the empalement of the flower is of one leaf, which is slightly cut into ten parts; the segments are alternately less and reflexed. The flower is composed of

of five petals, which are inserted into the empalement, and spread open. In hath twenty awl-shaped ſtamina inſerted in the empalement, terminated by moon-ſhaped ſummits. In the centre of the flower are ſeveral germina collected into one head, with very ſlender ſtyles inſerted in the ſides, crowned by obtuſe ſtigmas. After the flower is paſt, the germina become a head of roundiſh ſeeds, included in the empalement.

There are many ſpecies of this genus preſerved in botanic gardens, for variety, but they are not cultivated in other places either for uſe or beauty.

The firſt ſort grows naturally upon cold ſtiff land in moſt parts of England, and is a ſure mark of the ſterility of the ſoil. It ſpreads its ſtalks upon the ground, which ſend out roots from their joints, and thereby propagate to a conſiderable diſtance; but it never flowers in a cold ſoil. The leaves of this plant are uſed in medicine, and are accounted aſtringent and vulnerary.

The other ſorts are natives of different parts of Europe.

CINQUEFOIL, *marſh*. See COMARUM.

CINQUEFOIL *root*, in the *Materia Medica*, the name of a root which is an ingredient in ſeveral of the officinal compoſitions. The plant which produces it is the common *cinquefoil*, which grows every where by way-ſides. The root conſiſts of a cortical and ligneous or ſticky part, but the cortical only is uſed. It is eſteemed drying and aſtringent, and antiſeptic. Some have given it in agues, in as large doſes as the cortex, and have cured with it. In thoſe fluxes of the bowels, and in good in diſorders of the lungs, and in the *fluor albus*, and gonorrhœa, either in men or women. It is, however, very little regarded in the preſent practice. See Phil. Tranſ. vol. xlix. part ii. p. 835.

CINQUE PORTS, *Quinque portus*, five havens that lie on the Eaſt part of England, toward France; thus called by way of eminence, on account of their ſuperior importance; as having been thought by our kings to merit a particular regard for their preſervation againſt invaſions.

Hence, they have a particular policy, and are governed by a keeper, with the title of *lord warden of the cinque-ports*; which office belongs to the conſtable of Dover: and their repreſentatives are called barons of the *cinque-ports*.

They have various privileges granted them, as a particular juriſdiction; their warden having the authority of an admiral among them, and ſending out writs in his own name: and the king's writs do not run there.

Camden tells us, that William the the Conqueror firſt appointed a warden of the *cinque-ports*; but king John firſt granted them their privileges: and that upon condition they ſhould provide eighty ſhips at their own charge, for forty days, as often as the king ſhould have occaſion in the wars; he being then ſtrengthened for a navy to recover Normandy.

There are alſo ſeveral towns adjoining, to which the privileges of the *cinque-ports extend*.

There are ſeveral courts belonging to theſe ports; one before the lord warden; others within the ports themſelves, before the mayor and jurats; another, which is called *curia Quinque Portuum apud Shepway*: a writ of error lies from the mayor and jurats of each port to the lord warden in his court of Shepway; and from this court to the king's bench: and a writ of error lies from all the other juriſdictions to the ſame ſupreme court of juſticature, in token of the ſuperiority of the crown when theſe franchiſes were created. All prerogative writs as thoſe of *habeas corpus*, *prohibition*, *certiorari*, and *mandamus*, may likewiſe iſſue to all theſe juriſdictions. They have likewiſe a court of chancery, to decide matters of equity, but no original writ iſſues thence.

Theſe five ports are, Haſtings, Romney, Hythe, Dover, and Sandwich; to which Winchelſea and Rye have been ſince added.—Thorn tells us, that Haſtings provided twenty-one veſſels, and in each veſſel twenty-one men. To this port belong Seaford, Pevenley, Hedney, Winchelſea, Rye, Hamine, Wakelbourn, Crenecth, and Fortheſlope.—Romney provided five ſhips, and in each twenty-four men. To this belong Bromhal, Lyde, Oſwarthorn, Dungeneſs, and Romenhal.—Hythe furniſhed five ſhips, and in each twenty-one ſeamen. To this belongs Weſtmeſtth.—Dover the ſame number as Haſtings. To this belong Folkſton, Feverſham, and Margc.—Laſtly, Sandwich furniſhed the ſame with Hythe. To this belong Fordwic, Reculver, Serre, and Deal.

CINQUE-PORT *ſed*. See NAT.

CINTRE, in *Building*, the mould in which an arch is turned; popularly called *centre*, ſometimes alſo *cradle*.

CINYRA, in the Jewiſh *Antiquities*, a muſical inſtrument. This and the Hebrew *cannor*, which is generally tranſlated *cithara*, *lyra*, or *pſalterium*, are the ſame. It was made of wood, and was played on in the temple of Jeruſalem. Joſephus ſays, that the *cinyra* of the ſecond had ten ſtrings, and that it was touched with a plectrum. In another place he ſays that Solomon made [illegible] wherein he contradicts the Scripture, which ſays in that Solomon's *cinnors* were of wood.

CION, or CYON, in *Gardening*, a young ſhoot, ſprig, or ſprig, put forth by a tree.

Grafting is performed by the application of the [illegible] of one plant upon the ſtock of another.

To produce a ſtock of *cions* for grafting, planting, &c. the gardeners ſometimes cut off the bodies of trees, a little above the ground, and only leave a ſtump or root ſtanding; in this caſe the redundant ſap will not fail next ſpring to put forth a great number of ſhoots.

In dreſſing DWARF-*trees*, a great many *cions* are to be cut off. See PRUNING.

CION, in *Anatomy*, is ſometimes uſed for the UVULA.

CIONES, in *Antiquity*, a kind of idols very common, being only oblong ſtones erected pillar-wiſe: whence alſo they had their name.

CIPHER, or CYPHER, one of the numeral Characters, or figures; formed thus, 0.

The word *cipher* comes from the Hebrew ספר *ſaphar*, *to number*.

The *cipher* of itſelf implies a privation of value; but when diſpoſed with other characters on the left thereof, in the common arithmetic, it ſerves to augment each of their values by ten; and in decimal arithmetic, to leſſen the value of each figure to the right thereof, in the ſame proportion.

CIPHER denotes alſo a kind of enigmatic character, compoſed of ſeveral letters interwoven; which are ordinarily the initial letters of the perſons names, for whom the *cipher* is intended.

Theſe are frequently uſed on ſeals, coaches, and other moveables. Anciently merchants and tradeſmen were not allowed to bear arms; in lieu thereof they bore their *ciphers*, or the initial letters of their names, artfully interwoven about a croſs; of which we have divers inſtances on tombs, &c.

CIPHER is alſo applied to certain ſecret characters, diſguiſed and varied; uſed for the writing of letters that contain ſecrets not to be underſtood by any but thoſe between whom the *cipher* is agreed on. This is now reduced into a ſeparate art, called *cryptographia*, *polygraphia*, and *ſteganographia*; but it appears to have been little known to the ancients.

De la Guilletiere, in his Lacedæmon Ancient and Modern, endeavours to make the ancient Spartans the inventors of the art of writing in *cipher*.

Their ſcytala, according to him, was the firſt ſketch of this myſterious art; theſe ſcytalæ were two rollers of wood, of equal length and thickneſs; one of them kept by the ephori, the other by the general of the army ſent on any expedition againſt the enemy.

Whenſoever thoſe magiſtrates would ſend any ſecret orders to the general, they took a ſlip of parchment, and rolled it very juſtly about the ſcytala which they had reſerved; and in this ſtate wrote their intentions, which appeared perfect and conſiſtent while the parchment continued on the roller: when taken off, the writing was maimed, and without connexion: but it was eaſily retrieved by the general, upon his applying it to his ſcytale. Polybius ſays, that Æneas Tacticus, two thouſand years ago, collected together twenty different manners of writing, ſo as not to be underſtood by any but thoſe in the ſecret; part whereof were invented by himſelf, and part uſed before his time. Trithemius, Bap. Porta, Vigenere, and P. Niceron, have written expreſsly on the ſubject of *ciphers*.

As the writing in *cipher* is become an art; ſo is the reading, or unravelling thereof, which is called *deciphering*. See DECIPHERING.

CIPHER *with a ſingle key*, is that wherein the ſame character is conſtantly uſed to expreſs the ſame word, or letter; this is eaſily deciphered with a little application.

CIPHER *with a double key*, is that wherein the alphabet, or key is changed in each line, or in each word; and wherein are inſerted many characters of no ſignificancy, to amuſe and perplex the meaning.

CIPHERING, or CYPHERING, is popularly uſed for the art of accompting; properly called *arithmetic*.

CIPPUS, among *Antiquaries*, a little low column, erected in roads, or other places, with an inſcription thereon; either to ſhew the way to travellers, to ſerve as a boundary, or preſerve the memory of ſomething remarkable, and particularly the grave of a defunct.

The

The *cippi* placed in the highway, for the convenience of travellers, were more properly called *miliary* COLUMNS. Hottinger has an express treatise of the *cippi* of the Jews, De *cippis* Hebræorum; wherein he takes *cippus* for the tomb-stone of a defunct.

CIPPUS was also used in antiquity for a wooden instrument wherewith criminals and slaves were punished; being a kind of clog, or stocks for the feet.

CIRCADA, a tribute anciently paid to the bishop or archdeacon, for visiting the churches.

CIRCÆA, in *Botany*. See *Enchanter's* NIGHT *shade*.

CIRCEA. See CIRCÆA.

The name *circea* is given by some to the mandrake, or common mandragora.

CIRCELLIONES. See AGONISTICI.

CIRCENSES *ludi*, CIRCENSIAN *games*, or *games of the* CIRCUS, a general term under which were comprehended all combats exhibited in the Roman *circus*, of what kind soever; whether on foot or horseback, or in a car; wrestling, or boxing with *swords*, *pikes*, *darts*, or *arrows*; against men, or against beasts; on the ground, or aboard vessels.

There were few except slaves that gave the people this cruel pleasure: it was an exercise that would have disgraced people of any account. See the article GLADIATORS.

Some say, the *Circensian games* were so called from the Latin *circumsessi*; because they were held in a place incompassed round with naked swords, that the combatants might not have an opportunity of escaping.

At first they are said to have been exhibited on the brink of the river Tyber, and the ground encompassed toward the land with naked swords.

Most of the feasts of the Romans were accompanied with *Circensian games*; and the magistrates, or other officers of the republic, frequently presented the people with them on other occasions.—The grand ones were held for five days, commencing on the 15th of September.

CIRCERELIUS, in *heliology*, a name used by some authors for a fish usually called AMMODYTES, or the *sandeel*.

CIRCINALEA *Folia*. See LEAF.

CIRCINNALIS, in *Botany*, a name given by some authors to the ADIANTUM, or *maiden-hair*.

CIRCITOR, in *Ancient Military Discipline*, one whose business it was to go the ROUNDS.

CIRCITOR is also used to signify a hawker, or pedlar, who goes about from place to place to vend his goods.

CIRCIUM, a genus of plants according to Tournefort; but comprehended by Linnæus under the carduus. See THISTLE.

CIRCLE, CIRCULUS, in *Geometry*, a plane figure, comprehended under one single line, which returns into itself, having a point in the middle, from which all the lines drawn to its circumference are equal.

Properly speaking, it is the space included within the circumference, or periphery, that is the *circle*: though in the popular use of the word, *circle* is frequently used for the periphery alone. See the article CIRCUMFERENCE.

The area of a *circle* is found by multiplying the periphery by the fourth part of the diameter; or half the periphery by half the diameter.—The area is also had by finding a fourth proportional to 1,000,785, and the square of the diameter: or, to 452,355, or to 14, 11, and the square of the diameter. See DIAMETER.

Circles, and similar figures inscribed in them, are always as the squares of the diameters: so that they are in a duplicate ratio of their diameters; and therefore of their radii.

A *circle* is equal to a triangle whose base is equal to the periphery, and its altitude to the radius. *Circles*, therefore, are in a ratio compounded of the peripheries and the radii: but they are also in the duplicate ratio of their radii; therefore the peripheries are to each other as the radii.

To find the proportion of the diameter of a CIRCLE *to its periphery*. See DIAMETER.

To circumscribe a CIRCLE *about a given regular polygon*: bisect two of the angles of the polygon E and D (*Tab. Geometry, fig.* 28.) by the lines EF and DF; and on the point of concourse F, as on a centre, with the radius EF, describe a *circle*. See CIRCUMSCRIBING.

To describe any given regular polygon in a CIRCLE: divide 360 by the number of sides, to find the quantity of the angle EFD; which being made in the centre, apply the chord ED to the periphery, as often as it will go: thus is the figure inscribed in the *circle*.

Through three given points, not in a right line. A, B, C, *fig.* 7, *to describe a* CIRCLE. On A and C strike arches intersecting in D and E; and others G and H, from C and B; draw the right lines DE and HG: the point of intersection, I, is the centre of the *circle*. Hence, 1st, by assuming three points in the periphery, or the arch of any *circle*, the centre may be found, and the given arch be perfected.

2dly, If three points of any periphery agree, or coincide with three points of another; the whole peripheries agree, and the *circles* are equal.

3dly, Every triangle may be inscribed in a *circle*.

In Optics, it is shown, that a *circle* never appears truly such, unless either the eye be directed perpendicularly to its centre; or the distance of the eye from the centre, when directed obliquely, be equal to the semidiameter of the *circle*: in every other case, the *circle* appears oblong; and to make a *circle* that shall appear such, it must be oblong.

CIRCLES, *parallel*, or *concentric*, are such as are equally distant from each other in every point of their peripheries; or are described from the same centre: or, on the contrary, those struck from different centres are said to be *eccentric*.

CIRCLE, *the quadrature of the*, or the manner of making a square, whose surface is perfectly and geometrically equal to that of a *circle*, is a problem that has employed the geometricians of all ages. See the article QUADRATURE.

Many maintain it to be impossible: Des Cartes, in particular, insists on it, that a right line, and a *circle*, being of different natures, there can be no direct proportion between them: and, indeed, we are likewise at a loss for the just proportion between the diameter and circumference of a *circle*.

Archimedes is the person who has come the nearest to the quadrature of the *circle*: all the rest have made paralogisms. Charles V. offered a reward of 100,000 crowns to the person who should solve this celebrated problem; and the states of Holland have also proposed a reward for the same.

CIRCLES *of the higher kinds*, are curves wherein $AP^m : PM^n :: PM^n : PB$, or, $A^m : PM^n :: PM^n : PB^n$. *Tab. Analyt. fig.* 26. Cor. L. Suppose $A P = x$, $P M = y$, $A B = a$; then will $PB = \frac{a^m - y^n}{a^{m-n}}$. And consequently $x^n : y^n :: a^m - y^n : a^{m-n}$. Hence we have an equation that defines infinite *circles*, viz. $y^n = a^{m-n} x^n - y^n$; and another defining infinite other *circles*, viz. $y = \sqrt[n]{a^{m-n} x^n - y^n}$.

Cor. II. If $n = 1$, then will $y^n = a^{m-n} x^n$; and therefore a *circle* of the first order is contained under this equation alone. If $n = 2$, $y^2 = a^{m-2} x^2$, which equation denotes a *circle* of the second order.

CIRCLE *of curvature*, in *Geometry*, that *circle* the CURVATURE of which is equal to that of any curve at a certain point.

It is also called the *circle* of equi-curvature.

CIRCLES *of the sphere*, are such as cut the mundane sphere and have their periphery either on its moveable surface, or in another immoveable, concentrious, and equidistant surface.

Hence arise two kinds of *circles*, *moveable* and *immoveable*. The first are those whose peripheries are in the moveable surface, and which therefore revolve with its diurnal motion; as the *meridian*, &c.

The latter, having their periphery in the immoveable surface, do not revolve; as the *ecliptic*, *equator*, and its *parallels*, &c.

If a sphere be cut in any manner, the plane of the section will be a *circle*, whose centre is in the diameter of the sphere.

Hence the diameter of a *circle* passing through the centre, being equal to that of the *circle* which generated the sphere; and that of a *circle* which does not pass through the centre, being only equal to some chord of the generating *circle*; the diameter being the greatest of all chords; there hence arises another division of the *circles* of the sphere, viz. into *great* and *less*.

CIRCLES, *greats of the sphere*, is that which divides it into two equal parts, or hemispheres; having its centre in the centre thereof.

Hence, all *great circles* are equal, and cut each other into equal portions, or semicircles.

The *great circles* are the *horizon*, *meridian*, *equator*, *ecliptic*, the *colures*, and the *azimuths*; which see in their places.

CIRCLES, *lesses, of a sphere*, is that which divides the sphere into two unequal parts, and has its centre in the axis of the sphere, but not in the centre thereof.

These are usually denominated from the *great circles* they are parallel to: as *parallels of the equator*, &c.

CIRCLES *of altitude*, otherwise called *almicantars*, are *circles* parallel to the horizon, having their common pole in the zenith, and still diminishing as they approach the zenith. They have their names from their use; which is to shew the altitude of a star above the horizon.

Some

Some have suspected a variation in the apparent solstitial *altitudes* of the sun. Something of this kind was perceived by M. Cassini in 1655, by means of the great gnomon in the church of St. Petronius at Bologna; which was farther confirmed by other observations at the royal observatory at Paris. The variation observed by M. Cassini, during the course of twenty-two years, only amounted to a few seconds. And by comparing the observation made by Pytheas at Marseilles three hundred years before Christ, with another made by Cassini in 1672 at the same place, it appears, that in two thousand years time, this difference of *altitude* has only amounted to a few minutes. V. Mem. Acad. Scienc. 1693. p. 180, seq. See Ecliptic.

The *altitude* of the sun, it is said, may be found to a few seconds, with an instrument of three feet radius. But this is rarely found in fact. A French engineer, M. Hautefeuille, has proposed a new instrument, whereby he pretends to take *altitudes* even to thirds.

To find the sun's *altitude* by the globe, see the article Globe.

Circles of *declination*, are great *circles* intersecting each other in the poles of the world.

Circle of *dissipation*, in *Optics*. See the article Dissipation.

Circles *diurnal*, are immoveable *circles*, supposed to be described by the several stars, and other points of the heavens, in their diurnal rotation round the earth; or rather, in the rotation of the earth round its axis.

Thus if a right line be conceived to be continued from the centre of a star, perpendicular to the axis of the world, as far as the surface of the sphere of the world, it will describe a diurnal *circle* for it, in making one revolution about its axis.

The *diurnal circles* are all unequal: the equator is the greatest.

Circle *equant*, in the *Ptolemaic Astronomy*, is a *circle* described on the centre of the equant.

Its chief use is, to find the variation of the first inequality.

Circles *of excursion*, are *circles* parallel to the ecliptic, and at such a distance from it, as that the excursions of the planets towards the poles of the ecliptic, may be included within them; usually fixed at 10 degrees.

It may here be added, that all the *circles* of the sphere above described, are transferred from the heavens to the earth; and thence come to have a place in geography, as well as in astronomy: all the points of each *circle* being conceived to be let fall perpendicularly on the surface of the terrestrial globe, and so trace out *circles* perfectly similar to them.

Thus, the terrestrial equator is a line, conceived precisely under the equinoctial line, which is in the heavens; and so of the rest.

Circles, *horary*, in *Dialling*, are the lines which shew the hours on dials; though these be not drawn circular, but nearly straight.

Circle, *horary, on the globe*, a brazen circle fixed to the north pole, and furnished with an index, shewing the difference of meridians, and serving for the solution of many problems. The usual position of this *circle* prevents the brass meridian from moving quite round in the horizon; so that globes of the common sort cannot be applied to the solution of many problems. Mr. Harris contrived to remedy this inconvenience, by placing two *horary circles* under the meridian, one at each pole: these are fixed tight between two brass collars, placed about the axis, but so that they may be easily turned by the hand when the globe is at rest; and when the globe is turned, they are carried round with it, the meridian serving as an index to mark out the horary division. The globe, thus prepared, will serve for solving problems in all latitudes, as well as in places near the equator. Philosophical Transactions abridged, vol. viii. p. 354. See Globe.

Circle *of illumination*, is that imaginary *circle* on the surface of the earth, which is formed by a plane passing through the centre of the earth, so that the line which joins the centres of the sun and earth may be perpendicular to it, and which separates the illuminated hemisphere of the earth from the dark. This Mr. Keil calls the illuminated disc of the earth: and all lines passing from the sun to the earth, which are physically parallel, are perpendicular to the plane of this *circle*.

Circles *of latitude*, or *secondaries of the ecliptic*, are great *circles* perpendicular to the plane of the ecliptic, passing through the poles thereof, and through every star and planet.

They are so called, because they serve to measure the latitude of the stars, which is nothing but an arch of one of these *circles*, intercepted between the star and the ecliptic. See Secondary *circles*.

Circles *of longitude*, are several lesser *circles*, parallel to the ecliptic; still diminishing, in proportion as they recede from it.

On the arches of these *circles*, the longitude of the stars is reckoned.

Circle *of perpetual apparition*, one of the lesser circles, parallel to the equator; described by any point of the sphere touching the northern points of the horizon, and carried about with the diurnal motion.

All the stars included within this *circle* never set, but are ever visible above the horizon.

Circle *of perpetual occultation*, is another *circle* at a like distance from the equator, described by the southern point of the horizon; and contains all those stars which never appear in our hemisphere.

The stars situate between these *circles* alternately rise and set at certain times.

Circles *polar*, are immoveable *circles*, parallel to the equator, and at a distance from the poles equal to the greatest declination of the ecliptic.

That next the northern pole is called the *arctic*; and that next the southern one the *antarctic*.

Circles *of position*, are *circles* passing through the common intersections of the horizon and meridian, and through any degree of the ecliptic, or the centre of any star, or other point in the heavens: used for finding out the situation or position of any star.

They are usually made 6 in number; and cut the equator into twelve equal parts, which the astrologers call the *celestial houses*. Hence some call them *circles of the celestial houses*.

Circle *antarctic*. See Antarctic.

Circle, *arch of a*. See Arch.

Circle, *arctic*. See Arctic.

Circle, *axis of a*. See Axis.

Circle, *centre of a*. See Centre.

Circle, *excentric*. See Eccentric.

Circle, *equal*. See Equal.

Circle *fairy*. See Fairy.

Circle, *right*. See Right.

Circles, *secondary*. See Secondary

Circle, *segment of a*. See Segment.

Circles, *vertical*, or *azimuth*. See Vertical, and Azimuth.

Circle, in *Logic*, that fault of an argument that supposes the principle it should prove, and afterwards proves the principle by the thing it seemed to have proved.

Or a *circle* in logic, called also *syllogistic circle*, is when the same terms are proved, *in orbem*, by the same terms: and the parts of the syllogism, alternately, by each other both directly and indirectly.

Thus the papists argue, when they prove the Scriptures to be the word of God by the infallible testimony of their church, and the authority of the church by the Scripture.

There are two kinds of *circles*; the one *material*, the other *formal*.

The *formal* is that which in two reciprocal syllogisms begs the medium, which is the next cause of the greater extreme. This kind is by no means to be admitted; otherwise, the same thing becomes both prior, and posterior; the cause and effect of itself; which is absurd.

The *material circle*, called also *regressus*, consists of two syllogisms, the former whereof proves the cause by the effect; and the latter the effect by the cause: this may be admitted.

Circle, Circulus, is understood among the schoolmen of a vicissitude of generations, arising one out of another.

Thus, good concoction causes a good habit of body; a good habit of body produces strength and vigour; these occasion frequent exercises; and these a good concoction.

It is a celebrated dogma of the Scotists, "There is no "*circle* in causes of the same order, or kind."

Circles *of the empire*, are such provinces, and principalities of the empire, as have a right to be present at diets.

The division of the empire into six *circles* was established by Maximilian I. in 1500, at Augsburg; twelve years afterwards he divided it afresh, into ten *circles*; which partition was confirmed by Charles V. at the diet of Nuremberg, in 1522.

Though the order of these *circles* has never been well regulated; yet in the imperial matricula, it is as follows: the *circle* of Austria, that of Burgundy, of the Lower Rhine, of Bavaria, Upper Saxony, Franconia, Suabia, Upper Rhine, Westphalia, and the Lower Saxony.

Circolo-croce, in the *Italian Music*, is a diminution of four quavers or semiquavers, or notes of equal value, which represent a semicircle proceeding by conjoint degrees.

CIRCUIT, or CIRCUITY, in *Law*, a longer courſe of proceeding, to recover the thing ſued for, than is neceſſary.

Thus, if a man grant a rent-charge of 10*l.* out of his manor, and after, the grantee diſſeiſeth the grantor of the ſame manor, who brings an ASSIZE, and recovers the land, and 20*l.* damages; which being paid, the grantee brings his action for 10*l.* of his rent, due during the time of the diſſeiſin, and which he muſt have had, if no diſſeiſin had been; this is called *circuity of action*; becauſe, whereas the grantor was to receive 20*l.* damages, and to pay 10*l.* rent, he might have received but 10*l.* for damages, and the grantee have kept the other.

CIRCUIT is alſo the journey, or progreſs the JUDGES take, twice every year, through the ſeveral counties of England and Wales, to hold courts, and adminiſter juſtice, where recourſe cannot ſo well be had to the king's courts at Weſtminſter.

Theſe were firſt eſtabliſhed, with ſome little difference, by Henry II. and afterwards expreſly ordained by *Magna Charta*.

England is divided into ſix *circuits*; viz. the Home *circuit*, Norfolk *circuit*, Midland *circuit*, Oxford *circuit*, Weſtern *circuit*, and Northern *circuit*. Two judges are appointed to each *circuit*. In Wales there are two *circuits*, North and South Wales.

There are three *circuits* in Scotland, viz. South, Weſt, and North, which the *lords of juſticiary* go twice a year, viz. in May and October. See JUSTICIARY.

CIRCUIT, *electrical*, denotes the courſe of the electric fluid from the *charged* ſurface of an electric body, to the oppoſite ſurface into which the diſcharge is made. Some of the firſt electricians apprehended, that the ſame particles of the electric fluid, which were thrown on one ſide of the charged glaſs, actually made the whole *circuit* of the intervening conductors, and arrived at the oppoſite ſide, whereas Dr. Franklin's theory only requires, that the redundancy of electric matter on the charged ſurface ſhould paſs into the bodies, which form that part of the *circuit* which is contiguous to it, driving forward that part of the fluid which they naturally poſſeſs, and that the deficiency of the exhauſted ſurface ſhould be ſupplied by the neighbouring conductors, which form the laſt part of the *circuit*. On this ſuppoſition, a vibrating motion is ſucceſſively communicated through the whole length of the *circuit*. This *circuit* is always formed of the beſt conductors, let the length of it be ever ſo great. Many attempts were made both in France and England, at an early period in the hiſtory of electricity, to aſcertain the diſtance to which the electric ſhock might be carried, and the velocity of its motion. The French philoſophers, at different times, made it to paſs through a *circuit* of 900 toiſes, and of 2000 toiſes, or about two Engliſh miles and a half; and they diſcharged the Leyden phial through a baſon of water, the ſurface of which was about an acre. And M. Monnier found, that, in paſſing through an iron wire of 950 toiſes in length, it did not ſpend a quarter of a ſecond; and that its motion was inſtantaneous through a wire of 1319 feet. In 1747, Dr. Watſon, and other Engliſh philoſophers, after many experiments of a ſimilar kind, conveyed the electric matter through a *circuit* of four miles; and they concluded from this and another trial, that its velocity is inſtantaneous. Prieſtley's Hiſt. of Electricity, vol. i. ſect. 2. p. 128. 8vo. ed. 1775. See ELECTRICAL *ſhock*.

CIRCUITORES. See AGONISTICI.

CIRCULAR, any thing that is deſcribed, or moved in a round; as the circumference of a CIRCLE, or the ſurface of a globe.

The *circular* form is of all others the beſt diſpoſed for motion: and the moſt capacious.

The modern aſtronomers ſhew, that the heavenly bodies do not move in *circular*, but in elliptic ORBITS. See PLANET, &c.

CIRCULAR *arches*. See ARCH.

CIRCULAR *letter*, a letter directed to ſeveral perſons, who have the ſame intereſt in ſome common affair: as in the convocation of aſſemblies, &c.

CIRCULAR *line*, an appellation given by ſome to ſuch ſtraight lines as are divided from the diviſions made in the arch of a circle. Such are SINES, TANGENTS, SECANTS, &c.

CIRCULAR *numbers*, are ſuch whoſe powers end in the roots themſelves; as 5, whoſe ſquare is 25, and cube 125. See NUMBER.

CIRCULAR *parts, Neper's*, are the complements of the two oblique angles of a right angled ſpherical triangle, the complement of the hypothenuſe, and the two legs, by having any two of which the third is known. See PART, TRIANGLE and TRIGONOMETRY.

CIRCULAR *ſailing*, is that performed in the arch of a great circle.

Circular ſailing, of all others, goes the neareſt or ſhorteſt way; and yet there are ſuch advantages in SAILING by rhombs, that this latter is generally preferred.

CIRCULAR *ſpots* are made on pieces of metal by large electrical explоſions. See experiments and obſervations upon them, in Dr. Prieſtley's Hiſt. of Electricity, vol. ii. ſect. 6. ed. 8vo. and Phil. Tranſ. vol. lviii. p. 68.

Theſe beautiful ſpots produced by the moderate charge of a large BATTERY, diſcharged between two ſmooth ſurfaces of metals, or ſemimetals, lying at a ſmall diſtance from each other, conſiſt of one central ſpot, and ſeveral concentric circles, which are more or leſs diſtinct, and more or fewer in number, as the metal upon which they are marked is more eaſy or difficult of fuſion, and as a greater or leſs force is employed. They are compoſed of dots or cavities, which indicate a real fuſion. If the exploſion of a battery, iſſuing from a pointed body, be repeatedly taken on the plain ſurface of a piece of metal near the point, or be received from the ſurface on a point, the metal will be marked with a ſpot, conſiſting of all the prismatic colours diſpoſed in circles, and formed of the ſcales of the metal ſeparated by the force of the exploſion. See COLOURS.

CIRCULAR *winding ſtairs*. See STAIRS.

CIRCULAR *ſyphons, reſiſtance of a*. See RESISTANCE.

CIRCULAR *velocity*, a term in *Aſtronomy*, ſignifying the velocity of a planet, or revolving body, which is meaſured by the arch of a circle: as ſuppoſe by AB (*Tab. Aſtronomy, fig.* 10.) deſcribed on the centre of attraction S.

The *circular velocity* of a body moving from B to C, is meaſured by the arch BC.

CIRCULATING *Decimals*. See REPETEND.

CIRCULATION, the act of moving round, or in a *circle*.

We ſay the *circulation* of the blood; the *circulation* of the ſap; of the ſpirits, &c.

As in the great world we find a perpetual and orderly *circulation* of waters, conveyed from the ſea by ſubterraneous paſſages, ſprings, &c. and returned thither again by rivers, &c. ſo in the little world, man, a like circuit is obſerved; the blood being continually driven from the heart, by the arteries, to all parts of the body; and brought back again to the heart by the veins.

CIRCULATION *of the blood*. See BLOOD.

CIRCULATION *of the ſap*, is a natural motion of the nutritious juice of plants, ſuppoſed to be conveyed from the root to the extreme parts, and thence back again to the root.

The experiments of ſeveral naturaliſts and gardeners, ſeem to prove a *circulation* in the body of plants, by veins and arteries, analogous to that in animals.

M. Perrault ſtarted the *circulation* of the ſap in France, and propoſed it, in 1669, to the Royal Academy; though M. Major, a phyſician of Hamburgh, had publiſhed it, unknown to M. Perrault, two years before. A year and a half afterwards, M. Mariotte propoſed the ſame to the academy as a new thing; not knowing that M. Perrault had been before-hand with him; and the great Malpighi appears to have entertained the ſame thought about the ſame time.

The opinion, however, was not univerſally received: ſome of the ableſt botaniſts, and particularly M. Dodart, proteſted openly againſt it.

That author allows of a juice mounting from the root to the extremities of the branches; and of another deſcending from thoſe extremities to the root: the firſt imbibed from the ſoil, and digeſted in the root, for the nouriſhment of the plant; the ſecond received from the moiſt parts of the air, at the extremities of the branches. The riſing and deſcending juices, therefore, according to him, are not the ſame; or that which riſes, never deſcends, and reciprocally; i. e. there is no *circulation*.

Dr. Teng, in the Philoſophical Tranſactions, maintains, that the ſap always riſes, and never properly deſcends; having only a ſubſiding, or recidivation, which he can by no means call a *circulation*.

Mr. Switzer owns himſelf at a loſs for the method wherein a *circulation* ſhould be effected; as well as for the parity of reaſon commonly urged for a *circulation* of the ſap, and of the blood. In animals, he obſerves the degree of growth, or extenſion, is but very ſmall: ſo that the blood, not being employed in any other ſervice, may be eaſily ſuppoſed to circulate: but trees growing to an unlimited tallneſs, it is probable, the great effort of nature is employed in extending them that way; and that the nutritious juice only aſcends. He adds, that, as to the ſwelling or extenſion of trees in bulk, it evidently ariſes from the effuſion of the ſap from the heart of the tree through the pores; which dilates the whole inſenſibly, by accumulating circle on circle; which are annual gradations eaſily obſerved upon cutting a branch, or trunk, acroſs.

On the other hand it is urged in favour of a *circulation*, that the ſame experiments of ligature, and inciſion,

which evince a *circulation* in animals, have been made in plants; particularly in such as abound in sap; as the spurges, &c. and with the same success; the part between the ligature and the root swelling very considerably, and the other much less.

The ligatures are to be made with metalline rings. Dr. Lister gives us an instance, in the catapuna minor, where the ligature being only a silken thread, tied as hard as possible without breaking the skin; no greater swelling arose on one side the ligature than on the other.

Mr. Lawrence gives us a supposed demonstration of the *circulation* of the sap, from an experiment on the yellow-striped jessamine.—Upon a branch of a plain jessamine, whose stem spreads itself in two or three branches, inoculate a bud of the yellow-striped jessamine, as in autumn; as the tree comes to shoot, the following summer, some of the leaves will be found striped here and there with yellow, and this even on the branches not inoculated; till, by degrees, the whole tree, even the very wood of the young branches, will be all variegated, or striped with green and yellow.

Mr. Fairchild confirms this experiment, by a similar one of his own; having inoculated a yellow-spotted jessamine-tree, into another jessamine-tree, he found, that though the bud did not take, yet, in a fortnight's time, yellow spots began to appear on a shoot which came out of the ground from another part of the plant. But this only proves the recess of the sap, as Dr. Hales observed.

Blair is of opinion, that there are certain parts of plants which have their peculiar juices, and maintain a *circulation* in themselves, independent of the rest of the plant. The fleshy and thick roots of some plants, and the fruits of others are of this number of peculiar parts. This is analogous to what we see in some parts of animal bodies also. Of this scheme, the bark, the wood, and the pith of a tree, may be compared to the bones, the skin, and the marrow of animals: while the nourishment is sent in abundance to one part of these, it is allowed more sparingly to the rest. Thus while a young tree shoots out its tender boughs in spring, the juice ascends upward to them from the root; but when these have acquired their due length, the motion of the sap is determined upward with less violence, and the bark and wood are nourished and increased by it. This is the reason why in spring trees grow in height, and in autumn increase in thickness.

As to the manner of the *circulation*, Malpighi, Grew, &c. by means of microscopes, have discovered, that the wood of plants consists of fine capillary tubes, which run parallel from the root, through the trunk, and may be looked on as arteries; and on the outside of these, betwixt the wood and the inner bark, are other large tubes, to do the office of veins.

Now, the root having imbibed a flock of juice from the earth, that juice will be put in motion by the heat; that is, it will be rarefied, and made to ascend in form of a steam, or vapour; meeting, therefore, with the open mouths of the arterial vessels, it will pass through the same to the top and extreme parts of the tree, with a force answerable to the heat by which it is put in motion: when it is there arrived, meeting with the cold of the external air, it is condensed into a liquor, and in that form returns, by its own weight, towards the root through the venal vessels above mentioned.

The ingenious Dr. Hales has clearly shewn, by a variety of experiments and observations, that there is no *circulation* in vegetables analogous to that of the blood in animals. The motion of the sap is solely occasioned by the strong attraction of the capillary sap-vessels, assisted by the vibrations resulting from the warmth of the sun; in consequence of which the sap is carried up to the top of the tallest trees, and perspired off through the leaves. The ascent of the sap is principally promoted by the plentiful perspiration of the leaves; and this power, he observes, does not seem well adapted to make the sap descend from the tops of vegetables, by different vessels, to the root. He allows, indeed, that the sap has an alternate, progressive, and receding motion, occasioned by the interchanges of day and night, warmth and cold, moisture and dryness. That the sap does not descend between the bark and wood, he concludes from the experiment of taking off the bark of a tree, about three or four inches in breadth quite round; the consequence of which will be that the bleeding of the tree above this part will much abate; whereas it ought to have the contrary effect, by intercepting the course of the refluent sap, if it descended by the bark. But this experiment confirms the opinion which he has adopted, that the sap ascends between the bark and the wood, by the vigorous operation of the perspiring leaves, and attracting capillaries. It is likewise alledged, that sea-plants have no longitudinal capillary sap-vessels, but that their whole substance is composed of vesicles, receiving their nourishment immediately from the surrounding water: so that *circulation* is not necessary in order to vegetation. M. Mustel has further confirmed this opinion. Having placed several shrubs in pots near the windows of his hot-house, some within, and some on the outside, he contrived to convey a single branch of each through a hole in the glass; those whose trunks were in the open air had a branch in the hot-house, and those whose trunks were in the hot-house had a branch exposed to the open air. The consequence of this disposition was, that the branches which were in the hot-house very soon began to discover their buds, and to put forth leaves, shoots, and flowers. Some of the external branches were killed by the intense cold; nor was there visible the least sign of vegetation: and yet the branches, within the house, were not in the least affected by the chilled state of their trunks. Those trees, on the contrary, that were within the house, vegetated, and their branches were covered with leaves and flowers, whilst the single branch that was conveyed to the outside was in the same state with those that grew abroad, and derived no advantage from the heat to which the trunks and other branches were exposed. From these curious and decisive experiments, M. Mustel infers, that there is no regular or general *circulation* of the sap in trees between the trunk and the branches; and that each part of a tree is furnished with a quantity of sap, independent of any supply from the trunk or other branches, sufficient to effect the first production of buds, flowers, and fruits, provided that the juices are put into motion by heat. See on this subject Hales's Statical Essays, vol. i. chap. 4. and vol. ii. Appendix, Observation 7, and Phil. Trans. vol. lxiii. part i. art. 15. p. 126, et seq. See PERSPIRATION, PLANTS, and VEGETATION.

CIRCULATION *of the spirits, or nervous juice*. That the spirits circulate, is evinced, in the same manner as some authors choose to prove the *circulation* of the blood, viz. that as the heart drives out, every shour, three or four thousand ounces of blood; whereas ordinarily, there is not above two thousand in the whole body; there is a necessity for the blood, driven out, to return to the heart, in order to supply a fund to be expelled.

In like manner it is shewn, that there is formed, each hour, a large quantity of spirits, which are nothing but the more subtil parts of the blood driven out from the heart; whence it is inferred, that these too must circulate.

The course they are supposed to take, is this. The most subtil parts of the arterial blood, being carried from the heart to the brain by the carotid arteries, are thrown violently into the fine net-work wherewith the bottom of the ventricles of the brain is lined; whence the more delicate parts are driven into the mouths of the choroid arteries, where they continue their rapid motion, and discharge themselves at the pores where those vessels terminate around the pineal gland.

Hence they enter that gland, and there form a constant spring of spirits; which, being here purified, enter the cavities of the brain; and insinuating into the pores of its substance, flow into the lymphatics; whence they are carried to the heart by two ways; those from the upper parts by the subclavian veins, and the adjacent vessels; those from the lower, being discharged into Pecquet's reservoir, proceed by the thoracic duct, and at last, by the descending veins, to the heart; whence they begin their course afresh. See ANIMAL *spirits*.

CIRCULATION, *subterraneous*. Dr. Plot is one of the many authors who have argued for a subterranean *circulation* of water, by means of which many springs and rivers are supplied with that water which they give again to the sea. It is probable, indeed, that many of the smaller springs are supplied by rains, only where the country and situation are favourable; but the larger rivers, and the springs which supply them, must have their origin from such a subterranean *circulation*, since all the water, that falls in a year in the whole earth, is not one five hundredth part the quantity of that discharged into the sea at the mouths of rivers, as appears by careful and moderate calculations. There are some springs which ebb and flow with the sea: these cannot be doubted as to their origin, which is evidently from that body of water whose motions they are influenced by. Nor is the case much less clear in regard to those lakes which have salt water and sea-fish in them, and yet have no communication with any sea by any known cut or passage.

The number of shell-fish and parts of sea-animals dug up in several places, at great depths within land, are also urged by some as proofs of such subterranean passages of the sea-water; but these are too universally distributed through the strata of the earth, to have been brought in this manner, and are, therefore, rather supposed to be owing

owing to the great change made in the earth by the flood *in the days of* Noah. See VAPOUR, &c.

CIRCULATION, in *Chemistry*, is an operation whereby the fame vapours, raifed by fire, falls back, to be returned and diftilled feveral times, and thus reduced into its moft fubtil parts.

Circulation is performed by difpofing the liquor in a fimple veffel, ftopped at top, called a *pelican*; or in a double veffel, conftiting of two pieces, luted on each other; the lower to contain the liquor and its vapours.

It is performed either by the heat of a lamp, or that of afhes, or of fand moderately hot, or in dung, or by the fun. It ufually demands a continued heat of feveral days, fometimes of feveral weeks, or even feveral months. By *circulation*, the fineft part of the fluid mounts to the top of the veffel; and, finding no iffue there, falls back again, and rejoins the matter left behind at the bottom, whence it arofe: and thus, by continuing to rife and fall, alternately, in the veffel, there is effected a kind of *circulation*, or vemixtion, of the fpirituous parts with the grofs ones; whereby the former are rendered finer, and more fubtil, and are better difpofed to exert their activity, when feparated from the latter.

CIRCULATORY, CIRCULATORIUM, in *Chemiftry*, the veffel wherein a fluid is put, to undergo the procefs of CIRCULATION.

There are two kinds of *circulatories*; the *diota*, or DOUBLE *veffel*; and the PELICAN.

CIRCULUS, in *Geometry*, *Logic*, &c. See CIRCLE.

CIRCULUS, among *Chemifts*, is a round iron inftrument, ufed in cutting off the necks of glafs-veffels; which they effect thus. The inftrument, being heated, is applied to the glafs veffel, and there kept till the latter grows hot; then, by a few drops of cold water, or a cold blaft thereon, it flies even and regularly off. Thus they cut off the necks of retorts, or cucurbits.

There is another method of doing the fame; viz. by tying a thread, firft dipped in oil of turpentine, round the place where the fection is to be; and then fetting fire to the thread.

This done, fome cold water being fprinkled on the place, the glafs will be cracked through that part precifely where the thread was tied.

CIRCUMAGENTES *mufculi*, in *Anatomy*. See OBLIQUUS.

CIRCUMAGENTIUM *femoris primus*, in *Anatomy*, a name given by Spigelius, and fome others, to the *iliacus externus*, but more generally, from its fhape, the PYRIFORMIS, and *pyramidalis*.

CIRCUMAMBIENT, an epithet denoting a thing to inveft, or incompafs another round.

We fay, the ambient, or *circumambient air*, &c.

CIRCUMCELLIONES, in *Church Hiftory*, a fet of illiterate favage peafants, and defperate ruffians, who adhered to the party of the DONATISTS towards the end of the fourth century. They aflumed the title of vindicators of juftice, and protectors of the oppreffed, and maintained their caufe by force of arms, and filled the whole province of Africa with flaughter and rapine. Conftantine the Great, in order to quiet the tumults which they occafioned, abolifhed the laws that had been enacted againft the Donatifts; however, after his death, their aflaffinations and maffacres were renewed, till they were defeated by Macarius at the battle of Bagnia. Many of this frantic mob were afterwards treated with great feverity, and the Donatifts fhared their fufferings.

CIRCUMCISION, the act of cutting off the prepuce; or a ceremony, in the Jewifh and Mahomeran religions, wherein they cut away the foreflin of the males who are to profefs the one, or the other law.

Circumcifion commenced in the time of Abraham; and was, as it were, the feal of a covenant ftipulated between God and him: it was in the year of the world 2178, that Abraham, by divine appointment, *circumcifed* himfelf, and all the males of his family: from which time it became an hereditary practice among his defcendants.

The ceremony, however, was not confined to the Jews: Herodotus and Philo Judæus obferve, that it obtained alfo among the Egyptians and Ethiopians. Herodotus fays, that the cuftom was very ancient among each people; fo that there was no determining which of them borrowed it from the other. The fame hiftorian relates, that the inhabitants of Colchis alfo ufed *circumcifion*; whence he concludes, that they were originally Egyptians. He adds, that the Phœnicians and Syrians were likewife *circumcifed*; but that they borrowed the practice from the Egyptians. And, laftly, that a little before the time when he wrote, *circumcifion* had paffed from Colchis, to the people inhabiting near Thermodoon and Parthenius.

Marfham is of opinion, that the Hebrews borrowed *circumcifion* from the Egyptians; and that God was not the firft author thereof; citing Diodorus Siculus, and Herodotus, as evidences on his fide. This latter propofition feems directly contrary to the teftimony of Mofes; who aflures us, Gen. xvii. that Abraham, though ninety-nine years of age, was not *circumcifed* till he had the expreft command of God for it: but as to the former propofition of Marfham, it will admit of more debate. The arguments, on both fides, may be feen in one view, in Spencer de Legibus Hebræor. lib. ii. cap. 2.

Be this as it will, it is certain, the practice of *circumcifion*, among the Hebrews, differed very confiderably from that of the Egyptians. Among the firft, it was a ceremony of religion, and was performed on the eighth day after the birth of the child; among the latter, it was a point of mere decency and cleanlinefs; and, as fome will have it, of phyfical neceffity; and was not performed till the thirteenth year; and then on girls, as well as boys.

Among the Jews, *circumcifion* was performed with a knife of ftone. They fet afide the practice of *circumcifion*, during the forty years of their paffage through the wilderneſs; becaufe *circumcifion* being intended as a mark of diſtinction between the Jews and the Gentiles, it was unneceſſary to make any mark at all, in a place where there was no body to mix with them. M. Fleury obſerves that the Jews were not unanimous as to the neceſſity of *circumcifion*; ſome holding it an eſſential, others only as a circumſtance.

The Turks, before the operation of *circumcifion*, ſqueeze the ſkin with little pincers, to deaden the ſenſation: they then cut it off with a razor, and apply a certain powder, which heals the wound, and takes off the pain. They never *circumcife* till the ſeventh or eighth year; as having no notion of its being neceſſary to ſalvation.

The Perſians *circumcife* their boys at thirteen years, and their girls from nine to fifteen. Thoſe of Madagaſcar cut off the fleſh at three ſeveral times; and the moſt zealous of the relations preſent catches hold of the prepuſium, and ſwallows it.

Herrera tells us, there is a kind of *circumciſion* among the Mexicans, though they are very far both from Judaiſm and Mahometaniſm: they cut off the foreſkin of the virile member, and the cats, as ſoon as the child is born, with great ceremony.

There is a kind of *circumciſion* practiſed at Orabeite, one of the newly diſcovered iſlands in the South Seas. The operation is performed by a prieſt, and conſiſts in ſlitting the prepuce through the upper part, to prevent its contracting over the glans. The practice ſeems to have taken its riſe from motives of cleanlineſs. Hawkeſworth's Voyages, vol. ii. p. 241.

Circumciſion is alſo practiſed on women, by cutting off the foreſkin of the clitoris, which bears a near reſemblance and analogy to the prepuſium of the male penis. Strabo ſays, the Egyptian women were circumciſed; Belon ſays the ſame of the Cophtes; and P. Jovius and Munſter of the ſubjects of Preſter John.

Among the Jews, the father is obliged to have his ſon circumciſed on the eighth day; it may not be ſooner: but the child's weakneſs may allow of its being deferred longer. There is a godfather to hold the child, and a godmother to carry it from the houſe to the ſynagogue, and to preſent it there. He who circumciſes is called, in Hebrew, *Mohel*: any perſon is choſen for the purpoſe indifferently; provided he be but capable of the function; which, among the Jews, is a rule of great merit. The manner of the ceremony, as related by Leo De Modena, is as follows:—Two ſeats are prepared, in the morning, with ſilken cuſhions; one for the godfather who holds the child; the other, as they ſay, for the prophet Elias, whom they ſuppoſe to aſſiſt inviſibly. The perſon, who is to circumciſe, brings the neceſſary inſtruments; the razor, ſtyptic, gum, filer, and oil of roſes: to which ſome add a ſhell full of *ſand*, to put the prepuſium in. A pſalm is ſung till the godmother *brings* the child, attended with a crowd of women, and delivers it to the godfather; none of them entering the door: the godfather, being ſeated, lays the child on his lap; then the *circumciſer*, taking the razor, and preparing the child for the operation, ſays, *Bleſſed be thou, O Lord, who haſt ſanctified us circumciſion*; and in ſo ſaying, cuts off the thick ſkin of the prepuſium, and with his finger-nails tears off another finer ſkin remaining; ſucking the blood two or three times, as it breaks out, and ſpitting it out into a glaſs full of wine: then he lays dragons blood on the wound, with powder of coral, and other things, to ſtaunch the blood; and, laſtly, a compreſs of oil of roſes; and thus binds up the whole: this done, he takes a glaſs of wine, and, bleſſing it, adds another benediction for the child, and impoſes the name.

The manner of circumciſing among the Turks, differs from

from that of the Jews: for the former, after they have cut off the skin, meddle no farther; but the last tear off the edge of the remaining skin in several places with their thumb-nails; which is the reason why the circumcised Jews are cured much sooner than the Turks.

Those among the Jews who perform the operation of *circumcision*, are distinguished by the length of their thumb-nails.

Circumcision is also used medicinally, when the prepuce is affected with a gangrene, and becomes black.

CIRCUMCISION is also the name of a feast celebrated on the first of January in commemoration of the *circumcision* of our Saviour.

This day was anciently kept a fast, in opposition to the pagan superstitions, who feasted on it in honour of the god Janus.

CIRCUMFERENCE, in *Geometry*, the curve line that incloses a CIRCLE, or circular space; called also the PERIPHERY.

The word is formed from *circum*, *about*; and *fero*, *I carry*.

All lines drawn from the centre of a circle to the *circumference*, called *radii*, are equal.

Any part of the *circumference* is called an *arch*; and a right line drawn from one extreme of the arch to the other, a *chord*.

The *circumference* of every circle is supposed to be divided into 360 equal parts, which are called *degrees*.

The angle at the *circumference* is double that at the centre.

The *circumferences* of circles are to each other as their radii.

And, since the *circumference* of one circle is to its radius, as that of any other circle to its radius; the ratio of the *circumferences* to the radius is the same in all circles. See DIAMETER.

CIRCUMFERENTOR, an instrument used in *surveying*, to take angles by.

The *circumferentor* is very simple, yet expeditious in the practice. It consists of a brass circle and an index, all of a piece.—See its figure in *Tab. Surveying*, *fig.* 7.

On the circle is a card, or compass, divided into 360 degrees; the meridian line whereof answers to the middle of the breadth of the index: on the limb, or circumference, of the circle, is soldered a brass ring; which, with another fitted with a glass, make a kind of box for the needle, which is suspended on a pivot in the centre of the circle: to each extreme of the index is fitted a sight. The whole is mounted on a staff, with a ball and socket, for the conveniency of its motion.

To take an angle by the CIRCUMFERENTOR. Suppose the angle required EKG (*Tab. Surveying*, *fig.* 6.): place the instrument, v. g. at K, with the flower-de-luce in the card towards you, then direct the sights, till through them you spy E; and observe what degree is pointed at by the south end of the needle, which suppose 296: then turn the instrument about, the flower-de-luce still towards you, and direct the sights to G; noting the degree at which the south end of the needle points, which suppose, 182.

This done, subtracting the lesser number 182, from the greater 296, the remainder, 114, is the number of degrees of the angle EKG.

If the remainder happens to be more than 180 degrees, it must be again subtracted from 360 degrees; the last remainder is the quantity of the angle sought.

To take the plot of a field, wood, park, &c. by the CIRCUMFERENTOR.—Suppose ABCDEFGK (*fig.* 8.) an inclosure to be surveyed with the *circumferentor*.

1. Placing the instrument at A, the flower-de-luce towards you, direct the sights to B; where suppose the south end of the needle to cut 191°; and the ditch, wall, or hedge, measured with the chain, to contain 10 chains, 75 links; which enter down. See CHAIN.

2. Placing the instrument at B, direct the sights, as before, to C; the south end of the needle, v. g. will cut 279°; and the line BC will contain 6 chains, 83 links, to be noted as before; then move the instrument to C; turn the sights to D, and measure CD, as before.

In the same manner proceed to D, E, F, G, H, and, lastly, to K; still noting down the degrees of every bearing, or angle, and the distances of every side.

Having thus gone round the field, you will have a table in the following form:

Stations.	Degrees.	Min.	Chains.	Links
A	191	00	10	75
B	279	00	6	83
C	219	30	7	82
&c.				

From this table, the field is to be plotted, or protracted; for the manner whereof, see PLOTTING, and PROTRACTOR.

Note, Where security is to be consulted rather than dispatch, it may be convenient to take back-sights; i. e. to place the instrument to, at each station, as that, looking backwards through the sights to the last station, the north end of the needle may point to the same degree as the south end did, in looking forwards from the last station to this; both which instruments are used, on other occasions, as *circumferentors*.

CIRCUMFLEX, in *Grammar*, an accent, serving to mark or distinguish a syllable of an intermediate sound between acute and grave; and generally somewhat long. The Greeks had three accents; the *acute*, the *grave*, and the *circumflex*; formed thus, ´ ` ῀. In Latin, Italian, French, &c. the *circumflex* is made thus ^.

The acute raises the voice, and the grave falls, or lowers it: the *circumflex* is a kind of undulation or wavering of the voice between the two.

It is seldom used among the moderns, unless to shew the omission of a letter which made the syllable long and open; a thing much more frequent in the French, than among us: thus they write *pâte*, for *paste*; *tête*, for *teste*; *fâmes*, for *fusmes*, &c. They also use the *circumflex* in the participles; some of their authors writing *eunes*, *pen*, others, *eunné*, *pû*, &c. Father Buffier is at a loss for the reason of the *circumflex* on this occasion.

The form of the Greek *circumflex* was anciently the same with that of ours, viz. ^; being a composition of the other two accents ´ in one.—But the copists changing the form of the characters, and introducing the running-hand, changed also the form of the *circumflex* accent; and instead of making a just angle, rounded it off, adding a dash, through too much haste; and thus formed an *s*, laid horizontally, which produced this figure ῀, instead of this ^.

CIRCUMGYRATION, the wheeling motion of any body round a centre.

CIRCUMINCESSION, in *Theology*, a term whereby the schoolmen use to express the existence of three divine persons in one another, in the mystery of the Trinity. See PERSON.

The school divines are not the first authors of this term; Damascenus, in the eighth century, having used the word περιχώρησις, which signifies the same thing, in his explication of that text, *I am in my father, and my father is in me*.

CIRCUMLOCUTION, an ambages, or tour of words, used either when a proper term is not at hand, to express a thing naturally and immediately by; or when one chooses not to do it, out of respect, or for some other reason.

The word comes from *circumloquor*, *I speak about*.

CIRCUMLOCUTION, in *Oratory*, is the avoiding of something disagreeable, or inconvenient, to be expressed in direct terms; by intimating the sense thereof in a kind of paraphrase, so conceived as to soften, or break the force thereof.

Thus Cicero, unable to deny that Clodius was slain by Milo, owns it, with this *circumlocution*, "Milo's servants "being prevented from assisting their master, who was "reported to be killed by Clodius; they, in his absence, "and without his privity, or consent, did what every "body would expect from their own servants on such an "occasion."

CIRCUM-POLAR *Stars*, are such stars as, being pretty near our north pole, move round it; and in our latitude, never set, or go below the horizon.

CIRCUMPOTATIO, in *Antiquity*, a funeral feast, provided in honour of the dead.

This was very frequent among the ancient Romans, as well as among the Athenians. Solon, at Athens, and the decemviri at Rome, endeavoured to reform this custom, thinking it absurd that mirth and drunkenness should mingle with sorrow and grief.

CIRCUMSCRIBED *figure*, in *Geometry*. See CIRCUMSCRIBING.

CIRCUMSCRIBED *hyperbola*, one of the second order, according to Sir Isaac Newton, which cuts its asymptotes, and contains the parts cut off within its own space. See HYPERBOLA.

CIRCUMSCRIBING, in *Geometry*, denotes the describing a polygonous figure about a circle, in such manner, as that all its sides are tangents to the circumference.

The term is sometimes also used for the describing of a circle about a polygon; so, as that each side is a chord. But in this case, we more usually say, the polygon is inscribed than the circle circumscribed.

Any regular figure ABCDE, (*Tab. Geometry*, *fig.* 9.) inscribed in a circle, is resolved into equal and similar triangles, by radii drawn from the centre of the *circumscribing* circle F, to the several angles of the figure; and its area is equal to a rectangled triangle, whose base is equal to the perimeter of the whole polygon; and its height a perpendicular let fall from the centre F to one side AB.

The fame may be faid of the area of the *circumfcribing* polygon *a b c d e (fig.* 8.); excepting that the height is to be the radius.

The area of every polygon that can be inferibed in a circle is leſs, and that of every polygon that can be circumſcribed, greater than that of the circle: in like manner, the perimeter of the firſt is leſs, and that of the ſecond is greater, than the circumference of the circle.

On this principle Archimedes attempted the quadrature of the circle; which is nothing elſe, in effect, but the meaſuring of the area, or capacity of a circle.

The ſide of a hexagon is equal to the radius of a circumſcribed circle.

To circumſcribe a circle about any given regular polygon, A B C D E (*fig.* 9.); and *vice verſa*. Biſect two of the angles, v. g. A and B; and on the point F, where the two lines of biſection interſect, as on a centre, deſcribe a circle with the radius F A.

To circumſcribe a ſquare about a circle. Draw two diameters, A B and D E (*fig.* 5.), interſecting each other in the centre C, at right angles. From A E B D, with the interval of the radius, make interſections in F, G, H, I. Draw the right lines F G, G H, I H, and I F. Then is F G H I a ſquare circumſcribed about the circle.

To circumſcribe any regular polygon, v. g. a pentagon, about a circle. Biſect the chord A E (*fig.* 8.) by the perpendicular F O, which continue till it cut the arch in *g*. Through A and E, draw the radii A F and E F: and through *g*, draw a line parallel to A E, meeting the radii continued on each ſide in *a* and *e*: and then is *a e* one ſide of the circumſcribed polygon. Produce the radius F B to *b*, till F *b* = *a* F; and draw *a b*: this is another ſide of the polygon; and in the ſame manner may the reſt of the ſides be drawn.

CIRCUMSPECTE *agatis*, the title of a ſtatute made ann. 13 Edw. I. relating to prohibitions, preſcribing certain caſes to the judges, wherein the king's prohibition lies not.

CIRCUMSTANCES, the incidents of an event, or the particularities that accompany an action.

Divines ſay, the converſion of a ſinner depends on a certain aſſemblage, and a certain management, of external *circumſtances*, in the midſt whereof he is placed; which arrangements of *circumſtances* depends on the providence of God: whence converſion alſo depends on *him*.

The *circumſtances* of the actions of men, are expreſſed in this Latin verſe:

Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando.

Quis, who, denotes the quality, ſtate, age, &c. of the perſon. *Quid*, what, the greatneſs, ſmallneſs, multitude, ſeverity, &c. of the thing. *Ubi*, where, the place. *Quibus auxiliis*, with what aſſiſtances, the inſtruments, means, &c. *Cur*, why, on what account, with what view. *Quomodo*, how, the quality of the action, as to intention or remiſſneſs, deſignedneſs or caſuality, ſecrecy or openneſs. *Quando*, when, the time; as on a holiday, at the hour of prayer, &c.

CIRCUMSTANTIAL *Evidence*, in *Law*, or the *doctrine of preſumption*, takes place next to poſitive proof: circumſtances which either neceſſarily or uſually attend facts of a particular nature, that cannot be demonſtratively evinced are called preſumptions, and are only to be relied on till the contrary be actually proved. See EVIDENCE and PRESUMPTION.

CIRCUMSTANTIBUS, in *Law*, is uſed for the ſupplying, and making up the number of jurors (in caſe any impanelled appear not; or appearing, be challenged by either party), by adding to them ſo many of the perſons preſent, or ſtanding by, as will ſerve the turn. This act of ſupplying is uſually called TALES *de circumſtantibus*.

CIRCUMVALLATION, in *Fortification*, a line or trench, with a parapet, thrown up by the beſiegers, encompaſſing all their camp, to defend it againſt any army that may attempt to relieve the place.

The word is formed from *circum*, *about*; and *vallum*, *wall*. The Romans are thought to have firſt invented lines of *circumvallation* and CONTRAVALLATION at the ſiege of *Veii*.

This line is to be cannon-ſhot diſtant from the place, ordinarily, about twelve feet broad, and ſeven deep. It is bordered with a breaſt-work, and flanked with redoubts, or little forts, erected from ſpace to ſpace. It ſerves both to prevent any ſuccour from being ſent into the place, to keep in deſerters, and to prevent incurſions of the enemy's garriſon.

Care muſt be taken, that the line of *Circumvallation* never paſs by the foot of an eminence; leſt the enemy, ſeizing on the eminence, lodge his cannon, and command the line.

CIRCUMVOLUTIONS, in *Architecture*, the turns of the ſpiral line of the Ionic volute.

The word comes from *circumvolvere*, *to turn around*; and is alſo applied to the turns of a wreathed, or twiſted COLUMN.

CIRCUS, in *Antiquity*, a large building, either round or oval; uſed for the exhibiting of ſhews to the people.

Some derive the word from *Circe*, to whom Tertullian attributes the invention. Calliodorus ſays, *Circus* comes *à circuitu*.—The Romans, Servius obſerves, at firſt had no other *Circus* but that made by the Tiber on one ſide, and a paliſade of naked ſwords on the other. Hence, according to Iſidore, came the term *ludi circenſes*, *cenſa circum autes*. But Scaliger ridicules that etymology.

The Roman *Circus* was a large oblong edifice, arched at one end; encompaſſed with portico, and furniſhed with rows of ſeats, placed aſcending over each other.

In the middle was a kind of foot-bank, or eminence, with obeliſks, ſtatues, and poſts at each end. This ſerved them for the courſes of their *bigæ* and *quadrigæ*.

There were no leſs than ten *Circuſes* at Rome: the largeſt was built by the elder Tarquin, called *Circus Maximus*, between the Aventine and Palatine mounts. It was ſo called, either becauſe of its vaſt circumference, or becauſe the *great* games were celebrated in it, or again, becauſe it was conſecrated to the *great* gods; viz. to Vertumnus, Neptune, Jupiter, Juno, Minerva, and the Dii Penates of Rome. Dionyſius Halicarnaſſenſis ſays, that it was three ſtadia and a half in length, and four jugera broad; and theſe meaſures, according to Pliny, allowing to the Roman ſtadia 625 Roman feet, each of which is 12 inches, will give *ſix* the length 2187 Roman feet, or ſomewhat more than three Engliſh furlongs; and as to breadth, allowing for each of the jugera 240 Roman feet, it will be 960 Roman feet. It was beautified and enlarged by the Roman emperors, ſo as to ſeat 250,000 ſpectators.

The moſt magnificent *Circuſes* were thoſe of Auguſtus and Nero. There are ſtill ſome remains of the *Circuſes* at Rome, Nîmes, and other places.

The Romans were exceſſively fond of the games exhibited in the *Circus*: witneſs that verſe in Juvenal,

——— *Atque duas tantum res anxius optat,*
Panem & Circenſes.——

The Games of the CIRCUS, which ſome call CIRCENSIAN *Games*, were combats celebrated in the *Circus*, in honour of Conſus the god of councils; and thence alſo called *Conſualia*.

They were alſo called *Roman games*, *Ludi Romani*, either on account of their antiquity, as being coeval with the Roman people, or becauſe eſtabliſhed by the Romans: and the games held there, the great games, *ludi magni*, becauſe exhibited with more expence and magnificence than others; and becauſe held in honour of the great god Neptune, who was their Conſus.

Thoſe who ſay they were inſtituted in honour of the ſun, confound the *pompa circenſis*, or proceſſion of the *Circus*, with the games.

The games of the *Circus* were inſtituted by Evander, and re-eſtabliſhed by Romulus: the pomp, or proceſſion, was only a part of the games, making the prelude thereof; and conſiſting of a ſimple cavalcade of chariots.

Till the time of the elder Tarquin, they were held in an iſland of the Tiber; and were called *Roman games*: after that prince had built the *Circus*, they took their name therefrom, as being conſtantly held there.

There were ſix kinds of exerciſes in the *Circus*: the firſt was wreſtling, and fighting with ſwords, with ſtaves, and with pikes; the ſecond was racing; the third, ſaltatio, dancing; the fourth, diſci, quoits, arrows, and ceſtus; all which were on foot: the fifth was horſe-courſing; the fifth courſes of chariots, whether with two horſes, or with four.

In this laſt exerciſe, the combatants were at firſt divided into two ſquadrons or *quadrils*; then into four; each bearing the names of the colours they wore; *factio alba*, *ruſſea*, &c.

At firſt there was only white and red; then green was added, and blue. Domitian added two more colours, but they did not continue.

It was Oenomaus who firſt invented this method of diſtinguiſhing the quadrils by colours. The green was for thoſe who repreſented the earth; the blue for the ſea, &c.

CIRCUS, in *Ornithology*, a name by which Bellonius and ſome others have called the MILVUS *aeruginoſus* or moor-BUZZARD.

CIRLUS *ſtultus*, in *Ornithology*, the name of a bird of the hortulanus kind, and the ſize and ſhape of our common *yellow hammer*.

CIRRHOSE *Leaf*, in *Botany*. See LEAF.

CIRRIS, in *Ornithology*, the name of a small species of heron, called by some the *ardea hæmatopus*, or the *red-legged* HERON. Its legs and feet are very beautifully red.

CIRRUS, in *Ichthyology*, a name given by authors to certain oblong and soft *appendiculæ* hanging from the under jaw of fishes, or from other parts about the mouth, in the manner of little worms, and usually of a cylindric figure, or nearly so. These *cirri* are in some fish hollow at the root, in others they are not so: in those which are hollow at the root, the cavity never runs quite thro'. The way of finding it is by introducing a hog's bristle or a hair into it; but this cannot be forced through to the point, nor can any fluid matter be expressed out of them. These *cirri* often afford characters of distinction to several kinds of fishes, and differ in the several species in regard to number, size, and proportion.

The use that these *cirri* are of to the fish, is little more known than that of the antennæ of insects. If nature had given them only to those fishes which had the eyes placed on the upper part of the head, then they might be supposed to serve to distinguish prey at the bottom, while the eyes were directed to such as offered itself nearer the surface: but as the several kinds of fishes which have them are of different kinds, and have their eyes in various directions, this use cannot be allowed them. It is possible they may be of use to the fish, in giving it the first notice of any distant motion of the water, which they may perceive by their hanging posture sooner than any other part, and thus give notice of the neighbourhood of prey, or of the approach of an enemy.

CIRRUS, in *Antiquity*, an ornament added to the edges and borders of garments, much in the manner of *fimbriæ* or fringes, only that these were single, and run along the borders of the dress; whereas the *cirri* were knotted together, and hung down from the extremities of the robe.

CIRRUS, among *Botanists*, expresses the little fibres which plants send out from their STALKS, and by which they are attached to other bodies.

CIRSIUM. See *genus* THISTLE.

CIRSOCELE, in *Medicine*, a multitude of varices in the testicles, which prodigiously increase their bulk, and hinder the due preparation of the seed; so as sometimes to render castration necessary. This disorder is otherwise called HERNIA *varicosa*.

The word comes from κιρσος, *varix*, *vein*, and κηλη, *hernia*.

CIRSOS, in *Medical Writers*, is used for VARIX.

CISALPINE, any thing on this side the Alps.

The word is formed from the prepositions *cis*, on this side, and *Alpes*; which, though properly confined to the mountains separating Italy and France, yet is used by authors for any very high mountains.—Thus, Antonius speaks of the Alps, of the Pyrenæus, the Alps of the Apennines, &c.

The Romans divided Gaul, and the country now called Lombardy, into *Cisalpine* and *Transalpine*.

That which was *Cisalpine* with regard to the Romans, is *Transalpine* with regard to us.

CISLEU, the ninth month in the ecclesiastical year, and the third in the civil or political year among the Hebrews, containing 30 days: it answers to part of our November and December. An annual fast is observed by the Jews to this day on the 18th of this month, in commemoration of the taking of Jerusalem by Nebuchadnezzar.

CISSAMPELOS, in *Botany*, a genus of the *dioecia monadelphia* class: its characters are these: it is male and female in different plants: the male flowers have no petals, but a single style in the centre, which extends beyond the empalement, terminated by 4 large lamonia having four lobes. The female flowers have four nectariums standing round the oval germen, which is hairy, and after becomes a fusculent berry enclosing a single seed. There are two species which grow naturally in the warm parts of America.

The first sort is supposed to be the pareira, whose root has been so much esteemed as a diuretic.

CISSITES, in *Natural History*, a name given by the ancients to that species of the flinty *ætites*, or EAGLE-*stone*, which is covered with the common white coat of the flints. Pliny mentions it as found principally about Captos, and being externally of a white colour, and rattling when shaken.

CISSOID, in *Geometry*, an algebraic CURVE, first invented by Diocles; whence it is peculiarly called the *cissoid* of Diocles.

The genesis of the *cissoid* may be thus conceived: to the diameter AB (*Tab. Analysis, fig. 9.*) of the semicircle AOB, draw an indefinite line, at right angles, BC: then draw the right line AH, and make AM = HI; or in the other quadrant, LC = AN. Thus will the points M and L be in a curve line, AMOL; which is the *cissoid* of Diocles.

Properties of the CISSOID.—From the genesis it follows,

1. That drawing the right lines PM and KL, parallel to AB; we shall have AP : KB :: AM : KB. But AM = HI; consequently, AP = KB. And therefore, AK = PB; and PN = IK.

2. After the same manner it appears, that the arc AMO bisects the semicircle AOB.

3. Again, AK : KI :: KB. That is, AK : PN :: PN : AP. And again, AK : PN :: AP : PM; therefore, PN : AP :: AP : PM. Consequently, AK, PN, AP, and PM, are four lines in continual proportion. And if PN = *y*, AP = *x*, PM = *y*; $x^2 = xy$. And after the same manner it may be shewn, that AP, PN, AK, and KL, are in continual proportion.

4. In the *cissoid*, the cube of the abciss AP is equal to a solid arising from the square of the semiordinate PM, multiplied into the complement of the diameter of the generating circle PB.

Hence, when the point P falls on B, then $x = a$, and BC $= y$; consequently, $y = \frac{a^3}{0}$. Wherefore, 0 : 1 :: a^3 : y; that is, the value of y becomes infinite; and therefore the *cissoid* AMOL, though it continually approach BC, will never meet it.

5. BC, therefore, is an asymptote of the *cissoid*.

The ancients made use both of the cissoid and *cissoid*, for the finding of two mean continual proportionals between two given right lines.

For the *quadrature*, *solidity*, and *fabricant of the* CISSOID: see QUADRATURE, SEGMENT, &c.

CISSOID *angle*. See ANGLE.

CISSUS. This is properly in the Greek writers the name of the ivy. They write it κισσος. But the word κισσος, *cissus*, when the σ is changed into an *s*, by the Ionian and Cyprian dialect, is also κισσος, *cissus*. See CISTUS.

CISSUS, in *Botany*, a genus of the *tetrandria monogynia* class, with a single-seeded berry, and a quadripartite corolla.

CISSYBIUM, in *Antiquity*, a drinking cup, much in use among country people. It was so called, either because it was made of the wood of ivy, or was usually crowned with its leaves.

CISTERCIANS, an order of religious, reformed from the Benedictines, consisting of an hundred monasteries, and near as many nunneries.

The order took its rise in 1075, from twenty-one zealous monks in the monastery of Molesme in Burgundy; who, with their abbot Robert, complaining that the rule of St. Benedict was not strictly enough observed, obtained permission of Hugh archbishop of Lyons, and legate of the holy see, to settle in a place called *Cistaux*, five miles from Dijon.

Here, Eudes duke of Burgundy erected them a house, into which they were admitted in 1098; endowing it with a considerable revenue. The bishop of Chalons gave Robert the pastoral staff, in quality of abbot; and erected the new monastery into an abbey.

They were, in about a century after their first rise, distinguished by the patronage of St. Bernard, abbot of Clairval, whence they obtained the title of *Bernardin* monks; and in the year 1132, they were exempted from the payment of tythes, and invested with other privileges and immunities by Innocent II. In 1157 this order had no fewer than 500 convents, all dedicated to the Blessed Virgin. They came into England in the year 1128, and had their first house at Waverley in Surry. Before their dissolution they had eighty-five houses here. Such was the beginning of the *Cistercians*, so famous in after-times, and now so extended throughout all Europe.

CISTERN, is properly used for a subterraneous reservoir of rain water.

The word, according to some, comes from *cis*, and *terra*, i. e. *in terram*; others derive it from *cista*, a *chest*, &c.

Eastern *cisterns* must be made with good cement, to retain the water. And the bottom should be covered with sand, to sweeten and preserve it.

Authors mention a *cistern* at Constantinople, the vaults whereof are supported by two rows of pillars, 212 in each row; each pillar being two feet in diameter. They are planted circularly, and in radii tending to that in the centre.

Anciently there were *cisterns* all over the country in Palestine. There were some likewise in cities and private houses. As the cities for the most part were built on mountains,

mountains, and the rains fell regularly in Judea at two seasons of the year only, in spring and autumn, people were obliged to keep water in cisterns in the country, for the use of their cattle; and in cities, for the convenience of the inhabitants. There are *cisterns* of very large dimensions to be seen still at this day in Palestine, some whereof are a hundred and fifty paces long, and fifty four wide. There is one to be seen at Ramah of two and thirty paces in length, and eight and twenty in width. Wells and *cisterns*, fountains and springs, are generally confounded in the scripture language.

If the farmers of England would fall into the method used in Spain, and at Amsterdam, Venice, and other places for saving the rain-water for the whole year, or at least so much of it as would be necessary, in *cisterns*, they would have always water for their cattle in the summer droughts, and many thousand acres of land, now lies waste, might be turned to profit.

The best way of preserving the water for the service of the house, is in *cisterns* in the cellars. These may be made with brick or stone, joined with plaister of Paris, which will keep out the wet very well; or with a kind of mortar made of flaked fifted lime, with fifted oil, and tow or cotton. A bed of good found clay may be laid at the bottom, and on this the bricks for the floor, and then the walls may be raised in the same manner, only leaving places behind them, into which clay is to be rammed in the like manner. Thus it will be a clay *cistern*, faced with brick; and the bricks will keep the clay moift, and prevent it from cracking, though it be not full of water. This will do in any fhadowy place, as well as in cellars: and thus may a *cistern* be made in a garden, in fome fhadowy place, and covered over, which may receive the water running from the walks, and will retain it at hand, for the fervice of the garden, all the year.

Where there is want of water for the cattle in the fields, the way is to dig a pond in fome place into which there is a defcent; then cover the bottom and fides with a double coat of tough clay, each fix inches thick, and each very well rammed: then to cover the bottom with large ftones, which will keep the clay moift, and prevent its cracking, when not covered with water. But this is a troublefome thing; for if there happen to be a crack in any part, it is often found neceffary to go over the whole work again, before the pond will hold a drop of water.

Another method of making a pond hold water, is to daub it over with clay and mortar mixed together, and then with mortar alone. This has an advantage over the other way, becaufe if any crack happen, it may be mended by a cement of clean hair and tallow, mixed with flaked lime and the yolks of eggs, well beat together. This applied to the crack, will cloft it fafely, without neceffity of undoing the whole work, as in the other cafe.

In chalky countries it is common to find a low place on the downs, and, digging a hole by way of a pit there, they cover the bottom evenly with the chalk rubbifh, and when it is wetted by the rain, they ram it well, and afterwards drive cattle into it, and fold fheep in it: the confequence of all fuch trampling is, that the bottom at length becomes fo firm, that it holds the water perfectly well. By one or other of thefe means, *cifterns* or refervoirs may be made in every part of the country: and our farmers, if they would carefully try one or the other of them, as their land moft required, would not have fo much to complain of from droughts.

CISTIC. } *See* { CYSTIC.
CIST-*Hepatic*. } { CYST-*Hepatic*.

CISTIS. See CYSTIS, and HYPOCISTIS.

CISTRUM. See SISTRUM.

CISTULA *Catoptrica*. See CATOPTRIC.

CISTUS, the Greeks wrote this word κισθος, and, as the word, in the Latin tongue, is only the Greek name with a Roman termination, it undoubtedly ought to be fpelt *cifthus*, not *ciftus*. The ancient writers have been fubject to many mifrepresentations from the near refemblance of this word κισθος, *cifthus*, to κισσος, *ciffus*: the former being the name of the plant we call *ciftus*, a fhrubby herb, with leaves like fage, and a large flower refembling a rofe: and the other, the name of the common ivy that climbs upon our walls and trees. Pliny has been deceived by the near refemblance of the two words, and has given the qualities of ivy to the *ciftus*, and thofe of *ciftus* to the ivy: but he is the more excufable in this, fince we find the two names ufed indifcriminately, tho' certainly by a miftake of the copyifts, in the books of Theophraftus.

CISTUS, in *Botany*. See *Rock* ROSE.

Dwarf CISTUS. See *Dwarf* SUN-*flower*.

Sage-leaf CISTUS. See *Wild* ROSEMARY.

Laffer marfh CISTUS. See ANDROMEDA.

CITADEL, or CITTADEL, a fort, or place fortified with four, five, or fix baftions; built fometimes in the moft eminent part of a city, and fometimes only near the city.

This word is a diminutive of the Italian *citta*, *city*, q. d. little city.

In the firft cafe, the *citadel* ferves to defend the city againft enemies.

In the latter, it ferves to command it, and keep the inhabitants in their obedience, for which purpofe the city is left unfortified on the part toward the *citadel*, but the *citadel* is fortified toward the city.

The moft ufual form for *citadels* is that of a pentagon: a fquare being too weak, and hexagon too large.

There is always a large ESPLANADE between the City and *citadel*.

There are ufually two gates to a *citadel*, one communicating with the town and the other with the country.

The *citadel* ought to be fo formed and fituated, that the ditch may either be defended by the faces of the baftions, or by thofe of the ravelins, in as direct a manner as poffible; otherwife the enemy may attack the town in that place, as being weakeft, and likewife becaufe the fame attacks may ferve to reduce both together. The coverte-way of the *citadel* ought to be uninterrupted, fo that the part next the town may have a free communication with the other.

CITADINESCA, in *Natural Hiftory*, a name given by fome writers to the Florentine marble, which is fuppofed to reprefent towns, palaces, ruins, rivers, &c. Thefe delineations are merely accidental, and are ufually much aflifted by the imagination, though the natural lines of a ftone may fometimes luckily enough reprefent the ruins of fome ancient building, or the courfe of a river. We have in England a kind of a fepraria, or ludus Helmontii, which has fometimes delineations of this kind confiderably beautiful, though very irregular. The Florentine marble, as we fee it wrought up in the ornaments of cabinets, &c. owes a great deal to the fkill of the workmen, who always pick out the proper pieces from the mafs, and difpofe them in the work fo as to make them reprefent what they pleafe.

CITATION, in the *Ecclefiaftical Court*, a fummons to appear before an eccleſiaſtical judge, on fome affair relating to the church.

The word comes from *cito*, of *citum*, *I fhall up*.

In the civil and ordinary courts, it is called *fummons*.

CITATION is alfo ufed in fpeaking of military and monaſtic as well as eccleſiaſtical courts. Such a *citation* was publifhed by the *feigneur d'Arnholt*, *ſeneſchal* of Perigord and Quercy; and was pulled up by his order, on the gates of the city of Libourne, which then belonged to king Edward. And for default in not appearing, all his domains and effects in France were confifcated.

CITATION is alſo an allegation, or quotation of fome law, authority, or paſſage.

CITELLUS, in *Zoology*, the name of a fmall animal of the mouſe kind, which lives in caves and holes of the earth. Its body is of the fhape of the common weafels, very long and thin: the tail is very fhort. Its colour is a pale filvery grey, like that of fome rabbits. It refembles the mole in its want of external ears; but it has apertures which ſerve it to the fame purpofe, in the manner of birds. They live together in communities, great numbers being ufually found in the fame cave, with a large ſtore of nuts, chefnuts and other fruits. Their flefh is very well tafted, and their fkin much ufed in cloathing in the cold countries. They are found not only in the very cold climates, but in Bohemia, Auſtria, and Hungary.

CITHARA, an ancient muſical inſtrument, by ſome ſuppoſed the ſame with the *lyra*; or, at leaſt, a particular ſpecies of it; by others different: though its preciſe ſtructure does not appear to be known.

The ancients deſcribe it as being triangular, in form of a Greek delta, Δ: the poets aſcribe the invention of it to Apollo.

CITHARA *Solata*. See THEORBO.

CITHAREXYLON, in *Botany*, *fiddle wood*, a genus of the *ſyngeneſia angiofperma* claſs: its characters are theſe: the flower is of one leaf, funnel fhaped, and divided at the top into five equal parts; it hath four ſtamina which adhere to the tube, two of them being longer than the other; in the centre is ſituated a roundiſh germen, which afterwards becomes a capſule with two cells, each having a ſingle ſeed. There are two ſpecies, which are natives of the Weſt Indies, and grow to be very large trees, greatly

greatly valued for durability of building; whence the French gave them the name of *fidelle*-wood, which the English have rendered *fiddle*-wood.

CITHAROEDUS, in *Antiquity*, the same with *citharista*. The *citharœdi* had the preference of all other musicians, from whom they were distinguished by an embroidered cloak, which was peculiar to them.

CITHARUS, in *Ichthyology*, the name of a fish common in the markets of Rome and Venice, and frequent in the German and Mediterranean seas. It is a flat fish of the TURBOT kind; but it is covered with large scales.

CITIZEN, or CITIZEN, a native or inhabitant of a city vested with the freedom and rights thereof.

The word comes from *civis*; which authors derive from *ciere*, because the *citizens* live together; or rather from *cio*, *I call together*.

Augustus, upon numbering the Roman *citizens*, found they amounted to upwards of four millions.

To make a good Roman *citizen*, there were three things required: that he was an inhabitant of Rome; that he were inrolled in one of the thirty-five tribes; and that he were capable of dignities.—Those strangers to whom were granted the rights and privileges of Roman *citizens*, were properly only *honorary citizens*.

The seventh law, *de civitate*, makes a great deal of difference between a *citizen* and a mere inhabitant. Birth, alone, made a *citizen*; and intitled to all the privileges of burgesses; time could not acquire it; but the emperor could bestow it.

The Romans were anciently so particularly careful to preserve even their common *citizens* from any mixture of servile blood, that they prohibited all marriages between them and freed slaves, or their children. And it was decreed, as a special privilege and reward to one Hispala, of libertine condition, for her discovery of the impieties of the Bacchanalian mysteries, that a *citizen* might take her to wife, without any disgrace or diminution of his rights. These distinctions, indeed, began to be disregarded towards the end of the republic, with respect to the ordinary *citizens*, but were kept up to the last, with regard to the senate. See SENATOR.

CITIZENS *in Parliament*. See BURGESSES.

CITOLE, the name of a musical instrument mentioned by the old English poet Gower, probably derived from *citolin*, *a little chest*, meaning the DULCIMER.

CITRAGO, in *Botany*, a name given by some authors to the common garden balm.

CITREÆ *mensæ*, called *thyinæ* by the Greeks, in *Antiquity*, tables made of the wood of the citrum-tree, very beautiful, and greatly esteemed by the ancient Romans. See CITRUM.

CITRIL, in *Ornithology*, a name given by many to the citrinella, or verzellino, a bird common in Italy, and kept in cages for its beauty and fine notes: called by many authors alſo THRAUPIS.

CITRINE, *ſtechas*, or ELYCHRISIUM, in *Botany*. See CUDWEED.

CITRINELLA, in *Ornithology*, the name of a ſmall bird, common in Italy, very much reſembling our common linnet in ſhape. Its head and back are green; its rump of a greeniſh yellow, and its neck, with ſomewhat of the hindmoſt part of the head, grey.

It ſings very finely, and is kept in cages in many parts of Italy.

Linnæus enumerates two birds under this name; one a ſpecies of the EMBERIZA, and the other of the FRINGILLA.

CITRINUS, in *Natural Hiſtory*, the name of a peculiar ſpecies of ſpar or cryſtal, which is of a beautiful yellow. Many of the common cryſtals, when in the neighbourhood of lead mines are liable to be accidentally tinged yellow, by an admixture of the particles of that metal; and all theſe, whether finer, or coarſer, have been too frequently confounded together, under the name *citrine*. It is never found colourleſs, like the other cryſtals, but has a great variety of tinges, from that of deeper ochres to a pale lemon-colour. It is very plentiful in the Weſt Indies, and is found in ſome parts of Bohemia. Our jewellers have learnt from the French and Italians, who are very fond of it, to call it *citrine*, and often cut ſtones for rings out of it, particularly out of the pyramid, which is always finer than the columns, and theſe, after they have paſſed through two or three hands, are generally miſtaken for topazes.

CITRON-*tree*, *Citrus*, in *Botany*, a genus of the *polyadelphia icoſandria* claſs; its characters are theſe: the flower hath five oblong thick petals, and ten ſtamina, which are not equal, joining in three bodies at their baſe; the oval germen in the centre afterward becomes an oblong fruit, with a thick ſcaly ſkin, filled with a ſucculent pulp, having many cells, each containing two oval ſeeds.

There are ſeveral varieties of this fruit, with which the Engliſh gardens have been ſupplied from Genoa, where is the great nurſery, which ſupplies the ſeveral parts of Europe with this, as well as orange and lemon trees.

Their culture and management is the ſame with that of the ORANGE; but they are tenderer, and ſhould have a warmer ſituation in winter, otherwiſe they are ſubject to caſt their fruit; they ſhould alſo continue a little longer in the houſe in ſpring, and be watered ſooner and more in autumn, and have a warmer and better defended ſituation in ſummer.

The *citron* is an agreeable fruit in colour, taſte, ſmell, &c. reſembling a lemon; and ſerving, like that to cool, and quench thirſt.

The *citron* is diſtinguiſhed from the lemon, in that it is bigger, and its pulp firmer; its ſmell brisker, and colour higher. It is held excellent againſt peſtilence and other mortal diſeaſes: and Athenæus relates an inſtance of two perſons ſaid to be preſerved ſafe from the moſt dangerous aſpect, by only eating a *citron*.

The diſtillers, perfumers, confectioners, &c. apply *citrons* to various purpoſes; and obtain from them eſſences, oils, confections, waters, &c.

In Italy they make a liquid with the ſmall *citrons*, which they preſerve entire; and a dry ſweetmeat with the large ones, which they preſerve in quarters.

CITRON-*water*, a well known ſtrong water, or cordial, which may be thus made: take of fine thin lemon-peel eighteen ounces, of orange-peel nine ounces, perfect nutmegs one quarter of a pound, alcohol perfect, that is, the fineſt and beſt rectified ſpirit of wine, two gallons and a half, digeſt in balneo Mariæ for one night; draw off with a low fire; then add as much water as will juſt make the mixture milky (which will be about ſeven quarts or two gallons); and add alſo about two pounds of fine ſugar-candy.

This compoſition may be improved by freſh elder-flowers hung in a cloth in the head of the ſtill, ſprinkled with ambergriſe in powder, or its eſſence.

CITRON-*wood*, the wood of an American tree, called by the natives candle-wood, becauſe, being cut into ſplinters it burns like a candle. The tree is frequent in the Leeward iſlands, and grows to a conſiderable ſize; the leaves are like thoſe of the bay-tree, but of a finer green; the flower is ſweet, and much like thoſe of the orange; the fruit ſucceeding theſe is black, and of the ſize of a pepper corn. The trunk is ſo like the yellow ſaunders in colour, that there was an opinion that it was the ſame tree, and much of it was imported into Europe, and ſold as ſuch; but they were ſoon found to be different, the true ſaunders being of a ſweet ſcent, and but moderately heavy and reſinous, but the citron wood is conſiderably heavy, very oily, and of ſtrong ſmell. It is of no known uſe in medicine, but is uſed in France and Germany by the turners, being a firm fine-grained wood, and taking a fine poliſh, and with age becoming of a very beautiful brown.

CITRUL, *citrullus*, in *Botany*, a name given to a genus of plants, otherwiſe called *angaria*. See *Water* MELON.

CITRUM. The *citrus menſa* have been ſuppoſed by ſome to be made of the *citrus* tree, and by others of the cedar; but it appears plainly that they were made of neither, but of a wood peculiar for its fineneſs, and very different from both. The ancient Greeks have deſcribed the cedar under the name *κεδρος*, and the citron-tree under the name *malus medica*; and beſide theſe, they have deſcribed another tree under the name of *thya*.

CITTERN, the old Engliſh name of a muſical ſtringed inſtrument, reſembling the LUTE, and now called GUITAR.

CITULA, in *Ichthyology*, the name given by Paulus Jovius, and others to the fiſh we call the DORLE, and the generality of authors *ſuber*. Pliny calls it *acus*, and Ariſtotle has better made uſe of the generical name, comprehending this and ſeveral other ſpecies under this arrangement. The *ſuber* is called the *acus* with the prickly belly, and with the tail rounded at the end. This is the true ſpecific name of the *citula*.

CITY, or CITTY, *Urbs*, a large town incloſed with a wall.

It is hard to give any juſt definition of a *city*; becauſe cuſtom has referred the appellation of towns, to many places which ſeem to have every thing requiſite to conſtitute *cities*.

Formerly *city*, according to ſome, was only underſtood of ſuch towns as were biſhops ſees; which diſtinction ſeems ſtill to hold in England, though no where elſe. See BISHOP and DIOCESE.

The term *city* had its riſe, among us, ſince the Conqueſt; for in the time of the Saxons there were no *cities*, but all great towns were called BURGHS.—Thus, London was called *London Burgh*.

And for a long time after the Conqueſt, *city* and *burgh* were

were used promiscuously. Thus, in the charter of Leicester, that place is called both *civitas* and *burgus*; which shews a mistake in my lord Coke, where he tells us that every *city* was, or is, a bishop's see. Nor had Gloucester any bishop then; though it is called a city in Domesday. The like may be observed of Cambridge; to which it may be added, that Crompton, reckoning up one *civitas*, leaves out fifty, though it had a bishop and a cathedral.

Yet Chasseneus, De Consuetud. Burgundi, says, France has within its territories 200 *cities*; and gives his reason, because it has so many archbishops and bishops.

Cities and villages held formerly, in the time of the feudal governments, of some great lord, on whom they depended for protection, and to whose arbitrary jurisdiction they were subject. But the freedom of *cities* was first established in Italy towards the beginning of the fourth century, in consequence of the prevalence of commerce: and it was thence introduced into France and other countries of Europe. And this establishment of communities, says Dr. Robertson, contributed more, perhaps, than any other cause to introduce regular government, police, and arts, and to diffuse them over Europe. Hist. Charles V. vol. i. p. 36. & seq. ed. 2. 8vo. See CHARTERS *of Communities*.

CITY, CIVITAS, in speaking of antiquity, signifies a state, or people, with all its dependencies, constituting a particular republic. Such are still several *cities* of the empire, and the Swiss cantons.

Though the ancient Gauls were, in effect, only one nation; they were yet divided into several people, which formed as many different states: or, to speak with Cæsar, as many different *civitates*, *cities*. Besides that each *city* had its peculiar assemblies, its first deputies, too, from time to time, to the general assemblies held on affairs relating to their common interest.

CITY is particularly used to express the hearts of the place. At *Paris* they have the *city* and the *university*; at *London* we have the *city* and the *suburbs*.

It has been observed that large *cities* are more liable than other places to pestilential and putrid disorders, which is owing to the stagnation and corruption of the air. This is always the case in those which are low and unprovided with common sewers; where the streets are narrow and foul, the houses dirty, water scarce, and jails and hospitals crowded: also, when in sickly times the burials are within the walls, or when dead animals and offals are left to rot in the kennels or on dunghills; when drains are not provided to carry off any large body of stagnating water in the neighbourhood; when tenements make the greatest part of the dust, without a proper mixture of grass, bread, wine, or fermented liquors; from the use of old mouldy grain. In proportion to the number of these and the like causes concurring, a *city* will be more or less subject to pestilential diseases, or to receive the leaven of the true plague, brought into it by any merchandize. An excellent writer emphatically calls them the graves of the human species. See *Bills of* MORTALITY.

However, as great *cities* furnish many materials for vitiating the air, they likewise afford two considerable antidotes; the first arises from the circulation of the air, by means of the constant motion of people and carriages, and of the draughts made by fires: the other depends on the great quantity of an acid produced by fuel, the strongest resister of putrefaction.

CITY, *Advocate of the*. See ADVOCATE.

CITY, *Capital*. See CAPITAL.

CITIES, *College of*. See COLLEGE.

CITIES, *Forest*. See FOREST.

CITY, *Freedom of a*. See FREEDOM.

CITY, *Honours of the*. See HONOURS.

CITIES, *Imperial*. See IMPERIAL.

CITIES, *Municipal*. See MUNICIPAL.

CITY, *Provost of the*. See PROVOST.

CIVES, in *Botany*, a very small species of onion which never produces any bulb, and seldom grows above six inches high in the blade, which is very small and fleshy, and grows in tufts and bunches. This used to be in great request for salads in spring, as being milder than other onions which had stood the winter, but at present it is not much regarded. The way of propagating it is by parting the roots in autumn, and planting them, at small distances, three or four in a hole; they will stand the winter very well, and be fit for use early in the spring. See ALLIUM, GARLICK, and ONION.

CIVET, a kind of perfume, bearing the name of the animal whence it is taken.

The word comes from the Arabic *zibed*, or *zabed*, *foam*, *froth*.

The *civet*, or *civet-cat*, *zibeta*, is a little animal, in shape resembling the wolf or dog; its snout is long and small; its ears small and roundish; its hair is like those of the badger, but very soft; its feet small and legs short. See *Tab. Quadrupeds*, N° 17.

Some naturalists will have it the same with the hyæna of Aristotle, and call it *hyæna odorifera*. Others suppose it the panther of the ancients, while the generality take it for a kind of wild cat, and call it *felis zibetha*, on account of the perfume it yields, which the Arabs call *zibet*. Linnæus makes it a species of the VIVERRA, with an annulated tail, with wave-like streaks of pale grey and black along the back. It is a native of Africa, the Indies, Peru, Brasil, Guinea, &c.

An ample description of the *civet-bag*, its glands, the reservoirs of the perfume, &c. is given by M. Morand in Mem. Acad. R. Scienc. an. 1728. p. 403. H. 14.

It is gathered from time to time; and still abounds, in proportion as the animal is fed.

There is a very considerable traffic of *civet*, from Russia, Calicut, and other places, where the animal this produces it is bred: though great part of the *civet* among us is furnished by the Dutch; who bring up a considerable number of the animals.

Before any of these animals were seen in Europe, or it had been observed how the perfume had been gathered, the common opinion, founded on the relations of travellers, was, that it was the sweat of that animal, when irritated and provoked into rage. To this effect, it was said, that the animal was inclosed in an iron cage, and after having been a long time beaten with rods, they gathered with a spoon, through the bars of the cage, and between the thighs of the animal, the sweat or foam, which the rage and agitation had produced; and that, without this precaution, the animal would yield no perfume at all; which is undoubtedly false.

The proper *civet* perfume is only a thick oily humour, secreted by certain glands between the two sides of the bag wherein it is amassed, under the creature's tail, beneath the anus, and between it and the sexual parts of the animal.

Civet must be chosen new, of a good consistence, a pale colour, and a strong smell.

However, the sweat and foam of the animal provoked by fretting, which are highly perfumed, are likewise collected, serve to sophisticate the perfume, or increase its quantity.

Besides the Indian and Dutch *civet*, there is also a *civet* from Brasil, or Guinea, like that of India; and an *accidental civet*, which bears no resemblance to it: this being only a term used to express the human excrements.

Civet is little used in medicine, except in a thickness of hearing from cold; where a grain or two being put in a little cotton, or wool, and the ears stopped therewith, is sometimes of service. It is much used among perfumers and confectioners.

This odoriferous, unctuous animal juice is soluble in oils, but not in spirit of wine, or in water even by means of sugar. Neumann.

CIVIC, CIVICUS, an epithet applied to a kind of a crown, made of oaken leaves; anciently bestowed by the Romans on those who saved the life of a fellow-citizen in a battle, or an assault. The civic crown was exceedingly esteemed: and was even given as an honour to Augustus, who on this occasion struck coins with this device, OB CIVES SERVATOS. It was also granted to Cicero, after his discovery of Cataline's conspiracy. See CROWN.

CIVIL, CIVILIS, in its general sense, denotes something that regards the policy, public good, or peace of the citizens, or subjects of a state.

In this sense, we say, *civil* government, *civil* law, *civil* rights; *civil war*, &c.

CIVIL, in a *Legal Sense*, is also applied to the ordinary procedure in an action relating to some pecuniary matter, or interest. In which sense it is opposed to criminal.

CIVIL *Action*. See ACTION.

CIVIL *Architecture*. See ARCHITECTURE.

CIVIL *Corporation*. See CORPORATION.

CIVIL *Day*. See DAY.

CIVIL *Death*, any thing that retrenches, or cuts off a man from *civil* society: as, a condemnation to the galleys, perpetual banishment, condemnation to death, outlawry, and excommunication; all which make a man cease to be looked on as a citizen.

The term is likewise applied to those who are no longer capable of acting in temporal concerns; as those who renounce the world, who retire and make vows in a monastery, &c.

CIVIL *Fruits*. See FRUITS.

CIVIL *History*. See HISTORY.

CIVIL *Law*, *Lex* CIVILIS, is defined in the Institutes, to be the laws peculiar to each city or each people. But in the modern use, it properly implies the Roman law, contained in the Institutes, the Digest, the Code, and the Novels; otherwise called, *jus scriptum*, or the *written law*.

The Roman law, at its commencement, was very inconsiderable. Under the kings, the people were governed by certain laws prepared by the senate, passed by the kings, and confirmed in an assembly of the people.

Papirius was the first who made a collection of the regal laws; which took its name from its author, and was called *jus Papirianum*.

The republic, after abolishing the regal government, still retained the royal laws: to these they added the law of the Twelve Tables, drawn by the decemviri from the laws of twelve of the principal cities of Greece; and the more equitable among the laws hitherto practised at Rome.

During the time of the republic, and even under the emperors, there were jurisconsulti; who making public profession of the study of the law, were consulted on the different senses of the laws, and gave answers to the questions proposed to them thereon; which were called *responsa prudentum*, and by Justinian, the *jurisprudentia media*.

The law of the Twelve Tables was at length found to be severe, and conceived in such obscure terms, that it was judged proper to moderate, restrain, and ascertain it, by other laws, proposed to the senate by the consuls, and passed at general assemblies of the people; according to the practice that had obtained under the kings themselves: and these were called by way of emphasis *leges*, or the *laws*. Afterwards the common people differed with the nobility, and, during their secession, enacted laws of their own, which were called *plebiscita*; and, upon their subsequent reconciliation, these were admitted and universally enforced. The senate was likewise entrusted with a legislative authority; and new laws were made by them, and called *senatus consulta*, and incorporated with the Roman *civil* law. The prætors, likewise, in the absence of the consuls, had a power of supplying and correcting the *civil* law of the Twelve Tables, and of propoling edicts, which, when approved by the people, were incorporated into the *civil* law, under the title of *jus prætorium*. And the ædiles curules did also in some cases enact and establish laws. These several parts, which have been enumerated, compoled the Roman *civil* law, during the republic.

In the time of Julius Cæsar, Offilius, a lawyer, began a collection of the edicts of the prætors; but this was not finilhed till the time of Adrian, by another lawyer; who alio digelted the edicts of the ædiles curules, which were made perpetual by the Cornelian law.

In the year of Rome 731, the republic expired; and the whole power of the people was transferred to Auguftus, who was contented to publish his new laws to the assembly of the people; to keep up lome image of the republic by this formality. Tiberius abolilhed thele occalional assemblies, on pretence of their being too numerous; and, in lieu thereof, offered his laws to the senate, who never failed to confirm them: infomuch that the laws of Tiberius, and his succeflors, who kept the lame measures with the senate, were eilcemed *senatus cuvjulta*. They were alio called *imperial conjtitutions*, and lometimes *placita principum*. The *responsa prudentum*, obtained from those to whom the emperors gave commillion, and to which the judges were obliged to conform, conlhituted a part of the *jus scriptum*, or written law. The *imperial conjtitutions*, after they were become very numerous under succeeding emperors, were digelted into four codes. See Code.

Juftinian, finding the authority of the Roman law almoft abolilhed in the Weft, by the declenlion of the empire, refolved to make a general collection of the whole Roman jurilprudence, and committed the care thereof to his chancellor Trebonianus.

That minilter executed his commillion with a great deal of diligence, not to lay precipitation: a new code was finilhed in 529, and a digeft, or pandect, containing an abridgement of the *responsa prudentum*, in 533.

The lame year he publilhed an abridgement thereof, containing the firft principles and elements of law, under the title of *Injtitutes*.

In the courle of this reign, Juftinian made 168 conftitutions, and 13 edicts; which made a conliderable alteration in the ancient law, and were called *Novels*.

All thele together, viz. the *Code*, the *Digeft*, the *Inftitute*, and the *Novels*, make the *corpus juris civilis*, or body of the *civil law*, as reduced by order of Juftinian.

For the lpace of about 900 years, this lyltem of law obtained without any innovation. But the new conftitutions, made by the emperors from time to time, at length occalioning lome alterations; the emperor Balil, and Leo, his lon, compoled a new body of the Roman law, chiefly from the Juftinian, in the Greek language; dividing it into leven volumes, and lixty books; under the title of *Baflica*. From which time, Juftinian's body had but little credit in the Eaft; the Baflica taking place of it.

In the Weft, the *civil law* had a different fortune; for, though lome traces of its authority remained in Italy, yet it was little known in Europe, till a copy of Juftinian's *Digeft* was accidentally found at Amalfi, in Italy, about the year 1130; and this circumltance, together with the policy of the Romilh ecclelialtics, contributed to introduce it into leveral nations, and occalioned that inundation of voluminous commentators, with which this lyltem of law, more than any other, is now loaded.

It is true, however, it was never taught publicly till the twelfth century; when the ltudy of it was introduced into leveral univerlities abroad, particularly that of Bologna; whence it was carried by Italian ltudents into other countries, and in a little time was taught in all the univerlities.

It was firlt brought over into England by Theobald, a Norman abbot, who was elected to the lee of Canterbury in 1138; and he appointed a profeflor, viz. Roger, lirnamed Vacarius, in the univerlity of Oxford, to teach it to the people of this country. Nevertheless, it gained ground very llowly; king Stephen illued a proclamation, prohibiting the ltudy of it. And though the clergy were attached to it, the laity rather wilhed to preserve the old conltitution. However, the civil and canonical law acquired great reputation from the reign of king Stephen to the reign of king Edward III. both inclulive. Many tranlcripts of Juftinian's Inltitute are to be found in the writings of our ancient authors, particularly of Bracton and Fleta; and judge Blackltone obferves, that the common law would have been loft and over-run by the *civil*, had it not been for the incident of fixing the court of common pleas in one certain lpot, and the forming the profeflion of the municipal law into an aggregate body.

It is allowed, that the *civil* law contains all the principles of natural equity; and that nothing can be better calculated to form good lenle, and found judgment. Hence, though in leveral countries it has no other authority but that of reaton and juftice, it is every where refpected for authority.

It is not received at this day in any nation without lome alterations: and lometimes the feudal law is mixed with it, or general and particular cuftoms; and often ordinances and ltatutes cut off a great part of it.

In Turky, the *Baflica* are only ufed. In Italy, the canon law, and cuftoms, have excluded a good part of it. In Venice, cuftom hath almoft an abloline government. In the Milanele, the feudal law, and particular cuftoms, bear lway. In Naples and Sicily, the conltitutions and laws of the Lombards are faid to prevail. In Germany, and Holland, the *civil* law is eilcemed to be the municipal law: but yet many parts of it are there grown obloletes; and others are altered, either by the canon law, or a different ulage.

In Friealand, it is obferved with more ltrictnels: but in the northern parts of Germany, the lax Saxonicum, Lubecenle, or Culmenle, is preferred before it. In Denmark and Sweden, it hath fcarce any authority at all.

In France only a part of it is received; and that part is in lome places as a cuftomary law: and in thole provinces nearelt to Italy, it is received as a municipal written law. In criminal caules, the *civil* law is more regarded in France: but the manner of trial is regulated by ordinances and edicts.

The *civil law*, in Spain and Portugal, is connected with the *jus regium* and cuftom. In Scotland, the ltatutes of the federunt, part of the regie majeltatis, and ltatute cuftoms, controul the *civil law*.

In England, it is uled in the ecclelialtical courts; in the high court of admiralty; in the court of chivalry; in the two univerlities; and in the courts of equity: yet in all thele it is reltrained and directed by the common law. See Law, Common *Law*, &c.

Civil *Liberty*. See Liberty.

Civil *Lift*, the money allotted for the lupport of the king's houlhold, and for defraying certain neceflary charges of government. See 1 Geo. III. cap. 3.

Civil *Month*. See Month.

Civil *Obligation*. See Obligation.

Civil *State*, conlilts of the nobility and commonalty, exclulive of the clergy, and of the military and maritime orders.

Civil *Subjection*, in *Law*, is a ltecies of compulfive obligation, whereby an inferior is conltrained by a luperior to an action contrary to what his own reaton and inclination would luggelt: it when a legislator eltablilhes impiety by a law, and commands a lubject to do what is inconliltent with religion or found morality. This excule cannot be admitted in *foro conjcientiæ*, but it is a lufficient extenuation of civil *guilt* before the municipal tribunal. Black. Com. vol. iv. p. 23.

CIVIL *War*, a war between people of the same state, or the citizens of the same city.

CIVIL *Year*, is the legal year, or *civil* account of TIME, which every government appoints to be used within its own dominions.

It is thus called, in contradistinction to the natural year; which is measured exactly by the revolution of the heavenly bodies.

CIVILIANS *College*. See COLLEGE.

CIVILISATION, a law or judgment, which renders a criminal process CIVIL.

Civilisation is performed by turning the information into an inquest, or vice versâ.

CLACK *mark*, is to cut off the sheep's mark, which makes it weigh lighter; as to force wool, signifies to clip off the upper and hairy part thereof; and to bard it, is to cut the head and neck from the rest of the fleece. Stat. 8 H. VI. cap. 22.

CLADEUTERIA, in *Antiquity*, a festival celebrated at the time of pruning the vines. It was likewise called *lysæa*.

CLADIUS, in *Natural History*, a name given by the ancients to the flag or sedge, when four years old; in this year, or at the end of it, it was called *xiraxis*. The Greeks had names for all the years growth of this animal up to its perfection: in the first year they called it *nossus*; in the second *pastalon*; in the third *meriscus*; and in the fourth *cladius*, or *xiraxis* toward the end of that year. This name the creature retained all its life afterwards, it being supposed at its full maturity at that time.

CLAIM, in *Law*, a CHALLENGE of interest in any thing that is in POSSESSION of another; at least of a man's own. See NON-CLAIM.

There are divers sorts of *claims*; as *claim by charter*, *by descent*, *by acquisition*, &c.

CLAIM, *Continual*, a *claim* made from time to time, within every year and day, to land, or other thing, which, on some accounts, cannot be attained without danger.

Thus, if I am disseised of land, into which, though I have a right, I do not enter for fear of being beaten; I am to hold on my right of entry at my best opportunity; by approaching as near as I can, once every year, as long as I live: and thus I leave the right of entry to my heir.

CLAIM *of Liberty*, a suit or petition to the king in the court of Exchequer, to have liberties and franchises confirmed there by the king's attorney-general.

CLAIM, *Fresh*. See FRESH.

CLAIM, *Writ*. See QUIT.

CLAIR-OBSCURE, or CHIARO-SCURO, in *Painting*, the art of distributing to advantage the lights and shadows of a piece, both with regard to the eafing of the eye, and heightening the effect of the whole composition.

Thus when a painter gives his figures a strong relievo, loosens them from the ground, and sets them free from each other, by the management of his lights and shadows, he is said to understand the *clair-obscure*.

The *clair-obscure* makes one of the great divisions, or branches, of painting; the whole of a picture being resolvable into light and shadow. It was first invented in Italy by Hugo da Carpi, in the sixteenth century.

The doctrine of the *clair-obscure* will come under the following rules. Light may either be considered with regard to itself, to its effects, the place wherein it is diffused, or its use. For the 1st, light is either *natural*, or *artificial*.

Natural, either comes immediately from the sun, which is brisk, and its colour various, according to the time of the day; or is that of a clear air, through which light is spread, and whose colour is a little bluish; or of a cloudy air, which is darker, yet represents objects in their genuine colours with more ease to the eye.

Artificial light proceeds from fire, or flame, and tinges the object with its own colour, but the light it projects is very narrow and confined.

For the 2d, the effects of light are either *principal*, as when the rays fall perpendicularly on the top of a body, without any interruption; or glancing, as when it slides along bodies; or *secondary*, which is for things at a distance.

3. For the place, it is either the open champaign, which makes objects appear with great softness; or an inclosed place, where the brightness is more vivid, its diminution more hasty, and its extremes more abrupt.

4. For the use, or application of the light of the sun is always to be supposed without, and over-against the picture, which may heighten the foremost figures; the intermediates themselves never appearing, in regard the best colours cannot expreſs them. The chief figure is to meet on the chief group, and as much as poſſible on the chief figure of the ſubject. The light is to be purſued over the great parts, without being croſſed, or interrupted with little ſhadows. The full force of the principal light is to be only in one part of the piece; taking care never to make two contrary lights. Not to be ſcrupulouſly confined to one univerſal light; but to ſuppoſe other acceſſory ones, as the opening of the clouds, &c. to looſen ſome things, and produce other agreeable effects. Laſtly, the light to be different, according to the quality of the things whence it proceeds, and the nature of the ſubjects which receive it.

As for ſhadows, they are diſtinguiſhed, 1°, Into thoſe formed on the bodies themſelves, by their proper relievos: 2°, Thoſe made by adjacent bodies: 3°, Thoſe that make part of an whole: and 4°, The different effects according to the difference of places. For the firſt, ſince the different effects of lights only appear by ſhadows, their degrees muſt be well managed. The place which admits no light, and where the colours are loſt, muſt be darker than any part that has relievo, and diſpoſed in the front. The reflex, or return of the light, brings with it a colour borrowed from the ſubject that reflects it, and ſhuts off as a greater or leſs angle, according to the poſition of the reflecting body with regard to the illuminated one: hence, its effects muſt be different in colour, and in force; according to the diſpoſition of bodies. Deſcendings, which admit not of any light, or reflex, muſt never meet on the relievo of any member of any great obſcured party; but in the cavities or joints of bodies, the folds of draperies, &c. And to find occaſions for introducing great ſhadows to ſerve for the repoſe of the light, and the looſening of things; inſtead of many little ſhadows, which have a mean effect.

For the 2d, the ſhadows made by bodies, are either in plain and ſmooth places, or on the earth; wherein they are deeper than the bodies that occaſion them, as receiving leſs reflex light; yet ſtill diminiſh as they depart farther from their cauſe; or they are on the neighbouring bodies, where they are to follow the form of the ſaid bodies, according to their magnitude and poſition, with regard to the light.

For the 3d, in ſhadows that have parts, the painter muſt oblerve to take his light in a ſhadowed place, the tint, or luſtre of the light parts, and, on the contrary, for the ſhadow in the lightened part, the tint or luſtre in the ſhadow: to make an agreeable aſſemblage of colour, ſhadow, and reflexin the ſhadowed part; but without interrupting the great maſſes of ſhadow: to avoid forming little things in the ſhadow, as not being perceived, unleſs cloſely looked at; and to work, as it were, in the general, and at one light; never to ſet the ſtrong ſhadows againſt the lights, without ſoftening the harſh contraſt by the help of ſome intermediate colour: tho' the maſs of light be placed either before or behind that of the ſhadow, yet make it to be diſpoſed, as to illumine the principal part of the ſubject.

For the 4th, the effects of ſhadows are different, as the place is either wide and ſpacious; as in thoſe coming immediately from the ſun, which are very ſenſible, and their extremes pretty abrupt: from the ſcreene air, which are fainter and more ſweet: from the dark air which appear more diffuſed, and almoſt imperceptible: and thoſe from an artificial light, which makes the ſhadows deep, and their edges very abrupt: or as it is more narrow and confined, where the lights coming from the ſame place make the ſhadow more ſtrong, and the reflex leſs ſenſible.

CLAIR-OBSCURE, CHIARO-SCURO and OBSCURO, is alſo uſed for a deſign conſiſting only of two colours; ordinarily black and white, ſometimes black and yellow.

Or, it is a deſign only waſhed with one colour; the ſhadows being of a duſky brown colour, and the lights heightened up with white.

The word is alſo applied to prints of two colours, taken off at twice; whereof there are volumes in the cabinets of the curious in prints.

The word *clair-obſcure*, is compounded of two others. *Clair* is uſed among the French for thoſe parts of a painting which reflect the moſt light; and comprehends not only the lights themſelves, but alſo thoſe colours that are luminous. By *obſcure*, is meant not only all the ſhades, but alſo all the colours that are dark.

CLARD, in *Ornithology*, a name given by the people of Lancaſhire, and ſome other places, to the BARNACLE, a ſmall ſpecies of wild gooſe.

CLAMATOR, in *Antiquity*, was uſed to ſignify a domeſtic officer, whoſe buſineſs was to call the gueſts to dinner.

CLANEA *admittenda in itinere per attornatum*, is a writ whereby the king commands the juſtices in eyre to admit a perſon's *claim* by an attorney, who being employed in the king's ſervice, cannot come in perſon.

CLAMOR, or CLAMOUR *de Hare*, a popular term in the French

French laws, importing a complaint, or cry, whereby any one implores the assistance of justice against the oppression of another.

CLAMOR, *sm.*, in *Medicine*, an intenseness of the voice, a loud outcry, a *clamor*. This is sometimes the cause of a rupture of the vessels, and sometimes of a disorder, like an inflammation about the membranes of the fauces and muscles; which may be compared to that ulcerous and inflammatory lassitude, which affects the hands, legs, and loins, after excessive hard labour: the spirituous and humid particles being exhausted, and the fibres and membranes dried and contracted. A *clamor* is sometimes also a sort of remedy, and prescribed as such in order to rouse persons out of a lipothymy, or syncope.

CLAMOR *bellicus*, in *Antiquity*. See SHOUT.

CLAMPS, in *Gunnery*. See CAP-*squares*.

CLAMPS, in *Ship-building*, are thick planks in a ship's side, used to sustain the ends of the BEAMS. They include the whole inner range of the side circle under each deck, from the item to the fashion-piece of the stern. Those of the lower and second decks should be half the thickness of the corresponding timbers in that part, and as broad as they can be procured: until they should be so disposed as not to be pierced by the ports.

CLAMPS, in a *Ship*, are also pieces of timber applied to a mast, or yard, to strengthen it, and prevent the wood from burlting.

CLASP, also, denotes a little piece of wood, in form of a wheel; used instead of a pully in a mortise.

CLAMP, in like wise the term for a pile of bricks built up for burning.

CLAMP-*nails*, are such nails as are used to fasten on *clamps*, in building and repairing of ships.

CLAMPING, in *Joinery*, &c. When a piece of boards is fitted with the grain, to the end of another piece of board cross the grain; the first board is said to be *clamped*.

Thus the ends of large old tables were commonly *clamped*, to preserve them from warping.

CLAMPONNIER, or CLAPONNIER, in the *Manege*, a long-jointed horse; that is, one whose patterns are long, slender, and over-pliant.

The word is obsolete, and is properly applicable only to the ox kind: for *la claponniere* in French, is in them what the pastern is in a horse.

CLANCULARII, a sect of Anabaptists, who denied the necessity of making an open profession of the faith; and taught that a private one would be sufficient.

These were also called *Horziani*, and *Gardenses*, from the places they chose to assemble in, instead of churches.

CLANDESTINA, in *Botany*. See LATHRÆA.

CLANDESTINE, any thing done secretly and without the knowlege of some of the parties interested in it; or without the proper solemnities.

The word comes from the preposition *clam*, of *apud*, *circum*, *from*; or *latium*, *fortum*, *theft*.

Thus, a marriage is said to be *clandestine*, when performed without the publication of banns, the consent of parents, or the knowlege of the ordinary. The council of Trent, and the French ordonnances, annul all *clandestine* marriages. See MARRIAGE.

CLANGULA, in *Ornithology*. See DUCK.

CLAP, in *Medicine*, the first stage, or state, of the venereal disease, called also a GONORRHŒA.

Dr. Cockburn, and others after him, will have the *clap* to consist in an ulceration of the mouths of the glands of the *urethra* in men, and of the glandlar *carunculæ* in women; occasioned by the insinuation of an acrimonious, purulent matter, contracted from an infected person *in actu coitus*.

From these glands, ulcers or gleets a sharp corrosive matter, accompanied with heat of urine, chordee, &c. which makes what is usually termed the first stage of the distemper.

A *clap* appears sometimes sooner, and other times later, though generally in about three or four days after the infection is received; and discovers itself by the running, &c. of the *penis*, with inflammation of the *glans*, or nut of the yard.

The heat, or burning, which such persons feel in making water, is a consequence of this exoriation of the *urethra*; the salts contained in the urine pricking and irritating the vicious *fibrillæ* of the *urethra*, thus divested of its natural membrane.

If the person be affected with a *gleet*, or *paraphimosis*; if the running be of a thin consistence, a yellow or green colour, and in great quantity, and the testicles swelled; it is usually termed a *gonorrhœa virulenta*; and the *clap* supposed to be in its second stage.

Some authors think, that in this degree, or stage, the infection has reached the mass of blood, and the *system* is *venereal*: others infist, that these symptoms may be accounted for, from the running, or ulcer, being more corrosive; and by that means irritating and inflaming the adjacent parts.

The cure of a *clap* consists in proper evacuations, as universal purgatives, refrigerant emulsions, *decoctum lenitivum* emetics, and bathe, proper temperature, &c. to which some add, decoctions of the *lignum vitæ*, &c. as to externals, they are generally comprehended under the form of fomentations, cataplasms, liniments, and lotions.

Late authors, and especially Dr. Cockburn, have insisted on the cure of a *clap* by a particular injection, without the use of any other medicine. This has given a handle to quacks, who, by affecting to do the same by their injections, generally check the running, and occasion a confirmed pox.

Turbith mineral, calomel, &c. given in small doses, and continued for some time, so as to take effect by way of alteratives, have been lately much commended as to success. Mercurial unguents, used in small quantities, so as not to raise a salivation, are said to cure all the stages of the venereal disease: this practice is used at Montpelier.

CLAP-*board*, a board cut, in order to make casks or vessels.

CLAP-*net*, in *Birding*, a sort of net contrived for the taking of larks with the looking-glass, by the method called daring, or dering. The nets are spread over an even piece of ground, and the larks are invited into the place by other larks fastened down, and by a looking-glass composed of five pieces, and fixed in a frame, so that it is turned round very swiftly, backwards and forwards, by a cord pulled by a person at a considerable distance behind a hedge. See DARING.

CLAR, or CLARE, in *Metallurgy*, bone ashes perfectly calcined, and finely powdered, kept purposely for the covering the insides of CUPELS.

CLARAMONT *powder*, the name of a medicinal powder very famous in Venice, and some other places, for its virtues in stoping hemorrhages of all kinds, and in the cure of malignant fevers. It has its name from the person who first found out its virtues and who has written a book expressly about it. It is a white earth found near Baira, not far from Palermo, and is thence called also by some writers, *terra de Baira*.

CLARE, *Nuns of St.* were founded at Assise in Italy, about the year 1212. These nuns observed the rule of St. Francis, and wore habits of the same colour with those of the Franciscan Friars: and hence were called *Minoresses*; and their *house*, without Aldgate, the *Minories*, where they were settled when first brought over into England, about the year 1293. They had only three houses besides this.

CLARENCIEUX, the second king at arms; thus called from the duke of Clarence, to whom he first belonged.

Lionel, third son of Edward III. having by his wife the heiress of Clare in the county of Thomond, was hereupon created duke of Clarence: which dukedom afterwards escheating to Edward IV. he made this herald, who properly belonged to the duke, a king at arms, naming him *Clarenceux* in French, and *Clarentius* in Latin.

His office is to marshal, and dispose of, the funerals of all the lower nobility; as baronets, knights, esquires, and gentlemen on the South side of Trent: whence he is also called *Surroy*, or *Southroy*, in contradistinction to NORROY.

CLARENDON, *Constitutions of*, in *Antiquity*, a charter or code of laws established by the parliament at *Clarendon*, in Wiltshire, A. D. 1164, fifteen articles of which related particularly to ecclesiastical matters, and were designed by king Henry II. to check the power of the pope and his clergy, and to limit the total exemptions which they claimed from the secular jurisdiction. They were vehemently opposed by Becket; and ten of them were condemned by pope Alexander III. and by no means.

CLARET, or CLARET, *vin rouge*, a name which the French give to such of their red wines as are not of a deep or high colour. See WINE.

The word is a diminutive of *clear*, *bright*, *transparent*.

There are various accounts in the Phil. Trans. of attempts to improve the operation of VARNISH by injecting the *siccative* after the lymph is drawn off with *clarets* and other astringents. Phil. vol. abr. part ii. N° 65. an. 1756.

CLARET, *Claretum*, in the *ancient Pharmacy*, was a kind of wine sweetened with sugar, and impregnated with aromatics; sometimes also called *Hippocras*, or *vinum Hippocraticum*; because supposed to have been first prescribed by Hippocrates.

It has its name *claret*, from its being clarified by percolation through a flannel bag, called *manica Hippocratis*.

CLARIAS, or CLARIAS *Silurus*, in *Ichthyology*, the name of a fish of the *glanis* kind, common in the Nile, and brought

brought to market at Memphis, and in many other parts of Egypt, but of an insipid taste, and eaten only by the poorer sort of people. The tail is broad and forked, and has externally two horny appendages of a round figure, and a hand's breadth in length, in which it differs from all other fishes.

CLARICORD, or MANICORD, a musical instrument, in form of a spinet.

It has forty-nine or fifty keys, and seventy strings, which bear on five bridges; the first whereof is the highest, the rest diminishing in proportion. Some of the strings are in unison; their number being greater than that of the stops.

There are several little mortises for pulling the jacks, armed with little brass hooks, which stop and raise the chords in lieu of the feather used in virginals and spinets. But what distinguishes it most, is, that the strings are covered with pieces of cloth, which render the sound the sweeter; and deaden it so as that it cannot be heard to any considerable distance.

Hence some call it the *dumb spinet*; whence it comes to be particularly in use among the nuns, who learn to play, and are unwilling to disturb the silence of the dormitory.

The *clarichord* is more ancient than either the spinet or harpsichord; as is observed by Scaliger, who, however, only gives it thirty-five strings.

CLARIFICATION, in *Chymistry*, the act of clearing, or fining of liquors from their grosser parts.

Clarification is performed by decantation, ebullition, defumation, and colature, or filtration.

The term is chiefly applied to juices, decoctions, and syrups, which are *clarified* by filtration, or by passing them through a strainer, after having been beat up into a froth with the whites of eggs; the viscous parts of the eggs, entangling the thick gross particles of the liquor, retain them in the strainer. Sometimes the mixture is boiled; by which means the eggs entangle the grosser parts, and carry them up to the top in a tough scum, which is either taken off with a spoon, or separated by a flannel bag, as before, called *Hippocrates' sleeve*. Another method is, by letting the liquor stand in a convenient vessel, till the grosser particles settle.

In distilled waters, &c. which have a milky hue, or are turbid, this is generally effected with fine sugar, mixed with a small quantity of alum; which will bear down the oily parts, and leave the rest clear.

Many liquors are *clarified* by passing them through a thick brown paper; among others, hippocras, hydromel, &c.

The ancients *clarified* their wines by pouring them from off the lees, into another barrel, through a tin strainer. Fine and delicate wines are usually *clarified* with ichthyocolla, or fish-glue: the thicker wines with omelette, or whites of eggs diluted in water; sometimes by pouring them through a heap of little chips.

It is an error to suppose, that either isinglass, or omelette, can be prejudicial to the health; since both the one and the other fall down with the lees, without producing any ill effect: though Neumann makes a doubt concerning the wholesomeness of wines thus *clarified*; especially if they are drank too soon. That which makes wines unwholsome is not the *clarifying* by these innocent means, but the mixtures and sophistications of the vintners, to make them brisk, and bring them to life again after the frets which is done with *aqua vitæ*, spices, pigeons dung, &c.

Bay salt is *clarified* with ox's blood.

Sugar is *clarified* with the whites of eggs, and sugar beat together; and with ox's blood and other materials. See SUGAR.

For MALT *liquors*, particularly beer, there are various methods of clearing; the best is by casting into it fixed nitre: some add the quintessence of malt and wine; whites of eggs made into balls with a little flour and isinglass: oil, and quintessence of barley, have the same effect. It is exceedingly cleared and strengthened, by adding to it, during the time of its fermentation, some ardent spirit.

CLARIGATIO, in *Roman Antiquity*, a ceremony that always preceded a formal declaration of war. It was performed in this manner: a first four heralds, crowned with vervain, were sent to demand satisfaction for the injuries done the Roman state. These heralds, taking the gods to witness that their demands were just, one of them, with a clear voice, demanded restitution within a limited time, commonly thirty-three days; which being expired, without any restitution made, then the *pater patratus*, or prince of the heralds, proceeded to the enemies frontiers, and declared war.

CLARIGATIO is also used for apprehending a man, and holding him to bail. The Greeks called this action ANDROLEPSIA.

CLARIGATION, in the *Law of Nations*, denotes a solid clear call, or summons made to an enemy, to demand satisfaction for some injury received; in defect whereof, recourse will be had to reprisals.

Clarigatione amounts to much the same with what the Greeks call ἀφορμὴ ἐγκλημάτων. Though Naudæus for the word in a somewhat different manner. "Reprisals," says he, "signify the same as *pirationes Budæo aut clarigationes* " *Hermolao*; for as to the Greek word *androlepsia*, it is " equivalent to the Latin *prehensio bonorum*."

CLARINO, in the *Italian Music*, signifies a TRUMPET; thus, *a due clarini*, added to any composition, denotes that it was made for two trumpets. See CORNET.

CLARION, a kind of trumpet, whose tube is narrower, and its tone acuter and shriller than the common trumpet.

Menage derives the word from the Italian *clarino*, of the Latin *clarus*, by reason of the clearness of its sound.

Nicod says, the *clarion*, as now used among the Moors, and the Portuguese, who borrowed it from the Moors, served anciently for a treble to several trumpets, which sounded tenor and bass. He adds, that it was only used among the cavalry and the marines.

CLARION, in *Heraldry*, is a bearing represented in *Tab. Heraldry, fig.* 30.—He bears ruby, three *clarions* topaz; being the arms of the earl of Bath, by the name of Granville.

Guillim takes these *clarions* to be a kind of old-fashioned trumpets; but others rather think, they represent the rudder of a ship; and others a reft for a lance.

CLARISSIMI, among the Romans, a title of honour belonging to the third rank of nobility under the emperors. See SPECTABILES.

CLARK-*goose*, in *Natural History*, a species of wild goose found in Zealand. Phil. Trans. N° 473. sect. 8.

CLARO *obscuro*. See CLAIR *obscure*.

CLARY, *Sclarea*, in *Botany*; Tourn. *Linnæus* has joined the genus and the next to the SALVIA. Its characters are these: the flower has a tubulous empalement, which widens at the top, and has five acute points at the brim; it is of the lip kind, with one petal, having a crooked tube which enlarges at the chaps, where it is divided into two lips; the upper lip erect and arched, the under lip cut into three segments; it has two stamina, which are situated under the upper lip, terminated by oblong erect summits; and a four pointed germen, supporting a forked style longer than the upper lip, crowned by a bifid stigma: the germen afterwards becomes four roundish seeds, which ripen in the empalement.

There are fifteen species, natives of different places. The first sort grows natural in Syria, but has been long cultivated in the European gardens, both for the kitchen and shops; it is a biennial plant, which perishes after it has borne seeds. The lower leaves of this are large, rough, wrinkled, oblong, and heart-shaped; and are sawed on the edges.

It is propagated by seeds, which should be sown in the spring; and when fit to remove, may be planted in an open spot of ground in rows, two feet asunder. In the winter and spring following, the leaves, which are the only part used, will be in perfection, and in the summer will run up to flower; and after ripening their seeds, will decay; so that young plants should be annually raised for use.

Clary is accounted to be of a warm and drying nature. Infused in wine, it comforts a cold windy stomach; it is particularly commended to strengthen the kidneys, to relieve a *flux alvi*, and invigorate a cold relaxed womb.

CLARY-*water*, is composed of brandy, sugar, clary-flowers, and cinnamon, with a little *ambergris* dissolved in it. It helps digestion, and is cardiac. This water is rendered either purgative or emetic, by adding resin of jalap and scammony, or *crocus metallorum*. Some make *clary-water* of brandy, juice of cherries, straw berries, and gooseberries, sugar, cloves, white pepper, and coriander seeds; infused, sugared, and strained.

CLARY, *wild*, *Horminum*, in *Botany*; Tourn. Inst. R. H. 178. Its characters are these: the empalement of the flower is permanent, of one leaf, having two lips, the upper ending in three acute points, the under in two; the flower has one petal, divided into two lips, the upper concave, and incurved with a slight indenture at the point, the lower broader, and more indented; it hath two short stamina, situated in the tube of the flower; and in the bottom of the tube are four roundish germina, which become four seeds lodged in the empalement.

There are five species, one of which is sometimes called OCULUS *Christi*.

The English name of this genus of plants is *clary*; but it is an indeterminate one, because it is also used as the name for the *sclarea*, a different genus of plants, though

by many authors confounded with the others under the name *lanuginum*.

Hieracium has been much celebrated as a cardiac, but is now less used than formerly. The dried herb, given in infusion or decoction, is good in the *fluor albus*, but should be given with other medicines. It is also commended in colics, flatulencies, and hysteric complaints; also as an antispasmodic, and in epilepsies.

CLASMIUM, in *Natural History*, the name of a genus of fossils of the *gypsum*: the characters of which are, that they are of a soft texture, and of a dull and opake look, being composed, like all the other gypsums, of irregularly arranged flat particles.

The word is derived from *κλασμα*, *a fragment*, or *small particle*, from the flaky small particles of which these bodies are composed. Of this genus there is only one known species; this is of a tolerably regular and even structure, though very coarse and harsh to the touch. It is common in Italy, and is greatly esteemed there: we have of it also in some parts of Derbyshire; but with us it is not particularly regarded, but burnt among the rest. It neither gives nor wash fleet, nor ferments with *aqua fortis*; but calcines readily in the fire, and affords a very valuable plaister of Paris.

CLASP-*nails*. See NAILS.

CLASPERS, in *Botany*, are tendrils, threads, or ligaments of a middle nature between those of a root, and trunk; whereby shrubs, and other lesser plants, take hold of trees, or other things near them, for their support, &c.

The wisdom of the Creator is very conspicuous, in this provision for some species of plants, which need it; as ivy, vines, bryony, &c.

The contrivance is various in various subjects. Malpighi observes, that the *claspers* of ivy are roundish, and covered with hair: and what is very remarkable, they yield a glutinous terebinthine humour, by means whereof they adhere closely to stones, &c. Nature, he adds, uses no less artifice in the vine *Canadensis*.

Claspers serve sometimes for support only: as those of the vine, bryony, &c. whose branches being long, slender, and brittle, would be weighed down by their own load, and that of their fruit, but for these *claspers*, which, by a natural spire, or circumvolution, catch hold of any adjacent body.

Claspers sometimes also serve for a supply of juice; as in the trunk locus of ivy, which being a tall plant, and of a compact substance, the sap would not be sufficiently furnished to the upper sprouts, without this expedient.

Claspers also sometimes serve for stabilment, as those of cucumbers; for propagation, as those of camomile; and for shade, stabilment, and propagation all together, as those of strawberries.

CLASS, *Classis*, a distribution of persons, or things, ranged according to their merit, value, or nature. See RANK, &c.

The word comes from *classis*, derived by some from the Greek *καλειν*, *convocare*, a *class* being nothing but a multitude assembled apart.

CLASS, in *Botany*, is defined by Linnæus to be an agreement of several genera in the parts of fructification, according to the principles of nature distinguished by art; and he has divided the whole body of vegetables into twenty-four *classes*. See FRUCTIFICATION.

CLASS is particularly used for a distinction among scholars; who are distributed into several *classes* or forms, according to their capacities and attainments.

Quintilian uses the word *classis* in this sense, in the first book of his Institutions.

CLASSIC, CLASSICAL, a term chiefly applied to authors read in the *classes* at schools, and who are in great authority there. In this sense Aquinas, and the Master of the Sentences, are *classic* authors in the school-divinity; Aristotle, in philosophy; Cicero and Virgil, in the humanities. Aulus Gellius ranks among *classic* authors, Cicero, Cæsar, Sallust, Virgil, Horace, &c.

The term *classic* seems properly applicable only to authors who lived in the time of the Roman republic, and the Augustan age, when the Latin was in its perfection.

It appears to have taken its rise hence, that an estimate of every person's estate being appointed by Servius Tullius, he divided the Roman people into six bands, which he called *classes*. The estate of those of the first *classis* was not to be under two hundred pounds; and those, by way of eminence, were called, *classici*, *classics*.

Hence, also, authors of the first rank came to be called *classici*; till the rest are said to be *infra classem*.

The first *classis*, again, was subdivided into centuries; making fourscore centuries of footmen, and eighteen of horsemen.

Each *classis* consisted, one half of the younger sort, who were to make war abroad; and the other of old men, who staid at home for the defence of the city.

CRITICAL *learning* may be understood to signify such an acquaintance with the best Latin and Greek writers, as shall enable the reader to perceive and admire the peculiar beauty of their compositions, and to adopt their diction and sentiment. The principal *classic* Greek authors are, Homer, Hesiod, Plato, Demosthenes, Æschines, Xenophon, Plutarch, Isocrates, Epictetus, Lucian, Sophocles, Euripides, Longinus, Theocritus, Anacreon, Pindar, Aristophanes, &c. The chief Latin writers are, Cicero, Livy, Cæsar, Sallust, Virgil, Horace, Terence, Plautus, Juvenal, Ovid, Pliny, Valerius Paterculus, Tacitus, &c.

CLATHRI, in *Antiquity*, bars of iron, or wood, used in securing doors and windows.

There was a goddess that presided over *clathri*, called *Clathria*.

CLATHRUS, in *Botany*, a name given by Micheli, and continued by Linnæus, to a genus of *fungi*, in the class of *cryptogamia*, the characters of which are these: they are always of a roundish figure, and have a reticulated and hollowed body, as if full of windows with ramifications every where annexed.

CLATHRUS is also the name of a species of TURBO in the *order of testacea*, belonging to the class of worms.

CLAIRE, in *Heraldry*, a term borrowed from the French, to express such lines as are sometimes found in the old paintings, and engravings of arms. These lines are of an irregular kind, and not reducible to any other proper lines of heraldry, as the engrailed, indented, embattled, or the like.

CLAVARIA, in *Botany*, the name given by Vaillant, and continued by Linnæus, to a genus of *fungi*, in the class of *cryptogamia*; the characters of which are, that they grow perpendicularly, and have a simple and uniform surface; these have been called also by the same Vaillant, under some small varieties in the species, *coralloides* and by Tournefort, *coralloides*. Dillenius has called them *fungoides*.

CLAVARIUM, in *Antiquity*, an allowance which the Roman soldiers had for furnishing nails to secure their shoes with. They raised frequent mutinies, demanding largesses of the emperors under this pretence.

CLAVATA *vestimenta*, in *Antiquity*, habits adorned with purple *clavi*, which were either broad or narrow. See CLAVUS.

CLAUDENDA *aria*. See CURIA.

CLAUDENS *pectoralis*, in *Anatomy*, a name given by Spigelius, and some others, to one of the muscles of the face, called by Albinus and Winslow, *musculus orbicularis palpebrarum*, and by others, *sphincter palpebrarum*.

CLAUDICATION. See LAMENESS.

CLAVELLATI *cineres*. See POT-*ashes*.

CLAVES *insulæ*, a term used in the Isle of Man, where all antiquious and weighty causes are referred to twelve persons, whom they call *claves insulæ*, i. e. *the keys of the island*.

CLAVICULÆ, *collar-bones*, in *Anatomy*, two small bones situate at the basis of the neck, and top of the breast. *See Tab. Anatomy, (Osteol.) fig. 3. n. 3. 3.*

They are about half a foot long, of the thickness of a finger, and a little bent at each end, and that different ways, sometimes like the letter *S*; and are thus called, as being the keys, *claves*, of the *thorax*.

Their inner substance is spongy, whence they are brittle, easily broken, and easily coalescing again. They are joined to the *acromium* of the *scapula per syndesmosin*; and on the fore-part, *per synchondrosin*; and on the fore-part, *per arthrodiam*, to a *sinus* on each side of the upper part of the *sternum*.

Their use is to fix the *scapulæ* with the *sternum*, and the arms, and to prevent them from slipping too forward upon the *thorax*.

The two *claviculæ* are situated transversely, and a little obliquely, opposite to each other, about the superior and anterior part of the *thorax*, between the *scapulæ* and the *sternum*. Each *clavicula* resembles in some measure an Italic *S*, being a long bone irregularly cylindric, bent forwards near the *sternum*, and backwards near the *scapula*, as if it were made up of two arches joined endwise in opposite directions, that which lies on the fore-part of the breast being the largest. The *claviculæ* are each divided into a body, or middle part, and two extremities, one anterior, inferior, and internal, which may be termed the pectoral or sternal extremity; the other superior, posterior, and external, which may be named the humeral or scapular extremity. The pectoral extremity is the thickest, and is of a triangular figure, especially near the end, where it is a little enlarged, and shews a cartilaginous surface, with three angles, of which the lowest is the most prominent, and is turned a little toward the cavity of the *thorax*; near these angles there are several muscular and ligamentary impressions, one of which near the inferior angle, is sometimes raised like a tubercle. The humeral extremity is flat and broad, and two sides may be considered in it, one superior, the

other

other inferior; as likewise two edges, one anterior, the other posterior; and a small articular surface.

The upper side has several inequalities, and in the lower there is a kind of oblong, rough, oblique, tuberosity. The posterior ridge is convex, thick, and uneven, being that of the small arch of the *clavicle*; the anterior edge is concave, thin, and smooth, every where except near the great arch, where it has a rough impression. The articular surface terminates this extremity, being cartilaginous, turned obliquely forward, and of an oval figure, like that of the *acromion*, with which it is articulated. The body or middle portion, which, together with the pectoral extremity, forms the great curvature of the *clavicle*, is not so thick as the extremities; it is a little flatted both on the upper and lower sides, and therefore two edges may likewise be distinguished in it; the upper side is pretty even, the lower something rougher, and a little depressed by a superficial channel. The edges are rounded, the anterior being convex, the posterior concave; the inner substance of the extremities is cellular, the rest is more solid, consisting of very thick sides, with a narrow cavity more or less filled with reticular bony filaments. Winslow.

Mr. Weitbrecht has described and delineated a ligament which had not been observed by anatomical writers, stretched from the posterior part of the anterior extremity of each *clavicle*, behind the *sternum*, to the same part of the other *clavicle*, which makes the articulation of the *sternum* and *clavicles* stronger. See Comment. Acad. Petrop. tom. iv. p. 155.

CLAVICLE, *fracture of the.* The *clavicle* is extremely subject to be fractured, both from its transverse position, and from its smallness. Whether it happens to be broken near the *humerus*, or near the *sternum*, its end that is next the *humerus* always descends lower than the other, from the weight of the arm which was before sustained by the *clavicle* and head of the *sternum*; and notwithstanding that part of it next the *sternum* remains immoveable by the descent of its other end, it can scarce happen but they will in some degree collapse over one another.

The reduction of a fractured *clavicle* is not very difficult, especially when the fracture is transverse; nor is it usual for the *humerus*, with the fragment of the *clavicle*, to be so far distorted as not to be easily reduced by the fingers. The difficulty, however, is much greater to keep the bone in its place when the fracture has been reduced; and that most of all when the bone has been broken obliquely. For this there are two reasons; for the circular bandages, with which the bones of the arms, and other extremities are usually held very firm, cannot be applied here, because of the form and disorder of the part; and then the weight of the depending arm soon pulls to pieces what the surgeon has been replacing.

This fracture is to be reduced in the following manner: the patient must be placed on a low seat, and an assistant is to thrust his knee against the middle of the patient's back, between his two shoulders; then laying hold of the heads of both the patient's arms with his hands, he must pull them gently and gradually backwards, by which means the *clavicles* will be properly extended: while this is doing, the surgeon must stand before, and endeavour to replace the bone with both his hands, ordering the assistant to hold the bone in that position; he is then to apply a narrow and thick compress, so as to fill up the cavities above and below the *clavicle*; upon these he is to lay two or more narrow compresses made in the form of an X; over all these he is to apply a piece of paste-board, accommodated to the shoulders and neck, and first steeped in spirits of wine, or oxycrate; then he must place a ball under the arm, or else bind it several times with a thick roller, to prevent the *humerus* from subsiding; and lastly, the whole is to be properly bound up, and the arm suspended by a sash or sling hung across the shoulder, about the neck. The plasters that have been used to be employed on this occasion, have, of later years, been found to be wholly useless.

Whenever there are any loose splinters of the bone that are entirely separated, which, though they should not wound, or hurt the flesh, yet will obstruct the meeting of the *clavicle*, it seems altogether requisite to open the skin, and remove them before the reduction of the bone, treating the wound as usual; but if these should be any splinters which still adhere to the bone, and prick the adjacent parts, and impede the reduction, they must be also either taken off with forceps, or else forced back into their places, by which they may be again united to the bone. But to divide the parts, and remove the fragments requires great caution, lest some of the large subclavian veins or arteries be wounded in the operation, and thereby a fatal hæmorrhage be produced. Heister, Surg. p. 120.

CLAVICLE, *luxated.* The *clavicles* are but seldom displaced, by reason of their strong ligaments: but they may be dislocated, however, either from the top of the *sternum*, or *processus acromion* of the *scapula*, to which they are naturally connected. This may be occasioned either by a fall or blow, or by lifting some great weight. With regard to the cure, the sooner assistance is had, the more easily may the reduction of the *clavicle* be performed; but loss of time in this case is of the utmost consequence; inveterate luxations of the *clavicle* being found incurable.

The *clavicles* may be dislocated in two manners from the *sternum*, either internally toward the *larynx*, or externally upon the breast. When the first case happens, a cavity may be generally perceived upon the part affected, and the *trachea*, with the carotid *vessels*, and arteries, and nerves, and the *œsophagus*, which are all together, will be very much disturbed or compressed. On the contrary, when it is luxated forward upon the breast, it shews itself by a preternatural tumor, instead of a cavity, in that place.

The *clavicles*, when luxated, are to be replaced by the patient's being set in a low seat, and an assistant's thrusting his knee against the middle of his back, between his shoulders, and laying hold of both his arms, and pulling them gently backwards. By this means the *clavicles* will be extended, and are in that state easily replaced. When this is done, it must be carefully regarded to remove the injuries of the neck. If any kind of luxation requires an accurate retention by bandage, it must certainly be this of the *clavicle*, especially when the luxation has happened some time before the reduction: for, beside that the *clavicles* have scarce any muscles to support them, their ligaments are usually so much stretched and weakened in this case, that they are in no wise sufficient to sustain the weight of the arms. Such luxations of the *clavicles* as happen near the *processus acromion*, are generally much more difficult to discover, and have been too often mistaken, even by surgeons, for luxations of the *humerus*. Whenever this luxation happens, the superior part of the *scapula* sticks up: but in the place, when the *clavicles* are separated from the acromion process, a cavity may be observed: much acute pains also arise from this luxation, and the arm can by no means be lifted up. If therefore the luxated *clavicle*, in this case, is not timely reduced, it is no wonder that the use of the arm is entirely lost afterwards. A strict bandage continued about the part for forty days, to make the dislocated bones again coalesce, will be found of great service in these cases, and, indeed, is the principal part of the cure. The bones may be replaced by the before advised manner of extension, but nothing can keep them so but a proper and accurately applied bandage. Heist. Surg. p. 158.

CLAVICYMBALUM, in *Antiquity*, a musical instrument with thirty strings, in a perpendicular situation.

Modern writers apply the name to our harpsichorde.

CLAVIS, a Latin word, sometimes used in English writers for a key.

CLAUSE, an article, or particular stipulation in a contract; a change or condition in a testament, &c.

We say, *a derogatory clause, penal clause, saving clause, subsidiary clause*, &c.

CLAUSE *extremum diem.* See DIEM.

CLAUSTRAL *prior.* See PRIOR.

CLAUSUM *fregit*, an action of trespass; thus called, because the writ demands the person summoned to answer to *quare clausum fregit*, of the plaintiff, why he committed such a trespass?

CLAVUM *Veneris*, in *Botany*, a name given by some authors to the *water-LILY*, or *nymphæa*.

CLAVUS, in *Antiquity*, a band, or fillet of purple, worn on the breast of the Roman senators and knights, more or less broad, according to the dignity of the person; from the proportions of which arose the difference of *tunica* ANGUSTICLAVIA, and LATICLAVIA. See TUNICA.

This ornament, according to some, was called *clavus*, *nail*, as being studded with little round plates of gold, or silver, like the heads of nails. Castellus maintains, that the *clavus* consisted of a kind of purple flowers, sewed upon the stuff.

CLAVUS *annalis*, in *Antiquity*. So rude and illiterate were the Romans towards the rise of their state, that the driving or fixing a nail was the only method they had of keeping a register of time; for which reason it was called *clavus annalis*. There was an ancient law, ordaining the chief prætor to fix a nail every year on the ides of September; it was driven into the right side of the temple of Jupiter Opt. Max. towards Minerva's temple.

This custom of keeping an account of time, by means of fixing nails, was not peculiar to the Romans, for the Etrurians likewise used to drive nails into the temple of their goddess Nortia with the same view. Vide Liv. lib. vii. cap. 3.

CLAVUS, in *Medicine*, a name physicians give to a shooting pain in the head, commonly situate a little above the eyes, viz. on the *sinus frontalis*; and supposed to resemble the boring of the head through with an augre; whence the name. In some it is only in one, and in others in both sides.

It is generally allowed to be a species of an ague, or an intermitting fever; its periods of coming or going being usually regular or stated. In some it is quotidian, in others tertian.

The cure consists in giving an emetic a little before the fit, and after; confirming it with a proper quantity of the cortex, &c. as in intermitting fevers: though bleeding and diaphoretics sometimes effect a cure without other assistance.

A pain like to this, on the top of the head, sometimes attacks hysterical persons; which by Dr. Sydenham is termed *clavus hystericus*.

CLAVUS *hystericus*, in *Medicine*, denotes a peculiar species of head-ach, more frequently attacking women than men, and with them usually owing its origin to a suppression of the menstrual discharges. In some cases, the pain is less violent, and only attends people during the three or four first days of the menstrual discharge. In others, the pain is more violent, and almost continual; and when to the common causes of it there is added a venereal taint, which is no uncommon case, it becomes then the most terrible of all pains in the head.

Signs of it. These are a piercing pain about the forehead or temples, resembling that of a nail driven into the head: this pain sometimes also extends itself over the whole head: with this there generally is a sensation of pain about the sagittal future in particular, and a remarkable coldness there: often there is an inflation and redness of the face, with a noise and ringing in the ears. To these there are not unfrequently added a slight fever, a chilliness of the extremities, a remarkable lassitude, and want of appetite, with frequent eructations and nauseas, and a costiveness of the bowels. It generally returns about the time of the menses; or in cases where it is continual, it rages with more than ordinary violence at that time. Among the women, those are most subject to it who live sedentary lives, and feed high, and who are naturally passionate, and of a hasty temper.

Causes of it. Among the natural causes of this terrible pain, the most powerful are, an excretion of blood towards the head, and a stoppage of the menses, and of the discharges by the haemorrhoidal veins, by injudicious treatment.

Prognostics from it. Nothing gives physicians greater trouble, or more exposes the insufficiency of the art of healing, than the head-achs to which women are subject. The manner of life of the patient is, however, more in fault in these obstinate cases, than either the nature of the disease, or the skill of the prescriber: high living, and idleness have too many charms, to be quitted easily by those who can enjoy them; and, therefore, while the cause always subsists, the cure can be only palliative or temporary, the disorder always returning after a time: yet it is certain by experience, that the most terrible and inveterate disorders of this kind may be removed so as not to return, by the use of proper medicines, and a thorough change in the diet and manner of life of the patient.

Method of cure. The first care in this respect is to keep the bowels lax, for they are almost always naturally costive in this disease: emollient clysters are the most proper means of doing this; and where purges are required beside, they must always be of the most gentle and least vellicating kind. After these, the violent emotions of the blood are to be quieted by powders of nitre, antimony diaphoretic, crab's eyes, and cinnabar; and if there be a spissitude in it, the neutral and diuretic salts are to be given, in a scruple at a time, every day. Tartarum vitriolatum alone, given in this manner, frequently has a very great effect. If it be found necessary, besides this, a gentle opiate may be sometimes given, such as a small dose of the thebaic pill: and externally, spirit of wine and camphor is not a little serviceable. By way of prevention, it is extremely proper to bleed at spring and autumn every year: and above all things, to keep regular in regard to the menstrual discharges. Gentle purges are to be given at times, and necessary exercise above all things to be advised; and this should always be the more insisted upon, the more adverse the patients are to it, and the more they love to indulge in a sedentary course. Junker Consp. Med.

CLAVUS is also used in *Medicine*, for a callus formed on the toes; popularly called a *corn*.

Clavi arise from a too great compression of the *cutis*; which by this means hardens, and forms itself into a knot. See CALLUS.

The cure is by first softening them, as with *emplast. de ranis cum mercurio*, or with *gallan. crocat.* with *sal ammoniac*; and then pulling them up. A piece of raw beef, applied in manner of a plaster, and frequently shifted, is often found to dissipate them in a little time. Whether these are removed by the knife, or by application of emollient, caustic, or corroding medicines, great caution should be used to avoid injuring any of the subjacent tendons.

After corns are cut away, Harris says the *diachylon simplex* will prevent their growing again; as also will the *gallonum collum Abyssinic.* and also that soft wax which is used by the lawyers. But above all a clean linen rag bound about the toe, after the callus is cut away; this was much recommended by king Charles II.

CLAWS, among *Zoologists*, denote the sharp-pointed nails with which the feet of certain quadrupeds and birds are furnished.

Eft's CLAWS. See ELK.

CLAWS is also used for a close or small measure of land.

CLAWING, or CLAWING-*off*, in *Sea-Language*, signifies the act of *beating* or turning to windward from a lee-shore, so as to escape the danger of shipwreck.

CLAY, *Argilla*, in *Natural History*, a soft viscous earth, found in various places, and used for various purposes of several kinds and properties.

Dr. Lister, in the Philosophical Transactions, gives us a table of twenty-two several *clays* found in the several counties of England; five whereof he calls

Pure, i. e. such as are soft, like butter, to the teeth, with little or no grittiness in them; viz. 1. FULLER's-*earth*, which he distinguishes by its colour into yellowish, brown, and white. 2. BOLUS. 3. Pale yellow *clay*. 4. Cow-shot *clay*. 5. Dark blue *clay*, or MARLE. The other seventeen

Impure; wherein eight are harsh and dusty when dry; as, 1. Certa, chalk, or milk-white *clay*. 2. Potters pale yellow *clay*. 3. Blue potters *clay*. 4. Blue *clay*, wherein is found the asbrotes. 5. Yellow *clay*. 6. Fine red *clay*. 7. Soft chalky blue *clay*. 8. Soft chalky red *clay*. Three are stony when dry; viz. 1. A red stony *clay*. 2. A blue stony *clay*. 3. A white stony *clay*.

Three are mixed with sand, or pebbles; viz. 1. A yellow loam. 2. A red sandy *clay*. 3. A second species of the same kind.

Lastly, three are mixed with flat or thin sand, glittering with mica; viz. 1. Crouch white *clay*. 2. Grey or bluish tobacco-pipe *clay*. 3. A red *clay*. But this is a very unartful disposition.

Dr. Hill has distinguished them by their colours into white, yellow, brown, blue, green, red, and black *clays*; and enumerated several particular sorts of *clay* under each of these heads. Mr. Mendez da Costa also, in his History of Fossils, distributes them according to their colour into black, white, ash and grey, red, yellow, brown, blue, green *clays*; and then subdivides each class into *clays* which are not acted upon by acids, and alkaline *clays*.

The distinguishing characters of earths principally used in the potter's trade are these: they are firmly coherent, weighty, and compact; stiff, viscid, and ductile to a great degree while moist; smooth to the touch, and unctuous, not easily breaking between the fingers, nor readily diffusible in water, and when mixed in it not readily subsiding from it. It hardens by fire into a kind of stony substance. It is not known that any kind of earth shrinks so much as *clay*, and hence the purity of *clay* may be judged from the degree of its contraction. Lewis's Commercium. Phil. Techn. p. 259.

Such as are curious to know more of this subject may be fully gratified by consulting M. Maquer's Mem. on *clays*, in the Mem. of the A. D. S. an. 1762.

CLAY-*lands*. See SOIL.

CLAYES, in *Fortification*, are wattles made with flakes, interwoven with osiers, &c. to cover lodgments.

CLAYING *of land*. See MANURING.

CLAYTONIA, in *Botany*, a genus of the *pentandria monogynia* class. The character are: the flower hath a two-leaved oval empalement, with a transverse base: it hath five oval indented petals, and five recurved stamina, shorter than the petals, and terminated by oblong summits. In the centre is situated an oval germen, supporting a single style, crowned by a trifid stigma. The germen becomes a roundish capsule with three cells, opening with three elastic valves, and filled with round seeds. This is a native of Virginia, and we have but one species in our English gardens.

CLEAR, in *Building*, is sometimes used among the workmen for the inside work of a house, &c.

CLEARING *of Liquors*. See CLARIFICATION.

CLEATS, in *Ship-building*, are pieces of wood of different shapes, used occasionally to fasten ropes upon, in a ship: some have one arm, some two, and others have no arms

but

but are hollowed in the middle, and nailed to the deck or the sides of the ship.

CLEAVERS, CLIVERS, or GOOSE-*grass*, *aparine*, in *Botany*, the name of a genus of plants, the characters of which are these: the flower consists of one leaf, and is bell-fashioned, very wide, open at the mouth, and divided into several segments; the cup becomes a fruit, which is dry, covered with a very thin skin, and composed of two round bodies, which contain an umbilicated seed. The leaves of this plant are rough and hairy, and stand in rundles round the stalk.

The species of *cleavers* enumerated by Mr. Tournefort, are eleven.

The *cleavers* are known from the madders, by their having a dry fruit; and from crosswort, by having five or more leaves at a joint: and finally, from galium, or ladies bed-straw, by the leaves being rough or hairy. However, Linnæus has classed the goose-grass with smooth seed under GALIUM, and the low trailing goose-grass with a blue flower under *valantia*. It is very common on banks under hedges.

The vulgar have an opinion of this plant as an antiscorbutic, and eat it in spring with nettle-tops and the rest of that tribe, to sweeten their blood. It stands recommended by many authors as a remedy for the king's evil; and others have ascribed a very powerful diuretic virtue to it; but these have in general ordered a very bad preparation of it for these purposes, the distilled simple water; doubtless a good decoction must be greatly preferable. We have the assurance of Dr. Palmer, from his own knowledge, that it is an excellent remedy in a *gonorrhœa simplex*.

CLECHE, or CLECHY, in *Heraldry*, is explained by Guillim as an ordinary open to the light, or pierced through with another inner one of the same figure; v. gr. when a cross appears as if charged with another cross of the same colour with the field; or as if the field appeared through the apertures thereof.

The word is French, supposed to be formed of *clef*, *key*; the ends of the cross being thought to bear some resemblance to the bowls of the ancient keys.

But Colombiere, and some other writers, will have this piercing to be only a circumstance of the cross *clechè*, and call it by the name *vuidé*, voided. The thing that denominates it *clechè*, is its spreading from the centre towards the extremities, which are very wide, and end in an angle in the middle; as in the figure represented *Tab. Herald. fig.* 37.

CLEDGE, a name given by miners to the upper part of the stratum of fuller's-earth. See FULLER's-*earth*.

CLEDONISM, CLEDONISMUS, a kind of divination, in use among the ancients.

The word is formed from κληδων, which signifies two things, *rumor*, a report, and *avis*, a bird: in the first sense, *cledonism* should denote a kind of divination drawn from words occasionally uttered.—Cicero observes, that the Pythagoreans made observation not only of the words of the gods, but of those of men; and accordingly believed the pronouncing of certain words, v. g. *secundum*, at a meal, very unhappy.—Thus, instead of *prison*, they used the word *domicilium*; and to avoid *erinnyes*, furies, said *eumenides*.

In the second sense, CLEDONISM should seem a divination drawn from birds; the same with ornithomantia.

CLEF, or CLIFF, in *Music*, a mark at the beginning of the lines of a song, which shews the tone, or key, in which the piece is to begin. Or, it is a letter marked on any line, which explains and gives the name to all the rest.

Anciently, every line had a letter marked for a *clef*; now a letter on one line suffices; since by this all the rest are known; reckoning up and down, in the order of the letters.

It is called the *clef*, q. d. *key*, because hereby we know the names of all the other lines and spaces; and consequently the quantity of every degree, or interval.

But because every note in the octave is called a *key*, though in another sense, this letter marked is called in a particular manner the *signed clef*; because being written on any line, it not only signs and marks that one, but it also explains all the rest.

By *clef*, therefore, for distinction-sake, we mean that letter signed on a line, which explains the rest; and by *key*, the principal note of a song, in which the melody closes.

There are three of these *signed clefs*, *c*, *f*, *g*. The *clef* of the highest part in a song, called *treble*, or *alt*, is *g* set on the second line counting upwards. The *clef* of the *bass*, or the lowest part, is *f* on the fourth line upwards: for all the other mean parts, the *clef* is *c*, sometimes on one, sometimes on another line. Indeed, some that are really mean parts, are sometimes set with the *g clef*.

It must, however, be observed, that the ordinary signatures of *clefs* bear little resemblance to those letters. Mr. Malcolm thinks it would be well if we used the letters themselves. Kepler takes great pains to shew, that the common signatures are only corruptions of the letters they represent. See their figures among the other CHARACTERS *of Music*.

The *clefs* are always taken fifths to one another: that is the *clef f* is lowest, *c* a fifth above it, and *g* a fifth above *c*.

When the place of the *clef* is changed, which is not frequent in the *mean clef*, it is with design to make the system comprehend as many notes of the song as possible, and so to have the fewer notes above or below it. If then there be many lines above the *clef*, and few below it, this purpose is answered by placing the *clef* in the first or second line: if there be many notes below the *clef*, it is placed lower in the system. In effect, according to the relation of the other notes to the *clef* note, the particular system is taken differently in the scale, the *clef* line making one in all the variety.

But still, in whatever line of the particular system any *clef* is found, it must be understood to belong to the same of the general system, and to be the same individual note or found in the scale. By this constant relation of *clefs*, we learn how to compare the several particular systems of the several parts; and know how they communicate in the scale, i. e. which lines are unison, and which not: for it is not to be supposed, that each part has certain bounds, within which another must never come. Some notes of the treble, v. gr. may be lower than some of the mean parts, or even of the bass. To put together therefore into one system all the parts of a composition written separately, the notes of each part must be placed at the same distances above and below the proper *clef*, as they stand in the separate system; and because all the notes that are consonant (or heard together) must stand perpendicularly over each other, that the notes belonging to each part may be distinctly known, they may be made with such differences as shall not confound, or alter their significations with respect to time, but only shew, that they belong to this or that part. Thus we shall see how the parts change and pass through one another; and which, in every note, is highest, lowest, or unison. The use of particular *signed clefs* then, is an improvement with respect to the parts of any composition; for unless some one key in the particular systems were distinguished from the rest, and referred invariably to one place in the scale, the relations could not be distinctly marked.

It must here be observed, that for the performance of any single piece, the *clef* only serves for explaining the intervals in the lines and spaces. So that we need not regard what part of any greater system it is; but the first note may be taken as high or low as we please. For as the proper use of the scale is not to limit the absolute degree of tone; so the proper use of the *signed clef* is not to limit the pitch, at which the first note of any part is to be taken; but to determine the tune of the rest, with relation to the first; and considering all the parts together, to determine the relation of their several notes by the relations of their *clefs* in the scale: thus, their pitch of tune being determined in a certain note of one part; the other notes of that part are determined by the constant relations of the letters of the scale, and the notes of the other parts by the relations of their *clefs*.

In effect, for performing any single part, the *clef* note may be taken in an octave, i. e. at any note of the same name; provided we do not go too high, or too low, for finding the rest of the notes of a song. But in a concert of several parts, all the *clefs* must be taken, not only in the relations, but also in the places of the system above mentioned; that every part may be comprehended in it. The difference of *clefs* in particular systems makes the practice of music much more difficult and perplexed, than it would otherwise be; both with respect to instruments, and to the voice. This occasioned Mr. Salmon to propose a method of reducing all music to one *clef*; whereby the same writing of any piece of music should equally serve to direct the voice, and all instruments; which he calls an *universal character*.

The natural and artificial note expressed by the same letter, as *e* and *e* ♯, are both set on the same line or space. When there is no character of flat or sharp, at the beginning with the *clef*, all the notes are natural: and if in any particular place the artificial note be required, it is signified by the sign of a flat or sharp, set on the line a space before that note.

If a sharp or flat be set at the beginning in any line or space with the *clef*, all the notes on that line or space are artificial ones; i. e. are to be taken a semitone higher or lower than they would be without such sign. And

the ſame affects all their octaves above and below, though they be not marked ſo. In the courſe of the ſong, if the natural note be ſometimes required, it is ſignified by this character ♮.

The marking of the ſyſtem thus by flats and ſharps, Mr. Malcolm calls the *ſignature of the clefs*.

CLEFT, in *Graffing*. See ENGRAFTING.

CLEFTS, or CRACKS, in the heels of horſes, are occaſioned by hard labour, unwholeſome food, want of exerciſe, and waſhing them when hot. They are cured by cutting off the hair, and anointing with the oil of hempſeed, or linſeed, and keeping them clean.

CLEIDION, in *Antiquity*, the ſame with *clavicula*. See CLAVICULÆ.

CLEIDOMASTOIDEUS, in *Anatomy*, a name given by Albinus to a muſcle, called by others ſimply MASTOIDÆUS, and by Euſtachius *ſeptimus caput moventium*.

CLEMA, in *Antiquity*, a ſpecies of vine, a twig of which was the enſign of a centurion's office.

CLEMATIS, in *Botany*. See VIRGIN's *bower*.

CLEMENT, *Conſtitutions of*. See *Apoſtolical* CONSTITUTIONS.

CLEMENT, *Recognitions of*. See RECOGNITIONS.

CLEMENTINA, a ſpurious work attributed to Clement.

CLEMENTINE, a term uſed among the Auguſtins, who apply it to a perſon, who, after having been nine years a ſuperior, ceaſes to be ſo, and becomes a private monk, under the command of a ſuperior.

The word has its riſe hence, that pope Clement, by a bull, prohibited any ſuperior among the Auguſtins from continuing above nine years in his office.

CLEMENTINES, in the *Canon Law*, are the conſtitutions of pope Clement V. and the CANONS of the council of Vienne.

CLENCH-*nails*. See NAILS.

CLEOME, in *Botany*, a name given by ſome to the ſea-holly, or eringo. Ger. Emac. Ind. 2.

CLEOME, *Anapeſtrum* of Tournefort, is a genus of the *tetradynamia ſiliquoſa* claſs. The characters are; the flower hath a four-leaved empalement, which ſpreads open; it hath four petals, which incline upward, and ſpread open; the lower being leſs than the other; in the bottom there are three mellous glands, which are roundiſh, and ſeparated by the empalement; it hath ſix or more ſtamina, which are incurved, having riſing ſummits fixed to their ſide; it hath a ſingle ſtyle, ſupporting an oblong germen, which is of the ſame length with the ſtamina, and crowned by a thick ſtigma; the germen becomes a long cylindrical pod, having one cell opening with two valves, and filled with round ſeeds.

CLEPSYDRA, a kind of water-clock, or an hour-glaſs ſerving to meaſure time by the fall of a certain quantity of water.

The word comes from κλεπτω, *conceal*, and ὑδωρ, *aqua*, *water*.

There have likewiſe been *clepſydræ* made with mercury.

The Egyptians, by this machine, meaſured the courſe of the ſun. Tycho Brahe, in modern days, made uſe of it to meaſure the motion of the ſtars, &c. and Dudley uſed the ſame contrivance in making all his maritime obſervations.

The uſe of *clepſydræ* is very ancient: they were probably invented in Egypt under the Ptolemies; though ſome authors aſcribe the invention of them to the Greeks, and others to the Romans. Pliny informs us, that Scipio Naſica, about one hundred and fifty years before Chriſt, gave the firſt hint for the conſtruction of them; and Pancirollus has particularly deſcribed it. According to his account, the *clepſydra* was a veſſel made of glaſs, with a ſmall hole in the bottom of it edged with gold: in the upper part of this veſſel a line was drawn, and marked with the twelve hours: the veſſel was filled with water, and a cork with a pin fixed in it floated on the ſurface, and pointed to the firſt hour; and as the water ſunk in the veſſel, by iſſuing out of the ſmall hole, the pin indicated the other hours in proportion to its decreaſe. Their uſe was chiefly in the winter; ſun-dials ſerved in the ſummer. They had two great defects; the one, that the water ran out with a greater or leſs facility, as the air was more or leſs denſe: the other, that the water ran out more readily at the beginning, than towards the concluſion.

M. Amontons has invented a *clepſydra* free from both theſe inconveniencies, and which is ſaid to have the three grand advantages of ſerving the ordinary purpoſe of clocks; of ſerving in navigation for the diſcovery of the longitude; and of meaſuring the motion of the arteries.

CLEPSYDRA, *conſtruction of a*. To divide any cylindric veſſel into parts to be emptied in each diviſion of time; the time wherein the whole, and that wherein any part is to be evacuated, being given.

Suppoſe, v. gr. a cylindric veſſel, whoſe charge of water flows out in twelve hours, were required to be divided into parts to be evacuated each hour. 1. As the part of time 1 is to the whole time 12, ſo is the ſame time 12 to a fourth proportional, 144. 2. Divide the altitude of the veſſel into 144 equal parts: here, the upper diviſion will fall to the laſt hour; the three next above to the laſt but one; the five next to the tenth hour, &c. Laſtly, the twenty-three laſt to the firſt hour.

For, ſince the times increaſe in the ſeries of the natural numbers, 1, 2, 3, 4, 5, &c. and the altitudes, if the numeration be in retrograde order from the twelfth hour, increaſe in the ſeries of the unequal numbers, 1, 3, 5, 7, 9, &c. the altitudes computed from the twelfth hour, will be as the ſquares of the times 1, 4, 9, 16, 25, &c. Therefore the ſquare of the whole time 144, comprehends all the parts of the altitude of the veſſel to be evacuated. But a third proportional to 1 and 12, is the ſquare of 12; and conſequently it is the number of equal parts into which the altitude is to be divided, to be diſtributed according to the ſeries of the unequal numbers, through the equal intervals of hours. Since, in lieu of parts of the ſame veſſel, other leſs veſſels equal thereto may be ſubſtituted; the altitude of a veſſel emptied in a given ſpace of time being given, the altitude of another veſſel to be emptied in a given time may be found; viz. by making the altitudes as the ſquares of the times.

Hence we ſee the method of conſtructing the *clepſydræ* uſed by the ancients.

The honourable Mr. Charles Hamilton has deſcribed a curious *clepſydra* of a new conſtruction. An open canal *r s*, (ſee *Tab. Hydraul. fig.* 1.) ſupplied with a conſtant and equal ſtream by the typhon *d*, has at each end *f*, *f*, open pipes of exactly equal bores, which deliver the water that runs along the canal *r*, alternately into the veſſel *g* 1, *g* 2, in ſuch a quantity as to raiſe the water from the mouth of the tantalus *t* exactly in an hour. The canal *r s* is equally poiſed by the two pipes *f* 1, *f* 2, upon a centre *r*; the ends of the canal *r s* are raiſed alternately, as the cups *n n* are depreſſed, to which they are connected by lines running over the pullies *l*, *l*. The cups *n n*, are fixed at each end of the balance *m*, *m*, which moves up and down upon its centre *v*: *n* 1, *n* 2, are the edges of two wheels or pullies, moving different ways alternately, and fitted to the cylinder *s* by oblique teeth both in the cavity of the wheel and upon the cylinder, which, when the wheel *n* moves one way, that is, in the direction of the minute-hand, meet the teeth of the cylinder and carry the cylinder with it; and when *n* moves the contrary way, ſlip over thoſe of the cylinder, the teeth not meeting, but receding from each other. One or other of theſe wheels *n n* continually moves *s* in the ſame direction, with an equable and uninterrupted motion. A fine chain goes twice round each wheel, having at one end a weight *x*, always out of water, which equiponderates with *y* at the other end, when kept floating on the ſurface of the water in the veſſel *g*, which *y* muſt always be; the two cups *n*, *n*, one at each end of the balance keep it in equilibrio, till one of them is forced down by the weight and impulſe of the water, which it receives from the tantalus *t i*: each of theſe cups *n*, *n*, has likewiſe a tantalus of its own *b b*, which empties it after the water has done running from *r*, and leaves the two cups again in equilibrio: *g* is a drain to carry off the water. The diſh-plate, &c. needs no deſcription. The motion of the *clepſydra* is reflected thus: as the end of the canal *r*, fixed to the pipe *f* 1, is, in the figure, the loweſt, all the water ſupplied by the ſyphon runs through the pipe *f* 1, into the veſſel *g* 1, till it runs over the top of the tantalus *t* 1; when it immediately runs out at *t* into the cup *n*, at the end of the balance *m*, and forces it down; the balance moving on its centre *v*. When one ſide of *m* is brought down, the ſtring which connects it to *f* 1, running over the pulley *l*, raiſes the end *f* 1 of the canal *r*, which turns upon its centre *r*, higher than *f* 2; conſequently, all the water which runs through the ſyphon *d* paſſes through *f* 2 into *g* 2, till the ſame operation is performed in that veſſel, and ſo on alternately. As the height the water riſes in *g* in an hour, viz. from *i* to *t*, is equal to the circumference of *n*, the float *y* riſing through that height along with the water, lets the weight *x* act upon the pulley *n*, which carries with it the cylinder *s*; and this, making a revolution, cauſes the index *p* to deſcribe an hour on the dial-plate. This revolution is performed by the pulley *n* 1: the next is performed by *n* 2, whilſt *n* 1 goes back, as the water in *g* 1 runs out through the tantalus; for *y* muſt follow the water, as its weight increaſes out of it. The axis *s* always keeps moving the ſame way; the index *p* deſcribes the minutes; each tantalus muſt be wider than the ſyphon, that the veſſels *g g* may be emptied as low as *i*, before the water returns to them. See drawings of this inſtrument in different poſitions, with

a deſcription of it in the Phil. Tranſ. vol. xliv. art. xiv. p. 171.

CLEPSYDRA is alſo uſed for an HOUR-*glaſs* of ſand.

CLEPSYDRA is alſo applied to a chemical veſſel perforated in the ſame manner.

CLERGY, CLERUS, the aſſembly or body of clerks, or eccleſiaſtics; in contradiſtinction to the LAITY. See CLERK.

In the Romiſh church there are two kinds of *clergy*: the one *regular*, comprehending all the religious of both ſexes: the other *ſecular*, comprehending all the eccleſiaſtics that do not make the monaſtic vows.

Among the reformed, there are none but ſecular *clergy*. The Roman *clergy* forms a monarchical ſtate, under the pope, as its ſupreme head.

The *clergy* in the firſt century were diſtinguiſhed by the title of PRESBYTERS or BISHOPS; and ſome maintain that they were of equal rank and authority. But towards the cloſe of the ſecond century, a notion prevailing, that the miniſters of the Chriſtian church ſucceeded to the character, rights, and privileges of the Jewiſh prieſthood, this produced a ſubordination of rank among them. The biſhops aſſumed a rank and character ſimilar to thoſe of the Jewiſh high-prieſt, the preſbyters repreſented the prieſts, and the deacons the levites. This diſtinction was ſtill farther promoted towards the end of the third century, and a new ſet of eccleſiaſtical officers was eſtabliſhed, ſuch as ſub-deacons, acolythi, door-keepers, readers, exorciſts, &c. The powers of the *clergy* were conſiderably extended under the patronage of Conſtantine the Great, about the cloſe of the fourth century.

The *clergy* was anciently divided into three orders; viz. prieſts, deacons, and inferior CLERKS; and each order had its chief: the arch-prieſt was the head of the firſt order, the arch-deacon of the ſecond, and the dean of the third.

Under the name of *clergy*, were alſo formerly compriſed all the officers of juſtice; as being ſuppoſed to be men of letters.

Though the *clergy* formerly claimed an exemption from all ſecular juriſdiction, yet Matt. Paris tells us, William the Conqueror ſubjected the biſhops and abbeys who held *per baroniam*, and who, till then, had been exempt from all ſecular ſervice; and ordered they ſhould be no longer free from mortuary ſervices. To this purpoſe he preſcribed arbitrarily what number of ſoldiers every abbey and biſhoprick ſhould provide, to ſerve him and his ſucceſſors in war, and laid up the regiſters of eccleſiaſtical ſervitude in his treaſury.

But, in effect, the *clergy* were not exempt from all ſecular ſervice till then; as being bound by the laws of king Edgar to obey the ſecular magiſtrate in ſome things; viz. upon an expedition to the wars, and in contributing to the building and repairing of bridges, &c. See TRINODA *neceſſitas*.

The privileges of the Engliſh *clergy*, by the ancient ſtatutes, are very conſiderable: their goods are to pay no toll in fairs or markets; they are exempt from all others, but their own; from the king's carriages, poſts, &c. from appearing at the ſheriffs tourns or frank-pledges; and are not to be fined or amerced, according to their ſpiritual, but their temporal means.

A *clergyman* acknowledging a ſtatute, his body is not to be impriſoned: if he be convicted of a crime, for which the benefit of *clergy* is allowed, he ſhall not be burnt in the hand. See *Benefit of* CLERGY.

The *clergy*, by common law, are not to be burdened in the general charges with the laity; nor to be troubled or incumbered, unleſs expreſly named, and charged by the ſtatute; for general words do not affect them. Thus, if a hundred be fined for a robbery, the miniſter ſhall not contribute; though the words are, *gentes demorantes*: neither are they aſſeſſed to the highway, to the watch, &c. But theſe privileges are in a great meaſure loſt; the *clergy* being included under general words in later ſtatutes: ſo that they are liable to all public charges impoſed by act of parliament, where they are not particularly excepted. They are not now required to bear temporal offices, as thoſe of ſheriff, conſtable, &c. nor to ſerve on juries, nor to appear at tourns and leets, nor to ſerve perſonally in wars. Their bodies are not to be taken on ſtatutes merchant or ſtaple, &c. nor are they liable to an arreſt by *capias*; but a writ ſhould be addreſſed to the biſhop, compelling them to appear: nevertheleſs, when execution is obtained, a ſequeſtration of the profits of their benefices may be had. *Clergymen* are not liable to be arreſted in the church or church-yard, while attending on divine ſervice; and he that beats a *clergyman*, may be obliged to do penance in the ſpiritual court. See BATTERY.

The revenues of the *clergy* were anciently more conſiderable than at preſent: Ethelwolph, in 855, gave them the tythe of all goods, and the tenth of all the lands in England; free from all ſecular ſervices, taxes, &c.

The charter whereby this was given them, was confirmed by ſeveral of his ſucceſſors; Edmund, Edgar, Ethelred, Alfred, and William the Conqueror; the laſt of whom, finding the biſhoprickes ſo rich, erected them all into baronies; each barony containing thirteen knights fees, at leaſt. But ſince the Reformation, the biſhoprickes are much impaired. See BISHOP.

The revenues of the inferior *clergy*, in the general, are ſmall; a third part of the beſt benefices being ancient, by the pope's grant, appropriated to monaſteries; upon the diſſolution whereof they became lay-fees.

Indeed, an addition was made, 2 Anne, the whole revenue of FIRST-FRUITS and tenths being then granted, to raiſe a fund for the augmentation of the maintenance of the poor *clergy*; purſuant to which, a corporation was formed, by the name of the governors of the bounty of queen Anne, for the augmentation of the maintenance of the poor *clergy*; to whom the ſaid revenues were conveyed in truſt, &c. See AUGMENTATION.

CLERGY, *articles of the*. See ARTICLE.

CLERGY, *protors of the*. See PROCTORS.

CLERGY, *Privilegium Clericale*, or *Benefit of Clergy*, denotes an ancient privilege of the church, conſiſting in this, that places conſecrated to religious duties were exempted from criminal arreſts, whence proceeded SANCTUARIES; and that the perſons of *clergymen* were exempted from criminal proceſs before the ſecular judges in particular caſes. This, at firſt, was an indulgence granted by the civil government, but it was afterwards claimed as an inherent, *indefeaſible*, and *jure divino* right: and the *clergy* endeavoured to extend the exemption not only to almoſt all kinds of crimes, but to a variety of perſons, beſides thoſe who were properly of their own order. In England, though this privilege was allowed in ſome capital caſes, it was not univerſally admitted. The method of granting it was ſettled in the reign of Henry VI. which required, that the priſoner ſhould firſt be arraigned, and then claim his *benefit of clergy*, by way of *declinatory* plea, or, after conviction, by way of arreſt of judgment; which latter mode is moſt uſually practiſed. This privilege was originally confined to thoſe who had the *habitum & tonſuram clericalem*: but in proceſs of time every one was accounted a clerk, and admitted to this *benefit*, who could read; ſo that, after the invention of printing, and the diſſemination of learning, this became a very comprehenſive teſt, including laymen as well as divines; and, therefore, the ſtat. 4 Henry VII. cap. 13. diſtinguiſhes between lay-ſcholars, and clerks in holy orders; and directs, that the former ſhould not claim this privilege more than once, and, in order to their being afterwards known, that they ſhould be burnt with a hot iron in the brawn of the *left* thumb. This diſtinction was abolished by 28 Hen. VIII. cap. 4. and 32 Hen. VIII. cap. 3. but was virtually reſtored by 1 Ed. VI. cap. 12. in conſequence of which ſtatute peers of the realm, and lords of parliament, were entitled to an equal privilege with the *clergy*, for the firſt offence, though they could not read, and for all offences *clergyable* to commoners, and ſome others therein ſpecified. When thoſe, admitted to the privilege of their *clergy*, were thus diſcharged from the ſentence of the law in the king's courts, they were delivered over to the ordinary for *canonical* PURGATION. But by ſtat. 18 Eliz. caps. 7. all ſuch perſons, inſtead of being committed to the ordinary, are delivered out of priſon, provided the judge does not think fit to continue them in goal for a limited time, not exceeding a year.

Some alterations were made in the law reſpecting this privilege, by 21 Jac. I cap. 26. and by 3 and 4 W. and M. cap. 9. and 4 and 5 W. and M. cap. 24. in conſequence of which all women, all peers, and all commoners who could read, were diſcharged in *clergyable* felonies; abſolutely, if clerks in orders; and for the firſt offence, upon burning in the hand, if lay; all, however, except peers, liable to impriſonment, as before mentioned; and thoſe who could not read, if under the degree of peerage, were hanged. By 5 Anne, cap. 6. the *benefit of clergy* was indiſcriminately granted to all who had a *right* to aſk it, without the condition of reading.

Again, by 4 Geo. I. cap. 11. and 6. Geo. I. cap. 23. it is enacted, that where any perſons ſhall be convicted of larceny, either grand or petit, and ſhall be entitled to the *benefit of clergy*, or liable only to the penalties of branding or whipping, the court in their diſcretion may direct ſuch offenders, inſtead of burning or whipping, to be tranſported to America for ſeven years; and if they return within that time, it ſhall be felony *without benefit of clergy*.

It appears, from the above account, that the perſons to whom this privilege now extends, are clerks in orders, without

without branding or transportation; lords of parliament and peers of the realm, for the first offence; and all commoners, not in orders, whether male or female, *for clergiable* felonies, upon being burnt in the hand, or imprisoned at the discretion of the judge; and in case of larceny, on being transported for seven years, or suffering the punishment more lately substituted in the room of transportation.

This privilege is allowed only in petit treason and felonies; though not in all felonies, as lying in wait on the highway, destroying and ravaging the country, and ARSON. Petit treason, and other acts of felony, besides these, are excluded by particular acts of parliament; the operation of which restores the law to the same rigour of capital punishment in the first offence, which it exerted before the privilege was allowed, and which it still exerts on a second offence in almost all kinds of felonies, unless committed by clerks in actual orders. By the statute law, declared in *stat.* 28 Hen. VIII. cap. 15. the *benefit of clergy* is not allowed in any case whatever.

Those who are entitled to claim this privilege, are for ever discharged of all felonies, committed before conviction, within its extent; and restored to all capacities and credits, and the possession of their lands, as if they had never been convicted. But by conviction they forfeit all their goods to the king, which are not afterwards restored, and are subject to all the disabilities of felons, till they have received either the judgment of the law or a pardon. Blackft. Com. vol. iv. p. 368, &c.

CLERICAL *Crown*. See CROWN.

CLERICAL *Title*. See TITLE.

CLERICI *non eligentur in officio*. See QUOD *Clerici*.

Non-residentia pro CLERICIS *Regis*. See NON *residentia*.

CLERICO *admittendo*, a writ directed to the bishop, for the admitting a clerk to a benefice upon a *ne admittas* tried, and found for the party who procured the writ.

CLERICO *capto per statutum mercatorum*, is a writ for the delivery of a clerk out of prison, who is imprisoned upon the breach of statute-merchant.

CLERICO *convicto commisso gaolæ in defectu ordinarii deliberandi*, is a writ for the delivery of a clerk to his ordinary, that was formerly convicted of felony; by reason his ordinary did not challenge him according to the privilege of clerks.

CLERICO *infra sacros ordines constituto non eligendo in officium*, is a writ directed to the bailiffs, &c. that have thrust a bailiwick or beadleship upon one in holy orders; charging them to release him.

CLERK, CLERICUS, a word formerly used to signify a learned man, or man of letters.

The word comes from κληρος, used for *clergy*, but more properly signifying *lot*, or *heritage*, because the lot and portion of *clerks* or ecclesiastics is to serve God. Accordingly, *clerus* was at first used to signify those who had a particular attachment to the service of God. The origin of the expression is derived from the Old Testament, where the tribe of Levi is called the *lot*, *heritage*, κληρος; and God is reciprocally called their portion; because the tribe was consecrated to the service of God, and lived on the offerings made to God, without any other settled provision, as the rest had.

Thus, Paſquier obſerves, the officers of the counts (*comites*) were anciently created under the title of *clerks of accompts*; and ſecretaries of ſtate were called *clerks of the ſecrets*. So, *Clericus domini regis*, in the time of Edward I. was rendered in Engliſh, the *king's ſecretary*, or *clerk of his council*.

The term was applied indifferently to all who made any profeſſion of learning; or who knew how to manage the pen: though, originally, it was appropriated to eccleſiaſtics.

As the nobility and gentry were uſually brought up to the exerciſe of arms; there were none but the clergy left to cultivate the ſciences: hence, as the clergy alone made any profeſſion of letters, a very learned man came to be called a *great clerk*, and a ſtupid ignorant man, a *bad clerk*.

Romland, in his old language, uſes the word feminively, *clergeſſe*, for a learned woman. "*Mais trop plus eſt a "ornondre une ſime clergeſſe.*"

CLERK (in general) is uſed for all thoſe of the eccleſiaſtical ſtate, who are in holy orders, of any degree, or kind; from the *ſexton*, to the prelate.

Yet, in its utmoſt latitude, the word *clerk* alſo includes CHANTORS, ACOLYTHI, EXORCISTÆ, and OSTIARII. The canons excommunicate all thoſe who lay hands on a *clerk*. A council held in Africa prohibited the appointing any *clerk* to be a tutor, guardian, or curator, by teſtament. The council of Elvira enjoins continence on all *clerks*, biſhops, prieſts, or deacons, on pain of being ſtripped of their clericature.

CLERK, *cephalus*, in the ſixth century, was a name given to thoſe *clerks* who ſeparated from the biſhop, and thoſe not to live any longer in community with him; in contradiſtinction to

CLERKS *canonic*, who continued to live with the biſhop, according to the canons.

CLERK, in the way of trade and buſineſs, is one who exerciſes any function with the pen.

CLERK is alſo a title given to ſeveral officers of this kind in the royal palace, the courts of juſtice, revenue, army, navy, &c. The principal of theſe are as follow.

CLERK *of the Acts*, is an officer of the navy, who receives and enters the commiſſions and warrants of the lord admiral; and regiſters the acts and ordinances of the commiſſioners of the navy.

CLERK *of Affidavits*, in the court of chancery, an officer who files all affidavits made uſe of in court.

CLERK *of Aſſize*, is he that writeth all things judicially done by the juſtices of aſſize, in their circuits.

CLERK *of the Bails*, an officer belonging to the court of king's bench. Stat. 22 and 23 Car. II. He files the bail-pieces taken in that court, and attends for that purpoſe.

CLERK *of the Check*. See CHECK.

CLERK *of the Cloſet*, is a divine, otherwiſe called *confeſſor to his majeſty*; whoſe office is to attend at the king's right hand during divine ſervice, to reſolve all doubts concerning ſpiritual matters, to wait on the king in his private oratory, &c.

CLERK *of the Crown*, or *Crown-Office*, in the king's bench court, an officer whoſe buſineſs is to read, frame, and record all indictments againſt traitors, felons, and other offenders there, arraigned upon any public crime.

CLERK *of the Crown*, in chancery, is an officer, who, by himſelf, or deputy, is continually to attend the lord-chancellor, or lord-keeper, for ſpecial matters of ſtate, by commiſſion, or the like, either immediately from his majeſty, or by order of his council; as well ordinary as extraordinary. All general pardons, upon grants of them at the king's coronation, or in parliament; the writs of parliament, with the names of the knights, citizens, and burgeſſes, are alſo returned into his office: beſides which, he has the making of ſpecial pardons, and writs of execution upon bonds of ſtatute ſtaple forfeited.

CLERK *of the Declarations*, an officer in the court of king's bench that files all declarations in cauſes there depending, after they are engroſſed.

CLERK *of the Delivories*, is an officer in the Tower, who takes indentures for all ſtores iſſued thence.

CLERK *of the Errors*, in the court of common pleas, tranſcribes, and certifies into the king's bench, the tenor of the records of the cauſe, or action, upon which the writ of error, made by the curitor, is brought there, to be determined.

CLERK *of the Errors*, in the king's bench, tranſcribes and certifies the records of ſuch cauſes in that court into the exchequer; if the cauſe or action, is by bill.

CLERK *of the Errors*, in the exchequer, tranſcribes the records certified thither out of the king's bench; and prepares them for judgment in the court of exchequer, to be given by the juſtices of the common-pleas, and barons, there.

CLERK *of the Eſſoins*, in the court of common pleas, keeps the eſſoin-roll, or enters eſſoins. He alſo provides parchment, cuts it into rolls, marks the number on them; delivers out all the rolls to every officer, and receives them again when written. See ESSOIN.

CLERK *of the Eſtreats*, belongs to the exchequer, and every term, receives the eſtreats out of the lord-treaſurer's remembrancer's office, and writeth them out to be levied for the king. He alſo maketh ſchedules of ſuch ſums eſtreated as are to be diſcharged. See ESTREAT.

CLERKS *of the Green-Cloth*. See GREEN-CLOTH.

CLERK *of the Hanaper*, or *Hanaper*, is an officer in chancery, whoſe buſineſs is to receive all money due to the king for the ſeals of charters, patents, commiſſions, and writs: as alſo fees due to the officers for enrolling and examining the ſame. He is obliged to attend on the lord-chancellor, or lord-keeper, daily, in term-time; and at all times of ſealing.

CLERK *Comptroller of the King's Houſe*, an officer of the court, who has place and ſeat in the compting-houſe; with authority to allow or diſallow the charges and demands of purſuivants, and meſſengers of the green-cloth, purveyors, &c. He has alſo the overſight of all defaults and miſcarriages of inferior officers; and ſits in the compting-houſe with the ſuperior officers, viz. the lord-ſteward, treaſurer, comptroller, and cofferer, for correcting and reſtoring things out of order.

CLERK *of the Inrollments of Fines and Recoveries*, in the court of common pleas, is an officer under the three elder judges

of that court, and removeable at their pleasure, who inrolls all fines and recoveries, and returns writs of entry, &c. See INROLLMENT.

CLERK *of the Juries*, or *curata scritti*, is an officer belonging to the court of common-pleas, who makes out the writs called *habeas corpus*, and *distringas*, for the appearance of jurors, either in court, or at the adiits; after the panel is returned upon the *venire facias*. See JURY.

CLERK *of the markets*, is an officer of the king's house, whose duty is to take charge of the king's measures, and to keep standards of them, that is, examples of all the measures that ought to be used through the land.

CLERK *Marshal* of the king's house, seems to be an officer who attends the marshal in his court, and records all his proceedings. See MARSHAL. CLERK *martial*, under the master of the horse. See AVERON.

CLERK *of the Nichils*, or *Nihils*, is an officer in the exchequer, who makes a roll of all such sums as are *nichiled* by the sheriffs upon their estreats of green wax; and delivers the same into the lord-treasurer's remembrancer's office, to have execution done upon them for the king. See NIHILS.

CLERK *of the Ordnance*, is an officer in the Tower, who registers all orders relating to the king's ordnance. See ORDNANCE.

CLERK *of the Outlawries*, is an officer belonging to the court of common pleas; being a deputy to the king's attorney-general, for making out the writs of *capias ad exigendum*, after outlawry: and the king's attorney's name is to every one of these writs.

CLERK *of the Paper-Office*, is an officer of the king's bench, who makes up the paper-books of special pleadings and demurrers in that court.

CLERK *of the Papers*, an officer in the court of common-pleas, who keeps the papers of the warden of the Fleet, enters commitments and discharges of prisoners, delivers out days-rules, &c.

CLERK *of the Parcels*, an officer of the exchequer. See PARCEL-*Makers*.

CLERK *of a parish*. See PARISH *clerk*.

CLERK *of the Parliament*, is an officer who records all things done in parliament, and engrosses them fairly into parchment rolls, for the better preservation of them to posterity. Of these there are two: one of the house of lords, and the other of the house of commons.

CLERK *of the Patents*, or letters patent under the great seal. See PATENT.

CLERK *of the Peace*, is an officer belonging to the session of the peace, whose duty is to the session to read the indictments, to inrol the acts, and draw the process; to inrol proclamations of rates for servants wages; to inrol the allowance of approvers; to keep the counter part of the indentures of armour, &c. Also to certify in the king's bench transcripts of indictments, outlawries, attainders, and convictions, had before the justices of the peace within the time limited by statute. He is appointed by the *custos rotulorum* of the county, and liable to be discharged for misdemeanor by the justices of peace in quarter sessions.

CLERK *of the Pells*, belongs to the exchequer: his business is, to enter the tellers bill into a parchment roll, called *pells receipt-roll*; and also to make another roll of payment, called *pells issues*, wherein he sets down by what warrant the money was paid. 22 and 23 Car. II.

CLERK *of the Petty Bag*, is an officer in chancery, whereof there are three: the master of the rolls being their chief. Their office is to record the return of all inquisitions out of every county, all liveries granted in the court of wards, all other les mains; to make all patents of customers, gaugers, comptrollers, and salmagers; con. d'elires for the creations of bishops; summonses of the nobility, clergy, and burgesses, of parliament; commissions directed to the knights and others, of every shire, for raising of subsidies; writs for nomination of collectors for the fifteenths; and all transcripts upon any office, bill, or other writs; and to receive the money due to the king for the same. See PETTY-*Bag*.

CLERK *of the Pipe*, belongs to the exchequer. See PIPE-*Office*.

CLERK *of the Privy*, is an officer in the exchequer, in whose office the officers of the court, upon special priviledge belonging to them, ought to be, and be sued, upon any action.

CLERKS *of the privy Seal*, are four officers who attend the lord-keeper of the privy-seal, or, if there be none such, the principal secretary of state; and write, or make out, all things sent by warrant from the signet to the privy-seal, and to be passed to the great seal: as also to make out privy-seals upon any special occasion of the king's affairs; as for loan of money or the like.

CLERK *of the pleas*, in *Chancery*, an officer who searches for, and copies records, causes, &c.

CLERK *of the Rolls*, in the court of king's bench, an officer who draws up and enters all the *rules* and orders made in court, and gives rules of course in divers cases.

CLERK *of the sewers*, is an officer belonging to the commissioners of the sewers, who writes down all things they do by virtue of their commission, and the authority given them by 23 El. cap. 9.

CLERK *of a Ship*, is an officer appointed to take care that nothing be squandered, or spent needlessly.

He is obliged to keep a register, or journal containing an exact inventory of every thing in the lading of the vessel; as the rigging, apparel, arms, provision, munition, merchandizes; as also the names of the passengers, if there be any; the freight agreed on; a list of the crew, their age, quality, wages, the bargains, purchases, sales, or exchanges the ship makes from its departure; the consumption of provision; and, in short, every thing relating to the expence of the voyage. He also registers the contributings of the captain, pilot, &c. He also does the office of a register in all criminal processes; and of a notary, to make and keep the wills of those who die in the voyage; takes inventories of their effects, &c. The *clerk* is not allowed to quit the vessel during the voyage, on forfeiture of all his wages, &c. In small vessels, the master, or pilot does the office of *clerk*.

CLERK *of the Signet*, is an officer continually attending on the king's principal secretary; who has custody of the privy-signet, as well for sealing the king's private letters, as for such grants as pass his majesty's hands by bills signed. Of these there are four, who attend in their turn, and have their diet at the secretary's table.

CLERK *of the king's Silver*, is an officer belonging to the common pleas; to whom every fine is brought, after it hath been with the *custos brevium*; and by whom the effect of the writ of covenants is entered into a paper-book; and according to that note, all the fines of that term are also recorded in the rolls of the court. See QUEEN *Gold*.

CLERK *of the Supersedeas*, is an officer in the court of common pleas, who makes out writs of *supersedeas* (upon the defendants appearing to the exigent on outlawry) whereby the sheriff is forbid to return the exigent.

CLERK *of the Treasury*, an officer of the common pleas, who has charge of the records of the *nisi prius*, the fees due for all searches, and the certifying of all records into the king's bench when a writ of error is brought. He also makes out all writs of *supersedeas de non molestando*, which are granted for the defendants while the writ of error is depending; and all exemplifications of records, being in the treasury.

CLERK *of the king's great Wardrobe*, keeps an account of the inventory, in writing, of all things belonging to the king's wardrobe. See WARDROBE.

CLERK *of the Warrants*, is an officer belonging to the court of common-pleas, who enters all warrants of attorney for plaintiff and defendant; and inrols all deeds of indentures of bargain and sale, which are acknowledged in the court, or before any judges out of the court; and it is his office to estreat into the exchequer all issues, fines, and amerciaments, which grow due to the king in that court, for which he has a standing fee or allowance.

CLERKS, *misprision of*. See MISPRISION.

CLERK *riding*. See RIDING.

CLERKS *sir*. See SIR.

CLERKS, *Apostolic*, in *Ecclesiastical History*. See JESUITS.

CLERKS, *Regular*, a general denomination, comprehending several distinct religious orders, and assumed to denote a reformation attempted to be introduced among them. See THEATINS and FATHERS.

CLERKS, *Regular, of the company of Jesus*. See JESUITS.

CLERKS, *Regular, of St. Maturin*. See FATHERS *of Samaritans*.

CLERKS, *Regular, of St. Paul*. See BARNABITES.

CLERMONT *Manuscript*, is a copy of St. Paul's Epistles, found in the monastery of Clermont in France, and used by Beza, together with the Cambridge MS. in preparing his edition of the New Testament. This copy is in the octavo form, and is written on fine vellum in Greek and Latin, with some mutilations. Beza supposes that it is of equal antiquity with the Cambridge copy; but both were probably written by a Latin scribe in a later period than he alleges to them. The various readings of this MS. were communicated to archbishop Usher, and they are preserved by Walton. The MS. itself was in the possession of Morinus; and after his death deposited among the MS. copies of the Royal Library at Paris, N° 2245. See the references under CAMBRIDGE *MS.*

CLERODENDRUM, in *Botany*, the name of a genus of plants of the *didynamia angiospermia* class, the characters of which are these: the calyx is bell-shaped, and divided into five segments; the tube of the corolla is slender and long,

long, and its limb divided into five equal segments; the stamina are very long, and the fruit is a single-seeded berry.

CLEROMANCY, a kind of divination performed by the throwing of dice, or little bones: and observing the points, or marks, turned up.

The word comes from κληρος, *lot*, and μαντια, *divination*.

At Buru, a city of Achaia, was a temple, and a celebrated oracle of Hercules; where such as consulted the oracle, after praying to the idol, threw four dice, the points whereof being well scanned by the priest, he was supposed to draw an answer from them.

Something of this kind seems to have been practised with regard to Jonah. See Jonah, i. 7.

CLEROTI, among the Athenians, a kind of public arbitrators. See Diætetæ.

CLETHRA, in *Botany*, Gronov. Fl. Virg. 43. a genus of the *decandria monogynia* class. Its characters are these: the flower hath five oblong petals, and ten stamina, which are as long as the petals: in the centre is situated a roundish germen, which afterward becomes a roundish capsule enclosed by the empalement, having three cells, which are full of angular seeds. We know but one species of this genus of shrubs, which is a native of Virginia and Carolina.

It is hardy enough to bear the open air of England; and is one of the most beautiful shrubs at its flowering season. It thrives best in moist land, and in a sheltered situation.

CLETHRITES *lapis*, a name given by the ancients to such pieces of fossile wood as shewed a grain resembling that of the wood of the alder.

CLEW *of the sail of a ship*, is the lower corner of it which reaches down to that earing where the tackles and sheets are fastened; so that when a sail is made goring, or sloping by degrees, the is said to have a *great clew*: and a ship is said to have a great *clew*, when the has a very long yard, and so has much canvas in her sails.

CLEW-*garnet*, in *Ship-building*, a rope fastened to the *clew* of the sail, and from thence running in a block seized to the middle of the main and four-yard. Its use is to hale up the *clew* of the sail close to the middle of the yard, in order to its being furled.

CLEW-*line* is the same to the top-sails, top-gallant-sails, and sprit-sails, that the *clew-garnet* is to the main-sail and fore-sail, and has the very same use. In a gust of wind, when a top-sail is to be taken in, they first hale home the lee *clew-line*, and by that means the sail is taken in much easier.

CLINOMANCY, from κλινη, a *bed*, and μαντια, *divination*, a species of divination performed by means of keys. See Dactyliomancy.

CLIENT, CLIENS, among the Romans, a citizen who put himself under the protection of some great man, who in that relation was called his patron, *patronus*.

The patron assisted his *client* with his protection, interest, and estate; and the *client* gave his vote for his patron, when he sought any office for himself, or his friends. *Clients* owed respect to their patrons, as their reciprocally owed them their protection.

This right of patronage was appointed by Romulus, to unite the rich and poor together, in such manner as that one might live without contempt, and the other without envy. But the condition of a *client*, in course of time, became little else but a moderate kind of slavery.

By degrees, the custom extended itself beyond Rome; and not only families, but cities, and entire provinces, even out of Italy, followed the example. Thus Sicily *v. gr.* put itself under the clientela, or protection of Marcellus.

Lazius and Budæus refer the origin of fiefs, and tenures, to the patrons and *clients* of ancient Rome: but the difference is pretty considerable between the relation of vassals and their lords, and that of *clients* and their patrons. See Vassal.

The *clients*, beside the respect they bore their patrons, and the vote they gave them, were obliged to assist them in all affairs; and even to pay their ransom, if they should be taken prisoners in war, in case they were not able to do it of themselves.

CLIENT, is now used for a party in a law-suit who has turned over his cause into the hands of a counsellor, or solicitor.

CLIFFORTIA, in *Botany*, a genus of the *dioecia polyandria* class. Its characters are these: it hath male and female flowers in different plants; the male flowers have a spreading empalement, composed of three small oval concave leaves, but no petals, with a great number of hairy stamina. The female flowers have a permanent empalement, composed of three leaves sitting upon the germen; these have no petals; but the oblong germen, which is situated below the empalement, supports two long, slender, feathered styles. The germen afterward becomes an oblong taper capsule, with two cells, crowned by the empalement, including one narrow taper seed. There are three species, natives of the Cape of Good Hope.

CLIFT, in the *Sclavonic*, a deficiency in the new, soft, and tough horn-part that grows in a horse's foot, upon the heel-gall.

It is also called *chint*, *crust*, or *chap*; and by the French *crudure*. See Chap.

CLIFTS, in timber. See Timber.

CLIMACIDES, among the Greeks, were women servants who assisted their *mistresses* to get on horseback, by serving as steps for them to ascend by.

CLIMACTERIC, *Annus* CLIMACTERICUS, a critical year, or period in a man's age, wherein according to astrologers, there is some very notable alteration to happen in the body; and a person is exposed to great danger of death.

The word comes from κλιμακτηρ, or κλιμακτηρικος, of κλιμαξ, κλιμακος, *ladder*, q. d. *by steps*, or *ladder*.

The first *climacteric* is, according to some, the seventh year of a man's life; the rest are multiples of the first, as 14. 21. 49. 56. 63. and 84. which two last are called the *grand climacterics*, and the dangers here are supposed more imminent.

The opinion has a great deal of antiquity on its side. Aulus Gellius says, it was borrowed from the Chaldeans; who might probably receive it from Pythagoras, whose philosophy turned much on numbers; and who imagined an extraordinary virtue in the number 7.

Marc. Firmus gives the foundation of the opinion: he tells us, there is a year assigned for each planet to rule over the body of man, each in his turn: now Saturn being the most malefic ent planet of all, every seventh year, which falls to his lot, becomes very dangerous; especially those of 63 and 84, when the person is already advanced in years.

Some hold, according to this doctrine, every seventh year an established *climacteric*; but others only allow the title to those produced by the multiplication of the climacterical space by an odd number, 3. 5. 7. 9. &c. Others observe every ninth year as a *climacteric*.

Bovellus has a volume under the title of Annus Climactericus, describing the loss he sustained in the burning of his observatory, &c. which it seems happened in his first *grand climacteric*.

Suetonius says, Augustus congratulated his nephew upon his having passed his first *grand climacteric*, whereof he was very apprehensive.

Some pretend that the *climacteric* years are also fatal to political bodies; which perhaps may be granted, when it is proved that they are so to natural ones.

Authors on this subject, are Plato, Cicero, Macrobius, Aulus Gellius, among the ancients; Argol, Magirus, and Salmasius among the moderns. And St. Augustine, St. Ambrose, Beda, and Boetius, countenance the opinion.

CLIMATARCH, Κλιματαρχης, were governors of provinces to the Greek emperors.

CLIMATE, Clima, or Clime, in *Geography*, a part of the surface of the earth, bounded by two circles parallel to the equator, and of such a breadth, as that the longest day in the parallel near the pole, exceeds the longest day in that next the equator by some certain space; viz. half an hour.

The word comes from κλινω, *inclinavi*, an *inclination*; because the difference of *climates* arises from the different inclination or obliquity of the sphere.

Climate, *the beginning of the*, is the parallel circle where in the day is the shortest.

Climate, *the end of the*, is that wherein the day is the longest. The *climates* therefore are reckoned from the equator to the pole; and are so many bands, or zones, terminated by lines parallel to the equator: though, in strictness, there are several *climates* in the breadth of one zone.

Each *climate* only differs from its contiguous ones, in that the longest day in summus is longer or shorter by half an hour in the one place than in the other.

As the *climates* commence from the equator, the first *climate*, as its beginning, has its longest day precisely twelve hours long; at its end, twelve hours and an half: the second, which begins where the first ends, viz. at twelve hours and a half, ends at thirteen hours; and so of the rest, as far as the polar circles, where those which the geographers call *horo-climata* terminate, and *mesobiani* commence.

As an *horo-climate* is a space comprised between two parallels of the equator, in the first of which the longest day exceeds that in the latter by half an hour; so the *mesobi-climate* is a space terminated between two circles

parallel

parallel to the polar circles, whose longeſt day is longer or ſhorter than that of its contiguous one by a month, or thirty days.

The ancients, who confined the *climates* to what they imagined the habitable parts of the earth, only allowed of ſeven. The middle of the firſt they made to paſs through Meroe; the ſecond through Sienna; the third through Alexandria; the fourth through Rhodes; the fifth through Rome; the ſixth through Pontus; and the ſeventh through the mouth of the Boryſthenes. To theſe were added two other *climates*; the eighth paſſing through the Riphæan mountains, and the ninth through Tanais. The moderns, who have ſailed farther toward the poles, make thirty *climates* on each ſide; and in regard the obliquity of the ſphere makes a little difference in the length of the longeſt day; inſtead of half an hour, ſome of them only make the difference of *climates* a quarter.

In uſing the *climates*, there ordinarily is no regard had to the refraction.

Vulgarly, the term *climate* is beſtowed on any country or region differing from another, either in reſpect of the ſeaſons, the quality of the ſoil, or even the manners of the inhabitants; without any regard to the length of the longeſt day.

Monteſquieu, in his Spirit of Laws, examines the influence of different *climates* on the manners, characters, and laws of nations. See vol. i. book xiv. xv. xvi. xvii.

Abulfeda, an Arabic author, diſtinguiſhes the firſt kind of *climates* by the term *real climates*; and the latter by that of *apparent climates*.

Varenius gives us a table of thirty *climates*; but without any regard to the refraction. Riccioles furniſhes a more accurate one, wherein the refractions are allowed for: an abſtract of which follows.

A Table of CLIMATES.

Middle of Clim.	Longeſt Day	Lat.	Cli-mates	Longeſt Day	Lat.	Middle of Clim.	Lat.	N. Lat. Cont. Day	N. Lat. Cont. Night	S. Lat. Cont. Day	S. Lat. Cont. Night
I	12h 30′	18	VIII	16h 0′	48° 15	XV	66° 53	31° 27	30° 28		
II	13 0	15 36	IX	17 0	53 46	XVI	69 38	62 58	60 59		
III	13 30	33 8	X	18 0	57 44	XVII	73 0	93 87	89 88		
IV	14 0	29 49	XI	19 0	60 39	XVIII	78 6	124 117	120 118		
V	14 30	55 55	XII	20 0	62 44	XIX	84 0	156 148	150 149		
VI	15 0	40 32	XIII	22 0	65 10	XX	90 0	188 180	178 177		
VII	15 30	44 22	XIV	24 0	65 54						

CLIMATE *for plants*. See TEMPERATURE.

CLIMAX, or *gradation*, in *Rhetoric*, a figure, whereby the diſcourſe aſcends, as it were, by degrees. Such is that of Cicero to Catiline: *Nihil agis, nihil moliris, nihil cogitas, quod ego non audiam, quod etiam non videam, planeque ſentiam: thou doſt nothing, meditateſt nothing, thinkeſt nothing, but I hear it, nay ſee it, and perfectly underſtand it.* Thus the ſame Cicero to Atticus: *Si dormio, expergiſcores; ſi ſtas, ingredere; ſi ingrederis, curre; ſi curris, advola.* See ANTICLIMAX.

CLIMBER, in *Botany*. See VIRGIN'S *Bower*.

CLIMIA of the Arabs. See KLIMIA.

CLIMING *Fumitory*, in *Botany*. See FUMITORY, and Phil. Tranſ. vol. xlix. part ii. p. 842.

CLINCH *of a cable*, is that part of it which is bent about the ring of the anchor, and then ſeized or made faſt.

CLINCH-*bolts*, in a ſhip, are ſuch as are *clinched* with a riveting hammer at thoſe ends which come through.

CLINCHER-*work*, in *Sea-Language*, the diſpoſition of the planks in the ſide of any veſſel, by which the lower edge of every plank overlays the next under it, like the ſlates on the top of a houſe.

CLINCHING, in *Sea-Language*, a kind of ſlight caulking uſed about the ports, on a proſpect of foul weather: it is done by driving a little oakum into their ſeams, that the water may not come in at them.

CLINIC, CLINICUS, a term applied by ſome church hiſtorians to thoſe among the ancients, who received baptiſm on their death-bed.

The word CLINIC is formed from κλινη, a *bed*.

It was the doctrine of many of the fathers, that baptiſm abſolutely waſhed away all previous ſins, and that there was no atonement for ſins committed after baptiſm. On this account, many deferred that ſacrament till they were arrived at the laſt ſtage of life, and were pretty ſafe from the danger of ſinning any more; and ſuch were called *clinici*.

Novatian, in the third century, made a doubt whether ſo no *clinics* were truly baptized, in regard the ceremony was only performed by aſperſion, inſtead of immerſion: he conſulted St. Chryſoſtom on the point, who replied to him, that the ſacrament does not waſh away ſin after the manner of a corporal bath; and ſhews from ſcripture that aſperſion is ſufficient. See BAPTISM.

CLINIC is alſo uſed, in *Antiquity*, for a patient or perſon merely ſick, even without keeping his bed; as appears from the life of Charlemagne, in Canſius.

CLINICUS is alſo uſed for a phyſician: becauſe phyſicians are much converſant about the beds of the ſick.

They were, however, principally the phyſicians of emperors that were called by this title.

CLINIC is now ſeldom uſed but for a quack; or rather for an empirical nurſe, who pretends to have learned the art of curing diſeaſes by attending on the ſick.

CLINICAL, *medicine*, was particularly uſed for the method of viſiting, and treating ſick perſons in bed, for the more exact diſcovery of all the ſymptoms of their diſeaſes.

Le Clerc obſerves, that Eſculapius was the firſt who exerciſed the *clinic medicine*.

CLINKARD, among *Britiſh Miners*. See BATES.

CLINOIDES, in *Anatomy*, an epithet given to the four ſmall proceſſes of the os SPHENOIDES, one of the bones of the cranium; ſo called, by Dubois, from their reſembling the feet of a bed.

The word is formed of the Greek κλινη, a *bed*, and ειδος, *form*; either from the reſemblance which the three bones bear to the feet of the bed; or from the cavity they form, which reſembles a bed itſelf.

Theſe together form a little cavity, from its ſhape called *ſella turcica*, or *equina*; wherein is placed the pituitary gland.

CLINOPODIUM, in *Botany*, *Field Baſil*, a genus of the *didynamia gymnoſpermia* claſs. Its characters are theſe: the flower is of the *labiated* kind, with a ſhort tube enlarging to the mouth: the upper lip is erect, and indented at the top; the under lip is trifid, the middle ſegment being broad and indented. It hath four ſtamina under the upper lip, two of which are ſhorter than the other: in the centre is ſituated the quadripartite germen, which afterward becomes four oval ſeeds, that lie in the empalement. There are ſix ſpecies.

The firſt ſort grows naturally by the ſides of hedges in moſt parts of England.

CLIO, one of the MUSES. In the portraits of Apollo and the Muſes, dug out of Herculaneum, Clio appears ſeated, and her head is crowned with laurels. In her left hand ſhe holds an open volume, in which ſhe is reading. On the outſide is written KLEIH ICTOPIAN, *Clio the Hiſtorian*; though it ſhould rather be tranſlated *Clio immortal Hiſtory*. At her feet are ſix other rolls, or antique volumes, incloſed in a cylindrical caſe. Burney's Hiſt. of Muſic, vol. i. p. 204.

CLIO, in *Zoology*, the name of a genus of worms, belonging to the order of *molluſca*: the body of which is oblong, and formed for ſwimming, and furniſhed with two oppoſite *alæ* of a membranaceous ſtructure. They are found in the ocean.

CLIPEUS, in *Natural Hiſtory*, the name of a claſs of the *echinodermata*, which are very depreſſed and flat, and in ſome meaſure reſemble a ſhield. Of this claſs there are only two known ſpecies.

The firſt is the diſcoid echinites of Plot, and the ſecond that of Langius, which has a little higher top.

CLIPPING *the coin*. See COIN.

CLITONES, the eldeſt, and all the ſons of kings. This word is often met with in our antient authors.

CLITORIA, in *Botany*, a genus of the *diadelphia decandria* claſs. Its characters are theſe: the flower is of the *papilionaceous* kind, having a large ſpreading ſtandard, which is erect; the two wings are oblong, and ſhorter than the ſtandard; the keel is ſhorter than the wings, and is hooked; it hath ten ſtamina, nine of which are joined, and one ſtands ſeparate; in the centre is ſituated an oblong germen, which afterward becomes a long, narrow, compreſſed pod, with one cell, opening with two valves, inclining ſeveral kidney-ſhaped ſeeds. There are four ſpecies.

CLITORIDIS *muſculus*, a name given by Verheyen to the muſcle of the female *pudendum*, uſually called *erector clitoridis*. This is the only muſcle that is proper to this part;

part; the other, called the *inferior clitoridis* being properly a *sphincter vaginæ*, or, as Albinus calls it, *constrictor cunni*.

CLITORIS, in *Anatomy*, a long round body in the forepart of the vulva, or natural parts of a woman, where the *nymphæ* form an angle with each other; being one of the organs of generation in that sex. See *Tab. Anat. (Splanch.) fig. 9. lit. e. f. fig. 12. lit. m. fig. 13. lit. a.* Its figure represents that of a glans or acorn: ordinarily it is pretty small, but in some women thick, and long. In many respects it represents the penis of a man; whence some call it *mentula*, or *penis muliebris*, the woman's yard.

In effect, it is composed of the same parts; it has, like it, two cavernous or spongious bodies; and a glans at the extremity, covered with a præputium, but it is not pierced through like the penis.

This is thought by some to have been first discovered by modern anatomists; but Dr. Tronchin quotes several ancient authors who knew the *clitoris*, and proves that Bonaciolus mentioned it before Columbus or Fallopius.

It has two muscles which erect it in coition; on which occasion it swells and grows hard. Some anatomists pretend too, that it has two *musculi ejaculatores*. See *Tab. Anat. (Splanch.) fig. 13. lit. f. f.*

Its sensation is exquisite; and it is found the chief seat of pleasure; so that some call it *sedes Veneris*. And hence it is said, some women are apt to abuse it. See POLLUTION.

The extremity of this part is sometimes cut off; as in circumcision, where it advances out too far. It is sometimes so large and preponderant, that it bears a full resemblance to the virile member; whence the persons, in whom it is so found frequently pass for hermaphrodites.

The spongious bodies of the *clitoris* arise distinctly from the lower parts of the *ischia*; and approaching one another unite, and form the body of the *clitoris*. Before their union they are called the *crura clitoridis*, and are twice as long as the body of the *clitoris*.

Its muscles arise from the protuberance of the ischium, and are inserted into its spongious bodies. It has veins and arteries from the hæmorrhoidal vessels, and pudenda; and nerves from the intercostals.

CLIVERS, in *Botany*. See CLEAVERS.

CLOACA, among the *Ancients*, was a subterraneous aqueduct, or common-sewer, for the reception and discharge of the filth of a city, or house.

The word is formed from κλύζω, *I wash away*.

Tarquinius Priscus is said to have been the first who contrived *cloacæ* in ancient Rome; to which end, a canal was first dug through the mountains whereon the city stood, and divided into three branches, called the *great cloaca*.

The care and inspection of the *cloacæ* belonged to the censors, till the time of Augustus, who appointed *curatores cloacarum* on purpose. The Romans had also their *Cloacina*, or goddess, who presided over the *cloacæ*.

CLOACA, in *Comparative Anatomy*, imports that canal in birds, through which the egg descends from the ovary in its exit. In this it is remarkable, that the part which is next the ovary is jagged, like the *morsus diaboli*, and fastens itself to the abdomen without any attachment to the ovary: hence anatomists have been somewhat puzzled to comprehend by what means the egg falls into the ovary. See EGG.

CLOATHS, or CLOTHES. See HABIT.

CLOCK, a kind of movement, or machine, serving to measure, and strike time.

The usual chronometers are watches and *clocks*: the former, in strictness, are such as shew the parts of time; the latter, such as publish it by striking: though the name watch is ordinarily appropriated to pocket *clocks*; and that of *clocks* to larger machines, whether they strike or no.

The parts common to both kinds of movements, see under the article MOVEMENT. Those peculiar to watches and *clocks*, see under WATCH-WORK, and CLOCK-WORK.

The invention of *clocks* with wheels, is referred to Pacificus, archdeacon of Verona, who lived in the time of Lotharius, in the ninth century, son of Lewis the Debonnair; on the credit of an epitaph quoted by Ughelli, and borrowed by him from Panvinius. Others ascribe the invention to Boethius, about the year 510.

They were at first called *nocturnal dials*; to distinguish them from sun-dials, which shewed the hour by the sun's shadow.

Dr. Derham makes *clock-work* of a much older standing; and ranks Archimedes's sphere, mentioned by Claudian, and that of Posidonius, mentioned by Cicero, among machines of this kind; not that either their form or use was the same with those of ours; but that they had their motion from some hidden weights, or springs, with wheels, or pullies, or some such *clock-work* principle. Thus he understands the *ipsiusque turris famulus spiritus ignis*; & *vivam cœli motibus urget aquam*.

But be this as it will, it is certain the art of making such as are now in use, was either first invented or at least retrieved, in Germany, about two hundred years ago.

Clock-makers were first introduced into England in 1 when Edward III. granted a license for three artists come over from Delft in Holland, and practise their occupation in this country.

The *water-clocks*, or *clepsydræ*, and sun-dials, have both a much better claim to antiquity.

The French annals mention one of the former kind, sent by Aaron king of Persia to Charlemagne, about the year 807, which seemed to bear some resemblance to the modern *clocks*: it was of brass, and shewed the hours by twelve little balls of the same metal, which fell at the end of each hour, and in falling struck a bell, and made it sound. There were also figures of twelve cavaliers, which at the end of each hour came forth at certain apertures, or windows, in the side of the *clock*, and shut them again, &c.

Among the modern *clocks*, the most eminent for their furniture, and the variety of their motions and figures, are those of Strasburgh, and of Lyons. In the first, a cock claps his wings, and proclaims the hour; the angel opens a door and salutes the Virgin; and the Holy Spirit descends on her, &c. In the second two horsemen encounter, and beat the hour on each other; a door opens, and there appears on the theatre the Virgin with Jesus Christ in her arms; the magi, with their retinue, marching in order, and presenting their gifts; two trumpeters sounding all the while to proclaim the procession.

The invention of PENDULUM *clocks* is owing to the happy industry of the last age: the honour of it is disputed between Huygens and Galileo. The former, who has a volume on the subject, declares it was first put in practice in the year 1657, and the description thereof printed in 1658. Becher, De Nova Temporis dimetiendi Theoria, anno 1680, contends for Galileo; and relates, though at second-hand, the whole history of the invention: adding that one Treffler, *clock-maker* to the father of the then grand-duke of Tuscany, made the first pendulum *clock* at Florence, by direction of Galileo Galilei; a pattern of which was brought into Holland.

The academy del Cimento say expressly, that the application of the pendulum to the movement of a *clock* was first proposed by Galileo, and first put in practice by his son Vincenzo Galilei, in 1649.

But the inventor who he will, it is certain the invention never flourished till it came into Huygens's hands, who insists on it, that if ever Galileo thought of such a thing, he never brought it to any degree of perfection.

The first pendulum clock made in England, was in the year, 1662, by Mr. Fromantil, a Dutchman.

Pendulum CLOCK, *Pocket* CLOCK, and *Repeating* CLOCK. See WATCH, and PENDULUM *clock*.

CLOCK-WORK, is that part of the movement which strikes the hour, &c. on a bell. See *Tab. Horology, fig. 2.*

The wheels it consists of are the great or first wheel H; which is moved by the weight or spring at the barrel G: in eight or thirty-hour *clocks*, this has usually pins, and is called the *pin-wheel*; in eight-day pieces, the second wheel I is commonly the pin-wheel, or striking-wheel, which is moved by the former. Next the striking-wheel, is the detent-wheel, or hoop-wheel, K, having a hoop almost round it, wherein is a vacancy at which the *detent* locks. The next is the third, or fourth wheel, according to its distance from the first, called the *running-wheel* L. The last is the flying quarter Q, with a fly, or fan to gather air, and to bridle the rapidity of the *clock*'s motion. To these must be added the pinion of report, which drives round the locking-wheel, called also the *count-wheel*; ordinarily with eleven notches in it, unequally distant, to make the *clock* strike the hours. See WHEEL.

Beside the wheels, to the *clock* part belongs the *pulley*, or *rack*, a kind of wheel with twelve large *tangs*, running concentrical to the dial-wheel, and serving to lift up the detent every hour, and make the *clock* strike: the detents, or flops, which being lifted up, and let fall, lock and unlock the *clock* in striking: the hammer, as S, which strikes the bell R: the hammer-tails, as T, by which the striking-pins draw back the hammers: *latches*, whereby the work is kept up and unlocked: and lifting-pieces as P, which lift up and unlock the detents.

For the mechanism of the several parts of a *clock* that serve to move the hands, and shew the time, see WATCH-*work*.

CLOCK-*work, theory and calculation of*. The method of calculating the numbers of a piece of *clock-work* having

something in it very entertaining, and at the same time very easy and useful, we shall give the readers the rules relating thereto: referring, for the general rules that obtain in the calculation of all movements of watch as well as *clock-work*, to the article MOVEMENT; and, for the particular rules of watch-work, to the article WATCH-*work*.

For the strict calculation itself, it bears that affinity to the calculation of watch-work, that, to avoid repetitions, we shall refer to that head: what *clock-work* has peculiar to itself will be conceived from what follows.

CLOCK, *rules for calculating the striking part of a.* First then, observe, that regard here needs only be had to the counting-wheel, striking-wheel, and detent-wheel, which move round in this proportion: the count-wheel commonly goes round once in 12 or 24 hours: the detent-wheel moves round every stroke the *clock* strikes, or sometimes but once in two strokes; wherefore, it follows, that,

Secondly, As many pins as are in the pin-wheel, so many turns hath the detent-wheel in one turn of the pin-wheel; or, which is the same, the pins of the pin-wheel are the quotients of that wheel divided by the pinion of the detent-wheel. But if the detent-wheel move but once round in two strokes of the *clock*, then the said quotient is but half the number of pins.

Thirdly, As many turns of the pin-wheel as are required to perform the strokes of 12 hours (which are 78), so many turns must the pinion of report have, to turn round the count-wheel once: or thus, the quotient of 78, divided by the number of striking-pins, shall be the quotient for the pinion of report and the count-wheel; and this is in case the pinion of report be fixed to the arbor of the pin-wheel, which is commonly done.

An example will make all plain: the locking-wheel being 48, the pinion of report 8, the pin-wheel

8) 48 (6.
48

the striking-pins are 13, and to of the rest. Note also, that 78 divided by 13 gives

6) 78 (13. 6, the quotient of the pinion of report. As
6) 60 (10 for the warning-wheel, and fly-wheel, it
6) 48 (8. matters little what numbers they have; their use being only to bridle the rapidity of the motion of the other wheels.

The following rules will be of good service in this calculation.

1. *To find how many strokes a clock strikes in one turn of the fuse, or barrel.* As the turns of the great wheel, or fusee, are to the days of the *clock's* continuance; so is the number of strokes in 24 hours, viz. 156, to the strokes of one turn of the fusee.

2. *To find how many days a clock will go.* As the strokes in 24 hours are to those in one turn of the fusee; so are the turns of the fusee to the days of the *clock's* going.

3. *To find the number of turns of the fusee, or barrel.* As the strokes in one turn of the fusee are to those of 24 hours; so is the *clock's* continuance to the turns of the fusee, or great wheel.

4. *To find the number of leaves in the pinion of report on the axis of the great wheel.* As the number of strokes in the *clock's* continuance is to the turns of the fusee; so are the strokes in 12 hours, viz. 78, to the quotient of the pinion of report fixed on the arbor of the great wheel.

5. *To find the strokes in the clock's continuance.* As 12 is to 78, so are the hours of the *clock's* continuance to the number of strokes in that time.

By 8 & 9 and 10 W. III. cap. 28. § 2. no person shall export, or endeavour to export, out of this kingdom, any outward or inward box-case or dial-plate, of gold, silver, brass, or other metal, for clock or watch, without the movement in or with every such box, *&c.* made up fit for use, with the maker's name engraven thereon; nor shall any person make up any clock or watch, without putting their name and place of abode or freedom, and no other name or place, on every clock or watch; on penalty of forfeiting every such box, case, and dial-plate, clock and watch, not made up and engraven as aforesaid; and 50*l.* one moiety to the king, the other to those that shall sue for the same.

The ingenious Dr. Franklin has contrived a *clock* to shew the hours, minutes, and seconds, with only three wheels and two pinions in the whole movement. The dial-plate (*fig.* 8. *Tab.* II. *Horology*) has the hours engraven upon it in spiral spaces along two diameters of a circle containing four times 60 minutes. The index A goes round in four hours, and counts the minutes from any hour by which it has passed to the next following hour. The time, therefore, in the position of the index shewn in the figure is either 32 minutes past XII. III. or VIII. and so in every other quarter of the circle, it points to the number of minutes after the hours which the index last left in motion. The small hand B, in the arch at top, goes round once in a minute, and shews the seconds. The wheel-work of this *clock* may be seen in (*fig.* 9.) A is the first or great wheel, containing an hundred and sixty teeth, and going round in four hours with the index A in *fig.* 8. let down by a hole on its axis. This wheel turns a pinion B of ten leaves, which therefore goes round in a quarter of an hour: on the axis of this pinion is the wheel C of an hundred and twenty teeth, which goes round in the same time, and turns a pinion D, of eight leaves, round in a minute, with the second-hand B of *fig.* 8. fixed on its axis, and also the common wheel E of thirty teeth, for moving a pendulum (by pallets) that vibrates seconds, as in a common *clock*. This *clock* is wound up by a line going over a pulley on the axis of the great wheel, like a common thirty-hour clock. Many of these admirably simple machines have been contrived, which measure time exceedingly well. It is subject, however, to the inconvenience of requiring frequent winding by drawing up the weight; and likewise to some uncertainty as to the particular hour shewn by the index A. Mr. Ferguson has proposed to remedy these inconveniences by the following contrivance. In the dial-plate of his *clock* (*fig.* 10.) there is an opening *a b c d*, below the centre, through which appears part of a flat plate, on which the 12 hours with their divisions into quarters, are engraved: this plate turns round in twelve hours, and the index A points out the true hour, &c. B is the minute-hand which goes round the large circle of 60 minutes, whilst the plate *a b c d* shifts its place one hour under the fixed index A. There is another opening *e f g h*, through which the seconds are seen on a flat moveable ring at the extremity of a sector-dc, is engraved on the face of the dial-plate A, in *fig.* 11, is the great wheel of this *clock*, containing an hundred and twenty teeth, and turning round in twelve hours. The axis of this wheel bears the plate of hours, which may be moved by a pin pulling through small holes drilled in the plate, without affecting their wheel-work. The great wheel A turns a pinion B of ten leaves round in an hour, and carries the minute-hand B on its axis round the dial-plate in the same time: on this axis is a wheel C of an hundred and twenty teeth, turning round a pinion D of six leaves in three minutes; on the axis of which there is a wheel E of ninety teeth, that keeps a pendulum in motion, vibrating seconds by pallets, as in a common *clock*, when the pendulum-wheel has only thirty teeth, and goes round in a minute. In order to shew the seconds by this *clock*, a thin plate must be divided into three times sixty, or an hundred and eighty equal parts, and numbered 10, 20, 30, 40, 50, 60, three times successively; and fixed on the same axis with the wheel of ninety teeth, so as to turn round near the back of the dial-plate; and these divisions will shew the seconds through the opening *e f g h*, *fig.* 10. This *clock* will go a week without winding, and always shew the precise hour; but this *clock*, as Mr. Ferguson exhaustively acknowledges, has two disadvantages of which Dr. Franklin's *clock* is free. When the minute-hand B is adjusted, the hour-plate must also be set right by means of a pin; and the fallness of the teeth in the pendulum-wheel will cause the pendulum-ball to describe but small arcs in its vibrations; and therefore the momentum of the ball will be less, and the times of the vibrations will be more affected by any unequal impulse of the pendulum-wheel on the pallets. Besides, the weight of the flat ring on which the seconds are engraved will load the pivots of the axis of the pendulum-wheel with a great deal of friction, which ought by all possible means to be avoided. To remedy this inconvenience, the fecond plate might be omitted.

A CLOCK shewing the apparent diurnal motions of the fun and moon, the age and phases of the moon, with the time of her coming to the meridian, and the times of high and low water; by having only two wheels and a pinion added to the common movement, was contrived by Mr. Ferguson, and is described in his Select Exercises. The dial-plate of this *clock*, (fee *Tab.* II. *Horology*, *fig.* 12.) contains all the twenty-four hours of the day and night. S is the fun, which ferves as an hour index, by going round the dial-plate in twenty-four hours; and M is the moon, which goes round in twenty-four hours, fifty minutes and a half, the time of her going round in the heavens from one meridian to the fame meridian again. The fun is fixed to a circular plate, (fee *fig.* 13.) and carried round by the motion of that plate, on which the twenty-four hours are engraven; and within them is a circle divided into twenty-nine and a half equal parts for the days of the moon's age, reckoning from new moon to new moon; and each day ſtands directly under the time, in the twenty-four hour circle, of the moon's coming to the meridian; the XII. under the fun ſtanding for noon, and the oppoſite XII. for midnight. The moon, M, is fixed

to another circular plate (*fig.* 12.) of the same diameter with that which carries the fun, part of which may be seen through the opening, over which the fmall wires *a* and *b* paſs in the moon-plate. The wire *a* ſhews the moon's age and time of her coming to the meridian, and *b* ſhews the time of high-water for that day, in the fun-plate. The diſtance of theſe wires anſwers to the difference of time between the moon's coming to the meridian and high-water at the place for which the *clock* is made. At London their difference is two hours and a half. Above the moon-plate there is a fixed plate N, ſupported by a wire A, fixed to it at one end and fixed at right angles into the dial-plate at the midnight XII. This plate may repreſent the earth, and the dot L London, or the place to which the *clock* is adapted. Around this plate there is an elliptic ſhade on the moon-plate, the higheſt points of which are marked *high-water*, and the loweſt *low-water*. As this plate turns round below the plate N, theſe points come ſucceſſively even with L, and ſtand over it at the times when it is high or low water at the given place: which times are pointed by the ſun, S, on the dial-plate; and the plate H, above XII. at noon riſes or falls with the tide.

As the ſun, S, goes round the dial-plate in twenty-four hours, and the moon, M, in twenty-four hours fifty minutes and a half, it is plain that the moon makes only twenty-eight revolutions and a half, whilſt the ſun makes twenty-nine and a half: ſo that it will be twenty-nine days and a half from conjunction to conjunction. And thus the wire *a* ſhifts over one day of the moon's age on the ſun-plate in twenty-four hours.

The phaſes of the moon for every day of her age may be ſeen through a round hole *m* in the moon-plate: thus, at conjunction or new-moon the whole ſpace ſeen through *m* is black; at oppoſition or full-moon, this ſpace is white: at either quadrature half black and half white; and at every poſition, the white part reſembles the viſible part of the moon for every day of her age. The black-ſhaded ſpace *N f F i*, (*fig.* 13.) on the ſun-plate ſerves for theſe appearances. N repreſents the new-moon, F the full-moon, and *f* her firſt quarter, and *i* her laſt quarter, &c.

The wheel-work and tide-work of this *clock* are repreſented in *fig.* 14. A and B are two wheels of equal diameters: A has fifty-ſeven teeth, with an hollow axis that paſſes through the dial of the *clock*, and carries the ſun-plate with the ſun S. B has fifty-nine teeth, with a ſolid ſpindle for its axis, which turns within the hollow axis of A, and carries the moon-plate with the moon M: both wheels are turned round by a pinion C of nineteen leaves, and this pinion is turned round by the common *clock* work in eight hours; and as nineteen is the third part of fifty-ſeven, the wheel A will go round in twenty-four hours; and the wheel B in twenty-four hours fifty minutes and a half: fifty-ſeven being to twenty-four as fifty-nine to twenty-four hours fifty minutes and a half very nearly. On the back of the wheel B is fixed an elliptical ring D, which, in its revolution, raiſes and lets down a lever EF, whoſe centre of motion is ou a pin at F; and this, by the upright bar G, raiſes and lets down the tide-plate H, twice in the time of the moon's revolving from the meridian to the meridian again: this plate moves between four rollers R, R, R, R.

A *clock* of this kind was adapted by Mr. Ferguſon to the movement of an old watch: the great wheel of a watch goes round in four hours; on the axis of this he fixed a wheel of twenty teeth, to turn a wheel of forty teeth on the axis of the pinion C; by which means that pinion was turned round in eight hours, the wheel A in twenty-four, and the wheel B in twenty-four hours fifty minutes and a half.

See alſo a deſcription and drawing of an *aſtronomical* CLOCK, ſhewing the apparent daily motions of the ſun, moon, and ſtars, with the times of their riſing, ſouthing and ſetting, the places of the ſun and moon in the ecliptic, and the age and phaſes of the moon for every day of the year, in Ferguſon's Select Exercites, p. 19.

To this article of *clock*-work we ſhall ſubjoin a brief account of two curious contrivances; the one for giving motion to the parts of a *clock* by making it to deſcend along an inclined plane, is the invention of Mr. Maurice Wheeler; and the *clock* itſelf may be ſeen in Don Saltero's coffee-houſe at Cheſſea. D E (*ſee Tab. Horology, fig.* 5.) is the inclined plane on which the *clock* A B C deſcends: this conſiſts externally of a hoop about an inch broad, and two ſides or plates ſtanding out beyond the hoop about one-eighth of an inch all round, with indented edges, that the *clock* may not ſlide, but turn round whilſt it moves down. One of theſe plates is inſcribed with the twenty-four hours, which paſs ſucceſſively under the index L P, *fig.* 6, which is always in a poſition perpendicular to the horizon, and ſhews the hour on the top of the machine: for this reaſon the lower part of the index, or H L is heavieſt, that it may preponderate the other H P, and always keep perpendulous, with its point to the vertical hour, as the movement goes on. Inſtead of this index, [illegible] fixed for ornament on the axis *f*, which, [illegible] ed finger, performs the office of an index, and deſcribe the internal part or mechaniſm of the [illegible] L E T Q be the external circumference of the [illegible] *f*, *f*, the frame-plate, on which is placed [illegible] wheel-work, 1, 2, 3, 4, which is much the [illegible] as in other *clocks*, and is governed by a balance and regulator, as in them. But there is no need of a ſpring and fuſee in this *clock*; their effects being otherwiſe anſwered, as we ſhall ſee. In this machine the great wheel 1 is placed in the centre, or upon the axis of the movement, and the other wheels and parts towards one ſide, which would therefore prove a bias to the body of the *clock*, and cauſe it to move, even on an horizontal plane, for ſome ſhort diſtance; this makes it neceſſary to fix a thin plate of lead at C, on the oppoſite part of the hoop, to reſtore the equilibrium of the movement. This being done, the machine will abide at reſt in any poſition on the horizontal plane H H; but if that plane be changed into the inclined plane D E, it will touch it in the point D; but it cannot reſt there, becauſe the centre of gravity at M acting in the direction M I, and the point I having nothing to ſupport it, muſt continually deſcend, and carry the body down the plane. But now if any weight P be fixed on the other ſide of the machine, ſuch as ſhall remove the centre of gravity from M to the point V in the line L D which paſſes through the point D, it will then reſt upon the inclined plane, as in the caſe of the *rolling* CYLINDER. If this weight P be ſuppoſed not fixed, but ſuſpended at the end of an arm, or vectis, which arm or lever is at the ſame time faſtened to a central wheel 1, moving on the axis M of the machine, which wheel by its teeth ſhall communicate with the train of wheels, &c. on the other ſide, and the power of the weight be juſt equal to the friction or reſiſtance of the train, it will remain motionleſs as it did before when it was fixed. And, conſequently, the *clock* alſo will be at reſt on the inclined plane. But, ſuppoſing the power of the weight P to be ſuperior to the reſiſtance of the train, it will then put it into motion, and of courſe the *clock* likewiſe; which will then commence a motion down the plane: while the weight P, its vectis P M, and the wheel 1, all conſtantly retain the ſame poſition which they have at firſt, when the *clock* begins to move. Hence it is eaſy to underſtand, that the weight P may have ſuch an intrinſic gravity, as ſhall cauſe it to act upon the train with any required force, ſo as to produce a motion in the machine of any required velocity; ſuch, for inſtance, as ſhall carry it once round in twenty-four hours: then, if the diameters of the plates A B C be four inches, it will deſcribe the length of their circumference, viz. 12.56 inches in one natural day; and, therefore, if the plane be of a ſufficient breadth, ſuch a *clock* may go ſeveral days, and would furniſh a perpetual motion, if the plane were infinitely extended.

Let S D be drawn through M perpendicular to the inclined plane in the point D; alſo let L D be perpendicular to the horizontal line H H, paſſing through D; then is the angle H D E = L D S = D M I; whence it follows that the greater the angle of the plane's elevation is, the greater will be the arch D T, and, conſequently, the farther will the common centre of gravity be removed from M; therefore the power of P will be augmented, and of courſe the motion of the whole machine accelerated. Thus it appears, that by duly adjuſting the intrinſic weight of P, at firſt to produce a motion ſhewing the mean time as near as poſſible, the time may be afterwards corrected, or the *clock* made to go faſter or ſlower by raiſing or depreſſing the plane, by means of the ſcrew at S. The angle to which the plane is firſt raiſed is about ten degrees. The marquis of Worceſter is alſo ſaid to have contrived a watch that moved on a declivity. See farther Phil. Tranſ. abr. vol. i. p. 468, &c. or N° 161.

The other contrivance is that of M. de Gennes for making a *clock* aſcend on an inclined plane. To this end let A B D (*fig.* 7.) be the machine on the inclined plane E D E, and let it be kept at reſt upon it, or in equilibrio by the weight P at the end of the lever P M. The circular area C F is one end of a ſpring barrel in the middle of the movement, in which is included a ſpring as in a common watch. To this end of the barrel the arm or lever P M is fixed upon the centre M; and thus, when the clock is wound up, the ſpring moves the barrel, and therefore the lever and weight P in the ſituation P M. In doing this, the centre of gravity is conſtantly removed farther from the centre of the machine, and therefore,

it must determine the *clock* to move upwards, which it will continue to do as long as the spring is unbending itself; and thus the weight and its lever PM will preserve the situation they first have, and do the office of a chain and fusee. Phil. Trans. N° 140. or Abr. vol. i. p. 497. By means of the following table, clocks and watches may be so regulated as to measure true equal time.

Days.	H. M.S.
10	3 56
20	7 52
30	11 48
40	15 44
50	19 39
60	23 35
70	27 31
80	31 27
90	35 23
100	39 19
110	43 15
120	47 11
130	51 7
140	55 3
150	58 58
161	2 54
171	6 50
181	10 46
191	14 42
201	18 38
211	22 34
221	26 30
231	30 26
241	34 22
251	38 17
261	43 13
271	46 9
281	50 5
291	54 1
301	57 57

The ſtars make 366 revolutions from any point of the compaſs to the ſame point again in 365 days and one minute: and therefore, they gain a 365th of a revolution every 24 hours of mean ſolar time, near enough for regulating any clock or watch.

This acceleration is at the rate of 3 min. 55 ſec. 53 thirds, 50 fourths in 24 hours; or, in the neareſt round numbers, 3 minutes, 56 ſeconds, by which quantity of time, every ſtar comes round ſooner than it did on the day before.

Therefore, if you mark the preciſe moment ſhown by a clock or watch when any ſtar vaniſhes behind a chimney, or any other object, as ſeen through a ſmall hole in a thin plate of metal, fixed in a window-ſhutter; and do this for ſeveral nights ſucceſſively (as ſuppoſe twenty) if, at the end of that time, the ſtar vaniſhes as much ſooner than it did the firſt night, by the clock, as anſwers to the time denoted in the table for ſo many days, the clock goes true: otherwiſe not. If the difference between the clock and ſtar be leſs than the table ſhews, the clock goes too faſt; if greater, it goes too ſlow; and muſt be regulated accordingly, by letting down or raiſing up the ball of the pendulum, by little and little, by turning the ſcrew-nut under the ball, till you find it keeps true equal time.

Thus, ſuppoſing the ſtar ſhould diſappear behind a chimney, any night when it is XII. by the clock; and that, on the 20th night afterward, the ſame ſtar ſhould diſappear when the time is 41 minutes 22 ſeconds paſt X. by the clock; which being ſubtracted from 12 hours, 0 min. 0 ſec. leaves remaining 1 hour, 18 minutes, 38 ſeconds for the time the ſtar is then faſter than the *clock*: look in the table, and againſt 20, in the left hand column, you will find the acceleration of the ſtar to be 1 hour, 18 min. 38 ſec. agreeing exactly with what the difference ought to be between the *clock* and ſtar: which ſhews that the *clock* meaſures true equal time, and agrees with the mean ſolar time, as it ought to do.

To add chimes to a piece of CLOCK-*work*. See CHIMES.

CLOCK, *balance of a*. See BALANCE.

CLOCK-*makers, company of*. See COMPANY.

CLOCK-*makers compaſſes*. See COMPASSES.

CLOERE, a priſon or dungeon; it is conjectured from Britiſh original: the dungeon or inner priſon of Wallingford caſtle, temp. H. II. was called *Cloero-brien*, i. e. *carcer Britonis*, &c.

CLOG. See RUNIC *ſtaffs*.

CLOISTER, CLAUSTRUM, an habitation ſurrounded with walls, and inhabited by canons, or religious.

In a more general ſenſe *Cloiſter* is uſed for a monaſtery of religious of either ſex.

In a more reſtrained ſenſe *cloiſter* is uſed for the principal part of a regular monaſtery, conſiſting of a ſquare built around; ordinarily, between the church, the chapter-houſe, and refectory; and over which is the dormitory. See DORMITORY, &c.

The *cloiſters* ſerved for ſeveral purpoſes in the ancient monaſteries. Petrus Bleſenſis obſerves, that it was here the monks held their lectures; the lecture of morality at the north-ſide, next the church; the ſchool on the weſt, and the chapter on the eaſt; ſpiritual meditation, &c. being referred for the church.

Du-Cange concludes, that all theſe different exerciſes were performed in the cloiſter itſelf; but by miſtake. The church, the chapter-houſe, and the ſchool, were not parts of the *cloiſter*, but buildings adjoining to it.

Lanfranc obſerves, that the proper uſe of the *cloiſter* was for the monks to meet in, and converſe together, at certain hours of the day.

The form of the *cloiſter* was ſquare; and it had its name *clauſtrum* from *claudo, I ſhut or cloſe*, as being incloſed on its four ſides with buildings.

Hence, in architecture, a building is ſaid to be in form of a *cloiſter*, when there are buildings in each of the four ſides of the court.

CLOISTERED *monks*. See MONK.

CLONARIUM, in *Botany*, that ſmall pedicle which ſupports every ſeparate flower, or fruit in a cluſter, as every grape in a bunch, every berry in a corymbus of ivy, &c.

CLOSE, in *Heraldry*. When any bird, addicted to flight, is drawn in a coat of arms, in a ſtanding poſture; with its wings cloſe down about it, and not either flying or diſplayed, they blazon it by the word *cloſe*.

In which ſenſe *cloſe* ſtands oppoſed to VOLANT.

Cloſe is not applied to the peacock, dunghill-cock, &c. becauſe that is their ordinary poſture.

The term *cloſe* is likewiſe uſed for the barnacles, or bits of a bridle, when not extended, as they are uſually borne.

It is alſo applied to the bearing a helmet, with the vizor down: a barnacle *cloſe*, helmet *cloſe*, &c.

CLOSE, in *Muſic*. See CADENCE.

CLOSE, *breath of*, in *Law*, a ſpecies of treſpaſs, denoting every unwarrantable entry on another's ſoil, which the law ſuppoſes to be *incloſed*, either by a viſible fence, or an inviſible boundary.

CLOSE *rolls*, and CLOSE *writs*, in *Law*, charters, or letters of the king, containing grants of lands, &c. ſealed with his great ſeal, and directed to particular perſons, and the particular purpoſes, not being proper for the public inſpection, are *cloſed* up and ſealed on the outſide, and are therefore called *writs cloſe, litteræ cloſuræ*, and they are recorded in the *cloſe rolls*. See LETTERS, and PATENT.

CLOSE *field*. See FIELD.

CLOSE *fights*, aboard a ſhip, are bulk-heads put up fore and aft in the ſhip, for the men to ſtand behind in a cloſe engagement, and fire on the enemy; or, if the ſhips be boarded, to ſcour the decks.

CLOSE *fire*. See FIRE, and REVERBERATION.

CLOSE-*hauled*, in *Sea-Language*, denotes the arrangement or trim of a *ſhip's* ſails when the endeavours to proceed in the neareſt direction poſſible to that point of the compaſs from which the wind blows. The keel of larger ſhips makes an angle of about ſix points with the line of the wind; but ſloops and ſmaller veſſels fail almoſt a point nearer. All veſſels, when *cloſe-hauled*, make nearly a point of lee-way, and this angle increaſes with the increaſe of wind and ſea. The ſails, in this diſpoſition of them, are all extended ſideways on the ſhip; and the term *cloſe-hauled* is then applied to it, becauſe her tacks are drawn cloſe down to her windward ſide, the ſheets hauled cloſe aft, and all the bow-lines are drawn to their utmoſt extenſion, in order to keep the ſails ſteady.

CLOSE *quarters*, in *Sea-Language*, denote ſtrong beams of wood extended along a merchant-ſhip in ſeveral places: as they are a place of retreat, when the ſhip is boarded by an adverſary, they are fitted with ſmall loop-holes, through which the ſhip's crew may fire ſmall arms to defend themſelves and annoy the enemy. They are likewiſe furniſhed with powder-cheſts, filled with powder, old nails, &c. which may be fired upon the boarders.

CLOSE *pound*. See POUND.

CLOSET, in *Heraldry*, ſignifies the half of a BAR.

CLOSET, *clerk of the*. See CLERK.

CLOSH, in our *Old Cuſtoms*, an unlawful game, forbidden by ſtat. 14 Edw. IV. c. 3. & 33 Hen. VIII. c. 9. It is ſaid to have been the ſame with our *nine-pins*, and is called *cloſh-cayls*, by the 33d Hen. VIII.

CLOT-*bird*, in *Ornithology*, a name by which the common OENANTHE is called in many parts of England.

CLOTH, in *Commerce*, in its general ſenſe, includes all kinds of ſtuffs woven or manufactured on the loom, whether their threads be of wool, hemp, or flax.

CLOTH is more peculiarly applied to a web, or tiſſue of woollen threads, interwoven; whereof ſome called the *warp*, are extended lengthwiſe, from one end of the piece to the other; the reſt, called the *woof*, are diſpoſed acroſs the firſt, or breadthwiſe of the piece.

Cloths are woven on the looms as well as linens, druggets, ſerges, camblets, &c. They are of various qualities, fine, coarſe, ſtrong, &c. ſome are made of wool, and this of different colours; the wool being dyed and dreſſed, is firſt ſpun, then wove: others are wrought white, deſtined to be dyed in ſcarlet, black, blue, green, yellow, &c. Their breadths and lengths are various, according to the places where they are manufactured.

The goodneſs of CLOTH conſiſts, 1. In the wool's being fine, and being well dreſſed. 2. In its being ſpun equably: always obſerving, however, that the thread of the warp be finer, and better twiſted, than that of the woof. 3. In the *cloth's* being well wrought and beaten on the loom, ſo as to be every where equally cloſe and compact. 4. In the wool's not being finer and better at one end of the piece than in the reſt. 5. In the liſts being ſufficiently ſtrong, and of the ſame length with the ſtuff; and that they conſiſt of good matter, as wool, hair, or oſtrich feathers, or the hair of Daniſh dogs; which

which laſt is the beſt. 6. In the *cloth*, being well cleared of the knots, and other imperfections. 7. In its being well ſcoured with good fullers-earth, then fulled with the beſt white ſoap, and waſhed out in clear water. See FULLING. 8. In the hair or knap's being well drawn out with the TEAZLE, or thiſtle, on the pole, without being too much opened. 9. In its being ſhorn cloſe, yet without laying the ground or thread bare. See SHEARING. 10. In its being well dyed. 11. In its not being ſtretched, or pulled farther than is neceſſary to ſet it ſquare, and bring it to its juſt length and breadth. See TENTER. 12. In its only being preſſed cold; hot-preſſing being hurtful to *cloth*.

Manufacturing of white CLOTHS *for dying*. The beſt wools for the purpoſe are thoſe of England and Spain; eſpecially thoſe of Lincolnſhire, and Segovia.

To uſe them to the beſt advantage; when taken out of the bales, they muſt be ſcoured, by putting them in a liquor ſomewhat more than lukewarm, compoſed of three parts of fair water, and one of urine. After the wool has continued long enough in the liquor to diſſolve and looſen the greaſe, it is taken out, drained, and waſhed in a running water: it is known to be well ſcoured, when it feels dry to the touch, and has no ſmell but the natural ſmell of the ſheep.

In this ſtate it is hung out to dry in the ſhade; the heat of the ſun being apt to make it harſh, and untractable.

When dry, it is beat with rods on hurdles of wood, or on ropes, to clear out the duſt and groſſer filth: the more it is thus beat and cleaned, the more ſoft it becomes, and the better it ſpins. After beating, it is well picked, to clear the reſt of the filth, that had eſcaped the rods.

It is now in a ſtate to be oiled, and carded on large iron cards, placed ſlopе. The beſt oil for the purpoſe is oil of olives; one fifth of which, at leaſt, ſhould be uſed for the wool deſtined for the woof, and a ninth for that of the warp.

It is now given out to the ſpinners; who firſt card it on the knee, with ſmall fine cards; then ſpin it on the wheel: obſerving to make the thread of the warp ſmaller, by one-third, than that of the woof, and much cloſer twiſted: in order to this, the latter muſt be ſpun with the hand, or ſtring open, and the former with it cruſſed. The thread being thus ſpun, reeled, and made into ſkeins; that deſtined for the woof is wound on ſpools, i. e. on little tubes, or pieces of paper, or ruſhes, ſo diſpoſed as that they may be eaſily put in the eye of the ſhuttle. That for the warp is wound on a kind of rockets, or large wooden bobbins, to diſpoſe it for warping.

When warped, it is ſtiffened with ſize; whereof, that made of ſhreds of parchment is the beſt; and coarſe yarn, uſed in herſeys, is ſtiffened by ſteeping it for a few hours in chalk-water; and, when dry, is given to the weavers, who mount it on the loom.

The warp being on the loom, the weavers, who are two to each loom, one on each ſide, tread at the ſame time, alternately, on the ſame treadle; i. e. now on the right leaf, and now on the left, which raiſes and lowers the threads of the warp equally; between which they throw, tranſverſe, the ſhuttle from the one to the other. And each time that the ſhuttle is thrown, and ſo a thread of the woof inſerted within the warp, they ſtrike it cloſe jointly with the ſame frame, wherein is faſtened the comb, or reed, between whoſe teeth the threads of the warp are paſſed; repeating the ſtroke as often as is neceſſary; in ſome *cloths* no leſs than twelve or thirteen times, viz. ſix with the warp open, and ſeven ſhut.

It may be obſerved, that the more the threads of the woof are ſtruck againſt each other, the cloſer the *cloth* is: and hence it becomes enabled to ſuſtain the violence of the fulling-mill, as well as of the tearing, or fulling-thiſtle, without fretting, or opening. The weavers having continued their work till the whole warp is filled with woof, the *cloth* is finiſhed: it is taken off the loom by unrolling it from the beam whereon it had been rolled in proportion as it was woven; and is now given to be cleared of the knots, ends of thread, ſtraws, and other filth; which is done with little iron nippers: and this operation is called *burling*.

In this condition it is carried to the fullery, to be ſcoured with urine, or a kind of potters clay well cleaned and ſteeped in water, put along with the *cloth* in the trough, wherein it is fulled. See FULLING.

The *cloth* being again cleared from the earth, or urine, by waſhing it in water, is returned to the former hands, to have the leſſer filth, ſmall ſtraws, and almoſt imperceptible knots, taken off as before: it is likewiſe ſtone-drawn. See STONE-*drawing*. Then it is returned to the fuller, to be beat and fulled with hot water, wherein five or ſix pounds of ſoap have been diſſolved. The ſoap moſt eſteemed is the white, eſpecially that of Genoa.

After fulling an hour and a half, it is taken out to be ſmoothed, i. e. to be pulled by the liſts lengthways, to take out the wrinkles and creaſes occaſioned by the fall of the mallets, or peſtles, falling on the *cloth*, when in the troughs: which is often done by racking or tenting the *cloth*. See TENTER.

The ſmoothing is repeated every two hours, till the fulling be finiſhed, and the *cloth* brought to its proper breadth: after which, it is waſhed in clear water, to purge it of the ſoap, and given, all wet, to the carders, to raiſe the hair, or knap, on the right ſide, with the thiſtle, or teaſel; wherewith they give it two rubs, or courſes; the firſt againſt the grain, the ſecond with the grain: which operation is called ROUGHING it.

The *cloth* being dried after this operation, the cloth-worker takes it, and gives it its firſt cut, or SHEARING. This done, the carders reſume it, and after wetting it, give as many more rubs, or courſes, with the teaſle, as the quality of the ſtuff requires: always obſerving to begin againſt the hair, and to end with it; and to begin with a ſmoother thiſtle, proceeding ſtill to a ſharper and ſharper, as far as the ſixth degree.

After this, the *cloth* being dried, is returned to the cloth-worker, who ſheers it a ſecond time, and returns it to the carder; who wetting it again, gives it as many courſes as he thinks fit, dries it, and gives it back again to the cloth-worker; who after ſheering it the third and laſt time, returns it to the carders, who repeat their operation as before, till the hair, or knap, be well raiſed on the ſurface of the *cloth*, from one end of the piece to the other.

It muſt be obſerved, that it is indiſpenſably neceſſary the *cloth* be wet, while in the carders hands; in order to which, it is ſprinkled from time to time with water.

The knap being finiſhed, and the *cloth* dried, the cloth-worker gives it as many cuts as he thinks requiſite for the perfection of the ſtuff. It muſt alſo be obſerved, that all the ſheerings muſt be on the right ſide, except the two laſt, which muſt be on the other; and that the *cloth* cannot be too dry for ſheering.

The *cloth* thus woven, ſcoured, knapped, and ſhorn, and ſometimes *watered*, or FRIZED, is ſent to the dyer. When dyed, it is waſhed in fair water, and the cloth-worker takes it again, wet as it is, lays the hair, or knap, with a bruſh on the table, and hangs it on the tenters; where it is ſtretched both in length and breadth, enough to ſmooth it, ſet it ſquare, and bring it to its proper dimenſions, without draining it too much; obſerving to bruſh it afreſh, the way of the hair, while yet a little moiſt on the tenter.

When quite dry, the *cloth* is taken off from the tenter, and bruſhed again on the table, to finiſh the laying of the knap: it is then folded, and laid cold under a preſs, to make it perfectly ſmooth and even, and to give it a little gloſs.

The gloſs is given by laying a leaf of vellum, or cap-paper, to each plait of the piece; and over the whole a ſquare plank of wood: on which, by means of a lever, the ſcrew of a preſs is brought down, with the degree of force judged neceſſary, with regard to the quality of the *cloth*. In France, none but ſcarlets, greens, blues, &c. receive this laſt preparation; blacks being judged better without it.

Laſtly, the *cloth* being taken out of the preſs, and the papers removed, it is in a condition for ſale, or uſe. See the whole proceſs of manufacturing ſheep's wool into *cloth*, deſcribed by ſir W. Petty, in Birch's Hiſt. of the Royal Society, vol. i. p. 555, &c.

For the manufacture of mixt CLOTHS, or thoſe wherein the wools are firſt dyed, then mixed, ſpun, and woven of the colours intended; the proceſs, except in what relates to the colour, is moſtly the ſame with that juſt ſpoken of.

The method of adjuſting the mixture, is by firſt making a felt, or lock, of the colours of the intended *cloth*, as a ſpecimen: the wool of each colour is weighed, and when the ſpecimen is to the manufacturer's mind, he mixes, for uſe, a quantity in the ſame proportion: eſtimating each grain of the ſpecimen at twenty pounds weight of the ſame wool in the *cloth* to be made.

Thus, if he would mix three colours, viz. coffee-colour, feuille-morte, and pale-blue, the firſt to be the prevailing colour, he weighs a quantity of each; for inſtance, 70 grains of the firſt, 35 of the ſecond, and 20 of the third: then multiplies each by 20 pounds of wool; and thus takes 1400 pounds for the coffee wool; 700 pounds for the feuille-mort, and 400 for the pale-blue.

The wools of the ſpecimen, thus weighed, are mixed, oiled, carded, moiſtened with clear water, rubbed with black ſoap, and in this ſtate wrought a long time in the hands; till they be reduced into a piece of felt like that uſed by hatters.

It is then rinsed in water, to purge out the oil and soap, and when dry, the hair, or knap, is carded out with the teazle; then shorn carefully, till the ground appear, and the several colours be discoverable.

Lastly, wetting it a little, and pressing it, he examines it well; and if he be not contented with it, makes another felt; if he be, he proceeds to mix his wools: when mixed, it is beat on hurdles, cleaned, oiled, carded, spun, woven, &c. as in white *cloth*.

For the laws relating to the woollen manufactory, see stat. 3 and 4 Edw. III. cap. 2. 3 and 4 Edw. IV. cap. 6. 17 Edw. IV. *cap.* 1. 5 and 6 Edw. VI. cap. 6. 4 and 5 Ph. and M. cap. 5. 39 Eliz. cap. 20. 1 Jac. I. cap. 8. 7 Jac. I. cap. 7. 21 Jac. I. cap. 18. 12 Car. II. cap. 22. 1 Anne. 7 Anne, cap. 13. 10 Anne. cap. 16. 1 Geo. I. cap. 15. 11 Geo. I. 12 Geo. I. 13 Geo. I. 11 Geo. II. 14 Geo. II.

CLOTH, *Casting of Lead on*. See CASTING.

CLOTH, *Casting*. See COCKING *Cloth*.

CLOTH, *Frizing of*. See FRIZING.

CLOTH, *Green*. See GREEN.

CLOTH, *Hair*, in *Military Affairs*. See HAIR.

CLOTH, *Housewife's*. See HOUSEWIFE.

CLOTH, *Incombustible*. See ASBESTOS and LINUM *Incombustibile*.

CLOTH, *Painting on*. See PAINTING.

CLOTH, *Sear*. See SEAR-*Cloth*.

CLOUD, in *Physiology*, a collection of condensed VAPOUR, suspended in the atmosphere.

A *cloud* is a congeries of watery particles, or vesiculæ raised from the waters, or watery parts of the earth, by the solar, or subterraneous, or electrical *fire*; which at their first rise from our globe, are too minute, and too much separated by their mutual repulsion, to be perceived; but as they mount, meeting with a greater degree of cold, losing their electricity, or by any other process which nature employs for this purpose, are condensed and rendered opaque, by the reunion of their parts; so as to reflect light, and become visible. For the manner wherein vapours are raised into *clouds*, see EVAPORATION.

These vapours, however raised, being specifically lighter than air, mount in it, till having reached such a region of the atmosphere as is of the same specific gravity with themselves, they will be suspended, till the watery vesicles, which were at first too thin to be perceived, being now condensed by the cold of the superior regions; and consequently the parts set closer together; their density is first augmented so as to render them opaque enough to reflect the sun's light, and become visible; and their specific gravity increased, so as to make them descend: in the former state they are called *clouds*; and in the latter, when they arrive at us, *rain*.

Clouds, beside their use when they descend in showers, are of service, while suspended in the atmosphere; as they help to mitigate the excessive heat of the torrid zone, and screen it from the beams of the sun, especially when in his zenith.

From the observable motions of the *clouds* it appears, that there are different currents in the air at the same time, and in the same quarter, under one another. Phil. Trans. N° 454. p. 537.

For the colour of the *clouds*, see COLOURS. For the electricity of the *clouds*, see ATMOSPHERE, CONDUCTORS, ELECTRICITY, EVAPORATION, &c.

CLOUDS, *Magellanic*. See MAGELLANIC *Clouds*.

CLOUDBERRY. See CHAMÆMORUS.

CLOVE-*Tree*, CARYOPHYLLUS, in *Botany*, a genus of the *polyandria monogynia* class. Its characters are these: it hath a double empalement; the flower is of one leaf, cut into four obtuse parts, upon which the germen is situated: the fruit hath another empalement, which is small, and slightly divided into four parts, which are permanent. The flower hath four blunt petals, and hath many stamina. The germen is situated under the flower, which afterwards becomes a soft berry with two cells, each containing a kidney-shaped seed. There are five species.

The fruit is somewhat in form of a nail; whence the term *clove*, from the French *clou*, *nail*.

The *clove-tree* was anciently very common in the Moluccо islands; where all the European nations, who traffic in spices to the *Indies*, furnished themselves with what quantity of *cloves* they required. At present there are scarce any found but in the island of Ternate: the Dutch, in order to render themselves masters of that merchandize, having dug up the *clove-trees* of the Moluccos, and transplanted them to Ternate; so that there are none now to be had but through their hands.

The tree is very large, its bark resembles that of the olive-tree, and its leaves those of the laurel: its fruit falling, takes root, and thus it multiplies itself without any culture. It is said, it will not allow any other herb, or tree, to grow near it; its excessive heat drawing to it all the humidity of the soil.

When the *cloves* first begins to appear, it is of a greenish-white colour; as it ripens, it grows brown. Nor is there any preparation necessary in order to render it such as it comes to us, but to dry it in the sun; whatever some authors talk of first steeping it in sea-water, to preserve it from worms.

In the inside of a *clove* are found a style and stamina, with their apices; and towards the larger end, there shoot out from the four angles, four little points like a flat; in the middle of which is a round ball, of a lighter colour than the rest, composed of four small scales or leaves, which seem to be the unexpanded petals of the flower. *Cloves* must be chosen dry, brittle, harsh to the touch, well grown, of a dusky-reddish colour, a rough aromatic taste, an agreeable smell, and, if possible, with the stalk on. This spice acquires weight by imbibing water, which it will do at some considerable distance. The Dutch, who trade in *cloves*, make a considerable advantage by knowing this secret. They sell them always by weight; and when a bag of *cloves* is ordered, they hang it several hours before they send it in, at about two feet distance over a vessel of water. They carefully watch the time when the *cloves* have imbibed the proper quantity, that the fraud may pass undiscovered. This will add many pounds to the weight, which the unwary purchaser pays for on the spot. This is often practised in the spice islands and sometimes in Europe: but the degree of moisture must be more carefully watched in the former place; for there a bag of *cloves* will in one night's time attract so much water, that it may be pressed out of them by squeezing them with the hand.

Cloves are the hottest and most acrid of aromatic substances, and their properties are, to warm and dry, to correct a foetid breath, to sharpen the sight, dissipate films in the eyes, fortify the stomach and liver, and stop vomiting. They are used in apoplexies, palsies, lethargies, and other diseases of the brain.

Such of the fruit as escape the gatherers grow and swell on the tree, and become full of a gum; these are sometimes used in medicine, and are called *mother of cloves*.

There is also an oil drawn from *cloves* by distillation, moderately pungent; which, when new, is of a pale-yellow colour, but reddens as it grows old: it is used in medicine as a sovereign remedy for the tooth-ach, and in compositions with the same view as the fruit. It is also much used among the perfumers.

No plant, nor any part of any plant contains so large a proportion of essential oil as *cloves*; and this oil is heavier than water. From sixteen ounces of *cloves* Neumann obtained, by distillation, two ounces and two drams; and Hoffman obtained from the same quantity an ounce and a half. The pungency of *cloves* is owing to a combination of resin with essential oil.

The oil of *cloves* met with in the shops, and obtained from the Dutch, is highly acrimonious; but this is not the genuine distilled oil of *cloves*. It probably derives its acrimony and high colour from a mixture of the resinous part of the *clove*. Dr. Lewis, in his Mat. Med. observes, that the common oil, as being the most pungent, is best adapted for external purposes, and the genuine oil for those of an internal aromatic.

The natives call the *clove-tree* *chawpoo*, the Persians and Arabs *karunfel*, and the Turks *kaniefour*. They make several preparations both of the flowers, and the fruit.

CLOVE-CINNAMON. See CINNAMON.

CLOVE-WATER, is prepared of brandy, and cloves bruised therein and distilled.

CLOVE, in *Commerce*, is used for the two-and-thirtieth part of a weigh of cheese, i. e. eight pounds. 9 Hen. VI. cap. 8. See WEIGH.

CLOVE-*gilly-flowers*, a species of caryophyllus, greatly recommended as cordials, and given in disorders of the head, palpitations of the heart, and in nervous complaints of all kinds. See PINK.

CLOVE-*tongue*, a name used by some English writers, for the common black hellebore, the root of which is used in medicine.

CLOVER *grass*. See TREFOIL.

CLOUGH, or *draught*, in *Commerce*, an allowance of two pounds in every hundred weight for the turn of the scale; that the commodity may hold out weight when sold out by retail.

CLOUT-NAILS. See NAIL.

CLOUTS, in *Gunnery*, are thin plates of iron nailed on that part of the axle-tree of a gun-carriage, which comes through the nave, and through which the linspin goes.

CLOWN'S *wound wort*, in *Botany*. See IRON-*wort*.

CLOYED. The seamen, when any thing is put into the touch-hole of a great gun, so that they cannot with a priming-iron make way for the powder to be put in to

prime it, fay *the touch-hole is clayed*: wherefore when guns are nailed, &c. they fay they are *clayed*.

CLUB-*antenna*, in *Natural Hiſtory*, a name given by naturaliſts to ſuch of the horns or *antennæ* of butterflies as repreſent a *club*, being larger at the extremities than at the origin.

CLUNY, or CLUGNI, a celebrated abbey of Benedictine monks, in a city of that name in France; being the head, or chief of a congregation denominated from them. It is ſituated in the Maſſonnois, in the province of Burgundy, on the river Rhone; and was founded by William duke of Berry and Aquitain; or, as others ſay, by the abbot Berno, ſupported by that duke, in the year 910: but owed its diſtinguiſhed reputation to Odo, who was created abbot of *Cluny* in 927.

This order of monks was brought into England, by William earl of Warren, ſon-in-law to William the Conqueror who built a houſe for them at Lewes, in Suſſex, about the year 1077. There were twenty-ſeven priories and cells of this order in England, which were governed by foreigners, afterwards made denizens.

CLUE *of a ſail*, &c. See CLEW.

CLUPEA, in the *Artificial Syſtem*, the name of a fiſh, the characters of which are theſe: it is one of the order of the *malacopterygii*, or ſoft-finned kind; and in the Linnæan ſyſtem, of the *abdominales*, under which are claſſed eleven different ſpecies. The branchioſtege membrane contains on each ſide eight bones. The belly is very acute, or, as it were, ſerrated, from the ſingular ſituation of the ſcales; and the back-fin is placed ſomewhat nearer to the ſnout than to the tail.

There are four ſpecies of this genus, enumerated by Artedi; of which the firſt is our common *herring*; the ſecond, the *ſprat*; the third, the *ſhad*; and the fourth, the *anchovy*. See *Tab.* IV. of *Fiſhes*, N° 39.

CLUSIA, in *Botany*, the *baſtard-tree*, a genus of the *polygamia monœcia* claſs. Its characters are theſe: the flower hath five large roundiſh concave ſpreading petals: in the bottom is ſituated a globular nectarium, including the germen, which is pervious at the top. It hath a great number of ſingle ſtamina: the oblong oval germen is terminated by a plain ſtar-like ſtigma, with ſix obtuſe indentures, which afterward becomes an oval capſule, with ſix furrows and ſix cells, opening with ſix valves, which ſpread in form of a ſtar, including many angular ſeeds fixed to a column, ſurrounded with pulp. There are two ſpecies, natives of the ſouthern parts of America.

CLUSTER-*pulſe*. See POLYPE.

CLUTIA, in *Botany*, a genus of the *dioecia pentandria* claſs, and deriving its name from *Clute*, a curious botaniſt. Its characters are theſe: it is male and female in different plants: the male flowers have five heart-ſhaped petals, which are ſhorter than the empalement, and ſpread open; they have five exterior nectariums, which are ſituated in a circle at the bottom of the petals, and five interior, which are ſituated within the other; they have five ſtamina ſituated in the middle of the ſtyle: the female flowers have petals like thoſe of the male; theſe have five double exterior nectariums, but no interior: they have a roundiſh germen which afterward becomes a globular capſule, with ſix furrows and three cells, each containing a ſingle ſeed. There are four ſpecies.

CLYDON, from κλυδω, *I cauſe to fluctuate*, in *Medical Writers*, is uſed for the fluctuation of food taken into the ſtomach, ariſing from the laxity or weakneſs of its fibres; and of the abdominal muſcles.

CLYMENUM, in *Botany*, the name of a genus of plants, the characters of which are in all reſpects the ſame with thoſe of the ſaltwyas; only in this plant there grow but two leaves on each rib, whereas on the *cynocrambe* there are ſeveral pairs: the rib finally terminating in a clavicle or tendril. Tournefort enumerates three ſpecies. Inſt. p. 396.

CLYPEOLA, in *Botany*, *treacle-muſtard*; a genus of the *tetradynamia ſiliculoſa* claſs. Its characters are theſe: the flower hath four oblong entire petals, placed in form of a croſs, and ſix ſtamina, two of which ſtanding oppoſite, are ſhorter than the other; in the centre is ſituated a roundiſh compreſſed germen, which afterwards becomes an orbicular pod, compreſſed, erect, and indented at the top, with the longitudinal ſiſſure, opening in two cells, containing round compreſſed ſeeds. There are four ſpecies, natives of the ſouthern parts of Europe.

CLYPEUS, or CLYPEUM, *Buckler*; a piece of defenſive armour, which the ancients uſed to carry upon the arm, to ſecure them from the blows of their enemies.

The figure of it was either round, oval, or ſexangular; in the middle was a boſs of iron, or of ſome other metal, with a ſharp point. See SHIELD.

CLYSSUS, a chemical production, conſiſting of the moſt efficacious principles of any body, extracted, purified and then remixed.

A *cloſſus* is when the ſeveral ſpecies, or ingredients of a body are prepared and purified ſeparately, and then combined again. Thus, ſalt, ſulphur, oil, ſpirit, and mercury, reaſſembled into one body, by long digeſtion, &c. make a *cloſſus*.

CLYSSUS *of Antimony*, denotes the vapours reſulting from the detonation of nitre with *antimony*.

CLYSSUS *of Nitre*, ſignifies the vapours ariſing from the detonation of *nitre* with charcoal.

CLYSSUS *of Sulphur*, denotes an acid liquor obtained by the detonation of *ſulphur* with nitre, and is ſimilar to that of antimony. Particular virtues were formerly aſcribed to theſe liquors, of which they are now found to be deſtitute.

The rapidity and violence with which NITRE detonates, in certain circumſtances, may occaſion a violent exploſion, and the rupture of the veſſels. To prevent ſuch accidents, and the diſagreeable conſequences of them, the inflammable matter ſhould not be very intimately mixed with the nitre, the DETONATION of which is proportionably ſtronger and quicker as the mixture is more exact and entire; a ſmall quantity only of the mixture ſhould be detonated at a time, and no addition ſhould be made till the detonation of the firſt ſmall quantity be altogether finiſhed.

There is alſo a *cloſſus* of vitriol, which is a ſpirit drawn by diſtillation from vitriol diſſolved in vinegar. This is uſed by phyſicians in various diſeaſes, and to extract the tinctures of ſeveral vegetables.

CLYSSUS is alſo uſed among ſome authors for a kind of *ſapa*, or extract, made with eight parts of the juice of a plant, and one of ſugar, ſeethed together into the conſiſtence of honey.

CLYSTER, in *Medicine*, a liquid remedy, or injection, introduced into the inteſtines by the fundament; in order to refreſh them, looſen the belly, moiſten and ſoften the feces, diſſipate wind, &c.

The word comes from κλυζω, *lavo, abluo, I waſh*. *Cloſters* are ſometimes made of bran-water and milk, but more uſually of decoctions of certain herbs; to which are added honey, brown ſugar, and ſometimes lenitive electary; and other drugs. *Cloſters* are emollient, carminative, lenitive, aſtringent, laxative, anodyne, uterine, antiſeptic, nouriſhing, &c.

In Holland, England, and Germany, *cloſters* are given by means of a pipe of ivory faſtened to a bladder, the patient being made to lie on one ſide, and to retain the liquor as long as he is able. The French, and ſome other nations, uſe a ſort of ſyringe, holding a pint, or more for this purpoſe; and this is evidently the better method, as, by this means, liquors are not only more quickly, but more forcibly thrown into the inteſtines, and are made to paſs further than by the Engliſh method. Some alſo uſe a leather pipe of half an ell long, which is faſtened to the ſyringe, and to the pipe introduced into the anus, and by this means the patient can give himſelf the *cloſter*.

Great care muſt be taken in adminiſtering *cloſters*, that the liquor be neither too hot nor too cold, but only tepid, or moderately warm, both extremes being capable of doing great injury to the boweſs.

Cloſters are properly uſed, 1. Where a coſtive ſtate is to be removed, and the body rendered ſoluble. 2. For alleviating the pains ariſing from the colic, ſtone, dyſentery, violent hæmorrhoids, and other diſorders of the abdomen. 3. For making revulſions from the head in apoplexies, lethargies, deliriums, and other diſorders of that part. 4. In difficult labours, whether the fœtus be dead or alive, eſpecially if the mother be coſtive, as alſo for expelling the ſecundines, when they adhere too firmly to the womb, or remain longer behind than they ought. 5. *Cloſters* are able to nouriſh perſons, who, from their power of deglutition being impaired, muſt otherwiſe periſh of hunger; and for this purpoſe nouriſhing liquors muſt be uſed, ſuch as broths, and the like, to which a little wine may be added, if the nature of the caſe will allow it.

A very remarkable *cloſter*, which ſeems to have been invented by the Engliſh, and, from us, propagated to other nations, is the ſmoak of tobacco. When all other *cloſters* have proved ineffectual for rendering the body ſoluble, in the iliac paſſion, and ſome other caſes, the end has ſometimes been obtained by injecting a large quantity of the ſmoak of tobacco, by means of a proper inſtrument. There are ſeveral kinds of inſtruments invented for this purpoſe, and deſcribed by Bartholine, Valentini, and others. The general method of making them is this: a box is provided capable of holding about half an ounce of tobacco; this has two pipes, the one made of ivory, to be introduced into the anus, the other reſembles the mouth-piece of ſome muſical inſtruments, and, by means of blowing into this, the ſmoak of the lighted tobacco in the box is driven forcibly up the anus: this is to be continued till the patient find a ſtrong ſtimulus to go to ſtool, and if once doing it does not produce

duce the effect, it is to be repeated till it succeeds. This is of prodigious service in obstinate incarcerated hernias of the scrotum. And Heister observes, that he always found it succeed so well, as never to reduce him to a necessity of having recourse to the knife. When tobacco alone will not answer the purpose, other more stimulating ingredients may be added to it in the box; and this acrid smoke so contracts the diameters of the intestines, that the prolapsed ones are much more easily drawn back into the abdomen, than they otherwise could be. See FUMIGATOR.

Clysters of the liquid kind are prepared of different ingredients, according to the intentions proposed to be answered, and as, in practice, those intentions are principally four, to alter and change, to evacuate, to corroborate, and to mitigate pain; so *clysters* are accordingly contrived to soften the indurated faeces, to correct the acrid, acid, and saline recrements, to evacuate the contents of the large intestines, and to corroborate the weak and languid fibres of the intestines in general, and so strengthen their peristaltic motion; or lastly, to mitigate the spasms of their contracted coats, and relax their constricted fibres.

When *clysters* are intended to lubricate and soften the dry and indurated faeces, or to obtund acrid, saline, corrosive, and acrid humours, in the large intestines, they are to be prepared with the emollient ingredients, such as broths, milk, decoctions of emollient herbs, as marshmallows, and the like, with manna, oil, and the like assistances; and, as all these ingredients have a power of relaxing spasms, as well as of softening the faeces, *clysters* of this kind are extremely beneficial in all spasmodic disorders, fevers, pains, and cases where the patient is costive, whether it be from spasms of the intestines, or from induration of the faeces.

When the intention is at once to evacuate the intestines, and to carry off stagnant humours, then salts, added to the decoctions, admirably answer the end. Glauber's salt, Epsom salt, and sal gem, are all useful for these purposes: in some cases also sal ammoniac; and experience shews, that half an ounce of one of these salts, in a *clyster*, will do more toward evacuating the contents of the bowels than four ounces of any of the common purging electaries. Corroborating *clysters* are to be prepared of the four greater hot seeds, bay and juniper-berries, the carminative oils, &c. and in violent disorders of the head, such as apoplexies, palsies, lethargies, and the like, rue, marjoram, thyme, rosemary, and lavender flowers, are conveniently added to *clysters*; as are mugwort, pennyroyal, feverfew, and the like. When there is any disorder of the womb, or suppression of the menses, the *clysters* of the sedative kind are principally to be composed of oil, or the like fatty ingredients, and such as consist purely of oil alone, are found often to do wonders, in allaying the most violent pains.

CLYSTERS, *nourishing*, are those applied with design to nourish persons who cannot take in any aliment at the mouth. Hildanus tells us, that Aubery, a physician, fed a woman of quality 6 weeks with *clysters* composed of capons flesh, and other fowls, boiled to a pulp, with yolks of eggs, applied twice a day. It is difficult, however, to conceive how *clysters* should nourish; and the case is briskly controverted in the Memoirs of the French Royal Academy, between M. Littre, who maintains the negative, and M. Lemery.

The arguments used by the first are, that the materials of the *clyster*, for want of the ordinary passage, want the preparation necessary to be converted into nourishment; and beside that, are not of the road for getting into the blood: for in the first of the large intestines, called the *cæcum*, is a valve called *valvula Bauhini*, to oppose the passage of any food into the small intestines: and there are no lacteal veins in the large intestines, but abundance in the small ones. But the lacteals are the only canals that can carry the chyle into its receptacle, and the chyle is the only substance that can nourish.

To this M. Lemery objects, that very great anatomists have found lacteals in the large intestines, though but in small numbers: but though there were none, adds he, the meseraic veins are indisputably distributed to these intestines; and may easily be supposed to pump up the most subtil part of a broth, and carry it into the blood. M. Mery has passed a liquor immediately from the large intestines into these veins: besides, the animal machine is so porous throughout, that nature seems to have intended an extraordinary way of conveying fluids into the blood, to be ready on extraordinary occasions.

This notion will appear incontestible, if M. Morin's theory of the passage of the urine be admitted.

Herodotus says, the Egyptians were the first who invented *clysters*; or rather who applied them to use. Galen and Pliny add, that they took the hint from a bird of their country, called *ibis*, which they frequently observed to make this kind of injection with its beak, and afterwards to discharge itself several times. Others say, that the *ecchis*, or stork, first taught men the application of *clysters*.

CLYSTERS, *Uterine*, are injections into the uterus, or womb.

CLYSTERS, *Catholicon for*. See CATHOLICON.

CNEMODACTYLÆUS, in *Anatomy*, a muscle, otherwise called *extensor tertii internodii digitorum*. See EXTENSOR *tertii internodii*, &c.

CNEORUM, in *Botany*, *widow-wail*; a genus of the *triandria monogynia* class. Its characters are these: the flower hath three narrow oblong petals, and three stamina which are shorter than the petals. In the centre is situated an obtuse three-cornered germen, which afterwards becomes a globular dry berry with three lobes, having three cells, each containing one round seed. We have but one species.

CNICUS, in *Botany*, *Blessed Thistle*; a genus of the *syngenesia polygamia æqualis* class. Its characters are these: the empalement of the flower is scaly; the flower is composed of several hermaphrodite florets, which are uniform; these are funnel-shaped, and cut at the top into five equal segments, having five short hairy stamina; in the centre is situated a short germen crowned with down, which afterward becomes a single seed crowned with down, and shut up in the empalement. There are four species.

The first sort is the *carduus*, which is used in medicine; this is an annual plant, which perishes soon after the seeds are ripe. It grows naturally in Spain, and in the islands of the Archipelago, but is cultivated in gardens in England to supply the market. This plant, which is the *centaurea benedicta* of Linnæus, is so well known as to require no description. See *Blessed* THISTLE.

COA, in *Natural History*, the name given by Plumier to a genus of plants, called by Linnæus HIPPOCRATEA.

COACERVATUM *vacuum*. See VACUUM.

COACH, a vehicle for commodious travelling, suspended on leathers, &c. and moved on wheels.

In England, and throughout Europe, the *coaches* are drawn by horses, except in Spain, where they use mules. In a part of the East, especially the dominions of the great mogul, their *coaches* are drawn by oxen. In Denmark they sometimes yoke rein-deer in their *coaches*; though this is rather for curiosity than use.

The *coachman* is ordinarily placed on a seat raised before the body of the *coach*. But the Spanish policy has displaced him in that country by a royal ordinance; on occasion of the duke d'Olivarez, who found that a very important secret whereon he had consulted in his *coach*, had been overheard, and revealed by his coachman: since that time, the place of the Spanish coachman is the same with that of the French flage-coachman, and our postilion, viz. on the first horse on the left.

The invention of *coaches* is owing to the French; yet they are not of any great antiquity even in France; scarce reaching earlier than the reign of Francis I.

Their use, at their first rise, was only for the country: and authors observe, as a thing very singular, that there were at first no more than two *coaches* in Paris; the one that of the queen, and the other that of Diana, natural daughter of Henry II. The first courtier who had one, was Jean de Laval de Bois Dauphin, whose enormous bulk disabled him from travelling on horseback.

Coaches were first introduced into England in 1580, by Fitz-Allen, earl of Arundel, and they were in general use by the nobility and gentry at London about the year 1605. Anderson's Hist. Com. vol. 1. p. 421. 469.

Coaches have had the fate of all other inventions to be brought by steps and degrees to their perfection; at present they seem to want nothing, either with regard to ease, or magnificence.

Louis XIV. of France made several sumptuary laws for restraining the excessive richness of *coaches*, prohibiting the use of gold, silver, &c. therein; but they have had the fate to be neglected.

Coaches may be divided into two kinds: those that have iron bows, or necks, and those that have not; both the one and the other have two principal parts, the body, and the train, or carriage. See CRANE-*neck*, and PERCH. The *body* is that part where the passengers are disposed; and the *carriage* is that which sustains the body, and to which the wheels are fastened, that give motion to the whole machine.

Coaches are distinguished, with regard to their structure, into *coaches*, properly so called, *chariots*, *calashes*, and *berlins*. With regard to the circumstances of their use, &c. we distinguish *stage-coaches*, *hackney-coaches*, &c.

Chariot, or *Half-*COACH, is a kind of *coach* that has only a seat behind; with a stool, or stool, before. When these are very gay, richly garnished, and have five glasses, they are called CALASHES. The duty on every *coach*, chariot, &c. with four wheels, kept by any person for his own use, or to let out to hire, is 6*l.* yearly, and for every chaise, &c. with two wheels, 4*os.* yearly. And a farther sum of 20*s.* if the chaise, &c. is kept by any person for his own use,

ute. 20 G. II. cap. 10. 16 Geo. III. cap. 34. 21 Geo. III. cap. 68.

Hackney-Coaches, thofe expofed to hire, in the ſtreets of London, and ſome other great cities, at rates fixed by authority.

Theſe firſt began to ply in the ſtreets of London, or rather waited at inns, in 1625, and were only twenty in number: but they were ſo much increaſed in 1635, that king Charles iſſued an order of council for reſtraining them. In 1637 he allowed fifty *hackney-coaches*, each of whom might keep twelve horſes. In 1653 their number was limited to two hundred, and in 1654 extended to three hundred. In 1661 four hundred were iſſued at 5*l.* annually for each. In 1694 ſeven hundred were allowed, and taxed by the 5 and 6 W. and M. at 4*l.* per annum each. See 20 Geo. II. cap. 10.

Thoſe in London are under the direction of five commiſſioners, who take cognizance of all cauſes and diſputes ariſing thereupon.

By 9 Anne, cap. 23. eight hundred hackney-*coaches* were allowed in London and Weſtminſter; but by 11 Geo. III. cap. 24. the number is increaſed to one thouſand; which are to be licenced by commiſſioners, and pay a duty of 5*s.* a week, and alſo by 24 Geo. III. cap. 27. the ſame additional duty, for each licence to the crown: and if any perſon drive a hackney-*coach* without licence, he ſhall forfeit 5*l.* And coachmen uſing abuſive language, or demanding more than their fare, are liable to a penalty not exceeding 20*s.*

The ſtat. 1 Geo. I. ſtat. 2. cap. 57. ordains, that where coachmen refuſe to go at, or exact more for their hire than is limited by the act, they ſhall forfeit not exceeding 3*l.* nor under 10*s.* and the commiſſioners have power to determine it. The fare of hackney-coachmen in London, or within ten miles thereof, is by 24 Geo. III. cap. 27. 1*s.* 6*d.* per day, allowing twelve hours to the day, and for every hour exceeding twelve 1*s.* 6*d.*; and by the hour, not above 1*l.* 6*d.* for the firſt, and 1*s.* for every hour after, and none are obliged to pay above 1*l.* for the uſe of any hackney-*coach* for any diſtance, not mentioned in the act, which is not above one mile and four furlongs; nor above 1*s.* 6*d.* for any diſtance not exceeding two miles, and ſo increaſing 6*d.* for every half mile. Hackney-coachmen are compellable to go any where within the diſtance of ten miles from London, or Weſtminſter.

7 Geo. III. cap. 46. 12 Geo. III. cap. 49.

Coachmen are to have numbers on their *coaches*, on tin plates, or ſhall forfeit 5*l.* and refuſing any perſon to take the numbers of their *coaches*, or giving a wrong number, incurs the forfeiture of a ſum not exceeding 40*s.* None but licenſed *coaches* ſhall ply at funerals for hire, under the penalty of 5*l.* Drivers of hackney-*coaches* are to give way to perſons of quality, and gentlemen's *coaches*, on the penalty of 10*s.* By 11 Geo. III. cap. 28. every hackney-*coach* is to be provided with cheque-ſtrings; and every coachman plying without them, incurs a penalty of 5*s.* On Sundays there were formerly only 3 hundred and ſeventy-five *coaches* to ply, which were to be appointed by the commiſſioners; but their number is now unlimited.

COACHES, *Stage*, are thoſe appointed for the conveyance of travellers from one city or town to another; and theſe pay an annual tax of 5*l.* 16 G. III. c. 34. See POST *horſes*.

COACH, in *Sea Language*, denotes a chamber or apartment near the ſtern, in a ſhip of war.

COADJUTOR, *Fellow Helper*, is properly uſed for a prelate joined to another, to aſſiſt him in the diſcharge of the functions of his prelature; and even, in virtue thereof, to ſucceed him.

The *coadjutor* has the ſame privileges with the biſhop himſelf. *Coadjutors* were formerly appointed by kings, for archbiſhops and biſhops grown old, or abſent, and not able to ſuperintend their dioceſes. But the right of appointing *coadjutors*, in Romiſh countries, is now reſerved to the pope alone.

Coadjutors are alſo called biſhops *in partibus infidelium*; becauſe it is neceſſary the *coadjutor* of a biſhop ſhould be a biſhop himſelf; without which, he cannot diſcharge the office. See SUFFRAGAN.

The uſe of *coadjutors* in the church is borrowed from the Roman empire. Symmachus ſpeaks of aſſiſtants, or *coadjutors*, given to magiſtrates; and calls them *adjutores publici officii*.

The popes, formerly, made a ſhameful abuſe of the *coadjutorſhip*: ſome they granted to children, and young people, with this clauſe, *dum ingreſſus fuerit: till they ſhall be capable of entering upon the adminiſtration of the office.* Others they granted to perſons not in orders, with this clauſe, *dum accedat*: and others to perſons at a great diſtance, with this clauſe, *dum egrediatur*: but the council of Trent has ſhown the pope's hands, by adding abundance of reſtrictions to the article of *coadjutors*.

In nunneries they have *coadjutreſſes*, who are religious, nominated to ſucceed the ABBESS, under pretence of aiding her in the diſcharge of her office.

COADUNATÆ, in *Botany*, an order of plants in the *fragmenta methodi naturalis* of Linnæus.

COAGMENTATION, is uſed, among *Chemiſts*, for the act of melting down a matter, by caſting in certain powders, and afterwards reducing the whole into a concrete, or ſolid.

COAGULABLE *lymph of the blood*. See LYMPH.

COAGULATION, in *Chemiſtry*, denotes certain operations, in which fluid bodies become ſolid; as for example the CRYSTALLIZATION *of ſalts*. In a general ſenſe, it ſignifies the condenſing, or thickening of a fluid matter, without its loſing any of the ſenſible parts which conſtituted its fluidity; as we frequently ſee in blood, milk, &c.

We diſtinguiſh between that kind of thickening which is effected by the evaporation of the fluid parts of a body, as in clay, which condenſes in the ſun, properly called *hardening*; and that effected without any loſs of its ſubſtance, called *coagulating*. Thus we ſay, that cold *coagulates* blood, &c.

There is one general term, viz. *concretion*, which includes *coagulation*, condenſation, and hardening.

By injecting an acid into the vein of an animal, the blood coagulates; which ſtops its circulation, and brings immediate death. Several poiſons have their effect by inducing a *coagulation*.

COAGULATION is performed by ſix different agents in the general operations in chemiſtry, and by each of theſe in ſeveral ways.

1. It is performed with water, by congealing, cryſtallizing, and precipitating; as in the *mercurius vitæ*, and ſome other ſuch preparations.

2. With oil, which, by the force of fire, unites to itſelf ſulphur, ſalts, and metals.

3. With alcohol, upon the ſpirit of ſal ammoniac, the white of eggs, the ſerum of the blood, &c.

4. With acid and alkali, growing ſolid together, as in the *tartarum vitriolatum*.

5. With fixed alkali, as in milk. *And*, 6. With acid ſalts, as in milk, ſerum, and whites of eggs.

COAGULUM, the *coagulum* of the Latins, the πυτια, and the *caſeus* of the Greeks, are the ſame with what in Engliſh we call RUNNET.

COAGULUM, in *Chemiſtry*, denotes curdled concretions formed by the mixture of two liquors; ſuch as the precipitate of ſilver in the formation of LUNA *cornea*, &c.

COAGULUM *alumineuſum, alum curd*, a form of medicine, preſcribed long ſince by Riverius, and now taken into the London diſpenſatory. It is ordered to be made by putting whites of eggs into a pewter or earthen veſſel, and ſtirring them about with a large lump of alum till they are coagulated.

COAK denotes a ſort of foſſil *coals* that have undergone a ſimilar operation to that of charring; whereby they are deprived of their phlegm, acid, and the greateſt part of their oil; and are therefore uſed in furnaces for ſmelting iron ore, and for drying malt.

COAL, a black, ſulphureous, inflammable matter, dug out of the earth; ſerving in many countries as the common fuel. This we ſometimes call *pit-coal*, *foſſil-coal*, *earth-coal*, and *mineral coal*, to diſtinguiſh it from that kind made in imitation hereof, by half burning the branches and roots of trees; properly called *charcoal*, and *wood-coal*: in places, whither *coal* is brought by ſea, it is called *ſea-coal*. *Coal* is one of the cloſs of opake inflammable foſſils, and is diſtinguiſhed from the reſt by being of a gloſſy hue, ſoft, friable, not fuſible, but eaſily inflammable, and leaving, after burning, a large reſiduum of whitiſh aſhes. It ſeems to conſiſt of petrol intimately mixed with a ſmall proportion of earth, moſtly argillaceous, ſeldom calcareous, and often with pyrites.

We have three ſpecies of this foſſil in common uſe for our fuel in different parts of the kingdom. 1. A hard duſky black *coal*. This is in common uſe with us, under the name of *Scotch coal* (though that name is not reſtrained to this ſpecies alone, but the following is alſo ſometimes known among the dealers by the ſame appellation): this is uſually of a rough and duſty ſurface, and is leſs gloſſy, when freſh broken, than any other *coal*. It burns briſkly, and turns wholly to aſhes, not leaving any cinders. There is a vaſt deal of this dug about Lymington in Hampſhire, whence it is often called by the dealers *Lymington coal*. 2. A hard gloſſy coal. This is ſometimes ſold in London with the former, under the name of *Scotch coal*, but it is more determinately known in many parts of the kingdom by the name of *Iriſh coal*. It is diſtinguiſhed from the others by its great hardneſs, and gloſſy black, where freſh broken, and is much eſteemed for burning with leſs ſmoke than any other kind; and in ſome parts of this kingdom, and generally in Wales, they uſe it to make malt. 3. The third is our common *coal*, too well known to need any deſcription, but diſtinguiſhed from all the others by its friatery friable ſtructure, and its great gloſs when freſh broken. It is common in moſt countries of Europe; though the Engliſh *coal* is of moſt repute, even in foreign countries;

notwithstanding some pretend that of the Foſſe in Auvergne not to be inferior to it.

The common *pit-coal* contains a large quantity of ſal ammoniac. The mouths of our ſubterranean fires in the *coal* countries all afford it, and it is even found in brick-kilns, where nothing but coal is burnt with the clay. It may appear ſtrange indeed to ſome, that this black ſubſtance ſhould yield ſo white and fine a ſalt; but chemiſts know that all volatile ſalts whatever may be freed from their factor and intenſe colour, by tranſmuting them into a ſal ammoniac, by the mediation of an acid, as the ſpirit of ſalt, vitriol, or alum; after ſublimation with which, they become white, ſweet, and pure. The reaſon of this change is, that though the ſalts always carry over ſome of the fœtid oil with them in a ſtate of volatility, yet being thus in a manner fixed, the fœtid oil muſt by force of fire riſe firſt, leaving the ſubſequent ſal ammoniac without ſmell: though it is ſtill a doubt, whether the ſalt be the better or the worſe for this labour. Phil. Tranſ. N° 130. The goodneſs of *coal* is found by its being as free as poſſible from ſulphur, in its heating iron well, and by its burning a long time in the ſmith's forge. The Engliſh *coal* has this property peculiar to it, that it never lights ſo perfectly, as when water is thrown on it.

The commerce of *coal* is very conſiderable in England; great quantities are exported to France, &c. by way of Rouen. The meaſure whereby it is ſold is the chaldron, containing thirty-ſix buſhels, or a little more than twenty-eight hundred weight: allowing a chaldron, Newcaſtle meaſure, to be fifty-three hundred weight, and eight Newcaſtle chaldrons to be equal to fifteen London chaldrons. However the weight of a chaldron of *coals* has been variouſly eſtimated. It appears that the mean quantity of *coal*, annually imported into London, deduced from an eſtimate of ten years, viz. from 1770 to 1779, is 658,853 chaldrons, or about 722,396 tons.

Anderſon, in his Hiſtory of Commerce, fixes the introduction of Newcaſtle *coal* into London at ſo early a period as the year 1305.

In the Memoirs of the French Royal Academy, we have an account of two experiments on the common *pit-coal*, made by M. Des Landes while in England, and which he thinks have eſcaped the Engliſh Philoſophers.

1ſt, Pounding ſome *coal*, and putting half an ounce of it in a phial of water, the mixture became quite black: but leaving it expoſed to the air in a window, during a cold winter night, in the morning it was found frozen, and turned to a reddiſh colour. The reaſon of the change muſt be, that the froſt had diſengaged the ſulphurs of the *coal*; though one would little expect ſuch an effect from it.

2dly, From an infuſion of cinders in brandy, mixed with iron filings, ariſes a black tincture, which brightens in proportion as it is heated: when arrived at the heat of boiling, the colour becomes perfectly fine and laſt, and gives a dye to cloth, which no workman can imitate.

The ſtrata, or veins of *coals* in *coal-pits*, are numerous, and their order, quality, &c. are very different in different places. In thoſe at Dudley, in Staffordſhire, the ſtrata, below the turf, are two or three clays, a grey ſtone, and a hard grey rock: then they are expreſſed in the Philoſophical Tranſactions, to be, 1. *coal*, called *bomb-coal*; 2. *ſlipper-coal*, leſs black, and ſhining than the former; 3. *ſplin-coal*, more black and ſhining; 4. *ſtone-coal*, much like *canal-coal*.

Theſe ſtrata have between each of them a bat, or bed, of a peculiar ſort of matter, about the thickneſs of a crown piece. Below theſe are divers metalline ſtrata; as a black ſubſtance, called the *dun-row bat*; a grey iron ore, called the *dun-row iron-ſtone*; a bluiſh bat, called *white-row*; a blackiſh iron ore, called *white-row grains*; or *iron-ſtone*; a grey iron ore, called *mid-row grains*; a black foſſil ſubſtance, called the *gublin-bat*; a black iron ore, called *gublin iron-ſtone*; a dark grey iron ore, called *rubble iron-ſtone*; and laſtly the *table-bat*.

Then, 5. comes a coarſe ſort of *coal*, called *foot-coal*; a black brittle bat; 6. the *heathen-coal*; 7. a ſubſtance like coarſe *coal*; though called a *bat*, becauſe it does not burn well; and 8. *bench-coal*.

COAL, *Bovey*, ſo called from Bovey Heath in Devonſhire, where it is found. Dr. Mills, whoſe paper of remarks upon it is publiſhed in the Philoſophical Tranſactions, vol. li. part ii. N° 83. anno 1760, thinks it is the ſame with the foſſil wood, or as the miners call it, the *foſſile wood*, deſcribed by Hoffman, ibid. vol. xlix. p. 506. ib. N° 85.

COAL, *Canal*. See AMPELITES.

COAL-*bulls*, balls made of *coal* and clay, or ſlack, for firing. Theſe balls are made with $\frac{1}{3}$ of clay, without ſand or gravel, and $\frac{2}{3}$ of *coal-duſt*, or CULM, well mixed, and formed either into round balls or into bricks. This *coal-duſt* being the refuſe of the mine, makes this ſort of firing cheap. See Phil. Tranſ. N° 460. ſect. 3.

COAL-*mines*.—Wilfully ſetting *coal-mines* on fire, is by ſtatute felony, without benefit of clergy. 10 G. II. c. 32. § 6.

COAL-*pot*. See SOOT.

COAL-*ſpirit*. *Coals* diſtilled in a retort not only afford a phlegm, and black oil, but a ſpirit, which is apt to force the lute and break the glaſſes, and will catch fire at the flame of a candle. We are told that bladders may be filled with this ſpirit, or inflammable AIR, which may be kept a conſiderable time. If the bladder be pierced with a pin, and ſqueezed near the flame of a candle, the ſpirit will take fire, and afford an amuſing ſpectacle. See Phil. Tranſ. N° 452. ſect. 5. See DAMPS.

Small-COAL is a ſort of CHARCOAL, prepared from the ſpray, and bruſh-wood, ſtripped off from the branches of coppice-wood, ſometimes bound in bavins for that purpoſe, and ſometimes prepared without binding.

The wood they diſpoſe on a level floor, and ſetting a portion of it on fire, they throw on more and more, as faſt as it kindles; whence ariſes a ſudden blaze, till all be burnt that was near the place. As ſoon as all the wood is thrown on, they caſt water on the heap from a large diſh or ſcoop; and thus keep piling the heap of glowing *coals*, which ſtops the fury of the fire, while, with a rake, they ſpread it open, and turn it with ſhovels till no more fire appears. When cold, the *coals* are put up into ſacks for uſe.

COALESCENCE, the union or growing together of two bodies before ſeparate. It is principally applied to ſome bones in the body, which are ſeparate during infancy, but afterwards grow together; or to ſome morbid union of parts, which ſhould naturally be diſtinct from each other. Thus there is a *coaleſcence* of the ſides of the vagina, anus, and nares; of the eye-lids, fingers, toes, and many other parts.

COALITION, the re-union, or growing together of parts before ſeparated. See CONGLUTINATION, &c.

COAMINGS, in *Ship-Building*, are thoſe planks, or that *frame*, forming a border round the hatches, which raiſe them up higher than the reſt of the deck. Loop-holes for muſkets to ſhoot out at, are often made in the *coamings*, in order to clear the deck of the enemy when the ſhip is boarded.

COANE, among the Greeks, a name given to a peculiar ſpecies of *tuba* or *turis*, which was always found in a tubular form. It has its name from κωνη, a word uſed to expreſs a ſort of cylindric tube, into which the melted braſs was received from the furnace, and in which it was ſuffered to cool. In cooling, it always depoſited a ſort of recrement on the ſides of the veſſel or tube, and this was the *turis* called *coane*.

COAST, a ſea-ſhore, or the country adjoining to the edge of the SEA.

COAST-*Mary*, or COST-*Mary*, in *Botany*. See TANEY.

COASTING, that ſort of navigation, wherein the places ſailed to and from, are not far diſtant; ſo that a ſhip may fail in ſight of the land, or within ſounding, between them.

Such are the voyages on the *Narrow*, or Britiſh ſeas, between *England*, Holland, and France; alſo thoſe about the Britiſh ſeas, and in the Mediterranean, &c.

For the performance hereof, there is only required good knowledge of the land, of the time and direction of the tide, of the reigning winds, of the roads and havens, the uſe of the compaſs, and of the lead, or ſounding-line.

COASTING *Pilot*. See PILOT.

COASTING, in *Agriculture*, &c. denotes the tranſplanting of a tree, and placing it in the ſame ſituation, with reſpect to eaſt, weſt, north, &c. as it ſtood before.

COAT, in *Anatomy*. See TUNICA and EYE.

COAT *of arms*, in *Heraldry*, a cloak, or habit, worn by the ancient knights over their arms, both in war, and at tournaments; and ſtill borne by the heralds at arms.

It was a kind of ſurcoat, reaching only as low as the navel; open at the ſides, with ſhort ſleeves; ſometimes furred with ermines and vair; whereon were applied the armories of the knight, embroidered in gold and ſilver, and enamelled with beaten tin, coloured black, green, red, and blue: whence the rule, never to apply colour on colour, nor metal on metal.

The *coats of arms* were frequently open, and diverſified with bands and fillets of ſeveral colours, alternately placed, as we ſtill ſee cloths ſcarletted, watered, &c. hence they were alſo called *dividas*, or *diviſes*, as being divided or compoſed of ſeveral pieces, ſewed together; whence the words *feſſe*, *pale*, *chevron*, *bend*, *croſs*, *ſaltier*, *lozenge*, &c. which have ſince become honourable pieces, or ordinaries of the ſhield. See each in its place, BEND, CROSS, FESSE, &c.

Coats of arms, and *banners*, were never allowed to be worn by any but knights, and ancient nobles. They were not introduced into SEALS, nor indeed to any other uſe, till about the reign of Richard I. who brought them from the croiſade in the Holy Land, where they were firſt invented and painted on the ſhields of the knights, to diſtinguiſh the variety of perſons from every nation,

who, when completely clad in steel, could not otherwise be known. Blackst. Com. vol. ii. p. 396.

COAT *of Mail, jargon de mail*, a kind of armour made in form of a shirt, consisting of iron rings wove together net-wise. See MAIL.

COAT, in a *Ship*, a piece of tarred canvas put about that part of the masts, or bowsprit, which joins to the deck, or lies over the head of a ship. They are also put about the pumps at the decks, that no water may go down there; and they are also used at the rudder's head.

COAT likewise denotes the materials with which the ship's sides and masts are varnished, to preserve them, as tar, &c.

COAT, in *Zoology*. See RACKOON.

COATING, in *Chemistry*. See LORICATION.

COATING, in *Electricity*, denotes a covering of sheet-lead, tin-foil, or any other conducting substance, applied to the Leyden phial, or to any electric body, and serving to accumulate the electricity, to increase the force of the CHARGE, and to facilitate the operation of *discharging*. The first person who discovered the use of *coating* in electrical experiments, was Dr. Bevis: it was first applied to the Leyden phial, but has been since extended to a great variety of other electrical substances. When glass plates, or *jars*, sufficiently wide at the neck, are to be *coated*, the best method is to *coat* them with tin-foil on both sides, which may be fixed on the glass with varnish, gum-water, bees-wax, &c. but if the internal *coating* cannot be conveniently introduced, brass filings may be used, and stuck to the surface of the glass with gum-water, or beet-wax, &c. However, care should be taken that the opposite *coatings* do not come too near to each other: that of glass jars should be kept at the distance of, at least, two inches from the top. Glass phials may be *coated* with silver, by burning it into the very substance of the glass, so that nothing can remove it without injuring the glass, together with the metal. Glass, thus *coated* and burnished, exhibits an elegant appearance, has no inequalities in its surface, and is capable of being charged as highly and readily, as when *coated* with tin-foil. Glasses of this kind will discharge spontaneously, and are apt to burst by the explosion. Phil. Trans. vol. lxvii. part i. p. 108.

Electric substances, which are easily melted, such as resin, sealing-wax, &c. may be easily *coated* by pouring them on a circular plate of tin-foil, placed on a marble table, and two inches less in diameter than the electric plates proposed; and then pressing them with a pane of glass, or any thing else with a smooth surface, to the requited dimensions. When this is done, let another piece of tin-foil, of equal size with the former, be applied to the upper surface, by pressing it gently with a hot iron. Electric substances in a fluid state may be *coated* by fixing a piece of tin-foil to the bottom of an earthen dish, reaching within an inch of the sides, and by introducing, through a hole in the bottom, a slender wire, so as to communicate with the tin-foil; then pour the fluid electric into the dish; and let a brass plate of the same dimensions with the tin-foil be suspended from a glass arm, or from the prime conductor, and touch the surface of the electric. A plate of air may also be *coated*, by means of two smooth circular boards, about three or four feet in diameter: let one side of each of these boards be *coated* with tin-foil, which should be pulled down, and burnished, and turned over the edge of the boards. Then insulate the boards in an horizontal position, and with their *coated* sides turned towards each other, and so disposed, that they may be easily moved to or from each other. If these boards are placed at the distance of about an inch asunder, they may be used exactly as the *coatings* of a pane of glass. It will be shewn that the electric matter does not reside in the *coating* of a charged electric under the article LEYDEN *Phial*.

COB *nut*. See HAZLE.

COBALT, in *Natural History*, a dense, compact and ponderous mineral, very bright and shining, and much resembling some of the antimonial ores. Its specific gravity is about 7,700; and its fusibility nearly as that of copper.

It is sometimes found of a deep, dusky, bluish black, very heavy and hard, and a granulated structure, looking like a piece of pure iron, when fresh broken. At other times, it is more compact and heavy, of a very even texture, and not granulated, or composed of any separate molecule, but resembling a dusky mass of melted lead, not an ore.

The inner part, when fresh cut or broken, is in some ores found much more beautiful than in either of these states, being of a fine bright silvery grey, and of a beautiful and evenly striated structure; the striæ all running great lengths, but being all variously inflected and undulated, and in some parts broken. These are the more usual appearances of *cobalt* in its ore: but beside these, it is subject to an alteration in the bowels of the earth, by means of subterraneous fires and sulphur, which reduce it to a body which cannot be supposed at first sight the same with *cobalt*, though it proves to be exactly the same substance on a chemical analysis.

In these states, instead of the lead-like appearance of the common kind, it is of a fine florid red colour, though sometimes debased by accidental mixtures to a grey, black, or yellow, either wholly, or in part; and in this state it has two subordinate distinctions, as it appears sometimes in form of a compact mass of an uniform texture, and sometimes in a striated and beautifully rigid mass, resembling the fibræ. The three first states of *cobalt* are commonly called *cobalt ore*, without any distinction; but the first of these red kinds is called by the Germans *kupfer nickel*, and the latter or striated one, the flower of *cobalt*. It contains arsenic or ratsbane, and a fixed earth, which on fusion with fluids and pot-ash, or any other alkali salt, yields that fine blue glass which we call smalt, and which our painters and washer-women use under the names of smalt and powder-blue. It is dug about Sneeberg and Annaberg, and in some parts of Bohemia. It is always found below, not mixt with the ores of metals, and is very rich in the arsenic in some places, and but poor in others: all our arsenic is made from it. The miners are directed where the veins of *cobalt* lie, by a sort of soil which they call therefore the flower of *cobalt*: it is a very elegant substance, of a fine blooming red colour, and a radiated structure; sometimes of a paler red and in form of powder.

Cobalt is found in Germany, Saxony, Bohemia, England, and Scotland, and probably in other parts of Europe: and that it is in the eastern parts of Asia, appears from the colouring on old oriental porcelain. Ours is but a poor kind, but it is met with in considerable plenty on Mendip-hills, and at Gifennep in Cornwall. The German *cobalt* generally contains a large quantity of bismuth, and the Bohemian of silver.

The world is obliged to Kunckel for the history of the several arsenics, *zaffer*, and smalt, which are all the produce of *cobalt*. See ARSENIC, &c.

Cobalt, when exposed for a considerable time by itself in a heap to the sun and rain, yields an efflorescence of a rose or peach-blossom colour, called by the miners the flower of *cobalt*, and very much resembling the native flowers of *cobalt* described before, but less beautiful: this efflorescence, when properly treated, affords a very fine red colour for the painter's use, and a little green vitriol. Spirit of nitre dissolves the *cobalt* with a violent effervescence; four times the quantity of the acid is sufficient to dissolve some *cobalt*, but other ores require six times or more; this is owing to the purity or impurity of the ore. The solution is of an uncertain colour, according to the other matters contained in the *cobalt*; when it contains vitriol it is blue, when it contains copper, as is often the case, but particularly in that kind called, by the miners, *copper nickle*, which has an appearance of copperon the surface, the solution is then green; it is also sometimes green from the purest ores to appearance. This green colour resembles very much that of salt of steel well purified, but it still seems to have some share of copper in it.

Oil of vitriol, and spirit of sea-salt, act on *cobalt*, but do not properly dissolve it: they may rather be said to erode it, and particularly the acid of vitriol, which turns it into a white powder, to that spirit of nitre seems the proper simple solvent of it. Phil. Trans. N° 396. p. 199.

The *cobalt* is roasted in a reverberatory furnace, and the flowers which it yields in great abundance, are collected in long wooden funnels, which supply the place of chimnies, on the inside of which it sticks in form of soot, and from this soot, or flower, are made all the several sorts of arsenic or ratsbane. If this is only resublimed, or but barely melted in a covered vessel, the substance which we call white arsenic, or common ratsbane, is produced. If a tenth part of sulphur be mixed with them, and they are sublimed together, the product is our yellow arsenic; and the red arsenic is made by adding to the flowers only one fifth of sulphur, and a little copper dug.

When the flowers, or soot of *cobalt*, are all discharged, the remaining matter is powdered very fine, and being mixed with three times the weight of common flints in powder, and wetted with water, the whole concretes into a solid mass, and is what is called ZAFFER.

Two parts of this being fused with three parts of common salt, and one part pot-ash, the whole becomes a beautiful blue substance, called SMALT.

As sprinkling the powder of the calx of flints and *cobalt*, for making them into *zaffer*, gives them a pretty firm coalescence, and even the hardness of a common stone, persons who were unacquainted with the process, have taken *zaffer* for a native mineral.

COBALT is also used by some to express that suffocative vapour or damp in mines, which often proves fatal to the miners. It is common among the Germans, to say on this occasion, that the *cobalt* rose and choaked them. See DAMP.

COBBAN, in *Botany*, a small tree like a peach-tree, which grows in Sumatra, called *Perfica affinis in Taprobana*, C. B. *Arbor Getruth, five cobban*, J. B. It bears a small leaf, like that of the tree which produces the *filiqua catharticæ*, with short branches, and a yellowish or saffron-coloured bark. The fruit is thick and round like a tennis-ball, inclosing a nut as big as a filbert, which contains a very bitter kernel, tasting like the root of angelica.

The fruit is very proper to quench thirst: but the kernel, however bitter, is far superior in virtue. The inhabitants of Sumatra, where the tree grows, extract an oil from the kernel, which is very efficacious in pains of the liver and spleen, taken inwardly, or used by way of unction; and is also a sovereign remedy in the pain of the gout, to which the inhabitants of that island are very subject.

From the same tree distils a gum, which is very serviceable in the before mentioned disorders, if it be dissolved with a moderate quantity of oil, and applied to the affected parts by way of cataplasm.

COBBING, in *Sea Language*, a punishment inflicted at sea on those who quit their station during the night-watch. It consists of a number of strokes on the breech with a flat piece of wood called the *cobbing-board*.

COBELLA, in *Zoology*. See COLUBER and SERPENT.

COBITIS, in *Ichthyology*, the name of a small fresh-water fish, commonly called in English the *loach*. It very much resembles our common gudgeon, both in figure and colour, but it is much smaller, about two inches being its usual length, and three, or a little more, the utmost that it ever arrives at. Its body is soft and slippery; its tail flat and broad, and it has either extremely minute scales, or none at all. It is of a brown colour, spotted all over with black specks, and it has three pair of beards, at its upper-jaw. It is caught in fresh water in many parts of the world, and is esteemed by many a very delicate fish, especially when very young and small.

Artedi enumerates three species of this fish. This is the fish called *mifgurn* and *fifgurn* at Nuremberg and Ratisbon. It has ten or more *cirri* in the mouth.

The word *cobitis* is truly Roman, and used by the best authors to express the same fish we now call by it; but its derivation is uncertain.

Linnæus makes this a genus of the *abdominales*, including five species.

COBITIS *aculeata*, called also *cobitis oxyrynchus*, a small fresh-water fish of the loach kind, but armed with two prickles on the coverings of each of its gills, by means of which it moves nimbly about among the stones. See DACTYLITHUS.

COBIUS, in *Ichthyology*, a name given by Aristotle, Ælian, Appian, and the other Greek writers, to the GOBIUS *marinus*, or sea-gudgeon of authors, distinguished by Artedi by the name of the blackish variegated gobius, with fourteen rays on the second fin of the back. It is called by the French, *gouderat*, or *boulerot*.

COBIUS *leucoterus*, in *Ichthyology*, a name given by Aristotle, Athenæus, and some other of the old Greek writers, to the fish called GOBIUS *albus* by later authors. It is a genuine species of the gobius, and is distinguished by Artedi by the name of the gobius with the ventral fin blue, and the rays of the anterior back-fin rising above the membrane. This is a sufficient distinction from all the other *cobii*.

COBLE, a boat used in the turbot fishery, twenty feet six inches long, and five feet broad. It is about one ton burthen, rowed with three pair of oars, and admirably constructed for encountering a mountainous sea.

COBOB, the name of a dish among the Moors. It is made of several pieces of mutton wrapt up in a cawl, and afterwards roasted in it; the poorer people, instead of the meat, use the heart, liver, and other parts of the entrails, and make a good dish, though not equal to the former. Phil. Transf. N° 251.

COBOOSE, *in Sea Language*, is derived from the Dutch *kambuis*, and denotes a sort of box, resembling a sentry-box, used to cover the chimneys of some merchant ships. It generally stands against the barricade, on the fore-part of the quarter-deck. It is called in the West Indies *cabre vuyo*.

COBRA, *de los cabeças*, in *Zoology*, the Portuguese name for an American species of serpent of the *amphisbæna* kind, whose bite is very fatal. It lives under ground, and feeds on ants. See IBIJARA.

COBRA *de coral*, in *Zoology*, the name of a species of serpent found in America, and called by the natives IBIBIBOCA; it is about two feet long, and has a great deal of a fine red in its variegations.

COBRA *de cipo*, in *Zoology*, the name given by the Portuguese in America, to a species of serpent more usually known by its Brasilian name BOITJAPO.

COBRAS *de capello*, in *Zoology*, the Portuguese name of a peculiar species of serpent, called by authors *serpens cornutus diadematus, seu conspicillo insignis*, and by us the *spectacle-snake*, from the strange resemblance on the back of his head and neck to a pair of spectacles. It grows to somewhat more than the size of our viper; its snout is long; its head flat or depressed; its bite is very terrible. It is thought by many that there is a stone in the back part of its head, which is a remedy for the bite; but the stones commonly sold with us under the name of *lapides cobræ de capello*, are well known to be all artificial compositions.

COBRE *de bord*, in *Zoology*, the name given by the Portuguese in America, to a species of serpent called by the natives, and, from them, by most authors, BOICI.

COBWEB. See WEB and SILK.

COCCEIRA, in *Botany*, a name by which some authors have called the coco-nut tree, the *palma nucifera Indica* of most writers.

COCCIFEROUS, in *Botany*, such plants or trees as bear berries. See BACCIFEROUS.

COCCINELLA, in *Zoology*, a genus of insects of the *coleoptera* order, the characters of which are these: the *antennæ* are elevated and truncated; and the *thorax*, with the exterior wings, which are marginated, constitute an hemispherical figure. Of this genus are several species, distinguished by the colour and spots of their wings; among which are comprehended our common *lady-cows*.

COCCO, the name of a plant in the West Indies, and in some of the islands of the South Sea, called also *Indian kale*.

COCCODES, in *Natural History*, a name given by Mercatus to those stones of the AMMITES kind, whose grains are very large.

COCCOLOBA, in *Botany*. See *Sea-side* GRAPE.

COCCOTHRAUSTES, in *Ornithology*, the name of a very remarkable bird, considerably larger than the chaffinch, very short-bodied, and large-beaked, whence it is called in English, the *grosse-beak* or *hawfinch*. Its head is very large in proportion to its body, and its great beak tapers from a very thick base to a sharp point, resembling the shape of a funnel. It is common in Germany, and lives there in the woods and mountains all summer; in winter it comes into the flat country. It is never seen in England, except in the winter months; it feeds on the kernels in the stones of fruits, as cherry-stones, and the like, and breaks these with great dexterity; it will also eat the seeds of many different plants. Ray.

COCCOTHRAUSTES *cristata*, in *Ornithology*, the name by which naturalists call the bird usually known among us by the name of the *Virginian nightingale*, it being truly a *coccothraustes*, though called by the improper name NIGHTINGALE. Ray.

COCCULUS *Indicus*, a poisonous narcotic berry, known mostly now to poachers, who have got a trick of intoxicating fish therewith, so as to take them out of the water with their hands; for which reason these berries are called *bacca piscatoriæ, fishery-berries*.

The good women use it with flaveacre, for destroying vermin in childrens heads. Brewers have used it also in their brewing; but this is expressly prohibited by act of parliament.

COCCUS, in the *Writings of the Ancients*, a name given by some authors to that fine shining red colour used to illuminate the capital letters in manuscripts, and more generally known by the name of *encaustum sacrum*, from its being used in ornamenting the manuscript bibles, and its resembling the fine red glow of the enamel of that colour.

COCCUS, in the *History of Insects*, the name of a very comprehensive genus of the *hemiptera* class, the trunk of which arises from their breast; the body is cetose behind; the wings only two, placed erect, and to be found only in the males.

This genus comprehends all the *progoll-insects* of Reaumur.

COCCUS, or COCOS, in *Botany*, the name of a genus of plants of the *palmæ* class, called in the Hortus Malabaricus, TEUGA. It produces male and female flowers on the same plant; the male flowers have the whole ear for their cup, which is divided into three segments; the corolla has three petals; the stamens are six single filaments, of the length of the flower; the apices are oblong and incumbent; the germen of the pistil is so small in these flowers as to be scarce visible; the style is short and thick, and is obscurely trifid, and the stigma is small; these flowers never produce any fruit, yet they are not simply male flowers, but a sort of hermaphrodite ones, the female organs of which are always abortive; the female flowers grow on the same spike with the male; the calyx is divided into five parts, but the segments are very small; the corolla has three petals; the germen of the pistil is of an oval figure, and terminates in a short-pointed style; the stigma is small, and it

is divided into three parts. The fruit is very large, and membranaceous; it is of a somewhat rounded figure, but with some obscure traces of a trigonal form; the seed is a very large nut of an oval form, pointed, trivalve, and obtusely trigonal, as the fruit is; it has three holes in the base, and the kernel is hollow.

The *coco-tree*, which the Malabarians call *tenga*, grows straight, without any branches, and ordinarily is thirty or forty feet high; its wood is too spongious to be used in carpentry. At the top it bears twelve leaves, ten feet long, and half a foot broad, used in the covering of houses, making mats, &c. Above the leaves grows a large excrescence, in form of a cabbage, excellent to eat; but the taking this off is mortal to the tree. Between the leaves and the top arise several shoots, of the thickness of the arm; which, when cut, distil a white sweet, agreeable liquor, serving as a wine, and intoxicating: it becomes acid, if kept a few hours; and at the end of twenty-four hours is converted into a strong vinegar; but it may be prepared into brandy. While this liquor distils, the tree yields no fruit; but when the suckers are let grow, it puts forth a large cluster or branch, wherein the *coco-nuts* are fastened, to the number of ten or twelve.

While they are yet new, and the bark tender, they yield each about half a pint of clear cooling water, which in a little time becomes firm a white soft pulp, and at length condenses, and assumes the taste of the nut.

The tree yields fruit thrice a year, and those sometimes as big as a man's head. Many travellers aver, from the first, and the many useful products of this tree, that from a single *coco*-tree, and its fruit, a ship might be built, equipped, and loaden with merchandize and provision.

The *cocos* of the Antilles are not so large as those of the East Indies, Africa, and Arabia: the trees seldom exceed twenty-five feet in height; and the fruits are in proportion: these are used among us.

In the kingdom of Siam, the *coco* fruit, dried, and emptied of its pulp, serves as measures, both for things liquid and dry.

As these shells are not all of the same capacity, but are some larger, others less, their content is first measured with cauris, those little Maldives shells, which serve as small money in several states of the Indies. Some *cocos* contain a thousand cauris, others five hundred, &c.

The shell is likewise much used by the miners, carvers, &c. in divers works.

COCCUS *Maldivia*, the Maldivia nut, in the *Materia Medica*, the name of the fruit of the *palma Maldivensis* of Johnston, an oval-figured fruit, of a sweet taste, and famous for its virtues in nervous disorders. See Coll. Acad. P. Etr. tom. iii. p. 525.

COCCUS *Polonicus*, an insect which may properly enough be called the *cochineal* of the northern part of the world. As the cochineal loves only the hot climates, this creature affects only the cold ones. It is collected for the use of dyers, but the crops of it are much smaller, more difficultly made, and the drug itself greatly inferior to the true cochineal. It is commonly known by the name of *coccus Polonicus*, or the scarlet grain of Poland. Poland is indeed the place where it is gathered in greatest abundance, but it is not the only one; it is found in many other of the northern countries, and may very possibly be produced in some of the more temperate ones, where it is not known, as it is very much hid by nature from the eyes of common observers.

This kermes of Poland, if it may be so called, is found affixed to the root of a small plant, and usually to the same plant, which has been thence called the *polygonum coccifera*. Authors have informed us of the same berry, as it is often called, also growing at the roots of the mouse-ear, rupture-wort, pimpernel, and pellitory of the wall, and that it is in no other than dry sandy places, that it is found at the roots of these plants. Breynius, in 1732, printed at Dantzick a very curious account of this production, which proves it incontestibly to be an animal, and gives us many reasons for knowing it to be of the progallinsect class. There is a particular account of this insect in the Philosophical Transactions, vol. liv. N° 15. and vol. lvi. N° 20. See Cochineal.

COCCYGÆUS *anterior*, a muscle fixed, by a broad insertion, in the anterior portion of the small transverse ligament at the upper part of the *foramen ovale* of the *os innominatum*; from thence it runs between this great ligament and the *musculus obturator internus*, with which it is often confounded by anatomists, and contracting in breadth, it is inserted in the lower part of the *os coccygis*.

COCCYGÆUS *posterior*, a muscle fixed to the inner, or concave edge of the two first *vertebræ* of the *os sacrum*, to the inner and lower edge of the *ligamentum sacro-sciaticum*, and to the spine of the *os ischium*; from thence, contracting in breadth, it is inserted in the inside of the *os coccygis*, above the anterior.

COCCYGIS *Os*, in *Anatomy*, a bone joined to the extremity of the *os sacrum*; composed of three or four bones, whereof the lower is still less than the upper, till the last ends in a small cartilage. See *Tab. Anat. (Offeal.) fig. 7. n. 21.*

It resembles a little tail turned inwards; or rather, as some imagine, the beak of a cuckow; whence the name.

Its use is to sustain the straight gut: it yields to the pressure of the fœtus in women in travail; and midwives use to thrust it backwards; but sometimes too violently, which is the occasion of great pain, and several bad effects.

The *os coccygis* may be thrust inwards by a violent fall or blow, and it is often pushed outward in hard births. When this happens, it is usually attended with violent pain and inflammation about the lower part of the spine; abscesses are formed in the *intestinum rectum*, and the fæces are constipated, or suppressed. The replacing this bone is not very difficult, if an able surgeon is applied to in time. If it be thrust outwards, it must be depressed into its right place by the thumb; after which compresses dipt in warm wine, or spirits of wine, are to be applied to the part; these are to be made broad above, and narrow below, that they may fill up the *posterior sinus* of the *nates*; and these may be conveniently held on by the T bandage.

When the *os coccygis* happens to be luxated inwards, the fore-finger is to have its nail cut close, and being dipt in oil, it is to be introduced up the anus, and must be thrust in as far as possible, that it may the more readily drive out the depressed bone: the other fingers, being placed externally, are to conduct the bone into its right posture.

When the bone is replaced, the patient must rest some time upon a bed; and when he sits up, it must be in a chair with a hole in its bottom, lest the affected part should otherwise be compressed or disturbed.

COCCYGIS *ossis musculi*. These are small, thin, radiated muscles, lying on the inner, or concave side of the *os sacrum*, and neighbouring parts of the *pelvis*. They are four in number, two on each side, one placed more forward, the other more backward; for which reason the first may be termed *coccygæus anterior*, five *ischio coccygæus* and the other *coccygæus posterior*, five *sacro coccygæus*.

COCCYGRIA, in *Botany*. See Sumach.

COCCYX, in *Anatomy*. See Coccygis *Os*.

COCCYX, in *Ichthyology*, a name given by Aristotle, and the other old Greek writers, to the fish called *cuculus*, and lyra by other authors. It is a species of the trigla, distinguished by Artedi by the name of the trigla all over red, with a bifid snout, and the coverings of the gills striated.

COCETUM, among the *Ancients*, a kind of drink made of honey and poppies.

COCHIA, in *Medicine*, the name of officinal pills, which are distinguished into the greater and less: the former is a composition of hiera picra, troches of Alhandal turpeth, diagrydium, the syrup of buckthorn, taken from Rhades, but seldom used in the present practice. The latter is compounded of equal quantities of bright aloes, the purest scammony, and the pulp of colocynt, made into a mass with syrup of buckthorn. Two drams of the distilled oil of cloves are added to an ounce of each of the former ingredients. These pills are prescribed to discuss viscidities, watry humours, and flatulencies.

COCHINEAL, or Cochenel, a drug used by the dyers, &c. for giving red colours, especially crimson and scarlets, and for making carmine; and likewise in medicine as a cardiac, cordial, sudorific, alexipharmic, and febrifuge.

It is brought from the West Indies; but authors have been divided as to its nature; some taking it to be a kind of worm, and others for the berry of a tree. F. Plumier, a celebrated botanist, has maintained the former opinion, and Pomet very absurdly the latter. That author is very wide of the truth in the description he has given of *cochineal*.

The *cochineal*, in the state in which it is brought to us, is in small bodies of an irregular figure, usually convex, and rigid and furrowed on one side, and concave on the other. The colour of the best is a purplish grey, powdered over with a sort of white dust. All that the world knew of it for a long time was, that it was gathered from certain plants in Mexico, and therefore it was naturally supposed to be a seed.

In the year 1692, father Plumier gave Pomet, the French author of a History of Drugs, an account of its being an animal: this, however, was disregarded; but Messrs. Hartsoeker, De La Hire, and Geoffroy, afterwards evidently

dently proved it to be one; and after this there were printed the depositions, in form, of a number of persons upon the spot, who all declare it to be a viviparous animal, and that it passes a great part of its life fixed to the vegetable body on which it feeds, and that it was a creature subject to no change, nor ever appearing in any other state. These and many other qualities found in the *cochineal*, all analogous to those of the class of *pregall-insects*, give great room to believe that it is truly and properly an insect of this class.

There are two kinds of *cochineal*, the finer called *mestique*, the other termed the wild *cochineal*. The first is gathered from such plants of the opuntia as are prepared and managed properly on purpose for the production of the animal; the other is found wild on the wild plant, and is much inferior to the *mestique* in value.

Dampier tells us there are two sorts; one an insect, and the other a seed; and gives a precise description of each kind.

The COCHINEAL *worm, Cochi*, otherwise called the *pregall-insect*, is an insect engendered in a fruit resembling a pear: the plant which bears it is five or six feet high. At the top of the fruit grows a red flower, which, when mature, falls on the fruit; and that opening discovers a cleft two or three inches in diameter. The fruit then appears full of little red insects, having wings of superfine swallows, and which would continue and die, and rot there, if not taken out.

The Indians, therefore, spreading a cloth under the tree, shake it with poles, till the insects are forced to quit their lodging, and fly about the tree; which they cannot do many moments, but tumble down dead into the cloth; where they are left till they be entirely dry: when the insect dies, it is red; when it is fallen, black; and when first dried, it is greyish; though it afterwards changes colour. Dampier's Voyages. See *Tab. Nat. Hist. fig.* 24.

The figure of this insect is oval, and its utmost size is that of a small pea. It has six legs armed with claws, two eyes, and a trunk by which it sucks its nourishment. The ants, and many other little animals, are very fond of eating the *cochineal*; and it is with great difficulty that the Indians defend the young brood from those devourers.

After the Indians have gathered the *cochineal* they kill it, otherwise they would lose a great part of their harvest; for the parent race would live some days after their being taken from the plant, and would produce their young which would be nimble enough to run away in great numbers. Some to kill the creatures plunge them in hot water, and afterwards dry them in the sun; others kill them by a proper degree of heat, and others again by smoke.

The accounts from the place, where the *cochineal* is produced, furnish all these particulars; but to decide the long disputed point, whether they are of the animal or vegetable kingdom, we have the means in our own hands, even in this part of the world. We need only moisten and soak in water, or in vinegar, a number of *cochineals* till they are swelled and distended, to know that every one is the more or less perfect body of an insect; the most imperfect and mutilated specimens always shew the rings of the body, and from observing others it will be easy to find the number and disposition of the legs; parts, or even whole ones, being left on several, and often complete pairs. In this way the legs, antennæ, and proboscis may be discovered.

If a full grown *cochineal* be soaked a considerable time in water or vinegar, and afterwards gently pressed, there will frequently be protruded from its hinder part a number of smooth oblong bodies, which might be easily mistaken for eggs; but a good microscope will shew in these the traces of the legs and other lineaments sufficient to prove it to be a true embryo fœtus. The eggs exhibit a vivid crimson hue.

It is easy to see in some the head, and sometimes a tubercle on each side of it, which may very naturally be supposed the eyes, or else the roots of the *antennæ* or horns. The first pair of legs are thus found to be very near the head of the animal, and placed exactly as in all the gall-insect and *pregall-insect* class; a little above these one may distinguish also the remainder of the trunk situated exactly as in the gall-insects and *pregall-insects*; the anus is also easily distinguished.

As the manner of the fecundation of the gall-insects was so long unknown in Europe, it is no wonder that that of the *cochineal* should not be very early discovered in Mexico: but we have an account among Mr. Ruysch's pieces, from whence almost all the true history of this animal is had, that at the season of the *cochineals* becoming big, there is seen continually among them a small butterfly, which is bred upon the same plants, and by means of which she *cochineals* conceive. This is sufficiently analogous to the manner of the gall insect class, that there is no room to doubt the fact; and it is a further great proof, how little truth was before to the guesses concerning the class of animals this belonged to. Reaumur's Hist. of Insects, tom. iv.

The female *cochineal* has been long known, and is well described by Reaumur, Dr. Brown, and Linnæus; but neither of them had ever seen the male; and therefore the history of this valuable insect has been very defective. Mr. Ellis, being informed that this insect bred in great abundance on the *cactus opuntia* of Linnæus, in South Carolina and Georgia, as well as on the *cactus coccinellifer* in Mexico and Jamaica, obtained from Dr. Garden some branches of the former, with the insects upon them. In examining several of these specimens, he, at last, discovered three or four minute dead flies with white wings; and having moistened them in spirit of wine, and observing them with a microscope, found, that they were of a bright red colour, which convinced him, that these were the true male insects. Dr. Garden, to whom this discovery was communicated, made several observations on the male species. This is very rarely found, so that he imagines there may be a hundred and fifty, or two hundred females, for one male. The male is much less than the female, more active, and better made; and the body of it is of a lighter red than that of the other. See a minute description of the male species, illustrated by microscopical drawings, in the Phil. Trans. vol. lii. part 1. art. 10.

The male fly of the Polish *cochineal* was also discovered by Dr. Wolfe of Warsaw. See Phil. Trans. vol. liv. p. 95. and vol. lvi. art. 20.

Cochineal has been supposed to possess several medicinal virtues, similar to those of the KERMES; but its principal use is as a colouring drug. When infused or boiled in water, it yields a crimson tincture, inclining to a purple. Fixed alkali renders the crimson deeper, but lessens its lustre. Volatile alkali heightens the colour, without diminution of lustre. The best method of applying volatile alkali for this purpose in dying, was found by M. Hellot to be, by dipping the cloth died with *cochineal* in a solution of sal ammoniac, and then throwing into the solution some portions by which the volatile alkali of the sal ammoniac is disengaged. By a small quantity of vitriolic acid the crimson decoction of *cochineal* is rendered purple; a greater quantity makes it flesh-coloured; and by adding more still, it becomes colourless. This colour is first changed to a yellow, and afterwards destroyed by nitrous acid. Solution of tin in aqua regis heightens the colour of this decoction to a scarlet, which is darker or brighter as the quantity is less or greater. Other metallic solutions have different effects. French dyers give fire to their scarlets, by the addition of turmeric; but this tinge does not penetrate the cloth, and soon perishes. Woollen cloth requires, for the scarlet dye, about one fifteenth its weight of *cochineal*, part of which is used with tartar, in the preparatory liquor, and the rest for finishing the dye, to each of which decoctions a proper quantity of the solution of tin is added. M. Hellot observes, that if *cochineal*, after the usual pulverization, be mixed with one fourth of its weight of pure dry crystals of tartar, and the mixture be levigated into an impalpable powder, the saving of *cochineal*, both for the crimson and scarlet dye, will be about one part in four, without any injury to the colour. The wild or sylvester *cochineal* is much inferior to the other: four parts of the former have no greater effect in dying than one of the latter; nor does it give equal beauty to the colour, especially the scarlet. Neumann's Works, with Dr. Lewis's additions, p. 506, &c. See DYEING.

Josselin, in his account of the products of New England, mentions a particular kind of sun-flower, called by some a species of *golden-rod*, the flakes of which are covered about the knots, in the summer months, with insects of the size of large fleas. These, preserved in a proper manner, yield a very elegant scarlet colour, and the author thinks might be made to supply the use of *cochineal*. There are whole plantations of the *cochineal* plant, or *tuna*, as the natives call it, about Guatimala, Chepe, and Guexaca, in the kingdom of Mexico. It is called renegrido, silpeada, &c. according to the manner of its preparation.

The COCHINEAL *grain*, or, as Dampier calls it, *silvester*, is a red berry, growing in America, found in a fruit resembling that of the *cochineal* plant, or *tuna*. The first shoot produces a yellow flower, then comes the fruit, which is long, and, when ripe, opens with a cleft of three or four inches. The fruit is full of kernels, or grains, which fall on the least agitation, and which the Indians take care to gather. Eight or ten of these fruits may yield about an ounce of grain. See *fig.* 14. 2.

This berry yields a dye almoſt as beautiful as that of the inſect; and a perſon may be eaſily deceived in them; though the other is much the moſt eſteemed. Dampier is miſtaken in ſuppoſing this laſt a ſeed. It is an animal of the ſame kind with the other.

COCHLEA, in *Anatomy*, the third part of the labyrinth, or inner cavity of the EAR.

The *cochlea* lies directly oppoſite to the ſemicircular canals, and is properly ſo called from the reſemblance it has to the ſhells that ſnails lie in; through its parietes a ſmall branch of the auditory nerve paſſes.

Its canal is divided by a ſeptum compoſed of two ſubſtances, one almoſt cartilaginous, the other membranous.

The two canals, that are divided by the ſeptum, are called *ſcalæ*: whereof the one, looking towards the tympanum, by the feneſtra rotunda, is called *ſcala tympani*; the other, having a communication with the veſtibulum, by the feneſtra ovalis, is called the *ſcala veſtibuli*: the firſt lies uppermoſt, and is the largeſt; the laſt lowermoſt, and is the leaſt.

The parts to be diſtinguiſhed in this in its true ſituation, are the *baſis*, the *apex*, the ſpiral *lamina*, the half ſeptum; by which its cavity is divided into two half canals, the ſpindle round which the *cochlea* turns; and laſtly, the orifices and union of the two ducts. The baſis is turned directly inward, toward the internal *foramen auditorium*; the apex outward, and the axis of the ſpindle is nearly horizontal; but in all of theſe allowance muſt be made for the obliquity of the *os petrum*, in which they lie. The baſis of the *cochlea* is gently hollowed, and towards the middle is perforated by ſeveral ſmall holes. The ſpindle is a kind of ſhort cone, with a very large baſis which is the middle of the baſis of the *cochlea*; through its whole length runs a double ſpiral groove, which, through a microſcope, ſhews a great number of pores. The *cochlea* makes about two turns and a half from the baſis to the apex, and the two ducts, being ſtrictly united together through their whole courſe, form an entire common ſeptum, which muſt not be confounded with the half ſeptum, or ſpiral lamina, as is often done. The firſt of theſe may be properly termed the common ſeptum, the other the particular, or half ſeptum: both of them are cloſely joined to the ſpindle, being thicker there than in any other place. The common ſeptum is complete, and ſeparates the turns entirely from one another, whereas the half ſeptum in the ſkeleton is only a ſpiral lamina, the breadth of which is terminated all round by a very thin border lying in the middle cavity of the *cochlea*. In a natural ſtate there is a membranous half ſeptum, which completes the partition between the two ducts. The two half canals turn jointly about the ſpindle, one being ſituated toward the baſis of the *cochlea*, the other toward the apex; for which reaſon, one of them may very well be termed the internal, the other the external; the uſual diviſion of them into the upper and lower flight not being agreeable to the natural ſtate, but liable to convey a falſe idea of it. The ſpiral volute of the *cochlea* begins at the lower part of the veſtibulum, runs from theſes forward to the top, then backward down to the bottom, afterwards upward and forward, and ſo on from the baſis, which is turned inward, to the apex, which is turned outward. It is eaſy hence to know to which ear a *cochlea* has belonged, when it is ſeen prepared. The two half canals communicate fully at the apex of the *cochlea*. Their ſeparate openings are toward the baſis, one of them being immediately into the lower part of the veſtibulum, the other into the feneſtra rotunda. Theſe two openings are ſeparated by a particular turning. Winſlow's Anat. p. 51.

COCHLEA, in *Conchyology*, the name of a very large family of ſea ſhell-fiſh, which are divided by authors into three diſtinct genera, from the figure of their mouths, ſome of which are circular, ſome ſemicircular, ſome oval. Theſe are expreſſed by the generical names *cochleæ lunares*, *cochleæ ſemilunares*, and *cochleæ ore depreſſo*. The two former genera are under LUNARIS *cochlea*, and SEMILUNARIS *cochlea*.

The characters of the third are theſe: it has an univalve ſhell of a broad figure, with a conoide baſe and an elevated ſummit, or ſometimes a plane and depreſſed one. It is umbilicated, and of a pearly colour within, and has a mouth of an oval figure, ſometimes furniſhed with teeth, ſometimes without any. The conic figure of theſe ſhells uſually diſtinguiſhes them at firſt ſight from all the other kinds.

Some of the ſpecies of this genus have their apex elevated to a conſiderable height, and forming ſeveral ſpiral turns. Theſe are properly called *ſabots* by the French, and *trochi* by the authors of other nations. Others have the apex leſs elevated, and are more of the common ſhape of ſnails. And finally, ſome of them have the apex quite depreſſed. This is enough to ſhew that in ſhells, in general, the elevation of the apex is no genuine character of a genus. Among the *trochi* there is one ſingle ſpecies which is umbilicated, the others are none of them ſo; and hence this forms a very grand diſtinction. Rondeletius obſerves that this genus of *cochleæ* was called *trochus*, from the reſemblance of ſome of the ſpecies to the ſhape of a boy's whipping-top.

From the figures of theſe ſeveral ſpecies of ſhells, it will be eaſily ſeen that the name *trochus*, according to the common derivation of the word, very badly expreſſes the ſeveral kinds, ſome of which are of that figure, and ſome no way approaching to it. They are much better expreſſed by the name *cochlea ore depreſſo*, which conveys an idea of an abſolute diſtinction, which takes place in them all, and in no other ſhells. See *Tab. of Shells*, N° 5, 6, 7, and *Tab.* III. *Fiſh*, *Cloſs* 3.

COCHLEA, in *Mechanics*, one of the five mechaniſal powers; otherwiſe called the SCREW.

It is thus denominated, from the reſemblance a ſcrew bears to the ſpiral ſhell of a ſnail, which the Latins call *cochlea*.

COCHLEARIA. See *Horſe*-RADISH, and SCURVY-*Graſs*.

COCK, *Gallus*, in *Ornithology*, the names of the males of gallinaceous birds; the diſtinguiſhing characters of which are, that the feet have each four toes, the front of the head has a comb, and the wattles are two, and are naked and flat. See GALLINACEOUS.

In the choice of a *dunghill-cock*, he ſhould be of a large body, very long from the head to the rump, thick in the girth, the neck long, looſe, and high; the comb, wattles, and throat large; the eyes round and large, and anſwerable to the colour of his plume or mane, as grey with grey, yellow with yellow, and ſo of the reſt; his beak ſhould be ſtrong and hooked; and his main or neck-feathers very long and gloſſy, covering his neck and ſhoulders: the legs ſhould be ſtraight, and of a long beam, with very large and long ſpurs, a little bending; the colour ſhould be black, yellow, or browniſh; the claws ſhould be long and ſtrong; the tail long, bending back, and covering the whole body; the wings very ſtrong; and the general colour ſhould be reddiſh. See FOWL.

COCK, *game*. In the choice of the *game*, or *fighting-cock*, four things are principally to be conſidered; theſe are the ſhape, colour, courage, and ſharpneſs of the heel. As to the ſhape, ſuch a one ſhould be choſen, as is neither too ſmall nor too large; the very large ones are always clumſy and unweildy, and the ſmall ones are ſlow and tedious in fighting, and are generally too weak to ſtand a very tight battle: another diſadvantage in theſe extremes is, that both are very difficult to be matched; the middle ſized one ought therefore ever to be preferred, as he is generally the moſt nimble and active with his ſtrength, and the matching him is eaſy. The head ought to be ſmall, the eyes large and brisk, and the beak ſtrong and hooked at the ſetting on; its colour ought alſo to anſwer to that of the principal or general colour of the feathers, whether that be yellow, reddiſh, or grey. The beam of his leg ought to be very ſtrong, and according to his plumage, either blue, grey, or yellow; and the ſpurs ought to be rough, long, and ſharp, a little bending, and pointing inward. The three colours eſteemed in the *game-cock* are grey, yellow, and red, with a black breaſt. The perfection of a *cock* is not, however, annexed abſolutely to theſe colours; for experience has ſhewn, that there are *cocks* of other colours which have proved excellent ones, but theſe are in general the beſt: the pied *cock* ſometimes turns out good, but the white and dun are ſeldom of any value.

If the neck of a *cock* be inveſted with a circle of a ſcarlet complexion, it is a ſign that he is ſtrong, vigorous, and has great courage; but, on the contrary, if it be pale and wan, it denotes him to be defective in theſe material particulars.

In order to prepare a *cock* for fighting, his mane is to be clipped off with a pair of ſhears cloſe to the fleſh, all the way down the neck, from the head to the ſhoulders; the feathers are alſo all to be clipped off cloſe to the rump, and the redder that appears the better condition the *cock* is in. The wings are to be ſpread by the length of the firſt riſing feather, and all the others are to be cut ſloping with ſharp points, that in riſing he may endanger the eyes of his adverſary. There muſt be no feathers left on the crown of the head, that the opponent can take hold of and his head ſhould be moiſtened with ſpittle; then the ſpurs being put on, he is to be turned into the pit to try his fortune.

The beſt ſeaſon for breeding the *game-cocks* is from the beginning of February to the middle or latter end of March; the neſt for the hen is to be made of ſweet and clean ſtraw, and ſhould be placed in ſome warm corner

out

out of the way of disturbance from other fowl; for this sort of interruption provokes this quarrelsome bird in such a manner as to endanger the eggs. That she may never have occasion to leave the nest, and cool her eggs, it will be proper to lay all sorts of food, that she is likely to approve of, before her, and to put clean water every day, not only for her to drink, but to wash and trim herself in; some ashes, sand, and gravel, should also be sifted on about the nest. The chickens are hatched in about three weeks, and the nest is to be carefully watched about this time, for there are always some of the chickens hatched before the others; these should be taken away as soon as out of the shell, and laid before the fire, or in some warm place, in wool, and as soon as the rest are hatched, these should be given back to the hen. They are not to be suffered to go abroad for the first fortnight, and the room they are kept in must be boarded, all other floors being too cold and too moist. At about a month old the chickens may be turned out into a walk of some fresh grass, that they may feed at liberty, and eat worms and other insects; but there must be no puddle of water near the place, for they are apt to get into such, and it occasions them a number of diseases. As soon as the comb and wattles appear on the *cocks*, they must be cut away, and the fore place anointed with fresh butter till it is well. The chickens may all be suffered to run together till they begin to peck one another, then the *cocks* are to be separated; each must have his particular walk, and the more free from disturbance this is, the better. The place of feeding them must either be a boarded floor, or a very soft and dry piece of ground. If the place be hard, as a stony pavement, or a pitched floor, the taking up their food will injure and blunt their beaks, so that they will never be able to hold fast afterwards. Any white corn is good for the young *game-cock* in his walk; and so is a white bread toast steeped in ale; at times this may be given him steeped in urine, which will serve to scour and cool him very well. There should never be more than three hens allowed to one *cock* in his walk; for if there are more he will consume his strength in the treading; and though his courage may not fail, yet he will never have the ability to go through a battle. Care is to be taken also as to his roosting place, that the perch be not too small in the gripe, and be so placed, that he may sit on it without straddling; if the perch be crooked it is also disadvantageous, for it will accustom the *cock* to such an uneven disposition of his feet, that he will be no good striker in the battle. The best method of contriving the roosting place is to have a row of short perches, about eight inches long, and the lowest ten inches from the ground, that he may ascend with the more ease; and when he is come to the roosting perch, be constrained to sit with his legs close together. A *cock* bred in this manner may be fought young; but the best method is not to hazard a battle till he is somewhat more than two years old.

Game-cocks are commonly brought to the state of their greatest strength and activity in about ten days, which Dr. Robinson calls their *athletic* WEIGHT; but they will scarce remain twenty-four hours in this condition; nay, some have been known to change for the worse in twelve hours.

COCK, *black*. See GROUSE.

COCK, *bloody-heeled*. See HEELER.

CUCK, *gor*. See GORCOCK.

COCK, *grubbing a*. See GRUBBING.

COCK, *high bearing*, is a term used with respect to fighting cocks; denoting one larger than the *cock* he fights.—A *high-bearing cock* is one over matched for height.

COCK, *Indian*. See CRAX.

COCK *of the mountain*, *Uragallus*, the name of a bird of the gallinaceous kind, being a species of the TETRAO. See *Tab.* III. *of Birds*, N° 25.

In shape it resembles the turkey, and approaches to it in size. Its legs are feathered down to the toes before and naked behind. It is common on the Alps, and in some parts of Italy, and is said to be found also in the mountainous parts of Scotland. Its flesh is very delicate.

COCK, *wood*. See WOOD-*cock*.

COCK-*boats*, small boats used in rivers, or near the shore, which are of no service at sea, because too tender, weak, and small.

COCK'S-*comb*, in *Botany*. See LOUSE-WORT, and AMARANTH.

COCK *of a dial*, the pin, style, or gnomon. See GNOMON.

COCK'S-*foot grass*. See GRASS.

COCK'S-*head*. See SAINTFOIN.

COCK-*paddle*, the Scotch name for the *lumpus*, a sea-fish, common on the English coasts, and called the lump-fish, or sea-owl.

COCK-*throppled*, a name given by dealers in horses to one whose wind-pipe is small, and bends like a bow when he bridles his head. See HORSE and HUNTER.

COCK-*water*, is a stream of water brought to a trough through a long pole, in order to wash out the sand of the TIN-*ore* into the launder, while it is brushing in the coffer of a stamping-mill.

COCK, in a watch or clock. See BALANCE.

COCKS, aboard a ship, are little square pieces of brass, with holes in them, and put into wooden barrels to keep them from splitting and galling by the pins of the blocks in which they move.

COCKATOON, a name usually given to the white MACAW, but more properly belonging to the whole MACAW-*tribe*.

COCKERINGS, an exaction, or tribute in Ireland, now reduced to chief-rents.

COCKET, or COCQUET, a SEAL belonging to the king's custom-house.

COCKET, or COCQUET, is a scroll of parchment, sealed and delivered by the officers of the custom-house to the merchants, upon entering their goods; *certifying* that the goods were customed. It likewise gives name to an office appointed for this purpose.

The same word is also used in the statute of bread and ale, 51 Hen. III. where there is mentioned *cocket-bread*, among several other kinds: it seems to have been hard sea-biscuit, which, perhaps, had then some *cocket*, *mark*, or *seal*; or else was so called from its being designed for the use of the cock-swains, or seamen.

COCKING *Cloth*, a device for the catching of pheasants. It consists of a piece of coarse canvas, about an ell square, dipped in a tan-pit to colour it; and kept stretched by two sticks, placed from corner to corner, diagonal-wise: a hole being left to peep through. The sportsman then being provided with a short gun, carries the cloth before him at arms-end; under cover of which he may approach his game as near as he pleases: when near enough he puts the noale of his gun through the hole, and shoots.

COCKLE, *Pellunculus*. See PECTEN.

COCKLE. See *Dwarf*-GRASS.

COCKLE-*stairs*. See STAIRS.

COCKPIT, a sort of theatre, whereon game-cocks fight their battles. The *cockpit* is usually a house, or bowl, covered over; they fight on the clod, or green sod; which is generally marked out round, and encompassed with seats, one above another.

The COCKPIT *Laws*, are principally these; when cocks are set, none are to be on the sod but the two setters. When the cocks are set beak to beak, in the middle of the clod, and there left by the setters, if the set cock does not strike in counting twenty, and six times ten, and twenty after all, the battle is lost; but if he does strike, the battle is to begin again, and they must count again. If any one offers a mark to a groat, or forty to one, and the wager be taken, the cock must be set, and they are to fight it out. Done, and done, is a sufficient bet, or wager, when the cocks are call on the clod.

COCKPIT, in a man of war, is a place on the lower floor or deck, abaft the main-capstan, lying between the platform, and the steward's room; where are subdivisions, or partitions, for the purser, the surgeon, and his mates. See *Tab. Ship, fig.* 2. *lit.* Z.

COCKROAD, a contrivance for taking of woodcocks. This bird lies close by day, under some hedge, or near the root of an old tree, to peck for worms under dry leaves, and will scarce stir out, unless disturbed; as not seeing his way so well in the morning: towards the evening he takes wing to seek for water, flying generally low: and when he finds any thoroughfare in a wood, he ventures through it.

To take them, therefore, they plant nets in such places; or, for want of such places ready to their hands, they cut roads through woods, thickets, groves, &c.

These roads they usually make thirty-five, or forty feet broad, perfectly straight and clear; and to two opposite trees they tie the net, which has a stone fastened to each corner. Then, having a hand or place to lie concealed in, at a proper distance, with a stake near the same, to fasten the lines of the net to: when they perceive the game flying up the road, they unwind the lines from off the stake; upon which, the stones drawing it down, the birds are entangled in the same.

COCKSWAIN, or COCKSON, an officer aboard a man of war, who hath the care of the boat, or sloop, and all things belonging to it. He is to be always ready with his boat's gang, or crew, and to mind the boats on all occasions. He sits in the stern of the boat, and steers; and hath a whistle to call and encourage his men.

COCOA, or more properly CACAO; the nut whose kernel yields the chocolate. See PALM-*tree*.

COCOI, in *Ornithology*, the name of a very beautiful bird of the

the Britiſh, of the heron-kind, of the bigneſs of the common ſtork: its fleſh is very well taſted.

COCOON. See SILK.

COCROTALEON, in *Natural Hiſtory*, a name given by the ancients to an animal generated between the hyæna and the lioneſs. This animal is deſcribed as having many of the qualities of the MANTICHORA; and it ſeems with ſome to be only another name for the ſame beaſt. It is called alſo LEUCROCOTTA, and *laucerdia*, and ſometimes ſimply *crocotta*, or *corocta*.

COCTION, a general name for all alterations made in bodies by the application of fire, or heat.

There are various ſpecies of *coction*; as MATURATION, FRICTION, ELIXATION, ASSATION, TORREFACTION, DITTION, DECOCTION, and CONCOCTION.

Various liquors are uſed, and different portions of time allotted for *coction*, according to the different intention of operators; or the particular natures of the ſubſtances to be boiled: ſo that nothing general can be determined with reſpect to this, the obſervation of which would be of general uſe to the operator: but we are to judge of the manner in which particular ſubſtances are to be boiled, from a knowledge of the reſpective natures of the bodies to be ſubjected to this operation.

This *coction* of the aliments in the ſtomach is their digeſtion or reduction to a ſort of emuſſion or chyle.

COD-*fiſh*, is the largeſt of the genus of the *aſelli*, called ASELLUS *maximus* by authors; and ſometimes, ASELLUS *tertius*, *five ſtriatus*. The characters by which this is diſtinguiſhed from other fiſhes of the ſame genus are theſe; its colour on the back and ſides is a duſky olive colour, variegated with yellow ſpots; its belly is white; its ſides have a long white line running their whole length, from the gills to the tail, which at the abdomen is curved, but elſewhere is ſtraight; its ſcales are very ſmall, and adhere ſtrongly to the ſkin; its eyes are large; at the angle of the lower jaw there hangs a ſingle beard, which is ſhort, ſeldom exceeding a finger's length: its tongue is broad; it has ſeveral rows of teeth, one of which is much longer than all the others. Among theſe there are ſome moveable teeth, as in the pike; and in the palate, near the orifice of the ſtomach, and near the gills, it has ſmall cluſters of teeth. It has three back-fins, two at the gills, and two at the breaſt, and two others behind the anus: and the tail is plain.

This fiſh according to its age, the places where is caught, or cured, and other accidents, has alſo ſeveral names given it. From the various places, it is called, the *Haberdeen*, from Aberdeen in Scotland; the *Green-fiſh*, from Greenland; the *North-ſea cod*, from the Northern ocean; and the *Iceland fiſh*, from Iceland. From other cauſes, it is called *ſtock-fiſh*, from the neceſſity of beating it with ſticks, before it is fit to be dreſſed: *barrelled-cod*, when cured, and put up in barrels; when young, a *codling*; and by the Dutch and Americans, *cabiaw*.

According to the Artedian ſyſtem, it is a ſpecies of GADUS; and it is diſtinguiſhed from the other ſpecies of that genus, by having beards at the mouth, the upper jaw longeſt, and the tail not forked.

The *laſt*, when freſh, produces good juice, and is nouriſhing; but when ſalted, and become too old, it is neither ſo well taſted, nor ſo eaſy of digeſtion. The pickle of *cod* is of a diſſolving drying nature, when outwardly applied; it is alſo uſed, among other things, in clyſters; for it is laxative, becauſe it contains much ſalt, irritates the inteſtinal glands, and forces liquor out of them.

COD-*fiſhery*. See *Cod*-FISHERY.

CODA, in *Italian Muſic*, literally ſignifies a *tail*; but is uſed often at the end of a canon, for two or three meaſures to cloſe with, after having repeated it ſeveral times. The *coda* ſerves only to end the piece, which, without it, might be carried on to infinity.

CODA *lunata*, in *Ornithology*, the name given by the Italian authors to the ſpecies of duck called by others the *anas cauduacuta*, and vulgarly known, in ſome parts of England, by the names of the CRACKER, or *ſea-phaſiana*. It differs from all other birds of the duck kind in the ſhape of its tail, which has two feathers longer than the reſt, and ending in a point. See *Pintail* DUCK.

CODAGA-*tree*, a name given to that otherwiſe called CONESSI, or *conefli*.

CODDAM-*apple*, in *Botany*, a name by which ſome authors have called the tree which produces the gamboge, the *gutta gamba* of the ſhops.

CODDY-*mallard*, in *Ornithology*, the Engliſh name of a common water fowl of the *larus*, or GULL kind, and diſtinguiſhed by the names of the *larus fuſcus*, or *larus Hyperboreus*.

CODE, CODEX, a collection of the laws and conſtitutions of the Roman emperors; made by order of Juſtinian.

The word comes from the Latin *codex*, *a paper-book*; ſo called *a caudicibus*, or *candicibus arborum*, *the trunks of trees*, the bark whereof, being ſtripped off, ſerved the ancients to write their books on.

The *Code* is comprifed in twelve books, and makes the ſecond part of the civil, or Roman law.

There were ſeveral other *Codes* before the time of Juſtinian; all of them collections, or abridgments, of the Roman laws. Gregorius and Hermogenes, two lawyers, made each a collection of this kind, called from their names, the *Gregorian Code*, and *Hermogenian Code*. The former included the conſtitutions of the emperors from Adrian, or, as ſome ſay, Auguſtus, to Diocletian and Maximian. The latter was compiled in the age of the Conſtantines, and comprifed all the imperial conſtitutions of Diocletian and Maximian, beſides thoſe of Claudius, Aurelian, Probus, Carus, and Cyprian, to the year 296 or 312. We have nothing remaining of theſe but a few fragments; the compilations themſelves falling to the ground, for want of authority to put them in execution.

Theodoſius the younger was the firſt emperor, who made a *Code*, which was comprifed in fifteen books, formed out of the conſtitutions of the emperors from Conſtantine the Great to his own time; abrogating all other laws not included in it: and this is what we call the Theodoſian *Code*; which was publiſhed in the year 438, and received and obſerved, till annulled by the *Code* of Juſtinian.

The Theodoſian *Code* has been a long time loſt in the Weſt: Cujas took a great deal of pains to retrieve it, and to publiſh it in a better condition than ever. Gothofred has given us a comment on the Theodoſian *Code*; a work which coſt him thirty years.

In 506, Alarick king of the Goths made a new collection of the Roman laws, taken from the three former *Codes*; the Gregorian, Hermogenian, and Theodoſian, which he likewiſe publiſhed under the title of the Theodoſian *Code*. The *Code* of Alarick continued a long time in force; and was all the Roman law received into France.

This *Code* of Alarick is ſometimes called the *Code* of Anian, becauſe compiled by Anian, who was chancellor to Alarick.

Laſtly, the emperor Juſtinian, finding the authority of the Roman law exceedingly weakened in the Weſt, upon the decline of the empire, made a general collection of the whole Roman juriſprudence. The management hereof he committed to his chancellor Trebonianus; who choſe out the moſt excellent conſtitutions of the emperors, from Adrian to his own time; and publiſhed his work in 529, under the title of the New *Code*.

But becauſe Juſtinian had made ſeveral new deciſions, which made ſome alteration in the ancient juriſprudence, he retrenched ſome of the conſtitutions inſerted by Trebonianus, and added his own in their place: on which account he publiſhed a new edition of the *Code* in 534, and abrogated the former. See CIVIL *Law*.

There have been various other later *Codes*, particularly of the ancient Gothic, and of the French kings; as the *Code* of Frederic, the *Code* Michaux, *Code* Louis, *Code* Novo, *Code* Henry, *Code* Marchand, *Code des Eaux*, *Code* Noire, *&c.*

Code *of honour*, *Codex canonum*. See CANON.

CODEX, in *Antiquity*, a kind of puniſhment by means of a clog, or block of wood, to which ſlaves, who had offended, were tied faſt, and obliged to drag it along with them; and ſometimes they ſat on it cloſely bound.

CODIA, *Codia*, in *Botany*, is uſed for the top or head of any plant; but, by way of eminence, for that of the white poppy: whence the ſyrup made therewith is called *diacodium*.

CODICIL, a ſchedule, or ſupplement to a will, or other writing.

It is uſed as an addition to a teſtament, when any thing is omitted which the teſtator would add, explain, alter, or retract; and is of the ſame nature as a teſtament, except that it is without an heir, or executor.

So that a *codicil*, is a leſs ſolemn will, of one that dies either teſtate or inteſtate, without the appointment of an heir: teſtate, when he that hath made his *codicil* hath either before or afterwards made his teſtament, on which that *codicil* depends, or to which it refers: inteſtate, when one leaves behind him only a *codicil* without a teſtament, wherein he gives legacies only to be paid by the heir at law, and not by any heir inſtituted by will or teſtament.

A *codicil*, as well as a will, may be either *written*, or *nuncupative*. Some authors call a teſtament, a *great will*, and a *codicil* a *little one*.

But there is this farther difference between a *codicil* and a teſtament, that a *codicil* cannot contain the inſtitution of an heir; and that in a *teſtat.* a man is not obliged to obſerve

observe strictly all the formalities prescribed by law for solemn testaments.

In customary countries, testaments, properly speaking, are no more than *codicils*; because custom itself names the heir, and does not allow of testamentary substitutes. *Codicils* were first brought into use in the time of Augustus, by L. Lentulus: they were originally intended to follow the testament; which was, as it were, their basis. In process of time, *codicils* came to have their effect, even though made before the testament; provided there was nothing in the testament contrary to the *codicil*. People were also allowed to make *codicils* without testaments.

Raymond Lully has a book which he calls The *Codicil*, wherein he pretends to have left his readers the secret of the philosopher's stone; provided they do but understand it.

CODLIN-*tree*. See APPLE-*tree*.

CODON, in *Antiquity*, a cymbal, or rather a little brass-bell, resembling the head of a poppy. They were fastened to the trappings and bridles of horses.

CODON, is also used to signify the orifice of a trumpet.

COECUM, in *Anatomy*, the *blind gut*; the first of the thick intestines; so called, because made like a sack, having but one aperture, which serves it for both entrance and exit. It is situate on the right side, below the kidney; and in length is about the breadth of three or four fingers. In children new-born, and in quadrupeds, it is found full of excrements; but in adults, &c. it frequently disappears, or hangs like a worm.

Its use in adults is very obscure; in a *fœtus*, or infant newly born, it appears to serve as a receptacle of the *fœces* during such time as the animal does not discharge by stool. See APPENDIX.

Dr. Gibbon imagines it may likewise serve in such animals as have it large, as dogs, coneys, rats, &c. for a kind of second ventricle, or bag, wherein the prepared aliment may be retained, while a richer and more nutritious juice is drawn from it.

Others will have it contain a ferment: and others, the flatus of the intestines: others fancy it may separate a humour, by some glands placed in it to harden the excrements as they pass through the colon.

Dr. Lister assigns the use of the *cæcum* to be, to keep the excrements which pass into the cavity (as most of those of sound animals, he thinks, do), till they are sufficiently drained, baked, and hardened, to receive the figure to be given them by the colon and rectum. He adds, to confirm this, that wherever there are regularly figured excrements of the first kind, there is a capacious *cæcum*, and *vice versâ*. That supposed is true that some animals, which are naturally loose, have either no *cæcum* at all, or very little; as the *lupus*, *echinus terrestris*, *gulo*, &c. The intention of nature, in thus providing for the figuration of the excrements, he takes to be, first, to prevent diarrhœas; secondly, to make the creature abide hunger the better, (thus it is, that fowls in winter, rest with full intestines); and, lastly, to heighten the digestion and fermentation in the stomach and small guts.

Dr. Musgrave gives us an account, in the Philosophical Transactions, of the *cæcum* of a dog being cut out, without any prejudice to the animal. M. Giles gives us another, of the *cæcum* of a lady being distended so as to form a tumor, that held almost three chopines of a thin greyish, and almost liquid substance, whereof she died. And Mr. Knowles, a third, of a boy's *cæcum* being vastly extended, and stuffed with cherry-stones, which likewise proved mortal.

Some say, the name *cæcum* is mistaken; not allowing this to be the *cæcum* of the ancients, which they imagine to be the thick globous part of the colon, immediately appended to the ileum; and therefore gives this part the name of *appendicula vermiformis*.

CO-EFFICIENTS, in *Algebra*, are numbers, or given quantities, prefixed to letters, or unknown quantities, into which they are supposed to be multiplied; and therefore, with such letters, or with the quantities represented by them, make the rectangle or product, *ex-sistent per-aduction*, whence the name.

Thus, in $3a$, or $b\times$, or Cx^3; 3 is the *co-efficient* of $3a$: b, of bx: and C, of Cx^3. If a letter have no number prefixed, it is always supposed to have unit for the *co-efficient*. Thus, a, or $1a$, import as much as $1a$, or $1b$. The *co-efficient*, in a quadratic equation, is according to its sign, either the sum, or the difference of the two roots.

In any equation of a higher nature, the *co-efficient* of the second term is always the aggregate of all the roots retaining their proper signs; so that if all the negatives be equal to all the affirmatives, the second term will vanish; and when the second term is thus wanting, it is a sign that the quantities under contrary signs were thus equal.

The *re-sistent* of the third term is the aggregate of all the rectangles arising by the multiplication of every two of the roots, how many ways soever those combinations of roots can be had; as three times in a cubic, six in a biquadratic equation, &c.

The *co-efficient* of the fourth term is the aggregate of all the solids made by the continual multiplication of every three of the roots, how often soever such a ternary can be had; as there may be four in a biquadratic, five in an equation of five dimensions, &c. And thus it will go on infinitely.

CO-EFFICIENTS *of the same order*, in *Algebra*, is a term sometimes used for the *co-efficients* prefixed to the same unknown quantities, in different equations.

Thus, in the equations $\left\{\begin{array}{l} ax+fy+gz=m \\ dx+ey+fz=n \\ gx+fy+cz=p \end{array}\right\}$ the *co-efficients* a, d, g, are of the same order, being the *co-efficients* of x: also e, f, b, are of the same order, being the *co-efficients* of y, &c. The *co-efficients* also that affect no unknown quantity, are said to be of the same order.

CO-EFFICIENTS, *opposite*, such as are taken each from a different equation, and from a different order of *co-efficients*. Thus in the foregoing equations, a, e, b, and d, b, f, as also d, e, b, are *opposite co-efficients*.

COEHORN. See MORTAR.

COELESTIAL, in a general sense, denotes any thing belonging to the *cœlum* or the heavens. Thus

COELESTIAL *observations* are observations of the phenomena of the heavenly bodies, made with a proper apparatus of astronomical instruments, in order to determine their places, motions, phases, &c.

The instruments chiefly used in *cœlestial* observations are the astronomical QUADRANT, MICROMETER, and TELESCOPE.

Observations in the day-time are easy: because the cross hairs in the focus of the object-glass of the telescope are then distinctly perceivable; in the night, those cross hairs are to be illumined to make them visible.

This illumination is either performed by a candle, placed obliquely near them, so that the smoke doth not intercept the rays; or, where this is inconvenient, by making an aperture in the tube of the telescope, near the focus of the object-glass, through which a candle is applied to illumine the cross hairs.

M. De la Hire has made an improvement on the first method, which renders it of very good use: and it is by covering that end of the tube next to the object-glass with a piece of gauze, or fine white silken crape. For, in such case a link placed at a good distance from the tube, so enlightens the gauze, as to render the cross hairs very perceivable.

Observations of the sun are not to be made without placing a glass, smoaked in the flame of a lamp or candle, between the telescope and the eye; to take off from its lustre, which would otherwise damage the eye, were not a good part of its beams intercepted.

Note, when any of the heavenly bodies are observed through a telescope of only two glasses, they appear inverted.

Cœlestial observations are chiefly of two kinds; the one, when the objects are in the MERIDIAN; the other when they are in VERTICAL circles.

COELESTIAL *globe*. See GLOBE.

COELIA, κοιλια, or κοιλον. This has many different significations; first, it imports a cavity in any part of the body, or in any of the viscera: secondly, it implies the same as *uterus*. The κοιλια, with the addition of κατω, that is, κοιλια κατω, in the lower belly, or intestinal tube.

COELIAC *artery*, the first artery detached from the descending trunk of the aorta into the abdomen.

It divides into two branches, the one on the right side, the other on the left; of which the first gives the *gastrica dextra*, which goes to the stomach; the *cystica*, which goes to the gall-bladder; the *epiploica dextra* to the *omentum*; the *intestinalis* to the *duodenum*, and to a part of the *jejunum*; and the *gastro-epiploica* to the stomach, to the *omentum*, and some branches to the liver, which enter the *capsula communis*, to accompany the branches of the *vena portæ*.

The left branch of the *cœliaca* gives the *gastrica dextra*, which is also spread upon the stomach; the *epiploica sinistra*, which goes to the *omentum*; and the *splenica* to the substance of the spleen. See each branch described in its place.

CŒLIAC *passion*, is a sort of diarrhœa, or flux of the belly; wherein the aliment comes away either crude or chylified, in lieu of excrements.

Dr. Friend recommends, for this disorder, such medicines as gently stimulate the intestinal tube, and deterge the obstructed glands; such as light and frequent purges and gentle vomits of ipecacuanha.

Authors frequently confound the *coeliac passion* with the *lientery*; but they are different.

There is also COELIAC *diuretics*, called *cœliaca urinalis*, wherein the chyle passes off along with, or instead of urine. See DIABETES.

COELIAC *vein*, is that which runs through the *intestinum rectum*. See RECTUM.

COELICOLOR, in *Natural History*, a name given by some to the OPAL.

COELOMA, in *Surgery*, a hollow and round ulcer, in the horny tunic of the eye.

COELUM. See HEAVEN.

COELUM is also used by some anatomists for the cavity of the eye towards the angles, or *canthi*. See EYE, CANTHUS, &c.

COELUS, in *Mythology*, one of the heathen deities, the same with the Greek *Uranus*.

COEMETERIUM. See CEMETRY.

COEMPTIONALES, among the Romans, an appellation given to old slaves, which were sold in a lot with others, because they could not be sold alone.

COENA *domini, bull*. See BULL.

COENOBITE, a religious, who lives in a convent or in community, under a certain rule; in opposition to ANACHORET, or HERMIT, who lives in solitude.

The word comes from *koinos*, *communis*, and *bios*, *vita*, *life*. Cassian makes this difference between a *convent* and a *monastery*, that the latter may be applied to the residence of a single religious, or recluse; whereas the *convent* implies *conventus*, or numbers of religious living in common.

Fleury speaks of three kinds of monks in Egypt; *anachoreti*, who live in solitude; *cœnobiti*, who continue to live in community; and *sarabaites*, who are a kind of monks errant, that stroll from place to place.

He refers the institution of *cœnobites* to the times of the apostles, and makes it a kind of imitation of the ordinary lives of the faithful at Jerusalem. Though St. Pachomius is ordinarily owned the institutor of the *cœnobite* life; as being the first who gave a rule to any community.

COENOBIUM, the state of living in a society, or community where all things are in common. Pythagoras is thought to be the author, or first institutor of this kind of life, his disciples, though some hundreds in number, being obliged all to give up their private estates, in order to be annexed to the joint stock of the whole. The Essenians among the Jews and Platonists, are said to have lived in the same manner. Many of the Christians also have thought this the most perfect kind of society, as being that in which Christ and his apostles chose to live. See CENOBITE.

COENOTAPH. See CENOTAPH.

CO-EQUALITY, a term expressing the relation of EQUALITY between two things.

The retainers to St. Athanasius's doctrine of the Trinity hold the Son and Holy Spirit *co-equal* with the Father. The Arians, &c. deny the *co-equality*. See TRINITY, and ARIAN.

COERULEUM *montanum*, signifies *mountain-blue*, which is called by some authors, CHRYSOCOLLA; it is a blue ORE *of copper*.

CŒRULEUM *minerum*. See ARMENIAN *stone*.

COES, among *miners*, are little hooles, which the miners make over their mines to lay ore in.

CO-ETERNITY is used, among *Divines*, to denote the ETERNITY of one being equal to that of another.

The orthodox hold the second and third persons in the Trinity *co-eternal* with the first.

COEUR, in *Heraldry*.—*Party-en* CŒUR, signifies a short line of partition in pale, in the centre of the escutcheon, which extends but a little way, much short of top and bottom; being met by other lines, which forms an irregular partition of the escutcheon, as represented in *Tab. Heraldr. fig.* 43.

CO-EXISTENCE, a term of relation, denoting two or more things to exist together at the same time, &c. See EXISTENCE.

COFFEE, in *Natural History*, a seed, or berry, brought from Arabia Felix; used for making a potable liquor of the same name.

That from the Levant is most esteemed, being greener, heavier, and appearing riper and plumper, than that from Mocha; which is larger, lighter, and whiter.

For *coffee-berries*, some substitute peas, beans, rye, and barley, which roasted, yield an oily matter, resembling in flavour, but less agreeable, as well as much less strong, than *coffee*.

COFFEE also denotes a kind of drink prepared from these berries: very familiar in Europe for more than a hundred years, and among the Turks for two hundred and fifty. The original is not well known: some ascribe it to the prior of a monastery, who, being informed by a goat-herd, that his cattle, sometimes browsing on the tree, would wake and capes all night, became curious to prove its virtues; accordingly, he first tried it on his monks, to prevent their sleeping at matins. Others, from Schebaeddin, refer the invention of *coffee* to the Persians; from whom, they say, it was learned in the fifteenth century by Gemaleddin, mufti of Aden, a city near the mouth of the Red Sea; who, having tried its virtues himself, and found that it dissipated the fumes which oppressed the head, inspired joy, opened the bowels, and prevented sleep, without being incommoded by it; recommended it first to his dervises, with whom he used to spend the night in prayer.

Their example brought *coffee* into vogue at Aden; the professors of the law for study, artizans to work, travellers to walk in the night, in fine, every body at Aden, drank *coffee*. Hence it passed to Mecca, where first the devotees, then the rest of the people, took it. From Arabia Felix it passed to Cairo.

In 1511, Khaire Beg prohibited it, from a persuasion that it inebriated, and that it inclined to things forbidden. But Selem Canfou immediately after took off the prohibition, and *coffee* advanced from Egypt to Syria and Constantinople.

The dervises declaimed against it from the Alcoran, which declares that coal is one of the number of things created by God for food. Accordingly, the mufti ordered the *coffee*-houses to be shut up; but his successor declaring *coffee* not to be coal, they were opened again. During the war in Candia, the assemblies of newsmongers making too free with state-affairs, the grand vizier Coprili suppressed the *coffee*-houses at Constantinople; which suppression, though still in force, does not prevent the public use of the liquor there. The first the traveller was the first who brought it into France; and a Greek servant called Pasqua, brought into England by Mr. Dan. Edwards, a Turkey Merchant, in 1652, to make his *coffee*, first set up the profession of *coffee-man*, and introduced the drink among us: though some say Dr. Harvey had used it before. The first mention of it in our statute-books is in the year 1660, when a duty of four pence was laid on every gallon of *coffee* made and sold; and in 1675, king Charles issued a proclamation to shut up the *coffee*-houses, because they were seminaries of sedition. The French first conveyed some plants to Martinico in 1727, whence it probably spread to the neighbouring islands.

The word *coffee* is originally Arabic: the Turks pronounce it *cahuah*, and the Arabs *cahuah*; which some authors maintain to be a general name for any thing that takes away the appetite; others, for any thing that promotes appetite; and others again, for any thing that gives strength and vigour.

The Mahometans, it is observed, distinguish three kinds of *cahuah*: the first is wine, or any liquor that inebriates: the second is made of the pods that contain the *coffee*-berry; this they call the *sultanes coffee*, from their having first introduced it, on account of its heating less than the berry, as well as its keeping the bowels open; the third is that made with the berry itself, which alone is used in Europe, the pods being found improper for transportation. Some Europeans, who imported the pods called them the *flower of the coffee-tree*.

The deep brown colour of the liquor occasioned its being first called *sherp of the Indian mulberry*; under which specious name it first gained ground in Europe.

The preparation of *coffee* consists in roasting, or giving it a just degree of torrefaction, on an earthen or metalline plate, till it hath acquired a brownish hue, equally deep on all sides: it is then ground in a mill, as much of it as serves the present occasion. A proper quantity of water is next boiled, and the ground *coffee* put in it. After it has just boiled, it is taken from the fire; and the decoction having stood a-while to settle, and fine, they pour, or decant it into dishes.

The custom is to drink *coffee* as hot as possible, with sugar; though the Turks do not trouble themselves to take off its bitterness with any sugar: their grandees add to each dish a drop of essence of ambergris: others boil it with a couple of cloves; others, a little anise-seed; others, cacoutich, or the grain of the cardamomum minus.—*Coffee* is one of the necessaries with which the Turks are obliged to furnish their wives.

The ordinary method of roasting *coffee* among us, is in a tin cylindrical box, full of holes; through the middle whereof runs a spit: under this is a semicircular hearth, wherein is a large charcoal fire: by help of a jack, the spit turns round, and so roasts the berries; being now and then taken up to be shaken. When the oil rises, and is become of a dark brown colour, it is emptied into two receivers, made with large hoops, whose bottoms are iron plates, into which these fall: there the *coffee* is shaken, and left till almost cold; and if it look bright and oily, it is a sign it is well done.

Coffin

Coffee is taken with very different, nay, frequently with directly opposite intentions; some use it to prevent sleep, others to promote digestion, &c. Its more real virtues, owned by the physicians, consist in this; that being an excellent stitic, it carries off fumes and blemishes of the head, arising from too much moisture, dissipates meagrims, and assists the astringency of the stomach; whence its use, after a debauch of strong liquors; and hence also its use in promoting watchings, bracing the fibres, and rendering them too tense for the relaxation required in sleep. It likewise promotes circulation, but that best with people of a pretty corpulent habit; being found hurtful in those who are thin, lean, dry, and of a bilious temperament; as it dries up the nerves, and inclines them to tremors: it is said to be prejudicial likewise to those who digest too fast; where the circulation is too quick, or where there is a spitting of blood arising from the mouth of any of the veins and arteries being too open, or the blood too thin and sharp.

Mr. Boyle mentions an instance of a person to whom *coffee* always proved emetic; and that much drinking of it produced the palsy. It is also known to be purgative to others.

The oily matter that separates from the *coffee*, and appears on its surface when roasted; and its particular smell, which distinguishes it from peas, beans, rye, &c. which some substitute in lieu of *coffee*, are to be the real indications of its effects. If considered with regard to the oil drawn by the retort, this, as well as that, contains volatile principles, both saline and sulphureous.

It is to the dissolution of its salts, and the mixture of its sulphurs in the blood, that its chief faculty of promoting watchfulness is to be attributed: hence also its property of promoting digestion, of precipitating foods, of preventing eructations, and of correcting acrimonies of the stomach, when taken after meals.

Hence also that fermentation of the blood, serviceable to corpulent people: hence also its diuretic virtue. By experience it is found of service to drink a glass of water before *coffee*, to render it laxative; and to mix it with milk or cream, to extinguish its sulphurs, embarrass its saline principles, and to render it nourishing.

S. Paulli, a Danish physician, maintains, that it enervates men, and renders them incapable of generation: and it is certain the Turks attribute the same effects to it; and from the immoderate use hereof, account for that dulness of intellect found in their provinces, formerly the best peopled. But this opinion is refuted by Du Four. M. Malebranche gave the Royal Academy of Sciences an account of a person cured of an apoplexy, by means of several glysters of *coffee*. It has proved of service in the case of an ASTHMA. From some experiments recited by Dr. Percival in vol. II. of his Essays Med. and Exp. it appears, that *coffee* is slightly astringent and antiseptic; that it restrains fermentation; and has a powerful sedative action on the nervous system.

For the laws relating to this commodity, see 6 and 7 W. III. c. 7. 3 and 4 Ann. c. 4. 10 Ann. c. 26. 5 Geo. I. c. 11. 10 Geo. I. c. 10. 11 Geo. I. c. 30. 5 Geo. II. c. 24. 15 Geo. II. c. 11. 5 Geo. III. c. 45. 19 Geo. III. c. 56.

The duty on *coffee* paid on importation is three pence a pound, besides an inland duty to be charged on the maker or seller of 2*s.* 6*d.* a pound, excepting for *coffee* grown in America, which pays only 1*s.* 6*d.* a pound.

No person is allowed to sell or retail *coffee* without a license, under the penalty of 5*l.* a month; and no person shall mix any materials to increase the weight, under a penalty of 100*l.* Every dealer in *coffee*, &c. is to have his house marked, *dealer in coffee*, &c. under a penalty of 20*l.* See TEA.

COFFEE-*tree*, *Coffea*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flower hath one petal, which is funnel-shaped, having a narrow cylindrical tube, and is plain at the top, where it is indented in five parts; it hath five stamina, which are fastened to the tube; the roundish germen afterwards becomes an oval berry, containing two hemispherical seeds, plain on one side, and convex on the other. We have but one species, which is supposed to be a native of Arabia Felix, where it was first cultivated for use; and to this day it is the country from whence the best *coffee* is brought to Europe. It is a low tree in the native country of its growth, where it seldom rises more than sixteen or eighteen feet high.

The great fault of the American *coffee* is the want of flavour, or having a disagreeable one; though the berries are much larger than those imported from Arabia. It is the constant practice of the planters to gather the fruit while it is red; at which time the berries are larger, and of greater weight than those which are permitted to ripen perfectly on the tree, which is not until they are turned black: whereas in Arabia they always shake the berries from the trees, spreading cloths under them to receive them; and take only such as readily fall each time.

As the *coffee-tree* is an ever-green, it makes a beautiful appearance at every season in the stoves: but particularly when it is in flower, and also when the berries are red, which is generally in the winter, so that they continue a long time in that state: these is scarce any plant therefore which deserves a place in the stoves more than this.

It is propagated by the berries, which must be sown soon after they are gathered from the tree; for if they are kept out of the ground any time, they will not grow.

COFFER, a large square box about three feet long, and one and a half broad, used for breaking in pieces an ore in a stamping-mill.

COFFER, *Coffa*, in *Architecture*, a square depression, or sinking, in each interval between the mouldings of the Corinthian cornice; ordinarily filled up with a rose, sometimes with a pomegranate, or other enrichment.

These sinkings, called also *panels*, are of different figures in the compartiments of vaults and soffits.

COFFER, in *Fortification*, denotes a hollow lodgment, athwart a dry moat, from six to seven feet deep, and from fifteen to eighteen feet broad: the upper part made of pieces of timber raised two feet above the level of the moat; which little elevation has hurdles laden with earth, for its covering; and serves as a parapet, with embrasures.

The *coffer* is nearly the same with the caponiere, excepting that this last is sometimes made beyond the counterscarp on the glacis, and the *coffer* always in the moat, taking up its whole breadth, which the caponiere does not.

It differs from the traverse, and gallery, in that these latter are made by the besiegers, and the *coffer* by the besieged.

The besieged generally make use of *coffers* to repulse the besiegers, when they endeavour to pass the ditch. To save themselves from the fire of their *coffers*, the besiegers throw up the earth on that side towards the *coffer*.

COFFER-*dam*, in French *Batardeaux*, in *Building*, denote inclosures formed for laying the foundation of piers, and for other works in water, in order to prevent the ambient water from interrupting the workmen.

These inclosures are sometimes single, sometimes double, with clay rammed between them: sometimes they are made with piles driven close by one another; sometimes the piles are notched or dove-tailed into one another; but the most usual method is to drive piles with grooves in them, at the distance of five or six feet from each other, and then boards are let down between them. See BRIDGE.

COFFERER *of the King's Household*, a principal officer in the court, next under the comptroller; who, in the compting-house, and elsewhere at other times, has a special charge and overlight of other officers of the house, for their good demeanour and carriage in their offices: to all whom he pays their wages. See HOUSEHOLD.

COFFIN, in a general sense, a wooden box or trunk, into which the bodies of dead persons are put, in order for burial.

COFFIN, in the *Manege*, the whole hoof of a horse's foot, above the coronet; including the *coffin*-bone, the sole, and the frush.

COFFIN-*bone*, is a small spongy bone, enclosed in the midst of the hoof, and possessing the whole form of the foot.

COFFIN-*joint*, is that where the lesser pastern joins the foot. A strain in this joint occasions a stiffness, which can only be removed by blistering and firing.

COFFIN, in the *Manufactures of China*. See CALLIATTE.

COGGESHALL'S *Sliding Rule*, an instrument used in gauging, so called from its inventor. See the description and use under SLIDING-RULE.

COGGLE, or COG, a small fishing-boat upon the coasts of Yorkshire; and *cogs* (*cogones*) are a kind of little ships or vessels used in the rivers Ouse and Humber. Stat. 23 H. VIII. c. 18. *Prætaxatis cogonibus, galeis, & aliis navibus, &c.* Mat. Paris, ann. 1066. And hence the cogmen, boatmen, and seamen, who after shipwreck or loss by sea, travelled and wandered about to defraud the people by begging and stealing; until they were restrained by divers good laws.

COGITATION, the act or operation of thinking. See THINKING.

COGNATION, in the *Civil Law*, the bond of relation between all the descendants of the same stock, both males and females; by which it is distinguished from *agnation*, which only comprehends the descendants of the male sex.

In France, for the succession to the crown they follow *agnation*; in England, Spain, &c. *cognation*; women coming

coming to the succession, according to the degree of proximity, in default of males, or their descendants from branch to branch.

In the *Roman Law*, the words *cognatio* and *cognati* are also taken in a more limited sense; *cognatio* signifying only the bond of relation between the descendants from the same stock by women; and *cognati* those between whom there was such a bond of relation subsisting.

COGNIOL, in *Ichthyology*, a name given by some to the fish more usually called *coius*, a kind of mackrel, differing from the common kind in nothing but that it is much smaller.

COGNISEE, or COGNIZEE, in *Law*, is the person to whom a fine of lands, &c. is acknowledged.

COGNISOR, or COGNIZOR, is he that passeth, or acknowledgeth a fine of lands and tenements to another. See COGNIZANCE.

COGNITIVE, is sometimes applied to that faculty or power of the human mind, by which we know any thing, or are enabled to distinguish truth from falsity.

Latin writers use the term *facultas cognoscitiva* in the same sense.

Hobbes has made use of the term *cognitive* power, for the power of knowing, or conceiving, in contradistinction to motive power, or appetite.

COGNITIONES *mittendi*, in *Law*, a writ to any of the king's justices of the common pleas, who has the power of taking a fine, and who, having taken a fine, defers to certify it, commanding him to certify the same.

COGNIZANCE, or COGNISANCE, in *Heraldry*. See CREST.

COGNIZANCE, or COGNISANCE, in *Law*, is the acknowledgment of a fine; or the confession of a thing done.

In which sense we say, *cognizans iuris, a chief that cognizes*.

COGNIZANCE is also used for the power, or jurisdiction.

Thus, *cognizance of pleas*, denotes an ability to call a plea out of another court, which no one but the king can do, unless he can shew a particular charter for it. Thus, if a scholar or other privileged person of the universities of Oxford or Cambridge, is impleaded in the courts of Westminster, for any cause of action, except a question of freehold; in such a case the chancellor or vice-chancellor, by charter confirmed by statute, may put in a claim or *cognizance*; which, if made in time, and accompanied with due proof, of the facts alledged, is allowed by the courts.

COGNIZANCE is sometimes used also for an audience, or hearing of a matter judicially. In which sense we say, *to take cognizance, &c.*

COGNIZANCE, again, is used for a badge on a waterman's or serjeeman's sleeve, which is commonly the giver's cost, whereby he is discerned to belong to this or that nobleman, or gentleman.

COGNOVIT *actionem*, in *Law*, is where a defendant acknowledges or confesses the plaintiff's cause against him to be just and true; and after issue, suffers judgment to be entered against him without trial. But most frequently the defendant confesses one part of the complaint, and traverses or denies the rest.

COGS, See COGGLE.

COGWARE is said to be a sort of course cloths, made in divers parts of England, of which mention is made in 15 H. 6. c. 12.

COHABITATION, implies a concubinage, copulation, or carnal knowledge, between two persons. It is rarely used except in a criminal sense.

COHEIR, a person who shares an inheritance or estate with another heir.

COHERENCE, a school-term, applied to propositions, discourses, &c. which have a CONNEXION, or dependance, on one another.

COHESION, or COHAESION, in *Physics*, the action whereby the particles, or primary corpuscles, whereof natural bodies consist, are connected, or bound together, so as to form particles; and those again kept together, so as to form sensible masses, or bodies.

The cause of this *cohesion*, or *mean materia*, has extremely perplexed the philosophers of all ages. In all the systems of physics, matter is supposed originally to be in minute, indivisible atoms.

How and by what principle these several and distinct corpuscles should come first joined and combined into little systems; and how they should come to persevere in that state of union; is a point of the most difficulty, and even of the most importance, of any in physics.

The opinion, maintained by many, is that so strenuously defended by J. Bernoulli, De Gravitate Ætheris; who accounts for the *cohesion* of the parts of matter, from the uniform pressure of the atmosphere: confirming this doctrine from the known experiment of two polished marble planes, which cohere very strongly in the open air; but easily drop asunder in an exhausted receiver.

However, if two plates of this kind be smeared with oil, to fill up the pores in their surfaces, and prevent the lodgment of air, and one of them be gently rubbed upon the other, they will adhere so strongly, when superficial even in an exhausted receiver, that the weight of the lower plate will not be able to separate it from the upper one. But though this scheme might serve tolerably well to explain the *cohesion* of compositions, or greater collections of matter, yet it falls short of accounting for that first *cohesion* of the atoms, or primitive corpuscles, whereof the corpuscles of hard bodies are composed.

Sir Isaac Newton delivers his doctrine of *cohesion* thus: "the particles of all hard homogeneous bodies, which "touch one another, *cohere* with a great force; to account for which, some philosophers have recourse to a "kind of hooked atoms, which, in effect, is nothing "else but to beg the thing in question. Others imagine, "that the particles of bodies are connected by rest, i. e. "in effect, by nothing at all; and others by conspiring "motions, i. e. by a relative rest among themselves. "For myself, it rather appears to me, that the particles "of bodies *cohere* by an attractive force, whereby they "tend mutually toward each other; which force, in "the very point of contact, is very great; at little di- "stances is less; and at a little farther distance is quite "insensible."

It is not certain in what proportion this force increases or decreases. Defaguliers conjectures, from some phenomena, that it decreases in a biquadratic ratio of the increased distance, so that at twice the distance it acts sixteen times more weakly, &c.

"Now, if compound bodies be so hard, as by experience we find some of them to be, and yet have a "great many hidden pores within them, and consist of "parts only laid together; no doubt those simple parti- "cles which have no pores within them, and which "were never divided into parts, must be vastly harder. "For such hard particles gathered into a mass, cannot "possibly touch in more than a few points; and there- "fore much less force is required to sever them than "to break a solid particle, whose parts touch through- "out all their surfaces, without any intermediate pores "or interstices. But how such hard particles, only laid "together, and touching only in a few points, should "come to *cohere* so firmly as in fact we find they do, is "inconceivable; unless there be some cause, whereby "they are attracted and pressed together.

"Now the smallest particles of matter may *cohere* by "the strongest attractions, and constitute larger, whose "attracting force is feebler: and, again, many of these "larger particles *cohering*, may constitute others still "larger, whose attractive force is still weaker; and so "on for several successions, till the progression end in "the highest particle, on which the operations in che- "mistry, and the colours of natural bodies, do depend; "and which, by *cohering*, compose bodies of a sensible "magnitude."

The different degrees of *cohesion* constitute bodies of different forms and properties. Thus, the same great author observes, the particles of fluids, which do not *cohere* too strongly, and are small enough to render them susceptible of tender agitations which keep liquors in a fluor, are most easily separated and rarefied into vapour, and make what the chemists call *volatile bodies*; being rarefied with an easy heat, and again condensed with a moderate cold.

Those whose particles are grosser, and so are less susceptible of agitation, or *cohere* by a stronger attraction, are not separable without a greater degree of heat; and some of them not without fermentation: and these make what the chemists call *fixt bodies*.

Air, in its fixed state, possesses the interstices of solid substances, and probably serves as a bond of union to their constituent parts; for when these parts are separated, the air is discharged, and recovers its elasticity. See AIR, *fixed*.

This kind of attraction is evinced by a variety of familiar experiments; as, by the union of two contiguous drops of mercury; by the mutual access of two pieces of cork, floating near each other in a bason of water; by the adhesion of two leaden balls, whose surfaces are scraped and joined together with a gentle twist, which is to considerable, that, if the surfaces are about a quarter of an inch in diameter, they will not be separated by a weight of 100 lb; by the ascent of oil or water between two glass planes, so as to form the hyperbolic curve, when they are made to touch on one side, and kept separate at a small distance on the *other*—see ASCENT; by the depression of mercury, and by the rise of water in CAPILLARY *tubes*, and on the sides of glass vessels; and also *linings*, *sponges*, and all porous substances. And where this *cohesive* attraction ends, a power of REPULSION begins. Professor Muschenbroeck has made many experiments

in

in order to determine the force of *cohæsion* in a great variety of different subjects. The adhesion of polished planes, about two inches in diameter, heated in boiling water, and besmeared with grease, required the following weights to separate them.

	Cold grease.	Hot grease.
Planes of Glass,	130lb.	300lb.
Brass,	150	800
Copper,	200	850
Marble,	225	600
Silver,	150	250
Iron,	300	950

But when the planes were made to adhere by other sorts of matter, the results were as in the following table:

With Water,	12 ounces.
Oil,	18
Venice turpentine,	24
Rosin,	850lb.
Tallow candle,	800
Pitch,	1400

In estimating the *absolute cohæsion* of bodies, he applied weights to separate them according to their length: his pieces of wood were of a long square figure, each side of which was .126 of an inch, and they were broken asunder by the following weights:

Wood of Linden tree,	1000lb.
Alder,	1000
Fir,	600
Oak,	1150
Elm,	950
Beech,	1350
Ash,	1250

He also tried wires of metal one tenth of a Rhinland inch in diameter: the metals and weights were as follow:

Of Copper	290lb.
Yellow brass,	360
Gold,	500
Silver,	370
Iron,	450
Tin,	40½
Lead,	29½

He then tried the *relative cohæsion*, or the force with which bodies resist an action applied to them in a direction perpendicular to their length. For this purpose he put pieces of wood by one end into a square hole of a metal plate, and hung weights towards the other end sufficient to break them at the hole; the weights and distances from the hole are exhibited in the following table:

	Distance.	Weights.
Fir,	9 inches,	40 ounces.
Oak,	8½	48
Elm,	9	44
Pine,	9½	36½
Alder,	9½	48
Beech,	7	56½

See Introductio ad Cohærentiam Corporum firmorum apud Physicæ Exper. & Geom. Dissertationes, p. 431, &c. and Introductio ad Philos. Nat. 4to. ed. 1702. tom. i. cap. 21.

COHOBATION, in *Chemistry*, a repeated distillation of the same matter, with the liquor drawn from it; that liquor being again and again returned upon the matter left at the bottom.

Cohobation is a kind of circulation, only differing from it in this, that the liquor is drawn off in *cohobation*, as in common distillation; and thrown back again; whereas in CIRCULATION it rises and falls in the same vessel, without ever being carried out.

The intention of *cohobation* is to dissolve the body, or to produce some change upon it. The operation is now neglected; but the ancient chemists practised it with great patience and zeal. To make it easier, and to prevent the great trouble of changing or moving the vessels, a particular kind of alembic is contrived, very convenient for the purpose, which is called a PELICAN.

COHORS *equitata*, in old inscriptions, has perplexed several antiquarians, who have been taught to consider the *cohorts* as appropriated to the foot service, as the *ala* and *turmæ* were to the horse. Mr. Horsley, in particular, imagines, the *cohors prima Claudia equitata*, which he had met with, was intended to intimate that this *cohort* had been promoted from the horse service; but when, by another inscription, he was led to consider that corps as consisting of a thousand horse, his difficulty is increased to that degree, that he knows not what to affirm upon it. But the learned Dr. Taylor thinks there is an easy solution of this difficulty.

The auxiliary, or provincial *cohorts*, were either entirely, or purely foot, like the the legionary or ordinary *cohorts*; or else they had a mixture of both kinds of militia, as appears from Gruter, DCXXIV. 5. This latter sort, as they could not properly be ranked under either denomination of horse, or foot, being made up of both, seem to have appropriated to themselves the distinguishing title of *cohortes equitatæ*, corps of infantry with a mixture of horse. And of this term we find frequent mention in inscriptions.

Hyginus also, *de* Castrametatione, gives us a full and decisive proof of this denomination, and of the manner of which such COHORTS consisted. Their troops consisted of a thousand men, part horse, and part foot, and were hence called *milliariæ*. The proportion of the horse to the foot was 240 to 760. His words are: *Hodie cohors equitata milliaria peditum octo partes, equitum tres habet; quidam decimas equitum quadraginta, centum decem.* Vide Phil. Trans. N° 480. sect 3.

COHORS *milliaria*. *See* above COHORS *equitata*.

COHORT, COHORS, in *Roman Antiquity*, a body of infantry, consisting of five or six hundred men; answering in most respects to our BATTALION.

The *cohort* was divided into three *manipules*, or companies; the manipuls into two centuries; and the century into an hundred men.

The first centurion in the first *cohort* was called *primipilus*; and had the charge of the eagle, or standard of the legion.—A legion consisted of ten *cohorts*.

When the army was ranged in order of battle, the *cohorts* were disposed in the following manner: the first *cohort* took up the right of the first line, as the companies of grenadiers do in our regiments; the rest follow'd in their natural order; so that the third was in the centre of the first line of the legion, and the fifth on the left; the second between the first and third; and the fourth between the third and fifth. The five remaining *cohorts* formed a second line in their natural order; thus the sixth was behind the first, and so of the rest.

The first, third, and fifth *cohorts*, were esteemed the best; at least it appears so from the post they took up, which were looked on by the Romans as the most important.

Marius is by some said to have been the first who divided the Roman forces into *cohorts*: which opinion seems confirmed by Festus; *Non enim in usu Latii fuerunt cohortium fit mentio, neque dubito, quin fecerint ea C. Marius primum cohortes ejus instituens.* But yet this is a great mistake, for the *cohorts* are often mentioned in Livy, and particularly, lib. xxvii. c. 13. *Marcellus—cohortibus quæ forma antiquata hordium dari solet, quingentos numero pedites, quos quisque ex suis manipulis fuerunt delectos, ejusdem virtutis defensuri.* This happened A. U. C. 543, and consequently several years before Marius was born.

COHORTS were distinguished, according to their appointment and office, into *auxiliary*, which were sent by allies; *equitatæ*, see above; *peditatæ*, which consisted of foot-soldiers only; *prætorian*, which was formed of the best soldiers, and served to guard the *prætor* or general. This *cohort* was instituted by Publius Posthumus, the dictator. Augustus likewise formed a *cohort*, under this appellation, consisting of nine thousand men; which was afterwards increased by Septimius Severus. There were also the *cohorts urbanæ*, a kind of militia, which guarded the streets of Rome; the *cohorts vigilum*, instituted by Augustus, which served on occasion of fires; and the *cohorts urbanæ*, established by Augustus, to guard the city.

COHUAGIUM, a tribute paid by those who meet promiscuously in a market, or fair; *cohus* signifying a promiscuous multitude of men in a fair, or market, probably from the French *cohue*.

COIF, the badge of a serjeant at law; who is hence also called SERJEANT *of the coif*.

The *coif* is of lawn, and is worn on the head, under the cap, when they are created, and ever after.

The use of the *coif* was to cover the *tonsura clericalis*, or clerical crown; because the crown of the head was originall clole shaved, and only a border of hair left around the lower part, which gave it the appearance of a crown. See TONSURE, &c.

COIL, on board a ship. See CABLE.

COILON, in *Antiquity*. See CAVEA.

COIN, *Mattier*, in the manufacture of money, medals, and counters, is a piece of steel well tempered, four or five inches deep, square at bottom, and round at top; whereon are engraved, dent-wise, with punchions, and other instruments, the several figures, marks, &c. to be struck on the moneys, &c. See COINING.

For the manner of engraving COINS, *See* ENGRAVING *in steel.*

COIN is more generally used for a piece of metal converted into money, by the imprinting of certain marks or figures thereon.

Coin may be defined, a species of money, ſtruck either with a hammer or mill.

Hence, *coin* differs from money, as the ſpecies does from the genus. Money is any matter, whether metal, wood, leather, glaſs, horn, paper, fruits, ſhells, or kernels, which have courſe as a medium in commerce.

Coins are a particular branch of moneys, viz. ſuch as are made of metal, gold, ſilver, or copper, and ſtruck according to a certain proceſs, called *coinage*.

It is obſerved, under the article MONEY, that the preciſe epocha of the invention of money is not known; it is too ancient for our annals; and if we might argue from the neceſſity and obviouſneſs of the thing, it muſt be nearly coeval with the world.

Whether *coins* be of equal antiquity, may admit of ſome doubt; eſpecially as moſt of the ancient writers are ſo frequent and expreſs in their mention of leathern moneys, paper moneys, wooden moneys, &c. Some however, notwithſtanding all this, are of opinion, that the firſt moneys were of metal: the reaſon they give, are the firmneſs, neatneſs, cleanlineſs, durableneſs, and univerſality of metals; which, however, do rather conclude, that they ought to have been ſo, than they actually were ſo.

In effect, the very commodities themſelves were the firſt moneys, i. e. they were current for one another by way of exchange; and it was the difficulty of cutting, or dividing certain commodities, and the impoſſibility of doing it without great loſs, that firſt put men on the expedient of a general medium.

Indeed, thus much may be ſaid in behalf of *coins*, that, in this view, it was natural for men to have their firſt recourſe to metals as being almoſt the only things whoſe goodneſs, and as it were integrity, is not diminiſhed by partition; beſides the advantages above expreſſed, and the conveniencies of melting, and returning them again into a maſs of any ſize or weight.

It was probably, then, this property of metals which firſt accuſtomed people, who trafficked together, to account them in lieu of quantities of other merchandizes in their exchanges; and at length to ſubſtitute them wholly in their ſtead; and thus aroſe money: as it was their other property to preſerve any mark or impreſſion a long time, which confirmed them in their right; and thus was the firſt riſe of *coins*.

In the firſt ages, each perſon cut his metal into pieces of different ſizes and forms, according to the quantity to be given for any merchandize, or according to the demand of the ſeller, or the quantity ſtipulated between them: to this end, they went to market, loaden with metal, in proportion to the purchaſe to be made, and furniſhed with inſtruments for proportioning it, and with ſcales for dealing it out, according as occaſion required.

By degrees it was found more commodious to have pieces ready weighed; and as there were different weights required, according to the value of the different wares, all thoſe of the ſame weight began to be diſtinguiſhed with the ſame mark, or figure: thus were *coins* carried one ſtep farther.

At length, the growing commerce of money beginning to be diſturbed with frauds, both in the weights and the matter, the public authority interpoſed; and hence aroſe the firſt ſtamps, or impreſſions, of money: to which ſucceeded the names of the moneyers; and at length the effigy of the prince, the date, legend, and other precautions to prevent the alterations of the ſpecies: and thus were *coins* completed.

On the foot wherron money now ſtands, it is divided into *real*, or *effective* money; and *imaginary* money, or money of *account*.

COINS, *modern, or ſpecies current in Europe, Aſia, Africa, and America.*—All the current ſpecies in the four quarters of the earth, at this day, are either made of metals, or they are ſhells, and fruits.

The metals are, gold, ſilver, copper, tin, and lead; to which may be added billon, a mixture of ſilver and copper in a certain proportion.

In Europe none are uſed beſide gold, ſilver, copper, and billon: in ſome parts of the Eaſt-Indies they likewiſe uſe tin and lead: as to ſhells and fruits, they are the ſmall money of ſeveral nations in Aſia, Africa, and America.

COINS, *Britiſh.*—In England, the current ſpecies of gold are, the guinea, half-guinea, jacobus, laureat, angel, and roſe-noble; the four laſt of which are now ſeldom met with, having been moſt of them converted into guineas, chiefly during the reigns of Charles II. and James II.

The ſilver *coins* are, the crown, half-crown, ſhilling, and ſixpence; the copper *coins* are, the half-penny, and farthing.

Value and proportion of the Engliſh COINS.

Farthing.						
2	Half-penny.					
48	24	Shilling.				
120	60	24	Half-crown.			
240	120	48	24	Crown.		
960	480	192	96	4	Pound Accompt.	
1008	504	201	84	4 1/5	1	Guinea or piece.

The Jacobus,	21	10	5	1
The Carolus, or Laureat,	23	11	5	1

It was made treaſon to counterfeit the *coin* of this realm, or to import counterfeit money, with intent to utter it, knowing it to be falſe, by 25 Edw. III. ſtat. 5. c. 2.

Counterfeiting foreign *coin*, current in this realm, is made treaſon by 1 Mary, ſeſſ. 2. c. 6.

Clipping, waſhing, filing the proper *coin* of this realm, or of any other realm current within this realm by proclamation, for lucre or gain, is made treaſon by 5 Eliz. c. 11.

Impairing, diminiſhing, falſifying the proper *coin* of this realm, is made treaſon by 18 Eliz. c. 1.

Making, mending, or aſſiſting in ſo doing; buying, ſelling, or having in poſſeſſion, inſtruments proper only for the coinage of money; and marking *coin* on the edges, by perſons not employed in the mint; are made treaſon by ſtat. 8 and 9 W. III. c. 26. ſect. 3. which is made perpetual by 7 Ann. c. 25.

Colouring, gilding, caſing, or waſhing any *coin*, reſembling the current gold *coin* of the realm, is treaſon, by ſtat. 8 and 9 W. III. c. 26. ſect. 4. 15 and 16 Geo. II. c. 28.

Lord Hale makes a query whether counterfeiting copper coin be not treaſon within the ſtatute of 25 Edw. III.?

Clippings or filings of the *coin*, bought or ſold, or knowingly found in the cuſtody of any perſon other than the officers of the mint, are forfeited, with 500*l.* half to the king, and half to the informer. 6 and 7 W. III. c. 19. ſect. 4. And the offender ſhall be branded in the cheek with the letter R.

Selling of blanched copper, or any compoſitions of metals or minerals, in imitation of ſtandard gold, is made felony by 8 and 9 W. III. c. 26. ſect. 6. 9.

Receiving or paying any diminiſhed or counterfeit money, under value, is made felony by 8 and 9 W. III. c. 26. ſect. 6. 9. 15 and 16 Geo. II. c. 28.

In Scotland, by the articles of the Union, it is appointed, that all the *coins* be reduced to the Engliſh, and the ſame accompts obſerved throughout. Till then the Scots had their pounds, ſhillings, and pence, as in England; but their pound was but twenty pence Engliſh, and the others were in proportion: accordingly, their mark was 13*s.* Scotch, current in England at 13*s.* 4*d.* their noble in proportion.

Beſide theſe, they had their Turnoter pence, and half-pence; their penny, one twelfth of that of England; beſides baſe money of achſons, babees, and placks: the bodle, one ſixth of the penny, one fourth of the achſon, one third of the baber, and one half of the placks.

In ſome parts of Scotland and the Iſle of Man, the penny is ſix ſeventhe of the Engliſh penny, the ſhilling or Manks equal to 10*d.* 2, and the Engliſh ſhilling equal in value to 14*d.* and the pound or Manks equal to 17*s.* 1*d.* 7.

In Ireland, the *coins* are as in England; viz. ſhillings, pence, &c. with this difference, that their ſhilling, or harper, is but equal to 11 3/13*d.* ſterling; or a ſhilling Engliſh is equal to twenty-ſix halfpence: whence their pound is only 18*s.* 5*d.* 3 of Engliſh money.

COINS, *French.*—The only gold *coin* now current in France is, the lewidore, or louis d'or; with the half, and the double louis. Till the year 1700, they had gold lys, and ecus, or crowns; but they are now no more.

The ſilver *coins* are, the greater ecu, or crown of ſix livres, the ecu of three livres, the piece of livre four ſols, and pieces of twelve ſols, and of ſix.

The billon *coins* are, of three kinds, each called *ſols*; ſome of twenty-four deniers, others of eighteen, and others of twelve; beſides the old half-ſol of nine deniers. To theſe may be added the deniers current in the Lionnois, Provence, Dauphiné, and other parts.

Laſtly, the copper *coin* is the liard, equal to three deniers; the double liard equal to 6*s.* and the ſou lav of twelve deniers.

Value and proportion of the French COINS.

Denier, equal to $\frac{1}{12}$ of a penny sterling.

| | | |

COINS *of Brandenburgh and Pomerania.*

Denier of account,	= 1/12	English penny.		
9 deniers,		1 polchen.		
18,		groſh.		
3 polchens,		a braſs.	*l.*	*s.* *d.*
20 groſhen,		marc of account.	0	0 9½
30,		florin,	0	1 2
90,		rix-dollar of acc.	0	3 6
108 groſhen,		albertus,	0	4 2
8 florins,		1 ducat,	0	9 4

COINS *of Cologn, Mentz, Trieri, and Liege.*

Duit,	= 1/2	English penny.		
3 duits,		a cruitzer.		
2 cruitzers,		an albus.		
8 duits,		a ſtiver.	*l.*	*s.* *d.*
3 ſtivers,		a plapert,	0	0 2½
4 plapperts,		a copſtuck,	0	0 8¾
40 ſtivers,		a guilder	0	2 4
2 guilders,		a hard dollar,	0	4 8
4 guilders,		a ducat,	0	9 4

COINS *of Bohemia, Sileſia, and Hungary.*

Fening,	= 1/2	English penny.		
2 fenings,		a dreyer.		
3,		a groſh.		
4,		a cruitzer.		
2 cruitzers,		a white groſh.	*l.*	*s.* *d.*
60,		a gould,	0	2 4
90,		a rix-dollar of ac.	0	3 6
2 goulds,		a hard dollar,	0	4 8
4,		a ducat,	0	9 4

COINS *of Auſtria and Swabia.*

Fening,	= 1/2	English penny.		
2,		a dreyer.		
4,		a cruitzer.	*l.*	*s.* *d.*
14,		a groſh,	0	0 1½
4 cruitzers,		a batzen,	0	0 1½
15 batzen,		a gould,	0	2 4
90 cruitzers,		a rix-dollar of ac.	0	3 6
30 batzen,		a ſpecie dollar,	0	4 8
60,		a ducat,	0	9 4

COINS *of Franconia.*

Fening,	= 1/2	English penny.		
4,		a cruitzer.	*l.*	*s.* *d.*
3 cruitzers,		a kepfer groſh,	0	0 1½
4,		a batzen,	0	0 1¾
15,		an ort gould,	0	0 7
60,		a gould,	0	2 4
90,		a rix-dollar of acc.	0	3 6
2 goulds,		a hard dollar,	0	4 8
240 cruitzers,		a ducat,	0	9 4

COINS, *Italian.*—In Italy, the ſeveral ſtates have ſeveral current moneys: though there are ſome common to them all; ſuch as the piſtole of gold, and the ducatoon and florin of ſilver; which, being of various weights, fineneſs, and value, ſee under the articles PISTOLE, DUCATOON, *&c.*

COINS *of Genoa and Corſica.*

Denari,	= 7/10	English penny.		
12,		a ſoldi.	*l.*	*s.* *d.*
4 ſoldi,		a chevalet,	0	0 1½
20,		a lire of account,	0	0 8½
30,		a teſtoon,	0	1 0,8
5 lires,		a croiſade,	0	3 7
115 ſoldi,		a pezza of exch.	0	4 2
6 teſtoons,		a genouine,	0	6 2½
20 lires,		a piſtole,	0	14 4

COINS *of Piedmont, Savoy, and Sardinia.*

Denari,	= 7/8	English penny.		
3,		a quatrini.		
12,		a ſoldi.	*l.*	*s.* *d.*
12 ſoldi,		a florin of acc.	0	0 9
20,		a lire of acc.	0	1 3
6 florins,		a ſcudi,	0	4 6
7,		a ducatoon,	0	5 3
13 lires,		a piſtole,	0	16 3
16,		a louis d'or,	1	0 0

COINS *of Milan, Modena, Parma, &c.*

Denari,	= 7/8	English penny.		
3,		a quatrini.		

12,	=	a ſoldi.	*l.*	*s.* *d.*
20 ſoldi,		a lire of acc.	0	0 8½
115,		a ſcudi cur.	0	4 9½
117,		a ſcudi of exch.	0	4 3
6 lires,		a phillip,	0	4 4½
22,		a piſtole,	0	16 0
23,		a Spaniſh piſtole,	0	16 9

COINS *of Leghorn, Florence, &c.*

Denari,	= 7/12	English penny.		
4,		quatrini.		
12,		a ſoldi.		
5 quatrini,		a craca.	*l.*	*s.* *d.*
8 cracas,		a quilo,	0	0 5½
20 ſoldi,		a lire of account,	0	0 8½
6 lires,		a piaſtre of exch.	0	4 2
71,		a ducat,	0	5 2½
22,		a piſtole	0	15 6

COINS *of Rome, &c.*

Quatrini,	= 7/8	Engliſh penny.		
5,		a bayoc.	*l.*	*s.* *d.*
8 bayocs,		a julio,	0	0 6
10,		a ſtampt julio,	0	0 7½
24,		a teſtoon,	0	1 6
10 juliots,		a crown current,	0	5 0
12,		a crown ſtampt of account,	0	6 0
18,		a chequin,	0	9 0
31,		a piſtole,	0	15 6

COINS *of Naples, &c.*

Quatrini,	= 7/8	Engliſh penny.		
3,		a grain.	*l.*	*s.* *d.*
10 grains,		a carlin,	0	0 4
40 quatrini,		a paulo,	0	0 5½
20 grains,		a tarin,	0	0 8
40,		a teſtoon,	0	1 4
100,		a ducat of exch.	0	3 4
23 tarins,		a piſtole,	0	15 4
25,		a Spaniſh piſtole,	0	16 9

COINS *of Sicily and Malta.*

Pichili,	= 7/8	Engliſh penny.		
6,		a grain.		
8,		a pond.	*l.*	*s.* *d.*
10 grains,		a carlin,	0	0 1 7/8
20,		a tarin,	0	0 3½
6 tarins,		a florin of exch.	0	1 6½
13,		a ducat of exch.	0	3 8
60 carlins,		an ounce,	0	7 7½
2 ounces,		a piſtole,	0	15 4

COINS *of Bologna, &c.*

Quatrini,	= 7/8	Engliſh penny.		
6,		a bayoc.	*l.*	*s.* *d.*
10 bayocs,		a julio,	0	0 6
20,		a lire of account,	0	1 0
3 julios,		a teſtoon,	0	1 6
85 bayocs,		a ſcudi of exch.	0	4 3
105,		a ducatoon,	0	5 3
100,		a crown,	0	5 0
31 julios,		a piſtole,	0	15 6

COINS *of Venice.*

Picoli,	= 7/8	Engliſh penny.		
12,		a ſoldi.	*l.*	*s.* *d.*
64 ſoldi,		a gros of account,	0	0 2½
18,		a jule,	0	0 6
20,		a lire of account,	0	0 6½
3 jules,		a teſtoon,	0	1 6
124 ſoldi,		a ducat cur.	0	3 5½
24 gros,		a ducat of exch.	0	4 4
37 lires,		a chequin,	0	9 2

COINS *of Switzerland, Baſil, &c.*

Rap,	= 1/2	Engliſh penny.		
3,		a fening.	*l.*	*s.* *d.*
4 fenings,		a cruitzer.	0	0 0½
12,		a ſol of account,	0	0 1½
15,		a coarſe batzen,	0	0 1½
18,		a good batzen,	0	0 2½
20 ſols,		a lire of acc.	0	2 6
60 cruitzers,		a gulden,	0	2 6
108,		a rix-dollar,	0	4 6

COINS *of St. Gall.*

Heller,	= 1/2	Engliſh penny.	
2,		a fening.	

4 fenings

4 fenings,	= a cruitzer,	l.	s.	d.
12,	a fol of account,	0	0	1½
4 cruitzers,	a coarse batzen,	0	0	2
5,	a good batzen,	0	0	2½
20 fols,	a livre of acc.	0	2	6
60 cruitzers,	a gould,	0	2	6
102,	a rix-dollar,	0	4	3

COINS *of Bern, viz. of Lucern, &c.*

Denier,	= 7/8 Engliſh penny.			
4,	a cruitzer.	l.	s.	d.
3 cruitzers,	a fol of acc.	0	0	1½
4,	a plaper,	0	0	1½
5,	a gros,	0	0	2
6,	a batzen,	0	0	2½
20 fols,	a livre of acc.	0	2	0
75 cruitzers,	a gulden,	0	2	6
135,	a crown,	0	4	6

COINS *of Geneva.*

Denier,	= 3/4 Engliſh penny.			
2,	a denier current.			
12,	a ſmall ſol.			
12 deniers current,	a ſol current	l.	s.	d.
12 ſmall ſols,	a florin of acc.	0	0	4½
20 ſols current,	a livre cur. of acc.	0	1	3
10½ florins,	a patacon,	0	3	11½
15½ florins,	a croiſade,	0	5	10½
24 florins,	a ducat,	0	9	0

COINS, *Poliſh and Pruſſian.*

Shelon,	= 3/4 Engliſh penny.			
3,	a groſh,	l.	s.	d.
5 groſh,	a couſtic,	0	0	2½
3 couſtics,	a tinfe,	0	0	7
18 groſh,	an ort,	0	0	8½
30,	a florin,	0	1	2
90,	a rix-dollar of acc.	0	3	6
8 florins,	a ducat,	0	9	4
5 rix-dollars,	a frederic d'or,	0	17	6

COINS *of Livonia.*

Blacken,	= 1/8 Engliſh penny.			
6,	a groſh.			
9,	a vording.			
2 groſh,	a whiten.	l.	s.	d.
6,	a marc,	0	0	2½
30,	a florin,	0	1	2
90,	a rix dollar of acc.	0	3	6
108,	an albertus,	0	4	2 1/2
64 whitens,	a copper-plate dol.	0	5	0

COINS *of Denmark, Zealand, and Norway.*

Schilling,	= 1/8 Engliſh penny.	l.	s.	d.
6,	a dugger,	0	0	3½
16,	a marc of acc.	0	0	9
20,	a rix-marc.	0	0	11½
24,	a rix-ort,	0	1	1½
4 marcs,	a crown,	0	3	6
6,	a rix-dollar,	0	4	6
11,	a ducat,	0	8	3
14,	a hatt ducat,	0	10	6

COINS *of Sweden and Lapland.*

Runſtic of account,	= 1/8 Engliſh penny.			
2,	a ſtiver.	l.	s.	d.
8,	a copper marc,	0	0	1½
3 copper marcs,	a ſilver marc,	0	0	4½
4,	a copper dollar,	0	0	6½
9,	a caroline,	0	1	2
3 copper dollars,	a ſilver dollar,	0	1	6½
3 ſilver dollars,	a rix-dollar,	0	4	8
2 rix-dollars,	a ducat,	0	9	4

The Swediſh money, properly ſo called, is a kind of copper very ſoft and malleable, cut in little ſquare pieces, or plates, about the thickneſs of three Engliſh crowns, and weighing five pounds and an half; ſtamped at the four corners with the Swediſh arms; and current in Sweden for a rix-dollar, or piece of eight.

COINS *of Ruſſia and Muſcovy.*

Poluſca,	= 1/16 Engliſh penny.			
2,	a denuſca.			
2 denuſcas,	a copec of acc.	l.	s.	d.
3 copecs,	an altin,	0	0	1½
10,	a grievenez,	0	0	5½
25,	a polpotin,	0	1	1½
50,	a poltin,	0	2	3
100,	a ruble,	0	4	6
2 rubles,	a xervonitz,	0	9	0

COINS *of Turkey, viz. of Morocco, Candia, Cyprus, &c.*

Mangar,	= 1/8 Engliſh penny.			
4 mangars,	an aſper of acc.	l.	s.	d.
3 aſpers,	a parac,	0	0	1½
5,	a beſtic,	0	0	3
10,	an oſtic,	0	0	6
20,	a ſolota,	0	1	0
80,	a piaſtre of acc.	0	4	0
100,	a caragrouch,	0	5	0
10 ſolotas,	a xeriff,	0	10	0

COINS *of the coaſts of Barbary, viz. of Algiers, Tunis, &c.*

Aſper,	= 1/4 Engliſh penny.	l.	s.	d.
3,	a medin,	0	0	1½
10,	a rial old plate,	0	0	6½
2 rials,	a double,	0	1	1½
4 doubles,	a dollar,	0	4	6
24 medins,	a ſilver chequin,	0	3	4
30,	a dollar,	0	4	6
180 aſpers,	a zequin,	0	8	10
15 doubles,	a piſtole,	0	16	9

Other coins of Africa are thoſe of Egypt and Morocco.

COINS *of Egypt, &c.*

Aſper,	= 1/4 Engliſh penny.	l.	s.	d.
3,	a medin.	0	0	1½
24 medins,	an Italian ducat,	0	3	4
80 aſpers,	a piaſtre of acc.	0	4	0
30 medins,	a dollar,	0	4	6
96 aſpers,	an ecu,	0	5	0
32 medins,	a crown,	0	5	0
200 aſpers,	a ſultanin,	0	10	0
70 medins,	a pargo dollar,	0	10	6

COINS *of Morocco, &c.*

Fluce,	= 3/4 Engliſh penny.	l.	s.	d.
24,	a blanquil,	0	0	2
4 blanquils,	an ounce,	0	0	8
7,	an octavo,	0	1	2
14,	a quarto,	0	2	4
2 quartos,	a medio,	0	4	8
28 blanquils,	a dollar,	0	4	6
54,	a zequin,	0	9	0
100,	a piſtole,	0	16	9

COINS, *Perſian.*—Theſe are either ſilver, or copper; gold they have none. Of the firſt kind are, the halfi, mamoudi, ſhahee, and biſti; of the ſecond, the kabeſqui, and half-kabeſqui: the tela, or cheraſia, indeed, is gold; but it is leſs a money than a medal, though it has ſome courſe in commerce.

Coa	= 1/4 Engliſh penny.	l.	s.	d.
4,	a biſti,	0	0	1½
10,	ſhahee,	0	0	4
20,	mamoody,	0	0	8
25,	latin,	0	0	10
4 ſhahees,	an abaſhee,	0	1	4
5 abaſhees,	an ort,	0	6	8
12,	a bovello,	0	16	0
50,	a tomand or TOMAN of acc.	3	6	8

Some relations make the biſti a *coin* worth about one penny half-penny; but others only a term of account, ſignifying ten demars, or one thouſandth part of toman. See TOMAN.

Kabeſqui, or cabeſqui, equals five twelfths of a penny ſterling. Tela, or cheraſia, is uſually ſtruck at the acceſſion of a new king, and at the beginning of a new year; its weight and worth various.

COINS, *Chineſe.*—Throughout the Kingdom of China and Tonquin, there are not properly any *coins* ſtruck: inſtead of theſe, they cut their gold and ſilver into little pieces of different weights. Thoſe of gold, the Dutch, from their figure, which reſembles a boat, call *goldbars*: thoſe of ſilver, the natives call *leans*; the Portugueſe, *taels*. Their ſmall money is of copper: ten of theſe pieces make their ſhilling; and ten of thoſe their crown, or leam. Beſide theſe, they have a ſmall money of lead, mixed with the ſcum of copper, having holes in the middle to ſtring them on for the eaſe of numbering: this ſpecies is called *caſh*, *ca*, and *piſis*; and the ſtring, which uſually holds two hundred, is called *ſanta*. They are ſo very brittle, that they never fall without breaking into a great number of pieces; and if left all night in ſalt water, they ſtick ſo cloſe together, that they cannot be ſeparated.

There are two kinds of *goldbars*; great, and ſmall. Goldbar, an ingot, which, at 3*l.* 2*s.* per ounce, uſually amounts to 101*l.* 5*s.* ſterling. Other goldbars only weigh half as much; their value is in proportion.

A cazz,	= ¼ English penny.			
10,	a candereen.	*l.*	*s.*	*d.*
10 candereens,	a mace,	0	0	8
35,	a rupee,	0	2	6
2 rupees,	a dollar,	0	4	6
30 candereens,	a rix-dollar,	0	4	4½
7 maces,	an ecu,	0	5	0
2 rupees,	a crown,	0	5	0
10 maces,	a tael of acc.	0	6	8

COINS *of Japan.*—The Japonese strike coupants, both of gold and silver; and copper pieces with holes in the middle, like those of China; six hundred of these make the tael, or tale. Their other moneys, or quasi-moneys, are ingots, which they cut, like the Chinese, of different weights, chiefly three; the largest of the weight of six rials, viz. forty-eight taels, the tael equivalent to seventy-five Dutch stivers. The second equal to six taels and an half; and the third to ⅛ of a rial, or one tael ⅜.

Besides these they have a small silver money, in form of round beans, of no determinate weight, but usually weighed by mases; the common payment being by ten mases, which make one tael

	(Sterling.)	*l.*	*s.*	*d.*
Coupant of gold, weighing one ounce six drachms; its figure is a long oval, the longest diameter about four inches, and the shortest half an inch.		6	12	6
Other coupants of gold, near ½ of the former amounting to about,		3	4	2
Coupant of silver, current at	-	0	4	6

Other *coins* are as follow:

Piti,	= ¼ English penny.	*l.*	*s.*	*d.*
20,	a mace,	0	0	4
15 maces,	an ounce silver,	0	4	10½
20 maces,	a tale,	0	6	8
30 maces,	an ingot,	0	9	8½
13 ounces silver,	an ounce gold,	3	3	0
2 ounces gold,	a Japanese,	6	6	0
2 Japanefes,	a double,	12	12	0
21 ounces gold,	a cattee of account	66	3	0

COINS *of Siam*, viz. of *Pegu*, *Malacca*, *Sumatra*, *Java*, *Borneo*, &c. In the dominions of Siam are ftruck gold pieces five or six grains heavier than the half piftole of Spain; but thefe are rather pieces of curiofity, than ufe in commerce. Their filver *coin* is the tical, or baat; the diminutions whereof are the mayon, or feling, foang, and fompaye. Thefe pieces are all ftrangely ftruck: in form they refemble nuts, a little flatted at the extremities; and are fome of them cloven like horfe-fhoes; on two of the fides there are fome Siamefe letters. Their copper-money, called bia, is round and thick: beneath this is the cauris, or cork.

Cori,	= 1/320 Eng. penny.			
800,	a fettee,	*l.*	*s.*	*d.*
125 fettees,	a fataleer,	0	0	7½
250,	a fooco,	0	1	3
500,	a tutal,	0	2	6
900,	a dollar,	0	4	6
2 tucals,	a rial,	0	5	0
4 foocos,	an ecu,	0	5	0
8 fatcleers,	a crown,	0	5	0

COINS *of the coafts and iflands of the Indies.*—The principal, and thofe moft generally current, are pagodas, rupees, larins, fanos, or famons, and coupans, each whereof are ftruck both of gold and filver.

Befide thefe general *coins*, there are alfo particular ones, viz. at Goa, S. Thomas's of gold.—Along the Perfian Gulf, about Mecca, and throughout Arabia, the larin; along the coafts of Malabar, and at Goa, the parado and xeraphin of filver.—At Bantam, the fardos; at Malabar, the tare; at Siam, the tayl, and its diminution the mayam, foang, fompaye, and demi-foang: all of filver.—At Surat, Agra, and the reft of Indoftan, the pocha, or pefla, and doudou, all of copper.—The bafarucos and chedas, of tin. See laft and following articles.

COINS, *Mogul.*—In the dominions of the Great Mogul, are rupees, mamoudas, and pechas: the firft both of gold and filver; the fecond of filver alone; and the third of copper.

There are others ftruck by the princes tributary to him, and the powers bordering on him; but thefe are fcarce current beyond their refpective territories: particularly a fmall filver *coin* ftruck by the king of Matoucha, whofe territories lie to the north of Agra, of the value of the pecha of Mogul, but half as heavy again.—The rajah of Parta-jalamoula, to the north of Patua, likewife ftrikes fome little pieces, both of filver and copper, of fmall value.—The rajah of Ogden, who commands between Brampour, Serounge, and Amadabath, a fmall filver *coin*, equal to fix pence ftirling; and another of copper, equal to an halfpenny ftirling.—The king of Cheita and Pera, a tin money called chuda.—The king of Achem, little ftight gold pieces, worth about fifteen pence ftirling.—And tin pieces, eight of which are equal to the Engliſh penny, current in the iſles of Sumatra.—The gold *coin* of the king of Macaſſer and Celebes, is taken by the Dutch for a florin.—The king of Camboyas ſtrikes only pieces of ſilver and copper: his gold, wherein he abounds, is negotiated by weight.—The king of Java and Bantam, in the ſame iſland, and thoſe of the Molucca iſlands, ſtrike only copper *coins*: they allow foreign ſilver pieces to be current in their territories, but they coin nege.

COINS *of Guzzurat, &c.*

Pecka, or pecha,	= ¼ Engliſh penny.			
2,	a pice.	*l.*	*s.*	*d.*
4 pices,	a fanam, or tanos,	0	0	1½
5,	a viz,	0	0	2⅛
16,	an ana,	0	0	7½
4 anas,	a rupee,	0	2	6
2 rupees,	an Engliſh crown,	0	5	0
14 anas,	a pagoda, denominated from its impreſſion, the Indian idol,	0	8	9
4 pagodas,	a gold rupee,	1	15	0

COINS *of Malabar*, &c. are thoſe of *Bombay*, &c. and of *Goa*, &c.

COINS *of Bombay*, are the

Budgrook, or baſaruco,	= 1½ Eng. penny.			
8,	a re of account,			
5 rez,	a pice,	*l.*	*s.*	*d.*
16 pices,	a laree,	0	0	5⅝
20 pices,	a quarter,	0	0	6¾
240 rez,	a xeraphim,	0	1	4½
4 quarters,	a rupee,	0	2	3
14 quarters,	a pagoda,	0	8	0
60 quarters,	a gold rupee,	1	15	0

COINS *of Goa, &c.* are

A re of account,	= 2¼ Eng. penny.			
2 rez,	a baſſaraco,			
2 baſſaracos,	a pecka,	*l.*	*s.*	*d.*
20 rez,	a vintin,	0	0	1⅝
4 vintins,	a laree,	0	0	5¼
3 larees,	a xeraphim,	0	1	4½
42 vintins,	a tangu,	0	4	6
2 tangus,	a paru,	0	18	0
8 tangus,	a gold rupee,	1	15	0

COINS *of Coromandel, &c.*

A cafh,	= ¼ Eng. penny.			
5 cafh,	2 viz,			
2 viz,	a pice,	*l.*	*s.*	*d.*
6 pices,	a pical,	0	0	3½
8 pices,	a fanam,	0	0	3
10 fanams,	a rupee,	0	2	6
2 rupees,	an Engliſh crown,	0	5	0
36 fanams,	a pagoda,	0	8	9
4 pagodas,	a gold rupee,	1	15	0

COINS *of Bengal, &c.*

A pice,	= ¼ Eng. penny.			
4 pices,	a fanam,			
6,	a viz,	*l.*	*s.*	*d.*
12,	an ana,	0	0	2¼
10 anas,	a fiano,	0	1	6¼
16,	a rupee,	0	2	6
2 rupees,	a French ecu,	0	5	0
2,	an Engliſh crown,	0	5	0
56 anas,	a pagoda,	0	8	9

COINS *of Arabia.*

Carret,	= ¼ Eng. penny.			
5½ carrets,	a caveer,			
7,	a comaſthee,	*l.*	*s.*	*d.*
80,	a larin,	0	0	10½
18 comaſthee,	an abyſs,	0	1	4½
60,	a piaſtre of account,	0	4	6½
80 caveers,	a dollar,	0	4	6
100 comaſthees,	a ſequin,	0	7	6
80 larins,	a tomond of account	3	7	6

COINS *of the West Indies*, comprehend those of the Englifh, *French*, &c. iſlands.

COINS *of the Engliſh iſlands, as Jamaica, Barbadoes, &c.*

A halfpenny of account, = 7½ Eng. penny.

2 halfpence,	a penny of acc.	*l.*	*s.*	*d.*
3½ pence,	a bit,	0	0	5¼
12,	a ſhilling of acc.	0	0	8½
75,	a dollar,	0	4	6
7 ſhillings,	a crown,	0	5	0
20,	a pound of acc.	0	14	3
24,	a piſtole,	0	16	9
30,	a guinea,	1	1	0

COINS *of the French iſlands, as St. Domingo, Martinico, &c.*

Half ſol of account, = 1½ Eng. penny.

2,	a ſol of account,	*l.*	*s.*	*d.*
7½ ſols,	a half ecallin,	0	0	11¼
15,	a ecallin,	0	0	5½
20,	a livre of account,	0	0	7½
7 livres,	a dollar,	0	4	6
8,	an ecu,	0	4	10½
26,	a piſtole,	0	16	9
32,	a louis d'or,	1	0	0

For all the Spaniſh, Portugueſe, Dutch and Daniſh dominions in the Weſt Indies, or on the American continent, ſee the *coins* of the reſpective nations: but it muſt be obſerved, that the value of the CURRENCY alters according to the plenty or ſcarcity of *coins* imported. See Univerſal Table of *Coins*, annexed to Guthrie's Geography.

To the number of current coins which have diſtinct names to ſpecify them, may be added many more, both in Europe and Aſia, only denominated and known from their value: ſuch as thoſe called ſimply *pieces*, with the addition of their price; as in Spain, the piece of eight rials; in England, the piece of twenty-one ſhillings, or guinea; in France, the piece of four francs; pieces of ten ſols, or ſhillings; pieces of four ſols; pieces of two ſols; or of ſix franks, of 30, 15, 6, 4, &c. deniers, or pence. See PIECE.

COINS, *Shells current for.*—Theſe ſerve in many places for money; and are brought from the Maldives, and called in the Indies *cowries*: on the coaſts of Africa they change their names, and are called *bouges*.

In America they take a third name, viz. *porcellains*. Indeed theſe laſt do not come from the Maldives; there being ſhells found in the Weſt Indies much like thoſe of the Eaſt.

In the kingdom of Congo there is another kind of ſhells, called *zimbi*; though ſome will have them the ſame with the cowries. Cowries, cori, or bouges, are white ſhells, current particularly in the ſtates of the Great Mogul; ſixty-five are uſually reckoned equivalent to the done, a ſmall copper *coin*, worth about a halfpenny ſterling; which brings each cowry to 1/130 of a penny ſterling.

Porcelains are nearly on the ſame footing with the cowries. See PORCELAIN.

Zimbis are current, particularly in the kingdoms of Angola and Congo. Two thouſand zimbis make what the negroes call a *macuta*, or *macoute*; which is no real money, whereof there is none in this part of Africa, but only a manner of reckoning: thus, two Flemiſh knives they eſteem a macoute; a copper baſon, two pounds weight, and twelve inches diameter, three macoutes: a fuſee ten, &c.

COINS, *Fruits current for.*—There are kinds of fruits current for *coins*; two in America, particularly among the Mexicans; which are the cacao and maiſe: the other in the Eaſt Indies, viz. almonds; brought thither from Lar, and growing in the deſarts of Arabia.

Of the cacao, fifteen are eſteemed equivalent to a Spaniſh rial, or ſeven pence ſterling. See CACAO.

Maiſe has ceaſed to be a common money ſince the diſcovery of America by the Europeans.

Almonds are chiefly uſed where the cauris are not current. As the year proves more or leſs favourable to the fruit, the value of the money is higher or lower: in a common year, forty almonds are ſet againſt a peiche, or halfpenny ſterling; which brings each almond to 2/3 of a farthing.

COINS, *Ancient*, are thoſe chiefly which have been current among the Greeks, Jews, and Romans.

For Jewiſh COINS, *their Values and Proportion ſtand thus:*

			(Sterling.)	*l.*	*s.*	*d.*
Gerah,				0	0	1,2/3
10	Bekah.			0	1	2½
20	2	Shekel.		0	2	3⅓
1200	120	50	Manch. Mina Hebraica,	5	14	0½
60000	6000	3000	60 Talent,	342	3	9
Solidus aureus, or ſextula, worth,				0	12	0½
Siclus aureus, worth,				1	6	6
A talent of gold, worth,				5475.	0	0

Value and Proportion of the ancient Grecian COINS.

									(Sterling.)	*l.*	*s.*	*d.*	*qrs.*
Lepton,										0	0	0	1/2
2	Chalcus,									0	0	0	1
8	4	Dichalcus,								0	0	1	2
24	12	3	Hemiobolum,							0	0	2	3
48	24	6	2	Obolus,						0	1	1	2
112	56	28	14	7	Diobolum,					0	2	2	3
224	112	56	28	14	7	Ferrobolum,				0	4	0	3
336	168	84	42	21	10	3	Drachma,			0	7	3	
672	336	168	84	42	21	6	2	Didrachmon,		1	3	2	
1344	672	336	168	84	42	12	4	2	Tetradrach. ſtater.	2	7	0	
1600	800	400	200	100	50	14	5	2½	Pentadrach.	3	2	3	

Note, Of theſe the drachma, didrachma, &c. were of ſilver, the reſt for the moſt part of braſs. The other parts, as tridrachm, triobolus, &c. were ſometimes coined.

Note alſo, the drachma is here, with the generality of authors, ſuppoſed equal to the denarius: though there is reaſon to believe, the drachma was ſomewhat the weightier. See DRACHMA, and DENARIUS.

	(Sterling)	*l.*	*s.*	*d.*
The Grecian gold *coin* was the ſtater aureus, weighing two Attic drachms, or half of the ſtater argenteus; and exchanging uſually for 25 Attic drachms of ſilver, in our money,		0	16	1½
According to our proportion of gold to ſilver.		1	0	9
There were likewiſe the ſtater Cyzicenus, exchanging for 28 Attic drachms, or, Stater Philippicus, and ſtater Alexandrinus, of the ſame value.		0	18	1
Stater Daricus, according to Joſephus, worth 57 Attic drachms, or Stater Croeſus, of the ſame value.		1	12	3⅓

Value and Proportion of the Roman COINS.

													(Sterling.)	*l.*	*s.*	*d.*	*qrs.*
Teruncius,														0	0	0	1,1/2
2	Sembella,													0	0	1	1/2
4	2	Libella,												0	0	2	1
8	4	2	As,											0	0	3	2
16	8	4	2	Seſtertius,										0	1	3	2
80	40	20	10	5	2½	Quinarius,								0	3	3	2
160	80	40	20	10	5	2	Victoriatus,										
400	200	100	50	25	12½	5	2½	Denarius,						0	7	3	

Note, Of theſe the denarius, victoriatus, ſeſtertius, and ſometimes the as, were of ſilver, the reſt of braſs.

There were ſometimes alſo coined of braſs the triens, ſextans, uncia, ſextula, and dupondius.

	(Sterling.)	*l.*	*s.*	*d.*
The Roman gold *coin* was the aureus, which weighed generally double the denarius; the value of which, according to the firſt proportion of coinage, mentioned by Pliny, was,		1	4	3⅓
According to the proportion that obtains now amongſt us, worth,		1	0	9
According to the decuple proportion, mentioned by Livy and Julius Pollux, worth,		0	12	11
According to the proportion mentioned by Tacitus, and which afterwards obtained, whereby the aureus exchanged for 25 denarii, its value,		0	16	1

Theſe tables are formed on the ſuppoſition that ſilver is worth five ſhillings, and gold four pounds an ounce.

See Arbuthnot's Tables of Ancient Coins. See also on this subject an excellent paper by M. Raper, Esq. intitled an Enquiry into the Value of the Ancient Greek and Roman Money, in the Phil. Trans. vol. lxi. part ii. art. 48. p. 462. See DENARIUS and DRACHM.

COIN, in *Architecture*, a kind of dye, cut idogonal-wise, after the manner of the flight of a staircase; serving at bottom to support columns in a level; and at top to correct the inclination of an entablature, supporting a vault.

These *coins* have also the same effect with round balusters, which are not inclined according to any slight.

COIN is also used for a solid angle, compoſed of two ſurfaces inclined towards each other; whether that angle be exterior, as the *coin* of a wall, a tree, &c. or interior, as the *coin* of a chamber, or chimney: from the word *cuneus*, wedge. See QUOIN.

COIN, or QUOIN, in *Artillery*, a wedge of wood, ſerving to raiſe, or lower, the breech of a gun.

COINS, on board a man of war. See QUOINS.

COIN-*moulds*. See MOULDS.

Casting COINS, on board a ſhip, little ſhort pieces of wood, or billets, cut wedge-like, to lie betwixt the casks.

Standing COINS, on board a ſhip, billets, or pipe-ſtaves, to keep the casks from ſtirring or giving way.

Standing-coins are made of barrel boards, about four inches broad, and of a fit length to be driven in between the ends of a cask, about two or three hoops from the chine hoops, to keep the butts from jogging.

COINAGE, or COINING, the art, or act of making money.

Coining is performed either by the hammer or the mill. The firſt method is now little uſed in Europe, eſpecially in England, France, &c. though the only one known till the year 1553, when a new machine, or *coining* mill, invented by an engraver, one Antoine Borcher, was firſt tried in the French king's palace at Paris, for the coining of counters: though ſome attribute the invention of the mill to Varin, a famous engraver, who, in reality, was no more than an improver of it; and others to Aubry Olivier, who had only the inſpection of it.

The mill has met with various fate ſince its firſt invention; being now uſed, and again laid by, and the hammer reſumed: but it has at length got that footing, by the neatneſs and perfection of the ſpecies ſtruck with it, that there appears no great probability of its ever being again diſuſed. See MILL.

In either kind of *coining*, the pieces of metal are ſtamped, or ſtruck with a kind of punchions or dyes, wherein are engraven the prince's effigies, with the arms, legend, &c. The manner of preparing and cutting of which, ſee under ENGRAVING.

The firſt operations in *coining* are the mixing and melting of the metal. For the *firſt*, it is to be obſerved, that there are no ſpecies coined of pure gold or ſilver, but always a quantity of ALLOY of copper is mixed with them, or a mixture of ſilver and copper, for gold; becauſe ſilver alone would make the gold too pale, and copper too red: the reaſons are partly the ſcarcity of thoſe two metals, partly the neceſſity of making them harder by ſome foreign admixture; and partly to defray the expences of *coining*.

Now there are two kinds of alloying or miſcing. The proportioning of the alloy with the fine metal is eaſy in the firſt caſe; in the other it is more difficult. See ALLOY. Yet it is eaſily effected by the following method, taken from the anonymous author of the treatiſe at the end of that of Mr. Boiſard, viz.

Write down the ſeveral materials to be melted, their quality, weight, and fineneſs, in two diſtinct articles; the one containing thoſe above the ſtandard, the other thoſe under it: by caſting up the firſt, you ſhall have the exceſs; by the latter, the defect. Then comparing the two ſums, you will find, by ſubtraction, how much alloy muſt be added to bring the ſeveral matters to the fineneſs required.

For the melting, if the metal be gold, it is done in earthen crucibles: if ſilver or copper, in pots or crucibles of iron.

There are two kinds of furnaces proper for the melting of the metals; thoſe with only a draught of wind, and thoſe with bellows. See each explained under FURNACE.

When the gold and ſilver are in baſneo, i. e. are entirely melted, they are to be ſtirred and brewed together; the ſilver and copper with an iron ſtirrer, the gold with one of baked earth. In this ſtate they are pourèd into moulds or frames, for caſting them into long flat bars: the method of doing which is exactly the ſame with that uſed by the founders in ſand, both with regard to the frame, the manner of working the earth, and that of ranging the models or patterns.

The models are flat plates of copper, about fifteen inches long, and nearly of the thickneſs of the ſpecies to be ſtruck. In each mould are placed eight of theſe to make bars or plates, ten for half guineas, five for crowns, &c. and in proportion for copper; all the difference between caſting the bars of gold, and thoſe of the other metals, conſiſting in this: that the latter are taken out of the crucibles with ladles, and poured into the aperture of the mould; and that for gold, the pot or crucible is taken off the fire with a kind of tongs, and thence poured into the mould.

Thus far the proceſs is the ſame, in *coining* either with the mill, or the hammer: when the bars are taken out of the moulds, the difference commences; ſo that here the article of *coining* ſtrides into two branches.

COINING *by the Mill, or Milled Money*.—The bars or plates being taken out of the moulds, and ſcraped, and brushed, are paſſed ſeveral times through a mill, to flatten them farther, and bring them to the juſt thickneſs of the ſpecies to be coined; with this difference, however, that the plates of gold are heated again in a furnace, and quenched in water, before they undergo the *mill*; which ſoftens and renders them more ductile: whereas thoſe of ſilver paſs the mill juſt as they are, without any heating; and when afterwards they are heated, they are left to cool again of themſelves, without water.

The plates, whether gold, ſilver, or copper, thus reduced as near as poſſible to their thickneſs, are cut into round pieces, called *blanks* or *planchets*, near the ſize of the intended ſpecies, with a cutting inſtrument faſtened to the lower extremity of an arbor, whoſe upper end is formed into a ſcrew; which, being turned by an iron handle, turns the arbor, and lets the ſteel, well ſharpened, in form of a punch-cutter, fall on the plates; and thus is a piece punched out. See the cutting inſtrument repreſented in *Tab. Miſcellany, fig.* 2.

Theſe pieces are now given to be adjuſted, and brought by filing or raſping, to the weight of the ſtandard, whereby they are to be regulated: and what remains of the plate between the circles is melted again, under the denomination of *aſſel*.

The pieces are adjuſted in a fine balance; and thoſe which prove too light, are ſeparated from thoſe too heavy; the firſt to be melted again, and the ſecond to be filed down. For it may be obſerved that the mill through which the plates are paſſed, can never be ſo juſt, but there will be ſome inequality, whence will ariſe a difference in the blanks. And this inequality, indeed, may be owing to the quality of the matter as well as of the machine; ſome parts being more porous than others.

When the blanks are adjuſted, they are carried to the blanching, or whitening-houſe, i. e. the place where the gold blanks have their colour given them, and the ſilver ones are whitened; which is done by heating them in the furnace, and, when taken out and cooled, boiling them ſucceſſively in two copper veſſels, with water, common ſalt, and tartar; and, after that, ſcouring them well with ſand, and waſhing them with common water, drying them over a wood fire, in a copper ſieve, wherein they are put when taken out of the boilers.

The whitening, or BLANCHING, was formerly performed very differently from what it now is: and as the ancient method is ſtill in uſe among goldſmiths, and other workmen who uſe gold and ſilver, we have made a diſtinct article of it.

Formerly the planchets, as ſoon as blanched, were carried to the preſs, to be ſtruck, and receive their impreſſions; but now they are firſt marked with letters or graining, on the edges, to prevent the clipping and paring of the ſpecies, which is one of the ways wherein the ancient money uſed to be damaged. The machine uſed to mark the edges is very ſimple, yet ingenious; it conſiſts of two plates of ſteel, in form of rulers, about the thickneſs of a line, on which the legend or edging is engraven, half on the one, and half on the other. One of theſe plates is immoveable, being ſtrongly bound with ſcrews to a copper plate; and that again to a ſtrong board or table: the other is moveable, and rides on the copper plate by means of a handle, and a wheel, or pinion of iron, the teeth whereof catch in a kind of other teeth, on the ſurface of the ſliding plate. Now the planchet, being placed horizontally between theſe two plates, is carried along by the motion of the moveable one; ſo as by that time it has made half a turn, it is found marked all round. See *Fig.* 3.

This machine is ſo eaſy, that a ſingle man is able to mark twenty thouſand planchets in a day: Savary pretends it was invented by the ſieur Caſtagin engineer to the French king, and firſt uſed in 1685. But it is certain we had the art of lett'ring the edges in England long before that time; witneſs the crowns and half-crowns of Oliver Cromwell

Cromwell struck in 1658, which for beauty and perfection far exceed any French *essay* we have ever seen.

Laſtly, the planchets, being thus edged, are to be ſtamped, &c. their impreſſion is to be given them in a ſort of mill, or preſs, by the French called a *balancier*, invented towards the latter end of the ſixteenth century. See its figure in *Tab. Moſcellaneſ. fig. 3.*

Its chief parts are a beam, ſcrew, arbor, &c. all contained in the body of the machine, except the firſt, which is a long iron bar, with a heavy ball of lead at each end, and rings, to which are faſtened cords, which give it motion: this is placed horizontally over the body of the machine. In the middle of the beam is faſtened a ſcrew, which, by turning the beam, ſerves to preſs the arbor underneath it; to the lower extremity of which arbor, placed perpendicularly, is faſtened the dye, or matrice, of the reverſe, or arm ſide, in a kind of box, or caſe, wherein it is retained by ſcrews: and under this is a box, or caſe, containing the dye of the image ſide, firmly faſtened to the lower part of the engine, *fig.* 4. See MATRICE.

Now, when a planchet is to be ſtamped, it is laid on the image-matrice, upon which two men draw, each on his ſide, one of the ropes of the beam, and turn the ſcrew faſtened in it; which, by this motion, lowers the arbor to which the dye of the arms is faſtened: by which means the metal being in the middle, at once receives an impreſſion on each ſide, from either dye. As to the preſs formerly uſed, it has all the eſſential parts of a balancier, except the beam, which is here, as it were divided, and only drawn one way.

The blanks having now all their marks and impreſſion, both on the edges and faces, become money; but they have not currency till they have been weighed and examined.

For the COINING *of Medals*, the proceſs is the ſame, in effect with that of money: the principal difference conſiſts in this, that money, having but a ſmall relievo, receives its impreſſion at a ſingle ſtroke of the engine; whereas, for medals, the height of their relievo makes it neceſſary, that the ſtroke be repeated ſeveral times: to this end the piece is taken out from between the dyes, heated, and returned again; which proceſs, in medallions, and large medals, is ſometimes repeated fifteen or twenty times before the full impreſſion be given: care being taken, every time the planchet is removed, to take off the ſuperfluous metal ſtretched beyond the circumference, with a file.

Add to this, that medallions and medals of high relievo, on account of the difficulty of ſtamping them in the balancier, or preſs, are uſually firſt caſt or moulded in ſand, like other works of that kind, and are only put in the preſs to perfect them; becauſe the ſand does not leave them clean, ſmooth, and accurate enough. Medals, therefore, receive their form and impreſſion by degrees; money all at once.

The rule whereby they judge the metal to be ſufficiently ſtamped, is, when feeling it with the hand, it is found firm, and not to be ſhaken, as filling the dye equally every where.

COINING *with the hammer, or hammered money.*—In this method of making money, the bars or plates of gold, ſilver, or copper, being taken out of the moulds or frames, as above, are heated and ſtretched, by beating them on the anvil: when ſufficiently beaten, they are cut into pieces, which being again heated, flatted, and farther ſtretched with the hammer, are adjuſted by cutting off the angles with ſhears: thus, by cutting and rounding them, they are reduced to the weight of the ſtandard; and their roundneſs finiſhed with another hammer, which beats down all the points and angles ſtill remaining on the edges. In this manner they are brought to the ſize of the ſpecies to be coined.

In this ſtate the pieces become blanks or planchets, and are carried to the blanching-houſe; where they undergo the ſame preparation as the milled money already deſcribed, and are given to the miniſter to ſtamp them with the hammer.

For this laſt operation, which finiſhes the money, they uſe two punchions, or matrices; the one called the *pile*, and the other the *truſs*, or *quoin*; each engraven denewiſe; the pile bearing the arms, and the truſs the image, or croſs; both their legends, date, &c.

The pile, which is about eight inches high, has a kind of talon, or heel, in the middle, and ends in a point: which figure it had, for the ſake of being more eaſily ſunk, and more firmly faſtened to the block wherein the money is ſtruck.

The miniſter then laying the planchet horizontally on the pile, and covering it with the truſs, which he holds ſteadily in his left hand, gives ſeveral ſmart blows on the truſs with an iron mallet, held in the right; more or leſs, as the graving of the dyes is more or leſs deep. If after theſe firſt ſtrokes, the planchet be not ſufficiently ſtamped, it is returned again between the matrices, exactly in its former poſition, and the ſtrokes are repeated till the impreſſion be perfect.

Thus is the *coinage* finiſhed, and the planchets converted into money; which, after they have been examined as to their weight, become current.

COINAGE, *Engliſh.*—Since the inventionof milling money (the author whereof is not agreed on, nor even the country where it took its riſe, though the French lay claim to both) it has been imitated by ſeveralother nations; but by none with ſucceſs equal to that of the Engliſh, who carried it to the utmoſt perfection; both by the beauty of their graving, and by their inventing the impreſſions on the edges, that admirable expedient, for preventing the alteration of the ſpecies above mentioned.

Till the time of K. Charles II. the Engliſh money was generally ſtruck with the hammer, as that of other nations; and, in effect, it is but very lately, viz. in the reign of king William III. that the hammered ſpecies ceaſed to be current. Before they were put down, the Engliſh Money was in a woeful condition; having been filed and clipped by natives as well as foreigners, eſpecially the Dutch, ſo as to be ſcarce left of half the value: the reſtoring this diſtreſſed ſtate of the Engliſh money is looked upon as one of the glories of king William's reign; for which we are obliged, in good meaſure, to the happy conduct of the earl of Halifax.

The *coinage* of England is now performed wholly in the Tower of London; where there is a corporation for it, under the title of the *mint*.

Formerly there were here, as there are ſtill in other countries, what we call the rights of *ſeigneurage* and *braſſage*; but ſince the eighteenth year of king Charles II. there is nothing taken, either for the king or for the expences of *coining*; it having been ſettled by act of parliament, that all money ſhould be ſtruck at the public expence: ſo that weight is returned for weight, to all perſons who carry their gold and ſilver to the Tower.

There is a duty of ten ſhillings per ton on wine, beer, and brandy imported, called the *coinage* duty, granted for defraying the expence by ſtat. 18 Car. II. cap. 5. and continued and advanced by ſubſequent ſtatutes, 4 and 5 Anne, cap. 12. 1 Geo. I. cap. 43. 4 Geo. II. cap. 12. 3 Geo. III. cap. 16, &c.

The ſpecies coined in England are eſteemed contraband goods, and not to be exported; all foreign ſpecies are allowed by act of parliament, made in 1603, to be ſent out of the realm; as well gold and ſilver in bars, ingots, duſt, &c. Indeed, in the ſeſſion of parliament in 1718, endeavours were made to put a ſtop to this licence, which drains England of its richeſt metals; but in vain: the parliament having laid aſide the bill, without coming to any reſolution.

COINAGE *of Tea and Tools* is not under my diſcipline; each goldſmith, Jew, and even every private perſon, undertaking it at pleaſure: which renders their money exceedingly bad, and their commerce very unſafe.

COINAGE, *Moſcovite.*—The czar ſtrikes no money but ſilver, and that only in the cities of Moſcow, Novogrod, Twere, and Pleſcow: to which may be now added Peterſburg, the favourite city of her late czarian majeſty. The *coinage* of each of theſe cities is let out to farm, and makes part of the royal revenue.

COINAGE, *Perſian.*—All the money made in Perſia is ſtruck with the hammer; and the ſame may be underſtood of the reſt of Aſia and America, and the coaſts of Africa, and even Moſcovy; the invention of the mill not being yet gone out of Europe, nor even eſtabliſhed in every part of it. The king's duty, in Perſia, is ſeven and a half per cent. for all the monies coined; which are now reduced to ſilver and copper: there being no gold coined there, except a kind of medals at the acceſſion of a new ſophi.

COINAGE, *the Spaniſh*, is eſteemed one of the leaſt perfect in Europe: it is ſettled at Seville and Segovia, the only cities where gold and ſilver is ſtruck. It is true, there are brought from Mexico, Peru, and other provinces of the Spaniſh America, ſuch vaſt quantities of pieces of eight, and other ſpecies both of gold and ſilver, that, in this reſpect, it muſt be owned, there is no ſtate in the world where ſo much money is coined as in that of the king of Spain.

To take the repreſentation of a coin on paper, card, or paſteboard, ſee MEDAL.

CO-INDICATIONS, in *Medicine*, ſigns which do not indicate by themſelves alone, but together with other circumſtances, &c. help the phyſician to form a judgment.

COINING, in the *Tin-works*, is the marking the tin, when caſt into blocks, or ſlabs, with the figure of the lion rampant.

part. This is done by the king's officer. The king's custom is four shillings for every hundred weight.

COINUS, in *Natural History*, a name given by some writers to the gems of shells called PORCELLANA and *Concha veneris*.

COITION, the intercourse between male and female in the act of generation.

It is observed that frogs are forty days in the act of *coition*.

Bartholine, &c. relate that butterflies make an hundred and thirty vibrations of the wings in one act of *coition*.

COITION is also sometimes used for that mutual attraction, or tendency toward each other, which is found between iron and the magnet.

COJUMERO, in *Ichthyology*, a name given by some to the *manati*, or SEA-cow.

COIX, in *Botany*. See JOB'S *Tears*.

COKE, denotes pit-coal, or sea-coal, charred. It is prepared by burning them in ovens constructed for this purpose, and extinguishing the fire in the manner used for making CHARCOAL. See COAL.

COLAPTICE, the art of carving, or cutting, the resemblances and figures of natural things in stone. The term for the skill is *silvesis*.

COLARBASIANS, or COLORBASIANS, a sect of Christians in the second century; so called from their leader Colarbasus, a disciple of Valentinus; who, with Marcus, another disciple of the same master, maintained the whole plenitude, and perfection, of truth and religion, to be contained in the Greek alphabet; and that it was upon this account that Jesus Christ was called the *alpha* and *omega*. This sect was a branch of the VALENTINIANS. See also MARCOSIANS.

COLARIN, in *Architecture*. See HYPOTRACHELION and GORGERIN.

COLARIN is also used for the CINCTURE.

COLACISI, in *Natural History*, a name given by the people in the Philippine islands to a very small, but very beautiful species of the parrot, common in that part of the world, and called by others *rajà* and *gulo-fyà*.

COLATURE. See FILTRATION.

COLCHESTER-PLOUGH. See PLOUGH.

COLCHICUM, in *Botany*. See *Meadow* SAFFRON.

COLCHICUM, in *Medicine*. The general consent of authors condemns the root of the *colchicum* as a poison, on account of its acid and corroding quality; yet it is evident that the ancients esteemed it greatly: they called it *hiera-bulbus*. Some even gave it internally, in cases where it was necessary to make the patient vomit, it being esteemed a very good emetic: and others ordered its use externally, bruising it, and applying it to places where there were hard and violent pains.

Wedelius recommends it as an alexipharmic, and has written a treatise expressly on this subject. He frankly confesses to have taken his knowledge of its virtues from an obscure author, who, in a treatise of the plague, recommends it internally as a very beneficial medicine, and tells us that people were so well acquainted with its virtues, that they took it in considerable doses, and wore it about their necks, as a preservative against the infection. He found the virtues of this medicine were not confined to the pestilential and petechial fevers alone, but he gave it with the same success in the small-pox, the purple fever, and even the worst kind of the measles.

M. Stork of Vienna, discovered to the public the medicinal virtues of *colchicum*, and by experiments on himself ascertained it to be a most powerful diuretic, and a kind of miraculous remedy in the most deplorate dropsies. He digested an ounce of the solid root in a pound of vinegar for twenty-four hours, and then made an oxymel of this vinegar by mixing with it twice its quantity of honey: this medicine administered in doses of a tea spoonful, or a dram, promoted a copious discharge of urine. He also found, by many trials, that by giving a dram of it twice a day, and increasing the dose to an ounce or an ounce and a half in the day, it proved a very powerful diuretic, and of excellent service in hydropic and other serous disorders.

COLCOTHAR, in *Natural History, &c.* The Latin writers of the middle ages used *colcothar* as a name of vitriol in general, which is called by the Greeks *chalcanthum*.

Colcothar is originally an Arabic word, which does not signify the common vitriol, but the *chalcitis*. The word has been spelt *colchothar*, and from this the word *chalcitis* differs not very much. The Greeks of the middle ages followed the Arabians in the rule of the word *colcothar*, but added to it a termination proper to their language, and particularly to the custom of those times, which seemed not to express exactly the same thing, but a diminutive of it: they wrote it *colcotharion*, or *chalcitarion*. This they also called the *scebi*, *sechinion*, the *lodi cladion*, and to an hundred other instances. Avicenna uses the word *zeg* to express this substance, but then he is by no means determinate in it, but makes it include the *misy*, *sory*, and *melanteria*, as well as the *chalcitis*; but [illegible] gushing in another place the several kinds of [illegible] tells us, that one was the *chalcanth*, which [illegible] second the *chalcitis*, which was yellow; a [illegible] which was red. *Alzagiat* is a name also [illegible] express all these kinds; and this word the [illegible] generally render *atramenta*, inks. This is gen[illegible] posed to express their being all black substances, [illegible] not the case; but it properly signifies, that [illegible] are all vitriolic fossils: *atramentum* being a name of vitriol, as a substance used in the making of ink.

There are two kinds of *colcothar*, *natural* and *factitious*.

COLCOTHAR, *Natural*, otherwise called *chalcitis*, is a red vitriol, brought from Germany; formed from the common green vitriol, calcined naturally by some subterraneous fire.

COLCOTHAR, *Artificial*, is a substance which remains after martial vitriol has been calcined, and distilled for a long time by an intense fire; and by that means reduced to the redness of blood.

Mr. Le Fevre proposes an *easy* method of making *colcothar of vitriol*: he mixes two parts of filings of iron with one of sulphur, and a little water. After the acid of the sulphur has dissolved the iron, he exposes the paste to the air, and it changes into *colcothar*. See Mem. of the A. D. S. an. 1730. H. 32.

Colcothar of vitriol, after the action of the fire being calcified, or the metallic parts precipitated by the alkali, or by zinc, or any other of the imperfect metals, and sublimed with sal ammoniac, in either case an inflammable sulphur is prepared in the operation, and may be separated both from the sublimed flowers, and from the caput mortuum. This, and the sulphurous smell of spirit of vitriol, together with the sulphur produced by oil of vitriol and spirit of wine, prove abundantly what has been suspected by some, that vitriol contains sulphur as one of its principles, and a natural and necessary part of its composition. Phil. Trans. N° 103.

Colcothar, after calcination, retains some of its acid, and imbibes moisture from the air: but if it is washed in water, the remaining acid is discharged; it no longer attracts moisture, and becomes what they call the *sweet earth* of vitriol. Unwashed *colcothar* is an antiseptic, tonic, astringent and corrosive, and is therefore applied externally to all putrid, sanious, and fungous ulcers. See VITRIOL.

COLCUCULTIC, in *Ornithology*, the *American* name of a bird, of the partridge kind, described by Nieremberg. It is variegated with black, white and red, and is a very beautiful bird. Its colours are for the most part disposed not in spots, but in longitudinal lines on the back; but on the belly they are rather in form of small and short spots. Its legs and feet are blue. It is a well tasted bird.

COLD, is something devoid of HEAT, or which contains in it no particles of FIRE.

This definition is agreeable to the sentiments of most of the modern philosophers, who made cold a mere negative term; and suppose the thing to consist in a privation, or diminution of heat. Others define *cold*, much on the same principle, to be that state of the minute parts of a body, wherein they are more slowly and faintly agitated than those of the organs of feeling.—In which *cold*, *cold* is a mere term of relation: and hence the same body becomes liable to be perceived hot or *cold*, as its particles are in a greater or less degree of motion than those of the sensible organs.

Heat is supposed to consist in a particular motion of the parts of the hot body; and hence the nature of *cold*, which is its opposite, is easily deducible: for *cold*, we find, extinguishes, or rather abates heat, whence it seems to follow, that those bodies are *cold*, which check and restrain the motion of the particles wherein heat consists.

Now there are three kinds of bodies which may do this; viz. either those whose particles are perfectly at rest; or those whose particles are indeed agitated, but that less violently than those of the hot body to which they are applied: or, lastly, those whose particles have a motion proper for exciting the sensation of heat, but which move with a different determination; so as to remit and change the motion of the particles of the organ.

Hence there arise three different kinds of *cold*, or cold bodies: the first is, that cold common to all hard bodies, which consists in the rest of their parts. The second is that which arises from plunging any part of our body in water; which consists in this, that the parts of our pericardia, being more briskly agitated than those of the fluid, communicate part of their motion to it. The third, the *cold* felt in collecting even warm air with a fan, or in blowing hot breath out of their mouth, with the lips

lipo close shut; which consists in this, that the direct motion of the particles of air does, in some measure, change and retard the motion and determination of the parts of the body; and hence it is, that a *cold* body cannot cool another without heating itself. Hence also it is that the more parts of a slight body are at rest, the more must the particles of a warm body, applied to heat them, lose of their motion, and by consequence of their heat. Thus a marble having more quiescent parts than wood, which is full of pores and interstices, is felt colder than wood. Hence also we see why air, near marble and other dense bodies, feels somewhat colder than in other places.

On this principle, the two latter kinds of *cold* appear somewhat more than privations: the particles inducing the *cold* may be esteemed real frigorific corpuscles; and the coldness be deemed a real quality as well as horrefi.

These particles do not only check the agitation of those continually excited from the inner parts of the animal to the outer; but, having an elastic power, they bend and hang about the filaments of the body, pinch and squeeze them: and hence that acute pungent fenfation called *cold*.

That *cold* is more than a mere relation, or comparifon, is evident from its having real and positive effects; fuch as FREEZING, CONGELATION, CONDENSATION, RAREFACTION, BURSTING, &c.

Cold is the deftroyer of all vegetable life, when increafed to an exceffive degree; and it is difficult to fay how much increafe of it the hardier of them are, or are not able to bear. We find many of our garden plants and flowers, which feem to be very ftout and hardy, go off at a little increafe of *cold* beyond the ordinary ftandard. In the fevere winter in 1683, Mr. Roberts tells us, that the artichokes and cauliflowers all perifhed; and that the odoriferous fuffrutices, fuch as thyme, fage, lavender, cotton, and the like, were generally killed, very few efcaping, except fuch as had been planted the preceding year, and were therefore fo low as to have the advantage of a covering of fnow over them; which is the defence nature has given to the natives of the coldeft countries, and proves fuperior to any thing that can be invented by art for their preservation. In the corn-fields, fuch parts of them as had remained covered with fnow, had efcaped very well, the corn all looking freth and vigorous, after the melting of it in the fpring; but when the lands had lain fo expofed that the fnow had melted off, the crop was generally deftroyed, and the farmer obliged to ftow the place anew. Phil. Tranf. N° 169. See FROST.

Dr. Clarke takes *cold* to be owing to certain nitrous, and other faline particles, endued with particular figures proper to produce fuch effects. Hence, fal ammoniac, faltpetre, or falt of urine, and many other volatile and alkalizate falts, mixed with water, increafe its degree of *cold* very fenfibly. Hence alfo that popular obfervation that *cold* prevents corruption; which, however, muft not be admitted without an exception; fince, if a hard porous body have its interftices filled with water, and this be too much dilated by freezing, the including body will be burft, and thus it is, that *cold* proves deftructive to the parts of fome plants.

COLD, *Artificial*. See FREEZING, and THERMOMETER.

COLD, *Potential*. See POTENTIAL.

COLD *Baths*. See BATHS.

COLD *Fufion*. See FUSION.

COLD *Diamargariton*. See DIAMARGARITON.

COLD *Diatragacanth*. See DIATRAGACANTH.

COLD *Diftillations*. See DISTILLATIONS.

COLD, in *Medicine*, arifes from obftructed perfpiration, and is found to be productive of inflammatory diforders, as frozen limbs, gangrenes, coughs, pleurifies, peripneumonies, rheumatic pains, conſumptions, apoplexies, palfies, &c. which fee under their proper heads.

To remove a cold in the beginning, fmall and repeated bleedings are recommended, which likewife prove beneficial in coughs, and in the confirmed conſumption, even after purulent fpitting and hectic fymptoms have appeared. The quantity to be taken away at a time, may be from four to feven or eight ounces, once in eight or ten days; concerning which it is obfervable, that the patients do not find themfelves fo much relieved on the firft, as on the fecond or third night after bleeding.

What we commonly call catching *cold*, may be cured by lying much in bed; by drinking plentifully of warm fack whey, with a few drops of fpirits of hartfhorn in it, poffet-drink, water-gruel, or any other warm fmall liquor. In fhort it ought to be treated firft as a fmall fever, with gentle diaphoretics; and afterward, if any cough or fpitting fhould remain, by foftening the breaft with a little fugar-candy, and oil of fweet almonds, or a folution of gum ammoniac in barley-water; taking care to go abroad well clothed.

This is a much more eafy, natural, and effectual way, than the common practice by balfams, tinctures, pectorals &c. which ſerve only to fpoil the ſtomach, oppreſs the ſpirits, and hurt the conſtitution.

To prevent the catching of *cold*, the Jefuits bark is recommended in the Philofophical Tranfactions. Phil. Tranf. N° 478. p. 3.

COLD is alſo a diſeaſe to which horſes are ſubject; this is uſually occaſioned by want of regular exerciſe, by overheating them in riding, and ſuffering them to cool too faſt, or neglect of rubbing them down when they come in hot after journeys. The ſigns of a *cold* are a cough, heavineſs, watery eyes, kernels about the ears and under the jaws, gleets of the noſe, and rattles in breathing, &c. Bleedings, hot mathes of bran and water, and moderate exerciſe will, in moſt caſes, be an effectual remedy. To theſe may be added balls conſiſting of warm opening ingredients: Dr. Bracken preſcribes the following; take aniſeed, carraway ſeed, and grauier cardamoms, finely powdered, of each one ounce, two ounces of flower of brimſtone, one ounce and a half of turmeric in fine powder, two drams of ſaffron, two ounces of Spaniſh juice diſſolved in water, half an ounce of oil of aniſeed, one ounce and a half of liquorice powder, and a ſufficient quantity of wheat flour: let theſe ingredients be well beat in a mortar and made into a ſtiff paſte; and given in ſmall quantities about the ſize of a pullet's egg.

COLD *charge*, in *Farriery*, a medicine conſiſting of vinegar, bole, and the whites of eggs, mixed to the conſiſtence of a poultice, and ſpread over the injured part for the cure of ſtrains, &c.

COLD-*finch*, in *Ornithology*, the name of a bird of the *ornotix* kind, or nearly approaching to that genus, common about the Peak in Derbyſhire. Its belly is white; its breaſt of a yellowiſh brown, and its head and back of a brownith or greeniſh grey: the long feathers of its wings and tail are black, but with ſome variegation of white, toward the end; its beak is ſlender, ſtraight, and ſomewhat ridged or triangular; it feeds on worms and other inſects.

COLD *water*. See WATER.

COLDENIA, in *Botany*, a genus of the *tetrandria tetragynia* claſs. Its characters are theſe; it hath a funnel-ſhaped flower of one peral, ſpreading at the top, and obtuſe; and four ſtamina, which are inſerted in the tube of the petal. In the centre are inſerted four oval *germina*, each ſupporting a hairy ſtyle: the germina afterward become ſo many oval, compreſſed, rough fruits, terminated by four beaks, enclofed by the empalement. We know but one ſpecies of this genus, which is a native of India.

COLDSHIRE *Iron*, ſuch as is brittle when it is cold. See IRON.

COLE-*fiſh*, a name for a fiſh of the whiting-kind, called by authors *aſellus niger*, by Artedi and Linnæus reckoned a ſpecies of the GADUS, and in Cornwall, and ſome other parts of England, the *rawlin-pollack*. It is very common on the coaſts of Northumberland, Yorkſhire, and other northern counties of England, and is called the *cole-fiſh*, or coal-fiſh, from its blackneſs. It has ſomething of the taſte of the cod, but much inferior to it. This fiſh is ſalted and dried for ſale.

COLE-*mouſe*, in *Ornithology*, the name of a ſmall bird of the tit-mouſe kind, diſtinguiſhed from all the reſt by being the ſmalleſt of all the tit-mouſe kind, and having a white ſpot on the back part of its head. See TITMOUSE.

COLE-*pearch*, in *Ichthyology*, a name given to a ſmall fiſh, much eſteemed about Dantzick and other places for its delicate flavour. It is very like the common river pearch, but that it does not grow ſo large, and has a greater variety of colours, and its head is proportionably larger. Phil. Tranſ. N° 83.

COLE-*ſeed*, the ſeed of the napbew or napus, propagated in many parts of England to great advantage, for the oil expreſſed from the ſeeds. It is much ſowed in the moory land in fen countries; and the land is prepared for it by the method of BURN-*bating*, or DENSHING. The freſheſt mould is found beſt for it, or what the former has called a hufty ſoil, which is newly broken up, and has been long at reſt; but with plenty of manure, and deep frequent ploughing, it will grow in any ſoil. Indeed the land cannot be too mellow, nor too much pulverized for this plant.

It loves rich fat land, and ſucceeds very well on marſh and fen-lands, and particularly on ground newly recovered from the ſea. The ranker the land is for *cole-ſeed* the better. This ſeed is principally brought from Holland, though it is very good when taken from our own plants for growth as well as other uſes. The ſowing this ſeed is a very advantageous piece of huſbandry. The beſt ſeed is that which is largeſt, faireſt, and of the cleareſt colour. It is very apt to be mouldy, if not kept very dry. It is to be ſown in July, the land being previouſly

ploughed

ploughed and harrowed: the quantity of feed is half a peck allowed for an acre.

The plants are likewise hoed like turnips. The flugs and infects which infeft this plant are deſtroyed by a mixture of ſlaked lime and wood aſhes; ten buſhels of lime and fifteen of aſhes being allowed to an acre, and this alſo ſerves to forward the crop.

Some ſow it for the ſake of the ſeed; others by way of a winter food for the cattle in the months of January, February, and March, when other food is wanting. It will do very well in poor lands for this purpoſe; but the richer grounds only will make it rank enough for ſeed. If the winter be mild, it will after feeding grow again, and afford a ſecond winter's ſupply, and after cutting up the ſtumps, will ſhoot out young ſprouts, very ſweet, and in great abundance.

But Mr. Young obſerves, that turnips will anſwer the purpoſe much better; and he diſcourages the culture of it for food in April and May to ſucceed turnips, becauſe it produces only a ſmall quantity per acre: as he obſerves that if it is fed off with ſheep or cattle, and afterwards reſerved for ſeed, the crop is much damaged by it; and he adds, that the principal profit of the crop is the ſeed, which amounts to five times the value of food gained by it.

Mr. Miller, however, alledges that one acre of land, planted with *cole*, will produce nearly as much food as two acres of turnips; and there is this advantage attending the culture of this plant, that it will bear a ſevere froſt, and yield a conſtant ſupply of food, when the ground is ſo frozen, that the turnips cannot be taken up. But caution ſhould be uſed in feeding cattle with *this plant*. In the *ſen* countries they turn their ſheep to fatten upon the ſeed about Michaelmas; and it is obſerved that theſe will thrive more on this paſture in a month than they will on turnips in two.

In Flanders *cole-ſeed* is ſown and tranſplanted like cabbages: the land in which it is ſown is ploughed twice before winter; it is again ploughed in May, harrowed two or three times and rolled; and theſe operations are repeated in July; when the ſeed is ſcattered over it by the three fingers, the land is lightly harrowed and afterwards rolled. Twenty-four pounds of ſeed will ſow three acres, and yield plants ſufficient for twelve acres. The land for the plants, when the previous crop is removed, is twice ploughed; afterwards harrowed, and ploughed again with an open trench at ſmall intervals in September. In the beginning of October the plants are removed and placed in rows acroſs the furrows, at the diſtance of a foot, and about ſix inches diſtant from one another. The ground may be afterwards ſown with pulverized pigeon's dung, which is the beſt manure for theſe plants; allowing about thirty buſhels to an acre. The looſe earth in the trenches is then thrown among the plants in the rows; which is again repeated early in the ſpring. When it turns yellow, or about the beginning of July, it is reaped like corn, and after remaining three or four days ſtacked in the field, where it heats and yields a greater quantity of oil than it would have otherwiſe done, in September it is threſhed and dreſſed on a kind of floor in the field.

When it is kept for ſeed, it is to be reaped in the manner of wheat, as ſoon as one half of the ſeed looks brown: it is to be left a fortnight to dry on the ground, never turning it, for fear of ſhedding the ſeed; and when this time is over, it is to be gathered up in large ſheets, and carried to the barn for immediate threſhing; or it may be ſtrewed in the field on a large ſheet. Its common produce is five quarters of ſeed from an acre, and the value of this about five pounds.

Mr. Donellan, near Dublin, obtained a crop by the horſe-hoeing culture, of ſeventy-three tons ſix hundred weight on an Engliſh acre: but Mr. Young, by broadcaſt ſowing, and hand-hoeing, which he reckons the beſt method of cultivating this plant, obtained only five tons per acre.

The land, where this has grown, is very well prepared by it for wheat; though ſome ſow oats upon it, as what ſucceeds beſt of all after it. When the oil is preſſed out of the ſeeds, they uſe the remaining cakes in ſome places as firing: but in others they give them to their cows and other cattle in winter, when other food is ſcarce. They will very ſoon fatten thoſe deſigned for ſale: and the yellowneſs and rankneſs of the fat may eaſily be remedied, by feeding them on dry fodder a fortnight or three weeks before they are killed. In ſome places, they mix the powder of their cakes with water, and give it to their calves till they are three or four days old, inſtead of milk, and it does as well for them; till they are able to eat graſs or hay. It is a good method to burn the ſtubble on the *cole-ſeed* lands, for it is ſo ſtumpy that it is of no uſe to plow it in.

COLEOPTERA, in *Zoology*, an order of inſects, comprehending all thoſe with four wings; the external pair of which are hard, rigid, and opake, and form a kind of caſe for the interior pair; add to this, that the mouth conſiſts of two tranſverſe jaws.

Theſe animals are known in Engliſh by the general name of beetles; whereof authors have eſtabliſhed a great many genera, from the different figures of their *horns*, or horns, and other general diſtinctions; as the *ſcarabæus*, or beetle properly ſo called, the *cantharis*, *coccinella*, *chryſomela*, *dyſticus*, *tenebrio*, &c.

COLEWORTS, in *Gardening*, for the botanical character ſee BRASSICA. The common *colewort*, or Dorſetſhire kale, is now almoſt loſt near London; where the markets are uſually ſupplied with cabbage plants inſtead of them. Indeed, where farmers ſow *colewort* to feed their milch cattle in the ſpring, when there is a ſcarcity of *herbage*, the common *colewort* is to be preferred, as being ſo very hardy that no froſt will deſtroy it. The beſt method to cultivate this plant in the field, is, to ſow the ſeeds about the beginning of July, in moiſt weather, which will bring up the plants in about a fortnight. The quantity of ſeed for an acre of land is nine pounds. When the plants have got five or ſix leaves they ſhould be hoed, as is practiſed for turnips; but they ſhould be kept thicker than turnips, as being in greater danger of being deſtroyed by the fly: this work ſhould be performed in dry weather, that the weeds may be killed. About ſix weeks after, the plants ſhould have a ſecond hoeing, which if carefully performed will clean the ground, ſo that they will require no farther culture. In the ſpring they may be drawn up and carried out to feed the cattle, or theſe may be turned in to feed upon them as they ſtand; but the former method is to be preferred; for when the cattle are turned in among the plants, they will tread down and deſtroy more than they eat; eſpecially if they are not fenced off by hurdles. Miller.

COLIBERTS, *Coliberti*, in *Law*, were tenants in ſocage and particularly ſuch villeins as were manumitted, or made freemen. Domeſday.

But they had not an abſolute freedom; for though they were better than ſervants, yet they had ſuperior lords to whom they paid certain duties, and in that reſpect might be called ſervants, though they were of middle condition between freemen and ſervants. Du-Cange.

COLIBRI, in *Ornithology*, the name of a bird very remarkable for its beauty, its form, its manner of living, and its littleneſs. It ſucks its food from flowers, on which it ſeldom lights, but extracts the honey from their nectaria with its long, fine, delicate tongue. There are ſpecies of them which have all the colours of precious ſtones, and the moſt and moſt beautiful plumage imaginable. They fly with great rapidity, and are heard before they are ſeen, making a kind of humming noiſe, from which they are called HUMMING-*birds*.

COLIC, in *Medicine*, a ſevere gnawing pain, felt in the lower venter; ſo called, becauſe the ordinary ſeat of the diſorder was anciently ſuppoſed to be in the inteſtine colon.

Phyſicians uſually diſtinguiſh four kinds of *colic*; the *bilious*, *inflammatory*, *windy*, and *nephritic*.—The *bilious* colic has its riſe from certain ſharp, bilious, ſtimulating humours, which, being diffuſed through the inteſtines, vellicate their fibres, and occaſion a ſenſation of pain; though Willis takes the part here principally affected to be the meſentery.

Dr. Sydenham obſerves, that the *bilious colic* uſually attacks people about the beginning of ſummer; that it is generally attended with a vomiting of bilious green liquor; that the patient complains of exceſſive heat, great gripings, faintneſs, &c. and that if it be not ſoon relieved, it is apt to turn to the iliac paſſion.

Baglivi notes, that if the patient ſweat much, and be much enfeebled, the diſeaſe is apt to degenerate into a palſy. The cure, he ſays, depends on bleeding, gentle cathartics, and clyſters; and if it ariſe from a crapula, an emetic is to precede: after which, the cure is to be completed with proper anodynes.

COLIC, *inflammatory*, is the moſt dangerous, and ariſes from an inflammation of the ſtomach and inteſtines. See INFLAMMATION.

COLIC, *Windy*, is a vague pain, never ſtaying in any fixed place: being produced by windy vapours, which ſwell and diſtend the inteſtines they are incloſed in.

COLIC, *Nephritic*, is that felt particularly in the reins, whence it has its name.

It uſually has its riſe from ſome ſtone, or gravel detached from the kidneys, and fallen into the pelvis. The pareira brava is ſaid to be a ſpecific for *nephritic caſes*.

Some, particularly Sydenham, mention a *certain colic*, moſtly incident to hyſteric and hypochondriac perſons; but this appears only a ſpecies of the *windy colic*.

Persons subject to colics. These are diseases that attack both sexes, but in general women are more subject to them than men; and they are the more violent, and usually of longer duration in that sex than in the other. In women they usually appear gentle, and often trifling at first; but they gain strength by time, and often become convulsive. The persons of that sex, peculiarly subject to *colics*, are those of a sanguine temperament, and such as have had obstructions in the menses. Women in childbed are also very subject to flatulent *colics*, when the belly has not been properly bound round after delivery: in this case the *colics* not only are troublesome during the month of lying-in, but often become habitual, and do not leave them afterwards. In men, the middle-age is more subject to *colics*, than either the young or old periods of life; and people are most subject to fall into them who have been subject to irregularities in the hæmorrhoidal discharges, and who have nephritic complaints. Men are often thrown into the bilious *colic* by violent passions of anger, especially if they eat or drink immediately afterwards, or they themselves be of a CHOLERIC temperament.

Prognostics in colics. The oftener any person has been affected with *colics*, the more subject they are to return on any slight occasion, and the more likely to become habitual. All *colics* that attack persons with a chilliness first, are more violent than those which do not, and they often are either attended at the very first with an inflammation, or have one come on soon afterwards. In general also *colics* attended with costiveness are worse than those in which the patients have some stools. Reachings to vomit are always bad symptoms in *colics*, and give a suspicion of the case turning to a miserere or iliac passion; but this is to be observed, that when the patient has all before eaten very heartily, and drank much, especially of cold liquors, then such reachings are natural, and are not to be accounted the bad symptoms they are at other times. In women, when the reachings are violent, there is always danger of a vomiting of blood. The more violent the pains of the *colic* are, the more danger there is of their bringing on convulsions. A *colic* arising from a stoppage of the menses, and attended with a stagnation of blood about the viscera, when it is of long standing, threatens the coming on of a quartan, a dropsy, or cachexy. And a hæmorrhoidal *colic*, when arising from a retrocession of the gout or sciatica, by wrong medicines, is always a case of great danger. This, however, always happily goes off, if there comes on a discharge of blood, or even of a serous matter, from the hæmorrhoidal veins. Sometimes also it goes off at once, but very unhappily, by a sudden regurgitation of the matter upon the viscera, especially upon the liver: the consequences of which are, obstruction of that viscus, ascites, hectics, or dropsies. Sometimes also this *colic* goes off by the appearance of scorbutic spots on the body, in different parts.

The bilious *colic*, if the offending matter be not immediately evacuated, after its acrimony has been abounded by a proper medicine to fit it for evacuation, too often brings on dangerous inflammatory fevers. In *colics* which have held the patient a long time, a hiccough coming on is a very bad omen. Finally, a *colic*, when improperly treated with opiates and anodynes, often brings on a palsy.

Method of cure. In flatulent and sweating colics, carminative and emollient clysters are to be injected, composed of decoctions of chamomile-flowers, marshmallows, and a mucilage of the elder proprietas, or common salt, by way of ptisan; and after this the carminative medicines, such as angelica-root, Winter's bark, anise and caraway seeds, and cloves, with the other spices, are to be given, with intermediate doses of laxative medicines; and to these medicines may be added occasionally, the digestive salts, such as vitriolated tartar, with nitre and cinnabar, and the spirit of tartar, and sweet spirit of nitre, with the essence of orange-peel, &c.

In the bilious colic, the attemperating and absorbent medicines are to be given; as nitre, mother of pearl, calcined crystal, oil of almonds, and manna, with the broths of white meats, and the carminative seeds. If these things are thrown up by vomit, recourse must be had to clysters, and to applications of warm things to the abdomen, such as are before described.

In the hæmorrhoidal and nephritic cases, clysters are to be frequently given of oil of olives and linseed, with a little nitre. After this, warm broths, with oil of sweet almonds, are to be drunk in frequent draughts, and powders composed of nitre, crab's eyes, and cinnabar, are to be given at frequent intervals; and if the pains are vehement, a small dose of theriac, or of the Burgundy-pitch, may be given with the powder, to be taken at night. When the violence of the fit is over, the gentle alexipharmics are to be given, with strengthening medicines, to restore the due tone of the parts. Externally fomentations may be applied to the rectum, and cataplasms of the leaves of mullein and mallows, on which the patient may sit while they are warm; and hemp may be applied to the abdomen by bladders half filled with water, or milk made of a due warmth, and by bricks heated a little, and by bags containing carminative and nervine ingredients. Liniments may also be rubbed in of the oils of naturings and bays, and spirit of wine and camphor, particularly in the part where the pain is most violent.

In the hysteric colic, clysters are frequently to be injected, made of decoctions of the herb vervain in broth, with a little of the oil of dill and common salt. When the patient is averse to clysters, and the case is not violent, warm baths for the feet, and the sitting over the steam of warm water, will sometimes prove sufficient, and gentle purges of decoction of senna, and the like, are to be given, or a gentle dose of the extract of soap, dissolved with the yolk of an egg in some of the uterine waters: after these, alexipharmics and carminatives are to be given, such as the roots of pimpernel and angelica, with anise and the other warm seeds. If the case is violent, the intemperating nitrous medicines may be given, and with them gentle anodynes; and finally, such things as will restore the due tone to the parts. The person should be kept in a gentle warmth during the whole time of the disease, and spirit of castor may be occasionally rubbed in on the abdomen.

By way of preservative from the hæmorrhoidal and hysteric *colic*, it is very proper to bleed in the foot at the spring and autumn seasons, and proper marine medicines should be taken to keep up the menstrual discharges; and to prevent suppressions of the hæmorrhoidals, leeches should be applied to the parts, and the bowels should be carefully kept gently lax. Juncker's Conspect. Med. p. 573. Dr. Percival recommends alum, in doses of ten to twenty grains every four or six hours, as an effectual remedy in various painful disorders of the bowels. Cayenne, administered either in clysters, or by the mouth, is likewise an excellent remedy in all cases of this kind. See Med. Obs. vol. ii. p. 285, &c.

This distemper has sometimes taken its rise from concretions formed on plum-stones lodged in the guts. See Memoir. Lit. Edinb. vol. i. art. 32. Abridgm. vol. ii. p. 214.

Colics have sometimes arisen from vitrifiables in the intestines; and the VITRUM *antimonii crocum* has been found successful in such cases.

Bagliv recommends chamomile as an antidote against the *colic*, from what cause so ever it arise. Where the disease is obstinate, much riding has been found of special service.

COLICA *Dammoniorum, or Devonshire* COLIC of Huxham, is probably the same disease with the *colica saturnina* of Juncker, the *colica Pictonum*, and *plumbariorum*, of others, and the dry belly-ach of the West Indies; and has been described by different writers under a variety of names, as the *bilious colic*, the *painter's colic*, &c. taken from the peculiar circumstances that have attended it: and as the immediate cause of it is a spasm, it has been frequently called the *spasmodic colic*. The *colic of Poitou*, and that of *Devonshire*, have been ascribed by Dr. Baker to the same cause; viz. the poisonous quality of lead. As the former disease prevailed most, where the wines were weak and sour, some writers attributed it to the acid of the wine; whilst others, with greater probability, ascribed it to the litharge which was used to correct the acid, and to improve the taste of the wine: and it is observable, that the most acid wines were drunk with impunity, till this fraudulent adulteration was introduced. Dr. Baker has attributed the endemial *colic* of Devonshire to the lead, with which the cyder of that county is impregnated: in proof of which charge, he alledges, that this disease is no longer known in the province of Poitou, and other parts of France and Germany, since the pernicious method of adulteration, above recited, has been made punishable with death: and that in the counties of Hereford, Gloucester, and Worcester, where no lead is used in the cyder apparatus, this disease is not known: that it prevails most in those parts of Devonshire where the greatest quantity of cyder is made: and that their machinery for making it has a quantity of lead in it: and that the must, or expressed juice of the apples before fermentation appeared, by experiments, to have had dissolved lead in it. Others have ascribed this disease to the roughness and acidity of the Devonshire cyder, and not to the lead solution. Gentle purges and opiates have been recommended for the cure of this disorder: some have prescribed mercurial salivation: others have applied blisters to the thighs, near the groin, and to the belly: and others again have extolled alum. Med. Trans. vol. i. p. 175, &c. Ibid. vol. ii. p. 68, &c. Husham de Morbo Colico Dammoniorum apud Oblerv. de Aeris, &c. vol. i.

COLICA *Arteriæ* and *Venæ*, in *Anatomy*. See MESENTERIC.

COLIC-*ſtell*, in *Natural Hiſtory*, a name given by ſome to the *porcellana*, or *concha veneris*, from its ſuppoſed virtue in curing that diſeaſe.

COLIC-*ſtone*, in *Natural Hiſtory*, the name given by ſome modern authors to a ſtone found in New Spain, and ſome other parts of America, and eſteemed of great virtues there in the cure of the colic, and in diſeaſes of the womb. It is a ſpecies of jaſper very nearly approaching to the lapis nephriticus, and called by the natives *thoyſtle*, and by the Spaniards, *piedra de hyada*. It is of a conſiderable weight and hardneſs, and is of a duſky green colour without any variegations. The Indians cut it into various forms, ſometimes of men, ſometimes of their idols; ſometimes alſo they figure it into long and even columns, and ſometimes into round and flat pieces. All theſe are nicely poliſhed, and thoſe of the laſt ſhape are what are principally uſed in the caſe of the colic. They wet theſe with their ſpittle, and then rubbing them, till hot, with their hands, they apply them to the navel in a fit of the colic; and they ſay, that they immediately carry it off, by determining the humours to paſs off, either upwards, or downwards, or both ways. They ſometimes cut this ſtone into flat plates alſo, with two holes cut at each end, by means of which it may be worn, tied to the wriſt by a ribband, and it is ſuppoſed thus to be a preſervative from all diſeaſes of this kind, and from many others.

COLIN, in *Ornithology*, the name of an American bird, called by moſt authors a quail, but ſuppoſed by Nieremberg to be rather a ſpecies of partridge. There are ſeveral diſtinct ſpecies of this bird, all very common in the Spaniſh Weſt Indies, very well taſted, and much eſteemed at table.

COLIPHIUM, a name given by Athenæus, and ſome other authors, to coarſe bread made of meal with the bran among it, and ſuch as is eaten by the poorer people in moſt countries.

The word is derived from κολον, *a limb*, and ἰσχυς, *ſtrength*, and is a very expreſſive word, as this ſort of bread makes people robuſt and ſtrong, and is greatly preferable to any other kind for people of ſtrong conſtitutions, who uſe hard labour, or much exerciſe. It ſignifies alſo a kind of food compoſed of bread, new cheeſe, and roaſted fleſh, which Pythagoras taught the athletæ to uſe, who before had been uſed to live on figs.

COLIR, an officer in China, who inſpects what paſſes in every court or tribunal in the empire; and though himſelf not of the number, yet is aſſiſting at all aſſemblies, the proceedings whereof are communicated to him.

He is properly what we may call an *inſpector*: he gives ſecret intelligence to the court; and even, on occaſion, accuſes the mandarins of their faults openly; and that not only of faults in their public offices, but even in private life. To keep him impartial, he is kept independent; by having the poſt for life. Theſe *colirs* make even the princes of the blood tremble.

COLISEUM, or COLISEUM, in the *Ancient Architecture*, an oval amphitheatre, built at Rome by Veſpaſian, in the place where ſtood the baſon of Nero's gilded houſe.

The word is formed from *coloſſeum*, on account of the coloſſus of Nero, that ſtood near it; or, according to Naraini, from the Italian *coliſeo*.

In this were placed ſtatues, repreſenting all the provinces of the empire; in the middle whereof ſtood that of Rome, holding a golden apple in her hand. The ſame term *coliſeum*, is alſo given to another amphitheatre of the emperor Severus.

In theſe *coliſea* were repreſented games, and combats of men and wild beaſts: but there are now little remaining of either of them; time and war having reduced them to ruins.

COLITES, in *Natural Hiſtory*, a name given by ſome writers to a ſtone ſuppoſed to imitate the human *penis*, or *teſtes*, ſeparately, or both together.

COLLAR, an ornament worn by the knights of ſeveral military orders, hanging over their ſhoulder, on the mantle; and its figure drawn and blazoned in their armories.

The *collar* ordinarily conſiſts of a chain of gold, enamelled, frequently ſet with cyphers, or other devices, and having the badge of the order ſuſpended at bottom.

The *collar* of the order of the Garter conſiſts of SS, with roſes enamelled red, within a garter enamelled blue, the George at the bottom.

Maximilian is ſaid to have been the firſt of the emperors who put the *collar* of an order round his arms, upon his being made chief of that of the Golden Fleece.

COLLAR, in *Roman Antiquity*, a chain fixed round the necks of ſlaves who had run away, after they were taken, with an inſcription denoting that they were deſerters, and requiring them to be reſtored to their proper owners.

COLLARS, in *Antiquity*, were not only worn by way of ornament, but alſo as AMULETS, againſt incantations, &c.

COLLAR, *Knights of the*, a military order in the republic of Venice; called alſo the *order* of St. Mark, or the *Medal*. This order is conferred by the doge and the ſenate: the knights bear no particular habit, only the *collar*, or chain, which the doge puts around the neck; with a medal, whereon is repreſented the winged lion of the republic.

COLLAR *of Brawn*. See BRAWN.

COLLAR, in *Building*. See CINCTURE.

COLLAR *of the plough*, a term uſed in agriculture for a ring of iron, which is fixed to the middle of the beam, and ſerves to receive the ends of two chains, the one called the tow-chain, and the upper one the bridle-chain. The lower chain is fixed at its other end to the box, and the upper, or bridle-chain, to the head, which runs parallel with the left hand crow-ſtaff. Theſe chains, by means of this *collar*, and their other inſertions, ſerve to join the head and tail of the PLOUGH together. In ſome places the bridle-chain is not fixed to the *collar*, but to the beam itſelf, by means of a pin; and this is the better way on many accounts.

COLLAR-*beam*, among *Houſe-Carpenters*, the beam which is framed acroſs between two principal rafters.

COLLAR, in *Ship-Building*, a rope faſtened about her beak-head, into which the dead man's eye is raiſed that holds the main-ſtay. Theſe is alſo a *collar*, or garland, about the main-maſt head, which is a rope wound about there, to ſave the ſhrouds from galling.

COLLATERAL, in *Geography*, any thing, place, country, &c. ſituate by the ſide of another.

The word is compounded of *cum*, *with*, and *latus*, *ſide*.

COLLATERAL *Points*, in *Coſmography*, the intermediate points; or thoſe between the cardinal points. The *collateral points* are either *primary*, which are thoſe removed by an equal angle on each ſide from two cardinal points; or *ſecondary*; which, again, are either thoſe of the firſt, or ſecond order. The firſt are thoſe equally diſtant from a cardinal, and firſt primary; the latter equally diſtant from ſome cardinal primary, and the firſt ſecondary.

COLLATERAL *Winds*, are thoſe blowing from *collateral* points. See WIND.

Such are the north-eaſt, ſouth-eaſt, north-weſt, ſouth-weſt, &c. with their ſubdiviſions.

COLLATERAL *Bre-bouts*. See HAVE.

COLLATERAL, in *Genealogy*, is underſtood of thoſe relations which proceed from the ſame ſtock, but not in the ſame line of aſcendants, or deſcendants; but bring, as it were, aſide of each other.

Thus uncles, aunts, nephews, nieces, and couſins, are *collaterals*, or in the *collateral line*. Thoſe in a higher degree, and nearer the common root, repreſent a kind of paternity with regard to thoſe more remote; but there is a kind of equality between *collaterals* in the ſame degree. *Collateral deſcent* ſtands in oppoſition to *direct deſcent* in poſterity; the former paſſing to brothers children, but the latter only from father to ſon. See DISTRIBUTION, INTESTATE, KINDRED.

COLLATERAL *aſſurances*, in *Law*, is a bond, or other ſecurity, made over, and beyond the deed itſelf, for the performance of covenants between man and man; thus called, as being external, and without the nature and eſſence of the covenant.

Crompton ſays, that to be ſubject to the feeding of the king's deer, is *collateral* to the ſoil within the foreſt. It may be added, that liberty to pitch booths in a fair, or another man's ground, is *collateral* to the ground.

COLLATERAL *Condition*. See CONDITION.

COLLATERAL *Warranty*. See WARRANTY.

COLLATERALIS *Penis*, in *Anatomy*, a muſcle, otherwiſe called *erigens*, or ERECTOR *penis*.

COLLATIO *ſtirpium*. See HOTCHPOT.

COLLATION, in *Canon Law*, the conferring, or beſtowing of a benefice by a biſhop, who has it in his own gift, or patronage, and this he does, *jure pleno*.

Collation differs from *inſtitution*, in that the latter is performed by the biſhop, at the motion or preſentation of another: and the former on his own motion.

Beſides, by *collation*, the church is not full; for the high-tail patron may at any time remove the collatee, except he have a right to *collate*, which *plenary* by *collation* may be pleaded: the biſhop's *collation*, in this reſpect, is no more than a temporary proviſion for celebration of divine ſervice, till the patron preſents.

Collation alſo differs from *preſentation*, in that the latter is properly the act of a patron, offering his clerk to the biſhop to be inſtituted into a benefice; whereas the former is the act of the biſhop himſelf. The *collator* can never confer a benefice on himſelf.

In the Romiſh church, the pope is the collator of all the benefices, even elective ones, by prevention; ſetting aſide conſiſtorial benefices, and thoſe in the nomination of lay patrons. Prelates and biſhops are called *ordinaries*, or ordinary collators.

If the ordinary collator neglect to exerciſe his right for ſix months, the ſuperior collator may collate by devolution. Thus, if the biſhop neglect, the metropolitan may confer; then

then the primate; and so on from degree to degree. In France, the king is the collator of all the benefices whereof he is patron, excepting consistorial ones, to which he has only the nomination, and the pope, by virtue of the concordat, is obliged to confer on whomsoever the king nominates. For the rest, he is direct and absolute collator: and may confer them, by virtue of a kind of priesthood annexed to royalty.

Other lay-patrons have seldom more than a mere presentation; the *collation* properly belonging to the bishops: yet there are some abbots who have the full right of *collation*. The canonists reckon two kinds of *collation*; the one free and ordinary, the other necessary. The first depending on the mere will of the collator, who may chuse whom he pleases to fill the vacancy. In the latter, the collator is not at his liberty; which is the case where a benefice has been resigned, or changed, and that resignation, or permutation, allowed of by the superior; for here the collator is obliged to grant the provision to the resignatory, or compermutant.

It is a maxim in the new canon law, *collationes sunt in fructibus*; "Those who have the fruits of a benefice, "have the *collation*." But in that case, the word *collation* is used for presentation.

COLLATION, in *Common Law*, is the comparison, or presentation of a copy to its original, to see whether or no it be conformable: or the report, or act of the officer who made the comparison.

A collated act is equivalent to an original, provided all the parties concerned were present at the *collation*.

COLLATION is also used among the Romanists for the meal or repast made on a fast-day, in lieu of a supper.

Only fruits are allowed in a *collation*. F. Lobineau observes, that anciently there was not allowed even bread in the *collations* for Lent: not any thing besides a few comfits, and dried herbs, and fruits: which custom, he adds, obtained till the year 1333.

Cardinal Humbert observes farther, that in the middle of the eleventh century, there were no *collations* at all allowed in the Latin church in the time of Lent: and that the custom of *collations* was borrowed from the Greeks, who themselves did not take it up till about the eleventh century.

COLLATION, *collatio, conferre*, in *Rhetoric*, is used for COMPARISON.

But Scaliger distinguishes, alledging that in *collation*, one thing is compared to another that has preceded it: and that the contrary happens in comparison. That in which any thing is compared is called protasis; and that which is compared is called antapodosis.

COLLATION is also popularly used for a repast between dinner and supper.

The word *collation*, in this sense, Du-Cange derives from *collectio, conferences*; and maintains, that originally, *collation* was only a conference, or conversation on subjects of piety, held on fast-days in monasteries; but that, by degrees, the custom was introduced of bringing in a few refreshments: and that by the excesses to which those sober repasts were at length carried, the name of the abuse was retained, but that of the thing lost.

COLLATION *of seals*, denotes one seal set on the same label, on the reverse of the other.

COLLATIONE *facta sui post mortem alterius*, in *Law*, a writ directed to the justices of the common-pleas, commanding them to issue their writ to the bishop, for the admission of a clerk, in the place of another presented by the king, who died during the suit between the king and the bishop's clerk: for judgment once passed for the king's clerk, and he dying before admittance, the king may bestow his presentation on another.

COLLATIONE *hermitagii*, in *Law*, a writ whereby the king conferred the keeping of an hermitage upon a clerk.

COLLATIONIS *forma*. See CONTRA.

COLLATIVE *Advowson*. See ADVOWSON.

COLLEAGUE, a companion, partner, or ASSOCIATE in the same office, or magistrature. See ADJUNCT.

The word is particularly used in speaking of the Roman consuls and emperors.

COLLECT, COLLECTION, a voluntary gathering of money for some pious or charitable purpose.

Some say, the name *collect* or *collection* was used, because those gatherings were anciently made on the days of *collects*, and in *collects*, i. e. in assemblies of Christians; but it was more probably, *quia colligebatur pecunia*.

COLLECT is sometimes also used for a tax, or imposition, raised by a prince for any pious design.—Thus, historians say, that in 1166, the king of England, coming into Normandy, appointed a *collect* for the relief of the Holy Land, at the desire, and after the example of the king of France.

COLLECT, in the liturgy of the church of England, and the mass of the Romanists, denotes a prayer accommodated to any particular day, occasion, or the like.

In the general, all the prayers in each office are called *collects*; either because the priest speaks in the name of the whole assembly, whose sentiments and desires he sums up by the word *oremus, let us pray*, as it is observed by pope Innocent III. or because those prayers are offered when the people are assembled together; which is the opinion of Pamelius on Tertullian.

The congregation itself is by some ancient authors called *collecta*.

The popes Gelasius and Gregory are said to have been the first who established *collects*. Delpenie, a doctor of the faculty of Paris, has an express treatise on *collects*, their origin, antiquity, authors, &c.

COLLECTION, *collectio, in Logic*, a term used by some for what is commonly called SYLLOGISM, and RATIOCINATION.

COLLECTIVE *Idea*, in *Logic*, is a COMPLEX idea, which unites many ideas of the same kind under one name, or under one view: as army, dictionary, flock, &c. See COMPOUNDED *idea*.

COLLECTIVE, in *Grammar*, a term applied to a word that expresses a multitude; though itself be singular. Thus, troop, company, and army, are nouns *collective*.

COLLECTOR, a person nominated by the commissioners of any duty, the inhabitants of a parish, or the like, to raise or gather any tax, &c.

COLLECTORS, in *Botany*, such students as have attempted the knowledge of plants, without reducing it to any certain science, being barely employed about observing, or getting together the various species. Linnæi Fund. Bot. p. 1.

COLLEGATORY, in the *Civil Law*, a person to whom is left a legacy in common with one or more other persons. If a thing be bequeathed *in solido*, the portion of a deceased *collegatory* accrues to the rest.

COLLEGE, an assemblage of several bodies, or societies: or even of several persons in one society.

College, collegium, among the Romans, was used for an assemblage of several persons employed in the same functions, and as it were bound together to act, or serve in concert. It served indifferently for those employed in the offices of religion, of government, the liberal arts, and even mechanical arts, or trades; so that the word properly signified what we call a *corporation*, or *company*.

In the Roman empire, there were not only the *college of augurs*, and the *college of capitolins*; i. e. of those who had the superintendance of the capitoline games; but also *colleges* of artificers, *collegia artificum: college* of carpenters, *fabrorum*, or *fabrorum tignuariorum*; of potters, *figulorum*; of founders, *aratiarorum*; the *college* of locksmiths, *fabrorum ferrariorum*; of engineers of the army, *tignuariorum*; of butchers, *lanionum*; of dendrophori, *dendrophorum*; of centonaries, *centonariorum*; of makers of military cuisses, *femoralium*; of tent-makers, *tabernaculariorum*; of bakers, *pistorum*; of musicians, *tibicinum*, &c.

Plutarch observes, that it was Numa who first divided the people into *colleges*: which he did to the end, that each consulting the interest of their *college*, whereby they were divided from the citizens of the other *colleges*, they might not enter into any general conspiracy against the public repose.

Colleges were distinguished from other societies not formed into *colleges* by public authority, in this, that those who composed a *college*, were qualified to treat of the common interest of their *college*, which was, as it were, a member of the state, and had a common purse, an agent to negociate their affairs; send deputies to the magistrates when they wanted to treat with them; might make statutes and by-laws for the administration of their *college*, &c.

There are various *colleges* on foot among the moderns, built on the model of those of the ancients; as the *three colleges of the empire*, viz. the *college of electors, college of princes*, and *college of cities*, &c.

COLLEGE *of Electors*, is the body of electors, or their deputies, assembled in the diet at Ratisbon. See ELECTOR.

Anciently, the king of Bohemia had no deputy in this *college*, as present he has.

COLLEGE *of Princes*, is the body of princes, or their deputies, at the diet of Ratisbon.

COLLEGE *of Cities*, is in like manner, the body of deputies which the several imperial cities send to the diet.

COLLEGE *of Cardinals*, or the *sacred* COLLEGE, is a body composed of the three orders of cardinals, viz. cardinal-bishops, cardinal-priests, and cardinal-deacons.

Each order has its dean or chief. The dean of the cardinal-bishops is always the bishop of Ostia. See CARDINAL.

COLLEGE is also used for a public place, endowed with certain revenues, where the several parts of learning, both divine and human, are taught, in schools, halls, or classes, appointed for that purpose.

An

An assemblage of several of these *colleges* constitutes an university.

The university of Oxford consists of twenty *colleges*, and five halls; that of Cambridge of twelve *colleges*, and four halls; and that of Paris of fifty-four *colleges*, such as they are: in reality there are but eleven where there is *full exercise*, as it is called; for the rest, the author of a late description of Paris says it is needless to recite their names, since there is no teaching in them.

Among the Greeks, the lyceum and academy were celebrated *colleges*; the latter of which has given its name to our universities, which in Latin are called *academiæ*. With them, the house or apartment of each philosopher, or *rhetor*, might be esteemed a kind of *college* of itself.

The Romans came late into the institution of such *colleges*: they had, however, several, founded by their emperors: especially in Gaul: the chief whereof were those of Marseilles, Lyons, Besançon, and Bourdeaux.

The Jews, and Egyptians too, have had their *colleges*; the chief of the first were those of Jerusalem, Tiberias, Nardea, Pompoditta, Sura, and Babylon: the last is said to have been instituted by Ezekiel, and to have subsisted in the time of Mahomet.

Colleges of this kind have been generally in the hands of those consecrated to the offices of religion: the Magi in Persia, the Gymnosophists in the Indies, and the Druids in Gaul and Britain, had the care of educating youth in the sciences.

After Christianity became established, there were almost as many *colleges* as monasteries; Charlemagne, in his Capitulars, enjoining the monks to instruct youth in music, grammar, and arithmetic: but this calling the monks from their solitude, and taking up too much of their time, the care of the *colleges* was at length put into the hands of those who had nothing else to do.

In the canon law, it is said, three persons make a *college*, *tres collegium faciunt*.—The *colleges* in London are,

COLLEGE *of Civilians*, commonly called *Doctors Commons*; a *college* founded by Dr. Harvey, dean of the arches, for the professors of the civil law residing in this city; where usually, likewise, resides the judge of the arches court of Canterbury, judge of the Admiralty, of the prerogative court, &c. with other *civilians*; who all live, as to diet and lodging, in a collegiate manner, commoning together: whence the appellation of *Doctors Commons*.

Their house being consumed in the great fire, they all resided at Exeter-house in the Strand, till 1672; when their former house was rebuilt, at their own expence, in a very splendid manner. To this *college* belong thirty-four proctors: who make themselves parties for their clients, manage their causes, &c.

COLLEGE, *Gresham*, or COLLEGE *of Philosophy*; a *college* founded by Sir Thomas Gresham, and endowed with the revenue of the Royal Exchange: one moiety of this endowment the founder bequeathed to the mayor and aldermen of London, and their successors, in trust, that they should find four able persons to read, within the *college*, divinity, geometry, astronomy, and music; who are chosen by a committee of the common-council, consisting of the lord mayor and three aldermen and eight commoners, and allowed each, besides lodging, fifty pounds *per annum*. The other moiety he left to the company of mercers, to find three more able persons, chosen by a committee of that company, consisting of the master and three wardens, during their office, and eight of the court of assistants, to read law, physic, and rhetoric, on the same terms: with this limitation, that the several lectures should read in term-time every day in the week, except Sundays: in the morning in Latin, in the afternoon the same in English: but that no music to be read only in English.

By 8 Geo. II. cap. 32. the building appropriated to this *college* was taken down, and the excise-office erected in its room. Each of the professors is allowed fifty pounds *per annum*, in lieu of the apartments, &c. relinquished by them in the *college*, and is permitted to marry, notwithstanding the restriction of Sir Thomas Gresham's will. The lectures are now read in a room over the Royal Exchange: and the city and mercer's company are required to provide a proper place for this purpose.

In this *college* formerly met the Royal Society, that noble academy, instituted by king Charles II. and celebrated throughout the world, for their improvements in natural knowledge. See their history and policy, under ROYAL *Society*.

COLLEGE *of Heralds*, or COLLEGE *of Arms*, a corporation founded by charter of king Richard III. who granted them several privileges; as to be free from subsidies, tolls, offices, &c. See HERALD.

They had a second charter from king Edward VI. and a house built near Doctors Commons, by the earl of Derby, in the reign of Henry VII. was given them by the duke of Norfolk in the reign of queen Mary; which house is now rebuilt.

Of this collegiate society, are three officers styled *kings of arms*, *reges armorum Anglicanum*, see KING *at arms*; six HERALDS, and four PURSUIVANTS.

COLLEGE *of Heralds* in Scotland, consists of Lyon King of arms, his heralds, and six pursuivants, and a number of messengers.

COLLEGE *of Physicians*, a corporation of physicians; who, by several charters and acts of [illegible] Henry VIII. and his successors, have certain [illegible] whereby no man, though a graduate in physic in the university, may, without licence under the [illegible] *fari*, practise physic in, or within seven miles of [illegible] don; with power to imprison, fine and imprison offenders in that and several other particulars: to search the apothecaries shops, &c. in and about London, to see if their drugs, &c. be wholesome, and their compositions according to the form prescribed by the said *college* in their dispensatory.

By the said charter they are also freed from all troublesome offices: as to serve on juries, be constable, keep watch, provide arms, &c.

The society had anciently a *college* in Knight-rider-street, the gift of Dr. Linacre, physician to king Henry VIII. Since that they have had a house built them by the famous Dr. Harvey, in 1653, at the end of Amen-corner, which he endowed with his whole inheritance in his lifetime; but this being burnt in the great fire in 1666, a new one was erected at the expence of the fellows, in Warwick-lane; with a noble library, given partly by the marquis of Dorchester, and partly by Sir Theodore Mayerne.

Of this *college* there are at present, a president, four censors, eight electors, a register, and a treasurer, chosen annually in October: the censors have by charter, power to survey, govern, and search all physicians, or others practising physic, in, or within seven miles of London; and to fine, enforce, and imprison them at discretion.

The number of fellows was anciently thirty, till king Charles II. increased their number to forty; and king James II. giving them a new charter, allowed the number of fellows to be enlarged, so as not to exceed fourscore; reserving to himself and successors the power of placing and displacing any of them for the future.

The *college* is not very rigorous in asserting their privileges: there being a great number of physicians, some of very good abilities, who practise in London, &c. without their licence, and are connived at by the *college* yet, by law, if any person, not expressly allowed to practise, take upon him the cure of any disease, and the patient die under his hand, it is deemed felony in the practiser. In 1696, the *college* made a subscription, to the number of forty-two of their members, to set on foot a dispensatory for the relief of the sick poor: since that, they have erected two other dispensatories.

COLLEGE, *Royal of Physicians*, in Scotland, is a corporation of physicians at Edinburgh, established by patent of Charles II. This *college* consists of a president, two censors, a secretary, and the ordinary society of fellows. They have similar rights and privileges with those of the English *college*.

COLLEGE, *Sion*, or the *college* of the London clergy; which has been a religious house time out of mind, sometimes under the denomination of a priory, sometimes under that of a *sistel*, or hospital; at its dissolution under 31 Hen. VIII. it was called *Elsyn's Spital*, from the name of its founder, a rector, in 1329.

At present it is a composition of both, viz. a *college* for the clergy of London, who were incorporated in 1630, in pursuance of the will of Dr. White, under the name of the *President and Fellows of* SION-COLLEGE; and an hospital for ten poor men, and as many women.

The officers of the corporation are the president, two deans, and four assistants, who are annually chosen from among the rectors and vicars of London; and are subject to the visitation of the bishop. They have a good library, built and stocked by Mr. Simpson, and furnished by several other benefactors, chiefly for the clergy of the city, without excluding other students on certain terms; and a hall with chambers for students, generally occupied by the ministers of the neighbouring parishes.

COLLEGE *de Propaganda Fide*, was founded at Rome, in 1622, by Gregory XV. and enriched with ample revenues. It consists of thirteen cardinals, two priests, one monk, and a secretary; and was designed for the propagation and maintenance of the Romish religion in all parts of the world. The funds of this *college* have been very considerably augmented by Urban VIII. and many private donations. Missionaries are supplied by this institution, together with a variety of books suited to their several appointments. Seminaries for their instruction are supported by it, and a number of charitable establishments connected with it, and conducive to the main object of its institution.

Another *college* of the same denomination was established by Urban VIII. in 1627, in consequence of the liberality of John Baptist Viles, a Spanish nobleman. This is set apart for the instruction of those who are designed for the foreign missions. It was at first committed to the care of three canons of the patriarchal churches; but ever since the year 1642 it is under the same government with the former institution.

COLLEGE *of justice*, in Scotland. See SESSION.

COLLEGES *of common law*. See INNS *of Court*, and CHANCERY.

COLLEGES *for disabled soldiers, seamen, &c.* See HOSPITAL.

COLLEGIAL. See COLLEGIATE.

COLLEGIANS, COLLEGIANI, COLLEGIANTS, a religious sect formed among the Arminians and Anabaptists in Holland, about the beginning of the seventeenth century; so called, because of their *colleges*, or meetings, twice every week; where every one, females excepted, has the same liberty of expounding the Scripture, praying, &c.

They are said to be all either Arians, or Socinians: they never communicate in the *college*, but meet twice a year from all parts of Holland at Rhinsbergh, whence they are also called *Rhinsberghers*, a village two miles from Leyden, where they communicate together; admitting every one that presents himself, professing his faith in the divinity of the holy Scriptures, and resolution to live suitably to their precepts and doctrines, without regard to his sect or opinion. They have no particular ministers, but each officiates as he is disposed. They never baptize without dipping.

COLLEGIATE, or COLLEGIAL *churches*, are those which have no bishop's see, yet have the ancient retinue of the bishops, the canons and prebendaries.

Such are, among us, Westminster, Rippon, Windsor, &c. governed by DEANS and CHAPTERS.

Of these *collegiate* churches, there are two kinds; some of royal foundation, others of ecclesiastical foundation: each of them, in matters of divine service, are regulated in the same manner as the cathedrals.

There are even some *collegiate* churches which have the episcopal rights. Some of these churches were anciently abbeys; which, in time, were secularised.

The church of St. Peter's, Westminster, was anciently a cathedral; but the revenues of the monastery being, by act of parliament, 1 Eliz. vested in the dean and chapter, it commenced a *collegiate* church. In several causes, the styling it *cathedral*, instead of *collegiate church of* Westminster, has occasioned error in the pleadings.

COLLEGIATE *auditors*. See AUDITOR.

COLLEGIATE *churches, vergers of*. See VERGER.

COLLET, in the *Glass Trade*, that part of a glass vessel which, in the manufacture, sticks to the hollow iron by which the metal is first taken out of the melting pot. This is broken off before the vessel is fashioned, and is never seen in the least mark, when finished.

These they throw together, and afterwards grind down, and put into the green glass metal, for the purest green glass, but never into any other, though they be the product of the finest virgin metal.

COLLET, among *Jewellers*, the small horizontal plane, or face, at the bottom of the brilliant.

COLLETICS, COLLETICA, in *Medicine*, such remedies as join and glue together the separated parts, or lips of a wound, or ulcer; and thus re-establish them in their natural union. See AGGLUTINANT.

The word comes from κολλαω, something that has the virtue of gluing together; of κολλα, *gluten*.

Colletics are more delicative than SARCOTICS; but less so than EPULOTICS. Among *colletics* are ranked litharge, aloes, myrrh, &c.

COLLICLÆ, in *Anatomy*, is used by some, as Steno, for the CARUNCULÆ *lachrymales*.

COLLIERS, are vessels employed to carry coals from one port to another; and serving as an excellent nursery for seamen.

COLLIERY, see COAL.

The most remarkable *colliery*, or coal-work, that we have ever had in this island, was that wrought at Burrowstoneness, under the sea. The veins of coal were found to continue under the bed of the sea in this place, and the colliers had the courage to work the vein near half way over; there being a mote half a mile from the shore, where there was an entry that went down into the coal pit, under the sea. This was made into a kind of round key, or mote, as they call it, built so as to keep out the sea, which flowed there twelve feet. Here the coals were laid, and a ship, of that draught of water, could lay her side to the mote, and take in the coal.

This famous *colliery* belonged to the earl of Kinkardin's family. The fresh water which sprung from the bottom and sides of the coal pit, was always drawn out upon the shore by an engine moved by water, that drew it forty fathom. This coal pit continued to be wrought many years to the great profit of the owners, and the wonder of all that saw it; but, at last, an unexpected high tide drowned the whole at once, and the labourers had not time to escape, but perished in it. Phil. Trans. N° 93.

COLLIGENDUM *bona defuncti, letters ad*. See ADMINISTRATION.

COLLIMATION, *line of*, in a telescope, is a line passing through the intersection of those wires, which are fixed in the focus of the object-glass, and the centre of the same glass. It is also called the line of *sight*.

COLLINSONIA, in *Botany*, a genus of the *diandria monogynia class*. The characters are these: the flower is funnel-shaped, of one petal, which is unequal, cut into five parts at the top, the upper part being short and obtuse, and two of them reflexed; the lower lip or beard being longer, and ending in many points. It hath two long bristly stamina, which are erect; and a quadrifid obtuse germen, with a large gland, supporting a bristly style, which afterward becomes a single roundish seed, situated in the bottom of the empalement. We have but one species of this plant, which was brought from Maryland.

COLLINS's *Quadrant*. See QUADRANT.

COLLIQUAMENTUM denotes a very transparent fluid observable in an egg two or three days after incubation, containing the first rudiments of a chick. It is inclosed in its own proper membrane, distinct from the *albumen*. Harvey calls it *exitus*.

COLLIQUATION, from *colliquo, to melt*, in *Pharmacy*, the action of melting together two, or more solid substances; or rendering them liquid by fusion, or dissolution; as wax, mucilages, &c. by heat; gums, &c. by moisture.

COLLIQUATION is also used to express such a temperament, and disposition of the animal fluids, as proceeds from a too lax compages; whereby they flow off through the several glands, and particularly through those of the skin, faster than they ought; which occasions fluxes of many kinds, but mostly, profuse, greasy, clammy sweats.

If this *colliquation* continue, it generally terminates in an hectic fever, and is usually a concomitant of one.

The curative intention in this case is the giving a better consistence to the juices by balsamics and agglutinants; and the hardening of the solids by astringents. Hence,

COLLIQUATIVE *fever*, is a fever attended with a diarrhœa, or profuse sweats, from too loose a contexture of the fluids.

COLLISEUM. See COLISEUM.

COLLISION, the friction, or PERCUSSION, of two bodies moving violently with different directions, and dashing against each other.

COLLOQUIUM, in *Law*, *(a colloquendo)* a talking together, or affirming of a thing, laid in declarations for words in actions of slander, &c.

COLLUCIANISTÆ, in *Church History*, a designation given to the Arians, from the martyr Lucian, a presbyter of Antioch.

COLLURIO, in *Ornithology*, a name by which some authors have called the lanius, or BUTCHER *bird*, a very small species of hawk, not larger than a thrush, but a great destroyer of small birds.

COLLUM, in *Anatomy*. See NECK, and CERVIX.

COLLI *interspinales*. See INTERSPINALES.

COLLI *intertransversales*. See INTERTRANSVERSALES.

COLLI *transversalis*. See TRANSVERSALIS.

COLLUSION, a secret understanding between two parties, who plead, or proceed, fraudulently against each other, to the prejudice of a third.

In the canon law, *collusion*, in matters of benefices, vacates the benefice, and incapacitates the person from holding any benefice at all.

COLLUTHIANS, a religious sect, *who* rose about the beginning of the fourth century; on occasion of the indulgence shewn to Arius by Alexander patriarch of Alexandria.

Several people being scandalized at so much condescension; and, among the rest, Colluthus, a priest of the same city; he hence took a pretence for holding separate assemblies, and by degrees proceeded to the ordination of priests, as if he had been a bishop; pretending a necessity for this authority, in order to oppose Arius. To his schism he added heresy; teaching, that God did not create the wicked; that he was not author of the evils that befall men, &c.—He was condemned by a council held at Alexandria by Osius, in the year 330.

COLLUTION, *Collutio*, in *Medical Writers*, is sometimes used for the washing of the mouth, particularly when done to clean or fasten bad or loose teeth; or free the gums, &c. from ulcers.

COLLYBUS, κολλυβος, in *Antiquity*, the same with what is now called the rate of EXCHANGE.

COLLYRÆ, or COLLYRIDES, in *Antiquity*, a certain ornament of hair, worn by the women on their necks. It was made up in the form of the small, roundish, cakes, called κολλυρα, *collyræ*.

COLLYRIDIANS, in *Church History*, a sect, towards the close of the fourth century, denominated from a little cake, called by the Greeks κολλυριδια, *collyridia*, which they offered to the Virgin Mary.

This sect, it seems, consisted chiefly of Arabian women, who, out of an extravagance of devotion to the Virgin, met, one a certain day in the year, to celebrate a solemn feast, and to render divine honours to Mary as to a goddess; eating the cake which they offered in her name.—St. Ephiphanius, who relates the history of this superstitious ceremony, ridicules it. They sprung up in opposition to the ANTIDICO-MARIANITES.

COLLYRIUM, in *Medicine*, an external remedy, appropriated to diseases of the eyes.

The word comes from κολλυριον; and that, according to Martinius, from κολλαω του ῥεω; because it glues up, and prevents defluxions.

There are two kinds of *collyriums*; the one *liquid*, the other *dry*. *Liquid collyriums*, υγροκολλυρια, are composed of ophthalmic powders in water; as rose-water, plantain-water, that of fennel, eyebright, &c. wherein they dissolve tutty, white vitriol, or some other proper powder.

The *dry collyria*, ξηροκολλυρια, are troches of thale, sugar-candy, iris, tutty prepared, &c. blown into the eye with a little pipe.

COLLYRIUM is also a name given to unguents used for the same purpose; as unguent of tutty, and several others.

COLLYRIUM is also a denomination given, though improperly, to some liquid medicines used against venereal ulcers.

COLLYRIUM *Samium*. See SAMIA *terra*.

COLMESTRE, in *Ornithology*, the name of a bird of the LAGOPUS kind, more usually called OTOMO, and supposed not to differ from the lagopus, otherwise than by its changing its colour, in the summer months.

COLOBIUM, Κολοβιον, from κολοω, *I mutilate*, among the *Ancients*, an upper garment, without sleeves, longer than the tunic.

COLOBOMA, in *Medical Writers*, is used for the preternatural growing together of the lips, or eyelids, or for the adhesion of the ears to the head.

COLOCOLO, in *Ornithology*, a name given by the people of the Philippine islands to a species of bird, called *also* there *coffili*, and by some authors, the water-raven, *corvus fluviatilis*. It is very much of the shape of a common raven, but is truly an amphibious bird, living more of its time under water than in the air; it is black in colour; its neck is remarkably long; and it feeds on fish, which it hunts under water, as they do one another; it feeds likewise on frogs, serpents, and shell-fish. It is common to see it under water in clear rivers, where it seems perfectly at ease, and runs about with great swiftness; at times it comes up to the surface, and dries its wings in the air and sunshine. Phil. Trans. N° 285. p. 1896.

COLOCYNTHIS, in *Botany*, the name of a genus of plants of the gourd kind, of which there are many species, the COLOQUINTIDA of the shops being the pulp of one of them. In the Linnæan distribution, it is a species of the COCUMER or *cucumis*. The characters which distinguish this genus from the others of the same class, are, that the leaves are very deeply divided, and the fruit is not eatable, but of an intolerable bitterness.

COLOGNE *Earth*, a substance used in painting, as a water colour, much approaching to amber in its structure, and of a deep brown. It has generally been esteemed a genuine earth, but has been discovered to contain a great deal of vegetable matter, and, indeed, it is a very singular substance.

It never constitutes an entire stratum in the earth, but is lodged among other strata in large flat detached masses.

It is moderately dry, while in the earth, and of a soft crumbly texture. When dried, it is of a deep, dusky brown, of a very close, compact, and fine structure, and very remarkably light; it is of a smooth, even surface, dry, but not harsh to the touch, crumbles easily to pieces between the fingers, and slightly stains the hands; it adheres firmly to the tongue, and is of a very austere and astringent taste, but not at all resembling the astringency of the bole, or any thing else of the mineral kingdom, but plainly resembling the taste of oak bark. It makes no effervescence with acids, if thrown into water, it swims on the surface, till thoroughly wetted; and if brought into contact with burning coals, it takes fire, and burns of itself, till reduced to yellowish ashes.

It is easy to discern from this account, that, though this is generally esteemed an earth, and known to the world by no other name, it is no pure native fossil, but contains more vegetable than mineral matter, and owes its origin to the remains of wood which has been long buried in the earth. It is dug in Germany and France in quantities consumed in painting, in London, [illegible] from Cologne, where it is found very [illegible] our own kingdom is not without it, it being [illegible] Birmingham, and on Mendip hills in Somer[illegible] what has been yet found there is not so pure [illegible] that imported from Cologne. Hill's Hist. [illegible] p. 64. and Da Costa's Hist. of Fossils, p. 171.

COLON, in *Anatomy*, denotes the second of the three intestines.

Some derive the word from κωλυω, *to retard*, in regard it is in the folds of this intestine that the excrements are stopped and formed. Others fetch it from κωλος, on account of its capacity: other again from κολαζομαι, *to be tormented*; in regard of the grievous pain it frequently undergoes.—It is from this part that the colic takes its name. The *colon* is placed between the *ileum* and *rectum*, and is wider than either of them: in length it is eight or nine hands. It begins where the *ileum* ends, viz. in the cavity of the *os ilium*, on the right side; whence, ascending by the kidney on the same side, it passes under the concave side of the liver, to which it is sometimes tied, as likewise to the gall-bladder, which tinges it yellow in that place: then it runs under the bottom of the stomach to the spleen in the left side, to which it is also knit; from thence it turns down to the left kidney; and thence passing in form of an S, it ends in the upper part of the *os sacrum* in the *rectum*.

At the beginning of this gut, there is a valve formed by the production of the utmost coat of the intestines in this place; which hinders the excrements, when once fallen into the *colon*, from ever returning again to the *ileum*.

It has strong ligaments, which running along its upper side, from the *ileum* to the *rectum*, strengthen it against the weight of the excrements, and draw it together into cells; which, with the *valvulæ conniventes*, retard the passages of the excrements, that we may not be continually obliged to be going to stool.

The fleshy fibres of its second coat are greater and stronger than those of the other intestines; because a greater strength is requisite to cause the excrements to ascend.

The chief design of the *colon* surrounding the abdomen, and, with the *rectum*, touching all the parts contained in it, seems to be, that by immediate fomentation with clysters, they might be eased of their maladies.

Meso-COLON. See MESO-COLON.

COLON, in *Grammar*, a point, or character, formed thus [:] serving to mark a pause, and to divide the members of a period. See POINTING. See also PERIOD, COMMA, and SEMICOLON.

Grammarians generally assign the use of a *colon* to be to mark the middle of a period; or to conclude a sense less perfect than the dot, or period: but a sense less perfect than the period is an expression extremely vague and indeterminate.

Others say, a *colon* is to be used when the sense is perfect, but the sentence not concluded: but neither is this sufficiently clear and express. Add to this, that in practice our best writers confound the *colon* with the semicolon.

P. Buffier attempts to fix the use of the *colon*; but he does not much distinguish it from the semicolon: he prescribes the use of either, indifferently; and calls them by a common name, *intermedian pointings*; as being mediums between the comma, and full-point, or period. Their use, according to this author, is to distinguish the supernumerary members of a period. By supernumerary members are meant such as the precedent ones do not raise any expectation of; i. e. such parts as have indeed a dependence on what goes before, even though what goes before has a complete sense, independent hereon: v. gr. *The Augustan age was fo eminent for good poets, that they have ferved as models to all others: yet did it not yield any good tragic poets.* Where the supernumerary member, and the use of the *colon*, are obvious. The most obvious and sensible use of the *colon*, he adds, is, when the supernumerary member is distinguished by some conjunction; as, *notwithstanding, however, but, except that, unless, inasmuch as, yet, since, the rather as, provided that*, &c. Some, indeed, use the *colon* in the middle of long periods without any regard to supernumerary members: which custom was probably introduced, to mark that the breath is here to be taken almost as much as in a common period, in the place where the supernumerary period commences. But this, at best, is arbitrary; and the intermediate pointings may always be omitted in a period, if there be no supernumerary member, i. e. if there be no subsequent member,

member but what is expected from the precedent. As to the occasions where the *colon* is to be used, rather than the semicolon, there is nothing precise to be said of it; except that the *colon* shews the supernumerary member more detached, and sets it at a greater distance from the rest: and therefore marks a longer pause than the semicolon.

Accordingly it seems preferable to the semicolon before conjunctions adversative, restrictive, conditional, &c. as, *nevertheless, but, excepting that, however, otherwise, provided that.* Again, where the supernumerary phrases not only suppose the precedent, but depend on them for their regimen, and are, as it were, new parts thereof; there the semicolon seems preferable to the *colon*: e. gr. *You are regardless of the goodness of God, who first chose you; a God who is only jealous of your heart for your own happiness; a God who could be equally glorious in destroying you by his justice, as in saving you by his mercy.* Or thus: *The discourse unfolded of two parts; in the first was shewn the necessity of fighting; in the second, the advantages that would redound from it.* But this difference, it must be owned, has a dependence on something that influences all the points, and sways the whole doctrine of punctuation; viz. the length, or shortness, of the members and periods: for when the phrases are long, we point higher than when short.

A later author, in an ingenious discourse, De Ratione Interpungendi, marks the office of the *colon*, and its difference from the semicolon, &c. more precisely; a *colon*, on his principles, serves to distinguish those conjunct members of a sentence, which are capable of being divided into other members; whereof one, at least, is conjunct.

Thus in the sentence, *As we cannot discern the shadow moving along the dial-plate, so the advances we make in knowledge are only perceived by the distance gone over*; the two members, being both simple, are only separated by a comma: in this, *as we perceive the shadow to have moved, but did not perceive it moving; so our advances in understanding, in that they consist of such minute steps, are only perceivable by the distance*; the sentence being divided into two equal parts, and those conjunct ones, since they include others; we separate the former by a semicolon, and the latter by comma: but in this, *as we perceive the shadow to have moved along the dial, but did not perceive it moving; and it appears the grass has grown, though nobody ever saw it grow: so the advances we make in knowledge, as they consist of such minute steps, are only perceivable by the distance.* The advancement in knowledge is compared to the motion of a shadow, and the growth of grass; which comparison divides the sentence into two principal parts: but since what is said of the movement of the shadow, and likewise of the growth of grass, contains two simple members, they are to be separated by a semicolon; consequently a higher pointing is required to separate them from the other part of a sentence, which they are opposed to: and this is a *colon*.

Bishop Lowth observes, that a *colon* distinguishes a member of a sentence, whether simple or compounded, which of itself would make a complete sentence, and so requires a greater pause than a semicolon, yet is followed by an additional part, making a more full and perfect sense. He adds, that a *colon* may be also used, when a semicolon has preceded, and a greater pause is still necessary, though the sentence be incomplete; and that it is commonly used, when an example, or a speech, is introduced. Introd. to Eng. Gram. ed. 1772. p. 207.

COLONEL, an officer in the army, who has the command in chief of a regiment, either of horse, foot, dragoons or artillery.

Skinner derives the word from *colony*; being of opinion, the chiefs of colonies, called *colonidæ*, might give the name to chiefs of forces.

In the French and Spanish armies, *colonel* is confined to the infantry and dragoons; the commanding officer of a regiment of horse they usually call *mestre de camp*.

Formerly, instead of *colonel*, the French used the word *coronel*; and this old spelling comes nearer to our common way of pronouncing the word *colonel*.

COLONEL-*Lieutenant*, is he who commands a regiment of guards, whereof the king, prince, or other person of the first eminence, is *colonel*.

These *colonels lieutenants* have always a *colonel's* commission, and are usually general officers.

COLONEL, *Lieutenant*, is the second officer in the regiment: is at the head of the captains, and commands in the absence of the *colonel*.

Lieutenant-colonel of horse, or dragoons, is the first captain of the regiment. See CAPTAIN.

COLONNADE, a PERISTYLE of a circular figure; or a series of columns disposed in a circle, and insulated within-side.

Such is that of the Little Park at Verſailles, which conſiſted of thirty-two Ionic columns; all of ſolid marble, and without interſtition.

A Palyſtyle COLONNADE is that whoſe number of columns is too great to be taken in by the eye at a ſingle view. Such is the *colonnade* of the palace of St. Peter at Rome; which conſiſts of two hundred and eighty-four columns of the Doric order, each about four feet and an half in diameter; all of Thurtine marble.

COLONUS, an husbandman, or villager, who was bound to pay yearly a certain tribute, or, at certain times of the year to plow ſome part of the the lord's land; and from hence comes the word *clown*, who is called by the Dutch *boer*.

COLONY, COLONIA, a company of people of all ſexes and conditions, tranſported into a remote province, in order to cultivate and inhabit it.

Originally the word *colony* ſignified no more than a *farm*; i. e. the habitation of a peaſant, *colonus*, with the quantity of land ſufficient for the ſupport of his family; *quantum colonus unus arare poterat*.

We may diſtinguiſh three kinds of *colonies*: thoſe ſerving to eaſe or diſcharge the inhabitants of a country; where the people are become too numerous, ſo that they cannot any longer conveniently ſubſiſt.

The ſecond are thoſe eſtabliſhed by victorious princes and people, in the middle of vanquiſhed nations, to keep them in awe and obedience.

The third may be called *colonies of commerce*; becauſe, in effect, it is trade that is the ſole occaſion and object thereof.

It was by means of the firſt kind of *colonies*, that ſome ages after the deluge, the Eaſt firſt, and ſucceſſively all the other parts of the earth, became inhabited: and without mentioning any thing of the Phœnician and Grecian *colonies*, ſo famous in ancient hiſtory, it is notorious that it was for the eſtabliſhment of ſuch *colonies*, that, during the declenſion of the empire, thoſe torrents of barbarous nations, iſſuing, for the generality, out of the North, overran the Gauls, Italy, and the other ſouthern parts of Europe: and after ſeveral bloody battles, divided it with the ancient inhabitants.

As for the ſecond kind of *colonies*, the Romans uſed them more than any other people; and that to ſecure the conqueſts they had made from the Weſt to the Eaſt. Every one knows how many cities in Gaul, Germany, Spain, and even in England, value themſelves on their having been of the number of Roman *colonies*.

Laſtly, the *colonies of commerce*, are thoſe eſtabliſhed by the Engliſh, French, Spaniards, Portugueſe, and other nations, within theſe two laſt centuries, and which they continue ſtill to eſtabliſh in ſeveral parts of Aſia, Africa, and America: either to keep up a regular commerce with the natives, or to cultivate the ground, by planting ſugar-canes, indigo, tobacco, and other commodities. See CHARTER-*Government*.

The principal of this kind of *colonies* are, or were, in the one and the other America, northern and ſouthern; particularly Peru, Mexico, Canada, Virginia, New England, Carolina, la Louiſiane, l'Acadie, Hudſon's Bay, the Antilles iſlands, Jamaica, Domingo, and the other iſlands.—In Africa, Madagaſcar, Cape of Good Hope, Cape Verd, and its iſlands, and all thoſe vaſt coaſts extended thence as far as to the Red Sea.—Laſtly, in Aſia, the famous Batavia of the Dutch; Goa, Diu, of the Portugueſe; and ſome other leſs conſiderable places of the Engliſh, French, and Danes.

There were two kinds of *colonies* among the Romans; thoſe ſent by the ſenate: and the military ones, conſiſting of old ſoldiers, broken and diſabled by the fatigues of war, who were thus provided with lands, as the reward of their ſervices.

The *colonies* ſent by the *ſenate* were either Roman, or Latin: i. e. they were compoſed either of Roman citizens, or Latin. The *colonies* of Roman citizens had the right of ſuffrages: but had no part in the offices or honours of the republic. The inhabitants of Latin *colonies* had no right of ſuffrages without an expreſs permiſſion.

According to Ulpian, (lib. i. D. de Cenſ.) there were other *colonies*, which had little more than the name; only enjoying what they called *jus Italicum*, i. e. they were free from the tribute and taxes paid by the provinces.—Such were the *colonies* of Tyre, Berytus, Heliopolis, Palmyra, &c.

M. Vaillant has filled a volume in folio with medals ſtruck by the ſeveral *colonies*, in honour of the emperors who founded them. The ordinary ſymbol they engraved on their medals, was, either an eagle; as when the veteran legions were diſtributed in the *colonies*: or a laborer holding a plough drawn by a pair of oxen; as when the *colony* conſiſted of ordinary inhabitants. On all the medals are ſeen the names of the decemviri, who

held

held the same rank, and had the same authority there as the consuls had at Rome.

COLONY *of Bees*. See HIVE.

COLOPHONY, in *Natural History*, and *Chemistry*, a resinous substance prepared of turpentine, by boiling it in water. When cold, it becomes of a hard consistence, and has the same properties as other resins, and the same principles may be obtained from it by analysis.

The chief use of this drug is in the cure of venereal ailings, seminal weaknesses, the whites in women, &c. The apothecaries make it into pills, which they roll in liquorice powder, or cover with gold-leaf, and call them *turpentine-pills*.

It is also used by musicians, to rub the hairs of the bow; the effect whereof is, that the gum cleaving to the hairs, and communicating to them a tenacious quality, prevents their sliding too easily over the strings; and promotes that trembling which forms the sound.

The common black *colophony*, or black resin, is said to be procured from the turpentine of the mountain pine. The oil being extracted from this by distillation, what remains in the still is the *colophony*.

To be good it must be shining and odoriferous; and when thrown on the fire, render a smoke like that of frankincense.

Pliny says, *colophony* took its name from *Colophon*, a city of Ionia, whence it was first brought. It is now frequently called *Spanish wax*, or *Grecian resin*, as it is brought from the one or the other of those countries. It is found to warm, dry, soften, and agglutinate: and usually enters the composition of plasters and unguents.

COLOQUINTIDA, or COLOCYNTHIS, usually called *bitter apple*; the fruit of a plant of the same name, brought from the Levant; about the bigness of a large orange.

This word comes from κολη κοιλος, a name which was given it, because it *moves the belly*.

Its colour is a sort of golden brown: its inside is full of kernels, which are to be taken out before the *colocynth* be used. The pulp is intolerably bitter.

Coloquintida is of considerable use in medicine, but mostly in officinal compositions; the violence of its operation rendering it unsafe to be given inwardly in extemporaneous prescriptions, except with great caution.

It enters, as an ingredient, in the confectio hamec, and most of the purging pills, called *pilulæ cochiæ*; and in such cases as require brisk purging, is attended with great success. But it requires proper management, as it is one of the most violent purgative drugs known: insomuch that it excoriates the passages to that degree, as sometimes to bring away blood, and induce a superpurgation. Sometimes it is taken boiled in water, or small beer, in obstructions of the menses; which, in strong constitutions, is often attended with success. Some women have made use of it, in the same manner, in the beginning of pregnancy, to procure abortion; which it often effects by the violence of its operation.

The powder of *coloquintida*, is sometimes used externally, with aloes, &c. in unguents, emplasters, &c. with remarkable success against worms; and some for the same purpose, recommend decoctions of the pulp, given clysterwise. In the iliac passion, clysters of *coloquintida* have been found of service, after most other medicines have failed.

In the common analysis by chemistry, there appears no principle predominant in this fruit, by which its violent effects may be accounted for. Distilled by the retort, it yields first a phlegm; then a phlegm with an acid salt dissolved in it: after this, a phlegm less acid, and containing a quantity of an urinous alkaline salt, which strongly affects the smell. These three liquors bring over with them a foetid oil, and the fixed salt drawn from the remainder in the retort, was of the nature of the rest of the salts of that kind. Mem. Acad. Par. 1701.

Colocynth, infused in rain water, yields only an insipid phlegm by distillation, but the remainder yields a very fine extract of a tolerably mild purgative virtue: a pound of the pulp of *colocynth* thus yields two ounces and a half of extract, and the remaining mass of the *colocynth* does not appear to contain any resin. It is usual to attribute the violence of all purgative medicines to their abounding in resinous parts. To try whether this was the case in this simple, Mr. Boulduc finished his experiments on it by making an extract from it by means of spirit of wine. Eight ounces of the clean pulp yielded only half an ounce of a resinous extract, and the residuum yielded two ounces of a coarse extract, by means of water; but this was of a bad consistence, and would scarce hang together.

Either of these extracts, given alone, proved troublesome medicines; and all that appeared from this, and from the whole, was, that in order to have the virtues of this fruit in a gentle, and safe manner, its saline and resinous parts must be left together, and only separated from its terrestrial and mucilaginous ones, by means of a long fermentation with malt or water, before its being evaporated into an extract: because all its violent effects are owing to these terrestrial and mucilaginous particles.

Troches made of *colocynth* are called *troches of alhandal*: they are prepared by cutting the *coloquintida* very small, and reducing it to a fine powder in a mortar, rubbed with oil of sweet almonds; adding gum tragacanth, and mastich afterwards.

COLOR, in the *Ancient Music*. See COLOURS.

COLOR *Indicus*. See INDICUS *color*.

COLORATURA, in the *Italian Music*, is used to denote all sorts of variations, TRILLOS, DIMINUTIONS, &c. that can render a song agreeable.

COLOBRASIANS. See COLARBASIANS.

COLORISATION, or COLORATION, in *Pharmacy*, a term applied to the several changes of colour which bodies undergo in the various operations of nature, or art; as by fermentations, lotions, coctions, calcinations, &c.

COLORITES, in *Ecclesiastical History*, a congregation of Augustin monks instituted about 1530, and so called from *Colorito*, a mountain near Moranc, in Calabria, where a church was erected to the Virgin Mary.

COLOSSAL *column*. See COLUMN.

COLOSSUS, a statue of enormous or gigantic size.

The most eminent of this kind was the *Colossus* of Rhodes, one of the wonders of the world, a brazen statue of Apollo, so high, that ships passed with full sails betwixt its legs. It was the workmanship of Chares, a disciple of Lysippus; who spent twelve years in making it: it was at length overthrown by an earthquake, after having stood sixty-six years. Its height was a hundred and five feet: there were few people who could fathom its thumb, &c.

Some critics observe, that the *colossus* of Rhodes gave its own name to the people among whom it stood; and that many, at least among the ancient poets, call the Rhodians, *Colossians*: hence they advance an opinion, that the Colossians in Scripture, to whom St. Paul directs his Epistle, are, in reality, the inhabitants of Rhodes. Of this sentiment are Suidas, Calepine, Munster, &c.

When the Saracens became possessed of the island, A. D. 672, the statue was found prostate on the ground: they sold it to a Jew, who loaded nine hundred camels with the brass which amounted to seven hundred and twenty thousand pounds weight.

The basis that supported it was of a triangular figure: its extremities were sustained by sixty pillars of marble. There was a winding stair-case to go up to the top of it; from whence one might discover Syria, and the ships that went into Egypt, in a great looking-glass that was hung about the neck of the statue. Among the antiquities of Rome, there are seven famous *colossuses*: two of Jupiter, as many of Apollo, one of Nero, one of Domitian, and one of the sun.

COLOSTRUM, or COLOSTRA, in *Medicine*, the first milk of any animal after bringing forth young, called in common *beestings*.

It is remarkable that this milk is generally cathartic, and purges off the meconium; thus serving both as an aliment and medicine.

This name is likewise given to a disease which this thick coagulated milk sometimes occasions.

An emulsion prepared with turpentine, dissolved with the yolk of an egg, is sometimes also called by that name.

COLOUR, COLOR, in *Philosophy*, a property inherent in light, whereby, according to the different sizes or magnitudes of its parts, it excites different vibrations in the fibres of the optic nerve; which, propagated to the sensorium, affect the mind with different sensations.

Or, *colour* may be defined a sensation of the soul, excited by the application of light to the retina of the eye: and different, as that light differs in the degree of its refrangibility, and the magnitude of its component parts.

In the former view, therefore, light is the subject of *colour*: in the latter it is the agent. See its properties under the article LIGHT.

Various are the opinions of ancient and modern authors, and of the several sects of philosophers, with regard to the nature and origin of the phenomenon *colour*: the most popular opinion was long that of the Aristotelians; who maintain *colour* to be a quality residing in the coloured body: and to exist independently of light.

The Cartesians come nearer the matter: they own, that as the coloured body is not immediately applied to the organ, to occasion the sensation; and that as no body can affect the sense but by immediate contact, the coloured body does not excite the sensation of itself, or contri-

bute any thing to it, otherwiſe than by moving ſome interpoſed medium, and by that the organ of ſight.

They add, that, as we find that bodies do not affect the ſenſe in the dark, light only occaſions the ſenſe of *colour*, by moving the organ; and that coloured bodies are no farther concerned in this than as they reflect the light with a certain modification; the differences in their *colours* ariſing from a difference in the texture of their parts, whereby they are diſpoſed to reflect the light with this or that modification.

B. Porta thought that light was *colourleſs*, but that it was capable of having *colour* ſuperinduced upon it from foreign cauſes, in certain circumſtances. Dr. Hooke maintained, that the primary *colours* are only two, viz. blue and red, and that all the reſt are compoſed of them; and that theſe two *colours* are occaſioned by impreſſions on the retina from pulſes of light, of different ſtrength. M. de la Hire reſolves the difference of *colours* into the degree in which the light agitates or affects the optic nerve; and he obſerves, that whatever tends to weaken this impreſſion, makes a change in the *colour*. See Prieſtley's Hiſt. of Viſion, &c. p. 43, 146, 147.

But it is to ſir Iſaac Newton alone we are to reſer for a ſolid and conſiſtent theory of *colours*; built on pure experiments, and ſolving all the phenomena thereof: his doctrine is as follows.

It is found by experience, that rays, or beams of light, are compoſed of particles very heterogeneous, or diſſimilar to each other: i. e. ſome of them, as it is highly probable, are larger, and others leſs. For a ray of light, as FE (*Tab. Optics, fig.* 5.) being received on a refracting ſurface, as AD, in a dark place, is not wholly refracted to L; but it is ſplit, as it were, and diffuſed into ſeveral radioli, or little rays, ſome whereof are refracted to L, and others to the other intermediate points between L and G; i. e. thoſe particles of the light, which are the moſt minute, are of all others the moſt eaſily and moſt conſiderably diverted, by the action of the refracting ſurface, out of their rectilinear courſe towards L; and with reſpect to the reſt, as each exceeds another in magnitude, ſo is it with more difficulty, and leſs conſiderably, turned out of its right line to the points between L and G. Now, each ray of light, as it differs from another in its degree of refrangibility, ſo does it differ from it in *colour*: this is warranted by numerous experiments. Thoſe particles, v. gr. which are moſt refracted, are found to conſtitute a ray of a violet *colour*, i. e. in all probability, the moſt minute particles of light, thus ſeparately impelled, excite the ſhorteſt vibrations in the retina; which are thence propagated by the ſolid fibres of the optic nerves into the brain, there to excite the ſenſation of violet *colour*; as being the moſt dulky and languid of all *colours*. Again, thoſe particles which are the leaſt refracted, conſtitute a radiolus, or ray of red *colour*; i. e. the largeſt particles of light excite the longeſt vibrations in the retina; ſo as to excite the ſenſation of red *colour*, the brighteſt and moſt vivid of all others.

The other particles being in like manner ſeparated, according to their reſpective magnitudes, into little rays, excite the intermediate vibrations, and thus occaſion the ſenſations of the intermediate *colours*; much in the ſame manner as the ſeveral vibrations of the air, according to their reſpective magnitudes, excite the ſenſations of different ſounds.

To this it may be added, that not only the more diſtinct and notable *colours* of red, yellow, blue, &c. have thus their riſe from the different magnitude and refrangibility of the rays; but alſo the intermediate degrees or ſhades of the ſame *colour*; as of yellow up to green, or red down to yellow, &c.

Farther, the *colours* of theſe little rays, not being any adventitious modifications thereof, but connate, primitive, and neceſſary properties; as conſiſting, in all probability, in the magnitudes of their parts, muſt be perpetual and immutable; i. e. they cannot be changed by any future refraction or reflexion, or any modification whatſoever. This is confirmed by abundance of experiments; all endeavours having been uſed, after ſeparating a coloured ray from thoſe of other kinds, to change it into ſome other *colour*, by repeated refractions, but to no effect. Apparent tranſmutations of *colours*, indeed, may be effected; viz. where there is an aſſemblage, or mixture of rays of different kinds, the component *colours* never appearing in their natural hue in ſuch mixtures, but always allayed and tempered with each other: whence reſults an intermediate kind of *colour*, which, by refraction, may be ſeparated into the component ones; and theſe after ſeparation, being remixed, return to their former *colour*.

Hence the tranſmutation of *colours*, by mixing thoſe of different kinds, are not real, but mere appearances, or deceptions of the ſight; for the rays, being again ſevered, exhibit the ſame *colours* as at firſt. Thus blue and yellow powders, well miſed, appear to the naked eye green; yet, without having paſſed any alteration; for, when viewed through a microſcope, the blue and yellow particles ſtill appear diſtinct.

Mr. Melvill apprehends, that differently coloured rays may be affected with different velocities at their emiſſion from the luminous body, and that the velocity is greater, if the luminous body is placed in a denſer medium, and proportional to its refractive power; and this hypotheſis he thinks preferable to that of ſir Iſaac Newton, which makes them to conſiſt of particles of different ſizes and denſities. M. Muſchenbroeck alſo infers, from the leſs degree of refrangibility of red rays, that they move more ſlowly than the reſt, after their ſeparation from thoſe of other *colours*, though in a ſtate of union with the reſt, they have the ſame velocity; but he does not think that the *colour* depends upon the velocity, ſince this changes with the medium through which the rays are tranſmitted. Their different refrangibility will be the ſame on this hypotheſis, and their different velocities will be nearly as the ſines of refraction out of air into glaſs, beginning from the extreme red, and ending with the extreme violet, viz. as 78000, 77873, 77707, 77663, 77496, 77330, 77220, 77000, the ſine of incidence being 1201201 therefore, ſince the time which the extreme violet rays take to move through any ſpace, is to that which the red takes as 78 to 77, the laſt violet light reflected from a ſatellite, before its total immerſion into the ſhadow of Jupiter, in a quadrate aſpect with the ſun, when his light takes about 41′ in coming to the earth, ought to affect the eye 32 ſeconds after the red light, reflected at the ſame time, is gone; and at the emerſion, there would be a contrary ſucceſſion of *colours*; and the difference of time between the arrival of the different *coloured* rays, being more than half a minute, would afford time ſufficient to make the obſervation. The marquis de Courtiveron, in a treatiſe publiſhed in 1752, advances the ſame opinion with Mr. Melvill, and propoſed the ſame trial of his hypotheſis, viz. by obſerving the eclipſes of Jupiter's ſatellites; but he ſtates the difference of velocity, by a theorem of M. Clairaut, in the proportion of 45 to 44. Mr. Short made the obſervation recommended by Mr. Melvill, and could not perceive the leaſt alteration in the *colour* of the light reflected by the ſatellite; and therefore the hypotheſis ſtill wants that kind of confirmation. By this hypotheſis, Mr. Melvill accounts for Newton's fits of reflexion and tranſmiſſion, as ariſing from the pulſes of the medium through which the differently coloured rays paſs; theſe pulſes muſt overtake rays, moving with different velocities, at different times; and thus the intervals of the fits would be leaſt in the violet, and gradually increaſing in the priſmatic order, agreeably to obſervation. This hypotheſis, however, is liable to many inſuperable objections. The difficulty, which prevented Mr. Muſchenbroeck from aſcribing the *colour* of rays to the velocity, viz. that the *colour* of homogeneous rays is not altered by paſſing through different mediums, though their velocity is thereby always increaſed or diminiſhed, is reſolved by Mr. Melvill, by ſuppoſing that every ray, as it muſt at laſt paſs through the humours of the eye, in order to viſion, falls upon the retina with one given velocity, however it may have been previouſly refracted; ſince the velocity of any ray, in any one medium, is to its velocity in any other medium, in a conſtant and invariable proportion. It has been objected, that if this hypotheſis were true, a ſtar muſt change its place, on account of the aberration $\frac{1}{2}$′,th more for the deepeſt blue rays than the red ones, according to Mr. Melvill, and $\frac{1}{4}$′,th more, according to M. de Courtiveron; and conſequently a ſtar placed in the pole of the ecliptic, whoſe mean ABERRATION is about 20″, ought to appear in the form of a ſpectrum, formed by a priſm of $\frac{1}{2}$″, or 17″ nearly in length, by the former hypotheſis, and of $\frac{1}{4}$″, or 27″, by the latter. This is a quantity which would be ſufficiently viſible in teleſcopes of pretty high magnifying powers; but no ſuch appearance has yet been obſerved. Beſides, the experiments of Mr. Dollond cleaſly prove, that the different refrangibility of the rays of light reſults from properties that are independent of their different velocity; ſince the proportion of it varies according to the nature of the ſubſtance from which it falls; (ſee ABERRATION) and the diſtances at which differently coloured rays are attracted and repelled are different. M. Clairaut, in the courſe of his inquiry concerning Mr. Dollond's improvement in teleſcopes, has taken occaſion to examine this hypotheſis, and found, that the refractions, which would reſult from it, were very different from thoſe which actually took place in nature. Phil. Tranſ. vol. xlviii. part i. art. 38. and part ii. art. 92. Hiſt. Acad. Sc. 1756. p. 194. and Prieſtley's Hiſt. of Viſion, &c. p. 401, &c.

From the Newtonian theory above explained, there arife two kinds of *colours*, the one *original* and *ſimple*, produced by homogeneal light; or by rays that have the ſame degree of refrangibility, and the ſame magnitude of their parts: ſuch as red, yellow, green, blue, violet, purple, orange, and indigo; with all their intermediate teints and gradations.

The other kind of *colour* is *ſecondary*, or *heterogeneous*; compounded of the primary ones, or of a mixture of rays, differently refrangible, &c.

There may alſo be ſecondary *colours* produced by compoſition, like the primary ones, or thoſe conſiſting of homogeneal light, as to the ſpecies or appearance of the *colour*; but not as to the permanency, or immutability thereof. Thus, yellow and blue make green; red and yellow orange; orange and yellowiſh green, yellow; and in the general, if any two colours be mixed, which, in the ſeries of thoſe generated by the prism, are not too far apart, from their mixture there reſults that *colour*, which in the ſaid ſeries is found in the mid-way between them; but thoſe ſituated at too great a diſtance do not produce the ſame effect.

Indeed, the more any *colour* is compounded, the leſs perfect and vivid it is, by too much compoſition they may be diluted and weakened till they ceaſe. By compoſition there may likewiſe be produced *colours* not like any of thoſe of homogeneal light.

The moſt extraordinary compoſition is that of whiteneſs; for to this, all the primary *colours* above mentioned are required; and theſe to be mixed in a certain degree. Hence it is that white is the ordinary *colour* of light, light being nothing elſe but a confuſed aſſemblage of rays of all *colours*.

If the rays of different *colours* do thus begin to be ſeparated by one refraction of one ſingle ſurface, that ſeparation is much promoted, ſo as even to become ſenſible to the eye, by a double refraction. This is obſerved in the two ſurfaces of any glaſs, provided thoſe ſurfaces be not parallel; but, of all others, it is moſt ſenſible in the two faces of a triangular priſm; the phenomena whereof, as they are the touchſtone of all theories of *colours*, and as they contain the foundation of that here delivered, we ſhall lay down as follows.

1. The rays of the ſun, tranſmitted through a triangular priſm, exhibit an image of various *colours* (the chief whereof are red, yellow, green, blue, and violet) on the oppoſite wall.

The reaſon is, that the differently coloured rays are ſeparated by refraction: for the blue rays, v. gr. marked with the dotted lines *Tab. Optics, fig.* 6.) which begin to be ſeparated from the reſt by the firſt refraction in *d d*, of the ſide *c a* of the priſm *a b c*, (as alſo in the firſt ſurface of the globe of water *a b c*, *fig.* 7.) are ſtill farther ſeparated in the other ſide of the priſm *b c* (as alſo in their egreſs out of the globe *a b c*,) by a ſecond refraction in *e e*, in the ſame direction as in the former: whereas, on the contrary, in the plain glaſs *a b c*, *fig.* 9. (as alſo in the priſm *g f e*, *fig.* 8.) now placed in another ſituation) thoſe blue rays which begin to be ſeparated from the reſt in the firſt ſurface, in *d d*, by a ſecond refraction, the contrary way, paſs out parallel, i. e. remixed with all the *colours* of the other rays.

2. This image is not round, but oblong; its length, when the priſm forms an angle of 60 or 65 degrees, being five times its breadth. The reaſon is, that ſome of the rays are refracted more than others; and by that means, they exhibit ſeveral images of the ſun, extended lengthwiſe, inſtead of one.

3. Thoſe rays which exhibit yellow, are turned farther from the rectilinear courſe than thoſe which exhibit red; thoſe which exhibit green, farther than thoſe which exhibit yellow; but of all others, thoſe which exhibit violet, the moſt: accordingly, if the priſm through which the light is tranſmitted be turned about its axis, ſo that the red, yellow, green, &c. rays be projected in order, through a narrow aperture into another priſm, placed at the diſtance of about twelve feet; the yellow, green, &c. rays, though falling through the ſame aperture, in the ſame manner, and on the ſame point of the ſecond priſm, will not be refracted to the ſame place as the red, but to a point at ſome diſtance from it; on that ſide to which the rotation is made.

This is what Sir Iſaac Newton calls the *experimentum crucis*; being that which led him out of the difficulties into which the firſt phenomenon, &c. had thrown him; and plainly ſhewed a different degree of refrangibility, and a different *colour* correſponding thereto in the rays of light; and that yellow rays, v. gr. are more refracted than red ones, green ones more than yellow ones, and blue and violet ones moſt of all.

4. The *colours* of coloured rays, well ſeparated by the priſm, are not at all changed or deſtroyed by paſſing through an illuminated medium, nor by their mutual deculſation, their bordering on a deep ſhadow, nor their being reflected from any natural body, or refracted through any one in a place howſoever obſcure.

The reaſon is, that *colours* are not modifications ariſing from refraction or reflexion, but immutable properties; and ſuch as belong to the nature of the rays.

5. An aſſemblage of all the kinds of coloured rays, collected either by ſeveral priſms, by a convex lens, or a concave mirror, or in any other manner, form what we call *whiteneſs*; yet each of theſe, after deculſation, becoming ſeparated, again exhibits its proper *colour*: for, as the ray was white before its parts were ſeparated by refraction; ſo, the parts being remixed, it becomes white again; and coloured rays, when they meet together, do not deſtroy one another, but are only interſperſed.

Hence, a red, green, yellow, blue, and violet *colour*, being mixed in a certain proportion, appear whitiſh, i. e. they are of ſuch a *colour* as ariſes from white and black mixed together; and if there were not ſome rays abſorbed and loſt, they would be plainly white. In like manner, if a paper cut into a circle, be ſtained with each of thoſe *colours*, ſeparately, and in a certain proportion; then ſwiftly turned round its centre, ſo that the ſpecies of *colours* be mixed together in the eye, by the briſkneſs of the motion, the ſeveral *colours* will diſappear, and the whole paper appear of one continued *colour*; which will be a mean between white and black.

6. If the rays of the ſun fall very obliquely on the inner ſurface of a priſm, thoſe that are reflected will be violet; thoſe tranſmitted, red.

For the rays were coloured before any ſeparation; and by how much they are the more refrangible, by ſo much they are the more eaſily reflected; and by that means are ſeparated.

7. If two hollow priſms, the one filled with a blue fluid, the other with a red one, be joined together, they will be opake; though each, apart, be tranſparent.

For, the one tranſmitting none but blue rays, and the other none but red ones, the two together will tranſmit none at all.

8. All natural bodies, eſpecially white ones, viewed through a priſm held to the eye, appear fimbriated, or bordered, on one ſide with red and yellow, and on the other with blue and violet. For theſe *fimbriæ* are the extremes of entire images, which the rays of any kind, as they are more or leſs refracted, would exhibit nearer, or at a greater diſtance from the real place of the object.

9. If two priſms be ſo placed, as that the red of the one, and the purple of the other, meet together in a paper fit for the purpoſe, encompaſſed with darkneſs, the image will appear pale; and if viewed through a third priſm, held to the eye at a proper diſtance, it will appear double; the one red, the other purple.

In like manner, if two powders, the one perfectly red, the other blue, be mixed; any little body covered pretty deeply with this mixture, and viewed through a priſm held to the eye, will exhibit a double image, the one red, and the other blue: becauſe the red and purple of blue rays are ſeparated by their unequal refraction.

10. If the rays, tranſmitted through a convex lens, be received on a paper before they meet in a focus, the confines or boundary of light or ſhadow will appear tinged with a red *colour*: but if they be received beyond the focus, with a blue one.

Becauſe, in the firſt caſe, the red rays, being ſomewhat more refracted, are the higher; but, in the ſecond, after deculſation in the focus, the blue ones.

11. If the rays about to paſs through either ſide of the *pupilla*, be intercepted by the interpoſition of any opake body near the eye; the extremes of bodies, placed as if viewed through a priſm, will appear tinged with *colours*; though they are not very vivid.

For, then, the rays tranſmitted through the reſt of the pupil will be ſeparated by refraction into *colours*; without being diluted with the admixture of the intercepted rays, which would be refracted in a different manner.—And hence it is, that a body viewed through a paper pierced with two holes, appears double, and alſo tinged with *colours*.

COLOURS *of thin laminæ, or plates.* As rays of *different colours* are ſeparated by the refraction of priſms, and other thick bodies; ſo are they ſeparated, though in a different manner, in the thin lamellæ, or plates of any pellucid matter, v. gr. in the bubbles raiſed in water, thickened by ſoap, &c. For all lamellæ, under a determinate thickneſs, tranſmit rays of all *colours*, without reflecting any at all: but as they increaſe in thickneſs, in arithmetical proportion, they begin to reflect, firſt blue rays; then, in order, green, yellow, and red, all pure: then, again, blue, green, yellow, red, more and more mixed and diluted; [illegible] arriving at a certain thickneſs

they reflect rays of all *colours* perfectly intermixed, viz. white.

Hence, in whatsoever part a slender lamella reflects any one *colour*, v. gr. blue, or violet, in that part it always transmits the opposite *colour*, v. gr. red, or yellow.

It is found, by experiment, that the difference of *colour* of a plate does not depend on the medium that encompasses it; but the degree of vividness does: *cæteris paribus*, the *colour* will be more vivid, if the denser medium be encompassed with the rarer. A plate, *cæteris paribus*, reflects more light as it is thinner; as far as a certain degree of thinness, beyond which it reflects no light at all.

In plates whose thicknesses increase in the arithmetical proportion of the natural numbers 1, 2, 3, 4, 5, &c. if the first, or thinnest, reflect any homogeneal ray, the second will transmit it; the third again will reflect it: and thus if the same ray alternately reflected and transmitted; i. e. the plates corresponding to the odd numbers 1, 3, 5, 7, &c. will reflect the same rays that those corresponding to the even ones, 2, 4, 6, 8, &c. transmit. Hence, an homogeneous *colour* in a plate is said to be of the *first order*, if the plate reflect all the rays of that *colour*: in a plate whose thickness is triple the first, it is said to be of the *second order*: in another, whose thickness is five times that of the first, it is said to be of the *third order*, &c.

A *colour* of the first order is the most vivid of any; and successively, the vividness of the *colour* increases, as the quantity of the order increases: the more the thickness of the plate is increased, the more *colours* it reflects, and those of more different orders. In some plates, the *colours* will vary as the position of the eye varies; in others it is permanent. See on this subject Priestley's Hist. of Vision, p. 279, &c. p. 311, &c. p. 498. See Rings *of Colours*, and Reflection.

Colours *of natural bodies*. Bodies only appear of different *colours*, as their surfaces are disposed to reflect rays of this or that *colour* alone; or of this or that *colour* more abundantly than any other: hence bodies appear of that *colour* which arises from the mixture of reflected rays. See Body.

All natural bodies consist of very thin transparent *lamellæ*; which, if they be disposed, with regard to each other, so that there happen no reflexions or refractions in their interstices, those bodies become pellucid, or transparent: but if their intervals be so large, and those filled with such matter; or so empty (with regard to the density of the parts themselves) as that there happen a number of reflexions and refractions within the body; the body, in that case, becomes opake.

The rays, which are not reflected from an opake body, penetrate into it; and there suffering innumerable reflexions and refractions, at length unite themselves to the particles of the body itself.

Hence, an opake body grows hot the sooner, as it reflects light less copiously; whence we see why a white body, which reflects almost all the rays that strike upon it, is heated much more slowly than a black one, which reflects scarce any.

To determine that constitution of the surface of bodies whereupon their *colour* depends, it must be observed, that the smallest corpuscles, or first particles whereof surfaces are made up, are most thin and transparent, and separated by a medium of a different density from the particles themselves. In the surface, then, of every coloured body, are innumerable smaller thin plates, corresponding to those of bubbles: wherefore, what has been observed of those, may be understood of these. Hence we gather, that the *colour* of any body depends on the density and thickness of the parts of the body, between the pores of the surface: that the *colour* is more vivid and homogeneous, as the parts are thinner: that, *cæteris paribus*, the said parts are the thickest when the body is red; and the thinnest when violet: that the parts of bodies are usually much denser than the medium contained in their interstices; but that in the tails of peacocks, in some silks, and, generally, in all bodies whose *colour* varies according to the situation of the eye, it is less: and that the *colour* of a body is less vivid to the eye, as it has a denser medium within its pores.

Now, of the several opake bodies, those consisting of the thinnest *lamellæ* are black; those consisting either of the thickest *lamellæ*, or of *lamellæ* very different from each other in thickness, and on that account fitted to reflect all *colours*, as the froth of water, &c. are white: those again, consisting of *lamellæ*, most of which are of some intermediate thickness, are blue, green, yellow, or red: insomuch as they reflect the rays of that particular *colour* much more copiously than the rest of any other *colour*; most of which fall they either absorb and extinguish, by interposing them, or else transmit. Hence it is, that some liquors, v. gr. an infusion of *lignum nephriticum*, will appear red, or yellow, if viewed by reflected light; and blue by transmitted light; and gold leaves yellow in the former circumstances, but green or blue in the latter.

To this may be added, that some of the powders used by painters have their *colour* changed by being very finely ground; which must be occasioned by the comminution or breaking of their smaller parts into others still smaller; just as a *lamella* has its *colour* altered, by altering its thickness.

In fine, those odd phenomena, arising from the mixture of liquors of different *colours*, can no way be better accounted for, than from the various actions of the saline, &c. corpuscles of one liquor, with the coloured corpuscles of another: if they unite, the mass will either swell or shrink, and thereby its density will be altered: if they ferment, the face of the particles may be diminished, and thereby coloured liquors may become transparent: if they coagulate, an opake liquor may be produced out of two transparent ones.

Hence it is easy to see why a coloured liquid in a glass of a conical figure, placed between the eye and the light, appears of a different *colour* in different parts of the vessel; there being more and more rays intercepted, as they pass through a longer or a shorter section of the vessel; till, at the base, they are all intercepted, and none tent that those reflected.

From the various colours of natural bodies, Sir Isaac Newton observes, the bigness of their component parts may be estimated: because the parts of bodies do properly exhibit the same *colour* with a *lamella* of equal thickness, provided the density in both be the same.

The Newtonian doctrine concerning the *colours* of bodies, as depending on the thickness of those *lamellæ*, or fine plates, which form their surfaces, is more lately confirmed by means of electrical explosions. Dr. Priestley found, that, if these are received on the surface of any metal, they will mark it with a spot, consisting of all the prismatic *colours* disposed in concentric circles, and formed by scales of the metal separated by the force of the explosion. Besides other curious observations, he informs us, that when a pointed piece of metal is fixed opposite to a plain surface, the nearer it is placed to the surface, so much the sooner the *colours* appear, the closer do the rings succeed one another, and the less space they occupy, and *vice versâ*; and that the more acutely the wire or needle, from which the electric matter issues, or at which it enters, is pointed, so much greater is the number of rings that appear: whilst a blunt point produces larger, but fewer rings. Besides, that it is of no importance, whether the electric matter issue from the pointed body on the plate, or from the plate on the pointed body, and that the points themselves are *coloured* in concentric rings to a considerable distance, but not very distinctly. Mr. Canton likewise produced all the prismatic *colours* from all the metals, by extending fine wires of them over the surface of pieces of glass; and when the wires were exploded, he observed that the glass was tinged with all the *colours*. The experiment has been often repeated, and with peculiar advantage, by the ingenious Mr. Henly. Phil. Trans. vol. lxiii. art. 10. Priestley's Hist. of Elect. vol. ii. p. 280, 8vo. ed. 1775. See Circular *Spots*, and Fairy *Circles*.

Colours, *accidental*. See Accidental.

Colours *of the clouds*, is thus accounted for by Sir Isaac Newton. Concluding from a series of experiments, that the transparent parts of bodies, according to their several sizes, reflect rays of one *colour*, and transmit those of another, he hence observes, that when vapours are first raised, they are divided into parts too small to cause any reflexion at their surfaces, and therefore do not hinder the transparency of the air; but when they begin to coalesce, in order to compose drops of rain, and constitute globules of all intermediate sizes, these globules are capable of reflecting some *colours*, and transmitting others, and thus form clouds of various *colours*, according to their sizes. Mr. Melvill controverts this doctrine, in its application to the red *colour* of the morning and evening clouds. "Why, he says, should the particles of the "clouds become at that particular time, and never at "any other, of such a magnitude as to separate those "*colours*? And why are they rarely, if ever, seen tinctured with blue and green, as well as red, orange, or "yellow? Is it not more credible, that the separation "of rays is made in passing through the horizontal atmosphere, and that the clouds only reflect and transmit the sun's light, as any half-transparent coloured "body would do? For since the atmosphere reflects a "greater quantity of blue and violet rays than of the "red, the sun's light transmitted through it ought to "incline towards yellow, orange, or red; especially "when it passes through a long tract of air: and thus

"it is found that the sun's horizontal light is tinctured "with a deep orange, and even red; and the *colour* be- "comes still deeper after sun-set." And hence he concludes, that the cloud, according to their different attitudes, may assume all the variety of *colours* at sun-rising and setting, by barely reflecting the sun's incident light as they receive it. Edinb. Ess. vol. ii. p. 75. Priestley's Hist. of Vision, p. 446, &c.

For the different properties, &c. of the several COLOURS, see BLACK, WHITE, BLUE, &c. See also RAINBOW, &c.

COLOUR, in *Painting*, is applied both to the drugs, and to the tints produced by those drugs, variously mixed and applied.

The principal *colours* used by painters, are red and white lead or ceruse; yellow ochre; several kinds of earth, as umber, &c. besides orpiment, black lead, cinnabar, gamboge, lake, bice, verditer, indigo, vermillion, verdegris, ivory black, bistre, lamp black, smalt, ultramarine, and carmine; each of which, with the manner of preparing them, their uses, &c. see under their respective heads.

Of these *colours*, some are used ground in oil, others only in fresco, others in water, and others only for miniature.

COLOURS, *dark and light*. Under these two classes the painters reduce all the *colours* they use: under *light colours* are comprehended white, and all those which approach nearest it; and under *dark colours*, black, and all those which are obscure and earthy, as umber, bistre, &c.

COLOURS, *simple and mineral*, is another division among the painters: under *simple colours*, they range all those used by limners, illuminers, &c. extracted from vegetables, and which will not bear the fire: as the yellow made of saffron, of French berries, &c. lakes, and other tinctures extracted from flowers. The salt are *mineral*, drawn from metals, &c. and are able to bear the fire: these alone are used in enamelling.

COLOURS, *changeable and permanent*, in another division of *colours*: by *changeable* are meant those which depend on the situation of objects with regard to the eye: as that of taffetas, of a pigeon's neck, &c. The salt, however, being attentively viewed with a microscope, each fibre of the feathers appears composed of several little squares, alternately red and green; so that they are really fixed *colours*.

Kircher tells us, that the *changeable colours* observed in the necks of pigeons, peacocks, &c. arise from the feathers being transparent, and of a figure resembling a prism; and consequently the light's being differently refracted from them. On the contrary, the fixed and *permanent colours* are not exhibited by refraction, but reflexion.

M. Mariotte observes, that there are two different gradations, or series of *colours*, from white to black; the one white, yellow, red, and black; the other white, blue, violet, and black.

COLOURS, *local*. See LOCAL.

COLOURS, *rings of*. See RINGS.

COLOURS, *water*. See WATER.

COLOUR, in *Dying*.—These are five simple, primary, or mother *colours*, used by the dyers; from the mixture whereof all the other *colours* are formed: these are blue, red, yellow, brown, and black; each of which see under their proper head, BLUE, RED, &c.

Of these *colours*, variously mixed and combined, they form the following *colours*; *purple*, *blue*, *red*, from the mixture of blue and scarlet, are formed *amaranth*, *violet*, and *purple*; from the same mixture of blue and crimson-red, are formed the *scarlet-dye* or *dove-colour*, *purple*, *crimson*, *amaranth*, *pansy*, and *crimson-violet*. It may be observed, that they give the name *crimson* to all *colours* made with cochineal. See CRIMSON, COCHINEAL, &c.

Of blue, and red madder, they likewise make a good *purple*, a *pepper-colour*, *tan-colour*, and *dry-rose*. The same blue, with red half in grain, makes *amaranth*, *tan-colour*, and *dry-rose*. Blue and half-red crimson, compose *amaranth*, *tan-colour*, *dry-rose*, a *brown pansy*, and *fur-brun*.

Blue and yellow. These two *colours*, mixed together, compose a *yellow-green*, *spring-green*, *grass-green*, *laurel-green*, *brown-green*, *olive-green*; as well as *sea-green*, *parrot-green*, and *cabbage-green*, &c. These three last *colours* are to be less boiled than the first.

Note, with regard to green, there is no simple ingredient or drug in nature that will dye it: but the stuffs are dyed twice; first in blue, then in yellow.

Blue and brown. These two *colours* are never mixed alone; but with the addition of red, either of madder or cochineal, they form several *colours*.

Red and yellow. All the shades composed of these two *colours*, as *gold-colour*, *aurora*, *marigold*, *orange*, *nasturtium*, *peasant-flower*, *flame-colour*, &c. are made with yellow, and red of madder; scarlet being less proper, as well as too dear.

Red and brown. Of these two *colours* are formed *cinnamon-colour*, *chestnut*, *musk*, *bears-hair*; and even *purple*, if the red be that of madder.

Yellow and brown. The *colours* formed from these two are all the shades of *feuille-morti* and *hair-colours*.

It may be observed, that though we say there are no *colours*, or shades made from such and such mixtures, it is not that none can be made; but only that they are more easily formed from the mixture of other *colours*. See DYING.

The greatest perfection in the art of *colours* would be to find the means of preparing the finest *colours* without the use either of acid or alkaline salts, which usually subject the *colours* to change, or else are apt to prey upon the cloth, canvas, &c. as we see in verdigrise, the blue and green crystals of copper, &c. It appears highly probable, that the Indians, for making the fine bright and durable *colours*, wherewith their chintzes and callicoes are painted, make use of mercurial solutions; for some painted callicoes, brought from thence, having been kept forty or fifty years, the bright *colours* have been observed to eat out the cloth, exactly in the same manner as acid spirits, which dissolve metals, are found to do.

Since these, then, are the inconveniences attending such *colours*, we ought to search for menstruums with which to extract *colours*, which are neither acid nor alkaline; and for such mercurial calces, precipitates, or powders, as will not lose their *colours*, by being well washed to get out their salts; to prepare certain mercurial matters by mere calcination, or the bare assistance of fire; and lastly, to look out for native *colours*, wherein no saline matter abounds.

Mr. Geoffroy has given a very curious process for making two clear, spirituous, inflammable liquors, which differ very little in taste and smell, and being mixt together give a fine carnation *colour*, without any sensible fermentation.

To make the first of these liquors, put a small handful of dried red roses into a glass bottle; pour on them rectified spirit of wine, till it covers them an inch; let this stand in a cold infusion four or five hours; then pour off the liquor, which will be clear and colourless, as when put on. The second liquor is made by dropping into rectified spirit of wine so much oil of sulphur, by the bell, or spirit of vitriol, as will be borne in it without giving it any very sensible acidity when tasted. When these liquors are thus prepared, let a small quantity of the latter be dropped into some of the former, and the whole will become of a fine carnation *colour*, though there is no fermentation, nor any other change perceived in it, but barely that of *colour*. If, instead of this last liquor, there be added to the first a few drops of the spirit of sal ammoniac, the whole will become green.

Make a slight infusion of galls in water, so as not to *raise* the water; make also a weak solution of green vitriol in water, so that it may appear colourless; mix these two colourless liquors together, and an inky blackness is immediately produced; add to this black liquor a little oil of vitriol, and the liquor becomes pellucid and colourless again; then add to this a little salt of tartar, and the whole is black again.

Put a little bruised camphor into rectified clear oil of vitriol; shake the mixture, and it will become black, and the camphor will be dissolved; add to this a little water, and the liquor becomes clear, and the camphor is found separated at top, in its own form, and native whiteness.

Infuse lignum nephriticum in cold water, and pour off the clear liquor. This held up against the light, appears of a fine yellow, but, viewed from the light, of a beautiful blue: a little spirit of nitre put to this liquor makes it lose the power of reflecting the blue rays, and a little oil of tartar, afterwards added, recovers that power again.

Logwood, infused in water, gives a red colour. Put to this a little spirit of urine, and it becomes of a fine purple; and drop in afterwards a little spirit of salt, and it becomes of a pale red.

A beautiful blue tincture may be made from filings of copper, by digesting them in spirit of urine, hartshorn, or the like. The addition of oil of vitriol destroys the blue *colour*; and a little spirit of salt turns it green.

Pellucid oil of vitriol, mixed with pellucid oil of turpentine, produces a thick red balsam. And common oil, mixed with fair water, by means of a little wax, and continued rubbing, turns into a thick white balsam, called cold cream.

Oil of vitriol, distilled from quicksilver, leaves a white powder behind, which, if water be poured on it, becomes yellow.

Dissolve quicksilver in spirit of nitre, and to part of it add spirit of urine, and a white powder is precipitated; to another part of the solution add oil of [illegible] yellow powder falls [illegible]

Dip a new pen in spirit of vitriol, and write with it on common blue paper, and the letters will appear red.

A diluted solution of saccharum saturni being written with on paper, becomes invisible when dried; but the brine fumes of an infusion of quick lime, and orpiment, in water, will render the invisible writing black and legible.

Volatile salt of sal ammoniac, which is white, mixed with crystals of copper, which are green, produce a fine purple.

The original and simple, as well as the mixt, *colours* are producible by mixture. Thus, if the sun's rays pass through two pieces of glass, the one blue, and the other yellow, and be afterwards received upon a white paper, the colour these form is green. The dyers have both blue with woad, and their yarn is given by the yellow herb called luteola, or dyer's weed. Two yellow solutions of gold in aqua regia, add a blue one of copper in spirit of nitre, and the mixture becomes green. The painters every day practise this art of producing new colours by mixture.

Metallic and mineral matters are reducible to a considerable degree of subtlety, or smallness of parts, by fire, or other animation, so as to leave them durably possessed of their native or adventitious *colours*. Thus lapis lazuli, by being calcined, becomes the fine rich blue called ultramarine; light ochre, by the same treatment, becomes a light red, or flesh-colour, the most useful flesh-colour in painting. Lead, by calcination, becomes durably red, and iron durably brown; but a proper method seems wanting for the dry calcinations of the nobler metals, gold and silver; though, for the uses of gilding, these are easily prepared by dipping linen rags in their respective solutions, and then drying, and burning them to ashes, whereby a dry and fine metalline powder is procured.

COLOURS *from metals*. See METAL.

COLOUR, *gold*. See GOLD.

COLOUR, *wine*. See WINE.

COLOURS, in *Heraldry*. The *colours* generally used in heraldry, are red, blue, black, green, and purple; which by the learned in that science, are called *gules*, *azure*, *sable*, *vert* or *sinople*, and *purpure*. *Tenne*, or *tawny*, and *sanguin*, are not so common. See each colour under its proper article, GULES, AZURE, VERT, SINOPLE, &c. As to yellow and white, called *or* and *argent*, they are metals, not *colours*.

These *colours* and metals are sometimes also expressed in blazon by the names of precious stones; and sometimes by those of planets, or stars.—Thus, or is called *Sol*, and *topaz*; argent, *Luna* and *pearl*; gules, *Mars*, and *ruby*; azure, *Jupiter*, and *sapphire*; sable, *Saturn*, and *diamond*; vert, *Venus*, and *emerald*; purpure, *Mercury*, and *carbuncle*; tenne, the *Dragon's head*, and *hyacinth*; and sanguin, the *Dragon's tail*, and *jordan*.

There is a general and fundamental rule in BLAZON, not to place *colour* upon *colour*, nor metal upon metal. That is, if the field be of a *colour*, the bearing must be of a metal: though this rule, on some occasions, and in some circumstances, is dispensed with; as in the diminutions and differences which distinguish the younger from the elder branches of families; and in the extremities of animals tongues, claws, horns, &c. In which cases *colour* may be on *colour*, and metal on metal, without false heraldry. Camden is said to have first invented the distinction of *colours*, to distinguish the quadrilles of combatants at the Circensian games: the green for those who represented the earth; and the blue for those who represented the sea.

Hence the ancient cavaliers took occasion to distinguish themselves in their tournaments, by habits, plumes, and ribbands of different colours; which were ordinarily those of their mistresses, and were the symbol of some passion or quality.—Hence also the origin of *colours* in liveries.

COLOURS, in the *Military Art*, include the banners, flags, ensigns, &c. of all kinds, borne in an army, a fleet, or the like. See FLAG, and STANDARD.

COLOURS, *field*. See FIELD.

COLOURS are also used in the Latin and Greek churches, to distinguish several mysteries and festis celebrated therein.

In the Latin church are only regularly admitted five *colours*, viz. *white*, *red*, *green*, *violet*, and *black*: the *white* is for the mysteries of our Saviour, the feasts of the Virgin, those of the angels, fasters, and confessors; the *red* for the mysteries and solemnities of the holy sacrament, the feasts of the apostles and martyrs; the *green* for the time between Pentecost and Advent, and from Epiphany to Septuagesima; those in Advent, Christmas, in vigils, rogations, and in votive masses in time of war; fasts, mourning, and in votive masses for the dead; the *violet* for the vigils and eves, and embroideries, leave indifferent all solemnities.

In the Greek church the use of *colours* is almost obliterated, as well as among us: *red*, among them, was the *colour* for Christmas, and the dead; as black is still for the last among us.

COLOUR, in *Law*, is a probable, or plausible plea; though in reality false at bottom; and only calculated to draw the trial of the cause from the jury to the judge.

Thus, e. g. in an action of trespass for taking away the plaintiff's beasts, the defendant urges, that before the plaintiff had any interest in them, he himself was possessed of them, as his proper goods; and delivered them to A. B to deliver to him again, when, &c. and A. B. gave them to the plaintiff; and the plaintiff, supposing the property to be in A. B. at the time of the gift, took them; and the defendant took them again from the plaintiff; whereupon the plaintiff brings his action.—This is a good *colour*, and even a good plea. Dock. and Stud.

COLOURS, *Colores*, in the *Ancient Music*, was used to figure the musical species belonging to a genus.

In this sense the CHROMATIC *genus* was said to have three *colours*; and the DIATONIC two. The ENHARMONIC, having no subordinate species, had but one *colour*. Hence the ancients reckoned three *genera*, and six *colours*, in music; that is, so many different divisions of the monochord, or fourth.

COLOUR *of office*, is when some unjust action is done, under countenance of office or authority.

To COLOUR *strangers goods*, is when a freeman allows a foreigner to enter goods at the custom-house in his name.

COLOURABLE *title*. See TITLE.

COLOURING, in *Painting*, the manner of applying, and conducting the colour of a picture; or the mixture of lights and shadows, formed by the various colours employed in a painting.

The *colouring* is one of the principal branches in painting: M. Fresnoi divides the painter's art into three parts; the design, the composition, and the *colouring*. The *colouring* strikes the most; but among masters it always gives place to rightness of design.

De Piles observes, that the word *colouring*, in its confined sense, is chiefly applicable to a history-piece; scarce at all to a landscape. He adds, that the term *colouring* relates more immediately to the carnations than any thing else.

The *colouring*, in its general sense, taken in whatever relates to the nature and union of *colours*; their agreement or antipathy; as also how to use them to advantage in light and shadow, so as to throw a relievo to the figures, and a sinking of the ground; what relates to the aerial perspective, i. e. the diminution of colours by means of the interposition of air; the various accidents and circumstances of the harmony and the medium; the different sights, both of the bodies illuminating and illuminated; their reflexions, shadows, different views, with regard either to the position of the eye or the object; what produces strength, boldness, sweetness, &c. in paintings well coloured; the various manners of *colouring*, both in figures, landscapes, &c.

COLOURING, *method of*. *Colours* are considered, either in respect of their use, or their economy and disposition.

1. With regard to their use. They are either in oil, or water; those in oil, again, may either be considered with a view to their preparation, or application.

In the preparation of oil colours, care must be taken that they be ground fine; that in putting them on the pallet, those which will not dry of themselves, be mixed with drying oil, or other driers; and that the tinged colours be mixed in as small quantities as possible.

For their *application*, it is considered either with regard to the kinds of painting, whether in works of various colours, or in those of one single colour.

For the *first*, in the large pieces, the colours are either laid on full, so as that they may be impasted, or incorporated together, which makes them hold the more firmly. Or else they mix those more agreeable ones, which dry too hard, and too lastlily, with a little colour, and the cleanest of the oil: but, in both cases, the colours are to be laid on strong at first, in order to weaken those that are to be afterall back, and to heighten the others: the touches to be bold, by the conduct of a free and steady pencil; that the work may appear the most finished at a proper distance, and the figures animated with life and spirit.

For glazed colours, particular care must be taken that the under-colour be painted strong, and that it be a body-colour, and laid smooth.

In finished works, which are to be viewed near at hand, they proceed, either by applying each colour in its place; preserving their purity, without fretting or tormenting them, but tenderly softening off their extremities; or by filling up all the great parts with one single colour; and laying the other colours, which are to form the little things, upon it; which is the more expeditious way, but is more apt to decay.

For the *second* the kinds of pictures in one colour are used viz. *camieus*, where the degradations of colours of objects afar off are usually managed by lights, as with crayons; and *bosso relievos*, which is an imitation of sculpture, of whatsoever matter and colour: in both these, the colours are wrought dry.

For water-colours, they are wrought various ways: viz. in *distemper*, as the painters express it, where the colours are prepared in size; which method is used in all kinds of mettre; in *fresco*, or painting on fresh mortar; where the *colouring* must be quick, that the matter dry not; and with much care and method, laying each colour in its place, and intermingling them by parcels: in *agnada*, where the colours are mixed with gum, and the pencil dragged as in paint and washings: in *miniature*, for small and delicate works; where the colours are to be very fine and clean, mixed with gums, and wrought in dots or points.

But in all the kinds of painting, both in oil and distemper, especially the latter, proper care must be taken, that the design be fixed, and all the parts marked out, before any colours be applied.

For the second part of *colouring*, or the œconomy and disposing thereof in paintings; regard is either had, first to the qualities of the colours, to appropriate them according to their value or agreement; or, secondly, to their effects in the union and œconomy of the work.

For the *qualities*, it must be observed, that white represents light, and gives the brightness and heightening: black, on the *contrary*, like darkness, obscures and effaces the objects again, black sets off the light parts; and by that they serve each other to loosen the objects.

A proper shine is to be made of colours, and the too much changed manner to be avoided; both in carnations, where red colours are not to be affected, as rather resembling the flesh when flayed than skin; and all bright glowing colours in the skin, how delicate fever, being always of a down colour; in the drapery, where the painter has his whole flock of colours to chuse out of, to procure a good effect; and in the landscape to dispose those colours near one another, which mutually assist and raise each other's force and brightness; as red and green, yellow and blue. He is likewise to manage them so, as that they be accommodated to the effects of the great parts of light and colour; that the strong colours lead to the soft ones, and make them more looked at; bringing them forwards, or keeping them back, according to the situation, and the degree of force required.

For the *effects of colours*, they either regard the union, or the œconomy: with respect to the first, care must be taken, that they be laid so as to be sweetly united, under the brightness of some principal one; that they participate of the prevailing light of the piece; and that they partake of each other by the communication of light, and the help of reflexion.

For the *œconomy in managing their degrees*, regard is to be had to the contrast, or opposition intervening in the union of the colours, that by a sweet interruption, the brightness, which otherwise fades and palls, may be raised to the harmony, which makes the variety of colours agree; supporting and sustaining the weakness of some by the strength of others; neglecting some places, on purpose to serve as a base or repose to the sight, and to enhance those which are to prevail through the piece: also, to the degradation, where, the better to proportion the colours that fall behind, some of the same kind are to be preserved in their purity, as a standard for those carried off or to be compassed by, in order to justify the diminutions regarded: and always to have had to the quality of the aire, which, when loaded with vapours, weakens the colours, more than when clear: to the situation of the colours, where care must be taken, that the purest and strongest be placed before, or in the front of the piece; and that by their force the compound ones, which are to appear at a distance, be kept back; particularly the glazed colours to be used in the first rank: lastly to the exposition of the subject, and the nature of the matter, or stuffe, whether shining or dull, opake or transparent, polished or rough.

COLOURING *and* NON-COLOURING, *Stage*. That the dyers distinguish their materials; the first are applicative, and communicate their colours to the matter boiled in them; or rather strong; such as woad, fenegreek, green, cochineal, indigo, madder, turmeric, &c.

The second serve to prepare and dispose the stuffe, and other matters; and to extract the colour out of the *colouring* ingredients: as alum, salt or crystal of tartar, arsenic, realgar, tale-stone, common salt, sal ammoniac, sal gemmæ, aqua fortis, spirit of wine, bran, pear, flour, wheat, starch, lime, and ashes.

COLOURING *of glass*. See GLASS.

COLOURING *of earthen ware*. See GLAZING.

COLOURING *of porcelain*. See PORCELAIN.

COLOURING *of spirits*. See SPIRITS.

COLPISCIS, a name given by some to the *pisis Veneticus*, or sickle fish, commonly called the marmot fish by the people of Venice. See PALX.

COLT, in *Zoology*. See FOAL.

COLT *Evil*, a disease incident both to horses and geldings. It is an unnatural swelling of the yard and cods, proceeding from wind, or else through the abundance of seed in horses. It happens to geldings for want of natural heat.

COLT'S-*foot*, *Tussilago*, in *Botany*, a genus of the *syngenesia polygamia superflua* class. Its characters are these: it hath compound flowers, which are included in one common cylindrical empalement; the flowers are tubulous and funnel-shaped, and have each five short segments. The germen is crowned with down, and afterward becomes a single oblong seed, crowned with long down. Linnæus mentions fourteen, and Miller three species, the first of which is very common in watery places in most parts of England.

The common *colt's-foot* stands generally recommended as a very great medicine in coughs, and all disorders of the breast and lungs. It is also sometimes used externally in inflammations.

COLT'S *foot*, *Alpine*, or *foreign Canada*, in *Botany*, a genus of the *syngenesia polygamia superflua* class. Its characters are these: it hath compound flowers, which are included in one common cylindrical empalement; the flowers are tubulous and funnel-shaped, and have each five short segments. The germen is crowned with down, and afterward becomes a single oblong seed, crowned with long down. Linnæus mentions fourteen, and Miller eight species.

The root of *cacalia*, macerated in wine, and made into an eclegma, or chewed by itself, is said to cure coughs. Its roots pulverised and made into a cerate, and used as an ointment, render the skin smooth and free from wrinkles.

COLTE, among the *Tinners*, denotes a wood used to express a tree which has a defect in some one of its annual circles, which renders it unfit for many of the uses it might have been otherwise fit for. In this case sometime of the annual circles near the centre is perceived by the eye to be thicker than the rest, and its sap-wells larger. It has an appearance much different from that of the others, and is so loosely connected both to its innermost, and invelled circles, that, on sawing a transverse piece of the trunk off, it will fly out from the others, and so leave the heart loose, and the rest hollow, seeming to have been only fitted, not connected, to the others. In splitting the wood for other uses, it yet more readily drops out, and the timber of such a tree is therefore much less fit for general use than that of others. It is not easy to say to what accident, in the growth of the tree, this is owing, but it seems probable that it exposes the tree to other accidents; in particular Dodoens seems to think, that among the trees which were split by the hard frost, in the year 1683, while other trees of the like sizes and kinds escaped, this *defect* might be the occasion of the mischief, as well as their being windbroken, or lagged. Phil. Trans. N° 165.

COLUBER, in *Zoology*, the name of a very numerous genus of SERPENTS, the characters of which are reported with *fangs*, and the under part of the tail with *feathers* or scales. See VIPER.

COLUBRINUM *Agaricum*. See LICHEN *cylindricus*.

COLUM, in *Ornithology*, is probably a species of the CRANE, and common at Surat in the East Indies. These birds have a remarkable action in the *ejicta arteriæ*, taken notice of by Dr. Parsons; and which he conjectures may serve for the retention of inspired air, whilst they plunge deep into the water in pursuit of food, or traverse different climates through various degrees of rarefied and condensed air. Phil. Trans. vol. lxiv. art. 24. *passim*.

COLUMBA. See PIGEON.

COLUMBA *quinata*. See HELMET *flower*.

COLUMBA *Groenlandica*, in *Ornithology*, a name given by authors to a small, web-tailed, water fowl, called, in English, the *sea pigeon*. See DOVE.

COLUMBA *Nasonum*. See MADONNA *flower*.

COLUMBA *rubra*. See LAUGHER.

COLUMBA *marina*, the *pochion*, in *Ichthyology*, the name of an East Indian fish, and one said to be a species of the orbis, or moon fish, but which has not any of the prominent chi[illegible]

scales, but it is variegated with several very oddly placed marks on the back and sides. It is a scarce fish, and not much valued, being but an ill-tasted one.

COLUMBA is also the name of a military order instituted by John I. of Castile, about the year 1379.

COLUMBA *Noachi*, a small constellation in the southern hemisphere, consisting of ten stars. In Sharp's Catalogue their longitudes, latitudes, &c. are as follow.

Names and Situations of the Stars	Mag.	Longit.		Latitude.		Precession
		S.	D.	S.	D.	
First of the brightest	0	18	22	30	23	2.5
Second		22	33	46	59	1.5
First of the Bars		21	54	27	38	4
The Northern		20	56	16	5	6
The next to the first of the brightest		23	32	23	47	16. 0	5
Next to the fecond		23	13	59	18	44	31	5
In the head of the Dove		20	14	33	00	47	40	5
First in the fecond		20	2	50	46	18	31	23	5
Second, ditto, in Canis Major		4	14	29	56	44	58	5
Laſt in the triangle		0	45	1	55	47	37	5

COLUMBAC denotes that part of the SMALL GUT, which is between the ileon, and that part next to the anus.

COLUMBINA, a name given by Agricola, and some other medical writers, to the *perenne*, or common VERVAIN.

COLUMBINA *Myrra*. See MARLE.

COLUMBINE. *Aquilegia*, in *Botany*, a genus of the *polyandria pentagynia* claſs. Its characters are these: the flower hath no corolament, but is compoſed of five equal oval petals, which are plain, and ſpread open wide, and have five equal nectariums, ranged alternately with the petals, each of the horns widening upwards. It hath many awl-ſhaped ſtamina, and five oval germina, which after ward become five cylindrical veſſels, which are filled with oval ſhining ſeeds. There are four ſpecies.

The manner of propagating theſe flowers is either by ſowing, or parting the old roots; but the old roots being very apt to degenerate, the ſowing of them is much the beſt method.

The ſeeds muſt be ſown in a nurſery-bed in Auguſt or September, and in the March following the plants will appear above the ground, at which time they muſt be carefully cleared of weeds, and watered gently at times, if the dryneſs of the ſeaſon requires it. In the beginning of May they will be ſtrong enough to be tranſplanted, and muſt then be placed at eight inches diſtance, in beds of good, freſh, unmanured earth, and they muſt here be alſo kept cleared from weeds, and watered as they may require it; at Michaelmas they may be removed into the borders of the flower-garden, and in the May following they will flower. The ſeeds of columbine have been commended, in ſubſtance and in emulſion, as an anthelmintic, as an aperient in the jaundice, and for preventing the eruption of the meaſles and ſmall pox. But their ſuppoſed qualities afford little foundation for virtues of this kind. Thoſe aſcribed to a tincture of the flowers as an ophthalgitic, and for ſtrengthening the gums, and clearing ſcorbutic ulcerations in the mouth, appear to be better founded: the tincture being made with an addition of the vitriolic acid, and differing little from our officinal tincture of roſes.

COLUMBINE, *ſtarbleed*, in *Botany*. See *Monkſhood* RUE.

COLUMBINE, a kind of *violet-colour*, called alſo *deep-colour*. See DYING.

COLUMBO root derives its name from *Columba*, a town in the iſland of Ceylon, whither it was tranſplanted from Aſia. This root is compoſed of three laminæ, the cortical about one fourth of an inch thick, the ligneous about half an inch, and the medullary, which is about an inch in diameter. It is brought into Europe in circular pieces about three inches thick, covered with a wrinkled bark of a dark brown hue, and internally it is of a light yellow. It hath an aromatic ſmell, and is bitter, and ſlightly pungent to the taſte. It is reckoned almoſt a ſpecific in the cholera morbus, naufea, indigeſtion, bilious fever, diarrhœa, dyſentery, and moſt diſorders of the ſtomach and bowels. It is ſedative, corroborant, and antiſeptic. It is more effectual than the bark in preſerving the bile from putridity, and in ſome caſes a good ſubſtitute for it. The common doſe is from ten to fifteen grains every three or four hours. A tincture is made by infuſing an ounce of this root in a pint of brandy, which may be taken in the quantity of a table ſpoonful, and ſpeedily relieves colicky pains ariſing from flatulence and indigeſtion. An extract likewiſe of this root is prepared by digeſting twelve ounces of the powder in three pints of rectified ſpirit of wine; then filtring the tincture, and boiling the reſiduum in different waters, till it yields little or no taſte to the liquor. This decoction is ſtrained and evaporated, until only ſix pints remain; which after evaporation in a vapour bath, and having the tincture added to it, may be reduced to the conſiſtence of a pill.

COLUMBUS, *Congregation of St.* is the name of a congregation of regular canons, formerly of great extent; having under it an hundred abbeys, or monaſteries, in the Britiſh iſlands. See CONGREGATION, and CANON.

COLUMELLA, in *Natural Hiſtory*, a name given by *Mr. Lhuyd to the teſticulæ*, or FUNGITÆ, a ſort of foſſil cones, often found foſſil, as they very frequently are, in beds of clay, or lodged in ſtone.

COLUMELLA, in *Anatomy*. See UVULA.

COLUMELLA *muſculus tarsi*, a name given by *Morgagni*, and ſome others, to the muſcle called by Albinus *tenſor ſuralis*.

COLUMN, in *Architecture*, a round pillar, made to ſupport, or adorn, a building.

The *column* is the principal, or reigning part, of an architectonical order.

The principal laws and properties of this eminent member of architecture are thus deduced. Every fulcrum, or ſupport, is ſo much the more perfect, as it is the firmer, or carries the greater appearance of firmneſs: and hence all *columns*, or pillars, ought to have their baſe, or foot broader than themſelves. See BASE.

Again, as a cylinder and a quadrangular prism are more eaſily removed out of their place than a truncated cone, or a pyramid on the ſame baſe, and of the ſame altitude; the figure of *columns* ought not to be cylindrical; nor that of a pilaſter, pyramidal; but both the one, and the other, to be contracted, or diminiſhed; i. e. to grow leſs and leſs, like a truncated cone, and a truncated pyramid.

For the ſame reaſon, the loweſt parts of *columns* ought to be cylindrical; that of pilaſters, pyramidal: hence, again, as *columns* are more firm, if their diameter bears a greater proportion to their height, than if it bore a leſs; the greater ratio is to be choſen, where a large weight is to be ſuſtained; and leſs, where a leſſer. Farther as the deſign of a *column* is to ſupport a weight, it muſt never be ſuppoſed without an entablature: though a *column* ſtand on an eminent place, ſo as to leave no room to fear its being thruſt out of its place, needs no pedeſtal.

The entire *column*, in each order, is compoſed of three principal parts; *the baſe*, *the ſhaft*, and *the capital*. See the deſcription of each, under its reſpective head, CAPITAL, &c. Each of theſe parts, again, is ſubdivided into a great number of leſſer, called *members*, or *mouldings*: ſome whereof are eſſential, and found in all *columns*; others are only accidental, and found in particular orders.

Columns are different, according to the ſeveral orders they are uſed in, and likewiſe, not only with regard to their order, but alſo to their matter, conſtruction, form, diſpoſition, and uſe. With regard to order, we have the

COLUMN, *Tuſcan*, the ſhorteſt, and moſt ſimple, of all the *columns*. Its height, according to Vitruvius, Palladio, and Vignola, is ſeven diameters, or fourteen modules; according to Scamozzi, it is fifteen modules; to De Lorme, twelve; to Trajan's *column*, fifteen. Its diminution, according to Vitruvius, is one fourth of the diameter; according to Vignola, a fifth; and according to Trajan's *column*, a ninth. Its ſeveral parts, mouldings, &c. See under their proper heads; and the entire figure, ſee repreſented in *Tab. Architect. fig.* 24.

COLUMN, *Doric*, is ſomewhat more delicate; its ſhaft is adorned with flutings: its height according to Vitruvius, is from fourteen to fifteen modules; to Scamozzi, ſeventeen; to Vignola, ſixteen; in the Coliſeum, nineteen; in the theatre of Marcellus, fifteen two thirds. Its diminution, according to the theatre of Marcellus, twelve minutes; to the Coliſeum, four minutes and a half. See *Tab. Architect. fig.* 25.

COLUMN, *Ionic*, is more delicate ſtill; it is diſtinguiſhed from the reſt by the volute in its capital, and by its baſe. See VOLUTE.

Its height, according to Palladio, is ſeventeen modules one third; according to Vignola, eighteen: its diminution in the temple of Concord, ten minutes and a half; of Fortuna Virilis, ſeven and a half; Coliſeum, ten minutes. See *Tab. Architect. fig.* 26.

COLUMN, *Corinthian*, is the richeſt and moſt delicate of all the *columns*. Its capital is adorned with two rows of leaves, and with cauliculos; whence ſpring our little volutes.

Its height, according to Vitruvius, and many remains of antique porticos, temples, &c. is nineteen modules; according to Serlio, eighteen: to the Coliseum, seventeen and seven tenths; to the three *columns* in the Campo Vaccino, twenty; the basilica of Antoninus, twenty. Its diminution, according to the temple of Peace, is fix minutes and a half; the Pantheon, fix one eighth; temples of Sybil and Faustina, eight; Conftantine's arch, feven; portico of Septimius, feven and a half. See *Tab. Architect. fig.* 27.

COLUMN, *Compofite*, has two rows of leaves in its capital, like the Corinthian; and angular volutes, like the Ionic. See COMPOSITE.

Its height, according to Vignola, and the arch of Titus, is twenty modules; to Scamozzi, and the temple of Bacchus, nineteen and a half; the arch of Septimius, nineteen and nine tenths. Its diminution, according to Titus's and Septimius's arches, feven minutes; baths of Diocletian, eleven minutes one third; temple of Bacchus, fix and a half. See *Tab. Architect. fig.* 28.

An ingenious architect has furnifhed the editor with the following table, accommodated to the meafures of the moft approved architects for the four firft orders; and as the Compofite (which many will not allow to be a diftinct order) has the beft effect when put to the meafures of the Corinthian, the meafures may be fuppofed from thofe of that order.

		TUSCAN.		DORIC.		IONIC.		CORINTHIAN.	
		Altitude.	Projecture.	Altitude.	Projecture.	Altitude.	Projecture.	Altitude.	Projecture.
CORNICE.	Fillet,	3½	56	2½	56	2½	72	2½	74
	Cima Recta,	10		6½		7		6½	
	Fillet,	2	54½	1	48	1	64	1	66½
	Cima Reverfa,			3½		3½		3	
	Corona,	10	58½	8	64	8	80½	7½	63
	Ovolo,	9	42	6	39½				
	Fillet,	1½	32	1	33½			1	62
	Cymatium of the Modillions,						{ 55	2½	{ 61
	Modillion,					3	{ 53		{ 59
	Fillet,					7½	32	7½	40½
	Ovolo,					1½	37	1	40
	Fillet,					6	36	4½	34
	Dental,							1	36
	Fillet,							5½	35
	Ogee,					1	31½	1	34
	Cavetto,							4½	{ 31
	Capital of Triglipha,	7½	23½	5	31	5	27		{ 27
				5	30½				
	FRIEZE.	26	92½	45	26	27	34	28½	26
ARCHITRAVE.	Fillet,	5	27½	4½	28	2½	34	2½	34½
	Cima Reverfa,					4½	{ 33	5	{ 30
	Aftragal or Faffarole,						30	2	25½
	Third Facia,					10½	29	10	28
	Aftragal,					2	29	1	28
	Second Facia,	17½	24	14½	27	8½	27½	8½	27
	Aftragal,					1½	27½	1½	27
	Firft Facia,	12½	22½	11	26	6½	26½	6½	26
CAPITAL.	Ovolo,			1½					42
	Abacus, { Fillet,			2½	38½	1½	31½	1½	39
	Cavetto,							5½	
	Baſket Rim							2½	
	Cima Reverfa,			2½	{ 37½	3½	{ 30½		
	Abacus,	10	30	6½	35½		29		
	Volute, { Fillet or Rim,					1½			
	Chaw or Hollow,					5½			
	Ovolo,	10	29	6½	34½	7½	33		
	Aftragal,			1½	29½				
	Fillet,	1½	24½	1½	28½				
	Colorino,	8½	22½	10	26				
SHAFT.	Aftragal,	4	27	3½	30	3½	30	3½	32
	Fillet,	1½	24½	1½	28½	1½	28½	1½	28
	Body of Column,	334½	{ 27½	413½	{ 26	482½	{ 26	462½	{ 30
			{ 30		{ 30		{ 30		{ 30
	Fillet,	2½	33½	1½	33½	1½	33	1½	33½
	Aftragal,					2½	34½	2½	33½
BASE.	Torus,			5½	36½	5½	27	5½	37½
	Aftragal,							1½	35½
	Fillet,			1½	35	1½	34½	1½	34
	Scotia,			4½		4½		3½	
	Fillet,			1½	36½	1½	37	1½	37
	Aftragal,							1½	38½
	Torus,	12½	40	12½	40	7½	41½	7½	42
	Plinth,	15	40	10	40	10	41½	9½	42

It may be here obferved, that there feems more of caprice than reafon in that diverfity found in the heights of *columns* of the fame order, in different authors; each of whom frequently takes the liberty of difpenfing with his own rules. Vitruvius, for inftance, makes the Doric *columns* of temples fhorter than thofe of porticos behind theatres; Palladio gives a greater height to columns ftanding on pedeftals, than to thofe which have none; and Serlio makes his columns a third fhorter, when coupled or detached, than when contiguous to [illegible]. But notwithftanding [illegible] the fame order [illegible]

proportion in the several orders compared with each other; by which they go increasing, as the orders are less massive.

But this augmentation is greater in some ordonnances than in others: for in the antique it is but of five modules, or semidiameters, for the five orders; the thinnest *column*, that is, the Tuscan, being fifteen modules; and the largest, the Composite, twenty. In Vitruvius, this increase is also of five modules; but commences from fourteen modules, and ends at nineteen. The moderns usually make it greater: Scamozzi makes it five modules and a half; Palladio and Serlio, six.

From the several proportions of *columns* assigned by several authors, M. Perrault has drawn a new one, which is a mean between the extremes of the reſt. Thus, he makes the Tuscan *column* fourteen modules two thirds; which is a kind of mean between the Tuscan of Vitruvius, fourteen, and that of Trajan's *column*, eighteen: the height of the Doric *column* he makes fixteen modules; which is a mean between the fourteen of Vitruvius, and the nineteen of the Coliſeum: the Ionic he makes seventeen modules one third; which is a mean between the fixteen of Serlio, and the nineteen of the Coliſeum: the Corinthian *column* he makes eighteen modules two thirds; as being a medium between the fixteen modules six minutes of the temple of the Sybil, and the twenty modules fix minutes of the three *columns* of the Roman Forum; laſtly, the Compoſite *column*, by the ſame rule, he makes twenty modules; that height being a mean between the arch of Titus, and the temple of Bacchus.

Indeed, the rule by which he proceeds ſeems very reaſonable; viz. that the progreſſional advance of each *column* in the different orders is to be equal; ſo that having ſettled the whole progreſſion, from the Tuscan to the Compoſite, at five modules ten minutes; this being a mean between the five modules of the antique, and the five and the half of the moderns; he divides this ſum, which is one hundred and ſixty minutes, into four equal parts, giving forty minutes to the progreſſion of each order: this makes the Tuscan *column* fourteen modules twenty minutes; the Doric becomes fixteen; the Ionic ſeventeen ten minutes, the Corinthian eighteen twenty minutes, and the Compoſite twenty modules.

For the diſtinguiſhing characters of each order of *columns*, ſee ORDER. For the matter of *columns*, ſee STONE, MARBLE, &c. For their uſe and application, ſee BUILDING. For the ranging of *columns*, and the ſpaces to be obſerved between each, ſee INTERCOLUMNIATION.

COLUMNS, *different with regard to their matter.*

COLUMN, *ſolid*. Under this term are comprehended, not only *columns* of various metals, and other fuſible matters, as glaſs, &c. but alſo thoſe of ſtone, ſaid to have been caſt; the ſecret of which ſome will have us believe to have been known to the ancients.

COLUMN, *hydraulic*, is that whoſe ſhaft appears to be of cryſtal; being formed by a number of little threads of water, falling from holes made in a git of metal, at equal diſtances, by means of a pipe mounting through the middle thereof; as in the grottos at Verſailles.

COLUMN, *hydrauloc*, alſo denotes a *column* from whoſe top proceeds a *jet d'eau*, to which the capital ſerves as a baſon; hence the water deſcends by a little pipe, which turns ſpirally around the ſhaft. Such are the Ionic *columns* of the caſcade of the Belvidera at Frescati; and thoſe of the vineyard Matthei at Rome.

COLUMN, *muſſoid*, is that made by inſpiſſation, of gravel and ſtone of divers colours, which are bound together with a cement, which grows perfectly hard, and receives a poliſh like marble.

The ſecret of making theſe, it appears, the ancients were maſters of, by the *columns* lately diſcovered near Algiers; which are, doubtleſs, the ruins of the ancient Julia Cæſarea: on all theſe is found the very ſame inſcription in antique characters; the contours, accents, and even faults, being repeated in every ſhaft: an inconteſtible proof of their being moulded.

COLUMN, *tranſparent*, any *column* made of tranſparent matter: as were thoſe of cryſtal in the theatre of Scaurus, mentioned by Pliny; and thoſe of tranſparent alabaſter, in the church of St. Mark, at Venice.

COLUMN, *watery*, is a ſort whoſe ſhaft is formed of a large *jet d'eau*; which, ſpouting out water violently from the baſe, drives it within the cavity of the capital, which is made hollow; whence, falling down again, it has the effect of a liquid cryſtal *column*. See FOUNTAIN.

An inſtance of this we have at Quinta d'Arelio, near Lisbon.

COLUMN *of ſtands*, or *tambours*, that whoſe ſhaft is formed of ſeveral courſes of ſtone, or blocks of marble, leſs high than the diameter of the *column*: this is what Vitruvius means by *columna ſcapillis*, or *ſcapacea*; which is oppoſed to the *columna ſolida*, or *integra*, i. e. of one piece.

COLUMNS, *with regard to their conſtruction.*

COLUMN *of Joiners*, is that made of ſtrong timber-boards, joined, glued, and pinned together: it is hollow, turned in the lathe, and uſually fluted. Such are the *columns* in moſt altar-pieces.

COLUMN *of Maſons*, is made of rough ſtone, well laid and covered with plaiſter; or of bricks moulded triangular-wiſe, and covered with ſtucco.

COLUMN *in tranchions*, or pieces, conſiſts of three, four, or five pieces of ſtone, or metal; differing from the tambours, as being higher than the diameter of the *column*.

COLUMN, *generated*, that whoſe ſhaft is formed of three ſimilar and equal ſides, or ribs of ſtone, fitted within one another; and faſtened at bottom with iron pins, and at the top with cramp-irons. This is in be fluted, that the joints may be the leſs diſcernible.

COLUMN, *incruſtated*, is made of ſeveral ribs, or thin ſhells of fine marble, or ſome other rare ſtone, cemented upon a mould of ſtone, brick, or the like. This is done with deſign both to ſave the precious matter, as oriental jaſper, lapis lazuli, agat, &c. or to repreſent pieces of ſuch ſtones of an extraordinary ſize, by the neatneſs and cloſeneſs of the incruſtation, which renders the joints imperceptible.

COLUMN, *cabled*, or *rudented*, is a *column* having projections in form of cables, or canes, in the naked of the ſhaft; each cable having an effect oppoſite to that of the fluting; and accompanied with a little liſt on each ſide.

COLUMN, *curvilin*, that adorned with foliages, or leaves and branches turned ſpirally around the ſhaft; or in form of crowns and feſtoons.

Theſe were uſed by the ancients for erecting ſtatues on; which hence took the denomination of *curvilin*. They are very ſuitable in triumphal arches, and decorations of theatres.

COLUMN, *coloſſal*, a *column* of enormous ſize, too large to enter any ordonnance of architecture; to be placed ſolitary in the middle of a ſquare, &c.

Such is the Trajan *column*; whoſe proportions are Doriſh, as the Trajan *column*; whoſe proportions are Doriſh, as the Trajan *column*; whoſe proportions are Doriſh, as

COLUMN, *fluted and cabled*, is that whose flutes are filled up with cables, reeds, or staves; beginning from the bottom of the shaft, and reaching one third of its height.

COLUMN, *fluted, enriched*, is that whose flutings are filled up with ornaments, of foliages, rands, ribbons, &c. instead of cables.

COLUMN, *Gothic*, a round pillar, either too short for its bulk, or too slender for its height; as having, sometimes, twenty diameters; and this without either diminution, or swelling: yet its ornaments, and the characters of its work, being as far from those of the antique, as its proportions.

COLUMN, *Hermetic*, a kind of pilaster, in manner of a terme; having the head of a man, in lieu of a capital. It had its name from a cuftom, among the ancients, of placing Mercury's head, whom the Greeks call *Hermes*, at the top of *columns*.

COLUMNS, *massive*, are those too short for the order whose capital they bear; as the pillars in Gothic churches usually are. See MASSIVE.

Under the term *massive* are, likewise, frequently comprehended *rustic* and *Tuscan columns*.

COLUMN, *oval*, that whose shaft has a flatness; its plan being made oval, to reduce the projecture.

COLUMN, *pastoral*, that whose shaft is formed in imitation of the trunk of a tree, with bark and knots.

This kind of *column*, in the Tuscan proportion, may be used in the gates of parks and gardens; and in the decoration of pastoral scenes, &c.

COLUMN, *polygonous*, has several sides or faces: the most regular of these have eight faces.

Thefe, with the oval and cylindrical *columns*, Daviler regards as abufes in architecture.

COLUMN, *serpentine*, a *column* formed of three serpents, twifted together; the heads whereof serve as a capital.

An inftance of this is at Conftantinople, in the fquare called Atmeidan, anciently the Hippodrome. P. Gyllius calls this the *Delphic column*; as imagining it anciently ferved for the tripod of Apollo, in the temple at Delphos. It is now ordinarily called the *bofsman*, or *embroider's column*.

COLUMNS, *fwelled*, are thofe which have a bulging, or fwelling, in proportion to the height of the fhaft.

Authors are much divided on the fubject of this *fwelling*. Sir H. Wotton treats it as a moft ridiculous abufe: yet the practice obtains among the modern architects; who generally make their *columns* a little bigger at one third of their height, than at the bafe; i. e. they diminifh the *column* near the bafe, which makes the upper part appear big, and occafions a fwelling at about one third of the height.

This fwelling appears to have been unknown to the ancients. M. Le Clerc obferves, it ought not to exceed one minute and a half at moft. He thinks it ought never to be ufed, excepting where there is a particular occafion for it; as where *columns* are to be placed over one another.

COLUMN, *twifted*, is that whofe fhaft is twifted round, in manner of a ferpent, with fix circumvolutions; being, ordinarily, of the Corinthian order. Vignola firft found a method of drawing it by rule.

COLUMNS, *twifted fluted*, is that whofe flutes follow the contour of the fhaft, in a fpiral line throughout the whole length; wherein there are fome antique ones of porphyry, and hard marble.

COLUMN, *twifted and enriched*, is that, one third of whofe fhaft is fluted, and the reft adorned with foliages and other enrichments: and which, being all of marble, is enriched with fculpture from bottom to top.

Sometimes, again, the *twifted column* is formed of two or three flender ftalks, twifted round fo as to leave a cavity in the middle. Sometimes the flutings are fpiral, yet the fhaft ftraight; which fucceeds very well in the more delicate orders.

COLUMNS, *denominated from their difpofition*.

COLUMN *inferted*, or *backed*, is that let into a wall, a third or fourth part of its diameter.

COLUMN *niched*, is that whofe fhaft enters, with half its diameter, into a wall, which is hollowed for its reception; with its plane parallel to the projecture of the turé. Such is that in the portal of St. Peter at Rome.

COLUMN, *angular*, is an infulated *column*, placed in the coin, or corner of a portico; or inferted into the corner of a building: or even a *column* that ftands an angle, either acute or obtufe, of a figure of many fides.

COLUMN, *Attic*, according to Pliny, is a pilafter infulated, having four equal faces, or fides; and of the higheft proportion, v. g. Corinthian.

COLUMNS, *cantoned*, are thofe engaged in the four corners of a fquare pillar, to fupport four fprings of an arch.

COLUMNS, *coupled*, are thofe difpofed, by two and two, fo as almoft to touch each other at their bafes, and capitals.

COLUMN, *doubled*, is an aflemblage of two *columns*, joined in fuch a manner, as that the two fhafts penetrate each other with a third of their diameter. Such are thofe of the four angles in the court of the Louvre.

COLUMN, *flanked*, according to M. Blondel, is a *column* engaged with one half, or at leaft one third of its diameter, between two demi-pilafters.

COLUMNS, *grouped*, are thofe placed on the fame pedeftal, or focle; either by three and three, or by four and four.

COLUMN, *infulated*, is that ftanding free, and detached on all fides, from any other body.

COLUMN, *median*. Vitruvius gives the name *columna mediana* to the two *columns* in the middle of a porch, which have the intercolumniation larger than the reft: that if thefe laft, for inftance, be *pycnoftyle*, the *median* are *euftyle*.

The term may alfo be applied to the middle row of *columns*, in a frontifpiece adorned with three orders.

COLUMN, *Trajan*, a famous hiftorical *column*, erected in Rome, in honour of the emperor Trajan. See COLUMN, *celebrated*.

COLUMNS *denominated from their ufe*.

COLUMN, *aftronomical*, is a kind of obfervatory, in form of a very high tower; built hollow, and with a fpiral afcent to an armillary fphere placed at the top, for obferving the motions of the heavenly bodies.

Such is that, of the Doric order, erected at the Hotel de Soiffons, at Paris, by Catherine de Medicis, for the obfervations of Orontius Finæus, a celebrated aftronomer of that time.

COLUMN, *chronological*, that which bears fome hiftorical infcription, digefted according to the order of time; as by luftres, olympiads, faſti, epochas, annals, &c. At Athens there were *columns* of this kind, whereon were inferibed the whole hiftory of Greece, digefted into olympiads.

COLUMN, *funeral*, is that which bears an urn, where are fuppofed to be inclofed the afhes of fome deceafed hero; and whofe fhaft is fometimes overfpread with tears, or flames; which are fymbols of grief, and of immortality.

COLUMN, *gnomonic*, is a cylinder, wherein the hour of the day is reprefented by the fhadow of a ftyle.

Of thefe there are two kinds: in the one, the ftyle is fixed, and the hour-lines are no more than the projection of a vertical dial on a cylindrical furface.

In the other, the ftyle is moveable; and the hour-lines are drawn to the different heights of the fun, in the different feafons of the year. See DIAL.

COLUMN, *hiftorical*, is that whofe fhaft is adorned with a baſſo relievo, running in a fpiral line its whole length, and containing the hiftory of fome great perfonage. Such are the Trajan and Antonine *columns* at Rome.

Hiftorical columns may likewife be divided by bands, or tambours, into feparate baſſo relievos, containing diſtinct fubjects; by which means the fame *columns* may likewife be made to anfwer the end of chronological ones. This manner Vignola prefers to the former; which, he thinks, appears too much confufed.

COLUMN, *hollow*, that which has a fpiral ftaircafe within-fide, for the convenience of afcending to the top. As the Trajan *column*, the ftaircafe whereof conſiſts of one hundred and eighty-five ſteps, and is illumined by forty-four little windows.—The Antonine *column* has one hundred and ninety-eight ſteps, with fifty-fix windows; each of thefe is divided by tambours of white marble. The monument or fire-*column* at London, has alſo a ſtaircaſe; but it does not reach to the top. Thefe kinds of *columns* are called alſo *columnæ cochlides*, or *cochlitæ*. See MONUMENT.

COLUMN, *indicative*, that which ſerves to ſhew the tides, &c. along the ſea-coaſts. Of this kind there is one at Grand Cairo, of marble, whereon the overflowings of the Nile are expreſſed: by this they form a judgment of the ſucceeding ſeaſon: when the water, for inſtance, aſcends to twenty-three feet, it is a ſign of great fertility in Egypt.

COLUMN, *inſtructive*, that raiſed, according to Joſephus, lib. I. cap. 3. by the ſons of Adam, whereon were engraven the principles of arts and ſciences.

Baudelot tells us, that the ſon of Piſiſtratus raiſed another of this kind, of ſtone; containing the rules and precepts of agriculture.

COLUMN, *itinerary*, a *column* with ſeveral faces, placed in the croſs-ways in large roads; ſerving to ſhew the different routes, by the inſcriptions thereupon.

COLUMN, *lactary*, at Rome, according to Feſtus, a *column* erected in the [illegible] place Montanara.

wherein young children, abandoned by their parents, out of poverty, or inhumanity, were exposed, to be brought up at the public expence.

COLUMN *legal*. Among the Lacedæmonians, there were *columns* raised in public places, whereon were engraven the fundamental laws of the state.

COLUMN, *limitrophus*, or *boundary*, is that which shews the limits of a kingdom, or country conquered. Such was that, which Pliny says Alexander the Great erected at the extremities of the Indies.

As to those of Hercules, ordinarily called his *columns*, or *pillars*: they are two very steep mountains in the straights of Gades, now Gibraltar.

COLUMN, *luminous*, is a sort of *column* formed on a cylindrical frame, mounted and covered over with oiled paper, or gauze; so that lights being disposed in ranks within, over each other, the whole appears as on fire.

This sort of *column* is likewise made with rows of lamps, or torches, running round its shaft; either in horizontal belts or bands; or in a spiral line, over a continued festoon of flowers.

COLUMN, *monitory*, from the Latin *monibia*, *spoils of the enemy*; a *column* adorned with trophies, built in imitation of trees, whereon the spoils of enemies were anciently hung.

COLUMN, *memorial*, that raised on occasion of any remarkable event; as the monument in London, built to perpetuate the memory of the burning of that city, in 1666. It is of the Dorie order, fluted, hollow, with a winding staircase; and terminated at top with waving flames. See MONUMENT.

There is also another of the like kind, in form of an obelisk, on the banks of the Rhine in the Palatinate, in memory of the famous passage of that river, by the great Gustavus Adolphus, and his army.

COLUMN, *mænia*, any *column* which supports a balcony, or mænians. The origin of this kind of *column*, Suetonius and Asconius refer to one Mænius; who, having sold his house to Cato and Flaccus, consuls, to be converted into a public edifice, reserved to himself the right of raising a *column* without-side, to bear a balcony; whence he might see the shows.

COLUMN, *military*, was a *column* of marble, raised by order of Augustus, in the middle of the Roman Forum; from whence, as a centre, the distances of the several cities, &c. of the empire were reckoned, by other *military columns* disposed at equal distances, on all the grand roads. This *column* was of white marble; the same with that which is now seen on the balustrade of the perron of the Capitol at Rome. Its proportion is mulliver; being a short cylinder, supporting a symbol of the globe of the earth.

It was called *miliarium aureum*, as having been gilt, at least the ball, by order of Augustus. It was restored by the emperors Vespasian and Adrian; as appears by the inscriptions.

COLUMN, *military*, among the Romans, a *column* whereon was engraven a list of the forces in the Roman army, ranged by legions, in their proper order; with design to preserve the memory of the number of soldiers, and of the order observed in any military expedition.

The Romans had another kind of *military column*, which they call *columna bellica*, standing before the temple of Janus: at the foot whereof the consul declared war, by throwing a javelin towards the enemies countries.

COLUMN, *pharophorical*, a *light-house*; or a hollow *column* built on a rock, or the tip of a mole, or other eminence, to serve as a lantern to a port.

COLUMN, *rostral*, that adorned with the beaks or prows of ships, and galleys, with anchors and grapplers; erected, either in memory of a naval victory; as the Tuscan *column*, in the Capitol: or, in honour of some admiral, as the Dorie one, at the entrance of the caſtle de Richelieu.

COLUMN, *sepulchral*, anciently, was a *column*, erected on a tomb or sepulchre; with an inscription on its base. See TOMB, &c.

Those over the tombs of persons of distinction were very large: those for the common people small: these last are called *stelæ* and *cippi*.

COLUMN, *statuary*, that which supports a statue. Such was that erected by pope Paul V. on a pedestal before the church of St. Maria Major at Rome; to support a statue of the Virgin, which is of gilt brass. See STATUE.

This *column* was dug up in the temple of Peace; its shaft is a single block of white marble, forty-nine feet and a half high, and five feet eight inches diameter; of the Corinthian order, fluted.

The term *statuary column*, may likewise be applied to Caryatides, Persians, Termini, and other human figures; which do the office of *columns*; and which Vitruvius called *Telamones* and *Atlantes*.

COLUMN, *symbolical*, is a *column* representing some particular country, by the attributes proper thereto; as that of the French order, for with fleurs-de lys, as the frontispiece of the Jesuits church at Rouen: or some memorable action; as the *Corvinian column*, on which was a crow, erected to Valerius Maximus, surnamed Corvinus, in memory of his defeat of a giant in the army of the Gauls, by the assistance of a crow.

Under the title of *symbolic columns* may also be comprehended those which serve for symbols. Such is that on a medal of Nero, which expresses the stability of the Roman empire. See SYMBOL.

COLUMN, *triumphal*, a *column* erected among the ancients in honour of a hero; the joints of the stones, or courses whereof, were covered with as many crowns, as he had made different military expeditions.

Each crown had its particular name: as vallaris, which was beset with spikes, in memory of having forced a palisade: muralis, adorned with little turrets, or battlements; for having mounted an assault: navalis, of prows and beaks of vessels; for having overcome at sea: obsidionalis, or graminalis, of grass; for having raised a siege: ovans, of myrtle; which expressed an ovation or little triumph: and triumphalis, of laurel; for a grand triumph.

Procopius tells us of a *column* of this kind, erected in the place called Augustæum, before the imperial palace of Constantinople, supporting an equestrian statue of the emperor Justinian.

COLUMN, *trophoric*, a kind of statuary *column*, whereon is placed a figure of some animal. Such is one of the two *columns* of the great gate of Venice; whereon is the lion of St. Mark, and the arms of the republic: or that at Sienna, which bears the wolf that suckled Romulus and Remus.

COLUMN, *scenography of a*. See SCENOGRAPHY.

COLUMN, in *War*, denotes a deep file, or row of troops; or division of an army, which marches at the same time, and towards the same place, at intervals large enough to avoid confusion.

An army marches in one, two, three, or more *columns* according as the ground will allow, and the general sees expedient.

The word is sometimes also used in speaking of vessels at *sea*, following each other in the same line.—It is difficult to form *columns* at sea, unless the wind be in them.

COLUMN, among *Printers*, is half a page, when the page is divided into two parts, from top to bottom. See PRINTING.

COLUMNA *nasi*, is used by some writers of anatomy, for the fleshy end of the NOSE, jutting out over the upper lip.

COLUMNA *oris*, is sometimes used for the UVULA.

COLUMNÆ *carneæ*, in *Anatomy*, called also *lacertuli*, and *columnæ cordis*, are several small muscles in the ventricles of the heart; derived, and, as it were, detached from the parietes of those ventricles, and connected by tendinous extremities to the valves of the heart.

These little *columns*, or pillars, being fastened to the parietes of the heart on one side, and the tricuspid and mitral valves on the other, do, by their contraction in the systole of the heart, draw out the valves; and by that means, not only shut the orifices of the veins, but more exactly close their ventricles in their systole.

COLUMNAR *marble*. See BASALTES.

COLUMNARIS, in *Botany*, a name given by some to the tall, milky bell-flower; the *campanula latifolia*. German. Ind. 1.

COLUMNARIUM, in *Roman Antiquity*, a heavy tribute, demanded for every pillar of a house. It was first laid on by Julius Cæsar, in order to put a stop to the extravagant expences laid out on sumptuous buildings.

COLUMNEA, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower hath one petal, of the singent or grinning kind, with a swelling tube, divided above into two lips; the upper erect and entire; the lower divided into three parts which spread open: it hath four stamina, two longer than the other; these are enclosed in the upper lip. In the centre is situated a roundish germen, which afterwards becomes a globular berry, with two cells, sitting in the empalement, containing several oblong seeds. We know but one species, which grows naturally in the warmest parts of America.

COLUMNELLA, *little column*, in *Botany*, denotes the substance that passes through the capsule, and connects the several partitions and seeds.

COLUMNIATED *winding staircase*. See STAIRS.

COLUMNIFERI, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

COLURES,

COLURES, in *Geography* and *Astronomy*, are two great circles, imagined to intersect each other at right angles, in the poles of the world.

The word is derived from κόλος, *mutilus*, or *truncatus*, and ὤρα, *tail*; q. d. *appearing with the tail cut off*; because never seen entire above the horizon.

The *solstitial colure*, one of them through the solstitial, and the other through the equinoctial point of the ecliptic: whence the first is denominated the *solstitial*, and the second the *equinoctial colure*.

The equinoctial *colure* determines the equinoxes; and the solstitial, the solstices.

By thus dividing the ecliptic into four equal parts, they also mark the four seasons of the year.

It is disputed over what part of the back of Aries the equinoctial *colure* passed in the time of Hipparchus. Sir Isaac Newton, in his Chronology, takes it to have been over the middle of the constellation. Father Souciet insists on its having passed over the duodecimedium of Aries, or midway between the rump and first of the tail. We have some observations, in the Philosophical Transactions, N° 466, concerning the position of this *colure* in the ancient sphere, from a draught of the constellation Aries, in the Arateæ published at Leyden and Amsterdam, 1652, which seem to confirm sir Isaac's opinion; but the antiquity and authority of the original draught may still remain in question. See CHRONOLOGY.

COLUTEA, in *Botany*. See *Bladder Senna*.

COLYBA, or COLYBUS, a term in the *Greek Liturgy*, signifying an offering of corn, and boiled pulse, made in honour of the saints, and for the sake of the dead.

Balsamon, P. Goar, Leo Allatius, and others, have written on the subject of *colyba*: the substance of what they have said, is as follows.

The Greeks boil a quantity of wheat, and lay it in little heaps on a plate; adding beaten pease, nuts cut small, and grape-stones, which they divide into several compartments, separated from each other by leaves of parsley. A little heap of wheat, thus seasoned, they call κόλυβα.

They have a particular formula for the benediction of the *colyba*: wherein, praying that the children of Babylon may be fed with pulse, and that they may be in better condition than other people, they desire God to bless those fruits, and those who eat them, because offered to his glory, to the honour of such a saint, and in memory of the faithful deceased. Balsamon refers the institution of this ceremony to St. Athanasius; but the Greek Synaxary to the time of Julian the Apostate.

Many of the Latin divines having spoken injuriously of this ceremony, Gabriel, archbishop of Philadelphia, has written a discourse in its vindication: wherein he endeavours to shew that the *colyba* is only to represent the resurrection of the dead, and to confirm the faithful in the belief thereof. The *colyba*, he says, are symbols of a general resurrection; and the several ingredients added to the wheat, signify so many different virtues.

COLYMBIS, in *Ornithology*, a name given by Bellonius to a species of duck, remarkable for a large tuft of feathers behind its head, and thence called by us the tufted duck, and known among authors by its Venetian name CARO negro. See DUCK.

COLYMBUS, the *diver*, in the Linnæan system of *Ornithology*, the name of a distinct genus of birds, of the order of the *anseres*. See DIVER.

COLYTEA, in *Botany*, is used by some to denote the *arbor Judæa*, or SILIQUASTRUM.

COMA, in *Medicine*, a sort of sleepy disease, otherwise called *catapbora*; always bringing on a violent propensity to sleep, whether sleep ensue, or not.

If sleep do ensue, the disease is called *coma somnolentum*, wherein the patient continues in a profound sleep; and when awaked, immediately relapses, without being able to keep open his eyes. If he does not sleep, but is continually awaked with frightful dreams, it is called *coma vigil*: in this case also his eyes are shut, and he appears asleep.

The cause of the *coma somnolentum* may be any thing that presses the cortex of the spirits; as a cold humid temperature of the brain; hot putrid vapours ascending into the head, and stopping the canals of the animal spirits; narcotic vapours, &c. The *coma vigil* is supposed to arise from the conflict, or jarring mixture of bile with pituita; the one urging to sleep, the other to waking. Hence the patient sleeps either not at all, or, at most, but for a moment; is uneasy, starts, rises up, and sometimes throws himself on the person near him; his eyes continuing all the time fast closed.

The remedies for a *coma*, are those which occasion great evacuations, as violent clysters, or vomitives; medicines that purge, and dry the brain; and those which occasion revulsion of humours, as vesicatories, cauteries, &c. to which may be added volatile spirits, salts, and mother-phisics. See LETHARGY.

The natural process of death is described by physicians by the following words in the following order; *Anxietas, convulsio, coma, mors*.

COMA, in *Botany*, a species of fulcra, composed of large bracteæ in form of a brush of hair, which terminates the stalk.

COMA AUREA, in *Botany*. See GOLDY locks.

COMA BERENICES, *Berenice's Hair*, in *Astronomy*, a modern constellation of the northern hemisphere; composed of unformed stars between the Lion's tail, and Bootes.

This constellation is said to have been formed by Conon, an astronomer, in order to confole the queen of Ptolemy Euergetes, for the loss of a lock of her hair, which was ſtolen out of the temple of Venus, where ſhe had dedicated it on account of a victory obtained by her husband. Riccioli, Almag. lib. ix. cap. 4.

The ſtars in the conſtellation *Coma Berenices*, in Tycho's Catalogue, are fourteen; in Hevelius's, twenty-one; and in the Britannic Catalogue, forty-three. The order, names, longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and ſituations of the ſtars.	Signs	Degrees	Longit.	Latitude.	Magnitudes.
			° ′ ″	° ′ ″	
	♍	10	53 32	21 36	7
			17 44	20 2 11	6
			21 14	30 16 27	0 6
			17 21	15 24 41	23 6
			19 56	6 19 19	7 6
5.					
			25 16	44 15 53	51 5
First of all in the circle of the hair, to the ſouth.	♎		19 18	10 23 28	33 4.5
			20 24	1 23 56	37 7
			17 30	32 27 34	35 6
			17 59	30 27 31	36 6
10.					
Third of the prec. from the cuſp. or point.	♌		23 5	51 18 19	51 3.5
			19 41	40 23 43	31 5
Second of the preced.	♌		20 2	23 20 11	47 4.5
That preced. to the cuſp.	♌		19 55	40 38 22	54 3.5
In the cuſp. towards the north.	♌		9 32	24 28 24	4 4.5
15.					
That under this.	♌		20 16	50 17 6	50 4.5
That following this.	♌		21 10	22 20 29	21 6.5
Firſt of three contiguous ones behind this.			22 9	44 24 54	50 5
			20 41	32 20 36	5 6
			23 45	21 22 2	38 6
20.					
Middle of the contiguous ones.	♌		22 18	12 25 29	10 5
Subſequent, and laſt.			23 1	45 25 29	21 7
Another following all theſe, and more ſouth.	♌		24 7	24 7 9	4
That preceding ſeveral under the hair.			26 7	25 10 17	57 5
			27 6	40 29 19	12 6
25.					
			25 48	38 23 8	10 5
			29 36	40 19 48	42 5
	♎	1	10	52 7 12	57 6
		1	10	30 17 48	0 5
		♍	24 57	52 29 58	24 6
30.					
Preced. in the hair.			25 30	22 30 12	24 4.5
	♎	0	30	32 20 49	4 7
		0	40	9 20 51	56 7
More ſouth in the hair.	♍	25	59	38 30 3	31 5
		28	59	44 24 48	12 4.5
35.					
	♎	2	3	32 21 46	36 5
	♍	25	43	43 3 46	36 5.6
	♎	2	42	21 21 45	14 6
		2	5	7 25 55	56 5
		1	22	55 27 14	39 6
40.					
Former of two at the extremity of the hair.	♍	22	2	42 51 49	41 5.4
	♎	4	38	31 22 59	12 4.5
Poſterior in the extremity of the hair.		0	6	31 32 28	33 5.6

All theſe ſtars Ptolemy ranks among the *informes* of Leo: and the cluſter of little ſtars, in form of a nebulous one, between the Lion and Bear, he calls ſimply ΠΛΟΚΑΜΟΣ; as reſembling an ivy leaf: the pointed part whereof is turned towards the north, and the ſides bounded by the ſeventh and twenty-ſecond ſtars. Bayer, inſtead of hair, gives a ſheaf of corn.

COMARCHIOS, in [illegible] air, or tune, [illegible]

COMARIS, in *Lithology*, a name given by the Greek writers to the SELENITES, *or aphroselene*.

They call this stone also *euphrosine*.

COMARUM, *Marsh cinquefoil*, in *Botany*, a genus of the *icosandria polygynia* class. Its characters are these: the flower hath five oblong petals, which are inserted in the empalement, but are much smaller. It hath twenty permanent stamina, which are inserted into the empalement; and a great number of small roundish germins collected into a head. The common receptacle afterward becomes a large fleshy fruit, having many pointed seeds adhering to it. We know but one species of this plant, which grows naturally in bogs.

COMB, an instrument made of horn, ivory, &c. and used for separating and adjusting the hair, &c.

COMB, in *Husbandry*, a measure of corn, containing four Winchester bushels: in some places the bushel contains eight gallons and a quart.

COMB, in *Natural History*, the crest, or red fleshy tuft growing on the head of a cock.

COMB, in a ship, a little piece of timber set under the lower part of the beak-head, near the middle: it has two holes in it, and supplies to the fore-tacks, what the chess-trees do to the main-tacks; that is, to bring the main-tacks aboard.

COMB, in the *Manufacture of Tapestry*. See TAPESTRY.

COMB, *Ladies*, or *Venus's* COMB, the name of a distinct genus of plants, called by Tournefort SCANDIX.

COMB-*fish*, *pecten*, in *Ichthyology*. See PECTEN.

COMBARONES, in *Antiquity*, the fellow-barons or commonalty of the Cinque-Ports.

COMBAT, in a general sense, denotes an engagement; or a difference decided by means of arms.

Authors sometimes distinguish in an army, between a *combat* and a battle; the latter expressing the general notion of the whole army; the former only a particular skirmish, or engagement of a single part: so that the *combat* is properly a part of a BATTLE.

COMBAT, in *Law*, or *single combat*, denotes a formal trial, between two champions, of some doubtful cause or quarrel, by the sword, or batoons.

This form of proceeding was anciently very frequent, particularly among the barbarous nations in their original settlements; and obtained not only in criminal, but also in civil causes: being built on a presumption, that God would never grant the victory, but to him who had the best right. It was originally permitted, in order to determine points respecting the reputation of individuals, but afterwards became much more extensive. See DUEL. The form and ceremony of the *combat* are described in the grand Coutumier of Normandy. The accuser, first, swore to the truth of his accusation; the accused gave him the lye; upon which, each threw down a gage, or pledge of battle; and the parties were committed prisoners to the day of *combat*. See CHAMPION.

Historians tell us, that Alphonsus, king of Castile, in the eleventh century, desiring to abolish the Mosarabic liturgy, and to introduce the Roman office; the people opposing it, it was agreed to terminate the difference by *combat*, and leave the cause to the decision of Heaven. One of the earliest reflections of this practice that occurs in the history of Europe, is that of Henry I. of England; which was afterwards followed by an edict of Louis VII. of France to the same effect. Robertson's Hist. of Charles V. vol. i. p. 61, &c. and 330, &c. &c.

COMBAT is also used for the solemn games of the ancient Greeks and Romans, performed in honour of their gods: as the Olympic games, Pythian, Isthmian, and Nemean games; the bull Actiac, Circenses, &c. which see in their places. OLYMPIC, ISTHMIAN, &c.

The *combats* here celebrated, were *running*, *wrestling*, *boxing*, *quoits*, &c. The combatants, who were called *athletæ*, prepared themselves for it from their youth, by constant exercise, and a very rigid regimen: they only eat certain things, and at certain hours; drank no wine; had no commerce with women; and both their labour and their rest were regulated.

COMBATANT, in *Heraldry*, a term for two beasts, as lions or hounds, borne in a coat of arms in a fighting posture, erect on their hinder feet, and affronted, or with their faces toward each other.

COMBER, in *Ichthyology*, a species of fish in Cornwall, of a slender form, with red back-fins, and tail; yellow belly; a smooth, even stripe from gills to tail, of a lily-very colour; and a round tail. Barr. Syn. 163. fig. 5.

COMBINATION, is properly understood of an assemblage of several things by two and two: but is more particularly used in *Algebra* and *Arithmetic* to denote the variation, or alternation of any number of quantities, letters, sounds, or the like, in all the different manners possible.

P. Mersenne gives us the *combination* of all the notes and sounds in music, so as to forty-four; the sum whereof amounts to thirty figures, or places.

The number of possible *combinations* of the twenty-four letters of the alphabet, taken first two by two, then three by three, &c. according to Mr. Prefet's calculation amounts to 1391724128887252399045515849402200. The words in the following verse may be combined a thousand twenty-two several ways.

Tot tibi sunt dotes, virgo, quot sidera cœlo.

F. Truchet, in the Memoirs of the French Academy, shews, that two square pieces, each divided diagonally into two colours, may be arranged and *combined* sixty-four different ways, so as to form as many different kinds of chequer-work, which appears surprising enough, when one considers that two letters, or figures, can only be combined twice.

This rule may be of use to masons, pavioors, &c. See PAVEMENT, and CHANGES.

COMBINATION, *doctrine of.—Any number of quantities being given, together with the number in each* combination; *to find the number of* combinations.

One quantity, we observe, admits of no *combination*; two, *a* and *b*, of one; of three, *a*, *b*, *c*, there are three *combinations*, viz. *a b*, *a c*, *b c*; of four, *a*, *b*, *c*, *d*, *a b*, *a c*, *a d*, *b c*, *b d*, *c d*; of five, ten, *a b*, *a c*, *a d*, *a e*, *b c*, *b d*, *b e*, *c d*, *c e*, *d e*.

Whence it appears, that the number of *combinations* proceed as 1, 3, 6, 10, &c. i. e. are triangular numbers, whose side differs by unity from the number of given quantities: if that, *v. gr.* be 5, the 6th of the number of *combinations* will be 5—1; and therefore the number of *combinations* $\frac{5-1\times 5-0}{1\quad 2}$. See TRIANGULAR *number*.

If three quantities are to be combined, and the number in each *combination* be three, there will be only one *combination*, *a b c*; if a fourth be added, the *combinations* will be found *a b c*, *a b d*, *a c d*, *b c d*; if a fifth, ten, *a b c*, *a b d*, *a b e*, *a c d*, *a c e*, *a d e*, *b c d*, *b c e*, *b d e*, *c d e*; if a sixth, twenty, &c. The numbers of *combinations*, therefore, proceed, as 1, 4, 10, 20, i. e. they are the first pyramidal triangular numbers, whose sides differ by two units from the number of given quantities. See PYRAMIDAL *number*. Hence, if the number of given quantities be *q*, the side will be *q*—2; and therefore, the number of *combinations*, $\frac{q-2\times q-1\times q-0}{1\quad 2\quad 3}$.

Hence is easily deduced a general rule for determining the number of *combinations* in any case: for, suppose the number of quantities to be combined, *q*, the exponent of the *combination* *n*, the number of *combinations* will be $\frac{q-n+1\times q-n+2\times q-n+3\times q-n+4\times q-n+5}{1\quad 2\quad 3\quad 4\quad 5}$ &c. till the number to be added be equal to *n*.

Suppose, *v. gr.* the number of quantities to be combined $=6$, the exponent of the *combination* 4: the number of *combinations* will be $\frac{6-4+1\times 6-4+2\times 6-4+3\times}{1\quad 2\quad 3}$ $\frac{6-4+4=6-3\times 6-2\times 6-1\times 6-0}{4\quad 1\quad 2\quad 3\quad 4}=\frac{3}{1}\times\frac{4}{2}\times\frac{5}{3}$ $=15$.

Corol. If it be desired to have all the possible *combinations* of the given quantities beginning with the *combinations* of the several two's, proceeding to three's, &c. there must be added $\frac{q-1\times q-0}{1\quad 2}+\frac{q-2\times q-1\times q-0}{1\quad 2\quad 3}+\frac{q-3\times}{3\quad 4}$ $\frac{q-2\times q-1\times q-0}{2\quad 3\quad 4}$, &c.

Whence the number of *combinations* possible will be $\frac{q\times q-1+q\times q-1\times q-2+q\times q-1\times q-2\times q-3+q}{1\quad 1\quad 1\quad 2\quad 3\quad 1\quad 2\quad 3\quad 4\quad 1}$ $\times\frac{q-1\times q-2\times q-3\times q-4}{2\quad 3\quad 4\quad 5}$, &c. which is the sum of the units of the binomial, raised to the power *q*, and abridged of the exponent of the power increased by unity, $q+1$. Wherefore, if $1+1=2$ represents the binomial to which these units belong, 2^q-q-1 is the number of all the possible *combinations*. *V. gr.* If the number of quantities be 5, the number of possible *combinations* will be $2^5-5-1=32-6=26$.

2. *The number of quantities being given, to find the number of changes and alterations, which those quantities, combined in all the manners possible, can undergo.*

Suppose two quantities, *a* and *b*: their variations will be 2; consequently, as each of those may be combined, even with itself, to these there must be added two variations. The whole number, therefore, will be $2+2=4$. If there were three quantities, and the exponent of the variation were 2, the *combination* will be 3, and the changes 3; to which if the three *combinations* of each

quantity with itself $a a$, $b b$, $c c$, be added, we shall have the number of changes, $3+3+3=9$.

In like manner, it is evident, if the given quantities were 4, and the exponent 2, the number of changes would be 16; if 5, 25, &c. in general, if n, n^2.

Suppose the quantities 3, and the exponent of variation 3; the number of changes is found $27=3^3$; viz. $a a a$, $a a b$, $a b a$, $a b b$, $b a a$, $b a b$, $a c a$, $a c c$, $a b c$, $b a c$, $b c a$, $a c b$, $c b a$, $c a c$, $c c a$, $b b c$, $b c b$, $b b b$, $c b b$, $b c b$, $b c c$, $c b c$, $c c c$.

After the same manner, it will appear, if the quantities were 4, and the exponent 3; the number of changes would be $64=4^3$; and, in general, if the number of quantities be $=n$, and the exponent 3, the number of changes will be n^3. By thus proceeding, it will be found, that if the number of quantities be n, and the exponent n, the number of changes will be n^n: wherefore if all the antecedents be added, where the exponent is less, the number of possible changes will be found $n^n+n^{n-1}+n^{n-2}+n^{n-3}\ldots+n^3+n^2+n^1$, &c. Till at length the number subtracted from n leaves 1; because the beginning is from single quantities taken once.

Since then the number of possible changes is in a geometrical progression, whose first or smallest term is n^1, the greatest n^n, and the ratio n; it will be $=\frac{n^n+1-n}{n-1}$.

Suppose, v. gr. $n=4$, the number of possible changes $\frac{4^5-4}{4-1}=\frac{1020}{3}=340$. Suppose, again, $n=24$, the number of possible changes will be $\frac{24^{25}-24}{24-1}=$ 32009658644406819868777955348272600 + 23 = 1391724218887357999925128493402200. In so many various manners, therefore, may the twenty-four letters of the alphabet be varied and combined among themselves.

COMBINATION, in *Chemistry*, denotes the union of two bodies of different natures, from which a new compound body results. An acid united with an alkali furnishes an instance of *combination*. See AFFINITY.

COMBINATIONS, in *Law*. *Combinations* to do unlawful acts are punishable before the unlawful acts are executed: this is to prevent the consequences of *combinations* and conspiracies, &c. 9 Rep. 57.

COMBINATORY *distillation*. See DISTILLATION.

COMBINATORY *music*. *Musica combinatoria*, that part of music which teaches the manner of combining sounds variously; that is, of changing their place and figure in different manners. See MUSIC.

COMBING *of wool*, in *Commerce*, the drawing or pulling wool across the teeth of a kind of card, called a *comb*, to dispose it for spinning.

COMBRETUM, *in botany*, a genus of the *decandria monogynia* class; the characters of which are, that the calyx is bell-shaped, and separated into four horizontal points: the corolla has four petals inserted in the calyx: the stamina are very long: and the seed is single and quadrangular. There are two species.

COMBS *of bees*. See HONEY-COMB.

COMBURENDO *haretica*. See HERETICO.

COMBUST, in *Astronomy*. When a planet is in conjunction with the sun, or not distant from it above half their disk; it is said to be *combust*, or in COMBUSTION. According to Argol, a planet is *combust* or in *combustion*, when not above eight degrees and thirty minutes distant from the sun, either before or after him.

COMBUSTIO *personæ*, the ancient way of trying mixed and corrupt money, by melting it down, upon payments into the Exchequer. In the time of king Henry II. a constitution was made, called the trial by *combustion*; the practice of which differed little or nothing from the present method of assaying silver. But whether this examination of money by *combustion* was to reduce an equation of money only of sterling, viz. a due proportion of alloy with copper, or to reduce it pure fine silvery does not appear. On making the constitution of trial it was considered, that though the money did answer *numero et ponderi*, it might be deficient in value; because mixed with copper or baser, &c. Vide Lowndes's Essay upon Coin. p. 5.

COMBUSTION, in *Chemistry*, denotes the decomposition of bodies by the action of fire, or the disengagement of the phlogiston or inflammable principle contained in them, from the union of which in larger or less quantities, or in various degrees of combination, they are said to be more or less *combustible*. The more *combustible* bodies are either such as possess a large quantity of phlogiston in an oily state, and burn with a bright flame, accompanied with smoke and soot; as wood, dry vegetables, resins, oils, and fat: or such, in which the inflammable principle is not in an oily state, nor intimately combined, which flame is less luminous, and unattended with smoke and soot; of this kind are spirit of wine, sulphur, phosphorus, charcoal, some metallic substances, and particularly zinc. The less *combustible* bodies are those in which a smaller quantity of phlogiston is strongly combined with incombustible principles, and which burn with difficulty, and without any sensible flame: such are some animal coals, soot, ashes of vegetables, and imperfect metals. *Combustion* requires free access of air; and the process is more rapid and complete as the contact of the burning body with air is more immediate and entire. Macquer.

See AIR, CALCINATION, FIRE, and PHLOGISTON.

COME. The final tones or tails of notes, upon its first sheeting forth, is thus called.

COME *sopra*, in the *Italian Music*, literally signifies *as above*, and is used when any foregoing part is to be repeated.

COMEDONES, a name given to a species of worm, with which the children of Misnia, and some other countries, are terribly afflicted; and of which Hoffman, in his Treatise of Endemial Diseases, gives this account: children in the country, are frequently seized with a sort of tabes, which so destroys their flesh, that they appear merely like shadows. The common people generally suppose these children to be under the influence of witchcraft; but such as have enquired more narrowly into the distemper, have found that it is owing to worms, which resemble black hairs, or cords, lodged under the skin. When the skin is rubbed with honey, in a bath, or any warm place, they will appear and come out; but when it is contrasted by cold, they keep concealed within. See AFFECTIO *taenia*, and DRACUNCULI.

COMEDY, in its proper sense, a dramatic piece, representing some agreeable and diverting transaction: or an allegorical representation of something in private life, for the amusement and instruction of the audience.

There are those who derive the word *comedy* from *comus*, and who suppose that *comedies* is the same with *cantus comitis*. This etymology appears to be the better founded, in that the first farces were exhibited at feasts, which have been since improved to *comedies* in their present form.

In this sense, *comedy* is opposed to *tragedy*, the subjects whereof are grave, and the persons of higher rank.

Boileau defines *comedy*, a dramatic poem, very lively, pleasant in the conclusion, and written in a popular style. Aristotle calls it an imitation of the worst, or, rather, of the lowest class of persons, by way of ridicule. This definition Corneille finds fault with, and maintains, that the actions of kings themselves may enter *comedy*; provided they be such as are not very momentous, nor attended with any considerable danger. He adds, that a poem, wherein the greatest peril is the loss of a mistress, has no right to any higher appellation than that of *tragedy*: but then he makes a distinction in *comedies*, and dignifies those where great personages are introduced, with the epithet of *heroic comedies*, to distinguish them from the ordinary ones. Mr. Congreve seems pretty much of the same sentiment: he understands Aristotle's definition as meant of the worst men; on which foundation it is sufficient to constitute a *comedy*, that the action represented be that of some ill men brought on the stage to be exposed.

M. Dacier is of a contrary opinion: he maintains, that *comedy* allows of nothing grave, or serious, unless it be turned to ridicule; and that raillery and ridicule are its only proper and genuine characteristics: in which opinion he is warmly seconded by Mr. Dennis.

Thus different are critics and comic authors in their sentiments on the nature of *comedy*; some shillingwit it from tragedy by the lowness of the subject; others by the ridiculous light it is set in.

The accurate P. Bossu fixes the notion of *comedy* much better: according to that critic, *comedy* differs from tragedy in this, that the comic writer invents both the names of his persons, and the action which he presents; whereas the tragic writers only invent the latter, the former they are to take from history. See ACTION.

Upon the whole, *comedy* may be defined an image, or representation of the ordinary life of men: it exhibits their common actions and passions; exposes and ridicules their failings, to preserve the spectators from them or to correct them. Cicero defines it the imitation of life, the mirror of custom, and the image of truth.

There is a dispute among critics, whether *comedy* be a poem, or a mere conversation? They who maintain the latter, contend, that a poem is a discourse in verse: P. Bossu insists on the former, and thence that *comedy* has its fable, or allegory, with [illegible] essential to poetry.

Comedy

Comedy and tragedy were originally one and the same thing: their common origin lie under TRAGEDY.—M. Boileau says, *comedy* took its rise at Athens, from the happy issues or conclusions of tragedies. On this principle, the catastrophe should have been the proper criterion, or distinguishing mark between tragedy and *comedy*; and all other differences only accidental.

After the grave and serious became separated from the ridiculous, and tragedy and *comedy* were become two distinct arts, people applied themselves to cultivate the former and neglected the latter; so that *comedy* continued in its infancy, with little improvements, while tragedy grew up to a perfect art: this once arrived at its height, they began to think of cultivating *comedy*.

With regard to the various changes and revolutions *comedy* has undergone, it is commonly distinguished into three kinds; viz. the *ancient*, wherein there was nothing feigned; the *middle*, where the subject was real, but the names fictitious; the *new*, where both names and things are fictitious.

The *ancient* was that first in use, when the supreme power was in the hands of the people; and when, on that account, the poets were at their full liberty to say what they pleased, and of whom they pleased; by name to rail at people in authority, and openly to charge magistrates with crimes; sparing no age, sex, or quality.

This is very observable in the Frogs, and the Clouds of Aristophanes; where it is to be noted, that though the railing part was occasionally distributed among all the actors, yet the chief of it was laid on the chorus.

When the Athenian liberty became sunk in the tyranny of a few, it was no longer safe for the poets to use their old licence; men of office being now to be screened from reproach. The chorus, hereupon, became useless, and was therefore dropped; and thus commenced what we call *comedia media*, *nova*, or the *middle comedy*. See CHORUS.

Under this, the poets were not allowed to name the persons; and therefore names were to be invented: but then the persons were to well pointed out, that it was no difficult matter to know them.

The *middle*, however, they were obliged to repress even this licence in; and this reform gave occasion to the *new comedy*, which only brought upon the stage feigned adventures and imaginary names.

This last kind alone was received among the Romans; who yet made a new distinction between their comedy, according to the various periods of the commonwealth. Among the *ancient comedies* were ranked those of Livius Andronicus; among the *middle*, those of Pacuvius; and among the *new ones*, those of Terence.

Comedy, as well as tragedy, has its essential, and its integrant parts. Its essential parts, in the language of the ancients, are the *protasis*, *epitasis*, *catastasis*, and *catastrophe*.

The *protasis* is the beginning, or opening; where the subject is just entered upon, the characters of the persons shown, and the intrecit, or part each has in the action, signified.

In the *epitasis*, the intrigues begin; they are carried on, and heightened in the *catastasis*; and unravelled in the *catastrophe*.

These are called parts of quantity, by way of contra distinction from those of quality, which are the fable, the manners, the sentiments, and the diction; to which may be added the music and decoration, pertaining only to the representation.

The integrant parts are the five acts into which the *comedy* is divided, agreeable to that precept of Horace:

Nec minor quinto, nec fit productior actu.

The acts are divided into scenes: the number whereof is not fixed, but depends on the business to be done in each act, and the number of persons to be employed. See ACT, SCENE, &c. See also HUMOUR, MANNERS, &c.

Among the ancient Romans, *comedies* were distinguished according to the quality of the persons represented, and the dress they wore, into *togatæ*, *prætextatæ*, *trabeatæ*, and *tabernariæ*; which last were those where the scene lay in cottages, or among people of the lowest rank, affecting pretty nearly with our farces.

In the representation, *comedy* was distinguished from tragedy by the sock worn in the former, and the buskin in the latter. Among us *comedy* is distinguished from farce, in that the former represents nature as she is; the other distorts or overcharges her, they both paint from life, but with different views: the one to make nature known, the other to make her ridiculous.

COMET, a heavenly body, in the planetary region, appearing suddenly, and again disappearing: and during the time of its appearance moving in a proper, though very eccentric orbit, like a planet.

Comets, popularly called *blazing stars*, have this to distinguish them from the other stars, that they are usually attended with a long train of light, always opposite to the sun, and which is of a shorter length, the farther it is from the body. Hence arises a popular division of *comets* into three kinds; viz. *bearded*, *tailed*, and *hairy*, *comets*; though in effect, this division rather relates to the several circumstances of the same *comet*, than to the phænomena of several.

Thus, when the *comet* is eastward of the sun, and moves from it, the *comet* is said to be *bearded*, because the light precedes it in manner of a beard.

When the *comet* is westward of the sun, and follows it, it is said to be *tailed*, because the train follows it, in manner of a tail.

Lastly, when the *comet* and the sun are diametrically opposite (the earth between them), the train is hid behind the body of the *comet*, excepting a little that appears around it in form of a border of hair, hence called *hairy*.

COMETS, *nature of*.—As to the nature of *comets*, the unfrequency of their appearing, together with the seeming irregularities of their phænomena, have left philosophers much in the dark. Those who lived before Aristotle, accounted for them by supposing the heavenly spaces full of an infinite number of stars; and many of them too remote, or too small, to have ever come under the notice of astronomers: these invisible stars they farther supposed to move by their own proper motion every way; fulfilling their courses in very unequal times. Now, a *comet*, according to them, was a vast heap or assemblage of their little stars meeting together, by reason of the inequality of their motions, and uniting into a visible mass; which mass again disappear, as their stars separated, and each proceeded in its course.

But how these stars should thus meet, coalesce, and form a body, which in all positions of the sun flowing resemble a tail, and again separate, is a mystery.

This opinion, therefore, Aristotle early overturned, substituting another in its stead. According to Aristotle, *comets* were only a kind of transient fires, or meteors, constituting of exhalations raised to the upper region of the air, and there set on fire; the matter of the moon's course. But neither is this hypothesis more full than the other: for on this principle, the light of the *comet*, being independent on the sun, would be dispersed every way alike, without the appearance of a train, or tail, which is constant to the phænomena. Moreover, they are observed at the same time to pass on the earth very remote from each other. Besides, the modern astronomers who have measured the distance between the *comets* and the earth, find that the *comets* have no sensible diurnal parallax; which could not be, were they not much more remote from the moon, whose parallax is sensible: and yet as they have a sensible annual PARALLAX, they are not so remote as the fixed stars. Tycho Brahe was the first among the moderns, who after diligently observing the *comet* of 1577, and finding that it had no sensible diurnal parallax, assigned it its true place in the planetary regions. See his book De Cometis, anno 1577.

Hevelius, from a great number of observations, proves it as his opinion, that the *comets*, like the solar macula or spots, are formed and condensed out of the gentler exhalations of his body. In which opinion he agrees nearly with Kepler, who maintains, that comets are generated in the ether by full numbers, like flies in the ocean; though they do not all become visible; either because of their smallness, or because they be a long time under the horizon.

But Sir Isaac Newton has shewn the fallacy of this hypothesis, by proving that the *comet* of 1680, in its passage through the neighbourhood of the sun, would have been dilitated, had it consisted of exhalations of the sun and planets: for the heat of the sun, it is allowed, is as the density of his rays, i. e. reciprocally as the squares of the distances of places from the sun. Wherefore, since the distance of that *comet* in its perihelion, December the 8th, was observed to be to the distance of the earth from the sun, nearly as 6 to 1000; the sun's heat in the *comet*, at that time, was to his heat with us at midsummer, as 1000000 to 36, or 28000 to 1.

And again, finding by experiment, that the heat of boiling water is little more than three times the heat of our dry earth, when exposed to the midsummer's sun; and assuming the heat of red-hot iron to be about three or four times as great as that of boiling water; he thence concludes, that the heat of the dried earth, or body of the *comet* in its perihelion, must be near 2000 times as great as that of red-hot iron.

Such an immense heat once acquired in its perihelion, the *comet* must be a long time in cooling again. The same author computes, that a globe of red-hot iron, of the dimentions of our earth, would scarce be cool in

50000 years. If then the *comet* be supposed to cool 100 times as fast as red-hot iron; yet since its heat was 2000 times greater, supposing it of the bigness of the earth, it would not be cool in a million of years.

James Bernoulli, in his Systema Cometarum, supposes some primary planet revolving round the sun in the space of four years and one hundred and fifty-seven days; and at the distance, from his body, of 2583 semidiameters of the magnus orbis: this planet, he concludes, either from its vast distance, or smallness, to be visible to us: but, however, to have, at various distances from him, several satellites moving round him, and sometimes descending so low as the orbit of Saturn; and that these becoming visible to us, when in their perigæum, are what we call *comets*.

Des Cartes advances another opinion: he conjectures that *comets* are only stars, formerly fixed, like the rest, in the heavens; but which becoming by degrees, covered with maculæ, or spots, and at length wholly robbed of their light, cannot keep their place, but are carried off by the vortices of the circumjacent stars; and, in proportion to their magnitude and solidity, moved in such manner as to be brought nearer the orb of Saturn; and thus coming within reach of the sun's light, rendered visible.

But the vanity of all these hypotheses abundantly appears from the phenomena of *comets*; the chief of which we shall enumerate; as being the test by which all theories are to be tried.

First, then, those *comets* which move according to the order of the signs, do all, a little before they disappear, either advance slower than usual, or else go retrograde, if the earth be between them and the sun; and more swiftly, if the earth be situate in a contrary part. On the other hand, those which proceed contrary to the order of the signs, proceed more swiftly than usual, if the earth be between them and the sun; and more slowly, to go retrograde, when the earth is in a contrary part.

2. So long as their velocity is increased, they move, nearly, in great circles; but towards the end of their course, they deviate from those circles: and as often as the earth proceeds one way, they go the contrary way.

3. They move in ellipses, having one of their foci in the centre of the sun; and by radii drawn to the sun, describe areas proportionable to the times.

4. The light of their bodies, or nuclei, increases in their recess from the earth toward the sun; and on the contrary, decreases in their recess from the sun.

5. Their tails appear the largest and brightest, immediately after their transit through the region of the sun, or after their perihelion.

6. The tails always decline from a full opposition to the sun towards those parts which the bodies, or nuclei, pass over, in their progress through their orbits.

7. The declinations, *ceteris paribus*, is the smallest, when the heads, or nuclei, approach nearest the sun: and is less, still, nearer the nucleus of the *comet*, than towards the extremity of the whole.

8. The tails are foremost brighter, and more distinctly defined in their convex, than in their concave part.

9. The tails always appear broader at their upper extreme, than near the centre of the *comet*.

10. The tails are always transparent, and the smallest stars appear through them.

These are the chief phenomena of *comets*; which, it is evident, cannot easily be reconciled with the wild notions of the ancients, and the weak conjectures of many of the moderns. Indeed, there were some, Pliny tells us, among the ancients, who, "had juster notions; who took their "stars to be perpetual, and believed they moved in their "proper orbs; but were never seen, unless when left "by the sun." Apollonius Myndius declared, that he took *comets* for regular stars; and ventured to foretel, that one day the periods and laws of their motion would be discovered. And more fully Seneca. Quæst. Nat. lib. vii. "I am not of the common opinion, nor do I "take a *comet* to be a sudden fire, but esteem it among "the eternal works of nature." *Quid autem miramur cometas, tam rarum mundi spectaculum, tandem inter sidera recipi, ac in certis eorum finibus contineri, quorum ex ingressu celsissimi quique motus est?* Venit tempus quo ista quæ nunc cometæ, ex tam longo ævi circuitu, & longioris ac diligentis studii tempore vix fideles vetus ætas annotavit, in quinis commentariis ponat, ut sciat posteritas nostra cui errent, quantæ quoque spatio.

This prediction we have seen accomplished in our days, by the great sir Isaac Newton; whose doctrine is as follows.

The *comets*, he says, are compact, solid, fixed, and durable bodies: in one word, a kind of planets; which move in very oblique orbits, every way with the greatest freedom; persevering in their motions, even against the course and direction of the planets; and their tail is a very thin, tender vapour, emitted by the head, or nucleus of the *comet*, ignited or heated by the sun.

This at once solves all the foregoing phenomena: for, 1. "It is evident, that those which proceed according to "the order of the signs, a little before they disappear, "must move more slowly, or appear retrograde, if the "earth be between them and the sun; and swifter if the "earth be on a contrary part. On the contrary those "proceeding against the order of the signs," &c. For since this *comet* is not among the fixed stars, but among the planets; as the motion of the earth either conspires with them, or goes against them; their appearance, with regard to the earth, must be changed; and, like the planets, they must sometimes appear swifter, sometimes slower, and sometimes retrograde.

2. "When the *comets* move the swiftest, they must pro-"ceed in straight lines; but in the end of their course, "decline," &c. Because, in the end of their course, when they recede almost directly from the sun, that part of the apparent motion which arises from the parallax, must bear a greater proportion to the whole apparent motion.

3. "The *comets* must move in ellipses, having one of "their foci in the centre of the sun." Because they do not wander precariously from one fictitious vortex to another; but, making a part of a solar system, return perpetually, and run a constant round.

Hence, their elliptic orbits being very long and eccentric, they become invisible, when in that part most remote from the sun.

From considering the curvity of the paths of *comets*, sir Isaac concludes, that when they disappear, they are much beyond the orb of Jupiter; and that in their perihelion they frequently descend below the orbit of Mars, and the inferior planets.

4. "The light of their nuclei must increase in their re-"cess from the sun, and *vice versa*." Because as they are in the regions of the planets, their access toward the sun bears a considerable proportion to their whole distance.

From observations of the *comet* of 1680, sir Isaac Newton found that the vapour in the extremity of the tail, January 25th, began to ascend from the head before December 11th; and had therefore spent more than forty-five days in its ascent: but that all the tail which appeared December 10th, ascended in the space of those two days, then just past since its perihelion. The vapour, therefore, at the beginning, when the *comet* was near the sun, ascended prodigiously swift; and afterwards continued to ascend with a motion retarded by the gravity of its particles; and by that ascent increased the length of the tail: but the tail, notwithstanding its length, consisted almost wholly of vapours, which had ascended from the time of its perihelion: and the vapour which ascended first, and composed the extreme of the tail, did not vanish till it was too far from the sun to be illuminated by him, and from us to be visible. Hence also, the tails of *comets* that are shorter, do not ascend with a quick and continual motion from the head, and then presently disappear; but are permanent columns of vapours and exhalations, gathered from the head by a very gentle motion, and in a great space of time; which yet, by participating of that motion of their heads they had at the beginning, continue easily to move along with their heads through the celestial regions: whence also the vacuity of those regions is argued. See VACUUM.

5. "Their tails must appear the largest and brightest "immediately after their transit through the region of "the sun." Because, then, their heads being the most heated, will emit the most vapours.

From the light of the nucleus, or apparent star, we infer their vicinity to the earth, and that they are by no means in the region of the fixed stars, as some have imagined; since, in that case, their heads would be no more illuminated by the sun than the planets are by the fixed stars.

6. "The tails must still decline from a full opposition "to the sun, towards the parts which the heads pass "over, in their progress through their orbits." Because all smoke, or vapour, emitted from a body in motion, tends upwards obliquely, still receding from that part, towards which the smoking body proceeds.

7. "That declination will be still the least near the nu-"cleus of the *comet*; and when the *comet* is nearest the "sun." Because the vapour ascends more swiftly near the head of the *comet*, than in the hinder extremity of its tail; and when the *comet* is [illegible] from the sun, than when [illegible]

"The

4. "The tail is brighter, and better defined in its convex part, than in its concave." Because the vapour in the convex part, which goes first, being somewhat nearer and denser, reflects the light more copiously.

5. "The tail must appear broader towards the higher extremity of the *comet*, than towards the head." Because the vapour in a free space perpetually rarefies and dilates.

10. "The tails must be transparent." Because consisting of infinitely thin vapour, &c.

Thus accurately does the hypothesis tally to the phenomena.

COMETS, *phases of.*—The nuclei, which we also occasionally call the *heads* and *bodies* of *comets*, viewed through a telescope, shew a very different face from those of the fixed stars, or planets. They are liable to apparent changes, which Sir Isaac Newton ascribes to changes in the atmosphere of *comets*: and this opinion was confirmed by observations of the *comet* in 1744. Hist. Acad. Scienc. 1744. Sturmius tells us, that, observing the *comet* of 1680, with a telescope, it appeared like a coal dimly glowing, or a rude mass of matter illumined with a dusky fumid light, less sensible at the extremes than in the middle; rather than as a star, which appears with a round disk, and a vivid light.

Hevelius observed of the *comet* of 1661, that its body was of a yellowish colour, very bright and conspicuous, but without any glittering light: in the middle was a dense ruddy nucleus, almost equal to Jupiter, encompassed with a much fainter, thinner matter. February 5th, its head was somewhat bigger and brighter, of a gold colour; but its light more dusky than the rest of the stars: here, the nucleus appeared divided into several parts. February 6th, the disk was lessened; the nuclei still existed, though less than before: one of them, on the lower part of the disk, on the left, much denser and brighter than the rest; its body round, and representing a very lucid little star: the nuclei still encompassed with another kind of matter. February 10th, the head somewhat more obscure and the nuclei more confused, but brighter at top than bottom. February 13th, the head diminished much, both in magnitude and brightness. March 2d, its roundness a little impaired, its edges lacerated, &c. March 28th, very pale, and exceeding thin; its matter much dispersed; and no distinct nucleus at all appearing.

Wegelius, who saw the *comet* of 1664, the moon, and a little cloud illumined by the sun at the same time, observed, that the moon, through the telescope, appeared of a continued luminous surface; but the *comet* very different; being perfectly like a little cloud in the horizon, illumined by the sun. From these observations it was, that Hevelius concluded *comets* to be like maculæ, or spots formed out of the solar exhalations.

COMETS, *magnitude of.*—The estimates that have been given by Tycho, Hevelius, and some others, of the magnitude of *comets*, are not sufficiently accurate to be depended upon; for it does not appear, that they distinguished between the nucleus and the surrounding atmosphere. Thus Tycho computes that the true diameter of the *comet* in 1577, was in proportion to the diameter of the earth as 2 to 10 to 14. Hevelius made the diameter of the *comet* of 1652 to 10 that of the earth, as 52 to 100. The diameter of the atmosphere is often ten or fifteen times as great as that of the nucleus: the former, in the *comet* of 1682, was measured by Flamsteed, and found to be 2′, but the diameter of the nucleus only 11 or 12″. Some *comets*, from their apparent magnitude and distance compared, have been judged to be much larger than the moon, and even equal to some of the primary planets. The diameter of that of 1744, when at the distance of the sun from us, measured about 1′, and therefore its diameter must be about three times the diameter of the earth: at another time the diameter of its nucleus was nearly equal to that of Jupiter.

The lengths of the tails of *comets* are various, and depend on a variety of circumstances. Longomontanus mentions a *comet* that in 1618, December 10th, had a tail above 100° in length: that of 1680, according to Sturmius, about the 20th of November, was but small; at most, not exceeding 20° in length; in a little time it grew to a length of 60°, after which it dwindled very sensibly. The *comet* of 1744 had a tail which at one time appeared to extend above 16° from its body; and which, allowing the sun's parallax 10″, must have been above twenty-three millions of miles in length.

COMETS, *formation of the tails of.*—Sir Isaac Newton shews that the atmospheres of *comets* will furnish vapour sufficient to form their tails: this he argues from that wonderful rarefaction observed in our air, at a distance from the earth: a cubic inch of common air, at the distance of half the earth's diameter, or four thousand miles, would necessarily expand itself so as to fill a space larger than the whole region of the stars. Since then the coma, or atmosphere of a *comet*, is ten times higher than the surface of the nucleus, counting from the center thereof; the tail ascending much higher, must necessarily be immensely rare: so that it is no wonder the stars should be visible through it.

Now, the ascent of vapours into the tail of the *comet*, he supposes occasioned by the rarefaction of the matter of the atmosphere at the time of the perihelion. Smoke, it is observed, ascends the chimney by the impulse of the air wherein it floats; and air, rarefied by heat, ascends by the diminution of its specific gravity, taking up the smoke along with it: why then should not the tail of a *comet* be supposed to be raised after the same manner by the sun? for the sun-beams do not act on the medium they pass through, any otherwise than by reflection and refraction.

The reflecting particles, then, being warmed by the action, will again warm the æther wherewith they are compounded; and this, rarefied by the heat, will have its specific gravity, whereby it before tended to descend, diminished by the rarefaction; so as to ascend, and carry along with it those reflecting particles, whereof the tail of the *comet* is composed.

This ascent of the vapours will be promoted by their circular motion round the sun; by means whereof, they will endeavour to recede from the sun, while the sun's atmosphere, and the other matters in the celestial spaces, are either at rest, or nearly so; as having no motion but what they receive from the sun's circumrotation.

Thus are the vapours raised into the tails of *comets* in the neighbourhood of the sun, where the orbits are most curve; and, where the *comets*, being within the denser atmosphere of the sun, have their tails of the greatest length.

The tails thus produced, by preserving that motion, and at the same time gravitating towards the sun, will move round his body in ellipses, in like manner as their heads; and, by this means, will ever accompany, and freely adhere to their head. In effect, the gravitation of the vapours towards the sun will no more occasion the tails of the *comets* to forsake their heads, and fall down towards the sun, than the gravitation of their heads will occasion them to fall off from their tails: but by their common gravitation, they will either fall down together to the sun, or be together suspended, or retarded. This gravitation, therefore, does not at all hinder, but that the heads and tails of *comets* may receive and retain any position towards each other, which either the above mentioned causes, or any other, may occasion. The tails, therefore, thus produced in the perihelion of *comets*, will go off along with their head into remote regions; and either return thence, together with the *comets*, after a long series of years; or, rather, be there left bare; till at its return, descending towards the sun, some little short tails are gradually and slowly produced from the heads; which afterwards, in the perihelion, descending down into the sun's atmosphere, will be immensely increased.

The vapours, when they are thus dilated, rarefied, and diffused through all the celestial regions, the same author observes, may probably, by little and little, by means of their own gravity, be attracted down to the planets, and become intermingled with their atmospheres.

He adds, that for the conservation of the water, and moisture of the planets, *comets* seem absolutely requisite; from whose condensed vapours and exhalations, all that moisture which is spent in vegetations and putrefactions, and turned into dry earth, &c. may be *resupplied* and recruited. For all vegetables grow and increase wholly from fluids; and, again, as to their greatest part, turn, by putrefaction, into earth again; as earthly slime being perpetually precipitated to the bottom of putrefying liquors. Hence, the quantity of dry earth must continually increase, and the moisture of the globe decrease and at last be quite evaporated, if it has not a continual supply from some part or other of the universe. And I suspect, adds our great author, that the spirit, which makes the finest, subtilest, and best part of our air, and which is absolutely requisite for the life and being of all things, comes principally from the *comets*.

On this principle, there seems to be some foundation for the popular opinion of presages from *comets*; since the tail of a *comet* thus intermingled with our atmosphere, may produce changes very sensible in animal and vegetable bodies. See MEDIUM, and SPIRIT.

But the transmutation of water into earth is now justly exploded: Woodward, Boerhaave, and others having observed that water is only an agent in conveying the nutritious matter to vegetable bodies, and not that matter itself.

Another use which he conjectures *comets* may be designed

to serve, is that of recruiting the sun with fresh fewel, and repairing the consumption of his light by the streams continually sent forth in every direction from that luminary. In support of this conjecture he observes, that *comets* in their perihelion may suffer a diminution of their projectile force, by the resistance of the solar atmosphere; so that by degrees their gravitation towards the sun may be so far increased, as to precipitate their full into his body.

There have been various conjectures about the generation of the tails of *comets*. Apian, Tycho Brahe, and some others, apprehended that they were produced by the sun's rays transmitted through the nucleus of the *comet*, which they supposed to be transparent, and there refracted as in a lens of glass, so as to form a beam of light behind the *comet*. Des Cartes accounted for the phenomenon of the tail by the refraction of light from the head of the *comet* to the eye of the spectator. Mairan supposes that the tails are formed out of the luminous matter that composes the sun's atmosphere; M. De la Lande combines this hypothesis with that of Newton above recited. Mr. Rowning, who is not satisfied with Sir Isaac's opinion, accounts for the tails of *comets* in the following manner. It is well known, says he, that when the light of the sun passes through the atmosphere of any body, as the earth, that which passes on one side, is by the refraction thereof made to converge toward that which passes on the opposite one; and this convergency is not wholly effected either at the entrance of the light into the atmosphere, or at its going out; but beginning at its entrance, it increases in every point of its progress. It is also agreed that the atmospheres of the *comets* are very large and dense. He therefore supposes that by such time as the light of the sun has passed through a considerable part of the atmosphere of a *comet*, the rays thereof are so far refracted toward each other, that they then begin sensibly to illuminate it, or rather the vapours floating therein; and so render that part they have yet to pass through, visible to us: and that this portion of the atmosphere of a *comet* thus illuminated, appears to us in form of a beam of the sun's light and passes under the denomination of a *comet*'s tail. Rowning's Natural Philosophy, part iv. chap. 11.

We have an inquiry into the cause of the tails of *comets*, by Mr. Euler, in the Mem. de l'Acad. de Berlin, tom. ii. p. 119, seq. He thinks there is a great affinity between these tails, the zodiacal light, and the Aurora Borealis; and that the common cause of them all, is the action of the sun's light on the atmospheres of the *comets*, of the sun, and of the earth. He supposes that the impulse of the rays of light on the atmosphere of *comets*, may drive some of the finer particles of that atmosphere far beyond its limits; and that this force of impulse combined with that of gravity towards the *comet*, would produce a tail, which would always be in opposition to the sun, if the *comet* did not move. But the motion of the *comet* in its orbit, and about an axis, must vary the position and figure of the tail, giving it a curvature, and deviation from a line drawn from the center of the sun to that of the *comet*; and that this deviation will be greater, as the orbit of the *comet* has the greater curvature, and that the motion of the *comet* is more rapid. It may even happen, that the velocity of the *comet*, in its perihelion, may be so great, that the force of the sun's rays may produce a new tail, before the old one can follow: in which case the *comet* might have two or more tails. The possibility of this is confirmed by the *comet* of 1744, which was observed to have several tails while it was in its perihelion. See Aurora *Borealis*, and Zodiacal *light*.

Dr. Hamilton urges several objections against the Newtonian hypothesis; and concludes that the tail of a *comet* is formed of matter which has not the power of reflecting or reflecting the rays of light; but that it is a fluid or self-shining substance: and from its similarity to the Aurora *borealis*, produced by the same cause, and a proper electrical phenomenon. Dr. Halley seemed inclined to this hypothesis, when he said, that the streams of light in an Aurora borealis so much resembled the long tails of *comets*, that at first sight they might well be taken for such: that that light seems to have a greater affinity to that which the effluvia of electric bodies emit in the dark. Phil. Trans. N° 347. Hamilton's Philosophical Essays, p. 91, &c.

M. Fatio has suggested, that some of the *comets* have their nodes so very near the annual orbit of the earth; that if the earth should happen to be found in that part next the node, at the time of a *comet*'s pulling by, as the apparent motion of the *comet* will be incredibly swift, so its parallax will become very sensible; and the proportion thereof to that of the sun will be given: whence, such transits of *comets* will afford the best means of determining the distance of the earth and *sun*.

The *comet* of 1472, v. gr. had a parallax above twenty times greater than the sun's: and if that of 1618, had come down in the beginning of March to its ascending node, it would have been much nearer the earth, and its parallax much more sensible. But, hitherto, none has threatened the earth with a nearer approach than that of 1680: for, by calculation, Dr. Halley finds, that November 11th, 1 h. 6 min. P. M. that *comet* was not above one semidiameter of the earth, to the northward of the way of the earth; at which time, had the earth been in that part of its orbit, the *comet* would have had a parallax equal to that of the moon: what might have been the consequence of so near an approach, a contact, or, lastly, a shock of the celestial bodies? Mr. Whiston says, a DELUGE!

Comets, *motion of*.—If the paths of *comets* be supposed directly parabolic, as some have imagined, it would follow, that being impelled towards the sun by a centripetal force, they descend as from spaces infinitely distant; and by their falls acquire such a velocity, as that they may again run off into the remotest regions, still moving upwards, with such a perpetual tendency as never to return. But the frequency of their appearance, and their degree of velocity, which does not exceed what they might acquire by their gravity towards the sun, seem to put it past doubt that they move, planet-like, in elliptic orbits, though exceedingly eccentric; and to return again, though after very long periods. See Elliptic.

The apparent velocity of the *comet* of 1472, as observed by Regiomontanus, was such as to carry it through 40° of a great circle in 24 hours: and that of 1770 was observed to move through more than 45° in the last 25 hours.

Newton, Flamsteed, Halley, and the English astronomers, &c. seem satisfied of the return of *comets*: Cassini, and others of the French, think it highly probable; but De la Hire, and others oppose it.

Those on the affirmative side suppose the *comets* to describe orbits prodigiously eccentric, insomuch that we can only see them in a very small part of their revolutions: out of this they are lost in the immense spaces, but not only from our eyes, but our telescopes. That little part of their orbit next us, M. Cassini, &c. have found to pass between the orbits of Venus and Mars.

For the reasons of the return of *comets*, M. Cassini gives these which follow. 1. In considering the course of the *comets*, with regard to the fixed stars, they are found to keep a considerable time in the arch of a great circle, i. e. a circle whose plane passes through the center of the earth: indeed, they deviate a little from it, chiefly towards the end of their appearance; but this deviation is common to them with the planets.

2. *Comets*, as well as planets, appear to move so much the faster as they are nearer the earth; and when they are at equal distances from their perigee, their velocities are nearly the same.

By subtracting from their motion the apparent inequality of velocity occasioned by their different distance from the earth, their equal motion might be found: but we should not be certain this motion were their true one; because they might have considerable inequalities, not distinguishable in that small part of their orbit visible to us. It is, indeed, probable, their real motion, as well as that of the planets, is unequal in itself; and hence we have a reason why the observations made during the appearance of a *comet*, cannot give the just period of their revolution. See Period.

3. There are no two different planets whose orbits cut the ecliptic in the same angle, whose nodes are in the same points of the ecliptic, and whose apparent velocity in their perigee is the same; consequently, two *comets* seen at different times, yet appearing in all points in those circumstances, can only be one and the same *comet*.

And this were the *comets* of 1577 and 1680 observed to do; and those of 1652 and 1698: not that this exact agreement, in these circumstances, is absolutely necessary to determine them the same *comet*. M. Cassini finds the moon herself irregular in them all: accordingly, he is of opinion, there are several which disagree herein, and yet may be accounted the same.

The great objections against the return of *comets*, are, the rarity of their appearance, with regard to the number of revolutions assigned to them.

In 1702, there was a *comet*, or rather the tail of one, seen at Rome, which M. Cassini takes to be the same with that observed by Aristotle, and that since seen in 1668, which would imply its period to be thirty-four years. Now, it may seem strange, that a star which has so short a revolution, and of consequence such frequent returns, should be so seldom seen.—Again, in April, of the same year, 1702, a *comet* was observed by Maff. Bianchini, and Marakli, supposed by the latter to be the same with that

that of 1664, both by reason of its motion, velocity, and direction. M. De la Hire took it to have some relation to another he had observed in 1698, which M. Cassini refers to that of 1652. On this supposition, its period appears to be forty-three months; and the number of revolutions between 1652 and 1698, fourteen: but it is hard to suppose, that in this age, wherein the heavens are so narrowly watched, a star should make fourteen appearances unperceived; especially such a star as this, which might appear above a month together; and of consequence be frequently disengaged from the crepuscula.

For this reason M. Cassini is very reserved in maintaining the hypothesis of the return of *comets*, and only proposes those for planets, where the motions are easy and simple, and are solved without straining, or allowing many irregularities.

M. De la Hire proposes one general difficulty against the whole system of the return of *comets*, which would seem to hinder any comet from being a planet: and it is this; that by the disposition necessarily given to their courses, they ought to appear as small at first as at last; and always increase, till they arrive at their greatest proximity to the earth: or, if they should chance not to be observed, as soon as they become visible, for want of attention thereto, at least it is impossible but they must frequently shew themselves before they have arrived at their full magnitude and brightness. But he adds, that none were ever yet observed till they had arrived at it.

But the appearance of a *comet* in the month of October, 1723, while at a great distance, so as to be too small and dim to be viewed without a telescope, may serve to remove this obstacle, and set the *comets*, still, on the same footing with the planets.

Sir Isaac Newton supposes, that as those planets which are nearest the sun, and revolve in the least orbits, are the smallest; so among the *comets*, such as in their perihelion come nearest the sun, are the smallest, and revolve in lesser orbits.

Dr. Halley has given us a table of the astronomical elements of all the *comets* that have been yet observed with due care; whereby, whenever a new *comet* shall appear, it may be determined, by comparing it therewith, whether it be any of those which have yet appeared; and consequently its period, and the axis of its orbit, be determined, and its return foretold. This table contains the astronomical elements of twenty-four *comets*, on the supposition that they moved in parabolas; though he thought it extremely probable that they really moved in very eccentric ellipses, and consequently returned after long periods of time. This table commences with the year 1337, and closes with 1698. See his Synopsis of the Astronomy of *Comets*, annexed to Gregory's Astronomy.

There are many things in the *comet* of 1532, observed by Peter Apian, which intimate its being the same with that of 1607, observed by Kepler and Longomontanus; and which Dr. Halley himself again observed in 1682. All the elements agree, and there is nothing contradicts the opinion, but that inequality in the periodic revolution; which, however, he thinks is no more than may be accounted for from physical causes; no more, in effect, than is observed in Saturn; the motion of which planet is so disturbed by the rest, especially Jupiter, that its period is uncertain for several days together; to what errors then may not a *comet* be liable, which rises to almost four times the height of Saturn; and whose velocity, if but a little increased, would change its elliptic orb into a parabolic one?

What further confirms the identity, is the appearance of another *comet* in the summer of 1456, which, though observed by none with accuracy, yet, by its period, and the manner of its transit, he concludes to be the same; and thence ventures to foretel its return in the year 1758, or the beginning of the next year: and time has verified the prediction. The *comet* of 1661 seems to be the same with that of 1532, and to have its period in one hundred and twenty-nine years: and Halley also thought that the *comet* of 1680 was the same that was observed in 1106, 531, and in the forty-fourth year before Christ, when Julius Cæsar was murdered; and that its period was five hundred and seventy-five years. Mr. Dunthorne, in the Phil. Trans. vol. xlvii. has endeavoured to shew from a MS. in Peterhouse-hall library, that the *comet* of 1106 could not be the same with that of 1680. But M. De la Lande adopts the opinion of Dr. Halley.

Another table has since been computed, from observations contained in the Philosophical Transactions, De la Caille's Astronomy, and De la Lande's Histoire de la Comete de 1759, & Connoissance des Mouvemens Celestes 1762 & 1764. In this table are seen the elements of twenty-five other *comets* from the year 1104 to 1762.

HALLEY's TABLE OF THE ELEMENTS OF COMETS.

Comets, A. D.	Ascending node. °	′	″	Inclin. of orbit. °	′	″	Perihelion. °	′	″	Perihelion distance from the sun; the distance of the earth being 100000.	Equat. time of perihel. D.	H.	′	
1337	♑ 24	21	0	32	11	0	♑ 7	59	0	40666	June, 2	6	25	retrog.
1472	♑ 11	46	20	5	20	0	♑ 5	33	30	54373	Feb. 28	22	23	retrog.
1531	♓ 19	25	0	17	56	0	♐ 1	39	0	56700	Aug. 24	21	184	retrog.
1532	♓ 20	27	0	32	36	0	♏ 21	7	0	50910	Oct. 19	22	12	direct.
1556	♒ 25	42	0	32	6	30	♑ 8	50	0	66390	Apr. 21	20	3	direct.
1577	♈ 25	52	0	74	32	45	♌ 9	22	0	18342	Oct. 26	18	45	retrog.
1580	♈ 18	57	20	64	40	0	♋ 19	5	50	59628	Nov. 28	15	0	direct.
1585	♉ 7	42	30	6	4	0	♈ 8	51	0	109358	Sept. 27	19	20	direct.
1590	♓ 15	30	40	29	40	40	♏ 6	54	30	57661	Jan. 29	3	45	retrog.
1596	♓ 12	12	30	55	12	0	♏ 18	16	0	51293	July, 31	19	55	retrog.
1607	♉ 20	21	0	17	2	0	♐ 2	16	0	58680	Oct. 16	3	50	retrog.
1618	♓ 16	1	0	37	34	0	♈ 2	14	0	37975	Oct. 29	12	23	direct.
1652	♓ 28	10	0	79	28	0	♈ 28	18	40	84750	Nov. 2	15	40	direct.
1661	♓ 22	30	30	32	35	50	♒ 25	58	40	44851	Jan. 16	23	41	direct.
1664	♑ 21	14	0	21	18	30	♌ 10	41	25	1025754	Nov. 24	11	52	retrog.
1665	♏ 18	2	0	76	5	0	♋ 11	54	30	10049	April, 24	5	151	retrog.
1672	♑ 27	30	30	83	22	10	♑ 16	59	30	69739	Feb. 20	8	37	direct.
1677	♏ 26	49	10	79	3	15	♌ 17	37	5	28059	April, 26	0	374	retrog.
1680	♑ 2	2	0	60	56	0	♐ 22	39	30	006128	Dec. 8	0	6	direct.
1682	♐ 21	16	30	17	56	0	♈ 2	52	45	58328	Sept. 4	7	39	retrog.
1683	♒ 23	23	0	83	11	0	♊ 25	29	30	56020	July, 3	2	50	retrog.
1684	♐ 28	15	0	65	48	40	♏ 28	52	0	96015	May, 29	10	16	direct.
1686	♑ 20	34	40	31	21	40	♊ 17	0	30	32500	Sept. 6	14	33	direct.
1698	♐ 27	44	15	11	46	0	♉ 0	51	15	69129	Oct. 8	16	57	retrog.

A SUPPLEMENT TO HALLEY's TABLE OF THE ELEMENTS OF COMETS.

Equated time of perihelion.				Ascending node.			Inclin. of orbit.			Perihelion.			Perihelion distance from the sun.	
A. D.		D.	H.	°	′	″	°	′	″	°	′	″		
1264	July,	6	8	0	♏ 19	0	0	36	30	0	♑ 21	0	0	44500	direct.
1533	June,	16	19	30	♌ 5	44	0	35	49	0	♌ 27	16	0	10280	retrog.
1593	July,	8	13	38	♏ 14	14	15	87	58	0	♏ 26	19	0	8911	direct.
1678	Aug.	16	14	3	♏ 11	40	0	3	4	20	♐ 27	46	0	125802	direct.
1699	Jan.	3	8	22	♐ 21	45	35	69	20	0	♏ 2	31	6	74400	retrog.
1702	March,	2	14	12	♋ 9	25	15	4	30	0	♌ 18	41	3	64590	direct.
1706	Jan.	19	4	56	♈ 13	11	23	55	14	5	♊ 12	36	25	426864	direct.
1709	Nov.	30	23	43	♓ 22	50	29	88	37	40	♊ 19	58	9	85904	direct.
1718	Jan.	4	1	15	♌ 7	55	20	31	12	53	♌ 1	26	36	102565	retrog.
1723	Sept.	16	16	10	♈ 14	10	0	49	59	0	♓ 12	52	20	99805	retrog.
1729	June,	12	6	36	♐ 10	35	15	77	1	58	♐ 22	16	53	426980	direct.
1737	Jan.	19	8	20	♏ 16	22	0	18	20	45	♐ 25	55	0	22282	direct.
1739	June,	6	10	0	♈ 27	25	14	55	42	44	♒ 12	38	40	63358	retrog.
1742	Jan.	28	4	21	♋ 5	34	45	67	4	11	♏ 7	33	44	765554	retrog.
1742	Dec.	30	21	15	♊ 8	10	48	2	15	50	♒ 2	58	4	838114	direct.
1743	Sept.	9	21	16	♈ 5	16	25	45	48	21	♑ 6	33	52	52157	retrog.
1744	Feb.	19	8	17	♉ 15	45	20	47	8	36	♋ 17	12	55	22206	direct.
1747	Feb.	17	11	45	♌ 26	58	27	77	56	55	♈ 10	5	41	219388	retrog.
1748	April,	17	19	25	♏ 22	52	16	85	26	57	♏ 5	0	50	840664	retrog.
1748	June,	7	1	24	♉ 4	39	43	56	59	3	♈ 6	9	24	655756	direct.
1757	Oct.	21	7	55	♏ 4	12	50	12	50	20	♌ 2	58	0	33754	direct.
1759	March,	12	13	50	♓ 23	45	35	17	40	15	♐ 3	8	10	584905	retrog.
1759	Nov.	27	2	19	♌ 19	39	24	78	59	22	♉ 23	24	20	79851	direct.
1759	Dec.	16	12	41	♊ 18	56	19	4	37	23	♌ 19	2	48	96193	retrog.
1762	May,	28	15	18	♑ 19	23	0	84	45	0	♒ 15	14	0	101240	direct.

By comparing theſe tables, it will be found that none of theſe *comets*, except that of 1759, appears to be the ſame with any other in either of the tables; unleſs we admit thoſe of 1264 and 1556, and thoſe of 1596 and 1669, to be the ſame. See the elements of the *comet* of 1770, and the trajectory of its path, in the Tranſactions of the American Philoſophical Society, vol. i.

See Whiſton's Solar Syſtem, where the orbits of the ſeveral *comets* are delineated, and the periods of as many of them as are known, expreſſed.

To determine the place and courſe of a COMET.—Obſerve the diſtance of the *comet* from two fixed ſtars, whoſe longitudes and latitudes are known; from the diſtances thus found, calculate the place of the *comet* by trigonometry, after the manner delivered under PLANET. By repeating the obſervations and operations for ſeveral days ſucceſſively, the courſe of the *comet* will be had.

To determine the courſe of a COMET *mechanically, and without any apparatus of inſtruments.*—The following ingenious method, by a thread, we owe to Longomontanus: obſerve four ſtars round the *comet*, ſuch, as that the *comet* may be in the interſection of the right lines that join the two oppoſite ſtars; which is eaſily found by means of a thread placed before the eye, and extended over-againſt the ſtars and *comet*.

Suppoſe, v. gr. the *comet*'s place in the heavens A *(Tab. Aſtronomy, fig.* 23.) between the four ſtars, B, C, D, E; where the line joining the ſtars B and D paſſes through the body of the *comet*; and the like does the line paſſing through C and E.

On a globe, whereon theſe four ſtars are found, extend a thread through B and D, and another through C and E; the point of interſection will give the place of the *comet*. This practice being repeated for ſeveral days the *comet*'s courſe will be had on the globe; which courſe will be found to be a great circle: from any two points whereof, it will be eaſy to find its inclination to the ecliptic, and the place of the nodes; only by obſerving where a thread ſtretched through the two points cuts the ecliptic.

To determine the parallax of a COMET. See PARALLAX.

COMET, *trajectory of a*. See TRAJECTORY.

COMETARIUM, a curious machine, exhibiting an idea of the revolution of a *comet* about the ſun. It is contrived in ſuch a manner, as by elliptical wheels to ſhew the unequal motion of a *comet* in every part of its orbit. The *comet* is repreſented by a ſmall braſs ball, carried by a radius vector, or wire, in an elliptic groove about the ſun in one of its foci; and the years of its period are ſhewn by an index moving with an equable motion over a graduated ſilver circle. See a particular deſcription, with a cut, in Ferguſon's Aſtronomy, 4to. p. 288.

COMETIS, in *Botany*, a genus of the *tetrandria monogynia* claſs, of which there is only one known ſpecies. The involucrum is formed of three leaves and three flowers; the calyx has four leaves; and the capſule contains three berries.

COMETITES, in *Natural Hiſtory*, a name given by ſome writers to a kind of aſtroites, which has ſtars much larger than thoſe of the common kind, and therefore called *cometi*.

COMEUS, in *Mythology*, a ſurname of Apollo, under which title he was worſhipped at Selencia, whence his ſtatue was carried to Rome, and placed in the temple of Apollo Palatine.

COMFREY, *ſymphytum*, in *Botany*, a genus of plants, of the *pentandria monogynia* claſs; the characters of which are theſe: the flower has a five-cornered, erect, permanent empalement, cut into five acute parts: it has one petal with a ſhort tube, above which the limb has a ſwelling belly, and thicker rube. The limb is indented in five obtuſe parts, which are reflexed: the chaps are armed with five awl-ſhaped rays, which are connected in a cone; it has five awl-ſhaped ſtamina, which are alternate with the rays of the chaps, terminated by erect acute ſummits, and four germina, ſupporting a ſlender ſtyle the length of the petal, crowned by a ſingle ſtigma; the germina afterwards turn to four gibbous, acute, pointed ſeeds, which ripen in the empalement. There are ſeveral ſpecies; but only three are to be found in the Engliſh gardens; which are cultivated either by ſeed, or by parting the roots, which latter is the moſt expeditious way. They are extremely hardy, and will grow on almoſt any ſoil, and in any ſituation.

Comfrey-root has been extolled as a famous vulnerary, both externally and internally; and as a noble balſamic and agglutinant; and given with ſucceſs in diarrhœas from dyſenteries, and ſpittings of blood. The beſt way of taking it is in decoction, or ſyrup; but the decoction muſt not be too ſtrong. A conſerve of them is found of excellent uſe in hæmorrhages of all kinds. They have been alſo recommended in the gout and ſciatica, as of great virtues in mitigating the pain, and ſhortening the paroxyſms. It is now rarely employed in practice, though it may be deemed ſuperior to the althea roots. The mucilage derived from the root is its only medicinal principle.

Symphytum was a name given among the ancients to ſeveral different plants, which had the common virtues of agglutinators. We have appropriated the word to *comfrey*; but Dioſcorides plainly uſes it ſometimes as the name of elecampane, and ſometimes as that of the common horſe-tail. Pliny has collected the virtues and characters of the *ſymphytum* from all the authors he had, in whom

whom the word occurred, and therefore he has given a list of virtues that belong to no one plant.

COMFREY, *ſymſted*, in *Botany*. See LUNG-wort.

COMIOLA, in *Botany*, a name given by ſome of the old Roman authors to the plant commonly called hoteots, or dyer's weed. See DYER'S *weed*.

COMITATU *commiſſo*, in *Law*, a writ or commiſſion, by which a ſheriff is authoriſed to take upon him the charge of the county.

COMITATU *et caſtro commiſſo*, a writ, by which the charge of a county, together with the keeping of a caſtle, is committed to the ſheriff.

COMITATUS, in *Law*, a county. Ingulphus tells us, that England was firſt divided into counties by king Alfred; and the counties into hundreds, and theſe again into tythings; and Forteſcue writes, that *regnum Anglie per* comitatus, *et regnum Francie per ballivatus diſtinguitur*. Sometimes it is taken for a territory or juriſdiction of a particular place; as in Mat. Paris, anno 1234. See COUNTY.

COMITATUS *poſſe*. See POSSE.

COMITIA, an aſſembly of the Roman people, either in the Comitium, or Campus Martius, i. e. FIELD *of Mars*; meeting for the election of magiſtrates, or for conſulting on the important affairs of the republic.

The word comes from the verb *eo*, or *coneo*, *to go together*.

There were certain days fixed for theſe aſſemblies, called *dies comitiales*; marked with a C in the calendar of Julius Cæſar. *Comitial* aſſemblies, held for the election of conſuls, were called *conſular comitia*: in like manner, the other *comitia* took names from the officer to be created; whether a tribune, a pontif, edile, or the like.

There were three kinds of theſe *comitia*, viz. *curiata*, *centuriata*, and *tributa*; ſo diſtinguiſhed from the manner wherein the people voted, and gave their ſuffrages, viz. by curiæ or pariſhes, tribes, or centuries.

The power of calling theſe aſſemblies pertained to moſt of the chief magiſtrates, and ſometimes to the ſovereign pontif.

Authors make the difference between *comitia* and *concilia*, to conſiſt in this; that in the former the whole people were called together, in the latter only a part.

COMITIA *curiata*. Romulus inſtituted the *comitia curiata*, or the public aſſemblies of the people, called to vote in their ſeveral curiæ; and it is agreed by all that the matters ſubjected to their deciſion, were the choice of all the magiſtrates, and the right of making laws, war, and peace: an ample juriſdiction, and the moſt important articles of government, yet not wholly obſolete, according to Dionyſius, unleſs the ſenate concurred with them. This method of tranſacting all the greater affairs by the people, aſſembled in their curiæ, after it had ſubſiſted through five ſucceſſive reigns, was found to be inconvenient.

Servius Tullius, the ſixth king of Rome, in order to correct the inconvenience of the *comitia curiata*, inſtituted a new diviſion of the people into ſix claſſes, according to a cenſus, or valuation of their eſtates; whence aroſe the *comitia centuriata*: then he ſubdivided theſe claſſes into one hundred and ninety-three centuries, and contrived to throw a majority of theſe centuries, that is ninety-eight of them, into the firſt claſs of the richeſt citizens. By which regulation, though every man voted now in his century, as before in his curia; yet, as all matters were decided by a majority of the centuries, ſo the balance of power was wholly tranſferred into the hands of the rich; and the poorer ſort deprived of their former weight and influence in the affairs of ſtate: which wiſe inſtitution was ever after obſerved, through all ſubſeeding ages, in the elections of the principal magiſtrates, and the determination of all the principal tranſactions of the republic.

COMITIAL *days*. Pauſus Manutius is of opinion, that there were certain days on which the Roman ſenate might regularly be aſſembled; and others on which it could not: and that theſe laſt were called *comitial* days, and marked under that name in the calendars, as days wholly deſtined, and ſet apart by law, for the aſſemblies of the people. But Sigonius contends, that the ſenate might meet on any of theſe days, unleſs when the people were actually aſſembled; and tranſacting buſineſs on them: and conſequently that the title of *comitial* denoted ſuch days only, on which the people *might* be legally aſſembled, not ſuch on which they were or could in fact be aſſembled. Middlet. of Rom. Senat. p. 132, ſeq.

The truth of the matter ſeems to be this, that though the days called *comitial* were regularly deſtined to the aſſemblies of the people, yet the ſenate who might not only be convened on the ſame, after the popular aſſemblies were diſſolved; but had the power likewiſe, whenever they found it expedient, to ſuperſede and poſtpone the aſſemblies of the people to another day; and, by a particular decree, to authoriſe their own meetings upon them, for the diſpatch of ſome important affair therein ſpecified.

COMITIALIS *morbus*, an ancient term for the EPILEPSY, or falling-ſickneſs; ſo called, becauſe if any perſon was ſeized with it in the Roman *comitia*, the aſſembly was immediately diſſolved; this being eſteemed an unlucky omen; or, rather, becauſe thoſe liable to it were chiefly ſeized in the *comitia*, or great aſſemblies.

COMITIUM, the place where the *comitia* were ordinarily held, was a large hall in the Roman Forum: it was a long time open at top; on which account, the aſſemblies were often interrupted by bad weather: it was firſt covered over in the time of the ſecond Punic war. See FORUM.

Roſinus obſerves, that the conſuls and tribunes were not created in the *Comitium*, but in the Campus Martius.

It was in this place that the roſtra were placed. See COMITIA.

COMMA, in *Grammar*, a point, or character, formed thus [,]; ſerving to mark a ſhort ſtop, or pauſe; and to divide the members of a period.

The word is formed of κόπτω, *ſco*, *I cut*.

It is very difficult to fix the preciſe uſe of the *comma*; different authors define, and uſe it differently: the ordinary doctrine is, that the *comma* ſerves to diſtinguiſh nouns, verbs, adverbs, and the ſeveral parts of a period that are not neceſſarily joined together. But this conveys no clear, preciſe idea: for what is it *to diſtinguiſh the parts of a period not neceſſarily joined together?* F. Buffier has carried the doctrine of the *comma* farther; according to him, the *comma* ſerves to diſtinguiſh thoſe members of a period, in each whereof is a verb, and the nominative caſe of the verb. Thus, *That ſo many people are pleaſed with trifles, is owing to a weakneſs of mind, which makes them love things eaſy to be comprehended.*

Beſides this, the *comma* is uſed to diſtinguiſh, in the ſame member of a period, ſeveral nouns ſubſtantives, or nouns adjectives, or verbs, not united by a conjunction. Thus, *Virtue, wit, knowledge, are the chief ornaments of a man*: or, *A man never becomes learned without applying conſtantly, methodically, with a good apparatus, &c.*

If thoſe words be united in the ſame phraſe by a conjunction, the *comma* is omitted: thus, *The imagination and the judgment do not always agree.* The *comma* may alſo be omitted between the phraſes that are very ſhort, eſpecially if they depend upon the ſame regimen, and are united by a conjunction: thus, *Alexander conquered Aſia and eſtabliſhed the monarchy of the Greeks.*

The ingenious author of the treat. De Ratione interpungendi, printed with Vaillin's Elements. Rhetor. Lond. 1724. lays down the rule of a *comma* to be, *to diſtinguiſh the ſingle members of a period, or ſentence*; i. e. ſuch as only conſiſt of one ſubject, and one definite verb. Thus Cicero, *Quis nunc ad accuſatoris ſubſtantiam, quibus ego incredibiliter delector, quæ nos vim, ſanguinem ſenectutis, & mihi ad ſalutis ſuæ preſidia accidere videmus.* See SENTENCE.

But this rule does not go throughout: the ſame author influencing many particular caſes, not included herein, where yet the *comma* is advifable.

Sometimes, e. gr. a propoſition includes another, which may be called *partitive*, as being only a part of the entire phraſe; in which caſe, the two are to be divided from each other by *commas*. Thus, *Elocution ſays, as he tells us, the fineſt things in the world.*

The points, or pauſes in diſcourſe, it is obſerved, are in a kind of muſical proportion: the *comma* ſtops the reader's voice while he may privately tell one; the ſemicolon, two; the colon, three; and the period, or full-ſtop, four. Others make the ſtop at the colon, four; and the period, ſix. Profeſſor Ward obſerves, that the ſuſpenſion of the voice ſhould be twice as long for a *comma* as between words ſeparated by no mark of diſtinction; thrice for the ſemicolon; and ſo on in the ſame proportion. Biſhop Lowth aſſigns to the period a pauſe in duration double to the colon; to the colon, double of the ſemicolon; and to the ſemicolon, double of the *comma*: ſo that they are in the ſame proportion to one another as the ſemibreve, the minim, the crotchet, and the quaver, in muſic. But, whatever be the duration of the ſeveral pauſes, the proportion between them muſt be ever invariable, if the doctrine of punctuation were exact. Introd. to Engliſh Grammar, edit. 1772. p. 107.

The ancients only made uſe of two kinds of points, or pauſes, in a period; the larger they call *members*, the Greeks κῶλα, marked thus [:]; the ſmaller *inciſa*, the Greeks *commata*, thus [,].

The moderns, reſuming on their predeceſſors, have ſubdivided the firſt into a colon, and ſemicolon; ſome ſay, without any good foundation in nature; though others maintain the uſefulneſs of the diviſion.

As the member, or colon, divides the period into two parts, each containing a ſenſe, though that imperfect: thus, *Antequam de republicâ, patres conſcripti, dicam ea quæ dicenda hoc tempore arbitror*; where the ſenſe does not reſt, nor is the period or ſentence perfect, without the addition of, *ea potiùm vobis breviter & poſſeſſionis & reverentiæ mea*: the *comma* ſubdivides each member into intermediate diviſions, which, of themſelves, have no preciſe meaning at all: v. gr. *Nihil eſt, mihi credite, virtute formoſius, nihil pulchrius, nihil amabilius.*

Frequent *commas*, as on other occaſions they promote perſpicuity and diſtinctneſs, and eaſe the reader, both in the reliſcarſal and comprehenſion of his author; ſo, in oratory, are of eſpecial uſe and effect; particularly, where an adverſary is to be cloſely and pointedly attacked, upbraided, reprehended, wounded, &c. Witneſs that of Cicero againſt Verres: *Non enim ea color iſte ſervitii, nec piloſæ genæ, nec dentes putreſi deceperunt: nunc, ſupercilia, frons, vultus denique totus, qui ſorme quidem locatus mentis eſt, hic in fraudem, homines impudici, hic, ecce, quibus erat ignotus, decepti, ſeſellit, in fraudem induxit: puncta tua iſta lutulenta vitia reverunt: pauci teruditatem ingenii, ſtuporem, debilitatemque linguæ, &c.*

COMMA, in *Muſic*, is the ſmalleſt of all the ſenſible intervals of tone. Ptolemy conſidered it as inſenſible; but Salinas aſſerts, that he was capable of diſtinguiſhing it. Muſical writers have enumerated three kinds of *comma*. The greater *comma*, or the interval of two ſounds, having the ratio of 81 to 80, which is the difference of the major and minor tones. To this the term is commonly applied. It is ſeldom in uſe, except in the theory of muſic, to ſhew the juſtneſs of the concords; for in the practice, the diviſion is drowned and loſt.—The ſmaller *comma* is the difference between the greater and leſſer ſemitones; and the proportion expreſſing it is that of 2048 to 2025.—The *comma* of Pythagoras is expreſſed by the ratio of 531441 to 524288: or, it is the difference between ſix tones major and an octave. The tone, in the diſtribution aſcribed by Boethius and others to Philolaus, contained nine *commas*. See TONE, &c.

COMMAND, in the *Royal Navy*, implies the rank or power of an officer who has the management of a ſhip of war of any kind under twenty guns. He ranks with a major in the army.

COMMANDER, is a name given to a large wooden mallet uſed in a ſhip.

COMMANDING *Ground*, in *Fortification*, an eminence, or riſing ground, which overlooks any poſt, or ſtrong place.

Of this they reckon three ſorts: 1°, *A front commanding ground*, which is an height oppoſite to the face of the poſt, which plays upon its front.

2°, *A reverſe commanding ground*, which is an eminence that can play upon the back of any place or poſt.

3°, *An enfilade commanding ground, or oblique commanding ground*, which is a high place, that can with its ſhot ſcour all the length of a ſtrait line.

COMMANDMENT, in a *Legal Senſe*, has various uſes: as, *Commandment of the king*, when, on his own mere motion, and from his own mouth, he calls a man into priſon.

Commandment of the juſtices, is either *abſolute*, or *ordinary*; *abſolute*, as when, on their own authority, and their own diſcretion, they commit a man to priſon for puniſhment. *Ordinary*, as when they commit him rather for ſafe cuſtody, than puniſhment.—A man committed to an ordinary *commandment* is repleviable.

COMMANDMENT is alſo uſed for the offence of him who directs or wills another to tranſgreſs the law; as by murder, theft, and the like.

He that commandeth any one to do an unlawful act, is acceſſary to it, and all the conſequences, if it be executed in the ſame manner as *commanded*: but if the *commander* revoke the *command* or if the execution varies from it, or in the nature of the offence; in ſuch caſe he will not be acceſſary. 3 Inſt. 51, 57. 2 Inſt. 182.

In another ſenſe of this word, magiſtrates may *command* others to aſſiſt them in the execution of their offices, for the doing of juſtice; and ſo may a juſtice of peace, to ſuppreſs riots, apprehend felons; or any officer to keep the king's peace, &c. Pro. 3.

In trespaſs, &c. the maſter ſhall be accountable for the act of the ſervant done by his *command*, but ſervants ſhall not be excuſed for committing any crime, when they act by *command* of their maſter, who *have* no authority to enforce ſuch *commands*. The *commands* of infants and feme coverts are void.

COMMANDMENTS, *&c.* See DECALOGUE.

COMMANDRY, a kind of benefice or fixed revenue belonging to a military order, and conferred on ancient knights, who had done conſiderable ſervice to the order.

There are *fixed* or regular *commandries*, obtained in order, and by merit; there are others of *grace* or *favour*, conferred at the pleaſure of the grand-maſter.

There are alſo *commandries* for the knights in the order of St. Bernard and St. Antony.—The kings of France have converted ſeveral of the hoſpitals for lepers into *commandries* of the order of St. Lazarus.

The commandries of Malta are of different kinds; for as the order conſiſts of knights, chaplains, and brother ſervitors, there are peculiar *commandries*, or revenues, attached to each.

The knight to whom one of theſe benefices or *commandries* is given, is called *commandeur*, which anſwers pretty nearly with the *præpoſitus* we meet with in charters at a diſtance from the grand-maſtery, whoſe adminiſtration was called *obedientia*: becauſe depending entirely on the abbot who gave him his commiſſion. Thus it is with the ſimple *commanders* of Malta, who are rather farmers of the order, than beneficiaries: paying a certain tribute, or rent, called *reſponſio*, to the common treaſure of the order.

The *commandries* belonging to the priory of St. John of Jeruſalem in England, conſiſting of manors, lands, &c. ſuch was that of New Eagle in Lincolnſhire, were given to Henry VIII. by ſtat. 32 Hen. VIII.

COMMELINA, in *Botany*, a genus of the *triandria monogynia* claſs: ſo named by F. Plumier, in compliment to Dr. Commeline, a famous profeſſor of botany at Amſterdam. Its characters are theſe: it hath a permanent heart-ſhaped ſpatha; the flower hath ſix concave petals, three of which are ſmall and oval, the other large, roundiſh, and coloured. It hath three nectariums, which hath been ſuppoſed to be ſtamina) and three awl-ſhaped ſtamina which recline: in the centre is ſituated a roundiſh germen, which afterward becomes a naked globular capſule with three ſu-rows, having three cells, each containing two angular ſeeds. There are five ſpecies, natives of Africa and America. Miller's Gard. Dict.

No medicinal propertie are attributed to this plant.

COMMEMORATION, the remembrance of any one; or ſomething done in honour of a perſon's memory.

Among the Romaniſts, it is a practice for dying perſons to leave a legacy to the church, for the celebrating to many maſſes in *commemoration* of them.

The euchariſt is a *commemoration* of the ſufferings of Jeſus Chriſt.

COMMEMORATION is alſo the name of two religious feaſts, otherwiſe called ALL-SAINTS, and ALL-SOULS. The occaſion of their inſtitution is variouſly related.

COMMENDAM, in the *Canon Law*, expreſſes the charge, truſt, and adminiſtration of the revenues of a benefice, given to a layman to enjoy, by way of depoſitum, for the ſpace of ſix months, in order to its being repaired, &c. or to another biſhop, or eccleſiaſtic, to perform the paſtoral offices thereof, till ſuch time as the benefice is provided of a regular incumbent.

Anciently, the adminiſtration of vacant biſhoprics belonged to the neareſt neighbouring biſhop; which is ſtill practiſed between the archbiſhoprick of Ayrom, and the biſhoprick of Antun: on this account they were called *commendatory biſhops*.

This cuſtom appears to be very ancient: St. Athanaſius ſays of himſelf according to Nicephorus, that there had been given him in *commendam*, that is in adminiſtration, another church beſides that of Alexandria, when of he was fixed biſhop.

The care of churches, it ſeems, which had no paſtor, was committed to a biſhop till they were provided with an ordinary: the regiſter of pope Gregory I. is full of theſe commiſſions, or *commendams*, granted during the abſence or ſickneſs of a biſhop, or the vacancy of a ſee. Some ſay, that pope Leo IV. firſt for the modern *commendams* on foot, in favour of eccleſiaſtics who had been expelled their benefices by the Saracens; to whom the adminiſtration of the vacant churches was committed for a time, in expectation of their being reſtored: though St. Gregory is ſaid alſo to have uſed the ſame, while the Lombards deſolated Italy.

In a little time the practice of *commendam* became exceedingly abuſed; and the revenues of monaſteries were given to laymen for their ſubſiſtence. The biſhops alſo procured ſeveral benefices, or even biſhoprics in *commendam*, which ſerved for a pretext for holding them all without directly violating the canons. Part of the abuſe has been retrenched; but the uſe of *commendam* is ſtill retained, as an expedient to take off the incompatibility of the perſon, by the nature of the benefice.

When a perſon is made biſhop, his paſtorage becomes vacant; but if the king gives him power, he may ſtill hold it in *commendam*; but this muſt be done before conſecration.

There are ſeveral ſorts of *commendams* founded on the ſtat. 25 Hen. VIII. cap. 21. 21 & 22 *commendam ſimilitudinis*,

which is a provisionary act of the ordinary, and only implies a sequestration of the cure: and fruits till the patron presents his clerk: *commendam retinere*, by means of which a bishop retains benefices on his preferment, which has operated for a certain number of years, or even so long as the *commendatory lived*, and continued bishop: a *commendam recipere*, which is to take a benefice *de novo*, in the bishop's own gift, or of some other patron, which eminent is obtained; and for life.

A benefice cannot be *commended* by parts, any more than it may be presented unto by parts: to that one shall have the glebe, another the tythes, &c. Nor can a commendatory have a *jus in re*, or take to him and his successors, sue or be sued, in a writ of annuity, &c. But a *commenda perpetua* may be admitted to do it, 12 Hen. IV. Compl. Incumb. 360. See 1 Neif. Abr. 454.

COMMENDAM, in popish countries, is a real title of a regular benefice; as an abbey, or priory given by the pope to a secular clerk, or even to a layman, with power to dispose of the fruits thereof during his life.

No benefice that has a cure of souls, i. e. no parsonage, or bishopric, can be given *in commendam*. This practice being entirely contrary to the canons, none but the pope, who has a power of dispensing with the canons, can confer it.

When the *commendam* becomes vacant by the death of the *commendatory*, it is not esteemed vacant by his death; but as it was before the *commendam* was granted; that making no alteration in the thing: yet the pope gives the same benefice in *commendam* again, by a privilege which he still continues.

By the pope's bulls, a *commendatory* abbot has the full authority of the regular abbot to whom he is substituted. For this reason, the bulls expressly require, that he be a priest; or, that if he have not yet attained the age of priesthood, he shall take orders as soon as he has. But this is a mere formality, or matter of style: the thing is never executed.

Indeed, the spiritual direction of the abbey, while it is *in commendam*, is lodged wholly in the claustral prior. The *commendatory* abbots have not any authority over the religious in *spiritualibus*: they even cannot either appoint or set aside the claustral priors, who are nominated in the bulls the administrators of the spiritualities; in which, however, this restriction is added, viz. till the abbot arrive at the age of twenty-five years, to assume the priesthood.

The pope grants benefices *in commendam*, not only to clerks, by dispensing with their age, and other qualifications required; but they also dispense with the clericate even in children yet in the cradle, till they become of age to take the tonsure: it being sufficient to obtain a bull, that it be represented at Rome, that the child is destined for the ecclesiastic state.

In this case there is an ŒCONOMUS, or steward, appointed to take care of the temporal concerns.

COMMENDATORY *Abbot*. See ABBOT *in commendam*.

COMMENDATORY *Letters*, are such as are written by one bishop to another in behalf of any of the clergy, or others of his diocese travelling thither; that they may be received among the faithful: or that the clerk may be promoted; or necessaries may be administered to others, &c. Several forms of these letters may be seen in our historians; as in Bede, lib. ii. cap. 18.

COMMENDATUS, one that lives under the protection of a great man.

Commendati homines, were persons who by voluntary homage, put themselves under the protection of any superior lord. For ancient homage was either predial, due for some tenure, or personal, which was by compulsion as a sign of necessary subjection; or voluntary, with a desire of protection. And those who by voluntary homage put themselves under the protection of any men of power, were sometimes called *homines ejus commendati*, sometimes *suis commendati*, as often occurs in Domesday. *Commendati domini*, were those who depended on two several lords, and paid one half of their homage to each: and *subcommendati*, were like under tenants, under the command of persons who were dependants themselves on a superior lord. There were also *amicitiæ subcommendati*, who bore a double relation to such depending lords. Domesday. This phrase seems to be still in use in the usual compliment, *commend me to such a friend*, &c. which is to let him know I am his humble servant. Spelm. of Feuds, cap. 20.

COMMENSURABLE *quantities*, in *Geometry*, are such as have some common aliquot part, or which may be measured by some common measure, so as to leave no remainder in either. Thus a foot and a yard are *commensurable*; there being a third quantity which will measure each, viz. an *inch*; which taken 12 times makes a *foot*, and 36 times a yard.

Commensurables are to each other, either as units to a rational whole number; or as one rational whole number to another. In *incommensurables* it is otherwise. The ratio of *commensurables* therefore is rational; that of *incommensurables* irrational: hence, also, the exponent of the ratio of *commensurables* is a rational number.

COMMENSURABLE *numbers*, whether integers or fractions are such as have some other number which will measure or divide them without any remainder.

Thus, 6 and 9, $\frac{1}{2}$, and $\frac{1}{3}$, are respectively *commensurable* numbers.

COMMENSURABLE *in power*. Right lines are said to be *commensurable in power*, when their squares are measured by one and the same space, or superficies.

COMMENSURABLE *surds*, are such surds as, being reduced to their least terms, become true figurative quantities of their kind; and are therefore as a rational quantity to a rational: such are $\sqrt{2}$ and $2\sqrt{2}$. See SURD.

COMMENTACULA, among the Romans, the rod which the flamens carried in their hands when going to sacrifice.

COMMENTARIENSIS, among the Romans, an officer who had the keeping of the prisen, and was to obey the *triumviri capitales*.

COMMENTARY, or COMMENT, a gloss, or interpretation, offered to some ancient, obscure, or difficult author, to render him more intelligible, or to supply what he has left undone.

COMMENTARY is also used for a sort of history, written by a person who had a chief hand in the transactions related.

Such are the *commentaries* of Cæsar, of Sleidan, of Montluc, &c.

The word is also used for certain books written on some particular subject: Kepler has an excellent book of *commentaries in Adam*, containing observations on the motion of that planet.

COMMERCE, the exchange of commodities; or, the buying, selling, or trafficking of merchandize, money, or even paper, in order to profit by the same.

There is no doubt but *commerce* is nearly as ancient as the world itself: necessity set it on foot; the desire of conveniency improved it; and vanity, luxury, and avarice, have brought it to its present pitch. At first it could only consist in the exchange of things necessary for life: the plowman gave his corn and his gusto to the shepherd, and received milk and wool in exchange: which method of *commerce* by exchange subsists still in many places; as about the coasts of Siberia, and the Danish, and Muscovite Lapland; among several nations on the coasts of Africa: among some of those of America, and many of Asia. See EXCHANGE.

It is not precisely known when the *commerce* by buying and selling first began; nor when coins, and the several species of gold, silver, and copper, had their rise. The first moneys were wood, leather, and iron: and even at this day, it is the custom in some places of both Indies, to give a certain value in feathers and cocoa-nuts, for merchandizes, drugs, &c. See MONEY and COIN.

The first instance of this kind of *commerce* in the sacred writing, is in the time of the patriarch Abraham. As for prophane authors, they usually fix its epocha to the reign of Saturn and Janus in Italy: and the ancient authors, according to Cæsar, attribute its invention to the god Mercury.

The Egyptians, Phœnicians, and Carthaginians, who were a Tyrian colony, were the first, the most dating and expert traders of all antiquity: at least, it is evident they were the first who ran the hazard of long voyages; and who set on foot a traffic by sea between coasts very remote.

Among the ancients, *commerce* did not appear unworthy the application of persons of the first rank: Solomon, we are told, frequently joined his merchant-fleets with those of the king of Tyre, for their voyage to Ophir; and by this means rendered himself, though in a little kingdom, the richest king of his time in the universe.

Under the Attalic and Grecian empires, ancient history gives us from time to time the traces of a *commerce* cultivated by several nations: but it flourished more considerably under the dominion of the Romans; as appears from that vast number of colleges and companies of merchants in the several cities mentioned in historians, and ancient inscriptions.

The destruction of the Roman empire by the irruptions of the barbarians, brought that of *commerce* along with it; or at least suspended its ordinary operation for some time: by degrees it began to recover itself, and make a new progress; especially in Italy. Hence, the Pisans, Florentines, Genoese, and Venetians, who, abounding in shipping, took occasion to spread themselves through all the ports of the Levant and Egypt, bringing thence

silk, spices, and other merchandises; and furnishing the greatest part of Europe therewith. And thus was the modern *commerce* founded on the ruins of that of the ancient Greeks and Romans to the same places: and thus did those famous republics acquire their riches and power; which were considerably increased by the commercial effects of the crusades. These republics furnished the crusaders with transports, military stores and provisions, and obtained charters very favourable to the establishment and extension of their *commerce*. When Constantinople was taken under the banner of the holy cross, many valuable branches of trade, which formerly centered in that city, were transferred to Venice, Genoa, or Pisa. Robertson's Hist. vol. i. chap. v. p. 34. &c. 8vo.

The Germans, however, had a long time carried on a separate *commerce*; which was not borrowed from the Romans, nor did it fall with theirs. Towards the end of the twelfth century, the German cities situate on the coast of the Baltic, and the rivers that run into it, got into a considerable traffic with the neighbouring states.

As their *commerce* was much interrupted by pirates, seventy-two of them united together for their mutual defence; and were thence called *Hanseatic*, or *Hans towns*. See HANS *Towns*.

Thus they flourished till the beginning of the fifteenth or the end of the fifteenth century; when a division arising among them, and about the same time a new passage to the Indies, by the Cape of Good Hope, being discovered by the Portugese; and settlements made on the coast of Africa, Arabia, and the Indies, the ancient Italian and Hanseatic *commerce* sunk, and the chief trade came into the hands of the Portuguese.

The Portugese had not possessed those different trades above a hundred years, when, about the beginning of the seventeenth century, the Dutch began to share it with them; and in a little time dispossessed them of almost the whole. The English, French, Danes, and Hamburghers, excited by their success, have likewise made settlements in the Indies, and on the coasts of Africa; though much less considerable ones, excepting those of the English.

Lastly, America, discovered by Columbus in 1492, in favour of the Spaniards, soon after the Portugese had discovered the new way to the Indies, likewise became the object of a new, vast, and most important *commerce*, for all the nations of Europe; whereof Cadiz and Seville were made the centre.

It is true, the first conquerors of this new world still possess the greatest and richest part of it, and preserve the *commerce* thereof to themselves with great jealousy: yet, besides that the English, French, Portuguese, and Dutch, have several rich and flourishing colonies, both in the islands and the continent; it is certain, that it is as much for other nations as themselves that the Spaniards every year send their fleets for the treasures of Peru and Mexico.

The trade of Europe was no sufferer by this new one of America; the north and south have still the same mutual occasion for each other as before.

The navigation from the Baltic to the Mediterranean was tedious and difficult: the situation of Flanders, and the manufactures which there flourished from the tenth century, together with the free sales of that country, engaged the merchants, both of the north and south, to establish their magazines first in Bruges, and then in Antwerp.

The establishment of the republic of Holland, the favourable reception it gave to strangers, and the refuge it afforded to religionaries, drew store of manufacturers to it, as well as manufactures; and soon sunk the *commerce* of Antwerp.

And the same reasons, the convenience and multitude of the ports of England, the goodness of the wools, and the industry of the workmen, have brought hither a considerable part of the *commerce* of Europe.

In France the nobles are allowed to exercise *commerce* without derogating from their nobility: by an ordonnance of Louis XIII. merchants are allowed to take on them the quality of nobles; and by another of Louis XIV. they are declared capable of being secretaries of state, without laying aside their *commerce*. It may be added, for the honour of trade, that some of the Italian princes, looking on themselves as the chief merchants of their states, do not disdain to make their own palaces serve as magazines; and there are several kings in Asia, as well as most of those on the coasts of Africa and Guinea, who negotiate with the Europeans by their factors, and frequently in person.

Commerce, on the foot it now stands, is divided into *commerce by land*, and *by sea*; *inland* or *domestic*, and *foreign*; and by *wholesale* and *retail*.

With respect to domestic *commerce*, we may observe, that the king is the arbiter of it; as it pertains to his prerogative to establish public marts, as markets and fairs, to regulate weights and measures, and to give money, which is the universal medium of *commerce*, authority and currency.

A great part of the foreign *commerce* of England is now carried on by collective companies: some incorporated by the king's charters, with an exclusive privilege, as the East-India company; others only private associations, as the Turky and Hamburgh companies. See COMPANY.

COMMERCE, *Chambers of*. See CHAMBER.

COMMERCE, *Characters in*. See CHARACTER.

COMMINATORY, a clause inserted in a law, edict, patent, &c. importing a punishment wherewith delinquents are menaced; which, however, is not to be executed in its rigour.

Thus, in France, when an exile is enjoined not to return on pain of death, it is deemed a *comminatory* penalty; since, if he do return, it is not strictly executed; but a second injunction is then laid on him, which is more than *comminatory*, and from the day of the date thereof, imports death without remedy.

COMMINUTION, the act of grinding, or breaking any matter into smaller particles.—The effect of chewing, or masticating our food, is the *comminution* thereof.

COMMISSARY, an officer of the bishop, who exercises ecclesiastical jurisdiction in those parts of the diocese which are so remote from the see, that the chancellor cannot call the subjects thereof to the bishop's principal consistory, without their too great molestation.

This officer, called by the canonists *commissarius*, or *officialis foraneus*, is appointed to supply the bishop's office in the out-parts of the diocese, and to such parts as are peculiar to the bishop, and exempted from the jurisdiction of the archdeacons: for where the archdeacons have jurisdiction, as in most places they have, either by prescription or composition, the *commissary* is superfluous, and frequently vexatious.

COMMISSARY, in an *army*.—There are several sorts of *commissaries*.

COMMISSARY *of horses*, an officer in the artillery, appointed to have the inspection of the artillery-horses, to see them mustered, and to send such orders as he receives from the commanding officer of the artillery, by some of the conductors of horses, of which he has a certain number for his assistants.

COMMISSARY-GENERAL *of the musters*, or muster-master general, takes an account of the strength of every regiment, reviews them, sees that the horse be well mounted, and all the men well armed and accoutred.

COMMISSARY *of provisions*, is he who has the inspection of the bread and provisions of the army.

COMMISSARY *of stores*, an officer in the artillery who has the charge of all the stores, for which he is accountable to the office of the ordnance; he is allowed an assistant, clerks, and conductors, under him.

COMMISSION, in *Common Law*, is the same with *delegation* among the civilians; and is taken for the warrant, or patent, which any man exercising jurisdiction, either ordinary or extraordinary, hath to authorise him to hear or determine any cause or action.

The term, however, is sometimes extended farther than to matters of judgment; as in the *commission of purveyors*, which seems to be null by the statute for taking away purveyance, 12 Car. II. and the high *commission court*, which was founded on the statute 1 Eliz. and is also abolished by act of parliament 16 Car. I. The persons charged with a *commission* are hence called *commissioners*; sometimes *committees*.

COMMISSION *of anticipation*, was anciently a *commission* given under the great-seal, to collect a subsidy before the day. See ANTICIPATION.

COMMISSION *of assessation*, is a *commission* under the great-seal to associate two, or more learned persons, with the several justices, in the several circuits and counties in Wales.

COMMISSION *of bankruptcy*, a *commission* under the great seal, directed to five or more commissioners, to enquire into the particulars of a man's circumstances, who hath failed, or broke; and to act according to certain statutes made in that behalf. See BANKRUPT and PETITION *of Bankruptcy*.

COMMISSIONS *of charitable uses* go out of the chancery to the bishop and others, where any lands given to charitable uses are misemployed, or there are any fraud or disputes concerning them, to enquire of and redress the abuse, &c. 43 Eliz. cap. 4.

COMMISSION *of Delegates*. See DELEGATES and COURT.

COMMISSION *of lunacy*, a commission out of chancery to enquire whether a person represented to be lunatic, be so or not; that, if lunatic, the king may have the care of his estate, &c. 17 Edw. II. cap. 10.

COMMISSION *of peace*. See JUSTICE *of peace*.

COMMISSION *of rebellion*, or *writ of rebellion*, is issued out when a man, after proclamation iſſued out of the chancery, or the exchequer, and made by the ſheriff, to preſent himſelf, under pain of his allegiance, to the court by a certain day, does not appear. See REBELLION.

This *commiſſion* is directed, by way of command, to certain perſons; three, two, or one of them; to apprehend, or cauſe to be apprehended, the party as a rebel; and to bring him to the court on a day aſſigned.

This writ or *commiſſion* goes forth after an attachment returned, *non eſt inventus*, &c.

COMMISSION *of ſewers*, is directed to certain perſons to ſee drains and ditches well kept, and maintained, in the marſhy and ſunny parts of England, for the better conveyance of wates into the ſea, and preſerving the graſs upon the land. Stat. 23 Hen. VIII. cap. 5. 13 Eliz. cap. 9.

COMMISSION *to examine witneſſes*, is ſometimes appointed by the court of equity in caſes that require it, as when the cauſe ariſes in a foreign country, and the witneſſes are at home, or when the witneſſes are abroad, or ſoon to leave the kingdom; or again, when they are aged and infirm. This *commiſſion* is impowered to exerciſe the ſame juriſdiction as would have been exerciſed if the witneſſes had attended.

COMMISSION-*Officers*. See OFFICERS.

Book of COMMISSIONS. See BOOK.

COMMISSION, in *Commerce*. See FACTORAGE.

COMMISSIONER, he who has a COMMISSION, c. gr. a patent or other legal warrant, to execute any public office. See WARRANT, &c.

Such are, *commiſſioners* of hawkers and pedlars, *commiſſioners* of alienation, *commiſſioners* of the ſtamps, &c.

COMMISSIONERS *of the Cuſtoms*. See CUSTOMS.

COMMISSIONERS *of the Dock-yards*. See DOCK-*yards*.

COMMISSIONERS *of Exciſe*. See EXCISE.

COMMISSIONERS *of the Navy*. See NAVY.

Lords COMMISSIONERS *of the Treaſury*. See TREASURY. and EXCHEQUER.

COMMISSIONERS *of Trade*, &c. See BOARD.

COMMISSUM *Fidei*. See FIDEI.

COMMISSURE, COMMISSURA, a term uſed by ſome authors, for the junctures, or for the ſmall interſtices of bodies; or the little clefts between the particles; eſpecially when thoſe particles are broadiſh and flat, and lie contiguous to one another, like thin plates, or LAMELLÆ. See PORE.

The word literally ſignifies *a joining*, or connecting of one thing to another.

COMMISSURE, in *Architecture*, &c. denotes the joint of two ſtones; or, the application of the ſurface of the one to that of the other.

Among anatomiſts, *commiſſure* is ſometimes alſo uſed for a future of the cranium, or ſkull.

COMMITMENT, in *Law*, the ſending of a perſon to priſon by warrant or order, who hath been guilty of any offence not bailable, or for which bail is refuſed. It may be by the king and council, by the judges of the law, juſtices of peace, and other magiſtrates, who have authority by the laws and ſtatutes of the realm to do it, which muſt be exactly purſued. Every *commitment* to priſon ought generally to be made by warrant, under the hand and ſeal of him who commits the party, and the cauſe of *commitment* to be expreſſed in the warrant, &c. And where a man is committed as a criminal, it muſt be until he is diſcharged by due courſe of law; but if it be for contempt, then it is only till he comply and perform the thing required. Carthew's Rep. 153. If the words of a ſtatute are not purſued in a *commitment*, the party ſhall be diſcharged by *habeas corpus*. Ib. 291. See BAIL, IMPRISONMENT, MITTIMUS, &c.

COMMITTEE, in *Law*, one or more perſons, to whom the conſideration of any matter is referred, either by a court, or by conſent of the parties concerned.

COMMITTEE *of Parliament*, is a board conſiſting of a certain number of members, appointed by the whole houſe, for the examining of a bill, or making report of an inquiry, or proceſs of the houſe, &c.

Sometimes, the whole houſe is reſolved into a *committee*; on which occaſion each perſon has a right to ſpeak, and reply as much, and as often as he pleaſes: an expedient they uſually have recourſe to in extraordinary caſes and where any thing is to be thoroughly canvaſſed. — When the houſe is not in a *committee*, each gives his opinion regularly, and is only allowed to ſpeak once, unleſs to explain himſelf.

The ſtanding *committees*, appointed by every new parliament, are thoſe of *privileges* and *elections*, of *religion*, of *grievances*, of *courts of juſtice*, and of *trade*: though only the former act.

COMMITTEE *of the king*, is uſed for a widow of one of the king's tenants: thus called, as being by the ancient law of the realm *committed* to the king's care and protection. See WIDOW.

COMMODATE, COMMODATUM, in the *Civil Juriſprudence*, the loan, or free conceſſion of any thing moveable or immoveable, for a certain time, on condition of reſtoring again the ſame individual after a certain term.

The *commodate* is a kind of loan: there is this difference, however, between a loan and a *commodate*, that the latter is gratis, and does not transfer the property: the thing muſt be returned in eſſence, and without impairment; ſo that things which conſume by uſe, or time, cannot be objects of a *commodate*, but of a loan; in regard they may be returned in kind, though not in identity.

COMMODAVIENSIS, an appellation given by ſome authors to a ſpecies of *lapis calaminaris* found in Bohemia. But as it yields no ZINC, Mr. Margraf denies it to be true CALAMINE.

COMMODITIES *Staple*. See STAPLE.

COMMODORE, in the *Britiſh Marine*, a general officer, inveſted with the command of a detachment of ſhips of war deſtined on any particular enterpriſe; during which time he bears the rank of a brigadier-general in the army, and his ſhip is diſtinguiſhed by a broad red pendant tapering towards the outer end, and ſometimes forked.

COMMODORE is alſo a name given to a ſelect ſhip in a fleet of merchantmen, which leads the van in time of war, bearing a light in her top to conduct the reſt.

COMMOIGNE, in *Law*, a word ſignifying a fellow-monk, that lives in the ſame convent. 3 Inſt. 15.

COMMON, COMMUNIS, ſomething that belongs to all alike; is owned or allowed by all; and is not confined to this more than that.

In which ſenſe, *common* ſtands oppoſed to *proper*, *peculiar*, &c. Thus, the earth is ſaid to be our *common* mother; in the firſt or golden age, all things were in *common*, as well as the ſun and elements: the ſame animal is *common* to man and beaſt; that of ſubſtance to body and ſpirit. Philoſophers diſpute whether there be any ſuch thing as *common* notions, innate, or impreſſed on the mind by nature herſelf; or whether our ideas are all adventitious.

COMMON, *communia* (i. e. *quaſi cum munia poſſeſſa*) ſignifies that ſoil, the uſe whereof is *common* to a particular town or lordſhip: or it is a profit that a man hath in the land of another perſon, uſually in common with others; or a right which a perſon hath to put his cattle to paſture into ground that is not his own. And there is not only *common* of PASTURE, but alſo *common* of PISCARY, *common* of ESTOVERS, *common* of TURBARY, &c. And in all caſes of *common*, the law doth much reſpect the cuſtom of the place: for there the rule is, *conſuetudo loci eſt obſervanda*. 7 Rep. 5. *Common* of paſture is divided into *common* in groſs, *common* appendant, *common* appurtenant, and *common per cauſe de vicinage*.

COMMON *in groſs*, is a liberty to have *common* alone, that is, without any land or tenement in another man's land, granted either to a perſon for life, or to him and his heirs. This is commonly paſſed by deed, or ſpecialty, and claimed by preſcriptive right.

COMMON *appendant*, and COMMON *appurtenant*, are uſually confounded; both being defined to be a liberty of *common* appertaining to, or depending on, ſuch or ſuch a freehold; which *common* muſt be taken with beaſts *commonable*; as horſes, oxen, &c. being accounted fitteſt for the plowman; and not with goats, geeſe, and hogs. Others diſtinguiſh between the two, thus: *common appurtenant* may be ſevered from the land whereto it appertains; and is where the owner of land has a right to put in other beaſts not *commonable*; as hogs, goats, &c. which neither plough nor manure the land. Whereas *common appendant*, according to my lord Coke, had its original in the following manner:

"When a lord enfeoffed another in arable lands to hold "of him in ſoccage: the feoffee, to maintain the ſervice "of his plough, had at firſt, by courteſy of his landlord, "*common* in his waſtes, for neceſſary beaſts, to eat and "compoſt his lands: and that for two cauſes; 1°. Be"cauſe it was tacitly implied in the inveſtment; by rea"ſon the feoffee could not till, or compoſt his paſture; "by conſequence, therefore, the feoffee had, as a thing "neceſſary, or incident, *common* in the waſtes, or lands "of the lord. 2°. For the maintenance and advance"ment of tillage."

COMMON *per Cauſe de Vicinage*, i. e. by reaſon of neighbourhood; is a liberty that the tenants of one lord in one town, have to *common* with the tenants of another lord in another town.

But it is to be obſerved, that thoſe who claim this kind of *common* (which is uſually called INTERCOMMONING) may not put their cattle into the common of the other two, for then they are diſtrainable; but turning them into their own fields, if they ſtray into their neighbours *common*, they muſt be ſuffered.

COMMON, in *Geometry*, is applied to an angle, line or the like, which belongs equally to two figures, or makes a necessary part of both.

COMMON, in *Grammar*, denotes the gender of nouns which is equally applicable to both sexes, male and female. Such is that of *parent*, parent; which is either masculine, or feminine, as it is used to signify either father or mother.

The Latin grammarians, besides this, which they call the *common of two*, also make a *common of three*: which extends to masculine, feminine, and neuter.

COMMON, *communis*, in *Ancient Music*, was an appellation given to the seventh species of the diapason. See DIAPASON.

COMMON *Bail*. See BAIL.

COMMON *Barretry*. See BARRETRY.

COMMON *bench*. The court of *common* PLEAS was anciently called *communi banco*.

In law books and references, the court of *common* pleas is writ C. B. from *communi banco*: and the juftices of that court are ſtyled *juſticiarii de banco*.

COMMON *Centre of Gravity*. See CENTRE *of Gravity*.

COMMON *Chords*, in *Muſic*, is ſometimes uſed to denote the third, fifth, and octave of any note, conſidered as a baſe.

COMMON *Clerk*. See TOWN *Clerk*.

COMMON *Crier*. See CRIER.

COMMON *Council*. See *Mayor's* COURTS.

COMMON *day*, in plea of land, ſignifies an ordinary day in court, as *octabis Hilarii*, *quindene Paſche*, &c. It is mentioned in 13 Rich. II. ſtat. 1. cap. 17. and in the ſtatute 51 Hen. III. concerning general days in bank. *Blount* and Cowel.

COMMON *Doll*, in *Anatomy*. See DUCTUS *Communis*.

COMMON *Fine*, in *Law*, a certain ſum of money, which the reſiants within the liberty of ſome leets pay to the lord thereof; called in ſome places, *head-ſilver*; in others, *cert-money*, or *certum leta*, and *head-penie*.

It was firſt granted to the lord towards the charge of his purchaſe of the court-leet; whereby the reſiants have now the conveniency of doing their ſuit-roval near home, without being compelled to go to the ſheriff's turn.

COMMON *Hunt*, the chief huntſman belonging to the lord mayor and aldermen of London.

COMMON *Intendment*, in *Law*, the *common* underſtanding, meaning, or conſtruction of any thing; without ſtraining it to any foreign, remote, or particular ſenſe.

Bar to COMMON *Intendment*, is an ordinary or general BAR, which commonly diſables the reputation of the plaintiff. See INTENDMENT.

COMMON *Law*, that body of rules generally received, and held as law in this nation, in contradiſtinction to the ſtatute, or written law, and to particular cuſtoms and uſages.

After the decay of the Roman empire, Britain became invaded by three kinds of German people, viz. the Saxons, Angles, and Jutes. From the Jutes deſcended the men of Kent, and thoſe of the Iſle of Wight: from the Saxons came the people called the Eaſt, South, and Weſt Saxons: and from the Angles came the Eaſt Angles, Mercians, and Northumbrians.

Now, as each people had its peculiar cuſtoms, ſo each inclined to different laws; whereof, thoſe of the Weſt Saxons, and Mercians, who inhabited the midland counties, were, upon the diſſolution of the heptarchy, and eſtabliſhment of a monarchy, preferred to the reſt, and acquired the common appellation of *Jus Anglorum*. Their particular names were *Weſt Saxon-lage*, and *Mercheu-lage*.

The firſt Saxon laws publiſhed in England, were thoſe of king Ethelbert, in the ſixth century. Three hundred years after, king Alfred, whom our hiſtorians call *magnus juris Anglicani conditor*, having united the heptarchy, and rendered himſelf maſter of the whole nation, made a collection from among the ſeveral laws of the ſeveral provinces of his domains; and commanded them to be obſerved throughout his kingdom. This collection was denominated *folc-riehts*, and ſoon after, the *common law*; as being *communis* the whole nation.

This was written in Alfred's *dome-book*, or *liber judicialis*, which was deſigned for the general uſe of the whole kingdom.

By theſe laws the nation was governed for a conſiderable time, till, being at length ſubdued by the Danes, the cuſtoms of thoſe people were introduced, and incorporated with the reſt; and thus a new form of common law aroſe, called *Danelage*.

The three ſyſtems of law above recited, viz. the *Danelage*, the *Weſt Saxon-lage*, which was the ſame with the code compiled by Alfred, and the *Mercheu-lage*, were in uſe about the beginning of the eleventh century, in different counties of the realm. In proceſs of time king Edgar began what his grandſon Edward the Confeſſor, on this account called *legum Anglicanarum inſtitutor*, completed; viz. to form one digeſt or body of laws to be obſerved throughout the whole kingdom. This ſeems to have been only a new edition, or freſh promulgation of Alfred's *dome-book*, with ſuch additions and improvements as the experience of a century and a half had ſuggeſted.

The Danes being afterwards, in their turn, overcome by the Normans; the Conqueror on a review of the ſeveral laws and cuſtoms that then obtained, abrogated ſome, and aboliſhed others; adding ſome of his own country laws.

His ſon, William Rufus, broke through the ancient laws and cuſtoms which his father had eſtabliſhed; but his next ſon, Henry I. excluded the civil cuſtoms which his brother had introduced, and reſtored the laws of Edward the Confeſſor, with thoſe amendments made by his father, under the aſſiſtance of his barons. Theſe were afterwards confirmed in ſucceeding reigns.

Hence is derived that ſyſtem of maxims and unwritten cuſtoms, now known by the name of the *common law*, which is of Saxon parentage; though the cuſtoms and maxims themſelves are of higher antiquity than memory or hiſtory reach; many of them being as old as the primitive Britons.

The *common law* of England is, properly, the common cuſtoms of this kingdom; which, by length of time, have obtained the force of laws.

It is called *lex non ſcripta*, the *unwritten law*: not but that we have moſt of it written in the old Norman dialect, and the monuments and evidences of our legal cuſtoms are contained in the records of the ſeveral courts of juſtice, in books of reports and judicial deciſions, and in the treatiſes of learned ſages of the profeſſion, preſerved and tranſmitted from times of the higheſt antiquity: but becauſe it does not appear to be made by charter, or parliament; for thoſe are always matters of record. Its original inſtitution and authority are not ſet down in writing, but it receives its binding power and the force of law, by long and immemorial uſage, and by univerſal reception through the kingdom. See AUTHORITIES and REPORTS.

Beſide the *common law* of England in general, there are in divers parts of the nation particular cuſtoms, and common uſages, which have the force of *common law* among thoſe people who have retained them: ſuch as the Borough-Engliſh, Gavelkind, &c.—Where the common law is ſilent, there the STATUTE-*law* ſpeaks. See STATUTE.

All TRIALS at *common law* are by a JURY of twelve men.

COMMON *meaſure diviſor*, in *Arithmetic*, a number that exactly meaſures two other numbers, without a remainder. And the greateſt number that can meaſure any two other numbers, is called their greateſt *common meaſure*; thus 4 is the greateſt *common meaſure* of 8 and 12.

To find the greateſt *common meaſure* of two numbers; divide the greater by the leſs, and if there be no remainder, the leſs number is the meaſure required. If there be a remainder, divide the laſt diviſor by it, and thus proceed, till there be no remainder left, and the laſt diviſor is the greateſt *common meaſure*. For algebraic quantities, the remainders are to be divided by their ſimple diviſors, and the quotients will be the quantities required. And if FRACTIONS are divided by their greateſt *common meaſure*, they will thus be reduced to their loweſt terms.

COMMON *mouth*, *motion*, and *object*. See the ſubſtantives.

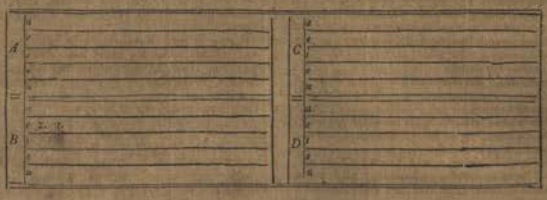
COMMON-PLACE *Book*, *Adverſaria*, among the learned, denotes a regiſter, or orderly collection of things which occur worthy to be noted, and retained in the courſe of a man's reading, or ſtudy; ſo diſpoſed, as that among a multiplicity of ſubjects any one may be eaſily found.

Common-place-books are of great ſervice: they are a kind of promptuaries or ſtorehouſes, wherein to repoſit the moſt valuable parts of authors, to be ready at hand when wanted. Several perſons have their ſeveral methods of ordering them: but that which comes beſt recommended, is the method of that great maſter of order Mr. Locke. He has thought fit to publiſh it in a letter to M. Toſſand; determined thereto, by the great convenience and advantage he had found from it in twenty years experience; as well as by the recommendations and intreaties of many of his friends, who had likewiſe proved it.

The ſubſtance of this method we ſhall here give the reader; whereby he will be eaſily enabled to execute it himſelf.

The firſt page of the book you intend to take down the *common-places* in, is to ſerve as a kind of index to the whole; and to contain references to every place, or matter, therein: in the commodious contrivance of which index, for as it may admit of a ſufficient copia, or variety of materials, without any confuſion, all the ſecret of the method conſiſts.

In order to this, the firſt page, as already mentioned, or for more room, the two firſt pages that front each other, are to be divided, by parallel lines, into twenty-five equal parts; whereof, every fifth line is to be diſtinguiſhed, by its colour, or ſome other circumſtance. Theſe lines are to be cut perpendicularly by others, drawn from top to bottom; and in the ſeveral ſpaces thereof, the ſeveral letters of the alphabet, both capital and minuſcule, are to be duly written. The form of the lines and diviſions, both horizontal and perpendicular, with the manner of writing the letters therein, will be conceived from the following ſpecimen; wherein what is to be done in the book for all the letters of the alphabet, is here ſhewn in the firſt four, *A*, *B*, *C*, and *D*.



The index of the *common-place* book being thus formed, matters are ready for the taking down any thing therein.

In order to this, conſider to what head, the thing you would enter is moſt naturally referred; in this head, or word, regard is had to the initial letter, and the firſt vowel that follows it; which are the characteriſtic letters whereon all the uſe of the index depends.

Suppoſe, e. gr. I would enter down a paſſage that refers to the head *beauty*; *B*, I conſider, is the initial letter, and *e* the firſt vowel: then looking upon the index for the partition *B*, and therein the line *e* (which is the place for all words whoſe firſt letter is *B*, and firſt vowel *e*; as *Beauty*, *Beneficence*, *Bread*, *Bleeding*, *Blemiſh*, &c.); and finding no numbers already down to direct me to any page of the book where words of this characteriſtic have been entered, I turn forward to the firſt blank page I find, which in a freſh book, as this is ſuppoſed to be, will be page 2, and here I now write what I have occaſion for on the head *beauty*; beginning the head in the margin, and indenting all the other ſubſequent lines, that the head may ſtand out, and ſhew itſelf: this done, I enter the page where it is written, viz. 2, in the index, in the ſpace *B e*, from which time, the claſs *Be* becomes wholly in the poſſeſſion of the 2d and 3d pages, which are configned to letters of this characteriſtic.

Had I found any page or number already entered in the ſpace *B e*, I muſt have turned to the page, and have written my matter in what room was left therein; ſo, if after entering the paſſage on beauty, I ſhould have occaſion for *benevolence*, or the like, finding the number 2 already poſſeſſed of the ſpace of this characteriſtic, I begin the paſſage on benevolence in the remainder of the page; which not containing the whole, I carry it on to page 3, which is alſo for *B e* and add the number 3 to the index.

When the two pages deſtined for one claſs are full, look forwards for the next backſide that is blank; if it be that which immediately follows, write at the bottom of the margin of the page filled, the letter *v* for *verte*, turn over; and the ſame at the top of the next page; and continue from this new page as before. If the pages immediately following be already filled with other claſſes; then write at the bottom of the page laſt filled the letter *v*. with the number of the next blank page: and at the top of that page, the number of the page laſt filled: then entering that head in this new page, proceed as before. By theſe two numbers of reference, the one at the top, and the other at the bottom of the page, the diſcontinued matters are again connected. It may not be amiſs, every time you put a number at the bottom of a page, to put it like wiſe in the index. Note, if the head be a monoſyllable beginning with a vowel, the vowel is at the ſame time both the initial letter, and the characteriſtic vowel: thus the word *art* is to be wrote in *Aa*. Mr. Locke omits three letters of the alphabet in his index, viz. *K*, *Y*, and *W*, which are ſupplied by *C*, *I*. *U*, equivalent to them: and as for *Z*, ſince it is always followed by an *a*, he puts it in the fifth place of *Z*; and ſo has no *Z a*, which is a characteriſtic that very rarely occurs. By thus making *Z* the laſt in the index, its regularity is preſerved, without diminiſhing its extent. Others chooſe to retain the claſs *Za*, and aſſign a place for *Z* below the index.

If any imagine, that three hundred claſſes are not ſufficient to comprehend all kinds of ſubjects without confuſion, he may follow the ſame method, and yet augment the number to five hundred, by taking in one more characteriſtic to them.

But the inventor aſſures us, that in all his collections, for a long ſeries of years, he never found any deficiency in the index, as above laid down.

COMMON *Place*, in *Rhetoric*. See ARGUMENTS and TOPICS.

COMMON-PLEAS. See COURT *of Common Pleas*.

COMMON *Prayer*, is the LITURGY of the church of England. Clergymen are obliged to uſe this liturgy in the ſervice of the church; and refuſing to do ſo, or uſing any other public prayers, is puniſhable by 1 Eliz. cap. 2. and every incumbent, reſident on his living, is obliged, once every month at leaſt, to read the *common prayer* in his parith church, in his own perſon, under a forfeiture of 5*l*. for every failure, by 14 Car. II. cap. 4. and by the ſame ſtat. every church is to be provided with a book of *common prayer*, under the penalty of 3*l*. a month. Every miniſter who ſpeaks any thing in derogation of this book is liable to ſix months impriſonment, and the forfeiture of a year's value of his benefice, and for the ſecond offence to deprivation: and any perſon convicted of reviling it, ſhall forfeit for the firſt offence a hundred marks, four hundred for the ſecond; and for the third offence all his goods and chattels, and ſuffer impriſonment for life. Stat. 1 Eliz. cap. 2.

COMMON *rey*. See RAY.

Tenants in COMMON. See TENANT.

COMMON *receptacle*. See RECEPTACULUM.

COMMON *Recovery*. See RECOVERY.

COMMON *Senſe*. See SENSE.

COMMON *Sewers*. See SEWER.

COMMON *Serjeant*. See SERJEANT.

COMMON *Time*. See TIME.

COMMON *Year*. See YEAR.

COMMONER, is uſed for a ſtudent in ſome univerſities, entered in a particular rank.

The word is alſo applied to a member of the houſe of *commons*; in contradiſtinction to a *peer*.

COMMONS, in parliament, are the lower houſe, conſiſting of knights elected by the counties, and of citizens and burgeſſes by the cities and borough towns.

In theſe elections, anciently, all the people had voices; but king Henry VI. to avoid tumults, firſt appointed, that none ſhould vote for knights but ſuch as were freeholders, did reſide in the county, and had forty ſhillings yearly revenue; the perſons elected for counties to be *milites notabiles*, at leaſt eſquires, or gentlemen fit for knighthood; native Engliſhmen, at leaſt naturalized; and twenty-one years of age: no judge, ſheriff, or eccleſiaſtical perſon, to ſit in the houſe for county, city, or borough.

The *houſe of commons*, in Forteſcue's time, who wrote during the reign of Henry VI. conſiſted of upwards of three hundred members: in ſir Edward Coke's time their number amounted to four hundred and ninety three.

At the time of the union, there were five hundred and thirteen members for England and Wales; to which forty-five repreſentatives for Scotland were added; ſo that the whole number of members is at this day five hundred and fifty-eight.

All members of either houſe, with their menial ſervants, and neceſſary goods brought with them, are priviledged by the common law from all attachments and impriſonments; except for treaſon, felony, or breach of peace; all the time of the ſeſſion, and till they arrive at home, *eundo, morando, ad propria redeundo*.

By 12 and 13 W. cap. 3. and 11 G. II. cap. 24. actions may be brought againſt members of parliament and their ſervants immediately after the diſſolution or prorogation

or any adjournment for more than fourteen days, till they are reassembled: and in the mean while the courts may give judgment and award execution. By 4 G. III. cap. 33. the petitioners, in a case of bankruptcy, where the debtor is a trader within the statutes, may sue out a summons or an original bill and summons, and serve a member with a copy of it: and if the debts with costs be not paid within two months, the creditors may proceed as against other bankrupts: arrest during the time of privilege excepted. And by 10 G. III. cap. 50. action *may* be prosecuted in any court of record, of equity, of admiralty, or such as have cognizance of causes matrimonial and testamentary, against any peer or member of the *house of commons*, or any of their servants, or any other person intitled to privilege of parliament, provided that the person of any member of the *commons* is exempted from arrest or imprisonment.

The *commons* sit in their house promiscuously: only the *speaker* has a chair, or seat, fixed towards the upper end; and the clerk, with his assistant, sits near him.

The members have no robes, as the lords ever had; excepting the speaker and clerks; and sometimes the professors of law in term time, and the members of the city of London.

On the first day of the new parliament, before any affair is meddled with, all the members take the oaths; usually before the lord steward, and in the court of wards. They then proceed to the choice of a SPEAKER, they take the oaths a second time.

Privileges of the COMMONS. All bills for levying money on the subject, begin in the house of *commons*; in regard, it is from them the greatest part of the moneys arise: not will they allow the lords to make any alteration in a money-bill. They have the privilege to propose laws, and are, in effect, the grand inquest of the realm; present public grievances; impeach public delinquents, even the highest officers of the kingdom; and prosecute them before the house of lords, which is a court of judicature, though the *commons* are not.

The *commons* were formerly allowed their expences during parliament time, *rationabiles expensæ*, as the words of the writ are; i. e. such allowance as the king, considering the price of things, shall think proper to impose on the people they represent. In 17 Edward II. the allowance was ten groats for knights, and five for burgesses, per day; afterwards it was raised to four shillings a day for dubbed knights, and two shillings for all the rest: but all allowance is now grown into disuse; and considerable sums are too often expended in order to obtain the honour or advantage accruing from a seat in PARLIAMENT. See BURGESS.

COMMONS is also used in opposition to *nobles*, or *peers*, viz. for all sorts of persons under the degree of a baron; including the orders of knights, esquires, gentlemen, the sons of the nobility, and yeomen. See each under its proper Article, ESQUIRE, GENTLEMAN, YEOMAN, &c.

Doctor COMMONS. See COLLEGE *of Civilians*.

Proctor of the COMMONS. See PROCTOR.

COMMONS is also used for the stated and ordinary diet, or eating, of a college, inn of court, or other society. See INN, &c.

COMMONWEALTH. See REPUBLIC.

COMMOTE, an ancient term in Wales, denoting half a cantred, or HUNDRED; containing fifty villages.

Wales was anciently divided into three provinces: each of these subdivided into cantreds; and every cantred into two *commotes*, or half hundreds.

Silvester Giral', however, tells us, in his Itinerary, that a *commote* is but a quarter of a hundred.

COMMOTION, an intestine motion, or agitation in the parts of any thing.

In medicine, the term is chiefly used for a blow, or shake of the brain. A convulsion is a *commotion* of the fine medullary fibres of the brain. A fall occasions a *commotion*, whence frequently arises a counterstroke on the opposite part; which occasions sometimes a contrafissure, and at other times a rupture of the vessels, and an impediment by shaking the whole mass of the brain.

COMMUNAM *appropriare*. See APPROPRIARE.

COMMUNE *retinere*. See RETINUM.

COMMUNEM *legem, Writ of Entry ad*. See LEGEM.

COMMUNIBUS *locis*, a Latin term, in frequent use among philosophical, &c. writers; implying some medium, or mean relation, between several places.

Dr. Keil supposes the ocean to be one quarter of a mile deep, *communibus locis*, q. d. at a medium, or taking one place with another.

COMMUNIBUS *annis*, has the same import with regard to years, that *communibus locis* has with regard to places.

Dr. Derham observes, that the depth of rain, *communibus annis*, i. e. one year with another, were it to stagnate on the earth, would amount to, at Townly in Lancashire, 42½ inches; at Upminster in Essex 19½; at Zurick, 32½; at Pisa, 43½; and at Paris to 19 inches.

COMMUNICATING, in *Theology*, the act of receiving the sacrament of the EUCHARIST.

Those of the *reformed*, and of the Greek church *communicate* under both kinds; those of the Romish under only one.

The oriental communicants receive the species of wine by a spoon; and anciently they sucked it through a pipe, as has been observed by Beat. Rhenanus on Tertullian.

COMMUNICATION, the act of imparting a thing to another, or making him a sharer with us therein.

The use of speech is for the *communicating* of our ideas and sentiments to each other.

COMMUNICATION is also used for the connexion of one thing with another; or the passage from one place to another.

Anciently it was frequent to have subterraneous *communications* between one place and another.

Bridge of COMMUNICATION. See BRIDGE.

Lines of COMMUNICATION, in war, called also simply *lines*, are trenches six or seven feet deep, and twelve broad, made between one fort, or work, and another; designed for a safe passage between one quarter and another; especially in sieges. See *Tab. Fortification, fig.* 21, 22, &c.

COMMUNICATION *of idioms*, in *Theology*, the act of imparting the attributes of one of the natures in Jesus Christ to the other.

The *communication of idioms* is founded on the supposed union of two natures in the person of Christ: by this *communication of idioms* it is, that some divines say, God suffered, died, &c. which is strictly and rigorously of the human nature; and signifies that God suffered in his humanity, that he died as to his human nature, &c.

The Lutherans carry the *communication of idioms* to far, as to say, that Jesus Christ is not only in his divine nature, and by reason of his divine person, but also really and properly in his humanity, immortal, immense, &c.

COMMUNICATION *of motion*, that act of a moving body, whereby another body at rest is put by it in motion, or a body already in motion is accelerated.

F. Malebranche looks on the *communication of motion* as something metaphysical; i. e. as not necessarily arising from any physical principles, or any properties of bodies, but flowing from the immediate agency of God: there being, according to him, no more connexion, or dependence, between the motion or rest of one body, and that of another, than between the form, colour, magnitude, &c. of one body, and those of another. The motion of one body, therefore, on his principle, is not any physical cause of that of another. See CAUSE.

The *communication of motion* results from, and is an evidence of the impenetrability and inertia of matter as such: unless we admit the hypothesis of penetrable matter, advanced by M. Boscovich and Mr. Michell, and ascribe to the powers of repulsion those effects which have been usually ascribed to its solidity and actual resistance. See MATTER.

Laws of the COMMUNICATION *of motion*.—Action, and reaction, sir Isaac Newton demonstrates, are equal and opposite; so that one body striking against another, and thereby occasioning a change in its motion, does itself undergo the very same change in its own motion, the contrary way. See MOTION.

Hence, a moving body striking directly against another at rest, the one loses just as much of its motion as it *communicates* to the other; and they will proceed with the same velocity as if united into one mass.

If, therefore, the body in motion be triple that at rest against which it strikes, it will lose a fourth part of its motion: and whereas, before, it would have run over (v. gr.) a line of twenty feet, in a given time, it will now only run over fifteen; i. e. it will lose a fourth part of its velocity.

If the moving body strike on another already in motion, the first will augment the velocity of the latter; but will lose less of its own motion, than had the latter been absolutely at rest. Thus, v. gr. if a body in motion be triple of another at rest, and strike against it with thirty-two degrees of motion; it will *communicate* eight degrees of its motion to the other, and retain twenty-four to itself. If the other body had already four degrees of motion, the first would only *communicate* five, and retain twenty-seven; since those five were sufficient on account of the inequality of the bodies, to make them proceed with equal velocity.

After the same manner may the other laws of *communication* of motion in bodies perfectly hard, and void of all elasticity, be determined. But all hard bodies, that we know of, have an elastic power; and in elastic bodies, the laws are different, and much more intricate. See ELASTICITY;

ELASTICITY; and the laws of percuſſion in elaſtic bodies, ſee under PERCUSSION.

If a body, when moved by another, happen to decline out of the way, ſo as to leave a free paſſage to the body whereby it was moved; yet, that will only proceed with the velocity which it had after its *communication* to the other, not with that it had before: it being a rule that every thing endeavours to perſevere, not in the ſtate wherein it was formerly, but in that wherein it is: if that ſtate be therefore, a body which has already loſt part of its motion, by its meeting with another, may loſe ſtill by a ſecond and a third, ſo as at length to become perfectly quieſcent.

Hence, firſt, if two unequal homogeneous bodies move in a right line with the ſame velocity, in a reſiſting medium, the greater muſt perſevere in motion longer than the ſmaller: for the motions of both bodies are as their maſſes; but each *communicates* of its motion to the circumjacent bodies which touch its ſurface, in proportion to the magnitude of its ſurface; the larger body, therefore, though it has more ſurface than the ſmaller, yet having leſs, in proportion to its maſs or quantity of matter, than the ſmaller, will loſe a leſs portion of its motion every moment than a ſmaller.

Suppoſe, v. gr. a cube, A, to be two feet every way, and another, B, one foot; the ſurfaces here will be as four to one, but their maſſes as eight to one. If therefore thoſe bodies move with the ſame velocity, the cube A will have eight times as much motion as the cube B (the quantity of motion being ever as the quantity of matter). That each of them, therefore, may become quieſcent at the ſame time, the cube A muſt loſe eight times as much portion every moment as the cube B, but that is impoſſible, becauſe as their ſurfaces are to each other as four to one; the bodies againſt which they ſtrike will only be as four to one: therefore, when the cube B is become perfectly quieſcent, A will have loſt its motion.

Hence, ſecondly, we ſee the reaſon why any long body, as a dart, thrown lengthwiſe, continues its motion longer than any thrown tranſverſely: it meeting fewer bodies in the way to *communicate* its motion to in the one caſe than in the other.

Hence alſo, thirdly, if a body be moved almoſt wholly within itſelf, ſo as to *communicate* little of its motion to the ambient body, it muſt continue its motion a long time. Thus, a ſmooth braſs ball of half a foot diameter, ſupported on a ſlender ſmooth axis, with a very weak impulſe, is found to revolve, for the ſpace of three or four hours.

COMMUNICATION, *communicatio*, in *Rhetoric*. See ANACOINOSIS.

COMMUNION, in *Theology*, an uniform belief in ſeveral perſons; whereby they are united under one head, in one CHURCH. See UNITY, UNIFORMITY, &c.

In this ſenſe, the Lutherans, Calviniſts, &c. are ſaid to have been cut off from the Romiſh *communion*.

This is the primitive uſe of the word *communion*, as appears from the canons of the council of Elvira.

Though the term has been more extenſively applied to denote a general agreement in matters of doctrine, diſcipline, and worſhip. And unleſs the term be underſtood in this large ſenſe, ſo various are the opinions of men, there could be no *communion* among the members of any one church on earth.

COMMUNION is alſo uſed for the act of *communicating* in, or participating of, the ſacrament of the EUCHARIST.

The fourth council of Lateran decrees, that every believer ſhall receive the *communion*, at leaſt, at Eaſter; which ſeems to impoſe a tacit deſire, that they ſhould do it oftener; as, in effect, they did it much oftener in the primitive days. Gratian, and the maſter of the ſentences, preſcribe it as a rule for the laity, to *communicate* three times a year, at Eaſter, Whitſuntide, and Chriſtmas. But in the thirteenth century, the practice was got on foot, never to approach the euchariſt except at Eaſter; and the council thought fit to enjoin it then by a law, leſt their coldneſs and remiſſneſs ſhould go farther ſtill.

And the council of Trent renewed the ſame injunction, and recommended frequent *communion* without enforcing it by an expreſs decree.

In the ninth century, the *communion* was ſtill received by the laity in both kinds; or, rather, the ſpecies of bread was dipped in the wine, as is owned by the Romaniſts themſelves. Acta SS. Benedict. Sæc. III. M. de Marca obſerves, that they received it at firſt in their hands. Hiſt. de Beam. and believes the *communion* under one kind alone to have had its riſe in the Weſt under pope Urban II. in 1096, at the time of the conqueſt of the Holy Land. And it was more ſolemnly enjoined by the council of Conſtance in 1414. The twenty-eighth canon of the council of Clermont enjoins the *communion* to be received under both kinds, diſtinctly; adding, however, two exceptions; the one of neceſſity, the other of caution, *ne ſit neceſſitatem, & cautelam*; the firſt in favour of the ſick, the ſecond of the abſtemious, or thoſe who had an averſion for wine.

It was formerly a kind of canonical puniſhment, for clerks guilty of any crime, to be reduced to *lay communion*, i. e. only to receive as the laity did, viz. under one kind.

They had another puniſhment of the ſame nature, though under a different name, called *foreign communion*; to which the canons frequently condemned their biſhops, and other clerks. This puniſhment was not any excommunication, or depoſition; but a kind of ſuſpenſion from the function of the order; and a degradation from the rank they held in the church.

It had its name becauſe the *communion* was only granted to the criminal on the foot of a foreign clerk, i. e. being reduced to the loweſt of his order. It took place after all thoſe of his rank, as all clerks, &c. did in the churches to which they did not belong. The ſecond council of Agda orders every clerk that abſents himſelf from the church to be reduced to foreign *communion*.

Infant COMMUNION. Some inſtances occur in the early ages of the church, of the practice of adminiſtering the euchariſt to infants; and ſome now have imitated this practice in more modern times. Mr Pierce pleads the uſe of it even to this day among the Greeks, and in the Bohemian churches till near the time of the Reformation; and he refers to the uſage of the ancient churches, recorded by Photius, Auguſtin, and Cyprian. He urges from Scripture the right which children have to all the privileges of which they are capable, as well as the Jewiſh children under the law, who were allowed to eat of the paſſovers, and other ſacrifices. To which it has been anſwered, that the facts here, of which they were allowed to partake, were chiefly peace-offerings, which became the common food of the family, and were not conſidered as acts of devotion in ſuch a degree as our euchariſt. He replies to the objection founded on the incapacity of infants to examine themſelves and diſcern the Lord's body, by obſerving that the precept extends only to thoſe who were capable of underſtanding and complying with it; on the ſame ground that faith is required previous to baptiſm. Biſhop Bedell ſuggeſts the following enquiry relative to this ſubject; what neceſſity of baptiſing infants, if their baptiſm produces no effect till they come to years of diſcretion? To which he replies, though the moſt principal effect be not attained preſently, the leſs principal are not to be refuſed: ſo children were circumciſed, who could not underſtand the reaſon of it, and the ſame alſo did eat the paſſover: and ſo did children baptized, in the primitive church, communicate in the Lord's ſupper: which I know not why it ſhould not be ſo ſtill; *de quo vide*. It has been alleged, that the foundation of this practice was a miſtaken apprehenſion of the abſolute neceſſity of this ordinance in order to ſalvation, reſulting from an erroneous interpretation of John vi. 53. See Biſhop Bedell's Letter to Dr. Ward, in p. 442 of Archbiſhop Uſher's Life by Parr. Pierce's Eſſay on the Euchariſt. Wall's Hiſt. of Infant Baptiſm, part ii. chap. 9. § 15 and 16. Waterland's Review of the Doctrine of the Euchariſt, and preface to his two volumes of Poſthumous Sermons, p. 32. &c. and Inquiry concerning Infant Communion, vol. ii. p. 75. &c.

COMMUNION-*table*. See ALTAR.

COMMUNIS *aspicio*. See CAPRULA.

COMMUNIS *ductus choledochus*. See DUCTUS.

COMMUNIS *digitorum manus extenſor*. See EXTENSOR.

COMMUNIS *labiorum depreſſor*. See DEPRESSOR.

COMMUNIS *labiorum elevator*. See ELEVATOR.

COMMUNIS *miſericordia*. See MISERICORDIA.

COMMUNITY, a ſociety or body of men united together under certain common laws, agreed on among themſelves, or impoſed by a ſuperior.

The Romans, who ſeem to have given the firſt hint of *communities* to the ſeveral nations into which their empire was divided, doubtleſs borrowed it from ſome rules of their neighbours: they call them *colleges*; which term, among them, had nearly the ſame ſignification with *community* among us.

Communities now are of two kinds, *eccleſiaſtic*, and *lait*; the firſt are either *ſecular*, as chapters of cathedral and collegiate churches; or *regular*, as convents, monaſteries, &c.

Lay communities are of various kinds; ſome contracted by a fixed abode of a year and a day in the ſame place;

others formed by the diſcharge of the ſame office, the profeſſion of the ſame art, or attending the ſame place of worſhip; as thoſe of pariſhes, fraternities, &c.

Accordingly, the word is commonly underſtood of pious foundations for the ſupport of ſeveral perſons, either in a ſecular or regular life; as *colleges, abbies, convents, priories, ſeminaries, hoſpitals, inns*, &c.

Community is more particularly uſed in the French law, for the joint property in goods between the huſband and the wife: the reſult of which is, that during marriage they are equally entitled to all effects, and liable to all debts, contracted either before or under marriage.

Community is a ſpecies of ſucceſſion, and the acceptance of *community* reſembles an *additio hereditatis*.

Community was ſet on foot in favour of the wives, to enter them as ſharers in their huſbands effects.

In countries where the civil law obtains, this *community* has no place; nor even in ſeveral cuſtomary countries as being reputed a burden on the man.

Anciently, the woman's ſhare in the *community* was only one third: and this appears ſtill the ſenſe of the law among us; the widow, at the deceaſe of her huſband, being only intitled to one third part of the moveables.

COMMUNITY *continued*, in the *French Law*, is that which ſubſiſts between the ſurvivor of two perſons joined in marriage, and the minor children of that marriage; when the ſurvivor has not made an inventory of the effects in poſſeſſion during marriage. The widow may either renounce *community* with her children, or continue it.

COMMUNITY *tacit*, is a *community* contracted between a man and woman, by the mere mingling of their effects; provided they have lived together the ſpace of a year and a day: this *community*, being odious, is now aboliſhed.

COMMUTATION, *in Aſtronomy*. *Angle of* COMMUTATION, is the diſtance between the ſun's true place ſeen from the earth, and the place of a planet reduced to the ecliptic. See PLACE.

Thus the angle ESR (*Tab. Aſtronomy, fig.* 26.) ſubtended between the ſun's place E, viewed from the earth at S, and that of a planet reduced to the ecliptic, R, is the *angle of commutation*.

The *angle of commutation*, therefore, is found by ſubtracting the ſun's longitude from the heliocentric longitude of the planet R; or contrarily.

COMMUTATION, in *Law*, a change of a penalty, or puniſhment, viz. of a greater for a leſs, &c. as when death is commuted for, by baniſhment or perpetual impriſonment, &c.

Some doubt whether the word be properly applied to any change but that of puniſhment: others will have it indifferently ſerve for the exchanging, or trucking of any thing.

COMORTH, in our *Statutes*, is uſed for a contribution or ſubſidy. It is ſaid to be derived from the Britiſh *cymorth, ſubſidium*.

The ſtat. 4 Hen. IV. cap. 27. and Hen. VIII. cap. 6. prohibit the levying any ſuch in Wales, or the Marches. It is ſaid this *cymorth* was gathered at marriages, and when young prieſts ſaid their firſt maſſes, and ſometimes for redemption of murders or felonies.

COMOSANDALOS, in *Antiquity*, a crown of flowers worn in the feſtival CHTHONIA.

COMPACT, in *Phyſics*, is a relative term, denoting a body to be cloſe, denſe, and heavy; having few pores, and thoſe ſmall ones.

The heavieſt metals, as gold and ſilver, are the moſt *compact*. See GRAVITY.

COMPACT, in a *Legal Senſe*, ſignifies an agreement, or a contract, ſtipulated between ſeveral parties. See CONTRACT.

COMPACT is alſo the name of a celebrated bull, confirmed by pope Paul IV. relating to the cardinals.

In virtue of the bull of *compact*, cardinals can only confer benefices in their natural ſtate; i. e. regular benefices on regulars.

COMPAGES *circularis mundana*, a term deviſed by Kircher to expreſs what he in other places calls the annularity, or annular diſpoſition of MOUNTAINS, which he ſays run in continued chains, forming belts or ridges in the manner of ſpines, all round the globe of the earth, from north to ſouth, and ſo on from that point to north again, and in the ſame manner from eaſt to weſt, and from weſt to eaſt again.

COMPAGUS, in *Antiquity*, a kind of ſummer-ſhoe worn by the Roman ſenators, conſiſting only of a ſole at the bottom; it was faſtened with leathern ſtraps, croſſing one another many times about the leg.

Rubenius makes the *compagi* to have been a ſort of caligæ worn by the Roman generals as well as ſenators. Under the later emperors, in the middle age, we read of the ſame worn by popes, biſhops, and abbots.

COMPANY, a collective term, underſtood of ſeveral perſons aſſembled together in the ſame place, or with the ſame deſign. See SOCIETY.

The word is formed of the French *compagnie*, and that of *compania*, or *companati*, which, Chifflet obſerves, are found in the Salic law, tit. 66. and are properly military words, underſtood of ſoldiers, who, according to the modern phraſe, are comrades, or meſs-mates, i. e. lodge together, eat together, &c. of the Latin *cum*, with, and *panis*, bread. It may be added, that in ſome Greek authors under the Weſtern empire, the word μαγιστρος occurs in the ſenſe of *ſociety*.

COMPANY, *in Commerce*, is an aſſociation of ſeveral merchants, or others, who unite in one common intereſt, and contribute by their ſtock, their counſel, and ſkill, to the ſetting on foot, or ſupporting, of ſome lucrative eſtabliſhment.

Though *company* and *ſociety*, or fellowſhip, be, in reſpect, the ſame thing, yet cuſtom has made a difference between them; *ſociety*, or partnerſhip, being underſtood of two, or three *dealers*, or not many more; and *company* uſually of a greater number. See SOCIETY.

A ſecond difference between *companies* and ſocieties is, that the firſt, eſpecially when they have exclaſive privileges, cannot be eſtabliſhed without the conceſſion of the prince; and need letters patent, charters, &c.

Whereas, for the latter, the conſent of the members, fixed and certified by acts and contracts; and authorized by bye-laws, is ſufficient.

The ſeveral profeſſions and trades exerciſed in the city of London, being incorporated into diſtinct fraternities, governed by their particular laws, a tabular view of them may not be unacceptable.

The abſtract of their incorporations, and particular privileges, is taken from the records of the Tower, &c. and from the Firma-Burgi of Maitor, the king's hiſtoriographer; an account of their charities from thoſe eminent hiſtorians Stowe and Strype, and the number of the liverymen, with their fines on admiſſion, is taken from the returns of the clerk to the parliament, and the ſcrutiny-books made after the ſeveral polls for the magiſtrates and repreſentatives of the city.

The companies are here placed according to their precedence, beginning with the twelve principal ones, of one or other of which the lord mayors have generally made themſelves free at their election, if they were not ſo before; for they are not only the oldeſt, but the richeſt, many of them having had the honour of kings and princes to be their members, and the apartments of their halls being fit to entertain a monarch.

Companies.	Halls.	Incorporated by	A. D.	Livery men.	Livery fines.	Charitable Gifts, paid yearly, and Privileges, &c.
					l. s. d.	*l.*
1 Mercers	Cheapſide	Richard II.	1393	232	2 13 4	5000 Excluſive ſale of 20 per cent. paid yearly to the widows of ſubſcribing clergymen during life, purſuant to a propoſal accepted in 1698, when they lented a fund of 14,000l. a year for that purpoſe.
2 Grocers	Poultry, Groc. alley	Edward III.	1345	127	20 0 0	700
3 Drapers	Throgmorton-ſtr.	Henry VI.	1439	140	25 0 0	4000
4 Fiſhmongers	Thames-ſtreet	Henry VIII.	1536	140	13 6 8	800
5 Goldſmiths	Foſter-lane	Richard II.	1393	198	20 0 0	1000 They had a privilege from Edw. IV. to inſpect, try, and regulate all gold and ſilver wares throughout the kingdom, and to puniſh all workers in either that was adulterated.
6 Skinners	Dowgate hill	Edward III.	1327	157	15 0 0	700
7 Merchant Taylors	Threadneedle-ſtr.	Edward IV.	1466	394	20 0 0	2000 They were once ſtyled taylors and linen-armourers.
8 Haberdaſhers	Maiden-lane	Henry VI.	1407	342	25 0 0	3500 Were anciently ſtyled Milaners, becauſe they dealt in moſt goods that came from Milan.
9 Salters	Swithin's lane	Q. Elizabeth	1558	192	20 0 0	500

10 Ironmongers

	Companies.	Halls.	Incorporated by	A. D.	Livery men.	Livery fines. £. s. d.	Charitable Gifts, paid yearly, and Privileges, &c. £.
10	Ironmongers	Fenchurch-street	Edward IV.	1464	100	31 10 0	1800 In 1724, Mr. Betton, a Turkey merchant, left 24,000l. in trust; one moiety of the profits of it to be always applied to the ransom of British captives from Morocco slavery; the other for the poor of the company.
11	Vintners	Thames-street	Henry VI.	1437	104	31 13 4	600 puny, and 10 the charity schools in
12	Clothworkers	Mincing-lane	Edward IV.	1482	154	31 10 0	1400 the city and its liberty.
13	Dyers	Elbow-lane	Edward IV.	1472	147	15 0 0	
14	Brewers	Addle-street	Henry VI.	1438	102	6 13 4	
15	Leathersellers*	Little St. Helens	Henry VI.	1442	126	20 0 0	* Hen. VII. made their wardens inspectors of sheep, lamb, and calves leather, throughout the kingdom.
16	Pewterers ‡	Lime-street	Edward IV.	1474	78	40 0 0	‡ By act of Parl 15 Hen. VIII. their wardens had the inspection of pewter throughout England.
17	Barber-surgeons †	Monkwell-street	Edward IV.	1461	322	10 0 0	† In the reign of Hen. VIII. the surgeons of this company, then but 19, were exempted by parliament from ward and parish-offices, and from military service. They were incorporated separately by 18 Geo. II. cap. 15. and the company of surgeons have an elegant hall in the Old Baily, with a theatre for the dissection of human bodies.
18	Cutlers	Cloak-lane	Henry V.	1417	110	20 0 0	
19	Bakers	Harp-lane	Edward II.	1307	105	10 0 0	
20	Wax-chandlers	Maiden-lane	Richard III.	1483	113	5 0 0	
21	Tallow-chandlers	Dowgate-hill	Edward IV.	1463	170	15 0 0	
22	Armourers §	Coleman-street	Henry VI.	1453	60	15 0 0	§ The Brasiers are united to this company.
23	Girdlers ‖	Basinghall-street	Henry VI.	1449	77	5 0 0	‖ Q. Eliz. incorporated the platers and wire-drawers with them.
24	Butchers †	Pudding-lane	James I.	1605	214	11 11 0	† This is an ancient fraternity; of which we have an account in the reign of Henry II. A. D. 1180.
25	Sadlers	Cheapside	Edward I.		72	10 0 0	
26	Carpenters	London-wall	Edward III.	1344	200	8 0 0	
27	Coordwainers	Distaff-lane	Henry IV.	1410	174	10 0 0	
28	Painter-stainers	Little Trinity-lane	Q. Elizabeth	1582	124	24 0 0	
29	Carriers	Near Cripplegate	James I.	1605	103	9 15 4	
30	Masons	Basinghall-street	Charles II.	1677	70	5 0 0	
31	Plumbers	Near Dowgate-hill	James I.	1611	57	10 0 0	
32	Innholders	Elbow-lane	Henry VIII.	1515	139	10 16 0	
33	Founders **	Lothbury	James I.	1614	312	8 0 0	** All brass weights made in London, or three miles from it, must be fitted with the company's standard, and have their mark; the avoirdupois to be sealed at Guildhall, and the troy at goldsmith's hall. And the company are impowered by charter to view and search all brass weights, and brass and copper wares made within the said district.
34	Poulters	No hall	Henry VII.	1504	300	10 0 0	
35	Cooks	Hall burnt	Edward IV.	1480	58	10 0 0	
36	Coopers	Basinghall-street	Henry VII.	1501	244	15 0 0	
37	Tylers and bricklayers	Leadenhall-street	Q. Elizabeth	1568	103	12 0 0	
38	Bowyers	No hall	James I.	1620	30	8 0 0	
39	Fletchers ¶	St. Mary Axe	No charter		23	10 0 0	¶ It is only a company by prescription.
40	Blacksmiths	Lombard-hill	Q. Elizabeth	1577	220	8 0 0	
41	Joiners and Ceilers	Thames-street	Q. Elizabeth	1569	323	8 0 0	
42	Weavers	Basinghall-street	Henry II.		270	6 0 0	
43	Woolmen	No hall	No charter		No livery; but they have a master, 2 wardens, and 11 assistants. They are only a company by prescription, but supposed to have commenced with the wool-trade.		
44	Scrivenors	No hall	James I.	1616	53	5 0 0	
45	Fruiterers	No hall	James I.	1605	63	5 0 0	
46	Plaisterers	Addle-street	Henry VII.	1501	57	8 0 0	
47	Stationers ††	Ludgate-street	Phil. & Mary	1557	300	20 0 0 ††	This company, which also includes booksellers, letter-founders, printers, and bookbinders, have a stock which is employed in printing almanacks, primers, psalters, school-books, &c. of which they have the sole privilege, by virtue of a grant from the crown. This stock consisted of shares, which are distributed in different proportions among those who have fined for, or served the office of, master-warden; whose shares, if they die married, devolve to their widows. They pay above 200l. a year in pensions and other charities. They are likewise trustees for the disposal of the considerable legacies of Mr. William Boyer, a learned printer, (who died Nov. 12, 1728) consisting of 50l. a year to the most learned journeyman that can be met with; and 180l. a year in annuities to necessitous printers of fifty-three years of age or upwards.
48	Broderers	Gutter-lane	Q. Elizabeth	1561	115	5 0 0	
49	Upholders	No hall	Charles I.	1627	131	4 10 0	
50	Musicians	No hall	James I.	1604	508	10 0 0	
51	Turners	College hill	James I.	1604	144	8 0 0	
52	Basket-makers	No hall	No charter		No livery; yet a company by prescription, governed by 2 wardens and 28 assistants, with this motto to its arms, *Let us love one another.*		
53	Glaziers ‖	No hall	Charles I.	1637	91	3 0 0	‖ The glass painters are incorporated with them.
54	Horners	No hall	Charles I.	1638	No livery; yet they have a master, 2 wardens, and 9 assistants, with a warehouse in Spital-fields; where they divide in lots, among themselves, such horns as are bought up by their members in Leadenhall and other markets: And in 1405, they obtained an act of parliament that none should be exported, but such as they refused.		
55	Farriers	No hall	Charles II.	1675	76	5 0 0	
56	Paviours	No hall	No Charter		No livery; yet it is a fellowship by prescription, with 3 wardens, and 25 assistants.		
57	Loriners	London wall	Q. Anne.	1712	69	20 0 0	
58	Apothecaries	Blackfryars	James I.	1617	144	16 0 0	They are exempt from ward and parish-offices, and have a spacious physic-garden at Chelsea; which, in 1721, was granted to the company for ever by Sir Hans Sloane, Bart. the lord of the manor, on condition of their paying a quit-rent of 5l. and continuing it always as a physic-garden, and of presenting every year to the Royal Society fifty samples of different sorts of plants, three grown, till they amount to two thousand.—The future of these conditions hath been long since more than completed.
59	Shipwrights	No hall	James I.	1605	No livery; yet they have a master, 2 wardens, and 16 assistants.		
60	Spectacle-makers	No hall	Charles I.		No livery; yet have a master, 2 wardens, and 15 assistants.		
61	Clock-makers	No hall	Charles I.	1633	360	20 0 0	
62	Glovers	No hall	Charles I.	1638	110	5 17 4	
63	Comb-makers	No hall	Charles I.	1636	No livery; yet have a master, 2 wardens, and 13 assistants.		
64	Felt-makers	No hall	James I.	1604	60	5 0 0	
65	Framework-knitters	Red cross-street	Charles II.	1663	58	10 0 0	
66	Silk-throwers	No hall	Charles I	1630	No livery; yet have a master, 2 wardens, and 20 assistants.		
67	Silkmen	No hall	Charles I	1631	No livery; yet have a governor, and 20 assistants.		
68	Carmen, have no hall, nor charter, nor livery; but are a fellowship by act of common council, with the title of Free Carmen of the city of London, and have a master, 2 wardens, and 32 assistants, under the direction of the lord mayor and aldermen. The carts that belong to this fellowship, which are between 4 and 500, are, by an act of common council, subjected to the rule of the president and governors of Christ's hospital; to whom the owners of every cart pay 17s. 4d. a year for a licence to work it, and every cart is brought to the hospital to have a number in brass put upon it.						
69	Pin-makers	No hall	Charles I.	1636	No livery; yet have a master, 2 wardens, and 18 assistants.		
70	Needle-makers	No hall	O. Cromwell	1656	110	5 5 0	

Companies.	Halls.	Incorporated by	A. D.	Livery men.	Livery men.	Charitable Gifts paid yearly, and Publick Offices, &c.
				£.	s. d.	
71 Gardeners	No hall	James I.	1616	No livery; yet have a master, 2 wardens, and 18 assistants.		
72 Soap-makers	No hall	Charles I.	1630	No livery; yet have a master, 2 wardens, and 18 assistants.		
73 Tin-plate-workers	No hall	Charles II.	1670	60	10 0 0	
74 Wheelwrights	No hall	Charles II.	1670	100	15 10 0	
75 Distillers	No hall	Charles I.	1638	112	13 6 8	
76 Hatband-makers	No hall	Charles I.	1638	Incorporated with the company of Needle-makers.		
77 Patten-makers	No hall	Charles II.	1670	46	8 0 0	
78 Glass-sellers and looking-glass-makers	No hall	Charles II.	1664	44	5 0 0	
79 Tobacco-pipe-makers	No hall	Charles II.	1663	No livery; yet have a master, 2 wardens, and 18 assistants.		
80 Coach and harness makers	Noble-street	Charles II.	1677	104	10 0 0	
81 Gun-smiths	No hall	Charles I.	1638	100	10 0 0	
82 Gold and silver wire-drawers	No hall	James I.	1623	No livery; yet have a master, 2 wardens, and 18 assistants.		
83 Long-bow-string-makers	No hall	No charter		No livery; yet a company by prescription, and have 2 wardens, and 19 assistants.		
84 Card-makers	No hall	Charles I.	1629	No livery; yet have a master, 2 wardens, and 18 assistants.		
85 Fan-makers	No hall	Q. Anne	1709	No livery; yet have a master, 2 wardens, and 20 assistants.		

86 Woodmongers, were a company incorporated with the carmen by K. James I. 1605, but surrendered their charter in 1668; by an act of common council in 1691, they obtained a privilege of keeping 126 carts, exclusive of the number kept by the carmen, *extinct*.

87 Search-makers, *extinct*	No hall	James I.	1623	
88 Fishermen, *extinct*	No hall	James II.	1685	
89 Parish-clerks	Wood-street	Henry III.	1233	By a decree of the Star-chamber court in 1635, they obtained a privilege to keep a press in their hall, for printing the weekly bills of mortality, by a person appointed by the archbishop of Canterbury. They are, by their charter, to make a report of all the weekly christenings and burials in their several parishes every Tuesday; and they have a master, 2 wardens, and 17 assistants.

90 Porters, are another fellowship, without hall, or livery; consisting of tackle and ticket-porters. They were constituted a fraternity by act of common council in 1649, with a power of annually choosing twelve rulers, being six of each denomination. However, the court of lord mayor and aldermen have reserved to themselves a power of appointing one of their own body, as the chief judge in all controversy. One very laudable custom of the master tackle-porters is, that such of their brethren as happen to be disabled from working, receive their share of all profits, as if actually in business, during life.

91 The watermen, wherrymen, and lightermen of this city and neighbouring places, were by act of K. William III. constituted a society, or company, under the direction of the lord mayor and aldermen. They are to furnish 2000 men for the navy, upon demand by the admiralty. They have a hall at Coal Harbour, near the Thames; and pay to their poor about 200l. a year; chiefly raised by ferries over the Thames on Sunday.

N. B. The company of Surgeons, Parish-clerks, Porters, and Watermen, have not the privilege of making their members freemen of the city of London.

From the foregoing list, it appears on the whole, that there are ninety-one *companies*, forty-eight halls, and that the number of liverymen, according to the most exact account that could be procured, in 1779, is 8054. The sums of money yearly distributed in charity by only twenty-three of the *companies*, amounts to 2365*l*. and if but forty pounds each be annually given by the remaining forty-eight *companies*, the whole will be no less than 4273*l*. *per annum*.

COMPANY, *New-River*. This corporation consists of a governor, deputy-governor, treasurer, and twenty-six directors, who hold a weekly board for appointing officers, granting leases, and redressing grievances. The projector of this CANAL for bringing water to London, with the assistance of king James I. and the corporation of London, is supposed to have expended 500,000*l*. upon it; the profits, which are divided into seventy-two shares, for the first thirty years admitted of little more than five pounds to each share; but their value is much increased, and now estimated at four or five thousand pounds each. This *company* supplies more than thirty thousand houses with water.

COMPANY seems more peculiarly appropriated to those grand associations, set on foot for the commerce of the remote parts of the world; as the *English* and Dutch East India *company*, South Sea *company*, Mississippi *company*, &c. The rise and establishment whereof, we shall here set before the reader.

However injurious *companies* with joint-stock, and incorporated with exclusive privileges, may, at this time, be reckoned to the nation in general; it is yet certain that they were the general parent of all our foreign commerce: private traders being discouraged from hazarding their fortunes in foreign commerce, until the method of trade had been first settled by joint-stock *companies*. From this principle it is, that we find several nations that are now endeavouring to improve their trade, and to establish or increase maritime power, by the means of joint-stock *companies*.

But since the trade of this kingdom, and the number of traders have increased, and the methods of assurance of shipping and merchandize, and the navigation to all parts of the known world have become familiar to us; these companies, in the opinions of most men, have been looked upon in the light of monopolies: their privileges have therefore been declined from time to time, in order to favour a free and general trade; and experience has shewn, that the trade of this nation has advanced, in proportion as monopolies have been discouraged.

COMPANIES, *English*. *East India* COMPANY was formed towards the latter end of the reign of queen Elizabeth; their charter being dated in 1600, and renewed by James I. in 1610.

Their first fleet, sent out in 1600, brought back so rich a cargo, that in a few years they numbered twenty ships. King James I. to shew how much he had its interest at heart, sent several embassies to the great Mogul, the kings of Persia, Japan, and other princes, to make treaties of commerce in his name, and that of the *company*; some of which subsist still: the king of Persia, in particular, granted the *company* several extraordinary favours, in recompence for the service the English had done him, in assisting him to expel the Portuguese from Ormus; who, by means of their lodgment there, usurped the whole commerce of the Persian gulf.

But its chief favours the *company* received at the hands of king Charles II. who, by a charter in 1668, granted them the port and island of Bombay, with all the rights thereof as surrendered to him by the Portuguese; only reserving to himself the sovereignty and homage thereof, with a yearly acknowledgment of ten pounds *per ann.* in gold. Another charter, containing preceding ones, was granted in 1676. In 1677 he also granted them in like manner, the island of St. Helena, belonging to him by right of conquest from the Dutch, who had before taken it from the English. By a fifth charter, purposely designed against interlopers, in 1683, he granted them a power to erect a court of judicature, composed of a lawyer, and two merchants, in all their places, settlements, factories, &c. to judge of seizures, and all marine disputes; as also about bargains, exchanges, &c. and even of all crimes committed on the high seas, or in the countries and territories of the *company*, in Asia, Africa, and America: the whole, however, agreeable to the usages and custom of merchants, and the laws of England. In 1691, the same prince granted the *company* a charter, which contained a confirmation of the ancient ones of king James I. and queen Elizabeth; or rather, a new charter, granting them abundance of privileges, which they had not before enjoyed: this charter is properly the basis of the *company*, and that whereon are founded all the rights, and the policy of the *new company*, afterwards established in 1698.

All these five charters of king Charles II. were confirmed by king James II. in 1685, especially the last, which was enforced with new sanctions; particularly, the article of exclusion; which, in the time of king Charles, had been but little regarded, but was now enforced with such rigorous prohibitions, that all interlopers seemed for ever excluded.

No person may trade within, until sufficient security be given to the commissioners of the customs, that all the goods caused by them to be there laden, shall be brought, without breaking bulk, to some port in England, which security the English East India *company* are to give under their common seal, after the rate of 2500*l*. for every hundred tons they are let at, for every ship by them sent out, according to the form prescribed, 9 and 10 W. III. cap. 44. sect. 68. 6 Anne, cap. 3. sect. 1.

The shares, or subscriptions of the *company*, were originally only of 50*l.* sterling: but the directors, having a considerable dividend to make in 1676, it was agreed to join the profit to the original, instead of withdrawing it; and thus the shares were doubled, and became of 100*l.* sterling. The first capital was only 369,891*l.* sterling, and 5*s.* which, being thus doubled, amounted to 739,782*l.* sterling, and 10*s.* to which, if the profits of the *company*, to the year 1685, viz. 963,030*l.* sterling be added, the whole stock will be 1,703,422*l.* sterling.

The *company* had, from time to time, undergone great losses; first, in 1682, by the loss of Bantam, out of which they were driven, and had their magazines plundered by the Dutch; under pretence of assisting sultan Agui against sultan Agoon, his father. Secondly, about the same time, when the great numbers of interlopers, to whom king Charles II. too easily granted permissions, lowered *their* shares *cent. per cent.* Thirdly, by the war, which the *company* maintained in the Indies, against the great Mogul; wherein it was obliged to abandon the factory of Surat, and to retire to Bombay; on which occasion king James II. granted them a new charter in 1686, being their sixth since the Restoration. But still the repaired her stock, and supported the reputation of her commerce, till the Revolution which happened soon after: when the war, and the incredible losses the *company* sustained by the French privateers, &c. put it into so desperate a condition, that appearing scarce possible to be supported, a new one was erected.

The charter of the new East-India *company* was of the year 1698. Its stock was to consideable, and the subscriptions so very ready, that, in two years time, the *company* had forty vessels equipped in its service; which was double of what the old one ever had; and sent to the Indies (*commodos annis*) at least a million sterling in silver; whereas the former had never sent above 500,000*l.* After the two *companies* had subsisted a few years in a separate state, means were contrived to unite them, which was effected by an indenture tripartite, between the queen and the two *companies*, in 1702, and they were perfectly consolidated in 1708, when a new charter of union was granted them, under the name of the *United Company of Merchants of England trading to the East-Indies*; their whole capital consisting of 3,200,000*l.* which being since expired, another charter with new powers, was granted them in 1726, and their exclusive privileges prolonged for thirty-three years, in 1730, viz. to 1769; and it was continued to the 17th year of Geo. II. to the year 1780, in which year another million was advanced by this *company* to the public.

The cargo which the *company* sends to the East-Indies, is chiefly silver, bullion, and pieces of eight; with cloth, either scarlet or blue; they also send some iron, and lead. The returns from the Indies are chiefly silks, both raw and manufactured, cottons, calicoes, and muslins, drugs, tea, coffee, china-ware, rice, sago, red wood, salt-petre, pepper, Carmania wool, indigo, &c.

For the economy and policy of the *United Company*, all persons, without exception, are admitted members of it, natives and foreigners, men and women; with this circumstance, that 1000*l.* in the stock of the *company* gives the owner a vote in the general courts; and 2000*l.* qualifies him to be chosen a director.

The directors are twenty-four in number, including the chairman and deputy-chairman, but may be re-elected for four years successively. They have a salary of 150*l. per ann.* and the chairman and deputy-chairman of 200*l.*

The meetings, or courts of directors, are to be held, at least once a week, but are commonly oftener; and they are summoned as occasions require.

Out of the body of directors are chosen divers committees, who have the peculiar inspection of certain particular branches of the *company's* business; as, the committee of correspondence, committee of buying, committee of treasury, committee of warehouses, committee of shipping, committee of accounts, committee of private trade, committee of house, committee of law-suits, committee of military fund, and committee to prevent the growth of private trade.

No persons are allowed to have any private trade, except the *company's* officers and seamen sent to India on board their ships; who are regularly licensed to carry out, and bring back commodities to a certain value, greater or less, according to their rank. But at their return, their cargoes are to be consigned to the *company*, and sold by them at their next sale. The Jews also, and others dealing in diamonds, are allowed to trade for themselves by the *company's* ships, on allowing so much *per cent.* to the *company* for freight.

The *company* has three principal settlements, viz. Fort William in Bengal; Fort St. George on the coast of Coromandel; and the island of Bombay; each of which has several subordinate factories.

The factories dependent on Fort William, are Cassimbuzar, Patna, Dacca, Ballasore, and Jugnea. Those on Fort St. George, are Fort Marlborough, Fort St. David, Vizagapatam, Ingeram, and Madipollam.—Those on the island of Bombay, are Gombroon, Surat, Anjego, and Tellicherry.

COMPANY, *Royal African*, established for the commerce of the coasts of Guinea, is governed much like that of the East-Indies. Its privilege is exclusive: it sends out yearly ten or a dozen ships, of about 150 tons, loaden with old and new draperies, and with iron-works, scissars, knives, muskets, cottons, and other less considerable merchandizes.

The returns are in gold-dust, elephants teeth, wax, and leathers: but the best article of its commerce is NEGROES, which it sends to Jamaica, Barbadoes, and other English isles in America; frequently, even to the ports of New Spain. See ASIENTO, &c.

Though England began to trade to Africa as early as the year 1536, and several voyages were made to Guinea in 1588, and some following years, for the importation of gold and elephants teeth, nothing like a *company* was formed till the year 1588, when queen Elizabeth granted a patent of exclusive privilege to certain persons for ten years. In 1618, king James I. established a *company* by charter, which was soon dissolved. Another *company* was erected by charter of Charles I. in 1631, which met with little success; but the demand for negroes in the English American plantations increasing, a third *company* was established by a charter granted 1663, in favour of the duke of York; securing to him the commerce of all the country, coasts, islands, &c. belonging to the crown of England, or not possessed by any other Christian prince: from Cape Blanco in 20° N. lat. to the Cape of Good Hope in 34° 30′ S. lat. The charter was soon after returned into the king's hands by the duke, and revoked, by consent of the parties interested with him in the enterprize; in consequence of which, the fourth and last exclusive *company* was established and incorporated by letters patent in 1672. A capital was soon raised of 111,000*l.* and this new *company* improved their trade, and increased their forts; but after the Revolution in 1689, this trade was laid open. In 1698, all private traders to Africa were obliged by stat. 9 and 10 Will. to pay ten *per cent.* in order to assist the *company* in maintaining their forts and factories. However this assistance proving ineffectual, an annual sum of 10,000*l.* was granted by the British parliament in 1730, for this purpose. In 1752, parliament established an African *company* under new regulations; and in 1752, absolutely, the old *company*, having given them a pecuniary satisfaction for their charter, lands, forts, slaves, &c. and vested their forts and factories, &c. in the new *company*, which is impowered to arm and train military forces at their forts, and to punish offences, so as not to extend to life or limbs, and to erect courts of judicature for mercantile and maritime bargains, &c.

The direction of the affairs of this *company* is referred to a committee of nine persons, chosen annually by the freemen at London, Bristol, and Liverpool, who purchase their freedom, and right of election, by the payment of 40*s.* and accountable to the board of trade and plantations.

For the incorporation of this *company*, and the regulations concerning it, see 23 Geo. II. *cap.* 31.—25 Geo. II. *cap.* 40.

COMPANY, *Hamburgh*, is the eldest trading establishment in the kingdom; though not always known by that name, nor restrained to those narrow bounds under which it is now confined. It was first called, the *Company of Merchants trading to Calais, Holland, Zealand, Brabant, and Flanders*: then it acquired the general title of *Merchant-adventurers of England*; as being composed of all the English merchants who traded to the Low Countries, the Baltic, and the German Ocean. Lastly, it was called the *Company of Merchant-adventurers of England trading to Hamburgh*.

This *company*, as well as some others in England, built on its model, is very different from those above mentioned; and differs widely from the ordinary plan and system of such societies. In effect this is not a society of dealers, each furnishing a part of the sum to constitute the capital stock of the *company*; but a mere association, or body of merchants, who have nothing in common, but the grant and privilege of trading to Hamburgh, and some other cities of Germany, each managing his own commerce, and trading on his own foundation: only observing a certain discipline, and some regulations, which none but the company can establish, or change.

This *company* was first incorporated by Edward I. in 1296; and established again, by charter, in 1406, under the reign of king Henry IV. It was afterwards confirmed, and augmented with divers privileges by many of his successors:

successors; among the rest, by Henry V. in 1413; Henry VI. in 1422; Henry VII. in 1493, 1505, and 1506; Henry VIII. in 1509, 1527, and 1530; Edward VI. in 1552; queen Mary, in 1553; Elizabeth, in 1564, and 1580; James I. in 1605; and Charles II. in 1661. But of all these charters, there are, properly, none but those of Henry IV. Henry VII. Elizabeth, James, and Charles, that are of any importance, or that give the *company* any thing new; the rest being only confirmations. Before the charter of king Henry IV. all the English merchants, who travelled out of the realm, were left to their own discretion, and managed their affairs with foreigners as might be most for their respective interests; without any regard to the general commerce of the nation.

Henry, observing this disorder, endeavoured to remedy it, by uniting all the merchants in his dominions into one body; wherein, without losing the liberty of trading each for himself, they might be governed by a *company* like fraternities; and be subject to regulations, which should secure the general interest of the national commerce, without prejudice to the interest of particulars. With this view, he granted all the merchants of his states, particularly those of Calais, then in his hands, a power of associating themselves into a body politic, with directors and governors, both in England and abroad; to hold assemblies, both for the direction of business, and the deciding of controversies among merchants; make laws, punish delinquents; and impose moderate duties and taxes on merchandizes, and merchants, to be employed in the service of the corporation.

These few articles of the charter of Henry IV. were afterwards much augmented by Henry VII. who first gave them the title of *Merchant-adventurers to Calais, Holland*, &c. gave them a power of proclaiming and continuing free fairs at Calais; and ordered, that to be reputed a member of the society, each person pay twenty marks sterling; and that the several members should attend the general meetings, or courts, appointed by the directors, whether at London, Calais, or elsewhere.

The inexecution of this last article, and contempt of some of the rest, occasioning great inconveniencies to the *company's* affairs, another charter was procured; whereby the pain of imprisonment was menaced, for those who should absent themselves from the meetings without lawful cause, or should disobey the laws. A petition being made to queen Elizabeth, in 1564, for an explanation of certain articles in the charter of Henry VII. and a confirmation of the rest granted by other kings; that princess, by a charter of the same year, declares, that, to end all disputes, they shall be incorporated anew, under the title of *the Company of Merchant-adventurers of England*; that all who were members of the former *company* should, if they desired it, be admitted members of this; that they should have a common seal; that they should admit into their society what other persons, and on what terms, they pleased; and expel them again on misbehaviour; that the city of Hamburgh, and neighbouring cities, should be reputed within their grant, together with those of the Low Countries, &c. in that of the former *company*; that no member should marry out of the kingdom, nor purchase lands, &c. in any city beyond sea; and that those who do, shall be, *ipso facto*, excluded for ever.

Twenty-two years after this first charter, queen Elizabeth granted them a second, confirming the former, and further granting them a privilege of excision; with a power of erecting in each city within their grant, a standing council.

The woollen manufacture being the principal object of their application, they met with great opposition; first, from the Hanse, who feared them frequently to change their mart, or staple; and afterwards under king James I. who having erected a corporation in 1616, in favour of some private persons, who offered to set up a manufacture for dying and pressing cloths, &c. under pretence thereof, the *company* of merchant-adventurers were prohibited dealing therein. But that project not succeeding, and the charter being revoked two years afterwards, the merchant-adventurers, whose *company* had been dissolved two years before, were restored in 1617, to their ancient privileges, and a new charter was given them, confirming their exclusive rights; and allowing them to have officers in the several custom-houses, to have an eye that they were not prejudiced in their woollens, under pretence of the like merchandizes, which others were allowed to send to other parts. This charter of king James, is the last of those confirmed by Charles II. in the grand charter of 1661.

The revolutions which had happened in the Low Countries towards the end of the fifteenth century, and which laid the foundation of the republic of Holland, having hindered the *company* from continuing their commerce with their ancient freedom; it was obliged to turn it almost wholly to the side of Hamburgh, and the cities in the German ocean: from which change, some people took occasion to change it, some to that of the *Hamburgh Company*, though the ancient title of *Merchant-adventurers* is still retained in all their writings.

This *company* was greatly reduced, when its trade was laid open by William III.

COMPANY of *Merchants of the Staple* was incorporated by Edward III. Their factory was at Middleburgh, in Zealand; but the staple being removed in 1388 to Calais, it was from thence, viz. in 1390, removed from thence to England.

COMPANY, *Russia*. This was first projected towards the end of the reign of king Edward VI. entered into the first and formed about the 4th and 5th of Philip and Mary; but had not its perfection, till its charter was confirmed by act of parliament, under queen Elizabeth, in 1566. It had its rise from certain adventurers, who were sent to discover, if on the discovery of new countries, and to find out a north east passage to China: these, sailing into the White Sea, and making up to the port of Archangel, were exceedingly well received by the Muscovites and, at their return, obtained letters patent to secure to themselves the commerce of Russia, for which they had formed an association.

The charter was promised them by Edward VI. but he dying, was first dispatched by queen Mary, in 1555. By this charter, the association was declared a body politic, under the name of *the Company of Merchant-adventurers of England, for the discovery of lands, territories, islands, &c. unknown, or unfrequented*. The privileges were, to have a governor, four consuls, and twenty-four assistants, for their commerce; for their policy, to make laws, inflict penalties, send out ships to make discoveries, take possession of them in the king's name, set up the banner royal of England, plant them; and lastly, the exclusive privilege of trading to Archangel, and other parts of Muscovy, not yet frequented by the English.

This charter, not being sufficiently guarded, was confirmed by parliament in the eighth year of queen Elizabeth; wherein it was enacted, that in regard the former name was too long, they should now be called *Company of English Merchants for discovering new Trades*; under which name, they should be capable of acquiring and holding all kinds of lands, manors, rents, &c. not exceeding a hundred marks *per ann.* and not held of her majesty; that no part of the continent, island, harbour, &c. not known or frequented before the first voyage or the merchants of their *company*, situate to the north, or north-west, or north-east of London; nor any part of the continent, islands, &c. under the obedience of the emperor of Russia, or in the countries of Armenia, Media, Hyrcania, Persia, or the Caspian Sea, should be visited by any subjects of England, to exercise any commerce, without the consent of the said *company*, on pain of confiscation. The said *company* shall use no ships in her new commerce, but those of the nation; nor transport any cloths, serges, or other woollen stuffs, till they have been dyed and pressed. That in case the *company* discontinue of itself to unload commodities in the road of the abbey of S. Nicolas, in Russia, or some other port, on the north coasts of Russia, for the space of three years, the other subjects of England shall be allowed to traffick to Narva, while the said *company* discontinued its commerce into Russia, only using English vessels.

This *company* subsisted with reputation almost a whole century, till the time of the civil wars. It is said, the year then reigning, hearing of the murder of king Charles I. ordered all the English in his states to be expelled; which the Dutch taking the advantage of, settled in their room. After the Restoration, the remains of the *company* re-established part of their commerce at Archangel, but never with the same success as before; the Russians being now well accustomed to the Dutch merchants and merchandize.

This *company* subsists still, nearly on the foot of that of Hamburgh, and the northern and Turky *companies*; i. e. each member thereof traffacks for himself, and on his own foundations: only paying an acknowlegement of 12 or 13l. sterling, besides some other dues imposed, from time to time, for the occasions of the *company*, and the commerce in general. It is under the direction of a governor, four consuls, and assistants.

COMPANY, *North Sea*, or as some, more agreeably to its charter, call it *Eastland Company*, is established on similar ground with that of Hamburgh; from whence it appears to have been dismembered.

Its charter is dated in the year 1579. By the first article the *company* is erected into a body politic, under the title of *the Company of Merchants of the East*; to consist of Englishmen, all real merchants, who have exercised the

business

business thereof, and trafficked through the Sound, before the year 1568, into Norway, Sweden, Poland, Livonia, Prussia, Pomerania, &c. as also Revel, Coningsberg, Dantzick, Copenhagen, &c. excepting Narva, Muscovy, and its dependencies. Most of the following articles grant them the usual prerogatives of such *companies*; as a seal, governor, courts, laws, &c.

The privileges peculiar to this *company* are, that none shall be admitted a member, who is already a member of any other *company*, nor any retail-dealer at all. That no merchant qualified, be admitted without paying six pounds, thirteen shillings and six pence. That a member of another *company*, desiring to renounce the privileges thereof, and to be received into that of the East, shall be admitted *gratis*; provided he procures the same favour for a merchant of the East, willing to fill his place. That the merchant-adventurers who never dealt in the East, nor the places expected in the charter, may be received as members of the *company* on paying forty marks (that, notwithstanding this union of the *Adventurers of England* with the *Company of the East*, each shall retain its rights and privileges. That they shall export no cloths but what are dyed and prefled, except a hundred pieces *per annum*, which are allowed them *gratis*.

This charter was confirmed by Charles II. in 1609, with this addition; that no perfon, of what quality foever, living in London, fhould be admitted a member, unless he were free of the city.

This *company* was complained of as a monopoly, and firft entrufted by legal authority in 1673; and fince the declaration of rights in 1689, exifts only in name; but ftill continues to elect annual officers, who are a governor, a deputy, and twenty-four aſſiſtants.

COMPANY, *Turky*, or *Levant* COMPANY. This *company* is eſtabliſhed on ſimilar ground with that of the *Hamburgh Company*, i. e. there is no common fund, wherein the adventurers depoſit their ſtock to make one ſingle commerce; but the commerce thither is free, each member trafficking for himſelf; but obſerving the rules and orders of the *company*; and all contributing occaſionally, towards the common expences.

This flouriſhing body had its riſe under queen Elizabeth, in 1581. James I. confirmed its charter in 1605, adding new privileges. During the civil wars, there happened ſome innovations in the government of the *company*; many perſons having been admitted members, not qualified by the charters of queen Elizabeth and king James, or that did not conform to the regulations preſcribed. Charles II. upon his reſtoration, endeavoured to ſet it upon its ancient baſis; to which end, he gave them a charter, containing not only a confirmation of their old one, but alſo ſeveral new articles of reformation.

By this the *company* is erected into a body politic, capable of making laws, &c. under the title of the *Company of Merchants of England trading to the Seas of the Levant*. The number of members is not limited, but is ordinarily about three hundred. The principal qualification required is, that the candidate be a freeman of London, and a wholeſale merchant, either by ſervitude, or by ſerving an apprenticeſhip of ſeven years. Thoſe under twenty-five years of age to pay 25*l.* ſterling at their admiſſion; thoſe above, twice as much. This fine was reduced by act of parliament, in 1753, to 20*l.* and the privilege of admiſſion extended to every Britiſh ſubject. Each makes oath, at his entrance, not to ſend any merchandizes to the Levant, but on his own account; and not to conſign them to any but the *company*'s agents or factors. This reſtriction is likewiſe enlarged by the above mentioned ſtatute.

The *company* has a court, or board, at London, which is compoſed of a governor, deputy-governor, and fifteen directors, or aſſiſtants; who are all actually to live in London, or the ſuburbs. They have alſo a deputy-governor in every city, and port, where there are any members of the *company*. The aſſembly at London ſends out the veſſels, regulates the tariff for the price at which the European merchandizes ſent to the Levant are to be ſold; and for the quality of thoſe returned. It raiſes taxes on merchandizes, to defray impoſitions, and the common expences of the *company*; preſents the ambaſſador which the king is to keep at the Porte, elects two conſuls for Smyrna and Conſtantinople, &c.

One of the beſt regulations of the *company* is, not to leave the conſuls, or even ambaſſador, to fix the impoſition on veſſels for defraying the common expences (a thing fatal to the *companies* of moſt other nations); but to allow a penſion to the ambaſſador, and conſuls, and even to the chief officers; as ſecretary, chaplain, interpreters, and janizaries: that there may not be any pretence for their raiſing any ſums at all on the merchants, or merchandize.

In extraordinary caſes, the conſuls, and even the ambaſſador, have recourſe to two deputies of the *company*, reſiding in the Levant: or, if the affair be very important, they aſſemble the whole body. Here are regulated the preſents to be given, the voyages to be made, and every thing to be deliberated; and on the reſolutions here taken, the deputies appoint the perſons to furniſh the moneys, &c. required.

It is true, the ambaſſador and conſul may act alone on theſe occaſions; but the penſion being allowed them on condition of declining them, they chooſe rather to act.

The ordinary commerce of this *company* employs from twenty to twenty-five veſſels, carrying from twenty-five to thirty pieces of cannon.

The merchandizes exported thither are, cloths of all kinds and colours, pewter, lead, pepper, cochineal, and a great deal of ſilver, which they take up at Cadiz: the returns are in raw ſilk, galls, cottons, wools, cottons, Morocco leather, aſhes for making glaſs and ſoap, and ſeveral gums, and medicinal drugs.

The commerce of this *company* to Smyrna, Conſtantinople, and Scanderoon, is not eſteemed much leſs conſiderable than that of the Eaſt-India *company*; but is, doubtleſs, more advantageous to England; becauſe it takes off much more of the Engliſh manufactures than the other, which is chiefly carried on in money.

The places reſerved for the commerce of this *company* are, all the ſtates of Venice, in the gulf of Venice; the ſtate of Raguſa; all the ſtates of the grand ſeignior, and the ports of the Levant and Mediterranean; excepting Carthagena, Alicant, Barcelona, Valencia, Marſeilles, Toulon, Genoa, Leghorn, Civita Vecchia, Palermo, Meſſina, Malta, Majorca, Minorca, and Corſica; and other places on the coaſts of France, Spain, and Italy.

COMPANY, *South-Sea*. Many take this *company*, eſtabliſhed by ſtat. 9 Anne, 1711, to have been originally intended rather as a political contrivance for raiſing a fund of money, to ſerve in the preſſing occaſions of the ſtate, than as a real eſtabliſhment for the ſake of commerce. For the nation being exhauſted of money by the long wars with France, it is no wonder the phantom of a new *company* ſhould be raiſed, to bring in the ſubſcriptions of the monied men; as the only expedient to be ſupplied with money, without diſſatisfying the people, already worn out with ſubſidies, &c.

The total capital of this *company* was at firſt 9,177,967*l.* 14*s.* 4*d.* but in 1715 it was enlarged to ten millions, at an intereſt of 6 *per cent.* reduced in 1727 to 5 *per cent.* The capital was increaſed again in 1719 to 11,746,814*l.* 9*s.* 10*d.* And if the plan of 1720 had perfectly ſucceeded, the amount of the capital would have been 33,411,399*l.* 6*s.* 3*d.* See FUND.

Be this as it will, it is certain, the miniſtry never thought ſeriouſly, during the whole courſe of the war, about making any ſettlement on the coaſts of South America; which was the thing wherewith the people were firſt flattered: beſides, that the fund having been apparently perverted to defray the expences of the war, its value was ſo lowered, that it muſt, in all probability, have ſunk outright, but for the unexpected help it met with in 1713.

By the treaty of Utrecht, the buſineſs of the *French Aſſiento company*, which was to furniſh the Spaniſh Weſt-Indies with negroes, was reſigned to the Engliſh, in favour of the *South-Sea Company*; which, by this means, relieved itſelf from its languiſhing ſituation, and became in a condition to vie with the moſt flouriſhing companies of commerce in England. See ASSIENTO.

The *South-Sea company*, who, without changing their name, took on them the Aſſiento, or farm of negroes, preſerved the ſame eſtabliſhment, until the peace of Aix-la-Chapelle, in 1748; and their veſſels diſembarked their negroes, which they had purchaſed through all the coaſts of Africa within their grant, at Buenos Ayres.

The *company*, it is certain, ſet out with good ſucceſs; and there was room to hope ſtill better; ſince, beſides that the value of their ſtock, the firſt five years, roſe rather, in proportion, than that of any other *company*; his majeſty, after purchaſing 30,000 ſhares therein, was pleaſed to condeſcend to be their governor, or firſt director. This *company* is under the management of a ſub-governor, deputy-governor, and twenty-one directors, choſen every three years; for which a qualification of 2000*l.* ſtock is ſufficient, and for an elector 500*l.* For what remains of the hiſtory of this *company*, with that fatal train of romantic *projects* it drew after it, ſee BUBBLE.

COMPANY, *Greenland*. See GREENLAND.

COMPANIES, *Weſt-India*, or thoſe of the Engliſh colonies in North America, are of a form eaſily ſeen from thoſe above mentioned; and too numerous to be here deſcribed.

Their names are, the *Virginia Company*, *New-England*, *New*

New York, Pensylvania, New Scotland, Massachusets, Connecticut, Bermudas, Tobago, and Carolina Companies. To these may be added the *Hudson's Bay Company*, incorporated by charter in 1670. This *company*, by a joint stock, carries on a considerable trade to the factories established in Hudson's Bay and Straits, whither the natives repair with their fine beaver, furs, &c. It is under the direction of a governor, deputy-governor, and seven assistants.

COMPANY, *Scotch Darien.* This was established with good prospect at Edinburgh, in 1695, for the commerce of South America. In 1698, they sent an armament and a colony, which they endeavoured to establish in the isthmus of Darien, which parts North and South America; but the English ministry not thinking proper to avow and support the first successes of the *company*, which had alarmed Spain, ever jealous of this part of her territories, the Scotch colony was dispersed by the Spaniards in 1699, and thus vanished the best project that ever was formed, for disputing with that nation the possession of those countries, from which she pretends to exclude all other nations.

COMPANY, *Dutch East-India*, had its rise in the midst of the struggle which that people had for their liberty: for the Spaniards having forbid all commerce with them, and shut up all their ports; necessity inspired some Zealanders to seek a new north-east passage to China.

This enterprize proving unsuccessful to three several armaments in 1594, 1595, and 1596, a second *company* was formed, under the name of the *Company of remote Parts*; which, in 1595, took the ordinary route of the Portuguese to the Indies, and returned, in two years and a half's time, with little gain, but good hopes.

This *company*, and a new one just established at Amsterdam, being united, equipped other fleets; and these occasioned other *companies* at Amsterdam, Rotterdam, in Zealand, &c. Insomuch that the states soon began to apprehend they might be prejudicial to each other. Under this concern, they called all the directors of the several *companies* together, who all consented to an union, the treaty whereof was confirmed by the states in 1602, a very remarkable epocha, as being that of the most solid and celebrated establishment of commerce that ever was in the world.

Its first capital was six millions six hundred thousand guilders. It had sixty directors, divided into several chambers; twenty in that of Amsterdam, twelve in that of Zealand, fourteen in that of Delft and Rotterdam, and a like number in those at Hoorn and Enchuysen. As each grant expires, the *company* is obliged to procure a new one, which it has already done four times since the first; viz. one in 1623, for twenty-one years, like the first; another for twenty-one years, commencing in 1643; and a third in 1665, for forty years; a fourth in advance, commencing in 1698, to end in 1740. Each grant costs the *company* a considerable sum: that of 1647, cost 1,600,000 guilders, and the two following ones more: that of 1698, was confirmed by a placard of the states-general, granting them an exclusive privilege, which was prolonged in 1761 for thirty years more.

Their factories, residencies, &c. in the East-Indies, are very numerous; reaching from the Persian gulf to the coast of China: the principal is that of Batavia, the centre of their commerce: here resides their general, with the state and splendor of a sovereign prince; making war and peace with the eastern kings and emperors at pleasure.

The other more considerable factories are, Taiouan on the coast of China, Nangasac in Japan, Malacca, Surat, Amboyna, Banda, Siam, Moluccos, &c. several on the coast of Coromandel, and at Ispahan, Cape of Good Hope, &c. In all, they number forty factories, and twenty-five fortresses. They have the whole trade of the spices in their own hands.

COMPANY, *Dutch West-India*, established in 1621, with an exclusive privilege to trade twenty-four years along the coasts of Africa, between the tropic of Cancer, and the Cape of Good Hope; and in America, from the south point of Newfoundland, through the straits of Magellan, that of Le Maire, or others, to the straits of Anian, both in the North and South sea.

The directors are divided into five chambers (as in the East-India *company*), out of which nineteen are chosen for the general direction of affairs. In 1647, the *company* renewed its grant for twenty-five years; but it was scarce able to hold out the term, on account of its great losses and expences in taking the bay of Todos los Santos, Pernambuc, and the greatest part of Brasil from the Portuguese. The weakness of this *company*, which had several times in vain attempted to be joined to that of the East-Indies, occasioned its dissolution at the expiration of its grant.

In 1674, a new *company*, composed of the ancient proprietors and their creditors, was settled in the same rights and establishment with the former; and still subsists, though considerably decayed. Their first capital was about six millions of florins. Its principal establishments are, one at Cape Verd, another on the Gold Coast of Africa, at Tobago, Curaffao, &c. in America.

COMPANY, *Dutch North*, has no exclusive privilege; the advantage of its patent being of another kind, and very inconsiderable.

There are also, in Holland, *companies* for the Baltic sea, the fishery of Nova Zembla, Davis's Straits, and Greenland: yet none of their fisheries are interdicted to private traders; all the difference between these and the *companies* consisting in this, that the former may not go ashore to cut their fish in pieces, and melt their lard; but must bring their luggage to Holland.

COMPANY, *Dutch Levant.* In strictness, there is no Levant *company* in Holland: but the commerce of the private traders is so considerable, that the state has taken the regulation thereof on itself.

To this end, they have established a chamber of direction at Amsterdam, composed of six deputies, and a register; who, under the burgomasters, take care of every thing relating to the commerce of the Mediterranean; especially that of Smyrna and Constantinople.

This *company* names the consuls, appoints the number and strength of convoys, terminates differences among the traders, and has also a right, on occasion, to add new regulations to the old ones; though those be of no force, till confirmed by the states-general.

COMPANY, *French East-India*, was established in 1664, with an exclusive privilege, to trade for fifty years in all the seas of the East-Indies and South-sea; no adventurer to be admitted without a thousand livres in stock; and foreigners, who have twenty thousand livres in stock, to be reputed regnicoles.

The patent grants them the island of Madagascar; and the king to be at one fifth of the expence of the three first armaments, without interest; the principal to be refunded in ten years; or, if the *company* find it loses on the whole, the loss to fall on the king's side.

The capital fund of the *company*, which was mostly furnished by the king, was seven or eight millions of livres, but was to have been fifteen millions.

In effect, though no means were wanting to support the *company*, yet it still drooped, and still struggled; till, having subsisted ten years without any change in its form, and being no longer able to discharge its engagements, there were new regulations concerted, but to little purpose. At length, things not being disposed for a new East-India *company*, nor much good to be expected from the old one, in 1708, the ministry allowed the directors to treat with the rich traders of St. Malo, and so resign to them their privilege, under certain conditions. In the hands of these last, the *company* began to flourish.

Its chief factory is at Pondicherry, on the coast of Coromandel: this is the residence of the director-general; the other factories are inconsiderable. The merchandizes which the *company* brings into France are, silks, cottons, spices, coffee, rice, salt-petre; several kinds of gums and drugs, wood, wax, printed callicoes, muslins, &c.

COMPANY, *French West-India*, was established in 1664. Their charter gave them the property and seigniory of Canada, Acadia, the Antilles islands, isle of Cayenne, and the Terra Firma of America, from the river of the Amazons to that of Oroonoko; with an exclusive privilege for the commerce of those places, as also of Senegal, and the coasts of Guinea, for forty years, only paying half the duties.

The stock of the *company* was so considerable, that, in less than six months, forty-five vessels were equipped; wherewith they took possession of all the places in their grant, and settled a commerce: yet this only subsisted nine years. In 1674, the grant was revoked, and the countries above reunited to the king's dominions, as before; the king reimbursing the actions of the adventurers. This revocation was owing partly to the poverty of the *company*, occasioned by its losses in the wars with England, which had necessitated it to borrow above a million; and even to alienate its exclusive privilege for the coasts of Guinea: but also to its having in good measure answered its end; which was to recover the commerce of the West-Indies from the Dutch, who had torn it from them: for the French merchants, being now accustomed to traffic to the Antilles, by permission of the *company*, were so attached to it, that it was not doubted they would support the commerce after the dissolution of the *company*.

COMPANY, *French Mississippi*, was first established in 1684, in favour of the chevalier De la Salle; who having projected it in 1669, and being appointed governor of the fort of Frontignac, at the mouth of that river, travelled

over the country in the year 1683, and returned to France to solicit the eſtabliſhment. This obtained, he ſet ſail for his new colony, with four veſſels loaded with inhabitants, &c. but entering the gulf of Mexico, he did not, it ſeems, know the river that had coſt him ſo much fatigue; but ſettled on another river, unknown; where his colony periſhed by degrees; ſo that, in 1685, there were not a hundred perſons remaining. Making ſeveral expeditions to find the Miſſiſippi, he was killed in one of them by a party who mutinied againſt him; whereupon the colony was diſperſed and loſt. M. Hiberville afterwards ſucceeded better: he found the Miſſiſippi, built a fort, and ſettled a French colony there; but he being poiſoned, it is ſaid, by the intrigues of the Spaniards, who feared ſuch a neighbour, in 1712, M. Crozat had the whole property of trading to the French territories, called Louiſiana, granted him for fifteen years.

COMPANY *of the Weſt*. In 1717, the ſieur Crozat ſurrendered his grant; and in the ſame year a new *company*, was erected, under the title of *Company of the Weſt*; to which beſides every thing granted to the former *company*, was added the commerce of beaver, enjoyed by the Canada *company* from the year 1706, but expiring in 1717. In this eſtabliſhment, an equal view was had to the finances, and the commerce of the nation; and, accordingly, part of the conditions of its eſtabliſhment regarded the ſettling a colony, a trade, &c. the other the vending part of the bills, called *bills of ſtate*, which could no longer ſubſiſt on their preſent footing. The former are no more than are uſual in ſuch eſtabliſhments: for the latter, the actions are fixed at five hundred livres; each payable in bills of ſtate; the actions to be eſteemed as merchandize, and in that quality to be bought, ſold, and trafficked. The bills of ſtate, which make the fund of the actions, to be converted into yearly revenue. To put the finiſhing hand to the *company*, in 1719, its fund was fixed at an hundred millions of livres; which being filled, the caſh was ſhut up.

COMPANY, *Indian*. The junction of the former *company* with that of Canada, was immediately followed by its union with that of Senegal; both in the year 1718, by an arret of council, which at the ſame time granted the new *company* the commerce of beavers, and made it miſtreſs of the negro, or Guinea trade, to the French colonies in America.

Nothing was now wanting to its perfection, but an union with the Eaſt India *company*, and with thoſe of China and St. Domingo, which was effected; with the two firſt in 1719, and with the third in 1720. This union of the Eaſt-India and China *company* with the *company* of the Weſt, occaſioned an alteration of the name; and it was henceforth called the *India company*.

The reaſons of the union were the inability of the two former to carry on their commerce, the immenſe debts they had contracted in the Indies, eſpecially the *Eaſt Company*; complaints whereof had been ſent to court by the Indians, which diſcredited the *company* ſo that they durſt not appear any longer at Surat: laſtly, the little care they took to diſcharge their engagements; and their having transferred their privilege to the private traders of St. Malo, in conſideration of a tenth in the profits of the returns of their ſhips.

The ancient actions of the *company* of the Weſt, which were not at par when this engraſſment was projected, before it was completed, were riſen to 300 *per cent.* which unexpected ſucceſs gave occaſion to conclude the new actions of the united *companies* would not bear leſs credit. The concourſe of ſubſcribers was ſo great, that in a month's time there were above fifty millions ſubſcribed for: the firſt twenty-five million actions which were granted to the India *company*, beyond the hundred millions of ſtock allowed the *company* of the Weſt, being filled as ſoon as the books were open; to ſatisfy the earneſtneſs of the ſubſcribers, the ſtock was increaſed by ſeveral arrets to three hundred millions. Credit ſtill increaſing, the new actions roſe to 1200 *per cent.* and thoſe of the ancient *company* of the Weſt to 1900 *per cent.* an exorbitant price, to which no other *company* ever roſe. Its condition was now ſo flouriſhing, that in 1719 it offered the king to take a leaſe of all his farms for nine years, at the rate of three millions five hundred thouſand livres *per ann.* more than had been given before; and alſo to lend his majeſty twelve hundred millions of livres to pay the debts of the ſtate. Theſe offers were accepted; and the king, in conſideration hereof, granted them all the privileges of the ſeveral grants of the *companies* united to that *company*, to the year 1770, on condition, however, of diſcharging all the debts of the old Eaſt-India *company*, without any deduction at all. The loan of twelve hundred millions not being ſufficient for the occaſions of the ſtate, was augmented, three months afterwards, with three hundred millions more; which, with the former loan, and another of one hundred millions before, made ſixteen hundred millions; for which the king was to pay intereſt at the rate of three *per cent.*

The duke of Orleans, in February 1720, did the *company* the honour to preſide in their aſſembly, where he made ſeveral propoſals to them on the part of the king: the principal of theſe was, that they ſhould take on them the charge and adminiſtration of the royal bank. This was accepted of: and Mr. Law, comptroller-general of the finances, was named by the king *Inſpector-General of the India Company and Bank united*.

This union, which, it was propoſed, ſhould have been a mutual help to both thoſe famous eſtabliſhments, proved the firſt point from whence the fall of both commenced: from this time, both the banksbills and the actions of the *company* began to fall: in effect, the firſt periſhed abſolutely, and the other had been drawn along with it, but for the prudent precautions taken for its ſupport.

The firſt precaution was the revoking the office of inſpector-general, and the obliging Mr. Law to quit the kingdom: the ancient directors were diſcarded, and new ones ſubſtituted; and, to ſhut the bottom of the *company's* affairs, it was ordered, they ſhould give an account of what they had received, and diſburſed, both on the account of the *company*, and of the bank, which they had had the management of near a year. Another precaution to come at the ſtate of the *company*, was by endeavouring to diſtinguiſh the lawful actionaries from the Miſſiſippi extortioners; whoſe immenſe riches, as well as their criminal addreſs in realizing their actions, either into ſpecie or merchandize, were become ſo fatal to the ſtate; in order, if poſſible, to ſecure the honeſt adventurers in their ſtock. To this end, an inquiſition was made into their books, &c. by perſons appointed by the king; and the new directors, or, as they were called, *regiſſeurs*, began ſeriouſly to look about for their commerce abroad. The French have had ſeveral other *companies*, ſome whereof have fallen of themſelves, the reſt upon the expiration of their grants, as the

Baſtion COMPANY *of France*, which was, at firſt, only a ſimple aſſociation of two merchants of Marſeilles in the fifteenth century, for fiſhing of coral in the gulf of Stora-Courcoury on the coaſt of Barbary, on the frontiers of Algiers and Tunis. Having obtained leave of the ſultan Solyman II. to make an eſtabliſhment, and having likewiſe treated with the Moreſh princes of the country; in 1561 they built a little fort, called the *Baſtion of France*, whence the *company* took its name.

The firſt undertakers not being ſucceſsful, a new grant was obtained of Mahomet III. in 1604, to new undertakers: in 1628, it began to flouriſh, and the colony conſiſted of eight hundred people: but the death of their governor in 1633, gave them a blow they never recovered.

Several of the *companies* have ſince endeavoured to ſet the fiſhing of coral on its ancient footing, but hitherto in vain.

COMPANY, *Guinea*, was eſtabliſhed in 1685. Its grant expired in 1705; but it continued its trade of negroes, by the king's permiſſion, under the name of Aſſiento *company*, to the year 1713; when, by the treaty of Utrecht, that trade was ſurrendered to the Engliſh South-ſea *company*; which ſee.

COMPANY, *Aſſiento*. See *Guinea* COMPANY, and ASSIENTO.

COMPANY, *Cape Verd*, the ſame with that of Senegal, under another name: it was eſtabliſhed in 1664, before the *company* of the Weſt; but the coaſts of Africa being included in the grant of this laſt, we hear no more of the Cape Verd *company* till the year 1675, when it roſe afreſh under the title of *Company of Senegal*. It was further confirmed in 1681; but, being unable to pay its debts, was diſſolved in 1696.

COMPANY, *French South-Sea*, is the ſame with the Aſſiento *company*. See ASSIENTO.

COMPANY, *Canada*, eſtabliſhed in 1628, for the commerce of caſtor-ſkins, &c. Its grant expiring in 1717, it was united to the *company* of the Weſt: which ſee.

COMPANY, *Acadie*, eſtabliſhed in 1683. Its grant expiring in 1703, and the war, &c. preventing a new one, the colony was neglected; and was taken by the Engliſh in 1710, and confirmed to them by the treaty of Utrecht.

COMPANY, *French Levant*, eſtabliſhed in 1670; but its privilege revoked in 1684.

COMPANY, *French North*, eſtabliſhed in 1669, and expiring with its grant in 1690.

COMPANY, *St. Domingo*, eſtabliſhed in 1698, for fifty years, carried on with honour to the year 1720, and then united to the India *company*.

COMPANY, *Daniſh North*, was eſtabliſhed at Copenhagen in 1647. Its eſtabliſhments are very conſiderable in Norway; beſides which, it ſends veſſels to Waranger, whence

they convey their merchandizes by land into the Danish Lapland; and, by sledges drawn by rein-deer, into the Muscovite Lapland. It also sends others for Barandal and Siberia; where its agent takes them up, and conveys them, in like manner, on sledges, to Pangorod, the capital of this part of the Muscovite empire.

The commodities it sends thither are rix-dollars, tobacco, and linens; it returns nothing but furs and skins.

COMPANY, *Danish-Island*, established in the same year with the North *Company*: its chief factory is at Kirkebar, a large town in that island.

COMPANY, *Danish East India*, established about the year 1617; their chief factory is at Tranquebar, whither they send two or three vessels every year.

COMPANY, *Levant, of the Genoese*, established in 1664, and confirmed by the Porte; notwithstanding the opposition of the French.

Its chief commerce was to be in pieces of five sols, which the Genoese had before furnished the Turks withal, though in the French name, and under their banner: they were now to do it under their own banner; and accordingly, while the humour of these pieces lasted, as they served not only for money, but were likewise used by the Greek and Turkish women of the islands, as ornaments in their head-dress, at the bottom of their vests or petticoats, which were covered with them, the *company* succeeded well enough: but that money being afterwards decried in 1670, the *company* has languished ever since; and can now scarce support a miserable commerce.

For a more particular account of the rise and progress of most of the above mentioned *companies*, see Anderson's Hist. of Commerce.

COMPANY, in *Sea Language*, denotes the whole crew of a ship, including her officers.

COMPANY *of Ships*, is used for a fleet of merchant-vessels, who make a kind of charter party among themselves; whereby, under several clauses and conditions tending to their common safety, they engage not to quit one another, but to defend each other reciprocally, during their voyage.

These associates, in the Mediterranean, are called *consorts*. The chief conditions of the charter-party are, that such and such shall be owned admiral, vice-admiral, and rear-admiral; and those that bear no guns, shall pay so much *per cent.* of their cargo, for the expences of the admiral; that such and such signals shall be observed; that if they be attacked, the damages shall be reimbursed by the *company* in general, &c.

COMPANY, *Rule of*, or *Fellowship*, in *Arithmetic*, is a rule whereby we discover, or ascertain, the share of the profits, or losses, belonging to the several partners, or associates, in any enterprize, in proportion to the stock each contributed thereto, and the time that stock was in bank. See FELLOWSHIP.

COMPANY, in *War*, denotes a little body of infantry, commanded by a captain.

The French use the word indifferently for the horse, or foot; but the English appropriate the term troop to a *company* of horse. See TROOP.

Companies of foot of the British establishment commonly used to consist of one captain, one lieutenant, one ensign, three serjeants, three corporals, two drums, and forty-nine private centinels; in all sixty. But, of late years, *companies* have been increased, by the addition of twenty centinels, to eighty men. Ten, and sometimes twelve *companies*, make a regiment.

A *company* in the guards is eighty private men. See REGIMENT and GUARDS.

In the French guards the *company* is a hundred and twenty; in the Swiss guards two hundred.

Companies not embodied into regiments are called *independent companies*. The French also have their *free companies*, who never enter the body of any regiment; and *companies of ordonnance*, who in like manner never enter the body of a regiment, but consist of the gendarmes and light horse. They were instituted by Charles VII. who chose out fifteen captains, under each of whom were to be a hundred lances, or men at arms, each man at arms to receive pay for six persons, himself among the number; the rest to be three archers on horseback, a cutler, and a servant.

COMPANY, *artillery*. See ARTILLERY.

COMPARATES, COMPARATA, in *Logic*, the terms or subjects of a COMPARISON; or the two things compared to each other.

COMPARATIONE—*Punctum ex* COMPARATIONE. See PUNCTUM.

COMPARATIONIS *Homogeneum*. See HOMOGENEUM.

COMPARATIVE *Anatomy*. See ANATOMY.

COMPARATIVE *Degree*, in *Grammar*, is an inflexion between positive and superlative degrees; whose effect *is*, to set a thing above or beneath the level of another.

The Latins expressed their *comparative degree* by a particular termination of their adjectives, and particles; wherein they are followed by the English, though by few others of the modern languages.

The French form most of their *comparatives*, by adding the particles *plus*, *moins*, and *aussi*; the Italians, by *piu*, *meno*, &c. as the thing is to be raised, lowered, or equalled to another.

COMPARISON, the relation of two persons or things, considered as opposed, or set against each other, in order to find wherein they agree or differ; or wherein one has the advantage of the other.

COMPARISON *of Ideas*, an act of the mind, whereby it *compares* its IDEAS one with another, in respect of extent, degree, time, place, or any other circumstances.

This operation of the mind is the ground of RELATIONS.

Brutes seem not to have this faculty in any great degree: they have, probably, several ideas distinct enough; but cannot compare them farther than as to some sensible circumstances annexed to the objects themselves: the power of *comparing* general ideas, which we observe in men, they have not, as we may probably conjecture.

COMPARISON, in *Rhetoric*, is a FIGURE, or rather PLACE, in speech, whereby two things are considered with regard to some third, which is common to them both.

Thus, Cicer. Topic. *Catoni licuit sequi bellum civile, igitur & Ciceroni licebit. It was allowed Cato to engage in the civil wars, therefore it may be allowed Cicero:* where, to engage in the civil wars, is common to both.

There are three kinds of *comparison*; the first *a majori*, i. e. from the major to the minor, as that of Cicero against Anthony, *Quid fecerit domi suæ, cum alienæ tam sit insolens? Or* that of Terence, *Quem ferat, si parentem non ferat suum?* From the same place, Ovid endeavours to appease Cæsar.

Cur ego posse negem timeri Cæsaris iram,
Cum videam natos hostibus esse Deos?

The second, *à minori*, i. e. from the minor to the major: thus Cicero, *Majores nostri sæpe mercatoribus, ac navicularis injuriosus tractatis, bella gesserunt; vos tot civium Romanorum millibus una nuntia atque uno tempore necatis, quo tandem animo esse debetis?*

The third *à pari*; as when we contend, that what obtains in one thing, ought to obtain in another of the same kind: *It was a law, that he who killed his father should be sewed up in a sack, and thrown into a river; therefore he who killed his mother deserves the same punishment.*

Capto tuam, pudet heu, sed capto, Maxime, cænam:
Tu capis alterius; jam sumus ergo pares.
Mane salutatum venio, tu diceris ipse,
Ante salutatum; jam sumus ergo pares, &c
Mart. lib. ii.

COMPARTIMENT, or COMPARTMENT, a design composed of several different figures, disposed with symmetry; to adorn a parterre, a ceiling, pannel of joinery, or the like.

COMPARTMENTS, in *Gardening*, are beds, plats, borders, and walks, laid out according to the form of the ground, and depend more on a good fancy, than on any set of rules, for their construction. They are also sometimes merely diversities or knots of flower-gardens or parterres, of which there is an infinite variety, according to the fancy of the designer. Plain *compartments* are pieces of ground divided into equal squares and flower-beds, marked out by lines, and made of regularly equal length and breadth. Some allow to these squares borders of two feet broad, if the plot of ground be small, and, if larger of three feet, and edge the borders with box, or with upright hardy thyme: the alleys up between are to be laid with sand or gravel, and kept clean weeded.

A COMPARTMENT *of tiles*, is an arrangement of white and red tiles varnished, for the decoration of the covering of a roof.

The term of *compartiment* is also used in painting. The Turkish and Moorish paintings are only *compartiments*: the fine bindings of books are in *compartiments*, &c.

COMPARTIMENT, *alley of*. See ALLEY.

COMPARTIMENT, in *Heraldry*. See QUARTERING.

COMPARTITION, in *Architecture*, the useful and graceful distribution of the whole ground plot of an edifice, into rooms of office, and of reception, or entertainment. *Compartition* makes one of the great divisions of the art of BUILDING.

COMPASS. The mariners, or nautical *compass*, is an instrument used by pilots, to direct the course of their ships.

It consists of a box which includes a magnetical needle, that always turns to the north; allowing for a little declination, which is various in various places, and even, at various times, in the same place. See VARIATION.

In the middle of the box is fixed a perpendicular pivot, which bears a card, or pasteboard, on whose upper surface are described several concentric circles; the outmost of which is divided into 360 degrees; the other into 32 points, answering to the 32 winds; each point being 11° 15′: the four principal, viz. N. S. E. and W. are called cardinal points, and the names of the others are compounded of these.

In the centre of this card is fitted a brass cone, or cap, a little concave, which plays at liberty on the pivot; and along, in the thickness of the card, is fitted the needle, which is covered over with a glass, that its motions may be observed: the whole is inclosed in another box, where it is sustained by brass hoops, to keep the needle horizontal. See DIP. See it represented, *Tab. Navigation, fig.* 1.

The needle is made of a thin plate of steel, in form of a lozenge: the middle being cut out, so as to leave nothing but the extremities and an axis in the middle, to which the cap is fitted. See NEEDLE.

The *compass* has been sometimes observed to be disturbed by the electricity of its glass cover, and this from so slight an application of the finger as was barely necessary to wipe off a little dust. The same glass, rubbed a little more with the finger, a bit of muslin, or of paper, would attract either end of the needle, so as to hold it to the glass for several minutes; far out of the due direction, according to that part of the glass which was most excited. And when the needle, after adhering to the glass, has dropt loose, and made vibrations, those would not be bisected, as usual, by that point where the needle should rest, but either be made all on one side, or be very unequally divided, by means of some remains of electrical virtue in that part of the glass which had attracted the needle, until at length, after fifteen minutes or more, all the electricity being discharged, the magnetical power took place. Phil. Trans. N° 480. p. 243.

The remedy for this inconvenience, is to moisten the surface of the glass; a wet finger will do it immediately and effectually. Phil. Trans. N° 480. p. 244.

There is reason to believe, that glass does at times become in some degree attractive, without any friction at all, and may possibly be excited by great concussions in the air; such as thunder, or the discharge of great ordnance, and so may disturb the *compass*.

The effect of ELECTRICITY and LIGHTNING in giving polarity to *magnetic* NEEDLES, and likewise in reversing them, has been long since, and frequently observed by Dr. Franklin, S. Beccaria, and others. See AURORA BOREALIS, MAGNETS, &c.

The mariner's *compass*, with a chart, is much less dangerously moved than the common *compass* with a bare needle. And the deeper or farther distant the needle hangs below the glass, the less disturbance it is likely to receive.

The minute, irregular, reciprocating variations, which have been observed in the directions of dipping and horizontal needles, and mentioned in the Philosophical Transactions, may probably have been caused by the glasses which covered the instruments made use of. Phil. Trans. N° 425. N° 480. p. 245.

The invention of the *compass* is usually ascribed to Flavio de Melfi, or Flavio Gioia, a Neapolitan, about the year 1302; and hence it is, that the territory of Principato, which makes a part of the kingdom of Naples, where he was born, bears a *compass* for its arms.

Others say, that Marcus Paulus, a Venetian, making a journey to China, brought back the invention with him in 1260. What confirms this conjecture is, that at first they used the *compass* in the same manner as the Chinese still do; i. e. they let it float on a little piece of cork instead of suspending it on a pivot. It is added, that their emperor Chiuingus, a celebrated astrologer, had a knowlege of it 1120 years before Christ. The Chinese only divide their *compass* into twenty-four points.

Fauchet relates some verses of Guyot de Provence, who lived in France about the year 1200, which seem to make mention of the *compass* under the name of *marinette*, or *mariner's stone*; which shews it to have been used in France near a hundred years before either the Melphite or Venetian. The French even lay claim to the invention, from the fleur de lys, wherewith all nations still distinguish the north point of the card.

With as much reason Dr. Wallis ascribes it to the English, from its name *compass*, whereby most nations call it; and which he observes is used in many parts of England to signify a circle.

Though the mariner's *compass* has been long in use, the best construction of it was attended with many inconveniences, till the late improvement which it has received from the invention and experiments of Dr. Gowin Knight, and the farther emendation of Mr. Sneaton.

This chiefly consists in the shape and temper of the NEEDLE; in the discovery of proper means for restoring the loss of magnetism in a voyage, and of contrivances to hinder the card from being greatly affected by the various motions of the ship. However, these contrivances have been found too delicate to encounter the shocks of a tempestuous sea. See *Tab. Navigation, fig.* 2.

AB represents the outer wooden box; C and D are two milled nuts, by means of which the axis of the inner box GH, and ring EF, by which it is supported, are lifted from their edges on which they move, in order to increase the friction, and prevent the too great vibrations occasioned by the motion of the ship in a high sea. I is one of the axes of the inner box, by which it is suspended on the ring EF; KL is the magnet, or needle, of a regular parallelepiped shape, and M a small beam of ivory, best seen in *fig.* 3. that confines the cap to its place. The cap is ivory, so turned, as to be capable of receiving a small bit of agate, which is ground concave, and polished on that side, where it forms the apex of the hollow cone in the cap: the under part of it is represented by C, *fig.* 4. The card, *fig.* 3. is a single varnished paper, reaching as far as the outer circle of figures, which is made of thin brass, with its edge turned down at right angles, as in A and B, *fig.* 4. to the plane of the card, to make it more stiff. F and G are two brass screws that fix the brass edge, &c. to the needle. This brass ring is designed to support the card, and to throw the weight of it as near the circumference as possible, for preventing the effect of the friction at the centre; and is divided into degrees and half-degrees: which divisions are determined by means of a cat-gut line O, *fig.* 2. stretched perpendicularly about the inside of the box, and as near the brass edge as possible. The brass ring, by being placed below the card, and the needle above it, seems to bring the centre of gravity low enough to admit of the cap being put under the needle, so that a hole in the needle is unnecessary; and the needle, being above the card, is more easily touched with a pair of bars. Underneath the card are two small weights, D and E, *fig.* 4. which represents the back side of the card, sliding on two wires, placed at right angles to each other, which by being moved nearer to, or farther from the centre, counterbalance the dipping of the card in different latitudes, and serve to restore the equilibrium of it, when by any other means it happens to be got too much out of level. The pedestal, that supports the card, is represented in *fig.* 5. It contains a sewing needle fixed in two small grooves to receive it, by means of the collet C; and at D the stem of the pedestal is fixed into an octagon, that it may be the more easily unscrewed. P Q R S, *fig.* 2. represents an index, which may be occasionally added at the top of the inner box, and will serve for all altitudes of the object. It consists of a bar, equal in length to the diameter of the inner box, and at each end is furnished with a perpendicular style, having a slit parallel to its sides. One slit, to which the eye is applied, is narrow, and the other is wider, with a small cat-gut stretched up the middle of it, and continued horizontally from the top of one style to that of the other; and there is also a line drawn along the upper surface of the bar. This line, the narrow slit, the horizontal cat-gut, and the perpendicular one, are in the same plane, perpendicular to the horizon, when the inner box is at rest, and hangs freely. The index does not move round, but is always placed on so as to answer the same side of the box. When the index is not wanted for use, it may be taken off, and placed in two pieces, T and V, properly notched to receive it. W represents the handle of the box. The instrument thus constructed serves the purposes of an azimuth and amplitude *compass*. If the sun's azimuth is desired, turn the wooden box, till the shadow of the horizontal thread, or that of the perpendicular thread in one style, or the light through the slit in the other, falls upon the line on the index bar, or vibrates to an equal distance on each side of it; then observe the degree for the azimuth, marked on the brass edge by the cat-gut line, reckoned on the outward circle of figures: and the situation of the index bar, with regard to the card and needle, will shew on what quarter of the *compass* the object is placed. If the rays of the sun are strong enough to cast a shadow, place the eye behind the narrow slit in one of the styles, and turn the box till some part of the horizontal or perpendicular thread appears either to intersect the centre of the sun or to vibrate to an equal distance on each side of it, and let the degree cut by the nonius be observed. If the sun's amplitude were to be observed, the general process is the same; excepting that the degrees are to be numbered on the inner circle of figures on the card, which are the complements of the outer, to 90. Phil. Trans. vol. xlvi. art. 18 and 19. p. 505—517.

Knight's

Knight's *compaſſes* are now generally uſed in the royal navy; and it may be reaſonably expected that they ſhould be provided for merchant ſhips as well as others.

*The uſe of the ſea-*COMPASS *is obvious.* For, the courſe a ſhip is to ſail in, being known by the chart; and the *compaſs* ſo placed, as that the two parallel ſides of the ſquare box be diſpoſed according to the length of the ſhip, i. e. parallel to a line drawn from the head to the ſtern; the rudder is to be directed accordingly; v. gr. if the courſe be found on the chart between the ſouth-weſt and ſouth-ſouth-weſt, i. e. ſouth-weſt ¼ to the ſouth; turn the ſtern ſo as that a line from the ſouth-weſt, ¼ ſouth, exactly anſwer the mark on the middle of the ſide of the box. This is all that is requiſite.

The azimuth COMPASS differs from the common ſea *compaſs* in this; that there is faſtened, on the round box wherein the card is, a broad circle AB (*Tab. Navigation, fig.* 6.) one half whereof is divided into 90 degrees, and thoſe ſubdivided diagonally into minutes: *b c* is an index moveable on *b*, having a ſight, *d a*, erected thereon, and moving on a hinge. From the upper part of the ſight, to the middle of the index, is faſtened a fine hypotheneſal lineſtring *a e*, to give a ſhadow on the line in the middle of the index. The circle AB is croſſed at right angles with two threads, from the extremities whereof are drawn four lines on the inſide of the round box: there are alſo four lines drawn at right angles to each other on the card. The round box fitted with its card, graduated circle, and index, is hung in the braſs hoops BB, and theſe hoops faſtened to the ſquare box CC.

Captain Middleton mentions an *azimuth compaſs* of his own contrivance, by which the variation may be determined with greater eaſe and exactneſs than by any others in uſe before the year 1738. He has given no particular deſcription of it, but only ſhews the manner of uſing it. It carries a teleſcope with a vertical hair in it, and may be conveniently uſed for taking the ſun's altitude by reflection. Phil. Tranſ. abr. vol. viii. p. 374.

The uſe of the azimuth COMPASS is for finding the ſun's magnetical azimuth, or amplitude, and thence the variation of the *compaſs*. If the obſervation be for an amplitude at ſun-riſing, or for an azimuth before noon, apply the centre of the index *b c* to the weſt point of the card, within the box; ſo that the four lines of the edge of the card, and thoſe on the inſide of the box, may meet. If the obſervation be for the ſun's amplitude ſetting, or an azimuth in the afternoon, turn the centre of the index right againſt the eaſt point of the card, and make the lines within the box concur with thoſe on the card; the inſtrument thus fitted for obſervation, turn the index *b c* towards the ſun, till the ſhadow of the thread *a e* fall directly on the ſlit of the ſight, and on the line that is along the middle of the index: then will the inner edge of the index cut the degree and minute of the ſun's magnetical azimuth from the north or ſouth. But note, that if, when the *compaſs* is thus placed, the azimuth is leſs than 45° from the ſouth, and the index *b c* turned towards the ſun, it will paſs off the diviſions of the limb: the inſtrument, therefore, in this caſe, muſt be turned juſt a quarter of the *compaſs*, i. e. the centre of the index muſt be placed on the north or ſouth point of the card, according as the ſun is from you; and then the edge will cut the degree of the magnetic azimuth, or the ſun's azimuth from the north, as before. See AMPLITUDE, and the article COMPASS, above.

The ſun's magnetical amplitude thus found, the variation of the needle is thus determined.

Being out at ſea the fifteenth of May, 1717, in 45° north latitude, the tables give me the ſun's latitude 19° north, and his eaſt amplitude 27° 25′ north: by the *azimuth compaſs*, I find the ſun's magnetical amplitude at his riſing and ſetting: and find he riſes, 9 gr. between the 62d and 63d degree, reckoning from the north towards the eaſt point of the *compaſs*, i. e. between the 27th and 28th degree, reckoning from the eaſt.

The magnetical amplitude, therefore, being here equal to the true one, the needle has no variation; but if the ſun at his riſing ſhould have appeared between the 52d and 53d degree from the north towards the eaſt; his magnetical amplitude would then have been between 37 and 38 degrees, i. e. about 10 degrees greater than the true amplitude: therefore, the needle would vary about 10 degrees north-eaſterly.

If the magnetical eaſt amplitude found by the inſtrument ſhould be leſs than the true amplitude, their difference would ſhew the variation of the needle eaſterly.

If the true eaſt amplitude be ſouthward, as alſo the magnetical amplitude, and this laſt be the greater; the variation of the needle will be north-weſt; and *vice verſa*. What has been ſaid of north-eaſt amplitudes, holds alſo of ſouth-weſt amplitudes. And that of ſouth-eaſt amplitudes, holds of north-weſt amplitudes.

Laſtly, if amplitudes be found of different denominations, v. gr. if the true amplitude be ſix degrees north, and the magnetical amplitude five degrees ſouth; the variation, which in this caſe is north-weſt, will be equal to the ſum of the magnetical and true amplitudes: underſtand the ſame for weſt amplitudes.

The variation may likewiſe be found from the azimuth; but in that caſe, the ſun's declination, latitude of the place, and his altitude, muſt be given, that his true azimuth may be found.

This inſtrument is alſo uſeful in ſettling the ſhip's wake, in order to find the LEE-*way*; and alſo to find the bearings of head-lands, and other objects.

COMPASS is alſo an inſtrument of conſiderable uſe in SURVEYING, DIALLING, &c.

Its ſtructure, in the main, is the ſame with that of the *mariner's compaſs*: conſiſting like that, of a box and needle: the principal difference conſiſts in this, that inſtead of the needle's being fitted into the card, and playing with it on a pivot, it here plays alone; the card being drawn on the bottom of the box, and a circle divided in 360 degrees on the limb. See *Tab. Surveying, fig.* 3. This inſtrument is of obvious uſe to travellers, to direct them in their road: and to miners, to ſhew them what way to dig, with other conſiderable uſes.

1. *To take the declination of a wall by the* COMPASS. Apply that ſide of the *compaſs* whereon the north is marked along the ſide of the wall; the number of degrees over which the north end of the needle fixes, will be the declination of the wall, and on that ſide: v. gr. if the north point of the needle tends towards the north, that wall may be ſhone on by the ſun at noon; if it fix over fifty degrees, counting from the north towards the eaſt, the declination is ſo many degrees from north towards eaſt.

But ſince the needle itſelf declines from the north towards the weſt, with us, 13°; it muſt be noted, that to retrieve the irregularity, 13° are always to be added to the degrees ſhewn by the needle, when the declination of the wall is towards the eaſt; on the contrary, when the declination is towards the weſt, the declination of the needle is to be ſubtracted.

2. *To take an angle with the* COMPASS. Suppoſe the angle required be D A E (*Tab. Surveying, fig.* 4.) apply that ſide of the *compaſs* whereon the north is marked to one of the lines, AD; when the needle reſts, obſerve the degrees at which its north point ſtands, which ſuppoſe 80: ſo many degrees does the line decline from the meridian. In the ſame manner take the declination of the line AE, which ſuppoſe 215°; ſubtract 80° from 215, the remainder is 135: which ſubtracted from 180, there will remain 45°; the quantity of the angle required.

But if the difference between the declination of the two lines exceed 180°; in that caſe, 180° muſt be ſubtracted from that difference; the remainder then is the angle required.

For the method of laying this down on paper, ſee PLOTTING.

Note, in meaſuring angles by the *compaſs*, there needs not any regard be had to the variation; that being ſuppoſed the ſame in all the lines of the angles.

3. *To take a plot of a field by the* COMPASS. Suppoſe the field A, B, C, D, E, (*Tab.* II. *Surveying, fig.* 19.) for the greater accuracy let there be two ſights fitted to the meridian line of the *compaſs*: place it horizontal, and through the ſights look along the ſide AB, or a parallel line to it, applying the eye to the ſight at the ſouth point of the *compaſs*. Draw a rough ſketch of the field by the eye, and on the correſponding line enter down the degree to which the needle points, which ſuppoſe 90; meaſure the length of the ſide, and enter that too, which ſuppoſe 10 chains.

In this manner proceed with all the reſt of the ſides and angles of the field; the ſides, which ſuppoſe 70, 65, 70, 50, 94 fathom; and the angles, which ſuppoſe 30, 100, 130, 240, 300 degrees. To protract the field, ſet down the ſeveral angles obſerved, one after another, and ſubtract the leſſer from the next greater: thus you will have the quantity of the ſeveral angles, and the length of the lines that include them. For the reſt, ſee PLOTTING, and PROTRACTING.

Note, all the angles of the figure taken together, muſt make twice as many right angles, abating two, if no miſtake have been committed.

COMPASS *of proportion*. See SECTOR and PROPORTION.

COMPASS *dials* are ſmall dials, fitted in boxes, for the pocket, to ſhew the hour of the day by direction of the needle; which indicates how to place them right by turning the dial about, till the cock or ſtyle ſtand directly over the needle, and point to the northward: but theſe can never be very *exact*, becauſe of the variation of the needle itſelf. See DIAL.

COMPASS *ſaw*. See SAW.

COMPASSES, or *pair of* COMPASSES, a mathematical inſtrument uſed for the deſcribing of circles, meaſuring lines, &c. The common *compaſſes* conſiſt of two branches

or legs, of iron, brass, or other metal, pointed at bottom; and joined by a rivet, whereon they move, as on a centre. These are reckoned the best, part of whose joint is steel, and where the pin on which the point turns is a steel screw. The points should also be made of hardened and polished steel. In some the points are fixed; in others they may be taken off, and a drawing-pen, pencil, or cutting wheel, substituted in their room.

The invention of *compasses* is ascribed to Talus, nephew of Dædalus by his sister, whom the poets fay Dædalus killed out of envy. We have *compasses* now of various kinds and contrivances, accommodated to the various uses they are intended for: as,

COMPASSES *of three legs*. Their structure is like that of the common *compasses*, letting aside the excess of a leg, which has a motion every way: their use is to take three points at once, and so to form triangles: to lay down three positions of a map to be copied at once, &c.

COMPASSES, *Beam*, consist of a long branch, or beam, carrying two brass cursors; the one fixed at one end, the other sliding along the beam, with a screw to fasten it, on occasion. To the cursors may be screwed points of any kind; whether steel, for pencils, or the like. It is used to draw large circles, to take great extents, &c.

Bow-COMPASSES, or BOWS, are a small sort of *compasses*, that shut up in a hoop, which serves for a handle. Their use is to describe arcs, or circumferences of circles of very small radius.

COMPASSES, *Caliber*. See CALIBER.

COMPASSES, *Glass-makers*, are very substantial, serving to cut pasteboard, brass, &c. jointed like the common *compasses* with a quadrant, or bow, as the *spring compasses*, only its use different: as serving here to keep the instrument firm at any opening.

COMPASSES, *cylindrical and spherical*, used in taking the diameter, thickness, or caliber of round, or cylindric bodies; such as cannons, pipes, &c. They consist of four branches joined in a centre; two of them circular, and two flat, a little bent at the ends.

To use them, one of the flat points is put within the cannon, the other without: the two opposite points shew the thickness. See CALIBER *Compasses*.

There are also *sphero-cal compasses*, differing in nothing from the common ones, but that their legs are arched; serving to take the diameters of round bodies, &c.

COMPASSES, *Elliptic*. Their use is to draw ellipses, or ovals of any kind: they consist of a beam AB (*Tab. Geometry, fig.* 2.) about a foot long, bearing three cursors; to one of which may be screwed points of any kind: to the bottom of the other two are rivetted two sliding dovetails, adjusted in grooves made in the cross branches of the beam. The dove-tails having a motion every way, by turning about the long branch, go backwards and forwards along the cross: so that when the beam has gone half-way about, one of these will have moved the whole length of one of the branches; and when the beam has got quite round, the same dove-tail has got back the whole length of the branch. Understand the same of the other dove-tail.

Note, the distance between the two sliding dove-tails is the distance between the two foci of the ellipsis; so that by changing that distance, the ellipsis will be rounder or slenderer. Under the ends of the branches of the cross are placed four steel points to keep it fast.

The use of this *compass* is easy; by turning round the long branch, the ink, pencil, or other point, will draw the ellipsis required. Its figure shews both its use and construction.

COMPASSES, *German*, whose legs are a little bent outwards towards the top; so that, when shut, only the points meet.

COMPASSES, *Hair*, so contrived within side, as to take an extent to a hair's breadth.

COMPASSES, *Lapidary's*, a piece of wood in form of the shaft of a plane, cleft a-top, as far as half its length; wherewith they measure the angles, &c. of the precious stones, as they cut them. In the cleft is a little brass rule, fastened there, at one end, by a pin; but so that it may be moved in a manner of the bevel; with this kind of square they take the angles of the stones, laying them on the shaft as they cut them.

COMPASSES, *Proportional*, are those whose joint lies between the points terminating each leg: they are either *simple* or *compound*. In the former first the centre is fixed, so that one pair of these serves only for one proportion. *Compound proportional compasses* consist of two branches (*Tab. Geometry, fig.* 3.) each pointed at either end with steel: the length of the branches is cut through, for a cursor to slide up and down; in the middle of which cursor is a screw, serving to join the branches, and to fix them at any point required.

On the one leg are divisions, serving to divide lines into any number of equal parts, for reducing of *figures*, &c. On the other are numbers, for inscribing any regular polygon in a circle proposed.

The use of the first is easy: Suppose, v. gr. a right line required to be divided into three equal parts; push the cursor till the screw be just on the figure 33 where fixing it, take the length of the given line between the longest parts of the legs: the distance between the two shortest will be one third of the given line. In the same manner may the line be divided into any other number of parts.

For the use of the line of polygons: Suppose, v. gr. a pentagon required to be inscribed in a circle; push the cursor till the middle of the screw be against 5, the number of sides in a pentagon; between the shortest parts of the legs take the semidiameter of the circle: the legs thus opened, the distance between the points of the longest parts will be the side of the pentagon to be inscribed in the circle. And thus for a figure of any other number of sides.

Proportional COMPASSES *with the scales lines*. The structure of these also like that of the common *proportional compasses*, only a little nicer, that it needs no particular description. See *Tab. Geometry, fig.* 4.

The lines on the first face are the line of lines, marked *lines*: it is divided into 100 equal parts, every tenth numbered; and the line of chords, which goes to 60°, is marked *chords*.

On the other face are a line of fines to 90°, and a line of tangents to 45°. On the other side are the tangents from 45° 20′ to 71° 34′; on the other, secants from 0° to 70° 30′.

For the use of these compasses: 1. To divide a line into any number of equal parts, less than 100: divide 100 by the number of parts required: flip the cursor till the line on the sliding dove-tail be against the quotient on the line of lines: then, the whole line being taken between the points of the *compasses* most remote from the centre; the aperture of the other will shew the division required. 2. A right line given, supposed to be divided into 100 parts, to take any number of those parts: flip the line on the sliding dove-tail to the number of parts required; the whole line being taken between the points farthest from the centre, the aperture of the other two will include the number of divisions required. 3. The radius being given to find the chord of any arch under 60°: flip the line on the sliding dove-tail to the degrees required on the line of chords: the radius being taken between the points farthest from the center of the cursor; the aperture of the other line will be the chord required, provided the number of degrees be greater than 29: if it be less, the aperture taken from the radius will leave the chord required. 4. If the chord of an arch under 60° be given and the radius required; flip the line on the dove-tail to the degrees given on the line of chords: the given chord being taken between the two points next the cursor, the aperture of the other will be the radius required. 5. The radius being given, to find the fine of any number of degrees. Slip the line on the dove-tail to the degree on the line of lines whose fine is required: the radius taken between the points furthest from the cursor, the aperture of the other will give the fine of the angle required. But if the fine fought be less than 30°, the difference of the apertures of the opposite points will be the fine required. 6. The radius being given, to find the tangent of any number of degrees under 71: if the tangent required be under 26° 30′, then flip the line on the dove-tail to the degree proposed on the tangent line; the radius taken between the points farthest from the cursor, the aperture of the others will be the tangent of the degrees required: if the tangent required be above 29° 30′, but under 45°; the line on the cursor must be flipped to the degrees given on the tangent line: then the radius being taken between the points farthest from the cursor; the aperture of the others will be the tangent. If the tangent required be greater than 45°, but less than 56° 30′, flip the notch on the tangent side of the turned cheek to the degree 0 in the tangent line on the side of the *compass*; the radius taken between the points farthest from the cursor; the difference between the aperture of the other, and these, added together, will be the tangent required. Thus, for the tangents of other degrees under 71.—After the like manner may the secant of any number of degrees under 71 be found.

Mr. Heath, a mathematical instrument-maker in London, constructed a pair of *proportional compasses*, in 1740, with a curious and useful contrivance for preventing the shorter legs from changing their position, when these *compasses* were used. It consisted of a small beam soldered to a screw, and running parallel to the leg of the *compasses*, nearly of the length of the groove; in this

beam a slit was made, which admitted of a sliding-nut, the other end of which fell into a hole in the bottom of the screw, belonging to the great nut of the *compasses*. The screw-pin of the beam passed through an adjustor by means of which the mark on the slider might be brought exactly to any division. But the *proportional compasses* have been much out of use since the invention of the SECTOR.

COMPASSES, *Spring*, or *Dividers*, are made of hardened steel, the head arched: which, by its spring, opens the *compasses*; the opening being directed by a circular screw, fastened to one leg, and let through the other, worked with a nut.

COMPASSES, *Triangular*. See COMPASSES *of three legs*, and TRIANGULAR.

COMPASSES, *Trifectine*, the invention of M. Tarragon, for the trifection of angles, geometrically.

The instrument consists of two central rules, and an arch of a circle of 120 degrees, immoveable, with its radius; the radius is fastened with one of the central rules, like the two legs of a sector, that the central rule may be carried through all the points of the circumference of the arch. The radius and rule must be as thin as possible, and the rule fastened to the radius hammered cold, to acquire an elasticity: the breadth of the other central rule must be triple the breadth of the radius. In this rule there is a groove, with a dove-tail, to be fattened on it, for its motion: in the centre of each rule must likewise be a hole. See the Journ. des Sçavans, Sept. 1688.

COMPASSES, *Turn-up*, a late contrivance to save the trouble of changing the points: the body is like the common *compasses*; towards the bottom of the legs, without-side, are added two other points, beside the usual ones; the one carrying a drawing pen-point, the other a port-crayon, both adjusted so as to turn round, and so be in the way of use, or out of it, as occasion requires.

The points of small *compasses* are tempered by a lamp and blow-pipe, heating them red-hot; when cold, they are hard: the larger are tempered by a charcoal-fire and a blow-pipe, heating them to a cherry-colour, then plunging them in water.

See M. Bion's Construction and Uses of Mathematical Instruments, by Stone; and Robertson's Treatise on the same subject.

COMPASSING, in *Naval Architecture*, a term used to denote such pieces of timber as are incurvated into the figure of an arch.

COMPASSING *the king's death*, in *Law*. See TREASON.

COMPASSION, COMMISERATION, in *Ethics*, a mixed passion, compounded of love and sorrow, and excited by the sight or recital of distress. Hobbes makes this a merely selfish passion, and defines it, as being fear for ourselves; Hutcheson resolves it into INSTINCT: but Dr. Butler much more properly considers *compassion* as an original, distinct, particular affection in human nature. Hobbes of Human Nature, cap. ix. sect. 10. Hutcheson's Enquiry into Moral Good and Evil. Butler's Sermons, Serm. v. and vi.

COMPATIBLE, something that may suit, or consist with another. See INCOMPATIBLE.

COMPENDIUM, an abstract, EPITOME, or reduction of a large matter into a little compass.

COMPENSATION, an action whereby any thing is admitted as an equivalent to another.

COMPENSATION, in the *Civil Law*, is a kind of right, whereby a debtor pursued by his creditor, for the payment of a debt, demands that the debt may be *compensated* with what is owing him by the creditor.—*Compensation* is equivalent to payment, and answers to that which is called SET-*off*, in common law.

COMPERTORIUM, in the *Civil Law*, denotes a judicial inquest made by delegates, or commissioners to find out, and relate the truth of a cause.

COMPETENCE, or COMPETENCY, in *Law*, the authority, or right, of a judge, for taking cognizance of any matter. See JURISDICTION.

COMPETENT *witnesses*. See WITNESS.

COMPETENTES, in *Church History*, an appellation given to the *catechumens*, when, being sufficiently instructed in the Christian religion, they required BAPTISM.

COMPITA, in *Zoology*, a name by which some have called the *cimex major*, or BIJABELLE, the great Venetian *cimex*.

COMPITALIA, or COMPITALITIA, feasts held among the ancients in honour of the *lares*.

The word comes from *compitum*, a *cross-way*; because the feast was held in the meeting of several roads.

The *compitalia* are more ancient than the building of Rome. Dionysius Halicarnassæus, and Pliny, indeed say, that they were instituted by Servius Tullius: but this only signifies, that they were then introduced into Rome.

Notwithstanding what Dion relates, that the *compitalia* were celebrated a little after the Saturnalia, and that the Roman calendar fixes them on the twelfth of January, it appears that they had not fixed any day, at least, not in the time of Varro, as is observed by Columbon.

The feast being thus moveable, the day whereon it was to be observed, was proclaimed every year. It was ordinarily held on the fourth of the nones of February, i. e. on the second of that month. Macrobius observes, that they were held not only in honour of the *lares*, but also of *mania*, *modasti*. The priests who officiated at them were slaves and infants; and the sacrifice was a few. They were re-established, after a long neglect, by Tarquin the Proud, on occasion of an answer of the oracle, *That they should sacrifice heads for heads*, i. e. that for the health and prosperity of each family, children were to be sacrificed: but Brutus, after expelling the kings, in lieu of those barbarous victims, substituted the heads of garlick and poppy; thus satisfying the oracle, which had enjoined *capitia, heads*, at an easier rate.

During the celebration of this feast, each family placed at the door of their house, the statue of the goddess *Mania*: they also hung up at their doors figures of wool, representing men and women; accompanying them with supplications that the *Lares* and *Mania* would be contented with those figures, and spare the people of the house.

As for slaves, in lieu of the figures of men, they offered balls or fleeces of wool. Servius Tullus ordered, that the slaves who assisted at the *compitalia*, should be free during the whole time of the feast. Augustus ordered the statues of the *Lares*, placed in the cross-ways, to be adorned with flowers twice a year.

COMPLAINANT, in *Law*, a PLAINTIFF, or one who prefers a *complaint* against another, to be relieved by justice or equity.

COMPLEMENT, *Arithmetical*. See ARITHMETICAL.

COMPLEMENT, in *Astronomy*, is used for the distance of a star from the zenith; or the arch comprehended between the place of the star above the horizon, and the zenith.

COMPLEMENT *of the course*, in *Navigation*, is the number of points the course wants of 90 degrees, or eight points; viz. of a quarter of the compass.

COMPLEMENT *of the curtin*, in *Fortification*, that part of the anterior side of the CURTIN, which makes the DEMI-GORGE.

COMPLEMENT *of the line of defence*, is the remainder of the line of DEFENCE, after you have taken away the ANGLE of the flank.

COMPLEMENT, in *Geometry*, is what remains of a quadrant of a circle, or of ninety degrees, after any certain arch has been retrenched from it.

Thus, if an arch or angle be 30 degrees, we say its *complement* is 60 degrees, since 60+30=90.

The arch and its *complement* are relatives; and are only used with regard to each other.

The sine of the *complement* of an arch is called the *co-sine*; of a tangent, the *co-tangent*, &c.

We sometimes also say the *complement of an angle*; meaning so much as it wants of a right angle, or of 90 degrees.

COMPLEMENTS *of a parallelogram*, are the two lesser parallelograms, made by drawing two right lines parallel to each side of a parallelogram, through a given point in the diagonal.

Such are the parallelograms C and M (*Tab. Geometry, fig.* 1.)—It is demonstrated, that in every parallelogram, the *complements* C and M are equal: for Z+C+o =R+M+x; as making up on each side the great triangles, made equal by the diagonal; of which, Z=R, and o=x (because the diagonal makes them so); wherefore the the remaining PARALLELOGRAM C=M.

COMPLEMENT *of life*, in the *Doctrine of Life Annuities*, is the number of years which a given life wants of 86. Thus 56 is the *complement* of 30, 30 of 50, &c. Mr. De Moivre supposes an equal decrement of life through all its stages till the age of 86, which he considered as the utmost probable extent of life. Thus, if there be 56 persons alive at 30 years of age, it is supposed that one will die every year, till, in 56 years, they will be all dead. The same will happen to 46 at 40, in 40 years, and thus for all ages. This hypothesis is far conformable to Dr. Halley's table, formed from his observations at Breslaw, that the value of lives deduced either from the hypothesis, or the table need not be distinguished; and it very much eases the labour of calculating them. De Moivre's Treatise on Annuities, annexed to his Doctrine of Chances, p. 265. Price's Observations on Reversionary Payments p. 2. See LIFE-*Annuities*.

COMPLEMENT *of an interval*, in *Music*, is the quantity which it wants of an OCTAVE. See INTERVAL.

COMPLEX, a term ordinarily used as synonymous with *compound*; though, strictly speaking, there is some difference between them.

Complex is properly applied where a thing contains divers others; or consists of divers parts, not really distinct

from one another; but only imaginarily, or in our conception.

In Logic, *Complex* is opposed to simple, and *compound* to single.

COMPLEX *object*. See OBJECT.

COMPLEX *opposition*. See OPPOSITION.

COMPLEX *term*, or *idea*, is a TERM or IDEA compounded of several simple or incomplex ones.

Thus, in the proposition, *A just God cannot leave crimes unpunished*; the subject of this proposition, viz. *a just God*, is a *complex term*, or stands for a *complex idea*, composed of two simple, or *incomplex* ones, viz. *God* and *Just*. Mr. Locke observes, that though the mind be perfectly passive in the formation of simple ideas; yet it exerts several actions of its own about them, when once formed: and that by this means it is, that they become the materials and foundation out of which all our knowledge is framed.

These acts are chiefly three, viz. 1. The combining of several simple ideas into one compound one: and thus it is that all *complex* ideas are made.

2. The bringing two ideas, whether simple or *complex*, together; setting them by each other, and so viewing them, without uniting them into one; by which it gets its idea of RELATION.

3. The separating several ideas from all other ideas that accompany them in their real existence: and thus all its general ideas are formed.

As simple ideas are observed to exist in several combinations united together; so the mind may consider them as united, not only as they are really united in external objects, but as itself has joined them: ideas thus made up of several simple ones put together, we call *complex*; as man, beauty, army, gratitude, &c.

Complex ideas, however compounded and decompounded, though their number be infinite, and their variety endless, may be all reduced under these three heads, viz. *modes*, *substances*, and *relations*; which see under their proper heads. MODE, SUBSTANCE, and RELATION.

Complex ideas are often considered as simple and distinct beings, though made up of several simple ideas; as body, spirit, &c.

COMPLEX *proposition*, in *Logic*, is that in which the subject, or predicate, or both, are made up of *complex* terms: and if the term added to the subject be essential or necessary to it, then it is called *explicative*; otherwise it is *determinative*, the adjoined term limiting the subject to a particular part of its extension. Some logical writers ascribe the *complexion* of a proposition, in some cases, to the copula, as in modal propositions; but this rather pertains to the predicate. See *Compound* and *Modal* PROPOSITION.

COMPLEX *syllogism*, is that, in which the middle term is not connected with the whole subject, or the whole predicate in two distinct propositions, but is intermingled and compared with them by parts: e. g. The sun is a senseless being, the Persians worshipped the sun, therefore the Persians worshipped a senseless being.

COMPLEXI *pars*, in *Anatomy*, a name given by Riolanus, and others, to a muscle called by Albinus *biventer cervicis*, and by some the *complexus*.

COMPLEXIO, COMPLEXION, in *Metaphysics*, the union, or coalition of several things different from each other; either really, or only in our conception. See COMPLEX.

COMPLEXIO, in *Logic*, is sometimes applied to the second operation of the mind, viz. the judgment; considered as it affirms or denies any thing; such affirmation, &c. necessarily importing a combination of several things.

Complexio is sometimes also used by logicians in the sense of dilemma.

COMPLEXIO, in *Rhetoric*, &c. is a figure including a repetition, and a connexion at the same time; the sentence both beginning, and ending, with the same word.

Thus Tully: *Quis hæc tulit? Rullus. Quis monstrorum partem populo fore gis provavit? Rullus. Quis comitiis præsidet? Rullus.*

COMPLEXION, in *Physics*, is used for the temperature, habitude, or natural disposition of the body.

Some philosophers distinguish four general and principal *complexions* in man, viz. the *sanguine complexion*, which according to them, answers to the air; having the qualities thereof, as being hot, and moist. It takes its name from *sanguis*; because the blood is there supposed to be predominant.

The *phlegmatic complexion* takes its name from the pituita, or phlegm, in which it abounds; and corresponds to water; being cold and moist.

The *bilious*, or *choleric complexion*, takes its name from the bile, or choler: it is supposed of the nature of fire, hot and dry.

Lastly, the *melancholic complexion* partakes of the nature of earth, being cold and dry. But this sort of reasoning is now not much regarded.

COMPLEXUS, or *Par* COMPLEXUM, in *Anatomy*, is a pair of muscles, arising with six thin small tendons from the transverse processes of the vertebræ of the neck and thorax, growing fleshy in its ascent; again becoming tendinous about the middle; and again fleshy, where it is inserted laterally into the posterior part of the upper transverse line of the *os occipitis*, and the hind part of the *processus mastoides*. See *Tab. Anat. Myol.* fig. 7. n. 5.

The former is called *complexus major*, and the latter *complexus minor*, or *mastoideus lateralis*. Winslow.

This last is often mistaken for a portion of the *longissimus dorsi*. Some anatomists have reckoned four of these muscles instead of two.

When they act together, they pull the head directly backwards: but either of them acting alone, it draws it obliquely back.

COMPLICATION *of diseases*, a mixture, or combination of several diseases; especially where they have any affinity to one another; as the dropsy, asthma, and jaundice, happening together.

What much perplexes the physicians is, when with a fever there is a *complication* of some other disorder.

COMPLINE, in *Ecclesiastical Antiquity*, denotes that evensong, which completed the whole service of the day in religious houses, and began at nine of the clock at night.

COMPLUTENSIAN *Bible*. See *Greek* BIBLES.

COMPONE, or COMPONED, or *Cobony*, in *Heraldry*.—A bordure *compony*, is that formed or composed of a row of angular parts, or checquers of two colours. See *Tab. Heraldry*, *fig.* 19.

COMPONED, or COMPOSED, is also used in general for a bordure, a pale, or a fesh, composed of two different colours, or metals, disposed alternately, separated and divided by fillets, excepting at the corners; where the junctures are made in form of a goat's foot.

COMPOS *Mentis*. See NON-COMPOS.

COMPOSED *Bastion*. See BASTION.

COMPOSITE *Numbers*, those that can be measured by some number, besides itself, above unity; as 12, by 2, 3, 4, and 6.

Compositi numbers between themselves, are the same with COMMENSURABLE *numbers*.

COMPOSITE *Order*, in *Architecture*, the last of the five orders of columns; so called, because its capital is *composed* out of those of the other orders. See *Tab. Architecture*, *fig.* 28.

It borrows a quarter-round from the Tuscan and Doric; a double row of leaves from the Corinthian; and volutes from the Ionic: its cornice has fingle modillions, or dentils.

The *composite* is also called the Roman and the Italic order, as having been invented by the Romans; conformably to the rest, which are denominated from the people among whom they had their rise.

Most authors rank this after the Corinthian; either as being the richest, or as the last that was invented: Scamozzi alone places it between the IONIC and CORINTHIAN; out of a view to its delicacy and richness, which he esteems inferior to that of the Corinthian; and therefore makes no scruple to use it under the Corinthian; wherein he is followed by M. le Clerc.

The proportions of this order are not fixed by Vitruvius; he only marks its general character, by observing that its CAPITAL is composed of several parts taken from the Doric, Ionic, and Corinthian: he does not seem to regard it as a particular order; nor does he vary it at all from the Corinthian, except in its capital. In effect, it was Serlio who first added the *composite* order to the four of Vitruvius, forming it from the remains of the temple of Bacchus, the arches of Titus, Septimius, and the goldsmiths: till then, this order was esteemed a species of the Corinthian, only differing in its capital.

The order being thus left undetermined by the ancients, the moderns have a kind of right to differ about its proportions, &c. Accordingly Scamozzi, and after him M. le Clerc, makes its column nineteen modules and a half, which is less by half a module than that of the Corinthian: as, in effect, the order is less delicate than the Corinthian. Vignola makes it twenty; which is the same with that of his Corinthian: but Serlio, who first formed it into an order, by giving it a proper ENTABLATURE and BASE, and after him M. Perrault, raise it still higher than the Corinthian.

This last does not think different ornaments and characters sufficient to constitute a different order, unless it have a different height too: agreeably, therefore, to his rule of augmenting the heights of the several columns by a series of two modules in each; he makes the *composite* twenty modules, and the Corinthian eighteen; which, it seems, is a medium between the arches of Titus and the temple of Bacchus.

For the parts of the order, see COLUMN, FRIEZE, PEDESTAL, &c.

M. Per.

M. Perrault, in his Vitruvius, diſtinguiſhes between *compoſite* and *compoſed* order. The latter, he ſays, denotes any compoſition whoſe parts and ornaments are extraordinary, and unuſual; but have, withal, ſomewhat of beauty; both on account of their novelty, and in reſpect of the matter, or genius of the architect: ſo that a *compoſed* order is an arbitrary, humorous compoſition, whether regular or irregular.

The ſame author adds, that the Corinthian order is the firſt *compoſite* order, as being compoſed of the Dorie and Ioſic; which is the obſervation of Vitruvius himſelf, lib. iv. cap. 1.

COMPOSITE *ſtalk*. See STALK.

COMPOSITIO *menſurarum*, the title of an ancient ordinance for meaſures, not printed; it is mentioned in the ſtatute of 23 Hen. VIII. cap. 4.

COMPOSITION, in a general ſenſe, is the uniting or joining of ſeveral diſtinct things, ſo as to form one whole, called a *compound*.

The ſchoolmen diſtinguiſh two kinds of *compoſition*; the one *entitative*, which is between things of the ſame nature, e. gr. two or more drops of water: the other *eſſential*, when things of different kinds are joined, and thus conſtitute new things, or eſſences, different from any of the parts: and thus, ſay they, from the matter and the form of wood, ariſes wood; whoſe eſſence is very different from either of thoſe ingredients taken ſeparately.

COMPOSITION *of bodies*, in *Chemiſtry*. See COMBINATION and AFFINITY.

COMPOSITION, in *Commerce*, a contract between an inſolvent debtor and his creditors; whereby the latter agree to accept of a part of the debt, in compenſation for the whole, and give a general acquittance accordingly.

COMPOSITION, in *Grammar*, denotes the joining of two words together; or prefixing a particle to another word, to augment, diminiſh, or change its ſignification. See WORD, &c.

COMPOSITION *of ideas*, is an operation of the mind, whereby it combines ſeveral of its SIMPLE ideas into COMPLEX ones.

Under the ſame operation may likewiſe be reckoned that of enlarging; whereby we put ſeveral ideas together of the ſame kind, as ſeveral units to make a dozen.

In this, as in others, brutes come far ſhort of men; for though they take in and retain ſeveral combinations of ſimple ideas; as poſſibly, a dog does the ſhape, ſmell, and voice of his maſter; yet theſe are rather ſo many diſtinct marks whereby he knows him, than one complex idea, made out of thoſe ſimple ones.

COMPOSITION, in *Law*. See MODUS.

Compoſitions were anciently allowed for crimes and offences, even for murder. By this expedient it was propoſed to reſtrain the violence of private revenge. The cuſtom may be traced back to the ancient Germans, and prevailed in other uncivilized nations. Tavernier relates, that in Perſia a murderer is ſtill delivered to the relations of the perſon whom he has ſlain, who put him to death with their own hands; and if they refuſe a ſum of money as a compenſation, the ſovereign cannot pardon the murderer. Robertſon's Hiſt. vol. i. chap. v. p. 363.

COMPOSITION, in *Logic*, is a method of reaſoning, wherein we proceed from ſome general ſelf-evident truth, to other particular and ſingular ones.

The method of *compoſition*, called alſo *ſyntheſis*, is juſt the reverſe of that of *reſolution*, or *analyſis*.

Reſolution is the method whereby we ordinarily ſearch after truth; *compoſition*, that whereby a truth found, is diſcovered and demonſtrated to others: reſolution is the method of inveſtigation; *compoſition*, of demonſtration.

The method of *compoſition* is that uſed by Euclid, and other geometricians; reſolution, that uſed by algebraiſts and philoſophers. The two methods differ juſt as the methods of ſearching a genealogy; which are either by deſcending from the anceſtors to the poſterity, or by aſcending from the poſterity to their anceſtors: each have this in common, that their progreſſion is from a thing known, to another unknown.

The method of *compoſition* is beſt obſerved by the mathematicians; the rules hereof are, 1. To offer nothing but what is couched in clear expreſs terms; and to that end to begin with definition. 2. To build only on evident and clear principles; to that end, to proceed from axioms or maxims. 3. To prove demonſtratively all the concluſions that are drawn hence; and to this purpoſe, to make uſe of no arguments or proofs, but definitions already laid down, axioms already granted, and propoſitions already proved; which ſerve as principles to thoſe that follow.

COMPOSITION, in *Muſic*, is the art of diſpoſing muſical ſounds into airs, ſongs, &c. either into one, or more parts; to be ſung with the voice, or played on inſtruments.

Zarlini defines *compoſition* to be the art of joining and combining CONCORDS together, which are the matter of muſic: but this definition is too ſcanty; becauſe DISCORDS are always uſed with concords in the *compoſition* of parts.

Under *compoſition* are comprehended the rules, 1. of *melody*, or the art of making a ſingle part; i. e. of contriving and diſpoſing the ſimple ſounds, ſo as that their ſucceſſion and progreſs may be agreeable. 2. Of *harmony* or the art of diſpoſing and concerting ſeveral ſingle parts ſo together, that they make one agreeable whole.

It may be here obſerved, that melody being chiefly the buſineſs of the imagination, the rules of *compoſition* ſerve only to preſcribe certain limits to it; beyond which, the imagination, in ſearching out the variety and beauty of airs, ought not to go: but harmony being the work of judgement, its rules are more certain, extenſive, and more difficult in practice.

In the variety and elegance of the melody, the invention labours a great deal more than the judgement; ſo that method has but little place: but in harmony it is otherwiſe; the invention, here, has nothing to do; and the *compoſition* is conducted from a nice obſervation of the rules of harmony, without any aſſiſtance from the imagination at all.

COMPOSITION *of motion*, is an aſſemblage of ſeveral directions of motion, reſulting from powers acting in different, though not oppoſite lines.

If a point move or flow according to one and the ſame direction; whether that motion be equable or not, yet it will ſtill keep the ſame right line; the celerity alone being changed, i. e. increaſed, or diminiſhed, according to the forces with which it is impelled. If the directions be oppoſite, as one, e. gr. directly downward, the other upward, &c. yet ſtill the line of motion will be the ſame.

But if the compounding motions be not according to the ſame line of direction, the compound motion will not be according to the line of direction of any of them, but in a different one from them all; and this either ſtraight or crooked, according as the direction or celerities ſhall require.

If two compounding motions be each of them equable, the line of the compound motion will ſtill be a ſtraight line; and this, though the motions be neither at right angles one to another, nor equally ſwift, nor (each to itſelf) equable; provided that they be but finite; that is, both accelerated and retarded alike.

Thus, if the point *a* (*Tab. Mechanics, fig. 4.*) be impelled equally with two forces; viz. upwards, towards *b*, and forwards, towards *d*; it is plain, that when it is gone forwards as far as *a c*, it muſt of neceſſity be gone upwards as far as *e c*; ſo that were the motions both equable, it would always go on in the diagonal *a e*.

Nay, ſuppoſe the motions unequal as to celerity, ſo, v. gr. as that the body move twice as faſt upwards as forwards, &c. yet it ſtill muſt go on in the diagonal *a e*; becauſe the triangles *a e i*, *a c i*, &c. and *a c d* will ſtill be ſimilar, being as the motions are; and it will have deſcribed the diagonal in the ſame time which it would have required to deſcribe either of the ſides ſingly.

But, if the motions be diſſimilar, then the *compound* motion muſt be a curve.

And, if a body, as *b* (*fig. 5.*) be impelled or drawn by three different forces, in the three different directions *b a*, *b c*, and *b d*, ſo that it yields to none of them, but continues in *æquilibrio*; then will thoſe three powers or forces be to one another, as three right lines drawn parallel to thoſe lines, expreſſing the three different directions, and terminated by their mutual concourſes.

Let *b e* repreſent the force by which the body *b* is impelled from *b* to *a*; then will the ſame right line *b e* repreſent alſo the contrary equal force, by which *e* is impelled from *e* to *a*; but by what hath been ſaid before, the force *b e* is reſolvable into the two forces acting according to the two directions *b d* and *b c*, to which the other impelling from *b* to *e*, is as *b c* to *b d*, and *b c* or *d e*, reſpectively.

So likewiſe two forces, acting without the directions *b d*, *b a*, and being equipollent to the force acting without the direction *b e*, from *b* to *e*; will be to the force acting according to the direction *b c*, from *b* to *c*, as *b d*, *b c*, to *b c* and therefore, the forces acting in the directions *b d*, *b c*, and equipollent to the force acting in the direction *b e*, are to the force acting in the direction *b c*, as *b d*, *b c*, or *d e*, to *b c*: that is, if a body be urged by three different equipollent powers in the directions *b a*, *b d*, and *b c*; theſe three forces ſhall be to one another as *b e*, *b d*, and *d e*, reſpectively.

This theorem, with its corollaries, Dr. Keill obſerves, is the foundation of all the new mechanics of M. Varignon: by help hereof, may the force of the muſcles be computed, and moſt of the mechanic theorems in Borelli,

relli, De Motu Animalium, be immediately deduced. See MOTION.

COMPOSITION *of numbers and quantities*. See COMBINATION.

COMPOSITION, in *Oratory*, the order and coherence of the parts of a discourse.

As a part of general ELOCUTION, it regards the turn and harmony of the periods: and therefore to *composition* belong both the artful joining of the words, whereof the style is formed, and whereby it is rendered soft and smooth, gentle and flowing, full and sonorous; or the contrary: and the order, which requires things first in nature and dignity, to be put before those of inferior consideration.

Composition consists of four parts: which rhetoricians call PERIOD, ORDER, JUNCTURE, and NUMBER. Ward's Oratory, vol. i. p. 340.

COMPOSITION, in *Painting*, includes the invention as well as disposition of the figures, the choice of attitudes, &c. *Composition*, therefore, consists of two parts; one of which finds out, by means of history, proper subjects for a picture, and the other disposes them to advantage.

COMPOSITION, in *Pharmacy*, the art, or act, of mixing divers ingredients together in a medicine; to that they may aid each other's virtues, supply each other's defects, or correct any ill qualities thereof.

COMPOSITION, in *Printing*, ordinarily called *compositing*, is the arranging of several types or letters in the composing-stick, into order to form a line; and of several lines ranged in order in the galley, to make a page; and of several of those to make a form.

The *composing-stick* is made of iron generally, sometimes of brass, or wood; of greater or less length or depth, according to the page to be composed, or the compositor's fancy: it has two sliding pieces, to be fastened by means of a nut and screw, which are slipped forwards or backwards, at the pleasure of the compositor, and according to the space which the lines, notes, &c. are to take up. See *Tab. Agriculture, fig.* 5.

The *composing-stick* animarly contains seven or eight lines of a middle-sized letter; these, when set, are taken out, by help of a thin slip of brass, termed a rule, and dispatched in the galley; and others composed, till a page be formed. The page being composed, is tied up, and set aside; and the rest of the pages of the sheet prepared in the same manner: when done, they are carried to the imposing or correcting-stone; there ranged in order, and disposed in a chase, or iron-frame, fitted with wooden furniture; then, the quoins being struck in, it is carried to the press to be printed.

COMPOSITION *of proportion*. If there be two ratios, wherein the antecedent of the first is to its consequent, as the antecedent of the other is to its consequent: then, by *composition* of proportion; as the sum of the antecedent and consequent of the first ratio, is to the antecedent, or the consequent, of the first; so is the sum of the antecedent and consequent of the second ratio, to the antecedent, or the consequent of the second.

E. gr. If A : B :: C : D: then by *compositon*, A + B : A or B :: C + D : C or D.

COMPOSITION *of ratios*, in *Arithmetic* and *Algebra*, is performed by multiplying the quantities or exponents of two or more ratios together: the produce is then said to be compounded of the ratios whose components were multiplied. Thus if the quantities or exponents of the ratios *a* to *b*, *c* to *d*, *e* to *f*, be multiplied, we shall have $\frac{a}{b} \times \frac{c}{d} \times \frac{e}{f} = \frac{ace}{bdf}$. And the ratio *a c e* to *b d f*, is then said to be compounded of the several ratios *a* to *b*, *c* to *d*, *e* to *f*, &c. Thus also the ratio of 10 to 12, is compounded of the ratio 2 to 3, and of 3 to 4; for $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{10}{12}$.

This operation is by some called *addition* of ratios.

COMPOSSIBLES, *compossibilia*, in *Logic*, such things as are COMPATIBLE, or capable of subsisting together.

COMPOST, in *Agriculture* and *Gardening*, a compound, or mixture of earths, dungs, &c. applied by way of MANURING, for the meliorating and improving of soils, and assisting the natural earth in the work of vegetation.

The gardeners have magazines, or layfalls of *composts*, adapted to the different sorts of soil. Light loose land requires a compost of a heavy nature; such as the scourings of ditches, ponds, &c. mixed with earth, dung, &c. A heavy, clayey, or cloddy land, requires a *compost* of a more sprightly and active kind, to insinuate into the heavy lumpy clods, as dungs, soils, ashes, and natural nitre.

Mr. Bradley prescribes several different sorts of *composts*, to forward the growth of trees; viz. a quantity of fine loam, broken and mixed with sharp sand, and ashes of burnt furzes, weeds, &c. or fine soil with sand and burnt grass-turf, and rotten-wood: or fine soil with sand and rape-seed, after the oil is pressed out, with burnt turf; or fine soil with sand and malt-grains; or cheese-dung, with wood-ashes and loam, or mother earth.

The same author recommends a mixture or preparation of soils answering to loam, or mother-earth, as greatly preferable for planting or sowing forest-trees in, to any of those richer *composts* which, though they hasten the growth of the tree, will not make the timber near so firm and durable.

COMPOUND, the result or effect of a composition of different things; or that which arises from them.

Strictly speaking, every new *composition* does not produce a new *compound*; but only that from which a new essence arises. Thus, when one drop of water is added to another, there does not arise a new physical *compound*; the essence being the same now, as before the union.

COMPOUND differs from COMPLEX, and stands opposed to SIMPLE.

We say, the ingredients of a *compound*; apothecaries are great dealers in *compounds*.

COMPOUND *Flower*. See FLOWER.

COMPOUND *Force, Formi, Fossil, Fruition, Fracture, Gland, Harmony*. See the substantives.

COMPOUND *interest*, called also *interest upon interest*, is that which is reckoned not only upon the principal, but upon the INTEREST itself forborn; which hereby becomes a sort of secondary principal.

COMPOUND *Machine, Masonry*. See the substantives.

COMPOUND *motion*, that motion which is effected by several conspiring powers.

Powers are said to conspire, if the direction of the one be not directly opposite to that of the other; as when the radius of a circle is conceived to revolve about a centre; and at the same time a point to move straight along it. All curvilinear motion is *compound*.

It is a popular theorem, in *Mechanics*, that in an uniform *compound* motion, the velocity produced by the conspiring powers, is to that of either of the powers separately, as the diagonal of a parallelogram, according to the direction of whose sides they act separately, to either of the sides.

COMPOUND *numbers*. See COMPOSITE.

COMPOUND *pendulum*, in *Mechanics*, that which consists of several weights constantly keeping the same distance, both from each other, and from the centre about which they oscillate. See PENDULUM.

COMPOUND *proposition*. See PROPOSITION.

COMPOUND *quantities*, in *Algebra*, are such as are connected together by the signs + and −: thus, $a + b - c$, and $b a - b$, are *compound* quantities.

COMPOUND *ratio* is that which the product of the antecedents of two or more ratios has to the product of their consequents.

Thus 6 to 72 is a ratio *compounded* of 2 to 6, and 3 to 12. See PROPORTION, and COMPOSITION *of ratios*.

COMPOUND *Sounds, Sucds, Taste, Ulcer, Words*. See the substantives.

COMPOUNDED *idea*, in *Logic*, unites several ideas of a different kind, which are usually considered as distinct single beings, whether those united ideas be SIMPLE or COMPLEX. See COLLECTIVE *idea*.

COMPOUNDING *felony*, in *Law*. See TIPPET-BOTE.

COMPREHENSION, in *English Church-History*, denotes a scheme proposed by sir Orlando Bridgman in 1667-8, for relaxing the terms of conformity in behalf of protestant dissenters, and admitting them into the communion of the church. A bill for this purpose was drawn up by lord chief baron Hale, but disallowed. The attempt was renewed by Tillotson and Stillingfleet in 1674, and the terms were settled to the satisfaction of the non-conformists, but the bishops refused their assent. This scheme was likewise revived again immediately after the Revolution; the king and queen expressed their desire of an union; however the design failed after two attempts; and the act of TOLERATION was obtained. Birch's Life of Tillotson, p. 47, 167, &c.

COMPREHENSION, in *Metaphysics*, is that act of the mind, whereby it apprehends, or knows, any object presented to it, on all the sides, whereon it is capable of being apprehended, or known.

To *comprehend* a thing, is defined by the schoolmen, *rem aliquam totam & totaliter cognoscere*. See APPREHENSION.

COMPREHENSION, in *Rhetoric*, a trope, or figure, whereby the name of a whole is put for a part; or that of a part for a whole; or a definite number of any thing for an indefinite.

COMPRESS, in *Surgery*, a bolster of linen cloth, folded in several doubles, and laid under the bandage, to prevent a wound from bleeding or swelling; or to retain the medicines applied thereto.

The word comes from, *comprimere, to press hard*.

Scultetus, in his Arsenal of Chirurgery, observes that the

ancients composed their *compresses* of carded flax, or of feathers, sewed between two linens; and called them pillows, or plumages, *pulvini*, or *pulvilli*, &c.

It is frequently the custom among surgeons, after the plaster and other dressings are applied, to cover all with a *compress*, which is made of the softest old linen, four, six, or eight times doubled. These are of service, not only by preserving the parts from the injuries of the external air, but also for securing and fixing the plasters, and other dressings.

Compresses are also frequently applied where no plaster is made use of; sometimes dry, sometimes wetted with certain liquors, which are supposed to be strengthening, emollient, resolving, lenient, cooling, &c. They are frequently dipped in the decoctions of certain herbs, into wine, spirit of wine, vinegar, or oxycrate, and sometimes into lime-water, and are administered either cold or hot, as the nature of the case requires.

Compresses are of various forms, suited to different occasions.

Compresses of all kinds are intended for these purposes: 1. To preserve and cherish the natural heat of the body. 2. To secure the dressings that are laid under them. 3. To convey liquid remedies to parts wounded, or otherwise disordered, and to prolong the use of them. 4. To fill up any cavities or depressions of the parts, that the dressings (especially in fractures), may be applied with greater security: and lastly, to prevent bandages from bringing on a troublesome itching, or other pain or uneasiness on the skin. Heister.

COMPRESSION, the act of pressing, or squeezing something, so as to set its parts nearer to each other, and make it possess less space.

Compression properly differs from *condensation*, in that the latter is performed by the action of cold, the former by some external violence: or, more strictly speaking, *compression* is the action of any force on a body, without regarding its effect; whereas *condensation* denotes the state of a body that is actually reduced into a less bulk.

Pumps, which the ancients imagined to act by suction, do, in reality, act by *compression*; the *embolus*, or sucker, in going and returning in the narrow pipe, *compresses* the air inclosed, so as to enable it by the force of its elasticity to raise the valve, and make its escape: upon which, the balance being destroyed, the pressure of the atmosphere on the stagnant surface, drives up the water in the pipe thus evacuated of its air. See PUMP.

Water was thought incapable of *compression*, and it was believed till lately, that after the air had been purged out of it, no art or violence is able to bring its parts closer, or to make it take up less compass. In an experiment made by the Academy del Cimento, water, when violently squeezed, made its way through the infinitely fine pores of a ball of gold, rather than undergo any *compression*.

The ingenious Mr. Canton, F. R. S. attentively considering this experiment, found that it was not sufficiently accurate to justify the conclusion, which had been universally drawn from it; since the Florentine philosophers had no method of determining that the alteration of figure in their globe of gold, occasioned such a diminution of its internal space, as was exactly equal to the quantity of water forced into its pores. In order to bring this matter to a more accurate and decisive trial, he procured a small glass tube of about two feet in length, with a ball at one end of an inch and a quarter in diameter. Having filled the ball and part of the tube with mercury, and brought it exactly to the heat of 50° by Fahrenheit's thermometer, he marked the place where the mercury stood in the tube, which was about six inches and a half above the ball; and then raised the mercury by heat to the top of the tube, and sealed the tube hermetically; and when the mercury was brought to the same degree of heat as before, it stood in the tube $\frac{3}{10}$ of an inch higher than the mark. The same experiment was repeated with water exhausted of air, instead of mercury, and the water stood in the tube $\frac{7}{10}$ of an inch above the mark. Since the weight of the atmosphere on the outside of the ball, without any counterbalance from within, will compress the ball, and equally raise both the mercury and water, it appears that the water expands $\frac{4}{10}$ of an inch more than the mercury, by removing the weight of the atmosphere. Having thus determined that water is really *compressible*, he proceeded to estimate the degree of *compression* corresponding to any given weight. For this purpose he prepared another ball, with a tube joined to it; and finding that the mercury in $\frac{1}{100}$ of an inch of the tube was the hundred-thousandth part of that contained in the ball, he divided the tube accordingly. He then filled the ball and part of the tube with water exhausted of air; and leaving the tube open, placed this apparatus under the receiver of an air-pump, and observed the degree of expansion of the water answering to any degree of rarefaction of the air: and again by putting it into the glass receiver of a condensing engine, he noted the degree of *compression* of the water corresponding to any degree of condensation of the air. He thus found, by repeated trials, that in a temperature of 50°, and when the mercury has been at its mean height in the barometer, the water expands one part in 21740, and is as much *compressed* by the weight of an additional atmosphere, or the *compression* of water by twice the weight of the atmosphere, is one part in 10850 of its whole bulk. Should it be objected, that the *compressibility* of the water was owing to any air which it might be supposed to contain, he answers, that more air would make it more *compressible*; he therefore let into the ball a bubble of air, and found that the water was not more *compressed* by the same weight than before.

In some farther experiments of the same kind, Mr. Canton found that water is more *compressible* in winter than in summer; and he observed the contrary in spirit of wine, and oil of olives.

The following table was formed, when the barometer was at twenty-nine inches and a half, and the thermometer at fifty degrees.

	Millionth parts.	Spec. grav.
Compressibility of spirit of wine	66	866
Oil of olives	48	918
Rain-water	40	1000
Sea-water	40	1028
Mercury	3	13505

He infers that these fluids are not only *compressible*, but elastic; and that the *compressions* of them, by the same weight, are not in the inverse ratio of their densities, or specific gravities, as might be supposed. Phil. Trans. vol. lii. 1762, art. 103. and vol. liv. 1764. art. 47.

The *compression* of the air, by its own weight, is surprisingly great; but the air may be still farther *compressed* by art. See *Elasticity of* AIR.

This immense *compression* and dilatation, Sir Isaac Newton observes, cannot be accounted for in any other way, but by a repelling force, wherewith the particles of air are endued; by virtue whereof, when at liberty, they mutually fly each other.

This repelling power, he adds, is stronger and more sensible in air, than in other bodies; because air is generated out of very fixed bodies, but not without great difficulty, and the help of fermentation: now those particles always recede from each other with the greatest violence, and are *compressed* with the greatest difficulty, which, when contiguous, cohere the more strongly. See AIR, ATTRACTION, COHESION, DILATATION, and REPULSION.

COMPRESSOR *naris*, in *Anatomy*, a name given by Albinus, and some others, to one of the muscles of the face, called by Winslow the *transversalis nasi*, and *inferior nasi*, and by Cowper, the ELEVATOR *alæ nasi*.

COMPRISE *mont*. See NIENT.

COMPROMISE, a treaty, or contract, whereby two contending parties establish one or more arbitrators, to judge of and terminate their differences in an amicable way.

The regular way of appointing a *compromise* is by a writing, expressing the names of the arbitrators, the power of choosing an umpire, or super-arbitrator, in case of need, a time limited for the arbitrage, and a penalty on the party who does not abide by the decision.

By the civil law, a slave cannot make a *compromise* without the leave of his master, nor can a pupil without the authority of his guardian, or a wife without that of her husband. So a slave, a deaf or dumb man, a minor, and the person who is a party in the cause, are incapable of being chosen arbitrators in a *compromise*.

The occasions on which a *compromise* is not allowed of, are restitutions, marriage-causes, criminal affairs, questions of state; and, generally, any thing wherein the public interest is more concerned than that of private persons.

In our law, a *compromise* is not of so much extent. West defines it the faculty, or power of pronouncing sentence between persons at controversy, given to arbitrators by the parties mutual private consent, without public authority.

COMPROMISE is also used in beneficiary matters; where it signifies an act, whereby those who have the right of election, transfer it to one or more persons, to elect a person capable of the office or dignity.

We have seen members of parliament elected by *compromise*; when the electors, not being able to agree among themselves, give the power of electing, at least of nominating, to two persons; obliging them by oath, or otherwise, to choose such as they think the most capable, and best disposed.

COMPTING, or COUNTING-HOUSE, an office in the king's houshold, under the direction of the lord-steward; so called, because the accompts for all expences of the king's houshold

houſhold are here taken daily by the lord ſteward, comptroller, cofferer, maſter of the houſhold, the clerks of the green-cloth, and the clerks comptrollers. They alſo there make proviſion for the houſhold, and make payments, and orders, for the good government thereof.

In the *compting-houſe* is the board of GREEN-CLOTH.

COMPTROL, or CONTROLE, in, properly, a double REGISTER, kept of acts, iſſues, &c. of the officers or commiſſioners in the revenue, army, &c. in order to perceive the true ſtate thereof, and to certify the truth, and the due keeping of the acts ſubject to that enregiſtrement.

COMPTROLLER, an officer eſtabliſhed to *compterol*, or over-ſee public accounts, and to certify, on occaſion, whether things have been *compterolled*, and examined, or not. Thus, we have a *compteroller of the king's houſhold*, or of the accounts of the board of green-cloth; *compteroller-general* of the cuſtoms; *compteroller* of the navy; *comptroller* of the mint; *compteroller* of the exciſe; *compteroller* of the accounts of the army; of the CHAMBER, &c.

COMPTROLLER *of the wardrobe*, is an officer whoſe duty it is to inſpect the muſters of the artillery, to make the payliſt, and take the accounts and remains of ſtores. He is accountable to the office of ordnance.

COMPTROLLER *of the hanaper*, is an officer in chancery, attending the lord chancellor daily in term and ſeal time. This officer is to take all things ſealed from the clerk of the hanaper, included in bags of leather, and to note the juſt number and effect thereof; to enter them in a book, with all the duties belonging to the king and other officers for the ſame, and ſo charge the clerk of the HANAPER with them.

COMPTROLLERS *of the pells*, are officers of the EXCHEQUER, whereof there are two, *viz.* two chamberlains clerks, who keep a *compterol* of the pell of receipts and going-out: originally they took notes of other officers accompts, in order to diſcover if they did amiſs.

COMPTROLLER *of the pipe*, an officer of the EXCHEQUER, who writes or ſummons twice a-year, to levy the farms and debts of the PIPE.

He was anciently called *duplex ingroſſator*.

COMPULSOR, an officer under the Roman emperors, diſpatched from court into the provinces, to compel the payment of taxes, &c. not paid within the time preſcribed.

The word is formed of the verb *compellere, to oblige, conſtrain*.

Theſe were charged with ſo many exactions, under colour of their office, that Honorius caſhiered them by a law in 412.

The laws of the Viſigoths mention military *compulſors*; which were officers among the Goths, whoſe buſineſs was to oblige the tardy ſoldiers to go into the fight, or to run to an aſſault, &c.

Caſſian mentions a kind of monaſtic *compulſors*, whoſe buſineſs was to declare the hours of canonical office, and to take care the monks went to church at thoſe hours.

COMPUNCTION, in *Theology*, an inward grief in the mind for having offended God.

The word comes from *compungere*, of *pungere, to prick*.

The Romaniſts own their confeſſion inſignificant, unleſs attended with *compunction*, or pricking of heart. See CONFESSION.

Among ſpiritualiſts, *compunction* bears a more extenſive ſignification; and implies not only a grief for having offended God, but alſo a pious ſenſation of grief, ſorrow, and diſpleaſure, on other motives. Thus, the miſeries of life, the danger of being loſt in the world, the blindneſs of the wicked, &c. are ſo pious people motives of *compunction*.

COMPURGATOR, in *Law*, one that by oath juſtifies, or clears another's innocence. They were introduced in the juriſprudence of the middle ages, and their number varied according to the importance of the ſubject in diſpute, or the nature of the crime with which a perſon was charged. See OATH, and WAGER *of Law*.

COMPUTATION, the manner of accounting and eſtimating time, weights, meaſures, and money.

The word is ſometimes alſo uſed among mathematicians in the like ſenſe as CALCULATION.

COMPUTATION *of a planet's motion*. See PLANET.

COMPUTATION is particularly uſed in law in reſpect of the true account, or conſtruction of time, ſo underſtood as that neither party do wrong to the other, nor the determination of time be left at large, or be taken otherwiſe than according to the judgment and intention of law.

Indentures of demiſe be ingroſſed, bearing date May 27, 1709, to have and to hold the lands in S. for three years from henceforth; and the indentures be delivered the 4th of June following: in this caſe, *from henceforth* ſhall be computed from the day of the delivery, and not from the date. And if the indentures be delivered at four of the clock in the afternoon, the ſaid 4th of June, the leaſe ſhall end the third day of June, in the third year: the law, in ſuch *computation*, rejecting all fractions or diviſions of the day, on account of that uncertainty which is the mother of contention. In writings, ordered by the ſtat. 27 Hen. VIII. to be inrolled within ſix months; if ſuch writings have date, the ſix months ſhall be accounted from the date, and not from the delivery: if they want date, it ſhall be accounted from the delivery. Coke, lib. 5.

If a deed be ſhewn to a court at Weſtminſter, it ſhall remain in court (by judgment of law) all the term in which it is ſhewn: for all the term is but as one day in law. Coke, ibid. If a church be void, and the patron does not preſent within ſix months, the biſhop of the dioceſe may collate his chaplain; but theſe ſix months ſhall be computed according to twenty-eight days in the month; and not according to the calendar.

COMPUTO, a writ thus called from its effect, which is to compel a bailiff, chamberlain, or receiver, to yield his accompts. See ACCOUNT.

The ſame lies for executors of executors; and againſt the guardian in ſocage, for waſte made in the minority of the heir.

COMPUTO *vicecomitis habenda reſpectu*. See RESPECTU.

COMUS, in *Mythology*, the god of jollity or feſtivity.

There is great reaſon to believe he is the Chimera of the Moabites; Beel-Phegor, Baal Peor, Priapus, and Bacchus. He is repreſented under the appearance of a young man, with an inflamed red countenance, his head inclined, and crowned with flowers; his air drowſy; leaning on a humiſman's ſpear in his left hand, and his right an inverted torch in his right. His ſtatue was placed at the chamber doors of new married perſons; his pedeſtal crowned with flowers.

CONARION, or CONOIDES, a name for the *pineal gland*; a ſmall gland, about the bigneſs of a pea, placed in the upper part of that hole in the third ventricle of the brain called the *anus*; and tied by ſome fibres to the nates.

It is compoſed of the ſame ſubſtance as the reſt of the brain; and has this peculiar to it, that it is ſingle; whereas all the other parts are double. Hence, des Cartes takes occaſion to ſuppoſe it the immediate place, or ſeat of the ſoul.

CONATUS, *endeavour*, a term frequently uſed by philoſophical and mathematical writers; nearly equivalent to *niſus*.

Conatus ſeems to be the ſame, with reſpect to motion, that a point is with reſpect to a line; or leaſt, the two have this in common, that as the point is inceptive of the line or the term from which it commences; ſo is the beginning of all motion called the *conatus*. Add, that as in mathematical demonſtrations, the extenſion of the point is conceived as if it were nothing at all; ſo, in the *conatus* of motion, there is no regard to the time wherein, or the length which it advances. See *Laws of* NATURE.

Hence, ſome define *conatus* to be a quantity of motion not capable of being expreſſed by any time or length. Accordingly, all motion tends preciſely the ſame way, wherein the moveable is acted on, or determined by the moving power. See MOTION.

CONCAMERATED, among *Builders*, an appellation given to ſuch roofs as are arched in the vaults.

CONCAMERATIO was an arched room in our ancient churches, between the eaſt end of the church, and the high altar; ſo formed, that in proceſſions they might ſurround it.

CONCATENATION, in *Philoſophy*, a connexion of things, in manner of a *chain*.

The *concatenation* of ſecond cauſes is an effect of PROVIDENCE. See CAUSE.

CONCAVE is applied to the inner ſurface of a hollow body; particularly if it be circular.

CONCAVE is particularly underſtood of mirrors or lenſes: *concave lenſes* are either *convexo* on both ſides, called *concavo-convex*; or *concave* on one ſide and plane on the other, called *plano-concave*; or *concave* on one ſide, and convex on the other, called *concavo-convex*, or *meniſcus-concave*, as the one or the other ſurface is a portion of a leſs ſphere.

The property of all *concave* lenſes is, that the rays of light, in paſſing through them, are deflected or made to recede from one another; as in convex lenſes they are inflected towards each other; and that the more, as the concavity and convexity pertain to leſs circles.

Hence, parallel rays, as thoſe of the ſun, by paſſing through a *concave* lens, become diverging; diverging rays are made to diverge the more, and converging rays are either made to converge leſs, or become parallel, or go out diverging.

Hence, objects viewed through *concave* lenses appear diminished; and the more so, as they are portions of less spheres; and this in oblique, as well as in direct rays.

Concave mirrors have the contrary effect to lenses: they reflect the rays which fall on them, so as to make them approach more to, or recede from, each other than before, according to the situation of the object; and that the more as the concavity is greater, or the spheres whereof they are segments, less. *See* MIRROR.

Hence, *concave* mirrors magnify objects presented to them; and that in a greater proportion, as they are portions of greater spheres.

Hence also, *concave* mirrors have the effect of burning objects, when placed in their focus. See BURNING-GLASS.

CONCAVITY, An arch of a curve has its *concavity* turned one way, when the right lines that join any two of its points are all on the same side of the arch.

Archimedes, intending to include such lines as have rectilinear parts, in his definition, says, a line has its *concavity* turned one way, when the right lines that join any two of its points are either all upon one side of it, or while some fall upon the line itself, none fall upon the opposite side. Archim. de Solent. and Cyl. Def. 2. Mac Laurin's Fluxions, art. 180.

When two lines, having their *concavities* turned the same way, have the same terms, and the one includes the other, or has its *concavity* towards it, the perimeter of that which includes is greater than the perimeter of that which is included. Archim. lib. 2. 2.

CONCEALERS, in *Law*, such as find out concealed lands, i. e. lands kept privily from the king, by common persons, having nothing to show for their title, or claim therein.

They are thus called *per excellentiam*, *as one is a stander, &c.* Lord Coke calls them *fur dubius homines generis*. See MISPRISION.

CONCENTRATED *potting*, in *Chemistry*. See CAMENTATION.

CONCENTRATION, in general, denotes the retiring, or withdrawing of a thing inwards, towards the centre, or middle.

External cold is said to *concentrate* the heat within bodies: after meals, the natural warmth retires, and as it were *concentrates*, to promote the digestion.

CONCENTRATION is also used by Dr. Grew for the highest degree of mixture, viz. that wherein two or more atoms of particles touch, by a reception, and intrusion of the one with the other. See MIXTION.

This he takes to be the case of all fixed bodies without taste or smell; their constitution being so firm, that all the particles be detached from each other by some extraordinary means, they cannot affect those senses.

CONCENTRATION, in *Chemistry*, consists in approximating the proper and integrant parts of a body, by taking away some substance interposed between those parts, and which is extraneous and superabundant to the body to be *concentrated*. Thus, a solution of any saline substance in water may be concentrated by expelling part of the water of the solution.

But custom has applied the word *concentration* to the DEPHLEGMATION of acids, and particularly of vitriolic acid, by DISTILLATION, and of vinegar by CONGELATION.

CONCENTRATION, or *rectification*, of vitriolic acid by *distillation*, is performed, in order to purify it from the water, by which it is weakened, or from the inflammable matter, which renders it black and sulphureous. When the quantity of water with which it is diluted is very considerable, a great part of it may be discharged in deep or glass bottles, without distillation. The water will exhale, and the acid be to a great degree *concentrated*. But as the quantity of remaining water is diminished, it adheres to much the more strongly to the acid, and the heat must be increased to such a degree as would raise the acid with the water, and dissipate it in open vessels. Add besides, the acid, when it is become very strong, attracts the moisture of air, and combines with it; thus imbibing as much water from the air as it loses by evaporation. The *concentration*, therefore, must be completed by distillation. For this purpose, a retort of good glass, capable of resisting acids, must be half filled with the acid, and set on a sand-bath, entirely covered with sand. When a receiver has been adapted to it, heat must be applied and very gradually augmented, till drops are distilled. The heat must be increased in proportion to the degree of *concentration*, but not so as to make the acid boil, which might be attended with pernicious consequences. The duration of this process depends on the quality and strength of the acid. The vitriolic acid formerly kept by druggists required, that one half of it should be distilled, in order to make the remaining part twice as heavy as water. At present, it is much stronger and cheaper. That which is usually manufactured for sale is more or less combined with inflammable matter, which may be disengaged from it by a distillation similar to that above described. When the phlogisticated vitriolic acid acquires a strong heat, and becomes considerably *concentrated*, it acts upon the inflammable matter, dissipating or burning it: in consequence of which the liquor becomes perfectly white and transparent, which is a sign that the operation is finished. The retort must be left in the sand-bath till it is cold, and then the acid is to be poured into a clean, dry, crystal-glass bottle, closed by a glass stopper, and covered with leather. The phlogisticated, or sulphurous liquor, which passed over into the receiver, is called *spirit of* VITRIOL. See ACID *vitriolic*, and VITRIOL.

CONCENTRATION *of vinegar by congelation*. This method was first employed by Stahl. M. Geoffroy has since made many experiments on the subject, an account of which is given in the Memoirs of the Academy of Paris for 1730. Acids resist congelation much more than water; but if vinegar be exposed to a cold marked by 8 or 10 below 0 in Reaumur's THERMOMETER, a considerable quantity of ice will be formed. This ice consists entirely of pure water, and the remaining unfrozen liquor is a much stronger vinegar. If this vinegar be again exposed to a stronger degree of cold, a kind of watery ice, containing a quantity of unfrozen acid, will be produced, and the remaining acid will thereby acquire a considerable degree of additional strength, which may be again increased by repeating the congelation with greater cold. Wines may be well concentrated in the same way; and they thus acquire a thick consistence, and are preferred from history in the vicissitudes of climates and seasons. Cold may be likewise successfully employed for northern countries to *concentrate* sea-water, and to approximate the particles of salt, by separating the ice, which is little else than pure water, as soon as it is formed. The mineral acids might probably be *concentrated* by congelation, though in a very low degree. Other methods, besides that above described, have been used for *concentrating* vinegar; such as simple distillation; and the combination of this acid with fixed alkalies and metals, and afterwards distilling the salts resulting from such combinations, whence a very strong kind of vinegar is obtained, called *radical vinegar*. See Macquer's *Dict. Chem.* art. CONCENTRATION. See VINEGAR.

CONCENTRATION, in *Distillery*. Dr. Shaw, in his Essay on the Distillery, is for introducing a method of concentrating the fermentable parts of vegetables, from which their spirits are to be drawn by distillation; which, if it can be brought to be practised in the large way, will prove of very great use to the British distillery, as it will greatly shorten the distiller's business, which at present, including the brewing, fermenting, &c. is much too long. He proposes only to evaporate carefully the wort, or other tinctures or decoctions of vegetables made for the distilling of their spirits, to the consistence of treacle: in this form they might be sold to the distiller, who might keep them by him as long as he pleased, and occasionally use them, by the easy method of reducing them into wort, by mixing warm water with them.

CONCENTRATION, in *Medicine*, when by an addition of earth, dry and absorbent substances, the acid of any liquor is attracted and imbibed, whilst the aqueous parts are left, and the acid as it were conveyed into another body, this is called *concentration*. The use of this species of *concentration* is obvious, in cases where acidities are to be subdued or corrected: hence absorbents are called *concentrating* medicines. To the belongs that species of *concentration*, in which by an acid any body is corroded, and remains combined with it. Thus vinegar first combined with, and then distilled from, verdegrise, is much stronger than it was before, and for that reason is called *concentrated*. There is another species of *concentration*, which is, when alkaline salts are saturated with acid spirits, which are to remained in them, that both in conjunction constitute neither an acid nor an alkaline, but a neutral salt. The use of this species of *concentration* is obvious, that, is to procure neutral salts. Lastly, *concentration*, in an extensive sense, denotes an union or combination of a spirit, a salt, or a sulphur with any body: thus, in sublimate mercury, which is formed of quicksilver, and the acid of the sea-salt united together, the spirit of salt is said to be *concentrated*.

CONCENTRIC, in *Geometry* and *Astronomy*, something that has the same common centre with another.

The word is principally used in speaking of round bodies and figures, viz. circular, elliptical ones, &c. but may be likewise used for polygons, drawn parallel to each other, upon the same centre.

Concentric stands opposite to ECCENTRIC.

Nonius's method of graduating inſtruments conſiſts in deſcribing with the ſame quadrant 45 *concentric arches*, dividing the outermoſt into 90 equal parts, the next into 89, &c.

CONCEPTACULUM, among *Botaniſts*, a kind of PERICARPIUM, compoſed of ſoft and leſs rigid valves, and containing one cavity.

CONCEPTION, in *Grammar*. See SYLLEPSIS.

CONCEPTION, in *Logic*, the ſimple apprehenſion, or perception, which we have of any thing, without proceeding to affirm, or deny any thing about it.

Some writers diſtinguiſh between *conception* and perception; making the latter to denote the conſciouſneſs of an object when preſent, or to include the reality of its object; whereas *conception* expreſſes the forming an idea of an object whether preſent or abſent, or without any conviction of its reality. See Lord Kaime's El. Criticiſm, vol. ii. p. 508.

The ſchoolmen uſually make two kinds of *conception*; the one *formal*, the other *objective*.

The *firſt* is defined to be the immediate and actual repreſentation of any thing propoſed to the mind: on which footing, it ſhould be the ſame thing to the underſtanding, that a word or voice is to the ear; whence ſome alſo call it *verbum mentis*.

The *ſecond* is the thing itſelf repreſented by a formal *conception*. But others explode the notion of an *objective conception*, as being in reality, no *conception* at all; excepting where the mind contemplates its own acts, &c.

Formal or proper conceptions, are ſubdivided into *univocal*, where ſeveral things are diſtinctly reprefented as under ſome common ratio, or in the ſame degree of perfection; *analogous*, where ſeveral things are repreſented as under ſome proportional likeneſs; and *equivocal*, where they are repreſented immediately as ſuch, without regard to any common ratio or likeneſs.

CONCEPTION, in *Medicine*, denotes the firſt formation of the embryo, or foetus, in the womb.

Conception is no other than ſuch a concourſe and commixture of the proliſic ſeed of the male with that of the female, in the cavity of the uterus, as immediately produces an EMBRYO.

The ſymptoms of *conception*, or PREGNANCY are, when in a few days after the conjugal act, a ſmall pain is perceived about the navel, and is attended with ſome gentle commotions in the bottom of the abdomen; and within one, two, three, or even four months, the menſes ceaſe to flow, or prove in leſs quantity than uſual. Upon the firſt failure of this kind, the woman begins to count the ſeries of her weeks, without taking any notice of the time before elapſed; after this, or between the ſecond or third months, but generally about the third, the motions of the embryo become perceivable to the mother; who hereupon becomes troubled with a naufea, vomiting, loathing, longing, &c. About this time the breaſts begin to ſwell, grow hard and painful, and contain a little milk: the nipples alſo become larger, firmer, and darker coloured, a livid circle appearing round them: the eyes ſeem ſunk and hollow. During the two firſt months of pregnancy, the woman grows thinner, and flenderer; the abdomen being alſo depreſſed; though it afterwards diſtends, and grows gradually larger.

The manner wherein *conception* is effected is thus laid down by the modern writers: in the ſuperficies of the ovaries of women, there are found little pelluciid ſpherules, conſiſting of two concentric membranes, filled with a lymphatic humour, and connected to the ſurface of the ovaria, underneath the tegument, by a thick calix, contiguous to the extremities of the minute ramifications of the Fallopian tubes.

Theſe ſpherules, by the uſe of venery, grow, ſwell, raiſe, and dilate the membrane of the ovary into the form of papillæ; till, the head propending from the ſtalk, it is at length ſeparated from it; leaving behind it a hollow cicatrix, in the broken membrane of the ovary; which, however, ſoon grows up again.

Now, in theſe ſpherules, while ſtill adhering to the ovary, foetuſes have been frequently found: whence it appears, that theſe are a kind of ova, or eggs, deriving their ſtructure from the veſſels of the ovary, and their liquor from the humours prepared therein.

Hence alſo it appears, that the Fallopian tubes being ſwelled, and ſtiffened by the act of venery, with their muſcular fimbriæ, like fingers, may embrace the ovaries, compreſs them, and by that compreſſion expand their own mouths: and thus the eggs, now mature, and detatched as before, may be forced into their cavities; and thence conveyed into the cavity of the uterus; where they may either be cheriſhed and retained, as when they meet with the male ſeed; or, if they want that, again expelled. Hence the phenomena of falſe *conceptions*, abortions, foetuſes found in the cavity of the abdomen, the Fallopian tubes, &c. For, in coition, the male ſeed, abounding with living animalcules, agitated with a great force, a brisk heat, and, probably, with a great quantity of animal ſpirits, is violently impelled through the mouth of the uterus, which on this occaſion is opener, and through the valves of the neck of the uterus, which on this occaſion are laxer than ordinary, into the uterus itſelf; which now, in like manner, becomes more active, turgid, hot, inflamed, and moiſtened with the flux of its lymph and ſpirits, by means of the titillation excited in the nervous papillæ by the attrition againſt the rugæ of the vagina.

The ſemen thus diſpoſed in the uterus, is retained, heated, and agitated, by the convulſive conſtriction of the uterus itſelf; till meeting with the ova, the fineſt and moſt animated part enters through the dilated pores of the membranula of the ovum, now become glandulous, is there retained, nouriſhed, dilated, grows to its umbilicus, or navel; ſtrikes the other leſs lively animalcules; and thus is *conception* effected.

Hence it appears, that *conception* may happen in any part where the ſemen meets with an ovum: thus, whether it be carried through the Fallopian tube to the ovary, and there caſt upon the ovum; or whether it meet with it in ſome recels of the tube itſelf; or, laſtly, whether it join it in the cavity of the uterus, it may ſtill have the ſame effect, as it appears from obſervation actually to have.

But it is probable, that *conception* is then moſt perfect, when the two, viz. the ſemen and ovum, are carried at the ſame time into the uterus, and there mixed, &c.

Other anatomiſts chooſe to ſuppoſe the male ſeed taken up, before it arrives in the uterus, by the veins which open into the vagina, &c. and thus mixed with the blood; by which, in the courſe of circulation, it is carried, duly prepared, into the ovary, to impregnate the eggs. See GENERATION.

It has been advanced by ſeveral writers, that women may poſſibly *conceive* in their ſleep, and be with child, without any knowledge of the occaſion of it.

As ridiculous and abſurd as this doctrine may appear to the generality of the world, no leſs an author than Genſili has thought it worthy a particular diſſertation. Act. Erud. ann. 1715. p. 122. See PREGNANCY.

CONCEPTION, *immaculate*, of the Holy Virgin, is a feaſt eſtabliſhed in honour of the Holy Virgin; particularly with regard to her having been conceived and born *immaculate*; i. e. without original ſin; held in the Romiſh church on the 8th of December.

Allatius, in his Prolegomena on Damaſcenus, endeavours to prove this feaſt to have been celebrated by ſeveral churches in the Eaſt, as early as the eighth century. It was firſt eſtabliſhed in France about the year 1140; but it had been obſerved in England, in conſequence of the zeal of archbiſhop Anſelm, before this period.

The *immaculate conception* is the great ſubject of controverſy between the Scotiſts and Thomiſts; the former maintaining, and the latter impugning it.

The Dominicans eſpouſed the party of St. Thomas, and held out a long time in defence of the Virgin's being conceived in original ſin; they were condemned by pope Clement VII. in 1308, at the proſecution of the univerſity of Paris, and were obliged to retract. The council of Trent, ſeſſ. v. in the decree of *original ſin*, declares it not to be the intention of the council to include the Virgin *under* it; her *conception* it calls *immaculate*; and appoints the conſtitutions of Sixtus IV. to be obſerved with regard to it.

This controverſy between the Dominicans and Franciſcans was revived in the ſeventeenth century; and a feſtival was appointed by Clement XI. in 1708, to be celebrated throughout the Romiſh church: however, the Dominicans perſiſt in denying the obligation of this law, and in maintaining their ancient doctrine.

In the three Spaniſh military orders of St. James of the Sword, Calatrava, and Alcantara, the knights take a vow, at their admiſſion, to defend the *immaculate conception*. This reſolution was firſt taken in 1652.

Peter d'Alva and Aſtorga have publiſhed forty-eight huge volumes in folio, on the myſteries of the *conception*.

CONCEPTION, *religious of the order of*. See THEATINES.

CONCERT, or CONCERTO, a number, or company of muſicians, playing, or ſinging the ſame ſong, or piece of muſic, together.

The deſignation of a full *concert* for violins is two principal, and two ſecond violins, a tenor violin, and a violoncello, with thorough baſs for the harpſichord.

The word *concert* may be applied where the muſic is only melody, i. e. where the performers are all either in uniſon, or only at the interval of an octave; but it is more properly, as well as more uſually, underſtood of harmony, or where the muſic conſiſts of divers parts, a baſs, tenor, &c.

CONCERTANTE, in *Italian Muſic*, is uſed for the reciting parts of a piece of muſic, to diſtinguiſh them from thoſe which ſing only in the grand chorus. Greſſinieau makes *concertante* ſignify thoſe parts that ſing or play throughout the whole piece. Broſſ. Dict. Mus. in voc. Muſ. Dict. p. 35.

CONCERTATO, in *Italian Muſic*, is uſed for a piece compoſed in ſuch a manner, as that all the parts may have their recitals, be it for two, three, four, or more voices, or inſtruments: thus they ſay *muſica concertata, ſalmi concertati*, a 2, a 3, a 4, &c. Broſſ. Dict. Muſ. in voc.

CONCERTO *grojſo*, in *Italian Muſic*, is uſed to denote the grand chorus of a concert, or thoſe places where all the ſeveral parts perform or play together. Broſſ. Dict. Muſ. in voc.

CONCESSI, a term much uſed in conveyances, &c. Its effect is to create a COVENANT, as *dedi* does a warranty.

CONCESSION, in *Rhetoric*, a figure whereby ſomething is granted, or allowed to the adverſary, either to prevent being detained by unneceſſary incidents, or to make ſome advantage of. *I will not contend with you the reality of the contract; what I plead for, is relief againſt the injuſtice of it. True, ſhe is ſalſe; but ought ſhe not to ſhew her acknowledgments to heaven for the favour, by making a virtuous uſe of her beauty?*

CONCESSIT, *fur*, in *Law*, a ſpecies of FINE.

CONCHA, in *Natural Hiſtory*, a genus of bivalve ſhells, the animal inhabiting which is called *tubus*. This is a very comprehenſive genus, comprizing the OYSTER, CHAMA, MUSCLE, HEART-*ſhell*, PECTEN, SOLEN, &c.

CONCHA, in *Anatomy*, a name given the ſecond, or inward cavity of the auricle, or external EAR; reaching to the entrance of the auditory duct.

The word has its origin from a ſemblance this cavity bears to a *ſea-ſhell*, called in Latin *concha*.

Some alſo give the ſame name to the firſt cavity of the inward ear, which others call the *drum*; and others to the veſtibulum of the labyrinth, which is the ſecond cavity of the internal ear.

CONCHA, Χογχη, in *Antiquity*, a liquid meaſure among the Athenians, which contained two *myſtra*, or half an ounce. As much oil as it was capable of holding, weighed five drams one ſcruple, and twenty grains, according to Gor. Deſin. Pitiſc. Lex. and Eiſenchom. Others think that the *concha* contained three ſpoonfuls, ninety-ſix of which filled a pint veſſel *(ſextarius)*; a *ſextarius* was therefore equivalent to thirty-*two conchæ*, and ſix *ſextarii* made one *congius*, a meaſure equivalent to our three quarts, according to Salmaſ. Exerc. Plinian. and Bodæus, in Theophraſt. According to Fernelius, the *concha* was equivalent to two *myſtra*, or five ſpoonfuls: which, according to Jacobus Sylvius, are equivalent to ſix drams. According to Galen, in his work De Ponderibus & Menſuris, cap. xi. the *concha magna* contained the ſame quantity with the *acetabulum*, which in liquid meaſure was an ounce and a half, and in weight fifteen drams. The *concha minor* was in liquid meaſure half an ounce, and in weight five drams.

CONCHA *anomifera*, in the hiſtory of ſhell-fiſh. See ANATIFERA *concha*.

CONCHA *anomiæ*, in *Natural Hiſtory*, the name of a foſſile ſhell-fiſh, found in great abundance, and in a great variety of ſpecies; but not known in any of them living, on the ſhores or in the ſeas of our own or other countries. In Gloucerſhire, and ſome other of our counties, theſe are found in common with pebbles on the ploughed lands in other places. They are a ſort of bivalve ſhell, the valve of which are of unequal extent, both of them convex, and the head or beak of the longer valve crooked, and falling over the head of the other. See *Tab.* III. *of Foſſil Claſs* 9.

The great general diſtinction of this numerous claſs of bodies, is into thoſe which are of a ſmooth ſurface, and thoſe which are of a ſtriated or rough one.

Others alſo of the ſame claſs, or of one very nearly allied to it, are found in many of our inland counties, ſome very long from the cardo, or hinge, to the margin; and others very ſhort, and very long the contrary way. They are found indifferently in all ſorts of ſtrata, in earth, in ſtones in ſand, and among gravel.

CONCHA *ſtriſicata*, in *Natural Hiſtory*, a name given by ſome authors to the genus of ſhells, called by others the MUREX.

CONCHA *glabra*, in *Natural Hiſtory*, the name of a large genus of ſhells, called by authors the BOLIDUM, and in French the *tonne*.

CONCHÆ *latiſſimi muſculus*, a name given by Riolanus, and others, to one of the muſcles of the EAR, called by Cowper *internus auris*, and by Albinus, very properly, the *tenſor tympani*.

CONCHÆ *margaritiferæ*, a name ſometimes uſed for thoſe *mytæ* which produce pearls. See MUSCLE.

CONCHÆ *narium inferiores* in *Anatomy*, or inferior ſhells of the noſtrils, are two in number, ſituated in thoſe *foſſæ* under the openings of the maxillary ſinus, and immediately above the lower orifices of the lachrymal ducts. They cover theſe orifices much in the ſame manner as the ſuperior *conchæ* of the ethmoidal bone cover the maxillary openings. They are connected with the *oſſa maxillaria*, *palati*, and *unguis*, and ſometimes with the *os ethmoides*. They compleat the bony ſtructure of the noſe, augment its ſurface, and render it proportionable to the extent of the organ of ſmell, and of the pituitary membrane. Wiuſlow.

CONCHA *ſuperius ou cultus auris*, a name given by Santorini to a muſcle of the EAR, called by Albinus, and the French writers, *auris ſua anterior*.

CONCHA *ſpeculorum*, the *ſpectre-ſhell*, a name given by authors to a ſpecies of voluta from ſome odd figures deſcribed on its ſurface, repreſenting rough draughts of terrible phantoms. It is an elegant ſhell, of a middle ſize, and is of a white ground, and the figures are reddiſh; theſe form three large and broad bands, ſurrounding the ſhell at top and bottom, and in the middle; and between theſe there are ſeveral ſeries of ſmall ſpots. It is a ſcarce ſhell, and uſually ſells at a large price.

CONCHA *Veneris*, in *Natural Hiſtory*, the name by which ſeveral ſpecies of CHAMA are called. The ſhell is univalve, wreathed, and has a ſmall longhudinal and denticulated chink, or aperture, in it. It is alſo called *concha porcellana*, from its aperture in ſome meaſure reſembling the mouth of a hog; and *concha Erythræa*, from its being found in the Red Sea, called *Erythræum*. It is alſo called *concha Cytherioca*, from Venus, who received the epithet *Cytherea*, from Cythera, a Grecian iſland. That this fiſh was uſed by the ancients as an aliment, we read in Seneca, Ep 95. Mundius aſſerts that they prove a ſtimulus to venery, and provoke urine. Bondeletius informs us, that theſe ſhells are an ingredient in the *pilulæ de libello*, for removing ſtones, and curing ulcers in the uterus. But inſtead of the *concha veneria*, the apothecaries generally uſe cockles. Excellent dentifrices are prepared from this ſhell, which is alſo uſed for curing ulcers in the canthus of the eye, and the *fiſtula lachrymalis*. It is remarkably dying, without exciting any heat.

The powder of theſe ſhells muſt be owned to poſſeſs an abſorbent drying quality; but that on account of their beauty, or any other circumſtances, their powder is preferable to that of other ſhells, is by no means probable.

CONCHITES *marmor*, a name given by the ancients to a ſpecies of marble dug near Megara, and remarkable for containing a great number of ſea-ſhells, and other marine bodies immerſed in it.

CONCHOID, or CONCHOIDES, in *Geometry*, a curve line which always approaches nearer a ſtraight line to which it is inclined, but never meets it.

It is deſcribed thus: draw a right line BD *(Tab. Analyſis, fig.* 1.) and another AC, perpendicular to it in E; draw any number of right lines, as CM, CM, cutting BD in Q; make QM=QN=AE=EP; the curve wherein the points M, M are found, is the *conchoid*, or *conchoid prima*; ſo called by its inventor Nicomedes. The other, wherein the points N, N are found, is the *conchoid ſecunda*; the right line BD the *rule*, the point C the *pole*. The inventor alſo contrived an inſtrument, whereby the firſt *conchoid* may be deſcribed mechanically; thus, in the rule AD *(Tab. Analyſis, fig.* 2.) is a channel or groove cut, to that a ſmooth nail, firmly fixed in the moveable rule CB, in the point F, may ſlide freely within it; into the rule EG is fixed another nail in K, for the moveable rule CB, to ſlide upon.

If then the rule BC be ſo moved, as that the nail F paſſes along the canal AD; the ſtyle, or point in C, will deſcribe the firſt *conchoid*.

Now let AP=*x* (*fig.* 1.); AE=*a*; PE=MR=*a*−*x*; wherefore, as *x* increaſes, *a*−*x*, or MR will decreaſe; and therefore the curve continually approaches nearer to the rule BD.

In the ſame manner it appears, that the right line NO muſt continually decreaſe; and therefore that the ſecond *conchoid*, alſo, muſt continually approach nearer the rule. But inaſmuch as between each *ſecond* and the right line BD, there will be the right line QM or QN, equal to AE; neither of the *conchoids* can concur with the right line BD: conſequently, BD is an aſymptote of each *conchoid*. See ASYMPTOTE.

There will be other kinds of *conchoids* produced, if CE: CQ :: QM^*a*: AE^*b*: indefinitely, if CE^*a*: CQ^*a* :: QM^*b*: AE^*b*: wherefore, if CE=*b*. EA=*a*, CQ=*x*, QM=*y*: then *a*^*b*=*x*^*y*; and for infinite *conchoids*, *a*^*m*. *b*^*n*=*x*^*n*. *y*^*n*.

CONCHYLIA. See SHELL-*fish*.

CONCIATOR, in the *Glass Art*, is for the crystal glass what the founder is at the green glass-houses. He is the person that weighs and proportions the salt to ashes and sand, and works them with a strong fire, till they run into lumps, and become white; and if the metal be too hard, and consequently brittle, he adds salts or ashes; and if too soft, sand; till making them to a due temper, which is only known by the working.

CONCILIO—*Querela eorum coram* & CONCILIO. See QUERELA.

CONCINNOUS *intervals*, in *Music*. See INTERVALS.

CONCLAMATIO, in *Antiquity*, a shout raised by those present at burning the dead, before they set fire to the funeral pile. See SHOUT. The word was also applied to the signal given to the Roman soldiers to decamp, whence the expression *conclamare vasa*; and *conclamari arma*, was a signal for battle. It was likewise used for a practice of calling to a person deceased three times by his name, and when no reply was returned, they thus expressed his decease, *conclamatum est*. Whence the same term was afterwards applied to the cessation of the Roman empire.

CONCLAVE, an assembly or meeting of all the cardinals that are at Rome, shut up for the ELECTION of a POPE.

The *conclave* had its rise in the year 1270, and on this occasion: Clement IV. being dead at Viterbo, in 1268, the cardinals were two years without being able to agree on the election of a successor: in effect, things were carried to such pass, that they were upon the point of breaking up, without coming to any conclusion at all.

The inhabitants of Viterbo, then, being apprized of their design, by the advice of St. Bonaventure, then at Viterbo, shut the gates of their city, and locked up the cardinals in the pontifical palace, adjoining to the cathedral, till they were brought to a better understanding.

Hence arose the custom which has since prevailed, of shutting up the cardinals in a single palace, till they have elected the pope.

Such was the origin of the *conclave*, as related by Onuph. Panvinius, Ciseonius, and Paperbroche.

CONCLAVE is also used for the place wherein the election of the pope is performed; which is, now, at St. Peter's in the Vatican; though Gregory X. and Clement V. appointed it should always be held in the place where the last pope should die.

While the affair is in hand, if it be in winter, the walls and windows are all mured up, excepting only a single pane, to give a little light: in summer the windows are not closed; but the great door of the hall is secured with four locks, and four bolts: an aperture being, however, left, through which to supply the imprisoned prelates with victuals.

In the hall, which is very ample, there are cells or stalls erected for as many cardinals as are to be present at the election; the cells being only separated by deal boards.

The cells are marked with letters of the alphabet, and are distributed to the cardinals by lot: each cardinal puts his arms on the cell that falls to his share.

After the assembly has continued three days, they are only allowed one dish for a meal; and after fifteen days more, only bread and water: though this rule is not very strictly regarded.

Each cardinal is allowed two *conclavists*, or servants to attend him, and to be shut up with him.

The election is begun ten days after the pope's decease, and decided by a majority of two parts in three of the cardinals present.

These regulations were principally established by Gregory X. in 1274, and Clement VI. in 1351.

Matthew Paris says, the word *conclave* anciently signified the pope's wardrobe.

It is a popular proverb in Italy, *chi entra papa, esce cardinale*: he who enters pope, comes out cardinal; q. d. he who according to common report will be elected pope, ordinarily is not.

CONCLUSION, in *Law*, is where a man by his own act upon record hath charged himself with a duty or other thing, or concluded any matter whereby he shall be *concluded*: as if a sheriff returns that he hath taken the body upon a *capias*, and hath not the body in court, at the day of the return of the writ; by the return, the sheriff is concluded from plea of escape, &c. Termes de Ley, 153. &c. In another sense, the word *conclusion* signifies the end of any plea, replication, &c. and a plea to the writ, is to *conclude* to the writ; a plea in bar, to *conclude* to the action, &c. *Conclusion* of plea in bar shall be, *et hoc paratus est verificare*:—of other pleas, *et de hoc ponit se super patriam*. Kitch. 219, 220.

CONCLUSION, in *Logic*, the last part of an argument; or the consequence drawn from something either assumed or proved before.

The *conclusion* of an argument contains two parts: the *consequent*, which is the matter of it; and the *consequence*, which is its form, and which, of a simple absolute proposition, renders the *consequent* relative to the premises whence it is drawn.

The question, and *conclusion*, by the schoolmen, are the same ideas, considered in different views, or relations: in the question they are considered as doubtful; in the *conclusion* as void of doubt.

CONCLUSION, in *Oratory*, consists of two parts; the RECAPITULATION, or ENUMERATION, and the PASSIONS.

CONCLUSIVE *Conjunctions*. See CONJUNCTION.

CONCOCTION, in *Medicine*, the change which the food undergoes in the stomach, &c. to become chyle.

This change consists in destroying the texture and cohesion of the parts of the food; preparing part of it for some particular service of the animal frame; and the rest to be carried off as excrements, by proper conductories.

The ancients gave the term COCTION, or *concoction*, to what we now ordinarily call *digestion*; from a notion of the food's being, as it were, boiled in the stomach, and its nutritious juice expressed by the heat of the adjacent parts.

They assigned two *concoctions*, viz. one in the stomach, and a second in the small intestines, &c. which latter they attributed to the admixture of the bile and pancreatic juice.

The *concoction* of the aliments in the stomach, is their DIGESTION, or reduction to a sort of emulsion or chyle. By the *concoction* of the humours, the writers of institutes mean, the reduction of the chyle to blood, which is called the *second concoction*; and also the separation of any fluid from the blood, by means of glands destined for this use, which is called the *third concoction*.

It is commonly said that the faults arising from any defect in the first *concoction*, are not amended in the second, nor those from the second by the third; that is when the aliment is not sufficiently comminuted in the organs of digestion, the particles of the chyle are not small enough to circulate regularly through the minute vessels of the lungs, and be converted into good blood; it not being possible for the organs of sanguification to dissolve farther the particles they receive from the stomach. Hence these particles being too large to circulate through the capillary arteries, obstructions and all their consequences proceed. And the third *concoction*, that is in the glands, is not better adapted to the farther dissolution of these particles, than the second. James's Medical Dict. art. Coction.

The several *concoctions* in the body, with regard to the propagation of the species, and the preservation of the individual, have been since reduced to five: those are CHYLOSIS for chyle, CHYMOSIS for chyme, HÆMATOSIS for blood, PNEUMATOSIS for spirits, and SPERMATOSIS for seed.

CONCOMITANT, in *Theology*, something that accompanies, or goes along with, another.

Concomitant grace is that which God affords us during the course of our actions to enable us to perform them; and as the Roman schoolmen say, to render them meritorious.

CONCOMITANT *Necessity*. See NECESSITY.

CONCORD, *Form of*, in *Ecclesiastical History*, a standard-book, among the Lutherans, composed at Torgow, in 1576, and thence called the book of Torgow, and reviewed at Berg, by six Lutheran doctors of Germany, the principle of whom was James Andreæ. This book contains, in two parts, a system of doctrine, the subscription of which was a condition of communion, and a formal and very severe condemnation of all who differed from the compilers of it, particularly with respect to the majesty and omnipresence of Christ's body, and the real manducation of his flesh and blood in the eucharist. It was first imposed on the Saxons by Augustus, and occasioned great opposition and disturbance, both among the Lutherans and reformed. The dispute about it was revived in Switzerland in 1718, when the magistrates of Bern published an order for adopting it as the rule of faith; the consequence of which was a contest, that reduced its credit and authority. Mosheim's Eccl. Hist. by Dr. Maclaine, vol. iv. p. 53, &c. and vol. v. p. 98.

CONCORD, in *Grammar*, that part of syntax, or construction, whereby the words of a sentence agree among themselves, i. e. whereby nouns are put in the same case, number, gender, &c. and verbs in the same number and person, with nouns and pronouns.

The rules of *concord* are generally the same in all languages, as being of the nature of what is in use almost every where, for the better distinguishing of discourse.

Thus, the distinction of the two numbers singular and plural,

plural, obliges us to make the adjective agree with the substantive in number; that is, to put the one either in this or that number, according as the other is: for the substantive being the thing confusedly, though directly, marked by the adjective; if the substantive word mark several, there are several subjects of the form marked by the adjective, and by consequence this should be in the plural; as *homines docti*, &c.

Again, the distinction of masculine, and feminine, renders it necessary to put the substantive and adjective in the same degree.

And verbs should have *concord* or agreement with nouns and pronouns in number and person.

If any thing occur apparently contrary to those rules, it is by a figure; i. e. something is implied, or the ideas are considered more than the words themselves.

CONCORD, in *Law*, is the agreement between two parties who intend the levying a fine of lands to one another, how and in what manner it shall pass.

CONCORD is also an agreement made upon any trespass committed (between two, or more); and is divided into *concord executory*, and *concord executed*.

Plowden observes, that the first binds not, being imperfect; but the latter is perfect, and binds the party.

Others are of opinion, that *concords* executory are perfect, and bind no less than those executed.

CONCORD, in *Music*, denotes the relation of two sounds which are always agreeable to the ear, whether applied in succession or consonance.

If two single sounds be in such a relation, or have such a difference of tone, as that, being sounded together, they make a mixture, or compound sound, which affects the ear with pleasure, that relation is called *concord*: and whatever two sounds make an agreeable compound in consonance, those same will always be pleasing, in succession, or will follow each other agreeably.

The reverse of CONCORD, is what we call a DISCORD; which is a denomination of all the relations or differences of tone that have a displeasing effect.

Concord and harmony are, in effect, the same thing; though custom has applied them differently. An *concord* expresses the agreeable effect of two sounds in consonance: so harmony expresses the same sort of agreement in a great number of sounds in consonance: add, that harmony always implies consonance; but *concord* is sometimes applied to succession: though never but when the terms will make an agreeable consonance: whence it is that Dr. Holder, and some other writers, use the word *consonance* for what we call *concord*.

Unisonance, then, being the relation of equality between the tones of two sounds, all the unisons are *concords*, and in the first degree: but an interval being a difference of tone, or a relation of inequality between two sounds, becomes a *concord* or discord, according to the circumstances of that particular relation. Indeed, some restrain *concord* to intervals, and make a difference of tone essential thereto; but that is precarious: and Mr. Malcolm thinks, that as the word implies *agreement*, it is applicable to unison in the first degree.

It is not easy to assign the reason or foundation of *concordance*: the differences of tone, we have elsewhere observed, take their rise from the different proportions of the vibrations of the sonorous body, i. e. of the velocity of those vibrations in their recourses; the more frequent those recourses are, the more acute will be the tone, and *vice versa*.

But the essential difference between *concord* and discord lies deeper: there does not appear any natural aptitude in the two sounds of a *concord*, to determine it to give us a pleasing sensation, more than in the two sounds of a discord: these different effects are merely arbitrary, and must be resolved into the divine pleasure.

We know by experience what proportions and relations of tone afford pleasure, and what do not; and we know also how to express the difference of tone by the proportion of numbers; we know what it is pleases us, though we do not know why: we know, v. gr. that the ratio of 1:2 constitutes *concord*, and 6:7 discord; but on what original grounds agreeable or disagreeable ideas are connected with those relations, and the proper influence of the one on the other, is above our reach.

By experience we know, that the following ratios of the lengths of chords are all *concord*; viz. 2:1, 3:2, 4:3, 5:4, 6:5, 5:3, 8:5; that is, take any chord for a fundamental, which shall be represented by the number 1, and the following divisions thereof will be all *concord* with the whole; viz.

1. 2. 3. 4. 5. 6. 8.

So that the distinguishing character between *concords* and discords must be looked for in these numbers, expressing the intervals of sound; not abstractedly, and in themselves, but as expressing the number of vibrations. Now, unisons are in the first degree of *concord*, or they have the most perfect likeness or agreement in tone; and therefore have something in them accessory to that agreement which is found, less or more, in every *concord*: but it is not true, that the nearer two sounds come to an equality of tone, the more agreement they have; therefore, it is not in the equality or inequality of the numbers that this agreement lies.

Farther, if we consider the number of vibrations made in any given time by two chords of equal time; on the principle laid down, they are equal: and therefore the vibrations of the two chords coincide, or commence together as frequently as possible, i. e. they coincide at every vibration: in the frequency of which coincidence, or united measure of the motions of the two chords, and of the undulations of the air occasioned thereby, it is, that the difference of *concord* and discord must be sought. Now, the nearer the vibrations of two strings approach to a coincidence as frequent as possible, the nearer they should approach that condition, and consequently the agreement, or unisons; which is confirmed by experience.

For if we take the natural series 1, 2, 3, 4, 5, 6, and compare each number to the next, as expressing the number of vibrations in the same time of two chords, whose lengths are reciprocally as those numbers; the rule will be found exact, for 1:2 is best, then 2:3; after 6 the consonance is unsufferable; the coincidences being too rare: though there are other ratios that are agreeable, besides those found in that continued order, viz. 3:5, and 5:8, which, with the preceding five, are all the *concording* intervals within, or less than an octave, or 1:2, that is, whose acutest term is greater than half the fundamental.

On this principle, 3:5 will be preferable to 4:5; because those being equal in the number of vibrations of the acuter term, there is an advantage on the side of the fundamental in the ratio 3:5, where the coincidence is made at every third vibration of the fundamental, and every fifth of the acute term: to also the ratio 5:8 is less perfect than 5:6; because, though the vibrations of each fundamental that go to one coincidence are equal, yet in the ratio 5:6, the coincidence is at every fifth of the acute term, and only at every eighth in the other case.

Thus, we have a rule for judging of the preference of *concords*, from the coincidence of their vibrations; agreeably to which rule, they are disposed into the order of the following table; to which the names of the *concords* in practice, the ratio of their vibrations, the lengths of the chords, and the number of coincidences in the same, are expressed.

	Ratios, or vibrations.			Coincid.
		Grave Term.	Acute Term	
Unison	—	1	1	
Octave, 8ve	—	2	1	60
Fifth, 5th	—	3	2	30
Fourth, 4th	—	4	3	20
Sixth, gr.	—	5	3	20
Third, gr.	—	5	4	15
Third, leſſer	—	6	5	12
Sixth, leſſer	—	8	5	12
		Grave Lengths.	Acute Lengths.	

Though this order be settled by reason, yet it is confirmed by the ear. On this foundation, *concords* must still be the more perfect, as they have the greatest number of coincidences, with regard to the number of vibrations in both the chords; and where the coincidences are equal, the preference will fall on that interval, whose acutest term has fewest vibrations to each coincidence: which rule, however, is in some cases contrary to experience; and yet it is the only rule hitherto discovered.

F. Mersenne, indeed, after Kircher, gives us another standard for settling the comparative perfection of intervals with regard to the agreement of their extremes in tone: and it is this.

The perception of *concordance*, say they, is nothing but the comparing two or more different motions which in the same time affect the auditory nerve: now we cannot make a certain judgment of any consonance, till the air be as oft struck in the same time by two chords, as there are units in each member expressing the ratio of that *concord*; v. gr. we cannot perceive a fifth, till two vibrations of the one chord, and three of the other, are accomplished together; which chords are in length as 3 to 2: the rule then is, that those *concords* are the most simple and agreeable, which are generated in the least

time; and those on the contrary, the most compound and harsh, which are generated in the longest time.

For instance, let 1, 2, 3, be the length of 3 chords, 1 : 2 is an octave; 2 : 3 a fifth; and 1 : 3 an octave and fifth compounded, or a twelfth. The vibrations of chords being reciprocally as their lengths, the chord 2 will necessarily vibrate once, while the chord 1 vibrates twice, and then exists an octave; but the twelfth does not yet exist, because the chord 3 has not vibrated once, nor the chord 1 thrice, which is necessary to form a twelfth.

Again, for generating a fifth, the chord 2 muſt vibrate thrice, and the chord 3 twice; in which time, the chord 1 will have vibrated 6 times; and thus the octave will be thrice produced, while the twelfth is only produced twice; the chord 2 uniting its vibrations ſooner with the chord 1, than with the chord 3; and they being ſooner conſonant than the chord 1 or 2 with that 3. Whence, that author obſerves, many of the myſteries of harmony, relating to the performance of harmonious intervals, and their ſucceſſion, are eaſily deduced.

But this rule, upon examining it by other inſtances, Mr Malcolm has ſhewn defective, as it does not anſwer in all poſitions of the intervals with reſpect to each other; but a certain order, wherein they are to be taken, being required: and there being no rule, with reſpect to the order, that will make this ſtandard anſwer to experience in every caſe: ſo that at laſt we are left to determine the degrees of *concord* by experience and the ear.

Not but that the degrees of *concord* depend much on the more or leſs frequent uniting the vibrations, and the ear's being more or leſs uniformly moved, as above; for that this mixture or union in motion is the true principle, or, at leaſt, the chief ingredient in *concord*, is very evident: but beſide there ſeems to be ſomething farther in the proportion of the two motions, neceſſary to be known, in order to fix a catholic rule for determining all the degrees of *concord*, agreeable to ſenſe and experience.

The reſult of the whole doctrine is ſummed up in this definition.—*Concord* is the reſult of a frequent union, or coincidence of the vibrations of two ſonorous bodies, and, by conſequence, of the undulating motions of the air, which, being cauſed by theſe vibrations, are like and proportionable to them; which coincidence, the more frequent it is, with regard to the number of vibrations of both bodies, performed in the ſame time, *ceteris paribus*, the more perfect is that *concord*: till the rarity of the coincidence, in reſpect of one or both the motions, produces diſcord. *See ſome of the remarkable phenomena of ſounds accounted for from this theory, under the word* UNISON; ſee alſo INTERVAL, &c.

Mr. Carre, in the Memoirs of the Royal Academy of Sciences, lays down a new general propoſition, to determine the proportion which cylinders are to have, in order to form the *concords* or conſonances of muſic. And it is this—that the ſolid cylinders, whoſe ſounds yield thoſe *concords*, are in a triplicate and inverſe ratio of that of the numbers which expreſs the ſame *concords*.

Suppoſe, e. gr. two cylinders, the diameters of whoſe baſes and lengths are as 3 to 2; it is evident their ſolidities will be in the ratio of 27 to 8, which is the triplicate ratio of 3 to 2: we ſay then, that the ſounds of thoſe two cylinders will produce a fifth, which is expreſſed by thoſe numbers; and that the biggeſt and longeſt will yield the grave ſound, and the ſmalleſt the acute one.—And the like of others.

Concords are divided into *ſimple*, or original, and *compound*.

A *ſimple*, or *original concord*, is that whoſe extremes are at a diſtance leſs than the ſum of any two other *concords*.

On the contrary, a *compound concord* is equal to two or more *concords*.

Other muſical writers ſtate the diviſion thus: an octave 1 : 2, and all the inferior *concords* above expreſſed, are all ſimple and original *concords*: and all greater than an octave, are called *compound concords*; as being compoſed of, and equal to the ſum of one or more octaves, and ſome ſingle *concord* leſs than an octave; and are uſually, in practice, denominated from that ſimple *concord*.

As to the compoſition and relations of the original concords, by applying to them the rules of the addition and ſubtraction of intervals, they will be divided into *ſimple* and *compound*, according to the firſt and more general notion; as in the following table.

Simple *Concords*.	Compound *Concords*.	
5 : 6 a 3d leſſ 1ta	3d. and 2d.	8ve. com-
4 : 5 a 3d gr.	8th 1. 3 4th.	poſed of
3 : 4 a 4th.	5th g. 4th.	5th.

8th 4th or	
6th 3d.	
or 3d. g.	
3d. 1. 4th	

The octave is not only the firſt *concord* in point of perfection, the agreement of whoſe extremes is greateſt, and the neareſt to uniſon; inſomuch that, when ſounded together, it is impoſſible to perceive two different ſounds; but it is alſo the greateſt interval of the ſeven original *concords*; and, as ſuch, it contains all the leſſer, which derive their ſweetneſs from it, as they ariſe more or leſs directly out of it; and which decreaſe gradually, from the octave to the leſſer ſixth, which has but a ſmall degree of *concord*.

What is very remarkable, is the manner wherein theſe leſſer *concords* are found in the octave, which ſhews their mutual dependencies.

For, by taking both an harmonical and arithmetical mean between the extremes of the octave, and then both an harmonical and arithmetical mean betwixt each extreme, and the moſt diſtant of the two means laſt found; viz. betwixt the leſſer extreme and the firſt arithmetical mean, and betwixt the greater extreme and the firſt harmonical mean; we have all the leſſer *concords*.

Thus, betwixt 360 and 180, the extremes of octave, we take an arithmetical mean, it is 270; and an harmonical mean is 240: then, betwixt 360 the greateſt extreme, and 240 the harmonical mean, take an arithmetical mean, it is 300; and an harmonical mean is 288. Again, betwixt 180 the leſſer extreme of the octave, and 270 the firſt arithmetical mean, it is 225, and an harmonical one 216.

Thus we have a ſeries of all the *concords*, both aſcending towards acuteneſs from a common fundamental 360; and deſcending towards gravity from a common acute term 180: which ſeries has this property, that taking the two extremes, and any other two at equal diſtances, the four will be in geometrical proportion.

The octave, by immediate diviſion, reſolves itſelf into a fourth and fifth; the fifth, again, by immediate diviſion, produces the two thirds; the two thirds are therefore found by diviſion; though not by immediate diviſion; and the ſame is true of the two ſixths. Thus do all the original *concords* ariſe out of the diviſion of the octave; the fifths and fourths immediately and directly, the thirds and ſixths mediately.

From the perfection of the octave ariſes this remarkable property, that it may be doubled, tripled, &c. and yet ſtill will preſerve a *concord*, i. e. the ſum of two or more octaves are *concords*; though the more compound will be gradually leſs agreeable: but it is not ſo with any other *concord* leſs than octave; the doubles, &c. whereof are all diſcords.

Again, whatever ſound is *concord* to one extreme of the octave, is concord to the other alſo; and if we add any other ſimple *concord* to an octave, it agrees to both its extremes; to the neareſt extreme it is a ſimple *concord*, and to the fartheſt a compound one.

Another thing obſervable in this ſyſtem of *concord*, is, that the greateſt number of vibrations of the fundamental cannot exceed five; or that there is no *concord* where the fundamental makes more than five vibrations, to one coincidence with the acute term. It may be added, that this progreſs of the *concords* may be carried on to greater degrees of compoſition, *even in infinitum*; but ſtill the more compound, the leſs agreeable.

So a ſingle octave is better than a double one, and that than a triple one; and ſo of fifths, and other *concords*. Three or four octaves is the greateſt length we go in ordinary practice; the old ſcales went but to two; no voice or inſtrument will well go above four. See THIRD, FOURTH, and FIFTH.

CONCORDANCE, a dictionary or index to the Bible, wherein all the leading words, uſed in the courſe of the inſpired writings, are ranged alphabetically; and the various places where they occur referred to; to aſſiſt in finding out paſſages, and comparing the ſeveral ſignifications of the ſame word.

Cardinal Hugo de St. Charo is ſaid to have employed five hundred monks at the ſame time in compiling a Latin *concordance*: ballides which, we have ſeveral other *concordances* in the ſame language; one, in particular, called the *concordance* of England, compiled by J. Darlington, of the order of Predicants; another more accurate one, by the Jeſuit de Zamora.

R. Mordecai Nathan has furniſhed us with a Hebrew *concordance*, firſt printed at Venice in 1523, containing all the Hebrew roots branched into their various ſignifications, and under each ſignification all the places in ſcripture wherein it occurs: but the beſt and moſt uſeful Hebrew *concordance* is that of Buxtorf, printed at Baſil in 1632.

Dr. Taylor, publiſhed in 1754, a Hebrew *concordance* in two volumes folio, adapted to the Engliſh Bible, and diſpoſed after the manner of Buxtorf. See the preface of this work.

The Greek *concordances* are only for the New Teſtament: indeed we have one of Cone. Kircher's on the Old; but this is rather a concordantial dictionary than a *concord-*

ances; containing all the Hebrew words in an alphabetical order; and underneath, all the interpretations or senses the LXX. give them; and in each interpretation, all the places where they occur in that version.

In 1718, Trommius published his Greek *concordance* for the Septuagint at Amsterdam in two volumes folio; and Schmidius improving on a similar work of H. Stephen, has given an excellent Greek *concordance* for the New Testament, of which is that of Leipsic, an. 1717.

Calasius, an Italian Cordelier, has given us *concordances* of the Hebrew, Latin, and Greek, in two columns: the first, which is Hebrew, is that of R. Mordecai Nathan, word for word; and according to the order of the books and chapters: in the other column is a Latin interpretation of each passage of Scripture quoted by R. Mordecai; this interpretation is Calasius's own: but in the margin he adds that of the LXX. and the Vulgate, when different from his. The work is in four volumes folio, printed at Rome in 1621.

We have several very copious *concordances* in English; as Neumann's &c. but the last and best esteemed, is that in 4to. by Alex. Cruden.

CONCORDANT *Verses*, such as have several words in common; but which, by the addition of other words, convey an opposite, at least a different meaning. Such are those,

Ex { *Canis* / *Lupus* } *in fero* { *mentur* / *nutritur* } *& omnia* { *fervet.* / *vastat.*

CONCORDAT, in the *Canon Law*, denotes a covenant, or agreement concerning some beneficiary matter, as a resignation, permutation, promotion, or the like.

The council of Trent. *Sess.* vi. *de reform.* cap. 4. speaking of *concordats* made without the authority and approbation of the pope, calls them *concordias quæ tantum suos obtinent auctores, non successores.* And the congregation of cardinals, who have explained this decree, declares also that a *concordat* cannot be valid so as to bind successors, unless confirmed by the pope.

CONCORDAT is also used, absolutely, among the French, for an agreement concluded at Bologna, in 1516, between pope Leo X. and Francis I. of France, for regulating the manner of nominating to benefices.

The *concordat* serves in lieu of the PRAGMATIC *sanction*, which has been abrogated; or, rather, it is the pragmatic sanction softened and reformed.

The *concordat* between the pope and the republic of Venice resembles the former.

There is also a German *concordat*, made between the emperor Frederic III. and the princes of Germany, in 1448, relating to beneficiary matters, confirmed by pope Nicholas V.

CONCOU, in *Botany*, a name given by the people of Guinea to an herb which is in great esteem with them for killing that troublesome sort of worm called the Guinea worm, which breeds in their flesh. They bruise the leaves, and, mixing them with oil, apply them in form of a cataplasm. The leaves of this shrub somewhat resemble those of the cagrow, but they are thicker and stiffer, and are not so full of veins. They are broadest within one third of the base, and from thence they go tapering to each end. They are placed on long footstalks of a fine green throughout. Phil. Trans. No 232.

CONCOURSE, or CONCURRENCE, the reciprocal action of divers persons, or things, co-operating toward the same effect, or end.

The schoolmen distinguish two kinds of *concurrence*; viz. *mediate*, which consists in giving a power or faculty to act; and *immediate*, which is a contemporary influence of one cause along with another, to produce an effect.—Thus the grandfather *concurs mediately* to the production of a grandson, as he originally gives the power of generating to the father; but the father *concurs immediately* with the mother to the production of the same child. With respect to the agency of *God*, some divines maintain both these kinds of concurrence; others deny the latter. See CAUSE.

CONCOURSE, *Point of*. See FOCUS.

CONCRETE, in the *School Philosophy*, an assemblage, or COMPOUND.

CONCRETE, *Physical*, or a CONCRETE *body*, may denote any mixed body, or body composed of different principles; and consequently, all sensible bodies whatever, as all bodies arise from a coalition of divers elements, or at least of divers principles, matter, and form.

But, in strictness, *concrete* is only used for those compounds wherein the ingredients still retain their distinct natures, not are wholly converted into a new common nature.

Authors distinguish *natural concretes*, and *artificial* ones: antimony is a *natural concrete*, and soap a factitious *concrete*.

CONCRETE *Juices*. See JUICES.

CONCRETE, *Logical*, or a CONCRETE *word*, called also *paronymum*, is that which has a compound signification, as denoting both the subject, and some quality or accident of the subject, which gives it its denomination.

Such, e. gr. are *man*, *learned*, *white*; for *man* signifies as much as *having human nature*; *learned*, as much as *having learning*, &c. Hence the word *concrete* is chiefly used to express the union of qualities or quantities with the bodies or subjects, without any separation, even in idea.

The opposite term whereby things are separated in thought, is *abstract*.

Concrete properly signifies a subject accompanied with its form or quality; as *pious*, *bard*, *white*: *abstract*, on the contrary, expresses the form and quality without the subject, as *piety*, *hardness*, *whiteness*.

CONCRETE *Numbers* are those which are applied to express or denote any particular subject: as two men, three pounds, two thirds of a shilling, &c.

Whereas, if nothing be connected with a number, it is taken abstractedly or universally: thus, three signifies only an aggregate of three units; let those units be men, pounds, or what you please.

CONCRETION, the act whereby soft bodies are rendered hard; or, an insensible motion of the particles of a fluid or soft body, whereby they come to a consistence.

The word is used indifferently for *induration*, *condensation*, *congelation*, and *coagulation*.

CONCRETION is also used for a coalition of several little particles into a sensible mass, called a CONCRETE; by virtue of which union, the body acquires this or that figure, and these or those properties.

CONCUBINAGE sometimes expresses a criminal, or prohibited commerce between the two sexes; in which sense it comprehends *adultery*, *incest*, and *simple fornication*.

In its more restrained sense, *concubinage* is used for a man's and a woman's cohabiting together in the way of MARRIAGE; without having passed the ceremony thereof.

Concubinage was anciently tolerated: the Roman law calls it an allowed custom, *licito consuetudo*. When this expression occurs in the constitutions of the Christian emperors, it signifies what we now call a *marriage in conscience*.

The *concubinage* tolerated among the Romans in the time of the Republic, and of the heathen emperors, was that between persons not capable of contracting marriage together: nor did they even refuse to let inheritances descend to children which sprung from such a tolerated cohabitance.

Concubinage between such persons they looked on as a kind of marriage; and even allowed it several privileges: but then this *concubinage* was confined to a single person, and was of perpetual obligation, as much as marriage itself.

Hottoman observes, that the Roman laws had allowed of *concubinage* long before Julius Cæsar made that law whereby every one was allowed to marry as many wives as he pleased. The emperor Valentinian, Socrates tells us, allowed every man two.

CONCUBINAGE is also used for a marriage performed with less solemnity than the formal marriage; or a marriage with a woman of inferior condition, and to whom the husband does not convey his rank, or quality.

Cujas observes, that the ancient laws allowed a man to espouse, under the title of *concubine*, certain persons, such as were esteemed unequal to him, on account of the want of some qualities requisite to sustain the full honour of marriage. He adds, that though *concubinage* was beneath marriage, both as to dignity, and civil effects; yet was *concubine* a reputable title, very different from that of *mistress* among us.

The commerce was esteemed so lawful, that the *concubine* might be accused of adultery in the same manner as a wife.

This kind of *concubinage* is still in use in some countries, particularly in Germany, under the title of a *half-marriage*, *morganatic marriage*, or *marriage with the left-hand*; alluding to the manner of its being contracted, viz. by the man's giving the woman his left hand instead of the right.

This is a real MARRIAGE, though without solemnity; the parties are both bound for ever; though the woman be thus excluded from the common rights of a wife, for want of quality or fortune.

The children of *concubines* were not reputed either legitimate or bastards, but natural children, and were capable only of donations.

They were deemed to retain the low rank of the mother; and were on this ground unqualified for inheriting the effects of the father.

CONCUBINAGE, in a *Legal sense*, is used as an exception against her that sueth for dower, alledging thereby, that she was not a wife lawfully married to the party, in whose

whose lands she seeks to be endowed, but his *concubine*.

CONCUBINE, a woman whom a person takes to cohabit with him, in the manner, and under the character, of a wife, without being authorised thereto by a legal marriage.

CONCUBINE is also used for a real, legitimate, and only wife, distinguished by no other circumstances but a disparity of birth or condition between her and the husband. Du-Cange observes, that one may gather from several passages in the epistles of the popes, that they anciently allowed of such *concubines*. The seventeenth canon of the first council of Toledo declares, that he, who with a faithful wife keeps a *concubine*, is excommunicated; but that if the *concubine* served him as a wife, so that he had only one woman, under the title of *concubine*, he should not be rejected from communion: which shews that there were legitimate wives under the title of *concubines*.

In effect, the Roman laws did not allow a man to espouse whom he pleased; there was required a kind of parity, or proportion, between the conditions of the contracting parties; but a woman of inferior condition, who could not be espoused as a wife, might be kept as a *concubine*; and the laws allowed of it, provided the man had no other wife.

It is certain the patriarchs had a great number of wives, and that these did not all hold the same rank; some being subaltern to the principal wife; which were what we call *concubines*, or half-wives. The Romans prohibited a plurality of *concubines*, and only had regard to the children issuing from a single *concubine*, because the might become a legitimate wife. Solomon had 700 wives, and 300 *concubines*: the emperor of China has sometimes two or three thousand *concubines* in his palace. Q. Curtius observes, that Darius was followed in his army by 305 *concubines*, all in the equipage of queens.

CONCUPISCENCE, among divines, an irregular desire, appetite, or lust after carnal things, inherent in human nature.

The dominion or prevalence of *concupiscence*, according to F. Malebranche, is what we call *original sin*.

The origin of *concupiscence* he ascribes to those impressions made on the brain of our first parents at their fall; which are still transmitted and continued on those of their children: for as animals produce their like, and with like traces in the brain (whence the same sympathies and antipathies in the same kind); and whence the same conduct on the same occasions); so our first parents, after their fall, received such deep traces in the brain, by the impression of sensible objects, that they might well be supposed to communicate them to their children.

The schoolmen use the term *concupiscible appetite* for the desire we have of enjoying any good; in opposition to *irascible appetite*, whereby we eschew what is evil.

CONCURRENCE. See CONCOURSE.

CONCURRING, or CONGRUENT *Figures*, in *Geometry*, such as, being laid upon one another, do exactly correspond to, and cover one another, and consequently must be equal among themselves. Thus, triangles having two sides and the contained angle equal each to each, appear to be equal to one another in all respects. See CONGRUITY.

CONCUSSION *crimen repetundarum*, in *Jurisprudence*, is the abuse of power by some person entrusted with a public commission or employment; by extorting money from those under his power or command. This crime is taken notice of in the heads of the Digest, or Code—*ad legem Juliam repetundarum*; and it is to be observed, that he who gave a bribe contrary to the oath he had taken, might be prosecuted as well as the receiver: and that the judge who was corrupted was deemed guilty of *concussion*, as much as he who purchased property which was in a course of litigation. The magistrates were even forbidden to acquire any thing by way of purchase, donation, or otherwise, in the provinces wherein they resided, under pain of being guilty of *concussion*.

The crime of *concussion* was not ranked in the number of public offences, except when committed by a magistrate: when committed by a person of inferior station, it was only a private crime; but it is not the quality of the person which renders the crime public or private, but the nature of the crime itself.

CONDALUS, in *Antiquity*, a kind of ring usually worn by slaves.

COND, Cos, or CONN, in *Sea Language*, signifies to guide or conduct a ship in her right course.

He that *conds* her, stands aloft with a compass before him, and gives the word of direction to the man at the helm how he is to steer. See STEERING.

If the ship go before the wind, or, as they call it, bewixt the sheets, the word is either *starboard*, or *port the helm*; according as the *conder* would have the helm put to the right or left side of the ship, upon which the ship always goes the contrary way.

If he says, *helm a mid-ship*, he would have the ship to go right before the wind, or directly between her two sheets.

If the ship fail by a wind, or on a quarter wind, the word is, *aloof, keep your luff, fall no luff, veer no more, keep her to, touch the wind, bring a cove of the lee-tack*; all which expressions are of the same import, and imply that the steersman should keep the ship near the wind.

On the contrary, if he would have her fall more large, or more before the wind, the word is, *ease the helm, no more, bear up*.

If he cries *steady*, it means, keep her from going in and out, or making yaws (as they call it), howbeever the sails, whether large, or before a wind: and when he would have her go just as she does, he cries, *keep her thus, thus*, &c.

CONDEMNATION, the act of passing, or pronouncing SENTENCE, or giving judgment against a man; whereby he is subjected to some penalty or PUNISHMENT; either in respect of fortune, reputation, or life.

CONDEMNATION *to the galleys*. See GALLEYS.

CONDEMNATION *of prizes* taken from the enemy. See PRIZE.

CONDENSATION, the act whereby a body is rendered more dense, compact, and heavy.

Condensation consists in bringing the parts closer to each other, and increasing their contact: in opposition to *rarefaction*; which renders the body lighter and looser, by setting the parts farther asunder, and diminishing their contact, and of consequence their cohesion.

Wolfius, and some of the more accurate writers, restrain the use of the word *condensation*, to the action of cold: what is done by external *applications*, they call *compression*.

Air easily *condenses*, either by cold, or by art: water congeals, but never has been supposed to *condense*, i. e. to be brought into a less space; because it has even penetrated the most solid body, even gold, rather than lose of its bulk. See COMPRESSION, AIR, SPRING, and CONDENSER.

It was found, in the observatory at France, during the great cold of the year 1670, that the hardest bodies, even metals, glass, and marble itself, were sensibly *condensed* by the cold, and became much harder, and more brittle, than before; till their former state was retrieved by the ensuing thaw.

Water alone seems to expand by cold; inasmuch as when congealed, the ice takes up more space than the water did before. But this must be rather owing to the intromission of some foreign matter, as the nitrous particles of the ambient air, than to any proper rarefaction of the water by the cold.

The Cartesians, indeed, taking it for granted that there is no vacuum, deny that there can be any such thing as proper *condensation*, or RAREFACTION. According to them, when a body takes up more space than it did before, its parts are distended by the destruction of a subtile matter through its pores: and when its bulk, again, is reduced into less space, this is owing to the extrusion or egress of that matter through the same pores; by virtue whereof, the parts of the body, though not the parts of matter, come nearer each other.

For as extension and matter, according to them, are the same thing; a body can never take up more or less place, any otherwise than by the accession or diminution of matter: and thus they conclude there is no VACUUM.

Now, that, in the rarefactions of grofs bodies, their parts are distended by the accession of air, is frequently manifest: but this does not follow from the plenitude of the world, but from the fluid and elastic nature of air; or from its gravity and pressure. That there is such a thing as *condensation*, without the loss of any matter, is evident from Galileo's experiment: a cock, being with a female screw fitted to a hollow brass ball, or cylinder, to as that a syringe, by means of a male screw, may be applied to it; by working the syringe, the air will be forced into the ball, and turning the cock, it will be retained; insomuch that, upon examining the vessel by the balance, its weight will be found increased. If the cock be returned, the air will burst out with violence, and the ball will sink to its former weight.

From the experiment it follows, 1°. That air may be crouded into a less volume and bulk than it ordinarily takes up, and is therefore compressible.—*For the quantity of its* COMPRESSION, see AIR.

2°. That from the recovery of its weight, just so much air is expelled as was injected; and that, therefore, compressed air returns to its primitive expansion, if the compressing force be removed; and it has therefore an elastic force.

3°. That it is a certain sign of compression, if, upon opening

opening the orifice of a veſſel, any portion of air be obſerved to fly out.

4°. That ſince the weight of the veſſel is increaſed by injecting air; the aerial maſs muſt have a nitus downwards, in lines perpendicular to the horizon; and is therefore heavy, and preſſes ſubject bodies in lines perpendicular to the horizon, according to the conditions of gravity.

Condenſed air has effects juſt oppoſite to thoſe of rarefied air; birds, &c. appear briſker and more lively therein than in the common air, &c.

CONDENSER, a pneumatic engine, made of glaſs, in a cylindric or globular figure, or conſiſting of two very ſtrong braſs cups, whoſe brims, covered with wet leather, are preſſed together, and kept down by an iron croſs-bar with pillars and ſcrews, by which, with an *injecting* SYRINGE, an unuſual quantity of AIR may be crouded into a given ſpace. The orifice of the *condenſer* is fitted with a female ſcrew to receive the male ſcrew at the end of the ſyringe: it is alſo furniſhed with a GAGE. See *Tab.* II. *Pneumatics, fig.* 23, 24.

They can by this throw in 2, 3, 4, 5, or 10 atmoſpheres into the *condenſer*, i. e. twice, thrice, four, &c. times as much air as there would be in the ſame compaſs without the engine. See CONDENSATION.

CONDENSING *of wines*. See WINES.

CONDERS, in the *Cuſtoms*. See BALERS.

CONDIGNITY, *merit of*. See MERIT.

CONDITION, in the *Civil Law*, an article of a treaty, or contract; or a clauſe, charge, or obligation, ſtipulated in a contract, or added in a donation, legacy, teſtament, &c.

The donee does not loſe his donative, if it be charged with any diſhoneſt or impoſſible *conditions*. Lawyers diſtinguiſh three kinds of *conditions*, under which a legacy or donation may be made: theſe are the *caſual*, which depends merely on chance; the *poteſtative*, which is abſolutely in our power; and the *mixed condition*, which is both caſual and poteſtative together.

CONDITION, in *Common Law*, is a manner, quality, or reſtriction, annexed to an act; qualifying or ſuſpending the ſame; and making it precarious and uncertain, whether or no it ſhall take effect.

In a leaſe there may be two ſorts of *conditions*; *condition collateral*, and *condition annexed to the rent*.

CONDITION, *collateral*, is that annexed to a collateral or foreign act; as *e. gr.* that the leſſee ſhall not go to Paris. *Condition* is alſo divided into *condition in deed*, and *condition implied*.

CONDITION *in deed, or expreſſed*, is annexed by expreſs words to the feoffment, leaſe, or grant, either in writing, or without. As, if I infeoff a man in lands, reſerving a rent to be paid at ſuch a feaſt; *upon condition*, if the feoffee fail of payment, it ſhall be lawful for me to reenter.

CONDITION *implied*, called alſo *condition in law*, is when a man grants to another the office of a ſteward, bailiff, keeper of a park, &c. for life: though there be no *condition* expreſſed in the grant, yet the law makes one covenly; which is, that if the grantee do not juſtly execute all things belonging to the office, it ſhall be lawful for the grantor to diſcharge him.

CONDITION *precedent*, is when a leaſe or eſtate is granted to a perſon for life, upon *condition* of the payment of a certain ſum by the leſſee to the leſſor at a certain day, which he ſhall have a fee ſimple: in this caſe the *condition* precedes the eſtate in fee, and on performance gains the fee-ſimple.

CONDITION *ſubſequent*, is when a man grants to another his manor in fee, upon *condition* that the grantee ſhall pay to him a certain ſum on ſuch a day, or that his eſtate ſhall ceaſe: ſo that here the *condition* follows the eſtate, and the performance preſerves it.

CONDITION *without which, ſine qua non*, uſed in *Philoſophy*, in ſpeaking of ſome accident or circumſtance, which is not eſſential to the thing, but is yet neceſſary to its production. Thus, *light* is a *condition without which* a man cannot ſee objects, though he have good eyes; and thus fire, though conſidered in itſelf, may burn without wood; yet is its preſence a *condition without which* the wood cannot be burnt.

CONDITIONAL, ſomething not abſolute, but ſubject to limitation. See CONDITION.

Conditional legacies are not due till the conditions are accompliſhed.

The Arminian divines maintain, that all the decrees of God, relating to the ſalvation and damnation of man, are *truly conditional*; and the Calviniſts, that they are all abſolute. See ARMINIAN, &c.

CONDITIONAL *conjunctions*, in *Grammar*, are thoſe which ſerve to make propoſitions conditional. As, *if, unleſs, provided that, in caſe of*, &c.

CONDITIONAL *propoſitions*, in *Logic*, are ſuch as conſiſt of two parts, connected together by a *conditional* particle. Of theſe, the firſt, wherein the condition lies, is called the *antecedent*, and the other the *conſequent*.

Thus, If the ſoul be ſpiritual, it is immortal: is a *conditional propoſition*, wherein, *if the ſoul*, &c. is the antecedent, and *it is immortal* the conſequent.

The truth of theſe propoſitions depends on the truth of the connexion of them, and they may be properly denied or contradicted when the argation affects their conjunctive particles.

CONDITIONAL *ſyllogiſm*, is that whoſe major or minor, or both, are *conditional* propoſitions: *e. gr.* If there be a God, the world is governed by Providence; but there is a God, therefore the world is governed by Providence.

CONDITIONAL, *ſtate, and reſignation*. See the ſubſtantives.

CONDITIONALS, *ſcience of*, i. e. of *conditional truths*, imports that knowledge which God has of things, conſidered, not according to their eſſence, their nature or their real exiſtence; but under a certain ſuppoſition, which imports a condition never to be accompliſhed.

Some of the ſchoolmen deny, that God has the knowledge of *conditionals*: the Thomiſts maintain, that God's knowledge of *conditionals* depends on a predeterminating decree; others deny it.

F. Daniel obſerves, that the truths which compoſe the knowledge of *conditionals*, being very different from thoſe which compoſe the knowledge of intuition, and that of underſtanding; a third claſs muſt be added, and the knowledge of God be divided into *intuitive, intellective*, and *conditional*. See KNOWLEDGE.

CONDORE, in *Ornithology*, the name of the largeſt of all birds in South America; and perhaps, by the deſcription of it, in the world. It is frequently met with on the Andes. It is of the carnivorous kind, and ſo very ſtrong, fierce, and voracious, that it often ſeizes lambs from the flock; and Don Ulloa informs us, that he actually ſaw one of them riſing with a lamb in its talons. The Indians have various ways of catching them: beſides traps and ſnares laid for them near any carrion, they kill a cow or other animal, and moiſten its fleſh with the juice of ſome ſtrong intoxicating herbs, and then bury the body till it putrefies. In this ſtate they take it up, and lay it on the ground; and when the *condores* come near to devour it, they are intoxicated and rendered motionleſs, when the Indians fall upon and kill them.

CONDORMIENTES, religious ſectaries, whereof there have been two kinds. The firſt aroſe in Germany, in the thirteenth century; their leader was a native of Toledo. They held their meetings near Cologne; where they are ſaid to have worſhipped an image of *Lucifer*, and to have received anſwers and oracles from him: the legend adds, that an eccleſiaſtic having brought the euchariſt to it, the idol broke into a thouſand pieces; which put an end to the worſhip. They had their name from their *lying all together*, men and women, young and old.

The other ſpecies of *Condormientes* were a branch of Anabaptiſts in the ſixteenth century; ſo called, becauſe they lay, ſeveral of both ſexes, in the ſame chamber; on pretence of evangelical charity.

CONDUCT, *ſafe*. See SAFE-*conduct*.

CONDUCTOR, the name of a ſurgeon's inſtrument, uſed when a ſinus is laid open, and being put up into the bladder, ſerves to guide or conduct the knife, in the operation of cutting for the ſtone. See LITHOTOMY.

CONDUCTOR, in *Surgery*, likewiſe denotes an inſtrument, not long ſince contrived by Mr. Wathen, for ſecuring a fractured limb in the conveyance of the patient from the place where the accident occurred, to the place where the cure is to be completed. It conſiſts of two tin CANULÆ, with grooves and ſliders: theſe *canulæ* with their ſliders incloſed are, like SPLINTS of the ſame length, to be placed one on each ſide of the fractured leg, and ſecured on the knee and ancle joints by a tin band, which is jointed and cuſhioned. The ſlide may be drawn out at pleaſure, and the degree of extenſion thus procured is continued by a key-check, which faſtens on the teeth of the ſlider. The *conductor* may be ſhortened by preſſing the key, and letting the ſlider return into the *canula*.

CONDUCTORS, in *Electricity*, a term firſt introduced into this ſcience by Dr. Deſaguliers, and uſed to denote thoſe ſubſtances which are capable of receiving and tranſmitting the electric virtue, in oppoſition to ELECTRICS, in which the ſame virtue may be excited and accumulated. The former are alſo called *non-electrics*, and the latter *non-conductors*. All bodies are ranked under one or other of theſe two claſſes: though none of them are *perfect electrics*, or *perfect conductors*, ſo as wholly to retain, or freely and without reſiſtance to tranſmit the electric fluid.

fluid. Electricians, in the infancy of this science, apprehended, that some substances contained the electric matter, and that others were wholly destitute of it; and they were hence led to call the former *electrics per se*, and the latter *non-electrics*: but subsequent experiments proved, that the electric fluid was really drawn from those bodies, which at first were thought to have none in them; and that it was diffused through *all the matter* of the terraqueous globe: and, therefore, the terms *conductor* and *non-conductor* were adopted, as less exceptionable, and more agreeable to phenomena. Metals and semi-metals, ores, and all fluids (excepting air and oils), together with the substances containing them, the effluvia of flaming bodies, ice, unless froze very hard, and snow, most saline and stony substances, charcoals, of which the best are those that have been exposed to the greatest heat, smoke, and the vapour of hot water, belong to the class of *conductors*. We may observe here, that the electric fluid passes through the substance, and not merely over the surfaces of metallic *conductors*: because if a wire of any kind of metal be covered with some electric substance, as resin, sealing wax, &c. and a jar be discharged through it, the charge will be conducted as well with as without the electric coating.

It has likewise been alledged, that electricity will pervade a vacuum, and will be transmitted through it almost as freely as through the substance of the best *conductor*: but Mr. Walsh found, that the electric spark or shock would no more pass through a perfect vacuum, made by the assistance of M. De Luc, than through a stick of solid glass. In other instances, when the vacuum hath been made with all possible care, the experiment has not succeeded. We may also observe, that many of the forementioned substances are capable of being electrified, and that their *conducting* power may be destroyed and recovered by different processes: e. g. green wood is a *conductor*; but baked, it becomes a *non-conductor*: its *conducting* power is restored by charring it; and again destroyed by reducing it to ashes. And again, many electric substances, as glass, resin, air, &c. become *conductors*, by being made very hot; air heated by glass mill be excepted. The difference between these two kinds of substances, in consequence of which some retain, and others convey the electric matter, has been among the *desiderata* in this science. Dr. Franklin, in a letter dated 1751, observes, that the perfect *conductors* of electric matter, are only metals and water; and that other bodies *conduct* only as they contain a mixture of these; without more or less of which they will not *conduct* at all. But this ingenious philosopher found reason afterwards to retract this opinion; since several substances have been discovered to act as good *conductors*, as particularly, hot air and charcoal, which contain no water or metal, at least in such a quantity as to induce a change in their nature; and S. Beccaria has proved, that water itself is an imperfect *conductor*.

Dr. Priestley has lately advanced another hypothesis, no less probable than ingenious. He considers the characteristic distinction between *conducting* and *non-conducting* substances to consist in this, that the former contain PHLOGISTON intimately united with some base; and that the latter, if they contain it all (glass being supposed to contain none), retain it more loosely. He was led to this discovery by his experiments on the *conducting* power of CHARCOAL, which he found exactly to agree with metals in this particular, that while they have the phlogiston, they *conduct*, and, when deprived of it, they will not *conduct*. Dr. Priestley was afterwards confirmed in his hypothesis, upon observing the affinity between phlogiston and water, which gave him occasion to conclude, that water, in its natural state, contains some portion of phlogiston; in proof of which conclusion he has since found, that long agitation in the purest water injures air, in that a candle will not burn in it, which is precisely the effect of all phlogistic processes. Is not (says S. Beccaria) the inflammability of resins, sulphurs, and other oiled substances, the cause why such bodies are disposed to be electrified by *deficiency*, since in consequence of such inflammability they receive, when rubbed, a greater degree of heat? And may not the great quantity of phlogiston with which metallic substances abound, as well as the great ease with which common fire moves within them, be the reason why metallic substances quickly contract by friction a considerable degree of heat, and are thus disposed to give (or part with) their electric fire in the highest degree? We may observe, that when metallic bodies are melted by lightning, the bodies contiguous to them are very liable to be burnt by the phlogiston which is then set free from them. We may add to the above conjectures, that glass, when unpolished, also contracts heat more easily on account of the separation between the parts which compose its surface, and of their smallness; in the same manner as inflammable bodies are the more easily kindled, as their surface has a greater ratio to their mass. Mr. Henly, in a very long course of experiments, observed, that those bodies that were most replete with phlogiston, became the most easily, and the most powerfully electrified *negatively* by friction: he also observes that a thick scum from the surface of some linseed oil, perfectly dried, became a very strong negative electric. See on this subject Priestley's History of Electricity, vol. i. Observations on Air, vol. i. p. 283, &c. vol. ii. p. 354. Cavallo's Complete Treat. of Elect. chap. ii. Franklin's Letters, &c. p. 69, &c. 2d. ed. 1769. Henly's Exp. and Obs. in Elect. Phil. Trans. vol. lxvii. part i. p. 122, &c.

CONDUCTOR, *prime*, in *Electricity*, is an insulated *conductor* so connected with the ELECTRICAL *machine*, as to receive the electricity immediately from the excited electric. The first metallic *conductors*, that were applied to this purpose, were those of Mr. Grey in 1734: he suspended several pieces of metal on silken lines, and charged them with electricity. Mr. Du Fay fastened to the end of an iron bar, which he used as his *prime conductor*, a bundle of linen threads, to which he applied the excited tube; but these were afterwards changed for small wires suspended from the common gun-barrel, or other metalline rod. In the present advanced state of the science, this part of the electrical apparatus has been considerably improved. The *prime conductor* is made of hollow brass, and generally of a cylindric form (see *Tab. Electricity, fig.* 4.); and care should be taken that it is perfectly smooth and round, without points and sharp edges; if holes are made in it for the purposes of different experiments, the same caution should be observed. The ends of the *conductor* are spherical; and it is necessary, that the part most remote from the electric should be made much larger and rounder than the rest, in order to resist the effort of the electric matter to escape, which is always the greatest at the greatest distance from the electric: and the other end should be furnished with several pointed wires or needles, either suspended from, or fixed to an open metallic ring, and pointing to the globe, or cylinder, in order to collect the fire. The *prime conductor*, instead of hanging on silken strings, which are liable to continual motion, should be supported by pillars of solid glass covered with sealing-wax or good varnish. The electricians should be provided with several metallic *conductors* of different sizes, which may be used as occasion requires. *Prime conductors* of a larger size are usually made of paste-board, covered with tin-foil or gilt paper; and these are useful for throwing off a longer and denser spark than those of a smaller size: they should terminate in a smaller knob or obtuse edge, at which the sparks should be solicited. Mr. Nairne prepared a *conductor* six feet in length, and twelve inches in diameter, from which he drew electrical sparks at the distance of sixteen, seventeen, or eighteen inches. But there is a *maximum*, which the size of the *prime conductor* should not exceed; for it may be so large, that the dissipation of the electricity from its surface may be greater than that which the electric is capable of supplying.

Dr. Priestley recommends a *prime conductor* of polished copper, in the form of a pear (see *fig.* 6. *b*), supported by a pillar and a firm basis of baked wood: this receives its fire by a long arched wire of tost brass (*c*), which may be easily bent, and rolled and lowered to the globe: it is terminated by an open ring (*m*), in which are hung some sharp-pointed wires. In the body of this *conductor* are holes for the insertion of metalline rods. This, he says, collects the fire perfectly well, and retains it equally every where. Phil. Trans. vol. lxxii. part i. art. 7. Hist. Elect. vol. ii. § 2.

Mr. Henly has contrived a new kind of *prime conductor*, which, from its use, is denominated the *luminous conductor*, (see *fig.* 8.) It consists of a glass tube, EB, eighteen inches long, and about two inches in diameter. The tube is furnished at both ends with brass caps and ferules about two inches long, as F D and E B, cemented and made air-tight, and terminated by brass balls D and B. In one of these caps, as F, a small hole is drilled, which is covered by a strong valve, and which serves for exhausting the tube of its air; and the ball D is made to screw on the cap F. Within the tube at each end there is a knobbed wire, projecting to the distance of two inches and a half from the brass caps, and terminating as represented at H and I. To the ball D is annexed a fine-pointed wire for receiving and collecting the electricity, and at the other end H there is a wire with a knob or ball for discharging it. The *conductor*, thus prepared, is supported on pillars of sealing-wax, or glass. Besides the common purposes of a *prime conductor* to an electrical machine, this apparatus serves to exhibit and ascertain the direction of the electric matter in its passage through it: for, when the point C is brought

near the excited globe or cylinder of a machine, it will appear illuminated with a ſtar, and a weak light will occupy the inner part of the tube; a lucid pencil will iſſue from the ball H, and the oppoſite ball I will be illuminated with a ſtar. But if the point C be connected with the inſulated rubber of a machine, the appearances will be reverſed; the ſtar will appear at H, and the pencil at I; for in the former caſe H diſcharged, and in this caſe it receives the electric fire, as in *fig.* 9. If the knob of an uncharged bottle be nearly in contact with the braſs ball B, or a chain be ſuſpended from it to the table, and the experiment be repeated as above deſcribed, the ball I, when C is preſented to the excited glaſs, will be enveloped with a denſe white atmoſphere of electricity; and when C is preſented to the inſulated rubber, the atmoſphere will appear upon the ball H; and the ſame will happen on the application, firſt, of a bottle poſitively charged, and then of a bottle negatively charged, as in *fig.* 10 and 11. From an experiment ſimilar to this, S. Beccaria inferred, that electricity conſiſts of one uniform homogeneous fluid, and not of two, viz. the vitreous and reſinous, as ſome have ſuppoſed: for, if this were the caſe, both balls ſhould have been encompaſſed with their proper atmoſpheres at the ſame time. If inſtead of balls, the wires in the tube terminate in points, the appearance will be the ſame. Phil. Tranſ. vol. lxiv. part ii. p. 403.

CONDUCTORS, *pointed metallic*, were propoſed by Dr. Franklin for preſerving buildings, &c. ſoon after the identity of electricity and lightning was aſcertained; and they exhibit a very important and uſeful application of modern diſcoveries in this ſcience. This ingenious philoſopher, having found that pointed bodies are better fitted for receiving and throwing off the electric fire than thoſe that were terminated by blunt ends or flat ſurfaces, and that metals were the readieſt and beſt *conductors*, ſoon diſcovered that lightning and electricity reſembled one another in this and other diſtinguiſhing properties: he accordingly recommended a pointed metalline rod to be raiſed ſome feet above the higheſt part of a building, and to be continued down into the ground or the neareſt water. The lightning, ſhould it ever come within a certain diſtance of this rod or wire, would be attracted by it, and paſs through it preferably to any other part of the building, and be conveyed into the earth or water, and there diſſipated, without doing any damage to the building. Many facts have occurred to evince the utility of this ſimple and ſeemingly trifling apparatus. However, ſome electricians, of whom Mr. Wilſon is the principal, have objected to the pointed termination of this *conductor*; preferring rather a blunt end: becauſe, they ſay, a point invites the electricity from the clouds, and ſtrucks it at a greater diſtance than a blunt *conductor*. Phil. Tranſ. vol. liv. p. 234. vol. lxiii. part ii. p. 47.

This ſubject has been very accurately examined and diſcuſſed; and pointed *conductors* are almoſt univerſally, and for the moſt ſufficient reaſons, recommended as the moſt eligible and proper. A ſharp pointed *conductor*, as it attracts the electric fire at a greater diſtance than the other, draws it off by degrees; and by conveying it away gently and in a continued ſtream, prevents a ſtroke; whereas a *conductor* with a blunt termination receives the whole diſcharge of a cloud at once, and is much more likely to be exploded, whenever a cloud comes within the ſtriking diſtance. To which we may add, that buildings guarded by either natural or artificial *conductors* terminating in a point, have ſeldom or ever been ſtruck by lightning; but others, having flat or blunt terminations, have been often ſtruck and damaged by it. For a farther account of the nature and efficacy of points in electricity, ſee POINTS.

The beſt *conductor for this purpoſe* is a rod of iron, or rather of copper, as being a better *conductor* of electricity, and not ſo liable to ruſt, about three quarters of an inch thick, which is either to be faſtened to the walls of a building by wrought cramps, or ſupported by wooden poſts at the diſtance of one or two feet from the wall; the upper end of it ſhould terminate in a pyramidal form with a ſharp point and edges; and if it is made of iron, be gilt or painted near the top; and be elevated above the higheſt part of the building, e. g. the ſtack of chimnies to which it may be faſtened, a ſmall five or ſix feet. The lower end ſhould be driven five or ſix feet into the ground, and directed away from the foundations of the building, or continued till it communicates with the neareſt water. If this part be made of lead, it will be more ſecure from decay. When the *conductor* is formed of different pieces of metal, care ſhould be taken that they are well joined: and Mr. Henly adviſes, that a communication be made from the *conductor* by plates of lead, eight or ten inches broad, with the lead on the ridges and gutters, and with the pipes that carry down the rain water, which ſhould be continued to the bottom of the building, and made to communicate either with moiſt earth or water, or with the main pipe which ſerves the houſe with water. Phil. Tranſ. vol. lxiv. part ii. p. 403. If the building be large, two, three, or more *conductors* ſhould be applied to different parts of it, in proportion to its extent.

Chains have been uſed for the preſervation of ſhips; but as the electric matter does not paſs readily through the links of it, copper wires, a little thicker than a gooſe quill, have been preferred, and are now generally uſed. They ſhould reach two or three feet above the higheſt maſt, and be continued down in any convenient direction, ſo as always to touch the ſea-water. Theſe were firſt recommended to lord Anſon by Dr. Watſon in 1762. Phil. Tranſ. vol. lii. part i. p. 633. See Franklin's Letters, &c. ed. 1769. p. 65, 124, 479, &c. and Cavallo's Elect. chap. ix.

The *conductor* or machine for drawing electricity from the clouds is thus conſtructed: A pole, *a*, of a manageable length is erected on the top of a building (the higher the better), having on the upper end a ſolid piece of glaſs or baked wood, a foot long, (ſee *fig.* 12.): This is covered with a tin or copper veſſel, *b*, in the ſhape of a funnel, in order to prevent its being wetted. Above this there riſes a long ſlender rod, *c*, terminating in a pointed wire, having a ſmall wire twiſted round it, to conduct the electricity the better to the funnel. From the funnel a wire, as *d*, deſcends along the building, and is conveyed through the window into the room, where the experiments are made. This wire is connected with an inſulated *conductor*, which will be electrified whenever there is a conſiderable quantity of electricity in the air; and notice will be given, when it is properly charged, either by Mr. Canton's balls (ſee ELECTROMETER), or by a ſet of BELLS, deſcribed under that article. For the ſafety of theſe experiments, the electrified wire ſhould be brought within a few inches of a *conducting* rod which ſerves to guard the houſe, that the redundant electricity may paſs off in that way, without ſtriking any perſon who may happen to ſtand near it.

Experiments on the electricity of the atmoſphere may be made with greater exactneſs, by raiſing a kite, by means of a ſtring in which a ſmall wire is twiſted. The beſt ſtring for this purpoſe may be formed by twiſting a copper thread, ſuch as is uſed for trimmings, &c. or, if expence be diſregarded, a ſilver or gold thread, with two very ſmall threads of twine. Mr. Nairne uſes a ſtring ſoaked in a ſtrong ſolution of ſalt, which becomes a good *conductor*, by imbibing the moiſture of the air. The extremity of this line muſt be ſilk, and the wire muſt terminate in a metallic *conductor* of any convenient form. But the following apparatus will ſerve for ſilk greater ſecurity in a thunder-ſtorm. Let the ſtring of the kite (*Vab. Electricity, fig.* 13.) be wound upon a reel, *b*, and paſs through a ſlit in a flat board, faſtened at the top of it, by which more or leſs of the ſtring may be let out at pleaſure. Let the reel be fixed to the top of ſuch a funnel, *c*, as was above deſcribed; and from the funnel let a metallic rod, *d*, with a large knob be projected, to ſerve for a *conductor*. The funnel and reel muſt be ſupported by a ſtaff, *e*, the upper end of which, at leaſt, ſhould be well baked: and the lower end may be made ſharp to thruſt into the ground, when the kite is well raiſed. The ſafety of this apparatus depends upon the chain, *f*, faſtened to the ſtaff, by a hook a little below the funnel, and dragging on the ground: for the redundant lightning will ſtrike from the funnel to the chain, and thus be conducted as far as any one chuſes, without touching the perſon who holds the ſtaff. Sparks may be taken from the *conductor* belonging to this apparatus with all ſafety, by means of a ſmall rod of baked wood, *a*, furniſhed with a ſmall funnel, *b*, and a braſs rod, *c*, and a chain connected with it; for the lightning, which ſtrikes the rod, will paſs by the funnel and chain, without touching the perſon who holds the rod. Hiſt. of Elect. vol. ii. p. 103, &c. 8vo. ed. 1775.

CONDUCTORS, in the *Military Art*, are aſſiſtants given to the commiſſary of the ſtores, to receive or deliver out ſtores to the army; to attend at the magazines by turns, when in garriſon; and to look after the ammunition-waggons in the field. They bring their account every night to the commiſſary, and are immediately under his command.

CONDUCTOS *ad proficiſcendum*. See CAPIAS.

CONDUIT, a canal, or PIPE, for the conveyance of water, or other fluid matter.

In the earth are ſeveral ſubterraneous *conduits*, through which the waters paſs that form ſome SPRINGS; and through which alſo paſs the vapours, which form METALS and MINERALS.

Artificial conduits for water are made of lead, ſtone, caſt iron, potters earth, &c. See PLUMBERY.

In the province of New Mexico, there is said to be a subterraneous *conduit*, in form of a grotto, extending six hundred miles in length. See DUCT, TUBE, &c.

CONDYLOMA, in *Anatomy*. See CONDYLUS.

CONDYLOMA, in *Medicine*, is a soft, painless tumor, of the endematous kind, arising on the internal coat of the anus, and the muscles of that part, or in the neck of the matrix.

The word comes from κονδυλος; because the *condylomas* has usually *rugæ*, or wrinkles, like the joints of the body.

The *condyloma*, by long continuance, grows fleshy, and, shooting out as from a stalk, takes the denomination FICUS.

Condylomata are frequently the effect of venereal ailments, and, if neglected, sometimes prove cancerous: their cure depends on mercurial unctions, and proper escharotics to consume them; though extirpation either by ligature or incision, if the nature of the part will admit, is the most expeditious. A salivation is often necessary, in order to facilitate and complete the cure.

CONDYLUS, κονδυλος, a name which *Anatomists* give to a little round eminence, or protuberance at the extremity of a bone. *See Tab. Anatomy (Osteol.) fig. 2. lit. n.*

Such is that of the lower jaw, received within the cavity of the *os petrosum*.

When this eminence is large, it is called the head of the bone.

CONE, in *Geometry*, a solid body, having a circle for its basis, and terminated at the top in a point, or vertex. *See Tab. Conics, fig. 5.*

The *cone* is generated by the motion of a right line, KM, round an immoveable point K, called its *vertex*, along the circumference of a plane, called its *base*, MN: or it may be conceived as generated by the revolution of the triangle KLM, about the right line KL, which is called the axis of the *cone*, and KM its *latus*, or *side*. If the axis be perpendicular to the base, it is said to be a *right cone*: and if inclined, or oblique, a *scalenous cone*. *Scalenous cones* are again divided into *obtuse-angled*, and *acute-angled*.

Euclid defines a *cone* a solid figure, whose base is a circle, as CD (*fig. 3.*) and is produced by the entire revolution of the plane of a right-angled triangle CAB, about the perpendicular leg AB.

If this leg, or axis, be greater than CB, half the base; the solid produced is an *acute-angled cone*; if less, it is an *obtuse-angled cone*; and, if equal, a *right-angled cone*.

But Euclid's definition only extends to a *right cone*: that is, to a *cone* whose axis is at right angles to the base; and not to oblique ones, whose axis is not at right angles to the base.

For a more general and comprehensive description of a *cone*, which may take in both right and oblique ones, suppose an immoveable point A (*fig. 4.*) without the plane of the circle BDEC; and suppose a right line AE, drawn through that point, and produced infinitely both ways, to be moved quite about the circumference of the circle; the two superficies that will arise from this motion are each called *conic superficies*; but, taken conjunctly, they are called *superficies vertically opposite*, or only *opposite superficies*. The immoveable point A, common to both the superficies, is called the *vertex*; the circle BDEC, the *base*; the right line AC, drawn through the vertex A and C, the *centre of the base*; and if infinitely produced, the *axis*; and the solid comprehended under the conical superficies and the base is a *cone*.

Properties of the CONE.—1. *The area or surface of every right cone, exclusive of its base, is equal to a triangle whose base is the periphery, and its height the side of the* cone.

Or, the curve superficies of a right *cone* is, to the area of its circular base, as AC (*fig. 3.*) the length of the hypothenuse of the right-angled triangle describing it, is to CB, the base of the same triangle: that is, as the slant height of the *cone*, to the semidiameter of the base.

Hence, the surface of a right *cone* is equal to a sector of a circle described on the side of the *cone*, as a radius, whose arch is equal to the periphery of the *cone*; and has therefore the same proportion to its periphery, which the diameter of the base has to twice the side of the *cone*. *Hence we have a method of describing a tent or cage that shall just cover a* cone.—Thus, with the diameter of the base AB (*Tab. Conics, fig. 6.*) describe a circle, and produce the diameter to C, till AC be equal to the side of the *cone*. To 2 AC and AB, determined in numbers, and 360°, find a fourth proportional; and with the radius CA, on the centre C, describe an arch DE equal to the number of degrees found: the sector CDE with the circle AB will be a tent for the *right cone*.

If, then, the side of a truncated *cone* be set off from A to F, and an arch GH be described with the radius CF; by finding a fourth proportional to 360°, to the number of degrees of the arch GH, and to FC; and thence determining the diameter of the circle IF, we shall have a net or cover of the truncated *cone*.

For CDBAE is a net for the entire *cone*; CGFIH for the *cone* cut off; therefore, DBEHIG for the truncated *cone*.

2. *Cones and pyramids, having the same bases and altitudes, are equal to each other.*

Now, it is shewn, that every triangular prism may be divided into three equal pyramids; and therefore, that a triangular pyramid is one third of a prism, standing on the same base, and having the same altitude.

Hence, since every multangular body may be resolved into triangular ones, and every pyramid is a third part of a prism having the same base and altitude; since a *cone* may be esteemed an infinite-angular pyramid, and a cylinder an infinite-angular prism; a cone is a third part of a cylinder, which has the same base and altitude.

Hence we have a method of measuring the surface and solidity of a cone.—Thus, *for the solidity*: find the solidity of a prism, or cylinder, having the same base with the *cone*, or pyramid. Which found, divide by 3; the quotient will be the solidity of a *cone*, or a pyramid. Thus, v. gr. if the solidity of a cylinder be 603592960, the solidity of the *cone* will be found 201864320.

For the surface; that of a right *cone* is had by multiplying the semi-periphery of the base into the side, and adding the product to the base.

Suppose, e. gr. the diameter of the *cone* NM (*fig. 2.*) 56, the periphery will be 175.92768, and the base 2463.0144. Suppose the altitude or axis KL, 246; since $LM = \frac{1}{2}NM = 28$, and $KM^2 = KL^2 + LM^2 = 60516 + 784 = 61300$, $KM = 247.5$ &c. Consequently the superficies of the *cone*, exclusive of the base is, 21771.2884; and the whole together 24234.3624.

The *solidity* of an oblique *cone* is obtained in the same manner with that of the right *cone*: but it is much more difficult to find its surface, since it cannot be reduced to the measure of a sector of a circle, because all the lines drawn from the vertex to the base are not equal. See a Memoir on this subject, by M. Euler, in the Nouv. Mem. de Petersburgh, tom. 1. Dr. Barrow has demonstrated, in his Lectiones Geometricæ, that the solidity of a *cone* with an elliptic base, forming part of a right *cone*, is equal to the product of its surface by a third of one of the perpendiculars drawn from the point in which the axis of the right *cone* intersects the ellipse; and that it is also equal to one third of the height of the *cone* multiplied by the elliptic base: and therefore that the perpendicular is to the height of the *cone*, as the elliptic base to the surface.

As to the measure of the surface, and solidity, of a truncated cone, ABCD (*fig. 7.*). Its altitude CH, and the diameters of its bases AB and CD, being given, find their circumferences: to the square of the altitude CH, add the square of the semi-difference of the radii AH, and from the aggregate extract the square root, which will give the side AC: the semi-sum of the peripheries, multiplied by that side, gives the superficies of the *truncated cone*.

To find the solidity: as the difference of the semidiameters AH is to the altitude of the truncated *cone* CH, so is the greater semidiameter AF to the altitude of the entire *cone* FE. This being found, subtract the altitude of the truncated *cone* GY, which will leave that of the *cone* taken off, EG.

Find the solidity of the *cone* CED and AEB, subtract the other from this; the remainder will be the solidity of the truncated *cone* ACDB.

For the sections of the CONE, see CONIC *Section*.—*For the ratio of* CONES *and Cylinders*, see CYLINDER.—*For the centres of gravity and of oscillation of a* CONE, see CENTER.

CONES *of the higher kinds*, are those whose bases are circles of the higher kinds; and are generated by supposing a right line fixed in a point, on high, though conceived capable of being extended more or less, on occasion; and moved or carried round a circle.

CONE *of rays*, in *Optics*, includes all the several RAYS which fall from any point of a radiant, on the surface of a glass.

CONE, *double or spindle*, in *Mechanics*, is a solid formed of two equal cones joined at their bases. If this be laid on the lower part of two rulers making an angle with one another, and elevated above the horizontal plane, it will move towards the raised ends, and seem to ascend, though it really descends. Let ABD (*Tab. Mechanics, fig. 31.*) be the common base of the two *cones*, its centre C will be the centre of gravity of the whole solid; therefore if DF represents one of the rulers elevated to an angle FDG, whose line FG is less than the semidiameter of the *cone* CD, it is plain that the centre of gravity C at the position of the *cone* in D, is more distant from the centre of the earth, to which all heavy bodies tend, than

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in its position between the legs of the ruler at F; and therefore it will descend, as on an inclined plane C F E, from C to F, where it will stop, being supported on the raised ends of the rulers.

CONE, in *assaying*. See MELTING-*cone*.

CONE, in *Botany*, a hard dry seed-vessel of a conical figure, consisting of several woody parts; and is, for the most part, scaly, adhering closely together, and separating when ripe.

CONE-*shell*, in *Natural History*, the name given by many to a species of TUBULUS *marinus*, not known to us in its recent state, but frequently found fossile in the Swedish stones used in pavements.

CONE *and key*. Bracton, lib. ii. cap. 37. num. 3. says, *Femina in tali statu (i. e. 14 et. 15 annorum) potest dispensare domui suæ, et habere* cone *et key*.

The words come from the Saxon *cuna*, i. e. *calculus*, and *key*, *clavis*; so that a woman was then held to be of competent years when she was able to keep the accounts and keys of the house: and Glan. lib. viii. cap. 9. has somewhat to the same purpose.

CONEPATL, in *Zoology*, the name of an American animal, very much like the raccoon in shape, but variegated with two long streaks of white, one on each side of the ridge of the back, which run even into the tail. It is a tame and harmless animal, but of a stinking smell; and when purfued, or provoked, will discharge its excrements at the perfon who offends it, to fix or eight feet diftance; thefe have a very bad fmell, and fpoil people's cloaths, by leaving indelible yellow fpots on them. Ray. See XOLOITZCUINTLI.

CONESSI, or CONESSI, in the *Materia Medica*, a bark brought from the Eaft Indies. It is frequent in Ceylon, and Malabar, where the natives give it in diarrhœas, flemeries, and dyfenteries. We ufe it in powder for the fame purpofes, the dofe being from half a dram to a dram. It is proper to give a dofe of ipecacuanha before taking it.

This tree grows alfo on the Coromandel coaft, in the Eaft Indies, and is not unlike the *cedaroides* of the *hortus Malabaricus*. The bark fhould be freth powdered, and the electary prepared with fyrup of oranges every day or every other day. Med. Eff. vol. iii. art. 4.

CONFARREATION, a ceremony among the ancient Romans, ufed in the marriage of perfons whofe children were deftined for the honour of prieftbood.

Confarreatio was the moft facred of the three modes of contracting marriage among that people; and conftituted, according to Servius, in this, that the *pontifex maximus* and *flamen dialis* joined and contracted the man and woman, by making them eat of the fame cake of falted bread: whence the term, *far* fignifying *meal* or *flour*.

Ulpian fays, it conftited in the offering up of fome pure wheaten bread; rehearfing, withal, a certain formula, in prefence of ten witneffes. Dionyfius Halicarnaffeus adds, that the husband and wife did eat of the fame wheaten bread, and threw fome on the victims.

CONFECTION, in *Pharmacy*, a kind of compound remedy, of the conftitence of a foft electary.

There are feveral electaries, which bear the name of *confections*; fome of which, in the medical language, are *corroborative*, and others *purgative*.

Of the number of the corroborative *confections* are thofe of *alkermes*, of *hyacinth*, and the *anacardine*: a purgative one is the *confection Hamech*. The *confection of alkermes* has its name from the principal ingredient therein; which is the *kermes*, or *alkermes*, or fcarlet-grain. The other ingredients are, pearls, muik, cinnamon, ambergris, leaf-gold, juice of pippins, and rofe water. It is ranked among the beft *cardiacs*, and is frequently ufed for the palpitation of the heart, or fyncope; and fometimes in the fmall-pox and meafles.

The *confection of hyacinth* has nearly the fame virtues with that of *alkermes*; but, befides, it is frequently ufed as an aftringent. It conftits of near triple the number of drugs; whereof the precious ftone, called the *hyacinth*, is efteemed the principal; the chief of the reft are, red coral, bole armeniac, terra figillata, myrrh, the fantals, burnt hartfhorn, camphor, fapphire, emerald, topaz, and moft of the ingredients of the *confection* of alkermes. The *anacardine confection*, now difufed in England, is compofed chiefly of ANACARDIUMS; whence the name. The other drugs are, long pepper, black pepper, moft kinds of myrobalans, caftoreum, &c. It is ufed to purge the blood, and is proper in cold diteafes.

The *confection Hamech* takes its name from that of its inventor, an Arabian phyfician. Its ingredients are, polypody, myrobalans, agaric, fenna, tamarinds, red rofes, manna, colocynth, &c. It is applied as a drattic for the purging of the groffer humours and viscidities: it is alfo of fome reputation in vertigoes and cancers.

CONFECTIO *cardiaca*, a name given in the late London difpenfatory to the fo much efteemed medicine, commonly known by the name of the *confectio Rabeirhara*. The compofition is alfo altered as well as the name, and is ordered now to be made in the following manner: take freth tops of rofemary, and juniper berries, of each a pound; the leffer cardamom feeds, freed from their hufks, zedoary, and faffron, of each half a pound. Draw a tincture from thefe, with a gallon and a half of proof fpirit; reduce this tincture, when ftrained, to the weight of about two pounds and a half, by a gentle evaporation; then finifh the electary by adding the following fpecies finely powdered: viz. of compound powder of crabs claws, fixteen ounces; cinnamon and nutmeg, of each two ounces; cloves, an ounce; double refined fugar, two pounds. Pemberton's London Difpenfatory, p. 338.

CONFECTIO *Damocratis*. See MITHRIDATE.

CONFECTIO *Franciforii*. See DIACORDIUM.

CONFECTIO *Japonica*, is prepared of Japan earth, three ounces; tormentil root, nutmeg, and olibanum, of each two ounces: opium, diffolved in Lifbon wine, a dram and a half, fimple fyrup and conferve of rofes, of each fourteen ounces. An electary of thefe ingredients fupplies the place of *diafcordium*; and the dofe is from a fcruple to a dram.

CONFECTIO *Paulina*, a name given in the late London Difpenfatory to the compofition which ufed to be called *confectio archigenis*. It is now ordered to be made in the following manner: take coftus or zedoary, cinnamon, long pepper, black pepper, ftrained ftorax, galbanum, opium, and ruffin caftor, of each two ounces; of fimple fyrup, boiled to the conftitence of honey, an equal weight to thrice the fpecies. Pemberton's London Pharm. p. 339.

CONFECTOR, among the *Ancient Romans*, a fort of GLADIATOR, hired to fight in the amphitheatre againft beafts; thence alfo denominated *beftiarii*.

The *confectores* were thus called *à conficiendis beftiis*, from their difpatching and killing beafts.

The Greeks called them ΚΑΘΕΚΤΟΙ, q. *ἀ. daring, refs, defperate*; whence the Latins borrowed the appellations PARABOLANI, and *parabolarii*. The Chriftians were fometimes condemned to this fort of combat.

CONFECTS, or CONFITS, a denomination given to fruits, flowers, herbs, roots, and juices, when boiled and prepared with fugar, or honey, to difpofe them to keep, or render them more agreeable to the tafte.

The ancients only *confited* with honey; at prefent, fugar is more frequently ufed. *Confects half-fugared*, are thofe only covered with a little fugar, to leave more of the natural taite of the fruit.

Confects are reduced to eight kinds; viz. *liquid confects, marmalades, jellies, pafles, dry confects, conferves, candies*, and *dragees*, or *fugar-plums*.

Liquid confects are thofe whofe fruits, either whole, in pieces, in feeds, or in ciufters, are *confited* in a fluid tranfparent fyrup, which takes its colour from that of the fruits boiled in it. There is a good deal of art in preparing thefe well; if they be too little fugared they turn; and if too much, they candy. The moft efteemed of the liquid *confects* are plums, efpecially thofe called mirabiles, barberries, quinces, apricots, cherries, orange flowers, little green cureos from Madeira, green cafia from the Levant, myrobalans, ginger, cloves, &c.

Marmalades are a kind of paftes almoft liquid, made of the pulp of fruits, or flowers, that have fome conftitence; fuch as apricots, apples, pears, plums, quinces, oranges, and ginger. Marmalade of ginger is brought from the Indies by way of Holland: it is efteemed good to revive the natural heat in old men. See MARMALADE.

Jellies are juices of feveral fruits, wherein fugar has been diffolved, and the whole, by boiling, reduced into a pretty thick conftitence; fo as, upon cooling, to refemble a kind of thin tranfparent glue, or ifinglafs. *Jellies* are made of various kinds of fruits, efpecially gooiberries, currants, apples, and quinces: there are other jellies made of flefh, fifh, hartfhorn, &c. but they are not to be kept, being very fubject to corrupt.

Paftes are a kind of marmalades, thickened to that degree by a proper boiling, as to affume any form, when put into little moulds, and dried in the oven. The moft in ufe are thofe of gooiberries, quinces, apples, apricots, and orange flowers: thofe of piftachios are much efteemed; thofe of ginger are brought from the Indies.

Dry confects are thofe whofe fruits after having been boiled in the fyrup, are taken out again, drained, and put to dry in an oven. Thefe are made of fo many kind of fruits, that it would be hard to explain them all: the moft conliderable are citron, and orange-peel, plums, pears, cherries, apricots, &c.

Conferves are a kind of dry *confects*, made of fugar, and paftes of flowers or fruits, &c. The moft ufual among thefe are thofe of rofes, mallows, rofemary, of hops,

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of orange flowers, violets, jessamin, pistachoes, citrons, and sloes.

Note. The apothecaries, under the title of *confection*, comprehend all kinds of *confetti*, both dry and liquid; whether of flowers, fruits, seeds, roots, barks, or leaves, prepared with sugar or honey, to preserve, &c.

Comfits are ordinarily entire fruits, candied over with sugar, after having been boiled in the syrup; which renders them like little rocks, crystallized, of various figures and colours, according to the fruits enclosed within them. The best candies are brought from Italy. See CANDY.

Sugar-plums are a kind of little dry *confits*, made of small fruits, or seeds, little pieces of bark, or odoriferous and aromatic roots, &c. incrustated and covered over with a very hard sugar, ordinarily very white. Of these there are various kinds, distinguished by various names: some made of barberries, others of berberries, melon-seeds, pistachoes, filberds, almonds, cinnamon, orange-peel, coriander, aniseed, caraways, &c.

CONFEDERACY, an alliance or league between divers princes and states.

CONFEDERACY, in *Law*, is when two or more persons combine to do any damage to another, or to commit any unlawful act.

Confederacy is punishable, though nothing be put in execution: but there it must have these four incidents: 1. That it be declared by some matter of prosecution: as by making of bonds or promises to one another: 2. That it be malicious: as for wilful revenge: 3. That it be false, i. e. against the innocent: and, lastly, That it be out of court, voluntarily.

CONFERTA *folia*, among *Botanists*. See LEAF.

CONFERVA, in *Botany*. See HAIR-*weed*, and *Tab.* XIII. *Botany*, N° 2.

We find many of our pools and rivers in the summer months thick covered with the green *conferva*: they are also frequently driven by the winds against the shores of our rivers, and cover the whole surface with a green mantle. This, with us, has never been found to be of any ill consequence to animals; but there is a peculiar species of it in some parts of the world, that is undistinguishable from ours in appearance, but is poisonous. Phil. Trans. N° 17. See some curious experiments by Dr. Priestley on a species of *conferva* or water-mols of a peculiar kind; the manner of its production and its effect, by the concurring action of light upon it, in dephlogisticating or depurating the air to which it has access, and thereby increasing the quantity of it, in Observ. on Air, &c. vol. iv. p. 335, &c. vol. v. sect. 2, 3, 4, 5.

CONFESS *and avoid*, in *Law*, a species of REPLICATION, in which the plaintiff introduces some new matter or distinction, consistent with his former declaration: as in an action of trespass upon land of which the plaintiff is seised; if the defendant shews a title to the land by descent, the plaintiff may either deny the fact or *confess and avoid* it, by replying that such descent happened, but that the defendant hath since demised the lands to the plaintiff for the term of life. Blackst. Com. vol. iii. p. 310.

CONFESSION, *confessio*, in *Rhetoric*, the same with what is otherwise called PARHOMOLOGY.

CONFESSION, in a *Civil Sense*, a declaration or acknowledgment of some truth, though it be against the interest of the party who makes it; whether it be in a court of justice, or out of it. It is a maxim, that in civil matters the *confession* is never to be divided, but always taken entire; and that a criminal is never condemned on his simple *confession*, without other collateral proofs; nor is a voluntary extra-judicial *confession* admitted as any proof. A person is not admitted to accuse himself, according to that rule in law, *non auditur perire volens*.

CONFESSION *of action*, in *Law*, is a species of PLEA to the ACTION, in which the merits of the complaint are answered, by confessing either wholly, or, which is most common, in part.

CONFESSION *of indictment*, is a prisoner's acknowledgment of the offence, when he is brought to the bar to be arraigned: upon a simple and plain confession, which the court is backward in receiving and recording, nothing remains but to award judgment. This *confession* is made before the judge; in consequence of which, the prisoner submits to the legal penalty annexed to his crime; or the prisoner by *confession* becomes an APPROVER, or accuser of others.

CONFESSION, in *Theology*, denotes the verbal acknowledgment which a penitent makes of his sins to God: in a more partial and restricted sense, it is a declaration of a person's sins, made to a priest, in order to obtain absolution for the same. The Romish church makes *confession* a part of the sacrament of penance.

Confession was anciently public and general, in the face of the church; though the Romanists have since altered it, and made it private and auricular.

Confessions are to be buried in eternal silence, under pain of the greatest punishment to the priest who reveals them. Bellarmin, Valentia, and some other Romish controversial writers, endeavour to trace up AURICULAR *confession* to the earliest ages; and thus contend for a point given up by the rest. M. Fleury owns, that the first instance of auricular *confession* he can meet with, is that of St. Eloi, who being grown old, made a *confession* to a priest of all his sins from his youth upwards. See POPERY. The Indians, according to Lafeviter, have a kind of *confession*; and the same may be said of the Jews: these last have formulas for those who are not capable of making a detail of all their sins; the ordinary form is in alphabetical order; each letter containing a capital sin. This they usually recite on Mondays and Thursdays, and on fast-days, and on other occasions; some every night and morning. When any of them find themselves near death, they send for ten persons, more or less, one of them a rabbin, and in their presence recite the *confession*. See Leo de Modena.

CONFESSION *of faith*, denotes a list, or enumeration and declaration of the several ARTICLES of belief, in a church. The *Augustan confession* is that of the Lutherans: it was presented to Charles V. in 1530.

In the council of Rimini, the catholic bishops found fault with places in a *confession of faith*, and observed that the church never used to vary them.

CONFESSIONAL, or CONFESSIONARY, in *Church History*, a place in churches, usually under the main altar, wherein were deposited the bodies of deceased saints, martyrs, and confessors.

CONFESSIONAL is also used in the Romish church for a little box, or desk in the church, where the confessor takes the confessions of the penitent.

CONFESSO, *Pro*. See PRO-CONFESSO.

CONFESSOR, a Christian who has made a solemn, and resolute profession of the faith, and has endured torments for its defence. A mere saint is called a *confessor*, to distinguish him from the roll of dignified saints, such as *apostles*, *martyrs*, &c.

In ecclesiastical history, we frequently find the word *confessors* used for martyrs: in after times, it was confined to those, who after having been tormented by the tyrants, were permitted to live and die in peace. And at last it was also used for those, who, after having lived a good life, died under an opinion of sanctity. According to St. Cyprian, he who presented himself in torture, or even to martyrdom, without being called to it, was not called a *confessor*, but a *professor*: and if any out of a want of courage abandoned his country, and became a voluntary exile for the sake of the faith, he was called *exorcist*.

CONFESSOR is also a priest, in the Romish church, who has a power to hear sinners in the sacrament of penance, and to give them absolution.

The church calls him in Latin *confessarius*, to distinguish him from *confessor*, which is a name consecrated to saints. The *confessors* of the kings of France, from the time of Henry IV. have been constantly Jesuits: before him the Dominicans and Cordeliers shared the office between them. The *confessors* of the house of Austria have also, ordinarily, been Dominicans and Cordeliers: but the latter emperors have all taken Jesuits.

CONFESSOR *to his Majesty*. See CLERK *of the closet*.

CONFIGURATION, the exterior surface that bounds bodies, and gives them their particular figure.

That which makes the specific difference between bodies, is the different *configuration*, and the different situation of their parts. A short, or long sight, depends on the different *configuration* of the crystalline.

CONFIGURATION *of the planets*, in *Astrology*, is a certain distance or situation of the planets in the zodiac, whereby they are supposed to aid, or oppose each other. See ASPECT.

CONFIGURATIONS *of salts*, a term used by some to express the combinations of the particles of the salts of plants, and other substances, into certain figures, on evaporating the water in which they have been dissolved, so fruitfully as not to admit of their shooting into their own regular crystals.

CONFIRMATION, the act of ratifying or rendering a title, claim, pretension, report, or the like, more sure and indisputable.

CONFIRMATION, in *Law*, denotes the conveyance of an estate, or right in *esse* from one man to another, whereby a voidable estate is made sure and unavoidable, or a particular estate is increased, or possession made perfect: and it is particularly used for the strengthening or bolstering an estate of one already in possession of it by a voidable title.

Thus, if a bishop grant his chancellorship by patent, for term of the patentee's life; this is no void grant: yet it is voidable by the bishop's death, except it be strengthened also by the dean and chapter's *confirmation*.

CONFIRMATION, in *Rhetoric*, is the third part of an oration, wherein the orator undertakes to prove, by laws, reasons, authorities, and other arguments, the truth of the propositions advanced in his narration. Cicero, De Invent. lib. i. cap. 24.

Confirmation is either *direct* or *indirect*: the first confirms what the orator has to urge for strengthening his own cause: the second, properly called CONFUTATION, refels the opposite arguing of the adversaries. The two parts together are sometimes placed under the head or title of CONFUTATION.

The *confirmation* is, as it were, the life and soul of the oration: in this the main force of the argumentation lies. Whence Ariſtotle, properly enough, calls it *nervi, fides*.

CONFIRMATION, in *Theology*, the ceremony of laying on hands, for the conveyance of the Holy Ghoſt.

Among the ancients it was conferred immediately after baptiſm; and was eſteemed, in ſome meaſure, to be a part thereof: whence the fathers call it the *accompliſhment* of baptiſm. The ground of the practice was an opinion of the imperfection of baptiſm, which in their apprehenſion only prepared perſons for the reception of the graces of the Holy Spirit, which were actually conferred in *confirmation*. Tertull. de Bap. p. 599, &c. and Lord King's Hiſt. of the Prim. Church, chap. v. p. 80, &c.

Among the Greeks, and throughout the Eaſt, it ſtill accompanies baptiſm; but the Romaniſts make it a diſtinct independent ſacrament.

It appears that *confirmation* has all along been ordinarily conferred by the biſhop: St. Cyprian, and moſt of the fathers, ſpeak of it in ſuch terms as to imply it to have been confined to the biſhop alone; and Fleury and moſt of the moderns, from them, lay it down as a diſtinguiſhing character between the offices of a prieſt or deacon, and that of a biſhop, that the former might baptize, but the latter alone might anoint and *confirm*; by virtue of their ſucceſſion to the apoſtles, to whom it originally belonged. But from ſome paſſages in St. Gregory, &c. others gather, that the prieſts, on occaſion, had likewiſe the power of *confirming*.

It has been alledged, that, as *confirmation* always ſucceeded baptiſm, and made a neceſſary part of it, and ſeveral of the primitive Chriſtians eſteemed both neceſſary to ſalvation, it muſt have been performed by preſbyters as well as by biſhops; becauſe the biſhop of a church might be abſent for a very conſiderable time, as was the caſe with Cyprian, or the ſee might be vacant; and as preſbyters baptized, it is reaſonable to conclude that they alſo *confirmed*. Lord King has ſhewn that *confirmation* and abſolution were the ſame thing: and that preſbyters, ſometimes with the biſhop, and ſometimes without the biſhop, did abſolve by impoſition of hands: and he has cited ſeveral ancient authorities in order to prove, that *confirmation* was frequently repeated with reſpect to the ſame perſon. Hiſt. Prim. Church, p. 91, &c.

It is certain, among the Greeks, the prieſt who baptizes, alſo *confirms*: which practice, Lucas Holſtenius ſhews, is of ſo old a ſtanding among them, that it is now generally looked on as belonging properly, and of right, to the prieſt; though ſome will have it to have been borrowed by them from the biſhops. Hence, ſome of the Latin divines acknowledge, that though the biſhop be the ordinary miniſter of *confirmation*, yet, that the prieſt, in his abſence, may alſo confer it, in quality of miniſter extraordinary.

The council of Rouen, held in 1072, decrees, that *confirmation* muſt be conferred faſting, both on the ſide of the giver, and that of the receiver.

It has been urged, however, that this ceremony, with reſpect to the real importance and utility of it, was peculiar to the days of the apoſtles: though it is retained among Proteſtants, it is doubted whether it be a neceſſary inſtrument of grace. The order of *confirmation* in the church of England, does not determine the preciſe age of the perſon to be *confirmed*.

CONFISCATE, in *Law*, is applied to goods forfeited to the exchequer or public treaſury.

The word is derived from *fiſcus, a hamper, pannier, or baſket*, wherein the emperor's money uſed to be kept.

The title to goods which are not claimed by any other, is given by law to the king. If a man, indicted for ſtealing the goods of another, in which caſe they become, in effect, the proper goods of him indicted, be aſked about them in court, and diſclaim them: he thereby loſes the goods, though he be afterwards acquitted of the theft, and the king ſhall have them as *confiſcate*: but otherwiſe, had he not diſclaimed them.

CONFISCATION, a legal adjudication of goods or effects to the fiſc, or treaſury.

Thus, the bodies and effects of criminals, traitors, &c. and merchandizes that are contraband, prohibited, or brought aboard or aſhore without paying the duties, when ſeized, are *confiſcated*.

It is an axiom in law, that he who *confiſcates* the body, *confiſcates* alſo the effects, to the profit of the king, or the lord of the fee; i. e. he who is condemned to loſe his life, muſt alſo loſe his goods; yet the widows of criminals do not loſe their dowers, nor their ſhare in the goods of the community, by the forfeiture of their huſbands.

CONFLAGRATION, a general burning of a city, or other conſiderable place. In which ſenſe, Nero is ſaid to have procured the Chriſtians to be accuſed of the *conflagration* of Rome, which was done by his own order.

But the word is more ordinarily reſtrained to that grand period, or cataſtrophe, of our world, wherein the face of nature is expected to be changed by a deluge of fire, as it was anciently by that of water. The ancient Pythagoreans, Platoniſts, Epicureans, and Stoics, appear to have had a notion of the *conflagration*; though whence they ſhould derive it, unleſs from the ſacred books, is difficult to conceive; except, perhaps, from the Phœnicians, who themſelves had it from the Jews.

Seneca ſays expreſly, *Tempus advenerit quo ſidera ſideribus incurrent, & omni flagrante materia una ignis, quicquid nunc ex depoſito lucet, ardebit.* This general diſſolution the Stoics call *ἐκπύρωσιν, ecpyroſis*. Mention of the *conflagration* is alſo ſeveral times made in the books of the Sibyls, Sophocles, Hyſtaſpes, Ovid, Lucan, &c.

Dr. Burnet, after F. Tachard, and others, relates, that the Siameſe believe, that the earth will at laſt be parched up with heat; the mountains melted down; and the earth's whole ſurface reduced to a level, and then conſumed with fire. And the Brahmins of Siam do not only hold, that the world ſhall be deſtroyed by fire; but, alſo, that a new earth ſhall be made out of the cinders of the old. Various are the ſentiments of authors on the ſubject of the *conflagration*; the cauſe whence it is to ariſe, and the effects it is to produce. Divines ordinarily account for it metaphyſically; and will have it take its riſe from a miracle, as a fire from heaven. Philoſophers contend for its being produced from natural cauſes; and will have it effected according to the laws of mechanics; ſome think an irruption of a central fire ſufficient for the purpoſe; and add, that this may be occaſioned ſeveral ways; viz. either by having its intention increaſed; which, again, may be effected either by being driven into leſs ſpace by the encroachments of the ſuperficial cold, or by an increaſe of the inflammability of the fuel thereto it is fed: or by having the reſiſtance of impriſoning earth weakened; which may happen either from the diminution of its matter, by the conſumption of its central parts; or by weakening the cohęſion of the conſtituent parts of the maſs, by the exceſs or the defect of moiſture.

Others look for the cauſe of the *conflagration* in the atmoſphere; and ſuppoſe that ſome of the meteors there engendered in unuſual quantities, and exploded with unuſual vehemence, from the concurrency of various circumſtances, may be made to effect it, without ſeeking any farther.

The aſtrologers account for it from a conjunction of all the planets in the ſign Cancer; as the deluge, ſay they, was occaſioned by their conjunction in Capricorn.

Laſtly; others have recourſe to a ſtill more effectual and flaming machine; and conclude the world is to undergo its *conflagration* from the near approach of a COMET, in its return from the ſun. Thoſe wandering bodies do indeed ſeem to menace us a little; being able, both by their tranſverſe motion acroſs the earth's way, by the hugeneſs of their ſize, and the intenſe fire wherewith they glow in their recefs from the periheſion, to produce the moſt ſignal changes and revolutions in the ſyſtem of things.

Mr. Whiſton has ſhewn, that they are extremely well fitted to produce the phenomena of the deluge; and has gone a good way towards proving, that the comet of 1680, was the very body to which that event was owing; as being then in its approach toward the ſun, and its atmoſphere crouded with the watery vapours it had gathered in thoſe inconceivably cold regions, into which it had fled off in its aphelion.

This ſame comet, Sir Iſaac Newton has calculated, when in its periheſion, December the 8th, was heated, by the vicinity of the ſun, to a degree two thouſand times more hot than red-hot iron: he ſhews, likewiſe, that it would ſcarce be cool again in fifty thouſand years.

This ſame comet, Dr. Halley obſerved November the 11th, was not above a ſemidiameter of the earth from the earth's way: ſo that had the earth, at that time, been in that part of its orbit, ſomething very extraordinary might have been apprehended; but whether in the way of fire, or water, may, perhaps to ſome, leave room to doubt. But it is ſcarcely conceivable, that the comet ſhould bring any vehement degree of heat, out of thoſe regions it comes from, whatever heat it might carry thither.

CONFLUENCE,

CONFLUENCE, Conflux, the place where two RIVERS join, and mix their waters.

CONFLUENT, in *Medicine*, an epithet given to that species of *small-pox* wherein the puſtules run into one another.

CONFORMATION, the particular texture and conſiſtence of the parts of any body, and their diſpoſition to make a whole.

We ſay, light of different colours is reflected from bodies according to their different *conformation*; in oppoſition to the Carteſians, who pretend, that reflected light becomes of different colours, according to the different *conformation* of the bodies that reflect it. The *conformation* of the members of an embryo is not perfect enough to allow of diſſection.

Conformation, in *Medicine*, is uſed to expreſs that make and conſtruction of the human body, which is peculiar to every individual.

Hence, a *male conformatio* ſignifies ſome fault in the firſt rudiments; whereby a perſon comes into the world crooked, or with ſome of the *viſcera*, or cavities, unduly framed, or proportioned. Many are ſubject to incurable aſthmas, from a too ſmall capacity of the *thorax*, and the like original vicious *conformations*.

CONFORMITY, in the *Schools*, is the CONGRUENCY, or relation of agreement between one thing and another; as between the meaſure, and the thing meaſured; the object, and the underſtanding; the thing, and the conception; the thing, and the diviſion thereof, &c.

CONFRERES, from *con*, and *frere*, *brother*; denote brethren in a religious houſe, or the fellows of one and the ſame ſociety. 32 Hen. VIII. c. 24.

CONFRONTATION, the act of bringing two perſons, in preſence of each other, to diſcover the truth of ſome fact, which they relate differently.

The word is chiefly uſed in criminal matters; where the witneſſes are *confronted* with the accuſed; the accuſed with one another, or the witneſſes with one another.

CONFUSED *notion*. See NOTION.

Confused *viſion*. See VISION.

CONFUSION, in a general *ſenſe*, is oppoſed to ORDER; in a perturbation whereof, *confuſion* conſiſts: e. gr. when things prior in nature do not precede; or poſterior do not follow, &c.

In a logical ſenſe, *confuſion* is oppoſed to *diſtinctneſs*, or *perſpicuity*; and may happen, either in words, as when miſconſtrued or miſapplied; or in ideas, as when the idea of any thing preſents ſomething along with it, which does not properly belong to that thing.

In a phyſical ſenſe, *confuſion* is a ſort of UNION, or MIXTURE by mere contiguity. Such is that between fluids of contrary natures; as oil and vinegar, &c.

Confusion, *property by*, in *Law*, denotes the intermixture of the goods of two perſons in ſuch a manner, that their reſpective portions cannot be aſcertained. If this be by conſent, they have a common intereſt in proportion to their ſhares; but the law allows no remedy to the perſon who mixes his property with that of another, without his knowledge and approbation. Blackſtone's Comm. vol. ii. p. 405.

Confusion *of tongues*, in the *Hiſtory of the World*, is a memorable event, which happened in the 100 hundred and firſt year, according to the Hebrew chronology, and the four hundred and firſt year by the Samaritan, after the flood, at the overthrow of Babel; and which was providentially brought about, in order to facilitate the diſperſion of mankind, and the population of the earth. Until this period there had been one common language, which formed a bond of union, that prevented the ſeparation of mankind into diſtinct nations; and ſome have ſuppoſed, that the tower of Babel was erected as a kind of fortreſs, by which the people intended to defend themſelves againſt that ſeparation, which Noah had projected. Uſher ad A. M. 1757.

There has been a conſiderable difference of opinion, as to the nature of this *confuſion*, and the manner in which it was effected. Some learned men, prepoſſeſſed with the notion that all the different idioms now in the world did at firſt ariſe from one original language, to which they may be reduced, and that the variety among them is no more than muſt naturally have happened in a long courſe of time by the mere ſeparation of the builders of Babel, have maintained, that there were no new languages formed at the *confuſion*; but that this event was accompliſhed by creating a miſunderſtanding and variance among the builders, without any immediate influence on their language. But this opinion, advanced by Le Clerc, &c. ſeems to be directly contrary to the obvious meaning of the word שִׂפְתָה *ſhaphah*, *lip*, uſed by the ſacred hiſtorian. Others have imagined, that this was brought about by the temporary *confuſion* of their ſpeech, or rather of their apprehenſions, cauſing them, whilſt they continued together and ſpoke the ſame language, to underſtand the words differently: Scaliger is of this opinion. Others again account for this event, by the privation of all language, and by ſuppoſing that mankind were under a neceſſity of aſſociating together, and of impoſing new names on things by common conſent. Another opinion aſcribes the *confuſion* to ſuch an indiſtinct remembrance of the original language which they ſpoke before, as made them ſpeak it very differently; ſo that by the various inflections, terminations, and pronunciations of divers dialects, they could no more underſtand one another, than they who underſtand Latin can underſtand thoſe who ſpeak French, Italian or Spaniſh, though all theſe languages ariſe out of it. This opinion is adopted by Caſaubon, and by biſhop Patrick in his Commentary in loc. and is certainly much more probable than either of the former: and Mr. Shuckford maintains, that the *confuſion* aroſe from ſmall beginnings, by the invention of new words in either of the three families of Shem, Ham, and Japhet; which might contribute to ſeparate them from one another; and that in each family new differences of ſpeech might gradually ariſe, ſo that each of theſe families went on to divide and ſubdiride among themſelves. Others again, as Mr. Joſ. Mede and Dr. Wotton, &c. not ſatisfied with either of the foregoing methods of accounting for the diverſity of languages among mankind, have recourſe to an extraordinary interpoſition of divine power, by which new languages were framed and communicated to different families by a ſupernatural infuſion or inſpiration; which languages have been the roots and originals from which the ſeveral dialects that are, or have been, or will be ſpoken, as long as this earth ſhall laſt, have ariſen, and to which they may with eaſe be reduced. As to the number of languages thus introduced, many opinions have been adopted. If there were no more than there were nations or heads of nations, then the number would be ſeven for Japhet, four for Ham, and five for Shem; but if there were as many as there were families, which is the more probable opinon, their number cannot be certainly aſſigned. However, the Hebrews fancy they were ſeventy, becauſe the deſcendents from the ſons of Noah, enumerated Geneſis x. were juſt ſo many. Allowing then the languages of the chief families to have been fundamentally different from each other, the ſub-languages and dialects within each branch would probably have had a mutual affinity, greater or leſs, as they ſettled nearer or farther from each other. But whichſoever of theſe hypotheſes is adopted, the primary object of the *confuſion* at Babel was the ſeparation and DISPERSION *of mankind*. Cleric. Comm. in Gen. x. 1. Scaliger Exerc. in Cardan. § 1. Caſaubon. Diatrib. de Ling. Heb. Mede's Works, vol. i. p. 276. Wotton's Diſc. and Brett's Eſſ. on the *Confuſion* of Languages. Univerſ. Hiſt. vol. i. part i. chap. 2. § 5. Shuckf. Conn. vol. i. p. 146.

The ingenious and learned Dr. Bryant has lately, in the third volume of his Analyſis of Ancient Mythology, advanced a new and ſingular hypotheſis, both with reſpect to the *confuſion* of tongues and the diſperſion. He ſuppoſes that the *confuſion* of language was local and partial, and limited to Babel only. By כָּל-הָאָרֶץ Gen. xi. 1. and 8. which our tranſlators render *the whole earth*, he underſtands *every region*: and by the ſame words in ver. 9. the *whole region* or province. This *confuſion* was occaſioned, as he ſuppoſes, by a labial failure; ſo that the people could not articulate. Thus their ſpeech was confounded, but not altered; for, as ſoon as they ſeparated, they recovered their true tenor of pronunciation, and the language of the earth continued for ſome ages nearly the ſame. The interviews between the Hebrews and other nations, recorded in Scripture, were conducted without an interpreter; and he farther obſerves, that the various languages which ſubſiſt at this day retain ſufficient relation to ſhew, that they were once dialects from the ſame matrix, and that their variety was the effect of time. See DISPERSION.

CONFUTATION, in *Rhetoric*, &c. a part of an oration, wherein the orator ſeconds his own arguments, and ſtrengthens his cauſe, by refelling and deſtroying the oppoſite arguments of the antagoniſt. This is done by denying what is apparently falſe, by detecting ſome flaw in the reaſoning of the adverſe party, by granting their argument, and ſhewing its invalidity, or retorting it upon the adverſary.

Confutation makes a branch of what we call CONFIRMATION. The confirmation and *confutation* are ſometimes called CONTENTION.

CONGE, in the *French Law*, a licence, or permiſſion, granted by a ſuperior to an inferior, which gives him a diſpenſation from ſome duty to which he was before obliged.

The

The word is French: Menage derives it from the Latin *commutare*, used for *commutatus*, and *commuer*, often used among ancient writers: the Italians *say congeda*.

A monk cannot go out of his convent, without the *congé* of his superiors.

CONGE *d'accorder*, i. e. *leave to accord, or agree*, is used in the statute of fines, anno 18 Edw. I. to the following purpose: *When the original is delivered, in presence of the parties before justices, a parcher shall say the Sire, vostre congé d'accorder: and the justice shall say to him, Welle fait Sir. &c.* and *shall make out of the parties, &c.*

CONGE *d'elire*, is the king's permission royal to a dean and CHAPTER, in time of a vacancy, to choose a bishop. See CANONS, and COLLATION.

Gwyn observes, that the king of England, as sovereign patron of all bishoprics and other benefices, had ancicently the free appointment of all ecclesiastical dignities; invested first, *per traditionem annuli*; and afterwards by letters patent: but that, in process of time, he made the election over to others, under certain forms and conditions; so that they should at every vacancy, before they choose, demand of the king *congé d'elire*, i. e. leave to proceed to election; and after election to crave his royal assent. *&c.* He adds, that king John was the first who granted this; which was afterwards confirmed by stat. Westm. 3 Edw. I. cap. 1. and again in the Articuli Cleri, 25 Edw. II. cap. 1.

CONGE, in *Architecture*, denotes a moulding either in form of a quarter-round, or of a cavetto; which serves to separate two members from one another. See *Tab. Archit. fig. 6.*

Such is that which joins the fhaft of the column to the ftructure, called alſo *apophyge*; which, in Greek, ſignifies *eſcape*; the column ſeeming to ſpring hence: by the Latins it is called *ſcapus*, *the ſhaft of the column*.

The *conge*, originally, *was a ring* or ferril, fixed on the extremities of wooden pillars, to keep them from ſplitting; this, afterwards, came to be imitated in ſtone-work.

CONGEABLE, from the French *congé* (i. e. *leave, licence, or permiſſion*), ſignifies as much as lawful, or lawfully done, or done with leave and permiſſion; *as, there entry is not allowable or congeable.*

CONGELATION, FREEZING, the act of fixing the fluidity of any liquid by cold, or the application of cold bodies. In which it differs from *coagulation*, which is produced by other cauſes. See CONCENTRATION.

Salt-petre *congeals* water in ſummer. See ICE. Metals and minerals are ſaid to be juices *congealed*, in the veins of earth, by their mixing with one another, or with other heterogeneous bodies; or by the conſumption and evaporation of their fineſt parts.

Rock CRYSTAL was by the ancients held to be nothing but water *congealed* in the mountains.

CONGELATION *by artificial cold*. See *Artificial* FREEZING.

CONGELATION *of wine*. See WINES.

CONGENERES *muſcles*, in *Anatomy*, are ſuch muſcles in an animal body, as ſerve together to produce the ſame motion; and they are ſo called becauſe they aſſiſt one another in their action.

CONGER, in *Ichthyology*, a ſpecies of the MURENA; the name of the *ſea* EEL, a very voracious and extremely large fiſh of the eel kind.

The name is derived from γογγρος, which is formed of a duplication of the adjective γγρος, or γγρ. *voracious*, from γγω, *I devour*.

It grows to an enormous ſize, four or five cubits being a common length with it, and its thickneſs that of a man's thigh. It is of a pale grey on the back, and a fine milk white on the belly, and has on each ſide a ſtrait white line, ſomewhat broad, made as it were of a double, ſometimes ſingle row of dots, and running from the head to the tail; the top of its back-fin is black all the way; and in the end of its upper jaw, juſt at the noſe, it has two ſhort tubular horns, out of which a mucous liquor may be expreſſed. Their fleſh is very agreeable, but is not eaſy of digeſtion. Willughby.

Theſe fiſhes form a conſiderable article of commerce in Cornwall; whence they are exported to Spain and Portugal, particularly to Barcelona. They are ſometimes caught by a hook and line; but chiefly by NETS. They are afterwards cured, by ſlitting and hanging them on a frame to dry, that the fat may exude. The dried *congers* are ground into a powder, and uſed by the Portugueſe and Spaniards to thicken and give a reliſh to their ſoups. Pennant's Zoology, vol. iii. p. 140.

CONGERIES, a Latin word, ſometimes uſed in our language for a collection or heap of ſeveral particles, or bodies, united in one maſs, or aggregate.

CONGERIES, *in Rhetoric*. See SYNATHROISMUS.

CONGESTION, in *Medicine*, a maſs, or collection of humours, crouded together, and hardened, in any part of the body; and there forming a preternatural tumor.

Congeſtion is effected by little and little; in which it differs from *obſtruction*, which is more ſudden.

CONGESTIONES, in *Medicine*. See STUFFINGS.

CONGIARIUM, CONGIARY, among *Medalliſts*, a gift, or donative, repreſented on a medal.

The word comes from the Latin CONGIUS; becauſe the firſt preſents made to the people of Rome conſiſted in wine and oil, which were meaſured out to them in *congii*.

The *congiary* was properly a preſent made by the emperors to the people of Rome. Thoſe made to the ſoldiers were not called *congiaria*, but *donativa*.

The legend, on medals repreſenting *congiaria* is, *congiarium, or diſtributio*.

Tiberius gave a *congiary* of three hundred pieces of money to each citizen: Caligula twice gave three hundred SESTERCES a head: Nero, whoſe *congiaries* are the firſt that we find repreſented on medals, gave four hundred.

CONGIUSELLA, in *Antiquity*, half a CONGIUS.

CONGIUS, an ancient Roman meaſure for things liquid; containing ſix ſextaries, or ten Roman pounds; equal to ſeven pints Engliſh wine meaſure.

From the original ſtandard of Veſpaſian extant at Rome, Greaves reduced the value of the Roman pound to be 5256 *Troy* grains. See DYNARION. But Mr. Paper, in an excellent paper on this ſubject, has ſuggeſted ſeveral objections againſt the accuracy of this concluſion. Phil. Tran. vol. lxi. part ii. p. 456.

The *congius* has alſo been uſed in England, as appears by a charter of king Edmund in 940.

CONGLOBATE *glands*, in *Anatomy*, thoſe glands whoſe ſubſtance is not divided, but firm, entire, and continued; and their ſurface ſmooth and uniform.

They are thus called, in oppoſition to *conglomerate* glands.

Conglobate glands have each of them an artery which brings them blood, a vein which carries it back again, after the proper juice has been ſtrained, and ſeveral excretory ducts.

Some of them have a cavity in the middle, with LYMPHATIC veſſels, which diſcharge themſelves into a common reſervoir, or canal.

CONGLOBATE *flowers*, are thoſe with globular heads.

CONGLOMERATE *glands*, are thoſe which are compoſed of ſeveral little ones; or they are ſeveral glandulous bodies joined together under the ſame common membrane. See GLAND.

Such are the ſalival glands, lachrymal glands, the pancreas, *&c.* which ſee under their proper articles.

The *conglomerate* glands, beſides their arteries, veins, and nerves, are alſo furniſhed with an excretory veſſel, ramified throughout their own ſubſtance; by means whereof they diſcharge the liquors they have ſtrained into reſervoirs.

CONGLOMERATE *flowers*, are thoſe which are irregularly crouded together.

CONGLUTINATION, the act of gluing, or faſtening two bodies together, by the intervention of ſome third, whoſe parts are unctuous and tenacious, in the nature of a glue, *gluten*; from whence the word is formed.

In the animal œconomy, the parts of the body are ſaid to be *conglutinated* by means of their natural moiſture; by the help of bandages, as in ſeveral caſes of ſurgery; or by the ſupply of viſcid particles. In which laſt acception, *conglutination* differs little from *accretion* or *nutrition*.

CONGO *money*, or Guinea money, a name given to a peculiar ſpecies of *cauris* or porcelain ſhell, which paſſes by way of money among the natives of thoſe places. It is diſtinguiſhed from the other porcelains by having a dentated mouth, and ſix gibbous protuberances on its ſurface.

CONGREGATION, an aſſembly of ſeveral eccleſiaſtics, united ſo as to conſtitute a body.

The term is principally uſed for aſſemblies of CARDINALS, appointed by the pope, and diſtributed into ſeveral chambers, for the diſcharge of certain functions and juriſdictions, after the manner of our offices and courts.

The firſt is the *congregation* of the holy office, or the INQUISITION: the ſecond, that of juriſdiction over biſhops and regulars: the third, that of councils; this has power to interpret the council of Trent: the fourth, that of cuſtoms, ceremonies, precedences, canonizations, called the *congregation of rites*: the fifth, that of St. Peter's ſubjic, which takes cognizance of all cauſes relating to piety and charity, part whereof is due to the church of St. Peter: the ſixth, that of waters, rivers, roads: the ſeventh, of fountains and ſtreets: the eighth, that of the INDEX, which examines the books to be printed, or corrected: the ninth, that of the council of ſtate, for the management of the territories belonging to the pope and

and church; see CAMERLINGO: the tenth, *de bono regimine*; of which two laſt, the cardinal-nephew is chief: the eleventh, that of money: the twelfth, that of biſhops; wherein thoſe who are to be promoted to biſhopricks in Italy are examined; this is held before the pope: the thirteenth, that of conſiſtorial matters; the chief whereof is the cardinal dean: the fourteenth, a *congregation* for propagating the faith; ſee COLLEGE: and the fifteenth, that of eccleſiaſtical immunity, for ſettling ſuits againſt churchmen. There is alſo a *congregation* of alms, which takes care of every thing that relates to the ſubſiſtence of Rome, and the ſtate of the church.

CONGREGATION is alſo uſed for a company or ſociety of religious, cantoned out of this or that order; and making, as it were, an inferior order, or a ſubdiviſion of the order itſelf.

Such are the *congregations* of the Oratory, and thoſe of CLUNY, &c. among the BENEDICTINES.

The word is alſo uſed for aſſemblies of pious perſons, in manner of fraternities; frequent among the Jeſuits, in honour of the Virgin, &c.

CONGREGATION *of* AIDS, *of* IMMACULATE *Conception, of the* LATERAN, *of* MISSION, *of* PENITENCE, *of Holy* SACRAMENT, *of Holy* TRINITY; ſee AIDS, IMMACULATE, &c.

CONGREGATION, in *Phyſics*, is uſed by Dr. Grew for the leaſt and loweſt degree of mixtion; or that wherein the parts of the mixt do not conſiſt with, or adhere to, each other, but only touch in one point.

That author declares himſelf of opinion, that the particles of all FLUIDS only touch in this manner; or that their COHESION only amounts to a *congregation*.

CONGREGATIONALISTS. See INDEPENDENTS.

CONGRESS, CONGRESSUS, is uſed for an aſſembly of commiſſioners, deputies, envoys, &c. from ſeveral courts or provinces, meeting to concert meaſures for their common good.

The *congreſs* at the Hague, which held during the courſe of the war, terminated in 1697, by the treaty of Ryſwick, was compoſed of the envoys of all the princes in the confederacy againſt France.

CONGRESS is alſo uſed for an eſſay, or trial, made by appointment of a lay, or ſpiritual judge, in the preſence of ſurgeons and matrons, to prove, whether or no a man be or be not impotent; in order to the diſſolution of a marriage. See IMPOTENCE.

Neither the civil nor canon law make any mention of this trial of virility by *congreſs*: it had its origin in France, from the boldneſs of a young fellow, who, in open court, being hard preſſed by his wife, demanded the *congreſs*. The judge, ſurpriſed with the novelty of the demand, found it could not be denied; as being the ſureſt evidence the caſe could admit of.

In time it became a branch in the French juriſprudence, and was authoriſed by decrees and arrets: it obtained for about the ſpace of one hundred and twenty years, and was annulled by an arret of parliament in 1677, as being found precarious; ſome having failed under the experiment out of mere modeſty and ſhame, which is found to have the ſame effect with actual impotency.

CONGRUITY, or CONGRUENCY, in the *Schools*, a ſuitableneſs or relation of agreement between things; whereby we come at the knowledge of what may be expected from them.

The ſyſtem of *congruity* in matters of grace conſiſts in this; that God, who knows perfectly the nature of grace, and the diſpoſitions of the will in all the circumſtances that ſhall befall a man, gives graces, wherewith, by virtue of their *congruity* with the will of a man, conſidered in thoſe circumſtances, man will always infallibly, but not neceſſarily, do, what God would have him do: becauſe the will, in the language of the *congreſſiſts*, does always infallibly, though voluntarily, chooſe what appears beſt.

CONGRUITY, *merit of*. See MERIT.

CONGRUITY, in *Geometry*, is applied to figures, lines, &c. which exactly correſpond when laid over one another; as having the ſame terms, or bounds.

Thoſe things between which there is a *congruity*, are equal, and ſimilar.

Euclid, and, by his example, moſt other geometricians, demonſtrate all their elements from the ſole principle of *congruity*: M. Leibnitz, and after him Wolfius, ſubſtitute the notion of SIMILITUDE in lieu of that of *congruity*.

CONGRUITY, in a lax ſenſe, is uſed to expreſs an aptitude, in ſome bodies, to unite, or incorporate; by reaſon of ſome ſimilitude or fitneſs of their figures: as *incongruity* denotes an unfitneſs of their ſurfaces for joining together.

Thus, quickſilver will unite with gold, and many other metals, but will roll off from wood, ſtone, glaſs, &c. and water, which will wet ſalt, and diſſolve it, will ſlip off from tallow without adhering to it; as alſo from a duſty ſurface, and from the feathers of water-fowl.

Two drops of water, or of mercury, will, on contact, immediately join and coaleſce; but oil of tartar, poured upon quickſilver, and ſpirit of wine and oil of turpentine on that, and air over all, will remain in the ſame veſſel without any manner of union, or mixture with each other. And the cauſe hereof is, that the figures of ſome bodies will not admit other bodies near enough to be within their ſpheres of ATTRACTION, wherein they cannot join, and cohere; but where their ſtreſs of figure will let them approach near enough to feel each other's attractive power, then they cloſe, and hold together. See COHESION.

CONIC *Section*, a curve line ariſing from the ſection of a *cone* by a plane.

The *conic ſections* are three, viz. the *elliptic*, *hyperbolic*, and *parabolic*; beſide the *circle* and the *triangle*, which, though they ariſe from the ſection of a *cone*, are not uſually conſidered in that capacity.

That the triangle is a *conic ſection*, as well as the other four, is ſhewn by Apollon. in Con. lib. 1. p. 3. As to the circle; it ariſes either from the ſection of a *cone* by a plane parallel to the baſis, or from the ſubcontrary ſection of the ſcalene *cone*. Vide Apoll. Con. lib. 1. prop. 5. Though the equations, geneſis, and many of the properties, with the ratios, dimenſions, &c. of each of the *conic ſections*, be ſeparately given under their reſpective articles in this work, ELLIPSIS, HYPERBOLA, and PARABOLA; yet, to make the doctrine of *conics*, which is ſo conſiderable a part of the higher geometry, and of ſuch frequent uſe in the new aſtronomy, the motion of projectiles, &c. more complete, we ſhall here put the whole in a new light, and bring it together into one contracted view.

The common interſection, then, of any plane with a *conic ſuperficies*, we obſerve, is called a *conic ſection*: and this ſection varies, and acquires a different name, according to the different inclinations of the cutting plane. For,

1. If a cone be any way cut by a plane, through the vertex; and again by another plane parallel to the former plane: then the ſections, made in the ſuperficies thereof, is called an *hyperbola*; the plane of which, being produced to meet the oppoſite ſuperficies, will make another ſection, which is likewiſe called an *hyperbola*: and both of theſe, conjunctly, are called *oppoſite ſections*.

2. If through the vertex of a cone a plane paſſes without the ſuperficies thereof, that is, neither cutting nor touching it; and the cone be again cut by another plane parallel to the former; the ſection made in the ſuperficies thereof, is called an *ellipſis*.

3. If a plane touch the ſuperficies of a cone, and the cone be cut by a plane parallel to it, the ſection is a *parabola*.

The more ancient mathematicians, before the time of Apollonius Pergæus, admitted only the right cone into their geometry, and they ſuppoſed the ſection of it to be made by a plane perpendicular to one of its ſides; and as the vertical angle of a right cone may be right, acute, or obtuſe, the ſame method of cutting theſe ſeveral cones, viz. by a plane perpendicular to one ſide, produced the *conic ſections*. The parabola was called the ſection of a right-angled cone; the ellipſe, the ſection of the acute-angled cone; and the hyperbola, the ſection of the obtuſe-angled cone. But Apollonius, who, on account of his writings on this ſubject, obtained the appellation of *Magnus Geometra*, obſerved, that theſe three ſections might be obtained in every cone, both ſcalene and right, and that they depended on the different inclination of the plane of the ſection to the cone itſelf. Apollon. Con. Ed. Hall. lib. 1. p. 9.

But, inſtead of conſidering theſe curves as ariſing by ſection of the cone itſelf, their deſcription, nature, and properties, are found more eaſy of conception, when conſidered as drawn on a *plane*: for which reaſon, after Des Cartes, and moſt of the later writers, we ſhall rather chooſe to lay them down in this ſecond manner.

Geneſis, or conſtruction of the ellipſis. — To conceive the production and nature of an ellipſis, let H and I (*Plate Conics, fig.* 13.) be two points, nails, or little pegs, about which put a thread BHI; then putting your finger to the thread, and keeping the ſame always in an equal tenſion, move the finger round from the point B, till you return to the ſame point B again.

By this revolution of the point B, will be deſcribed the curve line called the *ellipſis*; which differs from the deſcription of a circle only in this, that a circle hath only one centre, but the ellipſis two: though if the points H and I ſhould come together into one, the elliptic curve would become perfectly circular.

But by how much greater the diſtance is betwixt thoſe points, the ſame length of the thread ſtill remaining; by ſo much the farther is this figure removed from the circular: ſo that, according to the different proportion of the

diſtance HI to the ſum of the parts BH, BI of the thread, or to the line DK, which is equal to that ſum, diverſe ſpecies of ellipſes will be deſcribed.

But then, if the length of the thread be increaſed or diminiſhed, in the ſame proportion as the diſtance of the points H and I is increaſed or diminiſhed, there will indeed be deſcribed divers ellipſes, but all of the ſame ſpecies: whence it appears, that ellipſes are not only innumerable in magnitude, but in ſpecies alſo; and reach from a circle to a right line: for, as when the points H and I meet together, the ellipſe becomes a circle; ſo, when they are removed from each other half the length of the thread, it becomes a right line, both ſides meeting together.

Whence alſo it appears, that every ſpecies of ellipſes is no leſs different from any other, than the extremes of them are different on this ſide from a circle, and on that from a right line. It alſo appears from this delineation, that if from a point taken at pleaſure in the elliptic periphery, as the point B, you draw two lines to the two central points; theſe two lines BH and BI, taken together, will be equal to the greateſt diameter DK; and conſequently, that the ſum of them is always given.

In the ellipſe DFKR (*fig.* 14.) the point C is called the *centre*; the points H and I, the *foci*; DK, the *greater axis*, or *tranſverſe axis*, or the *principal diameter*, or *latus tranſverſum*; and FR, the *leſſer axis*: all the right lines paſſing through the centre C, are *diameters*; and all right lines terminated at the periphery, and diviſed into two equal parts by any diameter, are called *ordinates*. That part of every diameter intercepted betwixt the vertex thereof, and the ordinate, as MA, is called the *abſciſs* thereof. A line drawn from the vertex of the diameter, parallel to the ordinates thereof, as *s θ*, is a *tangent* to the ellipſis in that vertex. A diameter parallel to the ordinates of another diameter, is termed a *conjugate diameter*; and the ordinate to the greater axis, which paſſes through either of the foci, as MA (*fig.* 13.), is termed the *principal latus rectum*, or the *parameter* of the greater axis. See AXES, CENTER, DIAMETER, FOCUS, ORDINATE, PARAMETER, &c.

Properties of the ellipſis.—1. The ordinates of every diameter are demonſtrated to be parallel to each other.

2. The ordinates of the principal diameters or axes are perpendicular to the axes themſelves; but the ordinates of the reſt of the diameters are oblique to their diameters; and, in ellipſes of divers ſpecies, are ſo much the more oblique, at equal diſtance from the axis, by how much the proportion of the greater axis to the leſſer is the greater; but in the ſame ellipſis, ſo much the more oblique, by how much the more remote the diameters are from the axes.

3. There are only two conjugate diameters, which are equal to each other; viz. thoſe whoſe vertices are at equal diſtances from the vertices of the axes: that, the diameter VT (*fig.* 14.) is conjugate, and equal to that other GM, where VF is equal to MF, and VD equal to MK.

4. The obtuſe angle VCM of theſe two diameters, which are conjugate and equal, is greater, and the acute angle VCG is leſs, than every other angle contained under the reſt of the diameters that are conjugate to each other.

5. If the lines *n*P and *r*B be ſemiordinates to any diameter, as MG, the ſquare of the ſemiordinate *n*P is to the ſquare of the ſemiordinate *r*B, as is the rectangle M*n* × *n*G, to the rectangle M*r* × *r*G; that is, *n*P ſ is to the rectangle comprehended under the two parts, into which the diameter is diviſed by the ordinate KP, as *r*B *q* is to the rectangle under the parts of the diameter made by the ordinate AB.

6. The parameter, or *latus rectum* of any diameter, is a third proportional to that diameter, and its conjugate: that is (in *fig.* 13.), if the diameter DK is to its conjugate diameter EF, as EF is to Y; then Y is the parameter or *latus rectum* of the diameter DK: whence AM, an ordinate to the axis through the focus, is, as above, equal to the principal parameter, and is a third proportional to the greater and leſſer axis.

7. The ſquare of every ſemiordinate, as MI, is always leſs than the rectangle made by any abſciſs whatever, as IK drawn into the *latus rectum* of its own diameter, or than IK × Y. And in *fig.* 14. *F n q* is leſs than the rectangle made of the abſciſs M*n* and the *latus rectum* of MG: from which deficit, or ἔλλειψις, this ſection hath its name.

8. If from any point, as B, in *fig.* 13. you draw the right lines BH and BI to the foci, the ſum of them will be equal to the greater axis, as was ſhown above: and if the angle IBH, comprehended by thoſe lines, be biſected by the right line *b a*, the line *b a* is perpendicular to the tangent VB in the point B; that is, to the curve in the point of contact.

9. The diſtance of a body turned round in an ellipſis, about the focus H, from the ſame focus, is the greateſt of all in the point K; leaſt of all in the point D; and mean in the points E and F; and that mean diſtance HF is equal to the greater half-axis DC or CK; as is manifeſt, from the production of the ellipſis.

10. The vaniſhing ſubtenſe of the angle of contact, parallel to the diſtance from the focus, is an equal perpendicular interval from that diſtance, always remains given and unvaried in the ſame ellipſis, yea, and in the ſame parabola and hyperbola too. Thus, if *dZ* be always given, *r d* alſo will always remain given in a diſtance infinitely ſmall.

11. The area of the ellipſis is to the area of the circle circumſcribed, as the leſſer axis is to the greater; and ſo are all correſponding parts whatſoever among themſelves, as MIK, *n* IK: and the ordinates to the greater axis, as MI, are diviſed by the elliptic periphery always in the ſame proportion, ſo that MI is to *n* I always in the ſame proportion; to wit, that of the leſſer axis to the greater. And we are to reaſon in the ſame manner concerning a circle inſcribed in an ellipſis. See QUADRATURE.

12. All parallelograms deſcribed about the conjugate diameters of the ellipſis, and comprehending the ellipſis, are equal. Thus, the parallelogram *s θ θ δ*, *fig.* 14. is equal to the other parallelogram *r ζ η θ*: and thus it is every where.

13. If a right line always paſſing through one of the foci be ſo moved, that the elliptic area, deſcribed by the ſame, is proportional to the time; the angular motion of a right line drawn from the other focus to the former line, will be almoſt equable: thus, in *fig.* 13. if the angular motion of the line HB be ſo tempered, that the ſame, being according to the reciprocal proportion of the diſtance accelerated or retarded, deſcribes the area DHB, proportional to the time; the angular motion KIB about the other focus I, will be almoſt proportional to the time, and conſequently without any notable acceleration or retardation, and nearly equable; that is to ſay, where the ellipſis does not differ much from a circle.

Genuſis of the parabola.—Let DI be an infinite right line, and IL another perpendicular to it (*fig.* 15.); then, taking in the line DI, any point, F, let the line FI be biſected in the point T; and let there be taken two threads joined together in the point T, one TI, the other TF; and let a pin fixed to the threads in the point T be moved to the right and left, in ſuch a manner, that when the pin is in any other poſition, as in P, the thread TI, which here becomes PL, be always perpendicular to IL; or, which is the ſame thing, parallel to DI, but equal to the thread TF; which in this caſe becomes PF, ever paſſing through the point F: the curve thus generated by the pin, infinitely produced both ways, is a parabola: in which *r* P i T R *s*, is called the *periphery*; ID, the *axis*, or *principal diameter*; IL, the *directrix*; F, the *focus*; the point T, the *principal vertex*.

An ordinate to the axis through the focus is equal to the principal *latus rectum*: all right lines, as *n s*, &c. parallel to the axis, are diameters, as dividing the lines *r* I, &c. which are parallel to the tangents at their vertices, into two equal parts; and they are called diameters belonging to the vertices in which they terminate, as *s*, and R.

Properties of the parabola.—1. Every diameter, or right line parallel to the axis, biſects all the lines within the figure, which are parallel to the tangent of the vertical point; and theſe biſected lines are called *ordinates*.

2. The ordinates of the axis are perpendicular to it; but the ordinates of the reſt of the diameters are oblique to their diameters; and ſo much the more oblique, by how much the vertex of their diameter is farther removed from the principal vertex of the parabola.

3. The *latus rectum*, or parameter to every diameter, is a third geometrical proportional to any abſciſs, and its ſemiordinate; that is, if the *latus rectum* of the diameter *s n*, or that of the vertex *i*, be *y*; then, as the abſciſs *i q* is to the ſemiordinate *q k*, ſo is that ſemiordinate *q k* to *y*.

4. The principal *latus rectum*, or that belonging to the axis, is equal to the ordinate *kx* paſſing through the focus; and quadruple of FT, the leaſt diſtance of the focus from the principal vertex. See FOCUS.

5. The *latus rectum*, belonging to any vertex or diameter, is alſo quadruple of the diſtance of that vertex from the focus: thus, the *latus rectum* of the vertex *s* is quadruple F *s*, and ſo it is every where: and therefore the parameter of the axis is the leaſt of all parameters.

6. The diſtance of any vertex or point in the parabola whatever, from the focus, is equal to the leaſt diſtance of the ſame from the line LI, which is perpendicular

to

to the axis; and is diſtant from the principal vertex, by a quarter of the principal *latus rectum*.

7. The ſquare of every ſemiordinate, as $q\,k$, is equal to a rectangle made of the *latus rectum*, of the ſame vertex as y, and iq the abſciſs of the diameter of the vertex. And from the equality of the proportion, or compariſon in the figure, betwixt the rectangle and the ſquare of the ſemiordinate, without any excels or defect, the name of the ſection is derived.

8. Since therefore the *latus rectum* in any diameter is given, the abſciſſes will be as the ſquares, or in the duplicate ratio of the ſemiordinates. Thus, TF is to TG as $iF\,q$ is to $g\,G\,q$; and ſo likewiſe is iq to ir, as the ſquare of $q\,T$ is to the ſquare of $r\,t$: and thus every where. From whence, alſo, when the abſciſs of the axis is equal to the principal *latus rectum*, or fourfold of the diſtance from the vertex, it will be equal to its ſemiordinate.

9. The angle, comprehended by any tangent whatever, and a line from the focus, is equal to an angle comprehended by the ſame tangent, and any diameter, or the axis. Thus, the angles $I\,i\,F$, and $p\,i\,n$, are equal: whence, by the way, all the rays of light which fall on the concave part of the ſurface, produced by the convolution of the parabola about the axis, which fall, we ſay, on the ſame, parallel to the axis, will be reflected from a concave paraboloid figure to the focus F, and there beget a moſt vehement burning; from which property, the point F has the name *focus*, and has communicated the ſame to the like points in the hyperbola and ellipſis.

10. A parabola like an hyperbola, does not incloſe a ſpace, but ſtretches out *in infinitum*.

11. A parabolic curve always tends more and more, *in infinitum*, to a parallelism with its diameters; but can never arrive thereat.

12. If two parabolas be deſcribed, with the ſame axis and vertex; the ordinates to the common axis will be cut off by the parabola in a given proportion; and the areas comprehended by the ſame axis and ordinate, and the reſpective curves, will be in the ſame given proportion to one another.

13. Every parabolic ſpace comprehended betwixt the curve and the ordinate, is to the parallelogram made of the ſame baſe and altitude, in a ſeſquialteral proportion, that is, as 2 is to 3; and to the external ſpace in a double proportion, or as 2 is to 1: ſo $q\,T$ is to $q\,I$, as 2 is to 3; and to $r\,T$ as 2 is to 1. From whence it becomes eaſy to ſquare the parabola. See QUADRATURE.

14. The diſtance between the vertex of the axis and the point where any tangent interſects it, as I, is equal to the abſciſs of the axis which belongs to the ordinate applied from the point of contact: ſo T I is equal to TF; and thus it is every where.

15. All parabolas are like, or of the ſame ſpecies; as are alſo all circles.

16. If a diameter be continued through the point of concourſe of two tangents; this diameter will biſect the line that joins the contacts: which property of the parabola may likewiſe be underſtood of the ellipſis, and hyperbola.

Geneſis of the hyperbola.—Suppoſe a ſtaff or rule of a ſufficient length, as I B (*fig.* 16.): let I and H be two central points, anſwering to the foci of an ellipſis, in which let nails be faſtened; then, there being tied to one end of the ſtick a rope or thread as long again as the ſtick, let the other end thereof be bored through, and ſo fixed upon the nail I; and fix the other end of the rope, by a knot, upon the other nail H: which done, laying your finger on the point B, where the rope and ſtaff are tied together, let your finger deſcend ſo long, till you have thereby applied, and joined the whole rope to the ſtaff or rule; the ſtaff having been in the mean while, as it needs muſt, wheeled about the centre I. Thus, with the point B, the vertex of the angle H B I, you will have deſcribed a curve line X B D, which is part of an hyperbola; the whole conſiſting of that curve which will riſe from the curve X B D, which hath added to it the curve Y D, the produce of the rule and work, as turned to the other ſide.

Farther tranſferring the hole, or knot of the rope to the nail I, and faſtening the end of the ſtaff on the nail H, you will deſcribe another hyperbola, vertically oppoſite to the former, which will be altogether like and equal thereto. But if, without changing any thing in the rule and nails, you only apply a longer rope; you will have an hyperbola of a different ſpecies from the former: and if you ſtill lengthen the rope, you will have ſtill other ſorts of hyperbolas; till at length, making the rope double the length of the rule, you will have the hyperbola changed into a right line.

But if you alter the diſtance of the nails, in the very ſame proportion in which you change the difference betwixt the length of the rope, and that of the ſtick; in this caſe you will have hyperbolas marked out, which are altogether of the ſame ſpecies, but have their ſimilar parts differing in magnitude.

Laſtly, If the length of the rope and rule be equally increaſed, their difference in the mean while, and the intervals of the nails, remaining the ſame; not a different hyperbola, either as to ſpecies or magnitude, will be deſcribed, nor any other than a greater part of the ſame hyperbola.

It muſt be owned, however, that many properties of an hyperbola are better known from another manner of generating the figure, which is as follows: let L L and M M (*fig.* 17.) be infinite right lines interſecting each other at any angle whatever, in the point C: from any point whatever, as D or e, let D d, D d be drawn parallel to the firſt lines; or $e\,c$, $e\,d$; which, with the lines firſt drawn, make the parallelograms, as D C D, or $e\,C\,d$. Now, conceive two ſides of the parallelogram, as D d, D d, or $e\,c$, $e\,d$, to be ſo moved, this way and that way, that they always keep the ſame parallelism; and that at the ſame time the areas always remain equal; that is to ſay, that D c and $e\,c$ remain always parallel to M M, and D d or $e\,d$ always parallel to L L; and that the area of every parallelogram be equal to every other, one ſide being increaſed in the ſame proportion wherein the other is diminiſhed: by this means, the point D or e will deſcribe a curve line within the angle comprehended by the firſt lines; which is altogether the ſame as that deſcribed above. So alſo in the angle vertically oppoſite will be deſcribed a like and equal hyperbola; if the parallelogram C r K d, equal to the former, be ſuppoſed to be moved, in the ſame manner as before: which hyperbolas are, as was ſaid before, called *oppoſite ſections*, or *oppoſite hyperbolas*.

In each figure, D K is the *tranſverſe axis*, or *tranſverſe diameter of the hyperbola*, or the *oppoſite ſections*: the point C, the *centre*; H and I, the *foci*. In the latter figure, all the lines paſſing through the centre C, as $i\,k$, are *diameters*: but if hyperbolas be deſcribed in the following angles, as L C M, M C L, thoſe ſections will be called *following ſections*: and if the diſtance of the primary vertex of thoſe hyperbolas from the common centre C, as C g, or C y, be equal to the ſemitangent K u or K u, to the primary vertex of theſe, thoſe ſections are called *conjugate ſections*: and all the figures together form the *hyperbolic ſyſtem*.

Farther, $i\,b$ the ordinate to the axis through the focus, is equal to the principal *latus rectum*, or the parameter of the axis; and an indeterminate diameter, which is parallel to the ordinates of any determinate diameter, is called the *conjugate diameter* of the ſame.

Properties of the hyperbola.—1. Any diameter, or right line paſſing through the centre, biſects all its ordinates; that is, all the right lines which are terminated on both ſides by the hyperbolical periphery.

2. The ordinates of the axis are perpendicular to the ſame; but the ordinates of the reſt of the diameters are oblique to their diameters: and ſo much the more in divers ſpecies, at equal diſtances from the axis, by how much the difference of the angles including the hyperbolas is the greater: and in the ſame hyperbola, ſo much the more oblique, by how much the diameters are farther removed from the axis.

3. If any lines, as H b and Q s, be ſemiordinates to any diameter whatever, as K D; the ſquare of the ſemiordinate H b is to the ſquare of the ſemiordinate Q s, as the rectangle K H $\times$ D H is to the rectangle K Q $\times$ D Q: and ſo $b\,n^2$ is to $s\,k^2$, as the rectangle $i\,b \times b\,k$ is to the rectangle $i\,d \times d\,k$: and thus every where.

4. The *latus rectum*, or parameter of every diameter, is a third geometrical proportional to the diameter, and the conjugate thereof (or its tangent, which is equal to it): that is, if the *latus rectum* of any diameter, as D K, be y; then, as the diameter D K is to its conjugate $k\,y$, or its equal $u\,x$; ſo is that conjugate $k\,y$, or that tangent $u\,x$, to y. And as the ordinate to the axis through the focus is the principal *latus rectum*, ſo it is more than double of the leaſt diſtance of the focus from the vertex.

5. The ſquare of any ſemiordinate, as Q s, is greater than a rectangle made of the abſciſs D Q, drawn into the *latus rectum* of its own diameter, as y: and, in like manner, the ſquare of the ſemiordinate $b\,n$ is greater than the rectangle of the abſciſs $i\,b$, into the *latus rectum* of the diameter ei. From which *exceſs*, or *exceſſ*, this ſection hath its name.

6. If from any point of the hyperbola, as B (*fig.* 16.), there be drawn right lines to both the foci, as B H, B I, the difference of theſe lines will always be equal to the axis D K; as will eaſily appear, from the delineation itſelf.

7. If the angle H B I, comprehended by lines drawn to

the

the foci, be bisected by the right line EB, that right line will be a tangent to the hyperbola in the point B.

8. The right lines L L and M M (*fig.* 17.), which inclose the hyperbolas, are afymptotes of the hyperbolas; that is, they are fuch to which, on both fides, the curve approaches nearer and nearer, but is never able to touch or coincide therewith.

9. The fpecies of hyperbolas are various, according to the different magnitude of the angle L C M, comprehended by the afymptotes; but that angle remaining the fame, the fpecies of the hyperbola remains unchanged: yet, according to the different magnitudes of the parallelograms, by which hyperbolas are defcribed, hyperbolas of divers magnitudes do arife: if the angle contained by the afymptotes be a right angle, the hyperbola is called *equilateral*, or *rectangle*; and the *latus rectum* of all the diameters will (as in a circle) be equal to the diameters.

Laftly, If hyperbolas be defcribed about the fame axis in divers angles of the afymptotes, the right lines perpendicular to the axis will be cut off in a given proportion by them all; and the fpaces likewife inclofed by the right lines, or ordinates, the produced axis, and the curves, will be in the fame given proportion.

10. If the diftances from the centre of the hyperbola, be taken in a geometrical proportion in one of the afymptotes, fo that CI, CII, CIII, CIV, CV, CVI, be in continued geometrical proportion: and if from thofe points there be drawn parallel to the other afymptote the lines I 1, II 2, III 3, IV 4, V 5, VI 6; the fpaces I 2, II 3, III 4, IV 5, V 6, will be equal among themfelves. And conſequently, if that afymptote CM be fuppofed to be divided, according to the proportion of numbers exceeding one another in a natural ſeries, thoſe ſpaces will be proportional to the logarithms of all thoſe numbers.

Common properties of all the CONIC *ſections*.—From the whole it may be gathered, 1. That the *conic ſections* are in themſelves a ſyſtem of regular curves, naturally allied to each other; and that one is changed into another perpetually, when it is either increaſed, or diminiſhed, *in infinitum*. Thus, the circle, the curvature thereof being ever ſo little increaſed or diminiſhed, paſſes into an ellipſis; and the ellipſis, its centre going away infinitely, and the curvature being by that means diminiſhed, is turned into a parabola; and when the curvature of the parabola is ever ſo little changed, there ariſeth the firſt of the hyperbolas; the ſpecies whereof, which are innumerable, will all of them ariſe orderly by a gradual diminution of the curvature; till the curvature vaniſhing away, the laſt hyperbola ends in a right line perpendicular to the axis. From whence it is manifeſt, that every regular curvature, like to that of a circle, from the circle itſelf to a right line, is a conical curvature, and is diſtinguiſhed with its peculiar name, according to the divers degrees of that curvature.

2. That the *latus rectum* of a circle is double to the diſtance from the vertex: that all the *latera recta* of ellipſes are in all proportions to that diſtance betwixt the double and quadruple, according to their different ſpecies: that the *latus rectum* of the parabola is juſt quadruple of that diſtance: and, laſtly, that the *latera recta* of hyperbolas are in all proportions beyond the quadruple, according to their various kinds.

3. That all diameters in a circle and ellipſis interſect one another in the centre of the figure within the ſection; that in the parabola they are all parallel amongſt themſelves, and to the axis; but that in the hyperbola they interſect one another, but this without the ſection, in the common centre of the oppoſite ſections.

4. That the curvature, with reſpect to the focus, in all theſe figures, is increaſed or diminiſhed proportionably. The doctrine of the *conic ſections* is of great uſe in phyſical and geometrical aſtronomy, and the phyſico-mathematical ſciences. This doctrine has been much cultivated by geometers ancient and modern; and we have many good treatiſes on the ſubject; but that publiſhed by Mr. Simpſon, profeſſor of Mathematics at Glaſgow, deſerves to be particularly mentioned not only for its elegance but for its geometrical accuracy, which, as he juſtly remarks in his preface, has not always been ſo well obſerved in treatiſes of this kind, as it ought to be. See alſo Gregorii a St. Vincenti Opus de Quadratura Circuli, & Sectionum Coni; Mydorgius de Sectionibus Conicis: De la Hire de Sectionibus Conicis; Trevigar Elem. Section. Con.; Hamilton's Tract. Geom. de Section. Con.; De l'Hoſpital's Anal. Treat. of Conic Sections; Muller's Treatiſe, &c.; and Halley's edition of Apollonius, &c. Oxon. 1710. fol.

To the properties of the *conic ſections* mentioned above, it may be proper to add the properties of their oſculatory circles, or circles of *curvature*. See CURVATURE.

CONIC *ſections, ſimilar*. See SIMILAR.

CONICS, that part of the higher GEOMETRY, or *geometry of* CURVES, which conſiders the cone, and the ſeveral curve lines ariſing from the ſections thereof.

CONICTHYODONTES, or *Piſtrotuitor*, in *Natural Hiſtory*, one of the three names by which the foſſil teeth of fiſh are known: ſo called, from their ſuppoſed reſemblance to the ſpur of a fighting-cock.

Though authors aſſure us that theſe are the teeth of a fiſh, the jaws having been found with thoſe bodies in them; yet they do not pretend to know to what fiſh they belong. They are generally of an oblong conic figure, broad at the baſe, and narrow at the point, where they are uſually a little crooked: they are hollowed at the root, and are from the tenth of an inch to two inches long, commonly of a chefnut colour, and are found in the ſtrata of clay, but moſt uſually in thoſe of ſtone; and are ſeen more frequently in England than in any other part of the world. Hill's Foſſils, p. 645.

CONIFERA *ſalicis facie*, in *Botany*. See *Silver* PINE-*tree*.

CONIFERA *abiegni folio*, in *Botany*. See *Sprage-leaved* PINE.

CONIFEROUS, a term applied to ſuch trees, ſhrubs, or herbs, as bear a ſquammous or ſcaly fruit, of a woody ſubſtance, and a figure approaching to that of a cone; in which there are uſually many ſeeds; and, when they are ripe, the ſeveral cells or partitions in the cone gape or open, and the ſeeds drop out. Of this kind are the fir, the pine, beech, and the like.

CONJOINT, or CONJUNCT, is applied in *Ancient Muſic*, in the ſame ſenſe as *conſonant*, to two or more ſounds heard at the ſame time. See CONSONANCE.

CONJOINT *degrees*, two notes which immediately follow each other in the order of the ſcale; as *re* and *re*.

CONJOINT *tetrachords*, are two tetrachords, where the ſame CHORD is the higheſt of the one, and the loweſt of the other.

CONIRA, in *Botany*, a name uſed by ſome authors for the *myrtilis*. Gen. Euvac. Ind. 2.

CONISALUS, in *Mythology*, a god of the Athenians mentioned by Strabo, and ſuppoſed to be the ſame with PRIAPUS.

CONISOR. See CONNISOR.

CONISSALÆ, in *Natural Hiſtory*, the name of a claſs of foſſil bodies; the word is derived from *κονιαω, pulvis*; all the ſpecies of bodies of this claſs being found like common ſand, in form of powder, have been uſually confounded together, under the common name of SANDS. The *coniſſale* are defined to be ſtones of a differently debaſed, cryſtalline, or ſparry matter, but always found in form of ſmall and diſunited particles, great numbers of which being amaſſed together, form a kind of *powder*.

Of this claſs of bodies there are two diſtinct and large genera. 1. The SANDS properly ſo called, which are compoſed of particles all appearing to have a tendency to the ſame regular figure, tranſparent, vitrifiable by a ſtrong fire, and not ſoluble in, or effervecking with acids. 2. The SABURRA, or DUST of ſtone found looſe; theſe are found in form of powder, the particles of which, in general, have no tendency to any particular figure, but appear to be rudely broken fragments of larger maſſes. Hill's Hiſt. of Foſſ. p. 543.

CONISTERIUM, in *Antiquity*, that part of the *gymnaſium* where the duſt was kept with which thoſe who had been anointed were ſprinkled. It was alſo called *coniſtra*. Potter Arch.

CONJUGATE *diameter*, or AXIS, in *Conics*, is a right line, biſecting the tranſverſe DIAMETER. See CONIC *ſection*.

CONJUGATE *axis*, of an *ellipſis*, is the ſhorter diameter, or axis, biſecting the longer, or tranſverſe axis. Such is EF, *Tab. Conics, fig.* 31.

It is demonſtrated, 1. That in an ellipſis, the *conjugate* axis is a mean proportional between the tranſverſe axis and the parameter. 2. The ſquare of the *conjugate* axis is to that of the tranſverſe, as the ſquare of the ſemidiſtinate is to the rectangle of the ſegments of the axis. 3. That a right line drawn from the focus to the extremity of the ſemi-*conjugate* axis, is equal to the tranſverſe ſemi-axis.

Hence, the *conjugate* axes being given, the FOCUS is eaſily determined; and the ellipſis thence eaſily deſcribed.

CONJUGATE *axis*, in an *hyperbola*, is a mean proportional between the tranſverſe axis and the parameter.

It is thus called becauſe the *conjugate* axis of an ellipſis has the ſame ratio. In an hyperbola, the ſquare of the *conjugate* axis is to the ſquare of the tranſverſe, as the parameter to the tranſverſe axis.

CONJUGATE *point*, in *Geometry*. See POINT.

CONJUGATE *hyperbola*. See HYPERBOLA.

CONJUGATE, in *Rhetoric*, denote words deduced from the ſame origin with that of the ſubject: e. g. *He who deceiveth, is juſt.*

CONJUGATION, in *Grammar*, an orderly diſtribution of the ſeveral parts or inflexions of verbs, in their different MOODS and TENSES, to diſtinguiſh them from each other.

The Latins have four *conjugations* diſtinguiſhed by the terminations of the infinitive, *are, ere, ere, ire*; and moſt of the French grammarians reduce the *conjugations* of their language to the ſame number, ending in *er, re, ir*, and *oir*. Some have added a fifth Latin *conjugation* called the *mixt*, becauſe it is compoſed of the third and fourth, as *accipere, accipio*.

The Greeks have three kinds of verbs; the firſt called *barytons*, becauſe the laſt ſyllable is pronounced with a grave accent; ſee BARYTONUM: ſuch are *τύπτω, τύπτω*, and *τύπτω, τύπτεις*: the ſecond are circumflex verbs, which admit a contraction in their termination, and are then marked with a circumflex accent; ſuch is *ἀγαπάω, ἀγαπῶ, ἀγαπᾷς*: the third kind comprehends the verbs in *μι*, as *ἵστημι, ἵστης*. Of the firſt ſort there are ſix *conjugations*; of the ſecond three; and of the third, four. But Meſſrs. de Port Royal reduce theſe thirteen *conjugations* to two: viz. one in *ω*, comprehending the barytons and circumflex verbs; and the other, thoſe in *μι*.

In the Hebrew language there are four *conjugations*; viz. *kal* with its paſſive *niphal pihel* with its paſſive *pyhal*, to which alſo may be referred *pohel, hiphil* with its paſſive *hophal*, and *hitpahel*. The third perſon ſingular maſculine of the firſt *conjugation* is the preterite of the theme; the ſecond *conjugation* has a *daguſh forte* in the ſecond radical; the third has the prefix letter ה and the fourth, the ſyllable הת.

In Engliſh, where the verbs have ſcarce any natural inflexions, but derive all their variations from additional particles, pronouns, &c. we have hardly any ſuch thing as ſtrict *conjugations*.

Some grammarians, however, diſtribute Engliſh verbs into three *conjugations*, or claſſes, diſtinguiſhed from one another by a peculiar formation in ſome principal part belonging to each: and they obſerve that the three different terminations of the participles, *d, t, n*, may be conſidered as the characteriſtics of the *conjugations*. Lowth's Introd. to Engliſh Grammar, p. 104. 1772. Others again diſtinguiſh them by the different inflection of the firſt tenſe to each root, and thus make four *conjugations* in the active voice: the firſt has three radicals alike; as *I do reads, I read*, i. e. yeſterday; *I have read*, i. e. juſt now. The ſecond has the firſt and third radical alike; as *I run, I ran, I have ran*. The third *conjugation* has the ſecond and third radical alike; as *I eſteem, I eſteemed, I have eſteemed*. The fourth has the three radicals different; as *I write, I wrote, I have written* or *writ*. The paſſive voice, being made up of the third radical and the auxiliary verb *am*, admits of no difference of *conjugations*. Ward Eſſay's on the Engliſh Language, p. 87.

CONJUGATION, in *Anatomy*, is underſtood of a pair of nerves; or two nerves, aſſiſting together, and ſerving for the ſame operation, ſenſation, or motion; there being ſcarce any NERVE in the body without its fellow.

The ancient phyſicians only knew of ſeven pairs, or *conjugations* of nerves; the moderns have diſcovered thirty new ones.

CONIUM. See HEMLOCK.

CONJUNCT. See CONJOINT.

CONJUNCT *of an arch*. See SUPPLEMENT.

CONJUNCT *ſentence*. See SENTENCE.

CONJUNCTION, in *Aſtronomy*, the meeting of two ſtars, or planets, in the ſame optical point of the heavens, i. e. in the ſame degree of the zodiac; and is either *true* or *apparent*.

If the two bodies meet both in the ſame degree of longitude and latitude, a right line drawn through the centre of the earth through the centre of one of them, paſſes through that of the other; and the *conjunction* is ſaid to be *true* and *central*: and if the lower hides the upper, the *conjunction* is ſaid to be *corporal*.

If the line paſs wide of the centre of the earth, the *conjunction* is ſaid to be *partile*.

If the bodies do not meet preciſely in the ſame degree, but are joined with ſome latitude, the *conjunction* is ſaid to be *apparent*. Thus, when a right line, ſuppoſed to be drawn through the centres of two planets, does not paſs through the centre of the earth, but through the eye of the ſpectator; it is ſaid to be an *apparent conjunction*.

Conjunctions are alſo divided into *great* and *greateſt*: *great conjunctions* are thoſe which only happen at conſiderable diſtances of time from each other: as that of Saturn and Jupiter, which happens every twenty years.

Greateſt conjunctions are thoſe which happen in times very remote; as the *conjunction* of the three ſuperior planets, Mars, Jupiter, and Saturn, which only return once in five hundred years. But this diviſion has little place in aſtronomy; being founded on the notion of the particular influences, &c. of the heavenly bodies in ſuch and ſuch aſpects.

Aſtrologers maintain, that the deluge was owing to a *conjunction* of all the planets in Capricorn; and that the conflagration will be occaſioned by their *conjunction* in Cancer: whence they preſume to foretel the end of the world.

The *conjunction* is the firſt, or the principal, of all the aſpects; and that whence the other aſpects *commence*, as oppoſition is the laſt, where they terminate. See CHARACTER.

The moon is in *conjunction* with the ſun every MONTH.

Her *conjunctions* and oppoſitions are called by a general name, *ſyzygies*.

Eclipſes of the ſun never happen, but when there is a *conjunction* of the ſun and moon in or near the nodes of the ecliptic.

CONJUNCTION, in *Grammar*, a particle which expreſſes a relation or dependence between words, and phraſes; thus called, becauſe ſerving to join or connect the parts or members of a diſcourſe: or, as Mr. Harris defines it, a *conjunction* is a part of ſpeech, void of ſignification itſelf, but ſo formed as to help ſignification, by making two or more ſignificant ſentences to be *one* ſignificant ſentence; and he diſtributes them into ſuch as connect ſentences and their meaning, and ſuch as conjoin the ſentences whilſt they diſjoin the ſenſe. The former are *conjunctive*, and are either *copulative* or *continuative*; and the latter *disjunctive*, ſome of which are ſimple, as, *either* it is day, *or* it is night, and ADVERSATIVE, as, it is not day *but* it is night. Hermes, p. 240, &c.

The *conjunction* is the ſixth of the eight vulgar parts of ſpeech.

Conjunctions render the diſcourſe more ſmooth and fluent; and ſerve very good purpoſes in the argumentative, and narrative ſtyle; but they muſt ever be omitted where a perſon ſpeaks with emotion, as only ſerving to weaken and enervate it. Bullen obſerves, that nothing gives more warmth and life to a diſcourſe, than to drop the *conjunctions* or copulatives: a paſſion, adds he, embarraſſed with *conjunctions*, and uſeleſs particles, loſes all the fire and vehemence it would acquire in its progreſs.

Conjunctions are of various kinds.

CONJUNCTIONS, *copulative, or conjunctive*, are thoſe which expreſs a relation of union or compariſon between things: as, *and, only, as much as, in the ſame manner as, neither more nor leſs, inaſmuch as, not only, but alſo*.

CONJUNCTIONS *adverſative*, thoſe which expreſs a reflection, or contrariety: as, *but, nevertheleſs, although, far from*.

CONJUNCTIONS *cauſal*, thoſe which ſhew, that the reaſon of ſomething is brought: as, *for, becauſe, ſeeing, for rather ſays, inaſmuch as*.

CONJUNCTIONS *concluſive*, thoſe which denote a conſequence drawn: as, *for which reaſon, but then, of conſequence, ſo that*, &c.

CONJUNCTIONS *conditional*, are thoſe which import a condition, as *if, if not, on condition that, provided that*, is *caſe of*.

CONJUNCTIONS *continuative*, thoſe which expreſs a ſucceſſion, or continuation of the diſcourſe: as, *in effect, even, whatever it be*.

CONJUNCTIONS *diſjunctive*, thoſe which expreſs a relation of ſeparation or diviſion: as, *neither, whether, or*.

CONJUNCTIONS *dubitative*, thoſe which expreſs ſome doubt, or ſuſpenſion of opinion: as, *if, that is to ſay*, &c.

CONJUNCTIONS *exceptive*, are, *if it be not, unleſs that*, &c.

CONJUNCTIVA, *tunica, adnata, or albuginea*, in *Anatomy*. See ADNATA.

CONJURATI *fratres*. See FRATRES.

CONJURATION, ſignifies a plot or conſederacy, made by perſons combining together by oath or promiſe, to do ſome public harm.

But it was more particularly uſed, formerly, for having a perſonal converſe with the devil, or ſome evil ſpirit, to know any ſecret, or to effect any purpoſe. Anno 5 Eliz. c. 16.

It is ſaid in ſome of our law-books, that the difference between *conjuration* and *witchcraft* is, that the former endeavours by prayers and invocation of God's powerful name, to compel the devil to ſay or to do what the offender commands him; the latter deals rather by friendly and voluntary converſence or agreement with the devil or familiar, to have the offender's deſires ſerved, in lieu of blood, or other gift offered to the devil, eſpecially of the offender's ſoul. And both theſe differ from *inchantment* or *ſorcerie*; becauſe thoſe are perſonal converſences with the devil, and theſe are but medicines and ceremonious

forms of words (commonly called *charms*) without apparition. Cowel.

The statute of king James I. against *conjuration* and witchcraft, is repealed; and no profecution fhall be commenced on the fame: but where perfons pretend to exercife any kind of witchcraft or *conjuration*, &c. or undertake to tell fortunes, or, from their fkill in any crafty fcience, to difcover where goods ftolen or loft may be found; upon conviction they fhall be imprifoned a year, and ftand in the pillory once in every quarter, in fome market town, and may be ordered to give fecurity for their good behaviour, by ftat. 9 Geo. II. c. 5.

CONN, in *Sea-Language*. See COND.

CONNA, in *Botany*, a name ufed by fome authors for the tree which produces the *caffia fiftula* ufed in medicine. Hort. Manur. vol. i. p. 37.

CONNARUS, in the *Materia Medica*, a name given by fome authors to a large fpecies of jujube. Ger. Emac. Ind. 2. In the Linnæan fyftem, it is a genus of the *monadelphia decandria* claſs; the characters of which are, that it is monogynous, with a fimple ſtigma, and that it has a capſule with two valves, a ſingle cell and one ſeed. There is only one ſpecies.

CONNATA *folia*, among *Botaniſts*. See LEAF.

CONNECTING *oil*. See OIL.

CONNECTION, or CONNEXION, a relation whereby one thing adheres to, or depends on another.

Euclid's propoſitions have ſuch a *connection* among themſelves, that the latter cannot ſubſiſt without the former.

CONNECTION, or *continuity*, in the *Drama*, conſiſts in the joining of the ſeveral ſcenes together.

When the ſcenes of an act ſucceed one another immediately, and are ſo joined as that the ſtage is never left empty, the *connection* is ſaid to be obſerved.

CONNECTIVES, in *Grammar*, one of the four ſpecies under which, according to Mr. Harris, all WORDS may be included. They are of two kinds, and as they connect ſentences or words are called by the different names of CONJUNCTIONS and PREPOSITIONS. Hermes, p. 31, and 237.

CONNER. ALE-CONNER. See ALE-CONNER.

CONNIVENTES *valvulæ*, in *Anatomy*, wrinkles, or corrugations in the inner coat, or membrane, of the two large inteſtines, the *jejunum* and *ileum*.

They are formed as the *rugæ* of the ſtomach, viz. by the inner coat's being larger than the outer.

Theſe folds, or corrugations, ſome anatomiſts imagine in ſome meaſure to do the office of valves; by ſtrengthening the paſſages, and conſequently impeding the motion of their contents: by which means the LACTEALS have the more time to imbibe the CHYLE. See DIGESTION.

CONNOISSEUR, a French term, of late uſed in England: it literally denotes a perſon well verſed in any thing; being formed of the verb *connoitre, to know, underſtand*. Hence it comes to be uſed in our language for a critic, or a perſon who is a thorough judge or maſter in any way; particularly in matters of painting and ſculpture.

CONNAUGHT *worm*. See WORM.

CONOCARPODENDRON. See PINE-*tree*.

CONOCARPUS, in *Botany*. See BUTTON-*tree*.

CONOID, CONOIDES, in *Geometry*, a ſolid body, reſembling a cone, except in this, that, inſtead of a perfect circle for its baſe, it has an ellipſis, or ſome other curve approaching thereto.

The *conoid* is produced by the entire circumvolution of a conic ſection round its axis; and according to the denomination of the ſection from whence it is generated, it is differently denominated: if, v. gr. the ſolid be produced by the motion of a parabola, it is called a *parabolic conoid*; if by that of an hyperbola, an *hyperbolic conoid*; and an *elliptic conoid*, or a *ſpheroid*, when produced by the rotation of an ellipſis round one of its axes.

The famous ſolid of the leaſt reſiſtance, Sir Iſaac Newton, M. Fatio, and the Marquis De l'Hopital, have demonſtrated to be a *conoid*.

CONOIDES, or CONARIUM. See CONARION.

CONONITES, in *Eccleſiaſtical Hiſtory*, the followers of Conon of Alexandria in the ſixth century, reſembling in their opinions the SEVERIANS, THEODOSIANS, and TRITHEITES.

CONOPEUM, in *Antiquity*, a ſort of net-work, made to keep away flies; it comes from κωνωψ, a *fly*.

CONORS, in *Natural Hiſtory*, a genus of the *diptera* order of inſects, with an extended, jointed roſtrum; including thirteen ſpecies.

CONQUASSATION, in *Pharmacy*, a ſpecies of comminution, or a particular operation, by which moiſt concreted ſubſtances, ſuch as recent vegetables, their fruits, lactefcent ſeeds, and the ſofter parts of animals, are contuſed and agitated in a mortar, until partly by their proper ſucculence, or the affuſion of ſome liquor, they are reduced to a ſoft pulp. Metalline inſtruments are not to be uſed for this purpoſe; becauſe not only the manifeſt, but alſo the latent falts of the ſubſtances, ſubjected to this operation, acting on the inſtruments, may derive an adventitious virulent quality from them, which will not only render ſuch ſubſtances unfit for the intended purpoſes, but alſo naufeous and hurtful when exhibited as medicines. James.

CONQUEST, in *Civil Juriſprudence*, is the acquiſition of property in common by a number of perſons.

In ſome countries they confound acquiſition with *conqueſt*; but, according to the moſt general acceptation, acquiſition is the gaining of unappropriated goods before the eſtabliſhment of a community; whereas by the term *conqueſt*, it ordinarily intended whatever is acquired by a number of perſons in community, or by ſome one for all the others.

As it is more eſpecially in the union of perſons by marriage, that a community of property takes place; it is in reference to them that we frequently uſe the word *conqueſt*. There are nevertheleſs *conqueſts* alſo among other perſons who are in a tacit community or ſociety; ſuch as obtain by particular local cuſtoms. Encycl.

According to this ſenſe of the word, it has been contended by ſeveral, that William I. claimed this kingdom; that is, not by right of arms, but by right of *conqueſt* or acquiſt; under promiſe of ſucceſſion made by Edward the Confeſſor, and a contract entered into by Harold to ſupport his pretenſions to that ſucceſſion; and by old writers, *conqueſtus, acquiſitus*, and *perquiſitus*, are frequently uſed as ſynonymous terms. Blackſt. Comm. vol. i. p. 199. and vol. ii. p. 243.

CONQUEST, in the *Law of Nations*, is the acquiſition of ſovereignty by force of arms, by ſome foreign prince; who reduces the vanquiſhed under his empire. The right of *conqueſt* is derived from the laws of *war*; and when a people is ſubjected, the conduct of the conqueror is regulated by four kinds of law. Firſt, the law of nature, which dictates whatever tends to ſelf-preſervation; ſecondly, our *reaſon*, which teaches us to uſe others, as we would be treated ourſelves; thirdly, the laws of political ſociety, to which nature has not aſſigned any preciſe boundary; laſtly, the law which is derived from the particular circumſtances attending the *conqueſt*.

Thus, a ſtate conquered by another, will be treated in one of the four methods following. Either the conqueror will continue it under its own laws, and will only claim the exerciſe of civil and eccleſiaſtical ſovereignty; or he will impoſe a new form of government; or he will deſtroy the frame of their ſociety, and incorporate the inhabitants with others; or he will exterminate them. Encycl.

CONSANGUINITY, the relation of kinſhip, between perſons of the ſame blood, or ſprung from the ſame root. It is either *lineal*, when it ſubſiſts between perſons, of whom one is deſcended, in a direct line from the other; or *collateral*, when relations deſcend from the ſame anceſtor, but do not deſcend from each other. It is eaſy to compute, by the rules of progreſſion, how many lineal anceſtors any man has within a certain number of degrees. Thus, it would appear that a perſon, at the 20th degree, or the diſtance of 20 generations, hath above a million of anceſtors: and if a ſimilar calculation be made of collateral kindred at the diſtance of 20 degrees forward, on the ſuppoſition that each couple of anceſtors leave, one with another, two children, the number will be 2748779069 44: as in the following table.

Lineal Degrees.	Number of Anceſtors
1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024
11	2048
12	4096
13	8192
14	16384
15	32768
16	65536
17	131072
18	262144
19	524288
20	1048576

Collateral

Collateral Degrees.	Number of Kindred.
1	1
2	4
3	16
4	64
5	256
6	1024
7	4096
8	16384
9	65536
10	262144
11	1048576
12	4194304
13	16777216
14	67108864
15	268435456
16	1073741824
17	4294967296
18	17179869184
19	274877906944

Blackstone's Commentaries, vol. ii. p. 204, 206.

Marriage is prohibited by the church to the fourth DEGREE of *conſanguinity*, inclusive; but, by the law of nature, *conſanguinity* is no obſtacle to marriage, except it be in the direct line.

Conſanguinity terminates in the ſixth and ſeventh degree, excepting in the ſucceſſion to the crown; in which caſe, *conſanguinity* is continued to infinity.

The civilians call *fratres conſanguinei*, thoſe born of the ſame father; in oppoſition to *fratres uterini*, who are only born of the ſame mother.

According to the common opinion, thoſe were not allowed to complain of an inofficious teſtament, i. e. of being diſinherited without a cauſe, excepting from the turpitude of the perſon appointed heir in their place. But Van Warter endeavours to ſhew the contrary; and urges, that the *conſanguinei* might plead inofficioſity, even where the teſtament was not made in favour of a perſon incapable. See KINDRED.

CONSCIENCE, CONSCIOUSNESS, in *Ethics*, a ſecret teſtimony or judgment of the ſoul, whereby it gives its approbation to things it does that are naturally good; and reprobates itſelf for thoſe that are evil.

Or, *conſcience* is a dictate of the underſtanding power, concerning moral actions; conſidered as it has the knowledge of laws; and conſequently as conſcious of what is to be done, or not done, with regard to the legiſlator.

In the more popular ſenſe of the word, *conſcience* is a judgment, either true or falſe, whereby we pronounce a thing good or evil. This makes what we call the inner *forum*, or tribunal.

Some divines maintain, that *conſcience* is infallible; and hold it to be that immutable law whereby God will judge men: they deny that the underſtanding can be the ſource of errors, and lay them all at the door of the will. A man, ſay they, may ſecure himſelf from error, by forbearing to judge of things till he hath a clear and diſtinct perception of them.

Some of the ſchoolmen diſtinguiſh between the *conſcience* antecedent to an action, and that conſequent to it: the firſt, called *antecedent conſcience*, determines what is good, and what evil; and conſequently preſcribes what is to be done, and what avoided.

Conſequent conſcience is a kind of ſecondary or reflex judgment, with regard to the goodneſs, &c. of things already done or committed.

The *rule of conſcience* is the will of God, ſo far as it is made known to us, either by the light of nature, or by that of revelation.

With reſpect to the knowledge of this rule, *conſcience* is ſaid to be *rightly informed*, or *miſtaken*, *firm*, or *wavering*, or *ſcrupulous*, &c. With reſpect to the conformity of our actions to this rule when known, *conſcience* is ſaid to be *good*, or *evil*, &c.

Philoſophers, in lieu of the word *conſcience*, which ſeems appropriated to theological matters, ordinarily uſe that of *conſciouſneſs*; whereby they mean an inner ſentiment of a thing, whereof one may have a clear and diſtinct notion. In this ſenſe, they ſay, that we do not know our own ſoul, nor are aſſured of the exiſtence of our own thoughts, otherwiſe than by *ſelf-conſciouſneſs*.

CONSCIENCE, *court of*. See COURT.

CONSCRIPT, CONSCRIPTUS, a popular term in the *Roman Hiſtory*, uſed in ſpeaking of ſenators, who were called *conſcript* fathers, *patres conſcripti*; becauſe their names were written in the regiſter, or catalogue of the ſenate.

Livy, lib. i. cap. 1. tells us, that when Brutus filled up the places of the ſenators cut off by Tarquin, with others choſen out of the equeſtrian order, thoſe new ſenators only had the appellation given them of *patres conſcripti*. But it is certain, that in after-times, all the ſenators were called *patres conſcripti* without any diſtinction.

CONSECRATION, the act of converting, or ſetting apart any profane, or common thing, to a pious purpoſe; with certain ceremonies, prayers, benedictions, &c. appropriate thereto.

Conſecration is the reverſe of ſacrilege and profanation, which conſiſt in perverting a thing ſet apart for a pious purpoſe, to a profane and popular one.

The biſhop *conſecrates* a church, or a chalice; the pope *conſecrates* medals, agnus dei's, &c. and grants indulgences to thoſe who bear them about them with devotion.

The *conſecration* or dedication of a church is an epiſcopal ceremony, conſiſting in a great number of benedictions, with aſperſions and unctions of chriſm, &c. on the walls, both within-ſide and without. The form for *conſecrating* churches, chapels, and church-yards, or places of burials, in England, may be ſeen in Wilkins's Concilia Magnæ Britanniæ, &c. vol. iv. p. 668. It directs that the biſhop and clergy, of whom there are to be at leaſt two, ſhall enter the church or chapel in their ſeveral habits, and, as they walk up from the weſt to the eaſt end, repeat alternately the 24th Pſalm; the biſhop beginning, "The earth is the Lord's," &c. with the "Gloria Patri." When they are come to the Lord's table, the biſhop ſitting in his chair ſhall have the inſtrument of dedication, donation, and endowment of the church or chapel, church-yard, or burial place, preſented to him by the founder, or ſome proper perſon, which he ſhall cauſe to be read by his regiſter or other officer; and then the inſtrument ſhall be laid on the table, and he ſhall ſtand on the north ſide of it, and turning to the congregation, deliver an addreſs to them, which is followed by ſuitable prayers. One of the prieſts then reads the ſervice of the day, introducing proper pſalms and leſſons: after which the biſhop proceeds to the communion ſervice, and inſtead of the collect of the day, uſes one proper to the occaſion. When the Epiſtle and Goſpel are read, they are ſucceeded by the Nicene creed and the ſermon; and then the biſhop is to proceed with the ſervice of the communion. When the ſervice in the church is finiſhed, the biſhop and clergy with the people ſhall go into the church-yard, and make uſe of a prayer for the occaſion. See ubi ſupra.

The cuſtom of *conſecrating* perſons, temples, altars, veſtments, utenſils, &c. is very ancient; and all the ceremonies thereof are preſcribed under the old law. When thoſe *conſecrations* relate to men, they are properly called *ordinations*; excepting thoſe performed to BISHOPS and KINGS, which ſtill retain the name of *conſecration*. Thoſe which only conſiſt in a ceremony inſtituted by the church, are more properly called *benedictions*. When they regard churches, altars, veſſels, &c. they are properly called *dedication*.

CONSECRATION is particularly uſed for the benediction of the elements in the euchariſt.

The Romaniſts define it, the converſion of the bread and wine into the real body and blood of Jeſus Chriſt: and that this is the ſentiment of their church, is evident from the prieſt's elevating the hoſt immediately after *conſecration*, for the people to adore it. See ELEVATION, &c. There is a great controverſy between the Latin and Greek churches, touching the words of *conſecration*: the common opinion among the Romaniſts, agreeable to St. Thomas and the ſchoolmen, is, that the *conſecration* of the bread and wine conſiſts in theſe words, *This is my body*; *this is my blood*. The Greeks, on the contrary, attribute the change of the elements to a certain prayer, which they call the *invocation of the Holy Ghoſt*, reheaſed after the words *This is my body*; *this is my blood*: which the Greeks maintain are only neceſſary in the proceſs of the *conſecration*, as they contain the hiſtory of the inſtitution, not as they conſtitute any thing in the change.

CONSECRATION, among *Medaliſts*, is the ceremony of the APOTHEOSIS of an emperor; or his tranſlation into heaven, and reception among the gods.

On medals, the *conſecration* is thus repreſented: on one ſide is the emperor's head, crowned with laurel, ſometimes veiled; and the inſcription gives him the title of *divus*; on the reverſe is the temple, a baſſum, an altar, or an eagle taking its flight towards heaven, either from off the altar, or from a cippus: at other times the emperor is ſeen in the air, borne up by the eagle; the inſcription always, CONSECRATIO.

Theſe are the uſual ſymbols: yet on the reverſe of that of Antonius, is the Antonius column. In the apotheoſis of empreſſes, inſtead of an eagle there is a peacock. As to the honours rendered theſe princes after death, they were explained by the words *conſecratio*, *pater*, *divus*, and *deus*. Sometimes around the temple or altar are put, *memoria felix*, or *memoria æterna*: for princeſſes, *æternitas*,

internitat, and *fibrosus recepta*; on the side of the head, *&c.* or *&c.*

CONSECTARY, a propofition that follows, or is deduced from fome preceding definition, lemmata, axioms, conclufions, or the like. Some rather choofe to call it a *conſequence*; and others a *corollary*, *&c.*

CONSECUTIVELY, CONSECUTIVE, in the *Schoal Philoſophy*, is fometimes ufed in oppofition to *antecedently*, and fometimes to *effentially*, or *cauſally*.

Thus, fay the fchoolmen, the corruption of one thing is the generation of another, not *effentially*, but *conſecutively*: that is, fome matter cannot be without form, it is neceffary, that the generation of one thing follow upon the corruption of another.

CONSENT *of parts*, in the *Animal Oeconomy*, a certain agreement, or fympathy, by means whereof, when one part is immediately affected, another, at a diftance, becomes affected in like manner.

This mutual accord, or *conſent*, is doubtlefs effected by the commerce of the nerves, and their artful diftribution and ramification throughout the body.

The effect is fo fenfible, as even to come under the phyfician's cognizance: thus, the ftone in the bladder, by rellicating the fibres there, will pain and draw them fo much into fpafms, as to affect the coats of the bowels in the fame manner, by the intermediation of nervous threads, and make a colic there; and alfo extend their twitches fometimes as far as the ftomach, and occafion grievous vomitings: the remedy, therefore, in fuch cafes, is to regard the part originally affected, how remote and grievous foever may be the conſequences and fymptoms in other places.

The fifth conjugation of nerves branched to the parts of the eye, the ear, thofe of the mouth, cheeks, præcordia, and parts adjacent, *&c.* is fuppofed by naturalifts to be the inftrument of that particular and extraordinary *conſent* between thofe parts. Hence it is, that a favoury thing feen or fmelled excites the appetite, and affects the glands and parts of the mouth; that a fhameful thing feen or heard affects the cheeks with bluthes; on the contrary, if it pleafe, it affects the præcordia, and excites the mufcles of the mouth and face to laughter; if it grieve, it affects the glands of the eyes, fo as to occafion tears, and the mufcles of the face, putting them into an affect of crying.

Dr. Willis, quoted by Mr. Derham, imputes the pleafure of killing, and its effects, to this pair of nerves; which being branched both to the lips and the genital parts, when the former are affected, an irritation is occafioned in the latter. See SYMPATHY.

CONSENTES, in *Mythology*, derived from the old Latin *enſio*, *to conſult*, denote twelve fuperior deities among the Romans, who were apprehended to belong to the council of Jupiter. Thefe were Jupiter, Neptune, Mars, Apollo, Mercury, Vulcan; and Juno, Vefta, Minerva, Diana, Ceres, and Venus. Varro mentions twelve other deities under the fame denomination, who fuperintended agriculture. Lib. i. De Re Ruſtica.

Thefe *conſentes* had a temple at Pifa in Italy.

CONSENTIA were feafts inſtituted in honour of thefe deities.

CONSEQUENCE, in *Logic*, the conclufion of a reafoning, or argument.

The two premifes of a fyllogifm being granted, the *conſequence* muft alfo be granted.

In a more reſtrained fignification, *conſequence* is ufed for the relation or connection between two propofitions, whereof one follows, or is inferred, from the other.—

Thus: *It is an animal, and therefore feels.*

CONSEQUENT, the laft propofition of an argument; being fomething deduced or gathered from a preceding argumentation. An enthymeme only contains two propofitions, the *antecedent* and *conſequent*: if the *antecedent* be abfurd, the *conſequent* muft be fo too.

CONSEQUENT, in a more precife fenfe, is ufed for the propofition which contains the conclufion, conſidered in itſelf, and without any regard to the *antecedent*: in which fenfe, the *conſequent* may be true, though the *conſequence* be falfe.

CONSEQUENT *of a ratio*, in *Arithmetic*, the latter of the two terms of a RATIO; or that to which the antecedent is referred. See PROPORTION.

Thus, in *a*: *b*, or *a* to *b*, *b* is the *conſequent*, *a* the antecedent.

CONSEQUENTS, in *Rhetoric*, are alfo ufed to fignify fuch things, as being allowed, neceffarily, or very probably, infer their antecedents. Thus with reſpect to a fubftance, it is corruptible, and therefore material.

CONSEQUENTE, CONSEQUENZA, or *in* CONSEQUENZA, in the *Italian Muſic*. A part of a *fugue*, or *canon*, is faid to be *in conſequenza*, when it follows the firft part called the *guide*, imitating its motions, notes, and figures. Broſ. Dict. Muſ. in voc.

CONSEQUENTIA, in *Aſtronomy*, is oppofed to ANTECEDENTIA; and a motion *in conſequentia* is a motion in the order of the figns of the zodiac.

CONSERVATIVE *future*. See FUTURE.

CONSERVATOR, an officer eſtabliſhed for the fecurity and preſervation of the privileges granted fome cities and communities; or, a perfon who has a commiſſion to judge of, and decide, the differences arifing among them.

In moft catholic univerſities, there are two *conſervators*; the *conſervator* of royal privileges, or thofe granted by kings; and the *conſervator* of apoſtolical privileges, or thofe granted by the pope.

The firſt takes cognizance of perſonal and mixed cauſes between the regents, ſtudents, *&c.* and the latter of ſpiritual matters between eccleſiaſtics.

Anciently there were appointed *conſervators* of treaties of peace between princes; which *conſervators* became judges of the infractions made on a treaty, and were charged with procuring ſatisfaction to be made. Thefe were uſually the feudatories of the ſeveral powers.

In lieu of *conſervators*, princes now have recourſe to other indifferent princes to guarantee their treaties. See GUARANTY.

CONSERVATOR *of the peace*, in our *Ancient Conſtitutions*, was a perſon who had an especial charge, by virtue of his office, to fee the king's peace kept.

Till the erection of JUSTICES of the peace by king Edward III. there were ſeveral perſons who by common law were intereſted in keeping the fame: fome having that charge as incident to other offices; and others ſimply, or of itſelf, called *conſtables*, or *conſervators of the peace*.

The chamberlain of Cheſter is ſtill *conſervator* in that county; and petty conſtables are, by the common law, *conſervators*, *&c.* in the firſt ſenſe, within their own juriſdiction: ſo are alſo the coroner and the ſheriff within their own county. The king is the principal *conſervator* of the peace within all his dominions: the lord chancellor, lord treaſurer, lord high ſteward, lord marſhal, lord high conſtable, all the juſtices of the court of king's bench, by their office, and the maſter of the rolls, by preſcription, are general *conſervators* of the peace through the whole kingdom, and may commit breakers of the peace, and bind them in recognizances to keep it.

CONSERVATOR *of the truce, and ſafe conduct*; *conſervator induciarum, & ſalvorum regis conductuum*, was an officer appointed in every ſea-port, under the king's letters patent. His charge was to enquire of all offences committed againſt the king's truce, and ſafe conducts upon the main ſea, out of the franchiſes of the cinque-ports, as the admirals were wont to do, and ſuch other things as are declared anno 3 Hen. V. cap. 6. See alſo ſtat. 4 Hen. V. cap. 7.

CONSERVATORIOS are muſical ſchools eſtabliſhed for the inſtruction of children in the profeſſion of muſic. There are four of theſe at Venice, deſigned for the education of girls, and three at Naples, for the education of boys. It has been ſuggeſted that the operation of caſtration was performed in the *conſervatorios*; but the practice is abſolutely prohibited; and the young caſtrati are brought from Lucia in Puglia: but before the operation is performed, their voices are tried in a *conſervatorio*. The ſcholars of the Venetian *conſervatorios* have been chiefly celebrated for taſte, and neatneſs of execution; and thoſe of Naples have had the reputation of being the firſt *contrapuntiſts*, or compoſers, in Europe.

CONSERVATORY is ſometimes uſed for a place to preſerve SNOW and ICE. See Phil. Tranſ. N° 8. p. 140. See ICE-*Houſe*.

CONSERVE, in *Pharmacy*, a dry confect, or form of medicine, or food, contrived to preſerve the flowers, leaves, roots, peels, or fruits of ſeveral ſimples, as near as poſſible to what they were when freſh gathered; and to give them an agreeable taſte.

Phyſicians, under the name of *conſerves*, commonly comprehend all kinds of confects of flowers, fruits, roots, ſeeds, barks, *&c.* both liquid and dry.

Conſerves are made by beating up the thing to be preſerved with ſugar; viz. a triple quantity thereof to thoſe which are moſt moiſt and corruptible, and a double quantity to ſuch as are leaſt ſo.

Thus, e. gr. to make *conſerve* of roſes, roſemary-flowers, ſage-flowers, or the like; they pound them in a ſtone mortar, and when pounded, put to them fine ſugar, and beat the whole well together. For fruits, as currants, *&c.* they ſet them on the fire to make them yield their juice, then drain and ſtrain them, and thicken what comes from them over the fire, and add to it the ſugar. This laſt ſort of *conſerve* is particularly called a jelly.

CONSIDERATIO *curiæ*, in *Law*, denotes the judgment of the court.

CONSIDERATION, in *Law*, the material cauſe, or *quid pro quo* of any contract, and without which no contract is obligatory or binding.

This *consideration* is either *expressed*; as if a man bargain to give ten guineas for a horse: or *implied*, when the law itself enforces a *consideration*; as if a man coming into an inn, take meat, drink, and lodging for himself and horse, the law presumes he intends to pay for them, though there be no express contract between him and his host; and if he discharge not the house, the host may stop his horse.

There is also a *consideration* of nature and blood; and valuable *consideration* in deeds and conveyances.

Considerations of natural love, affection, marriage, &c. are good to raise uses to a man's family; if the uses are limited to a stranger, then it must be for valuable *consideration*, not for love, affection, &c. 1 Inst. 273. 3 Rep. 176.

CONSIGNMENT, or CONSIGNATION, the depositing any sum of money, bills, papers, or commodities, in sure hands; either by order of a court of justice, in order to their being delivered to the persons to whom they are adjudged; or voluntarily, in order to their being remitted to the persons they belong to, or sent to the places they are destined for.

CONSIGNMENT *of goods*, is the delivering or making them over to another.—Thus, goods are said to be *consigned* to a FACTOR, when they are sent to him to be sold, &c. or when a factor sends goods back to his principal, they are said to be *consigned* to him.

CONSILIUM, *diei consilii*, in *Law*, was a time allowed for one accused to make his defence, and to answer the charge of the accuser. It is now used for a speedy day appointed to argue a demurrer; which the court grants after a demurrer joined on reading the record of the cause. See EMPARLANCE.

CONSIMILI *Casu*. See CASU.

CONSISTENCE, a state of rest, wherein things capable of growth, or decrease, continue for some time at a stand, without either.

This term is particularly used with regard to trees, for the time, or age, beyond which they do not grow, and yet at which they do not decline.

Thus we distinguish three states or stages of a tree; its growth, *consistence*, and return: and these are common to all trees, even fruit trees.

The *consistence* of an oak is from fifty to an hundred and sixty years: some, however, hold that their *consistence* only commences from a hundred years; asserting that they grow till that time, and that they continue in that state of perfection to two hundred years of age.

CONSISTENCY, in *Physics*, is that state of a body wherein its component particles are so connected, or entangled among themselves, as not to separate or recede from each other.

Consistence only differs from *continuity* in this, that *consistence* implies a regard to motion or rest, which continuity does not; it being sufficient to denominate a thing *continuous*, that its parts are contiguous to each other.

When used relative to a disease, it imports the *series* or *acme* thereof: when applied to the humours, excrements, or excretions, it imports their state as to thickness or thinness.

CONSISTENCE is particularly used with regard to bodies considered as they are more soft, or more hard, more liquid, or more dry.

Forms of medicines, as electuaries, lambatives, boluses, syrups, unguents, &c. differ chiefly in *consistence*.

Not only the gratefulness, but also the operation of medicines, depend in some measure on their *consistence*; for medicines of a thick *consistence* are taken into the stomach, and penetrate into the body with greater difficulty, than such as are thin and liquid; and it requires more trouble to swallow a thick than a thin medicine; for this reason thick medicines are generally nauseous and ungrateful; and this is the reason why cathartic boluses are often dissolved in some agreeable liquor, since in this form they are more grateful than to any other: for this reason also ointments are generally clarified by whites of eggs, or a strainer.

On the contrary, a thick *consistence* is on some occasions more to be desired: in ulcers of the aspera arteria, and œsophagus, for instance, where we must give medicines made up with gum tragacanth, or other substances of a like nature, which by their viscidity fix the medicines, as it were longer to be affected.

CONSISTENT *Bodies*, is a term much used by Mr. Boyle for such as we ordinarily call *firm*, or *fixt bodies*; in opposition to *fluid* ones.

That author has a particular essay of the *atmosphere of consistent bodies*; wherein he shews, that all, even solid, hard, ponderous, and fixed bodies, do exhale or emit effluvia to a certain space all around them.

CONSISTENTES, in *Church History*, a kind of penitents, who were allowed to assist at prayers, but could not be admitted to receive the sacrament.

CONSISTORIAL *Advocate*. See ADVOCATE.

CONSISTORY, or *Roman* CONSISTORY, denotes the college of CARDINALS; or the pope's senate, and council, before whom judiciary causes are pleaded.

Du-Cange derives the word from *consistorium*; i. e. *locus ubi consistitur*; used chiefly for a vestible, gallery, or antechamber, where the courtiers wait for admission; and called *à consistente multitudine*.

The *consistory* is the first court or tribunal of Rome: it never meets but when the pope pleases to convoke it: the pope presides in it in person, mounted on a magnificent throne, and habited in his *pontificalia*; on the right are the cardinal-bishops and priests, and on the left the cardinal deacons.

The place where it is held, is a large hall in the apostolical palace, where princes and ambassadors of kings are received. The other prelates, protonotaries, auditors of the rota, and other officers, are seated on the steps of the throne; the courtiers sit on the ground; ambassadors on the right, and *consistorial* and fiscal advocates behind the cardinals.

Besides the public *consistory*, there is also a private one, held in a retired chamber, called the chamber of *papagay*; the pope's throne here being only raised two steps high.

Nobody is here admitted but the cardinals, whose opinions are collected, and called *secretes*. Here are first proposed and passed all bulls for bishopricks, abbeys, &c. Hence bishopricks, and abbeys, are said to be *consistorial benefices*; in regard, they must be proposed in the *consistory*, the annates be paid to the pope, and his bulls taken.

Anciently they were elective; but by the concordat, which abolishes elections, they are appointed to be collated by the pope alone, on the nomination of the prince.

CONSISTORY was also the name of a COURT under Constantine, where he sat in person, and heard causes; the members of this court were called *comites*.

CONSISTORY is also used, among the reformed, for a council or assembly of ministers and elders, to regulate their affairs, discipline, &c.

CONSISTORY, or *Court Christian*, in the *English Laws*, is a council of ecclesiastical persons, or the place of justice in an ecclesiastical or spiritual court.

Every archbishop and bishop has a *consistory-court*, held before his chancellor or commissary, either in his cathedral, in some chapel, aisle, or portico, belonging thereto; or in some other convenient place of his diocese, for ecclesiastical causes. The spiritual court was anciently, in the time of the Saxons, joined with the county or hundred court; and the original of the *consistory* court, as divided from those courts, is found in a law of the Conqueror, quoted by lord Coke.

From this court there lies an appeal to the archbishop of each province respectively.

CONSOLATION, one of the places in *Rhetoric*, wherein the orator endeavours to abate and moderate the grief or concern of another.

In *consolation*, a principal regard is to be had to the circumstances and relations of the parties. Scaliger considers this exceeding well, De Arte Poetica. "The same "*relator*, says he, is either a superior, an inferior, or an "equal; with regard either to preferment, honour, "wealth, wisdom, or age. Livia is therefore to comfort Ovid in a manner very different from that wherein Ovid comforts Livia. Thus, as to authority, a father and son, Cicero and Pompey, are to conduct their *consolations* very differently: so in wealth; as if a client should undertake to comfort Crassus in his misfortune; as when Seneca comforts Polybius and his mother: as to age, there need no examples.

"A superior may interpose his authority, and may even chide; a wife must even dispute; sentences will become him. An inferior is to shew respect and affection, and own he had this from some wife or learned person: an equal to appeal to their common friendship."

CONSOLE, in *Architecture*, a part or member projecting in manner of a bracket, or shoulder-piece; serving to support a cornice, bust, vase, beam, little vault, or the like. See *Tab. Architecture, fig.* 32.

The word is derived from the French *consolider, to reunite, join*, &c. agreeable to the office of this member.

Consoles are also, upon occasion, called *mutules, modillions*, &c. according to their form.

Some of them are striated or fluted; others in form of cartouches; others have drops, in the manner of triglyphs.

Vitruvius calls all those of gates *prothyrides, of thyra*, gate. See PROTHYRIS.—Those made of the end of a plank of wood, cut triangular-wise, are called *ancones*. See ANCON.

Consoles are frequently used as keys of arches, projecting out, to support a vase, or other ornament.

CONSOLIDA, in *Botany*. See BUGLE.

CONSOLIDA *major*. See COMFRY.

CONSOLIDATION, in *Law*, the combining and uniting two benefices into one: ſtat. 37 Hen. VIII. cap. 21. which union is to be by the aſſent of the ordinary, patron, incumbent, &c. and to be of ſmall churches lying near together.

The term is borrowed from the civil law; where it properly ſignifies an union of the poſſeſſion, or occupation, with the property. Thus, if a man hath by legacy *uſumfructum fundi*, and afterwards buys the property, or fee-ſimple, of the heir; this is called a *conſolidation*.

CONSOLIDATION, in *Medicine*, expreſſes the action of uniting broken bones, or the lips of wounds, by means of *conſolidating remedies*, as they are called; which, cleanſing with a moderate heat and force, taking corruption out of the wounds, and preſerving the temperature of the parts, cauſe the nouriſhment to be fitly applied to the parts affected. See WOUND, and FRACTURE.

CONSONANCE, in *Muſic*, is ordinarily uſed in the ſame ſenſe with *concord*, viz. for the union or agreement of two ſounds produced at the ſame time, the one grave, the other acute; which, mingling in the air, in a certain proportion, occaſion an accord agreeable to the ear.

CONSONANCE is ſometimes uſed to ſignify a ſound ariſing from ſeveral others ſounding together, whether agreeable, or diſagreeable to the ear.

In this ſenſe *conſonance* may be divided into CONCORD and DISCORD.

Dr. Holder, on this principle, defines *conſonancy*, "A "paſſage of ſeveral tuneable ſounds through the medium, "frequently mixing and uniting in their undulated mo- "tions, cauſed by the well-proportioned commenſurate "vibrations of the ſonorous bodies, and conſequently "arriving ſmooth and ſweet, and pleaſant to the ear; as, "on the contrary, *diſſonancy* he maintains to ariſe from "diſproportionate motions of ſounds, not mixing, but "jarring and claſhing as they paſs, and arriving in the "ear grating and offenſive."

Which notion of a *conſonance* exactly quadrates with that we have already laid down for a *concord*. Accordingly, moſt authors confound the two together; though ſome of the more accurate diſtinguiſh them; making *conſonance* to be what the word implies, a mere *ſounding of two or more notes together*, or *in the ſame time*; in contradiſtinction to the motion of thoſe ſounds *in ſucceſſion*, or one after the other.

In effect, the two notions coincide; for two notes, thus played in *conſonance*, conſtitute a concord; and two notes that pleaſe the ear in *conſonance*, will likewiſe pleaſe it in ſucceſſion. Notes in *conſonance* conſtitute harmony, as notes in ſucceſſion conſtitute *melody*.

In the popular ſenſe, *conſonances* are either *ſimple* or *compound*, &c. The moſt perfect *conſonance* is uniſon; though many, both among the ancients and moderns, diſcard it from the number of *conſonances*; as conceiving *conſonance* an agreeable mixture of different ſounds, grave and acute; not a repetition of the ſame ſound.

The ſecond *conſonance* is the octave; then the fifth, the fourth, the thirds, and the ſixths: the reſt are multiples, or repetitions of theſe.

CONSONANCE, in *Grammar*, denotes a like cadence, or cloſe of words, periods, &c.

Conſonances are ordinarily faults in diſcourſe, eſpecially in Engliſh proſe: though the ancients make a figure of them, which they call *homœoteleuton*. Too great a *conſonancy* in the rhymes has always an ill effect.

CONSONANT, a letter which produces no ſound alone, or without ſome other letter, either vowel or *conſonant*, joined along with it.

And hence the name *con-ſonant*, q. d. *quæ ſonant cum aliis*.

A *conſonant*, conſidering it philoſophically, is nothing elſe but the modification of a ſound, produced by means of the organs of the voice, not a production of ſound in itſelf: thus, v. gr. the ſounds ſignified by the characters *a*, *e*, *i*, *o*, *u*, &c. are differently modified when we ſay *at*, than when we ſay *at* or *et*, *ad* or *da*; and theſe modifications are called *conſonants*.

The letters of the alphabet are divided into *vowels* and *conſonants*. *Conſonants*, again, are divided into ſingle, as *b*, *c*, *m*, *q*, &c. and *double*, as *x* in *auxiliary*, correſponding to the ξ of the Greeks.

Conſonants, again, are divided into *liquid*, as *l*, *r*, *m*, *n*; and *mute*, as *b*, *d*, and the reſt.

But the moſt natural diviſion of *conſonants* is that of the Hebrew grammarians; who have been imitated therein by the grammarians of other oriental languages: theſe divide the *conſonants* into five claſſes, with regard to the five principal organs of the voice; which all contribute, it is true, but one more notably than the reſt, to certain modifications, which make five general kinds of *conſonants*. Each kind, or claſs, comprehends ſeveral *conſonants*, which reſult from the different degrees of the ſame modification, or from the different motions of the ſame organs.

Theſe organs are the *throat*, *palate*, *tongue*, *teeth*, and *lips*; whence the five claſſes of *conſonants* are denominated *guttural*, *palatal*, *lingual*, *dental*, and *labial*.

We account ſixteen *conſonants* in the Engliſh alphabet, viz. *b*, *c*, *d*, *f*, *g*, *k*, *l*, *m*, *n*, *p*, *q*, *r*, *s*, *t*, *v*, *x*, *z*; to which there are three others to be added, viz. the *h*, and *j conſonants*, and *w conſonant*, which make the whole number of *conſonants* nineteen: one whereof is guttural, viz. the aſpirate *h*; five *palatal*, viz. *c*, as when pronounced before *e*, *o*, and *u*, as in *cover*, *corn*, *curioſity*; *g*, as in *General*; *j conſonant* in *julep*; *k* in *kneel*; and *q* in *quay*.

The four *lingual conſonants* are *d*, *l*, *n*, *t*; the four *dental*, are *r*, *s*, *x*, *z*, the three laſt whereof are hiſſers: and five *labial*, *b*, *f*, *m*, *p*, and *v conſonants*.

With regard to which diviſion, it may be obſerved, that though the *g* be modified in three different manners, as it comes before an *a*, an *e*, or an *u*; yet it is ſtill a *conſonant* of the palate; that the *j conſonant* differs in nothing but its figure from the *g* before *e* or *i*; that *k* has the ſame pronunciation with the *c*; that *x* comprehends the ſound of two letters in its ſound, viz. *c* or *k*, and *ſ* or another *s*, as in *Alexander* and *Alexis*, which we pronounce as if wrote *Alecſander*, and *Alecxis*, or *Alekſis*; and that the *c* before an *e* or *i*, is no *conſonant* of the palate, becauſe in that caſe it loſes its proper ſound, and aſſumes the hiſſing ſound of the *ſ*.

The abbot Dangeau thinks the nature of the diviſion of the Hebrew grammarians to be very reaſonable, but he does not acquieſce in the diſtribution they have made of them: to find a natural and juſt diviſion of the *conſonants*, he obſerves, no regard muſt be had to the characters that repreſent them; nor any thing be conſidered but their ſound, or the modification they give the ſound.

On this principle, the ſame author finds in the French five *labial conſonants*, *b*, *p*, *v*, *f*, and *m*; five *palatal* ones, *d*, *t*, *g*, *k*, *n*; four *hiſſers*, *s*, *x*, *z*, *ch*; two *liquids*, *l* and *r*; two that run into and mix with each other, as *l* and *gn*; which laſt, however, is peculiar to the French language; and the *h* aſpirate.

He adds, 1. That *m* and *n* are properly two naſal *conſonants*; the *m*, as *b* paſſed through the noſe, and the *n*, as *d*, in like manner, pronounced through the noſe; and, in effect, people in a cold pronounce *barbie* for *marbre*, *deed* for *need*, &c.

2. That among the *conſonants*, ſome are weak, others *ſtrong*; their difference conſiſting in this, that the former are preceded with a ſmall emiſſion of the voice, which ſoftens them; which the latter have not. The weak are *b*, *c*, *d*, *g*, *w*, *j*; the ſtrong, *p*, *f*, *t*, *ſ*, *k*, *ch*.

It may be here obſerved, that when we ſpeak of a perſon's talking *through the noſe*, it muſt be underſtood in a ſenſe quite different from what the word ſeems naturally to import: ſince the noſe in this caſe concurs leſs to the pronunciation than when we do not ſpeak through the noſe; in regard the air, not being able to make its way through the noſe, is returned into the mouth, where it forms a dull obtuſe ſound, called *naſal*.

From the whole we may conclude, that the excels of *conſonants* in one language above another only conſiſts in this, that there are more modifications of ſound received and eſtabliſhed in the one than in the other: for all men having the ſame organs, may form the ſame modifications; ſo that it is entirely owing to cuſtom, nothing to nature, that the Engliſh have not the ϑ of the Greeks, the *ain* and *heth* of the Hebrews, the *ch* of the Germans, the *gn* of the French, the *gl* of the Italians, the *ll* of the Welſh, &c.

Alſo, that the Chineſe have no *r*, the Iroquois no labial *conſonants*, the Hurons have abundance of aſpirates, and the Arabs and Georgians abundance of double *conſonants*: which laſt is owing to this, that they make ſeveral organs concur ſtrongly and equally to the modification of a ſound; whereas, in the reſt, only one organ is moved very ſtrongly and ſenſibly, and the reſt weakly.

It is hence alſo viſible, that in all languages the ASPIRATES, or guttural letters, are real *conſonants*; ſince the throat modifies the ſound as much as the palate, tongue, or lips.

Laſtly, to find all the *conſonants* that may be formed in any language, there needs nothing but to obſerve all the modifications that the ſounds of ſpeech will admit of, by which we ſhall have all the *conſonants* practicable.

CONSONANTE, in the *Italian Muſic*, is uſed to ſignify concords, or thoſe intervals which afford pleaſure, be they either perfect, as the fifth and eighth, or imperfect, as the third, ſixth, &c. See OCTAVE, &c.

CONSORT. See QUEEN.

CONSOUND, a name given to ſeveral different plants; thus *ſymphytum* is called the great *conſound*, *bugula* the mid-

dle *confound*, *boils* the leaſt *confound*, and *ſolidago* the Saxons *confound*.

CONSPIRACY, in *Law*, is taken for a combination or CONFEDERACY to do ſomething evil, or illegal: though in the original ſenſe of the word, and in its uſe in other languages, it ſignifies merely an agreement, whether for good, bad, or matters indifferent.

In our ſtatutes and law-books, *conſpiracy*, in a general ſenſe, is frequently confounded with *maintenance*, and *champarty*.

CONSPIRACY, in its ſpecial ſignification, is uſed for a confederacy of two, at leaſt, falſly to indict one, or procure one to be indicted of felony.

The puniſhment of this *conſpiracy*, at the king's ſuit, anciently was, that the party attainted loſe his frank-law; to the end that he may not be impanelled on juries, and the like; that his lands, goods, and chattels, be eſtreated; his trees raſed, and his body committed to priſon.

Even *conſpiracies*, or combinations in caſes of leſs moment, as thoſe of victuallers, touching ſelling of victual, ſhall be grievouſly puniſhed. 37 Hen. VIII.

CONSPIRATIONE, in *Law*, a writ that lies againſt *conſpirators*.

CONSPIRATORS, according to the ſtatute, are thoſe that do confederate, or bind themſelves by oath, covenant, or other alliance, that every of them ſhall aid, and bear the other, falſly and maliciouſly, to indite, or cauſe to indite, or falſly to move, or maintain pleas; and all ſuch as cauſe children, within age, to appeal men of felony, whereby they are impriſoned, and ſore grieved: and ſuch as retain men in the country, with liveries or fees, to maintain their malicious enterprizes: and this extendeth as well to the takers, as the givers: and ſtewards, and bailiffs, of great lords, which, by their feignory, office, or power, undertake to bear, or maintain quarrels, pleas, or debates, that concern other parties than ſuch as touch the eſtate of their lords, or themſelves. Anno 33 Edw. I. ſtat. 2. 2 Inſt. fol. 384 and 562.

CONSPIRING *powers*, in *Mechanics*, all ſuch as act in directions not oppoſite to one another. See POWER, and MOTION.

CONSTABLE. *Lord High* CONSTABLE, is an ancient officer of the crown, now diſuſed in England, except on ſolemn occaſions, as the king's coronation, and the like; and alſo ſuppreſſed in France by Lewis XIII. in 1627; though the office has been exerciſed in the command of the MARSHALS, by the firſt officer in the army.

Some derive the word from the Saxon, and make it originally ſignify the *ſtey*, or hold, of the *king*, or *king*: others, with more probability, derive it from *comes ſtabuli*, the maſter of the ſtables, or perhaps of the hoſts; and ſuppoſe that the dignity, which at firſt was civil, in time became military, and the maſter of the ſtables was made general of the army.

The function of the *conſtable* of England conſiſted in the care of the common peace of the land, in deeds of arms, and matters of war. To the court of the *conſtable*, and that of the marſhals, belonged the cognizance of contracts, deeds of arms without the realm, and combats, blaſonry of arms, &c. within it.

The firſt *conſtable* of England was created by the Conqueror: the office continued hereditary till the thirteenth of Hen. VIII. when it was laid aſide, as being ſo powerful as to become troubleſome to the king. Since that time, the *conſtable* is only created occaſionally.

From thoſe mighty magiſtrates, the *conſtables* of England, are derived thoſe inferior ones, ſince called the *conſtables of hundreds and franchiſes*: theſe were firſt ordained in the thirteenth year of Edward I. by the ſtatute of Wincheſter; which, for the conſervation of the peace, and view of armours, appointed that two *conſtables* ſhould be choſen in every hundred and franchiſe. They are generally choſen and ſworn by the juſtices of the peace in their ſeſſions.

Theſe are what we now call *conſtabularii capitales*, or *high conſtables*; becauſe continuance of time, and increaſe of people, &c. have occaſioned others of like nature, but inferior authority, in every town, called *petty-conſtables*, or *ſub-conſtabularii*, firſt inſtituted about the reign of Edward III. But they are now uſually choſen by the jury at the court-leet; and if no court-leet be held, appointed by two juſtices of the peace; though they are uſually choſen by the pariſhioners, and ſworn by a juſtice of peace. If the perſon elected refuſes to ſerve, a writ of mandamus may be laid to compel him to do it; or they may be bound over to the ſeſſions, indicted, fined, and impriſoned. Phyſicians, apothecaries, ſurgeons, &c. attornies, officers of the courts at Weſtminſter, barriſters at law, &c. qualified diſſenting teachers, and proſecutors of a felon to conviction, are excuſed from ſerving this office. Diſſenters, ſcruples the oaths, may execute the office by deputy. 1 W. and M. cap. 18. Theſe are under the direction of the high *conſtable*, and their charge is very extenſive.

Beſides theſe, we have *conſtables* denominated from particular places, as *conſtable* of the Tower, of Dover-caſtle, of Windſor-caſtle, of the caſtle of Caernarvon, and many other of the caſtles of Wales; whoſe office is the ſame with that of the caſtellani, or governors of caſtles.

CONSTABLES *of London*. The city of London is divided into twenty-ſix wards, and the wards into precincts, in each whereof is a *conſtable*. They are nominated by the inhabitants of each precinct on St. Thomas's day, and confirmed, or otherwiſe, at the court of wardmote. After confirmation, they are ſworn into their offices at a court of aldermen, on the next Monday after Twelfth day.

Such as are choſen into the office, are obliged to place the king's arms, and the arms of the city, over their doors; and if they reſide in alleys, at the ends of ſuch alleys towards the ſtreets, to ſignify that a *conſtable* lives there, and that they may be the more eaſily found when wanted.

CONSTABLE, *bravoſt of the*. See PROVOST.

CONSTANT *winds*. See WIND.

CONSTANT *quantity*, in *Geometry*, that which remains the ſame, while others increaſe or decreaſe. Thus the ſemi-diameter of a circle is a *conſtant quantity*; for while the abſciſſa and ſemi-ordinates increaſe, it remains the ſame.

CONSTAT, in *Law*, the name of a certificate, which the clerk of the pipe, and auditors of the exchequer, make at the requeſt of any perſon, who intends to plead or move in that court for the diſcharge of any thing; and the effect of it is, the certifying what does *conſtare* upon record, touching the matter in queſtion. 3 and 4 Edw. VI. cap. 4. and 13 Eliz. cap. 6.

A *conſtat* is held to be ſuperior to a *certificate*; becauſe this may err or fail in its contents, that cannot, as certifying nothing but what is evident upon record. Alſo the exemplification under the great ſeal of the inrolment of any letters patent, is called a *conſtat*. Coke on Lit. fol. 225. b. The difference between a *conſtat*, *inſpeximus*, and *vidimus*, is treated of at large in Page's caſe, Coke's fifth report.

CONSTELLATION, in *Aſtronomy*, an aſſemblage or ſyſtem of ſeveral ſtars, expreſſed and repreſented under the name and figure of ſome animal, or other thing: this aſſemblage is by ſome called alſo an *aſteriſm*.

The ancients portioned out the firmament into ſeveral parts, or *conſtellations*; reducing a certain number of ſtars under the repreſentation of certain images, in order to aid the imagination, and the memory, to conceive and retain their number, diſpoſition, and even to diſtinguiſh the virtues which they attributed to them: in which ſenſe a man is ſaid to be born *under a happy conſtellation*, i. e. under a happy configuration of the heavenly bodies. The diviſion of the heavens into *conſtellations* is very ancient; and, probably, as old as aſtronomy itſelf; at leaſt, it was known to the moſt ancient authors extant, whether ſacred or profane. In the book of Job, mention is made of the names of ſome of them; witneſs that ſublime expoſtulation, *Canſt thou reſtrain the ſweet influences of the Pleiades, or looſen the bands of* Orion? And the ſame may be obſerved of the oldeſt among the heathen writers, Homer and Heſiod.

The diviſion of the ancients only took in the viſible firmament, or ſo much as came under their notice: this they diſtributed into forty-eight *conſtellations*; twelve whereof took up the zodiac: the names they gave them are, *Aries*, *Taurus*, *Gemini*, *Cancer*, *Leo*, *Virgo*, *Libra*, *Scorpio*, *Sagittarius*, *Capricornus*, *Aquarius*, *Piſces*: from whence the ſigns of the ecliptic and zodiac take their names; though now no longer contiguous to the *conſtellations* which denominate them. See SIGN.

The other ſtars, on the northern ſide of the zodiac, were diſpoſed into twenty-one *conſtellations*; viz. *Urſa major* and *minor*, *Draco*, *Cepheus*, *Bootes*, *Corona Septentrionalis*, *Hercules*, *Lyra*, *Cygnus*, *Caſſiopeia*, *Perſeus*, *Andromeda*, *Triangulum*, *Auriga*, *Pegaſus*, *Equuleus*, *Delphinus*, *Sagitta*, *Aquila*, *Ophiuchus*, or *Serpentarius*, and *Serpens*: to which have been ſince added *Antinous*, and *Coma Berenices*.

The ſtars on the ſouthern ſide of the zodiac were diſtributed into fifteen conſtellations: their names are *Cetus*, *Eridanus fluvius*, *Lepus*, *Orion*, *Canis major* and *minor*, *Argo*, *Hydra*, *Crater*, *Corvus*, *Centaurus*, *Lupus*, *Ara*, *Corona meridionalis*, and *Piſces auſtralis*: to which have been ſince added fourteen others; viz. *Phœnix*, *Grus*, *Indus*, *Pavo*, *Apus*, or *Avis Indica*, *Apis Muſca*, *Chamæleon*, *Triangulum auſtrale*, *Piſces volans*, *Toucan*, *Hydrus*, *Xiphias*, or *Dorado*, *Columba Noachi*, and *Rana Caribæa*. See each *conſtellation*, and the ſtars contained in it, under its proper head, ARIES, TAURUS, &c.

Of theſe *conſtellations*, the eighteen laſt, with the greateſt

part

part of *Argo navis*, *Centaurus*, and *Lupus*, are not visible in our horizon.

The other stars, not comprehended under these *constellations*, yet visible to the naked eye, the ancients called *informes*, or *sporades*, some whereof the modern astronomers have since reduced into new figures, or *constellations*. See INFORMES, and SPORADES.

Thus, Hevelius, v. gr. between *Leo* and *Ursa major*, makes *Leo minor*; and between *Ursa major*, and *Auriga*, over *Gemini*, makes *Lynx*: under the tail of *Ursa major*, *Canes venatici*, *Cerberus*, *Vulpecula*, and *Anser*, *Scutum Sobiesii*, *Lacerta*, *Camelopardalus*, *Monoceros*, and *Sextans*. In these *constellations*, the stars are ordinarily distinguished by that part of the image wherein they are found. Bayer distinguishes them farther by the letters of the Greek alphabet; and many of them, again, have their peculiar names, as *Arcturus*, between the knees of *Bootes*; *Gemina*, or *Lucida*, in the *Cor ursæ septentrionalis*; *Palilicium*, or *Aldebaran*, in the *Bull*'s eye, *Pleiades* in the neck, and *Hyades* in the forehead of the *Bull*, *Castor* and *Pollux* in the heads of *Gemini*; *Capella*, with the *Hœdi*, in the shoulder of *Auriga*; *Regulus*, or *Cor Leonis*; *Spica Virginis*, in the hand, and *Vindemiatrix* in the shoulder of *Virgo*; *Arcturus*, or *Cor Sterophimi*; *Fomahaut*, in the mouth of *Piscis Australis*; *Regel*, in the foot of *Orion*; *Sirius*, in the mouth of *Canis major*; *Procyon*, in the back of *Canis minor*; and the *Polestar*, the last in the tail of *Ursa minor*.

The Greek and Roman poets, from the ancient theology, give us wild and romantic fables about the origin of the *constellations*, probably derived from the hieroglyphics of the Egyptians, and transmitted, with some alterations, from them to the Greeks; which may be seen in Hyginus's Poeticon Astron. and Bicciolus's Almagest. lib. vi. cap. 3, 4, 5; and Sherburne's Notes upon Manilius. Hence, some out of a rash zeal, rather than any love for the science, have been moved to alter either the figures of the *constellations*, or at least their names.

Thus, venerable Bede, instead of the profane names and figures of the twelve *constellations* of the zodiac, substituted those of the twelve apostles; whose example being followed by Julius Schillerius, in 1627, he completed the reformation, and gave scripture names to all the *constellations* in the heavens.

Thus, *Aries*, or the Ram, became converted into St. Peter; *Taurus*, or the Bull, into St. Andrew; *Andromeda* into the sepulchre of Christ; *Lyra* into the manger of Christ; *Hercules* into the Magi coming from the East; *Canis major* into David, &c. Weigelius, professor of mathematics in the university of Jena, made a new order of *constellations*; converting the firmament into a *coelum heraldicum*; and introducing the arms of all the princes in Europe, by way of *constellations*.

Thus, *Ursa major* he transformed into the elephant of the kingdom of Denmark; the *Swan* into the Rota with swords of the house of Saxony; *Ophiuchus* into the cross of Cologne; the *Triangle* into the compasses, which he calls the *symbol of artificers*; and the *Pleiades* into the *Musæ Pythagoricæ*, which he calls that of merchants, &c.

But the more knowing among astronomers never approved of innovations; as serving no purpose but to introduce confusion into astronomy. The old *constellations*, therefore, are still retained; both because better could not be substituted, and likewise to keep up the greater correspondence and uniformity between the old astronomy and the new. See CATALOGUE.

CONSTERNATION is defined by ethical writers to be an excess of HORROR, owing to the ill government of our *admiration* and fear; or such an immoderate degree of *fear* as confounds the faculties, and incapacitates a person for consultation and execution.

CONSTIPATION, in *Medicine*, a hardness of the *alvus*, or belly, with a difficulty of discharging the same; otherwise called *obstipeness*.

Riding post, eating of medlars, of quinces, several preparations of milk, hard-roasted eggs, &c. *constipate* the belly.

A *constipation* of the belly, if it continue long, sometimes degenerates into the iliac passion, or twisting of the guts. Most persons of a hot and dry constitution are afflicted with a costiveness, or *constipation*; but this is seldom attended with any ill consequences.

The proper remedy for a *constipation* is a clyster; if this fail, lenient cathartics; and when they also fail, others must be exhibited of a more drastic or powerful nature.

A *constipation*, or obstinate costiveness, is thought by Dr. Stevenson to be first or last owing to, or attended with, a kind of palsy of the intestines, and may sometimes be cured by fomenting the belly with wine, in which aromatics have been boiled, and drinking a little of the same when the pulse is low, and the body cool. This disorder, though of long continuance, and come to a dangerous height, has been cured by a cold *pediluvium*, and by placing the patient with his bare soles on a cold floor, and dashing his feet, legs, and thighs, with cold water. See Medic. Ess. Edinb. abr. vol. i. p. 249, seq.

CONSTITUENT *parts*, in *Chemistry*. The *constituent parts* of bodies are their dissimilar parts, or principles, into which they may be resolved, by the rules of that art. They are thus called in distinction from the INTEGRANT parts of bodies, which are parts of the same nature and properties with the bodies themselves. Thus quicksilver, dissolved by aqua fortis, may be separated from the dilated menstruum, by means of a copper plate, in its own form; thus therefore was only divided into its integrant parts; but cinnabar resolved by chemistry into sulphur and mercury, is divided into its *constituent* parts, neither of these, nor any particle of them, being cinnabar, or having its properties. Shaw's Lectures, p. 15.

CONSTITUTION, an establishment, ordinance, decision, regulation, or law, made by authority of a prince, or other superior, ecclesiastical or civil.

The *constitutions* of the Roman emperors make a part of the *civil* LAW. The *constitutions* of the church make a part of the CANON *law*. Some of the papal *constitutions* are in form of bulls, others of briefs.

CONSTITUTIONS, *Legatine*, were ecclesiastical laws enacted in national synods, held under the cardinals Otho and Othobon, legates from pope Gregory IX. and pope Clement IV. in the reign of Henry III. about the years 1220, and 1268.

CONSTITUTIONS, *Provincial*, are principally the decrees of provincial synods, held under several archbishops of Canterbury, from Stephen Langton, in the reign of Henry III. to Henry Chicheley, in the reign of Henry V. and adopted also by the province of York in 1463, under Henry VI.

CONSTITUTIONS *of* 1603. See CANON *Law*.

CONSTITUTIONS, *Apostolical*, denote a collection of regulations attributed to the apostles, and supposed to have been collected by St. Clement, whose name they likewise bear.

These are divided into eight books; consisting of a great number of rules and precepts, relating to the duties of Christians, and particularly to the ceremonies and discipline of the church.

Authors are divided about their genuineness: the generality hold them spurious, and endeavour to prove them posterior to the apostolic age; maintaining they were unknown till the fourth century: which, if so, shews St. Clement had no hand in them. It is certain, that no such book is quoted as Scripture by any Christian writer of the three first centuries. The first who cites it is Epiphanius, and yet he speaks of it as of doubtful authority; and some modern writers are of opinion, that the *Constitutions* quoted by Epiphanius were different from the present *Constitutions*; and that the eight books, as we have them, were not composed and finished till after his time, towards the middle, or before the end of the fifth century. They evidently bear many internal characters of spuriousness. See Lardner's Cred. vol. x. p. 326, &c. Mr. Whiston has ventured to oppose the general opinion; and with some reason, much learning, and more warmth, asserted the *Apostolical Constitutions* to be one of the sacred writings, dictated by the apostles in their meetings, written down from their mouths by St. Clement, and intended as a supplement to the New Testament; or, rather, as a scheme and system of Christian faith and polity. See his Essay on the *Apostolical Constitutions*, and his historical preface; wherein the several steps he made in his fancied discovery are traced.

What makes the *Constitutions* more suspected by the orthodox, is, that they seem to favour of Arianism.

CONSTITUTIONS *of Clarendon*. See CLARENDON.

CONSTITUTION is also used, in a physical sense, for the temperament of the body, or for that disposition of the whole which arises from the quality and proportion of its parts.

Physicians consider the *constitution*, as depending chiefly on the humours or juices of the body; and hence, as this or that humour is supposed to predominate, the bile, e. g. or the blood, phlegm, choler, or spirit; the person used to be denominated of a *bilious*, *sanguine*, *phlegmatic*, *choleric*, or *nervous constitution*.

CONSTRICTION, the act of binding, or drawing the parts of a thing close together.

The word is compounded of *cum*, *together*; and *stringere*, *tetus or close up*.

CONSTRICTOR, in *Anatomy*, a name given by Spigelius, and some others, to a muscle now very well known by the name of the *sphincter ani*.

CONSTRICTOR *cunni*, in *Anatomy*, the name given by Albinus to a muscle called by others the SPHINCTER *vaginæ*; by some the *erector is pudendi*, and the *ejector is clitoridis muscularis*.

CONSTRICTOR *labiorum*, or *orbicularis*, a muscle proper to

the LIPS. *See Tab. Anat. (Myol.) fig. 1. n. 8.* Its fibres make a kind of *orbis* ring about the mouth (whence it is alſo called *orbicularis*); and ſerve to conſtringe and draw up the lips, as in kiſſing, &c. whence ſome call it *baſiator*, and *oſculatorius*.

This Verheyen will not have to be one muſcle, but a pair, whoſe fibres meet and join at both corners of the mouth; each acting on one lip only, though concurrently.

Other authors are unanimous in calling it one muſcle: and will have it of the ſphincter kind; though Dr. Drake thinks improperly; in regard, it is not like the other ſphincters in conſtant action, but at the command of the will; the diſtinguiſhing mark between a SPHINCTER and another muſcle.

CONSTRICTOR *palpebrarum*. See ORBICULARIS.

CONSTRICTORES *noſi*, a pair of muſcles common to the *ala* of the noſe, and the upper lip.

They ariſe ſeſhy from the fore part of the ſoforth bone of the upper jaw; and after a ſtraight aſcent, are inſerted into the roots of the *ala noſi*, and ſuperior parts of the upper lip.

Their uſe is to draw the *ala* downwards, nearer each other: and at the ſame time draw the upper lip alſo downwards; an action which we uſe in taking of ſnuff, or in ſmelling at any thing.

CONSTRUCTION, in *Geometry*, the art or manner of drawing, or deſcribing a figure, ſcheme, the lines of a problem, or the like. The equality of the lines of ſuch a triangle, &c. is demonſtrated from their *conſtruction*.

CONSTRUCTION *of equations*, is the method of reducing a known EQUATION into lines and figures; whereby the truth of the rule, canon, or equation, may be demonſtrated geometrically.

The method of *conſtructing* equations is different, according to the diverſity of equations.

To conſtruct a ſimple equation: the whole myſtery conſiſts in this, that the fractions, to which the unknown quantity is equal, be reſolved into proportional terms: the method of which will be better ſhewn by examples than it can be taught by many rules.

1. Suppoſe $x = \frac{ab}{c}$; then will $c : a :: b : x$, to be determined by the method of finding a fourth proportional.

2. Suppoſe $x = \frac{abc}{def}$; let $d : a :: b : \frac{ab}{d}$. This fourth proportional found, being called g; $x = \frac{gc}{e}$, which is therefore found as in the former caſe.

3. Suppoſe $x = \frac{aa-bb}{c}$. Since $aa-bb = (a+b) \times (a-b)$; $c : a+b :: a-b : x$.

4. Suppoſe $x = \frac{a^2b-bcc}{ad}$. By the firſt caſe we find $g = \frac{ab}{d}$, $\frac{a^2b}{ad}$, and $b = \frac{bc}{d}$. Again, by caſe 1. $i = \frac{b^2}{a}$, and $x = g - i$, the difference of the lines g and i.

5. Suppoſe $x = \frac{ab}{c} + \frac{adc}{bc}$. Find, as in the preceding caſe, $g = \frac{ab}{c}$, and $f = \frac{adc}{bc}$. Then will $x = g + f$ be the ſum of the lines g and f.

6. Suppoſe $x = \frac{a^2b+bcd}{af+cg}$. Seek $\frac{cg}{a}$ and let $f + \frac{cg}{a} = b$; then will $af + cg = ab$; conſequently, $x = \frac{a^2b+bcd}{ab}$. Thus is the preſent caſe brought to the preceding one.

7. Suppoſe $x = \frac{a^2b-bad}{af+bc}$. Find $\frac{af}{b}$, and make $\frac{af}{b} + c = b$; then will $af + bc = bb$. Hence, $x = \frac{a^2b-bad}{bb} = \frac{b^2-ad}{b}$. Conſequently, $b : a :: a-d : x$.

8. Suppoſe $x = \frac{a^2+b^2}{c}$. Conſtruct the triangle ABC (*Tab. Algebra, fig.* 1.) whoſe ſide $AB = a$, $BC = b$; then will $AC = \sqrt{a^2+b^2}$. Let $AC = m$; then will $a^2+b^2 = m^2$. And therefore $x = \frac{m^2}{c}$; conſequently, $c : m :: m : x$.

9. Suppoſe $x = \frac{a^2-b^2}{c}$. On AB (*fig.* 2.) $= a$, deſcribe a ſemicircle, and therein ſet off $AC = b$. Since the triangle ABC is rectangular; $CB = \sqrt{a^2-b^2}$. Let $CB = m$: then will $x = \frac{m^2}{c}$; conſequently, $c : m :: m : x$.

10. Suppoſe $x = \frac{a^2b+bcd}{af+bc}$. Say, $b : a :: f : \frac{fa}{b}$; and let $\frac{fa}{b} + c = b$; then will $bx + af = bb$. Hence, $x = \frac{a^2b+bcd}{bb} = \frac{a^2+cd}{b}$. Find betwixt $AC = c$ (*fig.* 3.) and $CB = d$, a mean proportional $CD = \sqrt{cd}$. Let $CE = a$; then will $DE = \sqrt{a^2+cd}$. Call this m; then will $x = \frac{m^2}{b}$; conſequently, $b : m :: m : x$.

To conſtruct a quadratic equation geometrically. Since quadratic equations may be reduced to ſimple ones, theſe may likewiſe be *conſtructed* from the methods already laid down: for if the equation be pure, $x^2 = ab$; then will $a : x :: x : b$; wherefore we ſhall find $x = \sqrt{ab}$; if betwixt $AC = a$, and $BC = b$, we find a mean proportional DC. If the equation be affected, $x^2 + ax = b^2$; then will $x = \frac{1}{2}a \pm \sqrt{\frac{1}{4}a^2 + b^2}$; that is, either $x = \frac{1}{2}a + \sqrt{\frac{1}{4}a^2 + b^2}$; or, $x = \sqrt{\frac{1}{4}a^2 + b^2} - \frac{1}{2}a$, or, $x = \frac{1}{2}a + \sqrt{\frac{1}{4}a^2 - b^2}$, or $x = \frac{1}{2}a - \sqrt{\frac{1}{4}a^2 - b^2}$.

The whole myſtery, therefore, of *conſtructing* quadratics comes to this: that the value of $\sqrt{\frac{1}{4}a^2 + b^2}$, and alſo the value of $\sqrt{\frac{1}{4}a^2 - b^2}$, be found; both of which are ſhewn in the preceding article. For, if in the rectangular triangle (*fig.* 1.) $AB = \frac{1}{2}a$, and $BC = b$; then will $AC = \sqrt{\frac{1}{4}a^2 + b^2}$. But if on $AB = \frac{1}{2}a$ (*fig.* 2.) be deſcribed a ſemicircle; and therein applied $AC = b$; $CB = \sqrt{\frac{1}{4}a^2 - b^2}$, as was ſhewn in the article preceding. See CURVE. See Maclaurin's Algebra, part iii. cap. 2. and Simſon's Alg. p. 269.

To conſtruct cubic and biquadratic equations. The roots of any equation may be determined by the interſections of a ſtraight line with a curve of the ſame dimenſions as the equation; or by the interſections of any two curves whoſe indices multiplied by each other give a product equal to the index of the propoſed equation.

Thus, the roots of a biquadratic equation may be determined by the interſections of two conic ſections; for the equation by which the ordinates from the four points in which theſe conic ſections may cut one another can be determined will ariſe to four dimenſions; and the conic ſections may be aſſumed in ſuch a manner, as to make this equation coincide with any propoſed biquadratic: ſo that the ordinates from theſe four interſections will be equal to the roots of the propoſed biquadratic.

If one of the interſections of the conic ſection falls upon the axis, then one of the ordinates vaniſhes, and the equation by which theſe ordinates are determined will then be of three dimenſions only, or a cubic; to which any propoſed cubic equation may be accommodated. So that the three remaining ordinates will be the three roots of that propoſed cubic. The conic ſections for this purpoſe ſhould be ſuch as are moſt eaſily deſcribed. The circle may be one, and the parabola is uſually aſſumed for the other.

Let APE (*Tab. II. Anniſm, fig.* 40.) be the common Apollonian parabola. Take on its axis the line $AB =$ half of its parameter. Let C be any point in the plane of the parabola, and from it as a centre deſcribe, with any radius CP, a circle meeting the parabola in P. Let PM, CD, be perpendiculars on the axis in M and D and let CN, parallel to the axis, meet PM in N.

Then will always $CP^2 = CN^2 + NP^2$ (47 E. 1.)

Put $CP = a$, the parameter of the parabola $= b$, $AD = x$, $DC = d$, $AM = x$, $PM = y$.

Then $CN = x \mp d$, $NP = y \mp d$, and $x^2 \mp 2dx + y^2 \mp 2dy + d^2 = a^2$. ($+cx$, $+c$ is the difference of x and c indefinitely, which ever of the two is greateſt). That is, $x^2 \pm 2cx + c^2 + y^2 \pm 2dy + d^2 = a^2$. But, from the nature of the parabola, $y^2 = bx$, and $x^2 = \frac{y^4}{b^2}$; ſubſtituting therefore theſe values for x^2 and x, it will be $\frac{y^4}{b^2} \pm \frac{2cy^2}{b} + y^2 \pm 2dy + c^2 + d^2 - a^2 = 0$. Or, multiplying by b^2, $y^4 \pm 2bc + b^2 \times y^2 \pm 2db^2 \times y + c^2 + d^2 - a^2 \times b^2 = 0$. Which may repreſent any biquadratic equation that wants the ſecond term; ſince ſuch values may be found for a, b, c, and d, by comparing this with any propoſed biquadratic, as to make them coincide. And then the ordinates from the points P, P, P, P, on the axis will be equal to the roots of that propoſed biquadratic. And this may be done, though the parameter of the parabola (viz. b) be given; that is, if you have a parabola already made or given, by it alone you may reſolve all biquadratic equations, and you will only need to vary the centre of your circle and its radius.

If the circle deſcribed from the centre C paſs through the vertex A, (*fig.* 41.) then $CP = CA = CD + AD$, that is, $a^2 = d^2 + c^2$; and the laſt term of the biquadratic $(c^2 + d^2 - a^2)$ will vaniſh; therefore, dividing the reſt

by y, there arises the cubic, $y^3 + 2bc + \overline{b^2} \times y + 3d^2 = 0$. Let the cubic equation proposed to be resolved be $y^3 \pm py \pm r = 0$. Compare the terms of these two equations, and you will have $\pm 2bc + b^2 = \pm p$, and $\pm 2d^2 = \pm r$, or, $\frac{b^2}{2} + \frac{p}{3} = c$, and $d = \pm \frac{r}{2d^2}$. From which you have this construction of the cubic $y^3 \pm py \pm r = 0$, by means of any given parabola APE. *From the point* B *take in the axis (forward if the equation has* $-p$, *but backwards, if* p *is positive) the line* $BD = \frac{p}{2d^2}$; *then raise the perpendicular* $DC = \frac{r}{2d^2}$, *and from* C, *describe a circle passing through the vertex* A, *meeting the parabola in* P, *so shall the ordinate* PM *be one of the roots of the cubic* $y^3 \pm py \pm r = 0$.

The ordinates that stand on the same side of the axis with the centre C are negative or affirmative, according as the last term r is *negative* or *affirmative*; and those ordinates have always *contrary* signs that stand on *different* sides of the *axis*. The roots are found of the same value, only they have contrary signs, when r is positive as when it is negative; the second term of the equation being wanting.

For a further account of the *construction* of such equations, see Maclaurin's Algebra, part iii. chap. 4. De la Hire's Constructions des Equations Analytiques, Marquis de l'Hopital Sect. Con. lib. ix. However, the intent of these geometrical *constructions* is more readily answered by the method of extracting roots by APPROXIMATION.

CONSTRUCTION, in *Grammar*, *syntax*; or the arranging and connecting the words of a sentence, according to the rules of the language.

The *construction* is generally more simple, easy, and direct in the modern tongues than in the ancient: we have very few of those inversions which occasion so much embarrassment and obscurity in the Latin; our thoughts are usually delivered in the same order wherein the imagination conceives them; the nominative case, for instance, always precedes the verb, and the verb goes before the oblique cases in general.

The Greeks and Latins, M. St. Evremont observes, usually end their periods, where, in good sense and reason, they should have begun them; and the elegance of their language consists, in some measure, on this capricious arrangement, or rather in this transposal and disorder of the words.

Construction is either *simple* or *figurative*.—*Simple*, is that wherein all the terms, or parts of the discourse, are placed in their natural order.

Figurative construction, is that wherein we recede from this simplicity, and use certain expressions, shorter, and more elegant, than nature affords.

The SYNTAX, or *construction* of words, is distinguished into two parts, CONCORD, and GOVERNMENT or REGIMEN.

CONSTRUCTIVE *treason* was defined by 25 Edw. III. cap. 2. See TREASON.

CONSUALES *ludi*, among the Romans, the same with CIRCENSES *ludi*. See also CIRCUS.

CONSUALIA, in *Antiquity*, feasts which were held among the *ancients*, in honour of the god Consus, i. e. Neptune; different from those other feasts of the same deity called Neptunalia.

They were introduced with a magnificent cavalcade, or procession on horseback; because Neptune was reputed to have first taught men the *use* of horses; whence his surname of *Equestris*.

Evander is said to have first instituted this feast; it was re-established by Romulus, under the name of *Consus*; because it was done god under the denomination of Consus, that suggested to him the rape of the Sabines.

It is said, that it was with a view to this rape, that he made that establishment. This, however, is certain, that it was to this feast all his neighbours were invited; when taking advantage of the solemnities and sacrifices, he seized the women. To draw the greater concourse of people, he gave out, that he had found an altar hid under-ground, which he intended to consecrate, with sacrifices to the god to whom it had been originally erected.

Those who take upon them to explain the mysteries of the heathen theology, say, that the altar hid under ground, is a symbol of the secret design of Romulus to seize his neighbours wives.

The *consualia* were of the number of feasts called *sacred*; as being consecrated to divinity.—Originally they were not distinguished from those of the Circus: whence it is, that Valerius Maximus says, that the rape of the Sabines was effected at the games of the Circus.

Plutarch observes, that during the days of his solemnity, horses and asses were left at rest, and were dressed up with crowns, &c. on account of its being the feast of Neptunus Equestris.—Festus says, the cavalcade was performed with mules; it being an opinion, that this was the first animal used to draw the car.

Servius gives us to understand, that the *consualia* fell on the thirteenth of August; Plutarch, in the life of Romulus, places them on the eighteenth, and the old Roman calendar, on the twenty-first of that month.

CONSUBSTANTIAL, in *Theology*, a term of like import with *co-essential*; denoting something of the same substance with another.

The orthodox believe the Son of God to be *consubstantial* with the father.

The term *homoios*, *consubstantial*, was first adopted by the fathers of the council of Antioch and Nice, to express the orthodox doctrine the more precisely, and to serve as a barrier and precaution against the errors and subtilties of the Arians; who owned every thing excepting the *consubstantiality*.

The Arians declared, that the Word was God, as having been made God; but they denied that he was the same God, and of the same substance, with the Father: accordingly, they exerted themselves to the utmost to abolish the use of the word. The emperor Constantine used all his authority with the bishops to have it expunged out of the symbols; but it still maintained itself, and is at this day, as it was then, the distinguishing criterion between an Athanasian and an Arian.

Sandius, will have it, that the word *consubstantial* was unknown till the time of the council of Nice; but it is certain that it had been before proposed to the council of Antioch, wherein Paulus Samosatenus had been condemned; though it had never the fortune to be rejected. Curcellæus, on the other hand, maintains, that it was an innovation in doctrine in the council of Nice, to admit an expression, the use wherein had been abolished by the council of Antioch.

According to St. Athanasius, the word *consubstantial* was only condemned in the council of Antioch, inasmuch as it implied the idea of a pre-existent matter prior to the things formed thereof; now, in this sense, it is certain the Father and the Son are not *consubstantial*, these having been no pre-existent matter.

CONSUBSTANTIATION, a tenet of the Lutheran church with regard to the manner of the change made in the bread and wine in the eucharist; though the term *consubstantiation* was substituted in the room of transubstantiation, at the close of the thirteenth century, by John surnamed Pungens Asinus, a doctor of the university of Paris.

The divines of that profession maintain, that after consecration, the body and blood of our saviour are substantially present, together with the substance of the bread and wine: which is called *consubstantiation*, or IMPANATION. See also TRANSUBSTANTIATION, and LUTHERANISM.

CONSUETUDINIBUS *& servitiis*, in *Law*, a writ of right, which lies against the tenant that deforceth his lord of the rent, or service, due to him.

CONSUL, the chief magistrate of the Roman commonwealth.

After the Romans had expelled their kings, they were governed by two *consuls*, established in the year of Rome 245, having their name *a consulendo*. Brutus and Collatinus were the first, elected by an assembly of the people: their office was to hold a year; and if either of them died in the course of the year of their *consulate*, a new one was to be elected.

The *consuls* were the head of the senate; they commanded the armies of the republic, and were supreme judges of the differences between the citizens. In regard, however, that they had made some abuse of this power, it was allowed, by the Valerian law, for the party aggrieved to appeal from the tribunal to the people; especially in cases where the life of a Roman citizen was concerned.

In progress of time, the *consuls* being too much taken up with the grand affairs of state, or at the heads of armies, there were other magistrates created for the distribution of justice to the people, in lieu of the *consuls*.

The right of convoking the senate in ancient Rome, on all occasions, belonged of course to the *consuls*, as the supreme magistrates of the city, which in their absence, devolved regularly to the next magistrates in dignity, the prætors and the TRIBUNES.

To be elected *consul*, it was regularly required, that the candidate should be at least forty-three years old: though we meet with some few exceptions from this rule. The election was held in the month of January, in the Campus Martius; and afterwards in the Capitol.

Consuls were even continued under the emperors, after the republic was destroyed; but *consul* was here little

more

more than an honourable title; which, however, the people were fond of keeping up; as esteeming it some remains of their ancient liberty. It dwindled for a long time; and, at laſt, became abſolutely extinct in the time of Juſtinian: after whom, no emperor either created any *conſul*, or aſſumed the dignity himſelf.

Baſil is the laſt in the conſular liſt, for the year 541. By this time, the dignity was depreciated to that degree, that it was conferred on the meaneſt perſons: indeed, Juſtinian endeavoured to retrieve it twenty-five years after, and created himſelf *conſul*, but without effect.

From the eſtabliſhment of the republic, and the *conſulate* under L. Jun. Brutus, and L. Tarq. Collatinus, to the *conſulate* of Baſil, i. e. From the year of Rome 244, or 245. 509 years before Jeſus Chriſt, to the year of Rome 1261, the ſpace of 1049 years, the years were accounted by the *conſuls*; but from the time of Baſil, in the year of Chriſt 541, we find no mention made of *conſuls*, or *conſulates*; but the time was then computed by the years of the emperors reigns, and the indictions.

Indeed, for ſome time after the *conſulate* of Baſil, the years are marked thus; *poſt conſulatum Baſilii*, 1, 2, 3, &c. See the Faſti Conſulares of M. D'Almeloveen. That author reckons 1060 pairs of *conſuls*, beſide the ſubſtitute *conſuls*, *ſuffecti*, elected to ſupply vacancies by death; and yet there were but 1049 years, and conſequently only *ſo many conſulates*.

The perpetual *conſulates* of the eaſtern emperors, which compoſe the faſti Byzantini, commenced in the year of Chriſt 567, and ended in 668, in the laſt year of Conſtans.

Conſtantine Pogonatus would have the *conſulate* inſeparable from the empire; which it continued to be till the time of Conſtantine Porphyrogenetus.

In this form of government, the empire and *conſulate* were ſo cloſely united, that the empreſs Irene would needs aſſume the *conſulate* when ſhe was only regent of the empire.

But the French kings, thoſe of Italy, and the Saracen princes who commanded in Spain, taking on them the title of *conſuls*, as well as emperors of Conſtantinople, theſe laſt deſpiſed it, and laid it aſide: ſo that the name was only continued to the magiſtrates of ſome cities, and certain other officers, as is ſhewn by F. Pagi.

Under the emperors there were *ordinary conſuls*, *honorary conſuls*, and *ſuffecti*; which laſt were alſo on foot in the time of the republic.

In the middle age, we find the word *conſul* uſed for *comes*, COUNT, and proconſul, for VISCOUNT: as is obſerved by Spelman, and De Marca.

And thus *conſul*, in our LAW-*books*, ſignifies an *earl*. Bract. lib. 1. cap. 8. tells us, that as *comes* is derived from *comitatus*, ſo *conſul* is derived from *conſulendo*: and in the laws of Edward the Confeſſor, mention is made of *vicecomites*, and *viceconſules*.

CONSUL, at preſent, is uſed for an officer eſtabliſhed by virtue of a commiſſion from the king, and other princes, in the ports and factories of the Levant, on the coaſts of Africa, Barbary, Spain, and other foreign countries of any conſiderable trade; to facilitate and diſpatch buſineſs, and protect the merchants of the nation.

Theſe commiſſions are never granted to perſons, as *conſuls* of the French nation, under the age of thirty years.

When the *conſulate* is vacant, the moſt ancient of the deputies of the nation are to diſcharge the function thereof, till the vacancy be filled up by the king.

The *conſuls* are to keep up a correſpondence with the miniſters of England reſiding in the courts whereon their *conſulates* depend. Their buſineſs is, to ſupport the commerce and intereſt of the nation; to diſpoſe of the ſums given, and the preſents made, to the lords and principals of places; to obtain their protection, and prevent the inſults of the natives on the merchants of the nation. There are alſo *conſuls* of other nations eſtabliſhed in the Levant, eſpecially French and Dutch.

CONSULS alſo denote judges elected among merchants and dealers, in ports and trading towns, chiefly in France; to terminate, *gratis*, and on the ſpot, without any proceſs, ſuch differences and demands as may ariſe relating to their merchandizes, bills of exchange, and other articles of commerce.

The firſt juriſdiction of *conſuls* eſtabliſhed in France, is that of Thoulouſe; the edict of whoſe eſtabliſhment bears date 1549, under the reign of king Henry II. that of Paris followed fourteen years afterwards. By degrees, they were eſtabliſhed in moſt of the conſiderable trading towns in that kingdom.

CONSULAR *comitia*, and *medals*. See the ſubſtantives.

CONSULTATION, in *Law*, a writ whereby a cauſe, formerly removed by prohibition from the eccleſiaſtical court to the king's court, is returned thither again.

If the judges of the king's court, upon comparing the libel with the ſuggeſtion of the party, find the ſuggeſtion falſe, or not proved; and therefore the cauſe to be wrongfully called from the court-chriſtian; then, upon ſuch deliberation, or *conſultation*, they decree it to be returned again, and the writ obtained hereon is called a *conſultation*.

CONSUMMATION, the end, period, or completion, of any work.—Thus, we ſay, the *conſummation* of all things; meaning the end of the world. By the incarnation, all the prophecies are to be *conſummated*.

Conſummation of marriage denotes the laſt act of marriage, which makes its accompliſhment.

CONSUMPTION, *Taber*, in *Medicine*, a diſeaſe ariſing from a defect of nouriſhment; or a preternatural decay of the body, by a gradual waſte of muſcular fleſh. See ATROPHY.

It is frequently attended with an hectic fever; and is diverſified by phyſicians into ſeveral kinds, according to the variety of its cauſes: as *univerſal* or *ſcorbutic conſumption*, where it ariſes from a cacochymia, or ſcorbutic habit; and *pulmonic conſumption*, or *conſumption of the lungs*, where it ariſes from ſome cauſe in the lungs, properly called a PHTHISIS.

A *conſumption* may either be *accidental*, *natural*, or *hereditary*.—*Accidental conſumptions* may ariſe, 1. From ulcers, chalky ſtones, or polypuſes in the lungs, cauſed by ſomething that obſtructs the circulation in the pulmonary veſſels, or renders the blood viſcid, as a ſuppreſſion of any natural evacuation. 2. From intemperance, occaſioning either a cacochymia, or plethora. 3. From peripneumonies, pleuriſies, aſthmas, coughs, catarrhs, diarrhœas, venereal diſorders, and exceſs of venery. 4. From grief, hard ſtudy, &c.

Natural conſumptions may ariſe from the ſtraitneſs of the thorax, or an ill conformation of the parts.

An *hereditary conſumption* may be communicated from the parents, without any other viſible cauſe.

A *conſumption* uſually begins with flying pains and flitches; a troubleſome pain at the pit of the ſtomach, or in the diaphragm; frequent ſpitting, loſs of appetite, a quick pulſe, a ſweetneſs or ſaltneſs in the ſaliva, heat and fluſhings in the face and palms of the hands after meals, an hectic fever towards the evening, heavineſs, faintneſs, night-ſweats; and, where the lungs are firſt diſordered, a cough, catarrh, or aſthma, uſually precede it. When theſe ſymptoms are violent, it is confirmed; and then comes on an expectoration of purulent or bloody matter, and the vomica pulmonum; at length, the feet ſwell, the expectoration ſtops, a diarrhœa comes on; and then the facies Hippocratica, and death. The cure of an *univerſal*, or *muſcular conſumption*, depends principally upon removal into a proper air, exerciſe, and the uſing of a regular nouriſhing diet, particularly vegetables and milk; the appetite is to be excited by proper bitters, and other ſtomachics.

In a *pulmonary conſumption*, or *phthiſis*, balſamics and oleaginous medicines, are uſually added.

Dr. Wainwright, indeed, takes the particles of oily medicines to be too groſs and viſcid to enter the ſmall orifices of the lacteals; and thinks, that their operation or effect being confined to the firſt paſſages, they are not only of no ſervice in the cure, but are apt to pall the appetite, occaſion obſtructions in the mouths of the lacteals, and diarrhœas.

But this ſeems contrary to common experience: that their particles are ſmall enough to enter the lacteals, is evident, from the ſudden relief nephritic perſons find in violent paroxyſms of the ſtone by the paſſages being relaxed ſoon after their exhibition. That diarrhœas, and blunting the appetite in ſome conſtitutions, will be the conſequence of their continuance, or exhibition in too great quantities, muſt be allowed; but then this is either accidental to ſome kinds of conſtitutions, or ariſes from ſome error in uſing them.

As to the lacteals being obſtructed by their uſe, it ſeems a mere notion, and as much unſupported by experience as that other hypotheſis, which a late author, Dr. Quincy, has been fond of aſſerting: viz. that the uſe of butter is apt to foul the glands.

A *conſumption* is frequently the conſequence of a neglected COLD.

Beſides repeated ſmall bleedings, which is the beſt of all remedies for diminiſhing the hectic fits, the ſaline draughts and a cool diet are to be uſed. Colliquative ſweats may be checked by drinking about a pint of lime-water, ſoftened with a little new milk.

In the advanced ſtate of a *conſumption*, we may diſtinguiſh two kinds of coughs, one cauſed by the ulcers of the lungs, and the other by a thin rheum falling upon the *fauces* and *trachea*. For the firſt of theſe, about ten drops of balſam of Peru or Copaiba may be given twice a day in a bolus of conſerve of roſes; and for the latter, incraſſants,

inebriants, as conserve of roſes and opium; which laſt ought to be given with caution, as being apt to heat the body. See BALSAMS.

CONSUMPTION, in *Farriery*, is alſo a diſeaſe incident to horſes, conſiſting of a waſte of muſcular fleſh, attended with a ſlow fever. In this diſorder bleeding in ſmall quantities is recommended: mercurial purges, and a powder of native cinnabar, gum guaiacum and nitre, of each one pound, in the quantity of an ounce twice a day; ſpring graſs, and ſalt marſhes, are alſo of great ſervice, when there is any proſpect of recovery.

CONSUS. See CONSUALIA.

CONTACT, the relative ſtate of two things that touch each other, or whoſe ſurfaces join to each other without any interſtice. The *contact* of two ſpherical bodies is only in one point; and the ſame holds of a tangent and the circumference of a circle.—Hence, becauſe very few ſurfaces are capable of touching in all points, and the coluſion of bodies is in proportion to their *contacts*; thoſe bodies will ſtick faſter together, which are capable of the greateſt *contact*.

CONTACT, *angle of*, is the angle HLM (*Tab. Geometry, fig.* 10.) formed by the arch of a circle ML, with the tangent HL, at the place of the *contact*.

Euclid demonſtrates, that the right line HL, ſtanding perpendicular to the radius CL, touches the circle only in one point; nor can there be any other right line drawn between the TANGENT and the circle.

Hence, the angle of *contact* is leſs than any rectilinear one; and the angle of the ſemicircle between the radius CL, and the arch ML, is greater than any rectilinear acute angle.

This paradox of Euclid has exerciſed the wits of mathematicians: it was the ſubject of a long controverſy between Peletarius and Clavius; the firſt of whom maintained the angle of *contact* heterogeneous to a rectilinear one; as a line is heterogeneous to a ſurface: the latter maintained the contrary.

Dr. Wallis has a formal treatiſe on the *angle of contact*, and of the ſemicircle; where, with other great mathematicians, he approves of the opinion of Peletarius.

CONTAGION, *infection*, or the communicating, or tranſferring a diſeaſe from one body to another.

Contagion, in ſome diſeaſes, is only effected by an immediate contact, or touch: as the madneſs of a dog, which is communicated by biting: and the poiſon of the pox, which is tranſmitted from the infected perſon in the act of copulation. In others it is conveyed by infected cloaths; as the itch. In others the contagion is tranſmitted through the air to a great diſtance, by means of ſteams or effluvia, exhaling from the ſick; as in the PLAGUE, and other peſtilential diſtempers: in which caſe, the air is even ſaid to be *contagious*, i. e. full of *contagious* particles.

In times of peſtilential *contagion*, the phyſician, and others who attend upon the ſick, are in the moſt imminent danger of falling into the ſame condition, nor have any of the ſo much boaſted preſervatives againſt this been found of any conſequence; on the contrary, the very remedies, many of them at leaſt, which have been contrived on this occaſion, are very dangerous when lodged in imprudent hands, as well as uſeleſs and improper in all. The beſt methods of ſafety are firſt never to viſit a patient in any infectious diſorder when one is faſting, but ſome generous wine ought always to be drank firſt. Some are of opinion that it is proper to eat firſt a piece of bread and butter ſoaked in vinegar, either ſimple, or with rue firſt ſtamped in it. When one is in the patient's apartment, great care is to be taken never to eat or drink there, nor to ſwallow one's ſpittle, and it is no idle cuſtom in thoſe who are continually in the infected room to chew ſeveral myrrh, angelica, cinnamon, or the like warm and aromatic drugs; for all theſe things promote a plentiful diſcharge of ſaliva from the mouth, which it is certain when ſwallowed, cannot but often carry peſtilential particles down with it into the ſtomach, whence they will eaſily find their way into the blood. It may be added as a good rule, that we never ſtay too long in an infected room; for a conſtitution that could have reſiſted the *contagion* for a ſmall time, may eaſily be overpowered by too long a continuance in the way of it.

After one is returned home from a viſit of this kind, it is always proper to waſh ones hands and mouth with vinegar and water; to change cloaths, hanging the former in the air, and then to drink ſome warm liquor, as tea of ſcordium, ſage, or other herbs of that kind, or, in their place, coffee; for this opens the pores: and if any ſmall quantity of the peſtilential virus ſhould have mixed itſelf with the blood, expels it by a gentle perſpiration. It may be alſo of great aſſiſtance to all about the ſick, for preventing them from being infected, to build frequently ſponges dipt in vinegar to their noſes, and frequently to ſprinkle vinegar on a red-hot iron, in the room, to correct and mend the air, and to ſmoak tobacco. Heiſter's Surgery, p. 201. See EPIDEMICAL.

CONTARA, in *Botany*, a name given by ſome authors to the plant which produces the *faba ſancti Ignatii*, or St. Ignatius's bean.

CONTARII, in *Antiquity*, a kind of horſemen, whoſe chief armour was the *contus*, a kind of long ſpear.

CONTEMPLATION, an act of the mind, whereby it applies itſelf to conſider, reflect on, and admire, the wonderful works of God, nature, &c.

Contemplation is the height of perfection of the myſtic divines. See MYSTIC.

CONTEMPORARY, or COTEMPORARY, a perſon, or thing of the ſame time, or that exiſted in the ſame age, with another. *Socrates*, Plato, and Ariſtophanes, were *contemporaries*: the beſt hiſtories are thoſe of *contemporary* authors.

CONTEMPT, in *Law*, is diſobedience to the rules and orders of a court, which hath power to puniſh ſuch offence; and a man may be impriſoned for a *contempt* done in court, and not for a *contempt* out of court, or for private abuſe. Cro. Eliz. 689.

Attachment alſo lies for contempt to the court, to bring in the offender to anſwer to interrogatories, &c. and if he cannot acquit himſelf, he ſhall be fined. 8 Litt. 305.

As the degrees of this crime vary, the puniſhment is leſs or greater; ſometimes a mere fine, and ſometimes impriſonment.

CONTENEMENT, a word, in our *Antient* LAW-*books*, about whoſe ſignification authors are not rightly agreed. According to ſome, it ſhould ſignify the countenance, credit, or reputation, a perſon has, from and by reaſon of his freehold. In which ſenſe it is uſed in the ſtat. 1 Edw. III. &c. where it ſtands as ſynonymous with *countenance*.

Others will have it ſignify what is neceſſary for the ſupport and maintenance of men, according to their ſeveral qualities, conditions, or ſtates of life. Thus, Spelman, *Contenementum eſt eſtimatio, & conditionis forma, quo gaudet in republica ſubſiſtit.* And in this ſenſe it occurs in Magna Charta. cap. 14.

CONTENT, in *Mathematics*, a term frequently uſed for the capacity of a veſſel, or the area of ſpace; or the quantity of any matter, or ſpace, included in certain bounds. The *content* of a ton of round TIMBER is 43 ſolid feet. A load of hewn timber contains 50 cubic feet; in a foot of timber are contained 1728 cubic or ſquare inches, and as often as 1728 inches are contained in a piece of timber, be it round, or ſquare; ſo many feet of timber are contained in the piece.

In gauging, the gallon for beer and ale is allowed to contain 282 cubic inches, and the wine gallon 231; the gallon of dry meaſure 272.

Hence, as oft as 282 cubic inches are contained in any veſſel, round or ſquare; ſo many gallons of ale or beer it holds; and the like may be obſerved of the other meaſures.

Multiply, therefore, one ſide of a ſquare, or oblong, into the other; and divide by one of thoſe numbers, according to the quality of the liquor; the quotient gives the area in gallons, upon an inch deep.

Though the work may be conſiderably ſhortened by only multiplying the ſides of ſquares, or the diameters of rounds into themſelves; the product is the number of gallons and parts, the veſſel contains, upon an inch in depth: and when that receives an augmentation, by being two, three, or four inches deep, it then commences a ſolid body, and contains as many gallons, and parts, as it is inches and parts deep.

A cubic foot contains ſix gallons and almoſt a pint of ale and beer; and ſeven gallons two quarts, of wine. A cubic foot of dry meaſure contains ſix gallons and a half, and ſomething more. A buſhel of ſalt contains 56 pounds avoirdupoiſe. See GAUGING.

CONTENTIOUS *juriſdiction*, in *Law*, denotes a court, or aſſembly, which has a power to judge and determine differences between contending parties.

The lords chief juſtices, judges, &c. have a *contentious juriſdiction*; but the lords of the treaſury, the commiſſioners of cuſtoms, &c. have none; being merely judges of accounts and tranſactions.

CONTESTATIO *Litis*, among *Civilians*, denotes a general aſſertion that the plaintiff hath no ground of action, which aſſertion is afterwards extended and maintained in his plea.

CONTEXT, among *Divines* and *Critics*, that part of ſcripture, or other writing, which lies about the TEXT, before or after it or both.

To take the full and genuine ſenſe of the *text*, the *context* ſhould be regarded.

CONTEXTURE, a word frequently uſed in ſpeaking both of

of the works of nature and art; and denoting the disposition and union of the constituent parts with respect to one another.

CONTIGNATION, in *Architecture*, the art or act of FLOORING, by laying *tigna*, RAFTERS, together.

CONTIGUITY, the relation of bodies touching one another. See CONTINUITY.

CONTIGUOUS, a relative term, understood of things disposed so near each other, that they join their surfaces, or touch.

The houses in ancient Rome were not contiguous as ours are, but all insulated.

CONTIGUOUS *angles*, in *Geometry*, are such as have one leg common to each angle; otherwise called *adjoining angles*. In contradistinction to those produced by continuing their legs through the point of contact, which are called *opposite* or *vertical* ANGLES.

CONTINENCE, in *Ethics*, a moral virtue, by which we resist concupiscence. It should seem that there is this distinction between *chastity* and *continence*, in that it requires no effort to be chaste, which results from constitution; whereas *continence* appears to be the consequence of victory gained over ourselves. The verb *continere*, in the Latin, signifies to *refrain*.

CONTINENT, in *Geography*, a terra firma, main land, or a large extent of country, not interrupted by seas: so called, in opposition to *island*, *peninsula*, &c. See EARTH, OCEAN, &c.

Sicily is said to have been anciently torn from the *continent* of Italy; and it is an old tradition, which some of our antiquaries have still a regard to, that Britain was formerly a part of the *continent* of France.

The world is ordinarily divided into two grand *continents*; the old and the new; the old comprehends Europe, Asia, and Africa; the new the two Americas, north and south.

CONTINENT *cause* of a distemper is that wherein the disease depends so immediately, that it continues so long as that remains and no longer.

Thus a stone in the bladder may be the *continent cause* of a suppression of urine.

CONTINENT *fevers*, a term used by medical writers to express such fevers as continue through their whole course exactly in the same tenor in which they begun, without the least visible intermission. They are thus called in opposition to the *continuous* fevers, which, though they never regularly go off so as to have *intermissions*, yet have frequent *remissions*. Of the number of *continent fevers* are the *ephemera*, whether it be strictly diary, or continues more days; also the *synocha*, which is called the *continent fever*, by way of eminence. Junker's Consp. *Med.* p. 252. See FEVER.

CONTINGENCY *of blood*, in the writers of the laws of Scotland, is used for proximity of blood. Bayne, Crim. Law. p. 48.

CONTINGENT, something casual, uncertain, or dependent upon CHANCE.

CONTINGENT, *future*, in *Logic*, denotes a conditional event which may, or may not, happen, according as circumstances fall out.

CONTINGENT is also a term of relation for the quota that falls to any person upon a division.

Each prince of Germany, in time of war, is to furnish so many men, so much money and munition, for his *contingent*. By the new treaty of Hanover it is stipulated, that in case of a rupture with the emperor, the kings of Great Britain and Prussia may furnish their *contingents*, as fiefs of the empire, at the same time they are at war therewith.

CONTINGENT *use*, in *Law*, is an use limited in a conveyance of land, which may, or may not, happen, to vest, according to the *contingency* expressed in the limitation of such use.

CONTINGENT *legacy*, is a legacy depending on the life of the legatee; if it be left to any person, *when* or *if* he attains the age of twenty-one, and if he dies before that time, it is a lapsed legacy: but if it is left *to be paid* when he attains that age, it is a vested legacy; and if the legatee dies, his representatives shall receive it out of the testator's estate at the time when it would have become payable, had the legatee lived. Blackst. Com. vol. ii. p. 513.

CONTINGENT *remainder*, in *Law*, is where an estate is limited to take place *in future*, upon an uncertain event; as where a particular estate, which doth support a remainder, may or may not determine before the remainder may commence. 10 Rep. 85. See REMAINDER.

CONTINGENT *line*, or *Line of* CONTINGENCY, in DIALLING, is a line that crosses the SUBSTILE at right angles.

CONTINGENTS are sometimes also used by mathematicians in the same sense as TANGENTS.

CONTINUAL *claim*. See CLAIM *continual*.

CONTINUAL *proportionals*: When in a series of quantities the first is to the second as the second to the third, and the third to the fourth, and the fourth to the fifth, &c. they are called *continual proportionals*.

CONTINUANCE, in *Law*, is much the same as *prorogation* among the civilians. See DISCONTINUANCE.

CONTINUANCE *of a writ*, or *action*, is its holding in force from one term to another, in a case where the sheriff has not returned, or executed, a former writ issued out in the same action.

CONTINUANCE *of assize*. If a record in the treasury be alledged by one party, and denied by the other, certiorari shall be sued to the treasury and chamberlain of the exchequer; who, if they certify not that the said record is there, or likely to be in the Tower, the king shall then send to the justices, repeating the certificate, and will them to *continue the assize*.

CONTINUANDA *assisa*. See ASSISA.

CONTINUANDO, in *Law*, a term used where a plaintiff would recover damages for several trespasses in the same action.

To avoid multiplicity of suits, a man may in one action of trespass recover damages for forty, or more, trespasses; laying the first to be done with a *continuance* to the whole time wherein the rest of the trespasses were done; which is done in this form: *continuando transgressionem prædictam, &c. à prædicto die, &c. usque, &c.*

CONTINUANDO *processum*. See PROCESSUM.

CONTINUANS *punctum*. See PUNCTUM.

CONTINUATION *of motion*. See MOTION, and PROJECTILE.

CONTINUATIVE *conjunctions*. See CONJUNCTION.

CONTINUATO, in the *Italian Music*, is used to direct a finger, or player, to continue or hold on a sound, in equal strength or manner; or to continue a movement in an equal degree of time all the way.

CONTINUED, or CONTINUAL *fever*, is such a FEVER as sometimes remits, but never intermits, or goes entirely off, till its period. They are thus called to distinguish them from the CONTINENT fevers.

A *continual fever* may be defined to be the continuance of an increased velocity in the CIRCULATION of the BLOOD beyond what is natural to the constitution.

If this velocity often decreases and rises again to the same height, it is called a *continual periodical fever*.

And if it entirely cease in the space of a day, or two, it is called an *ephemeris*.

A *continual* fever, then, may remit, or abate, and increase again, alternately; but not intermit, which would constitute it an intermitting fever, or ague.

CONTINUED, *Quantity*. } See CONTINUUM, CONTINUITY,
CONTINUED *Body*, &c. } and QUANTITY.

CONTINUED, or *thorough bass*, in *Music*, is that which continues to play constantly, both during the recitatives, and to sustain the choir, or chorus.

CONTINUED *proportion*, in *Arithmetic*, is that wherein the consequent of the first ratio is the same with the antecedent of the second—as, 3 : 6 : : 6 : 12. See PROPORTION.

On the contrary, if the consequent of the first ratio be different from the antecedent of the second, the proportion is said to be *discrete*: as, 3 : 6 : : 4 : 8. See DISCRETE.

CONTINUED *axis*, or *scale*, in *Architecture*. See SCALE.

CONTINU'D *Attic*, *Community*, *Pedestal*. See the substantives.

CONTINUI *solutio*. See SOLUTIO.

CONTINUITY is usually defined among *Schoolmen*, the immediate cohesion of parts in the same *quantum*. Others define it, a mode of body, whereby its extremes become one: and others, a state of body resulting from the mutual implication of its parts.

Continuation relates to *duration*, and *continuity* to *extension*. We say, the *continuation* of a work, or an action; and the *continuity* of space or size; *continuation* of the same conduct; and *continuity* of the same building.

There are two kinds of *continuity*, *mathematical* and *physical*. The first is merely imaginary and fictitious; since it supposes real or physical parts where there are none.

Physical continuity is strictly, that state of two or more parts, or particles, wherein they appear so adhere, or constitute one uninterrupted quantity, or *continuum*; or between which we perceive no intermediate space.

The schoolmen distinguish two other sorts of *continuity*; viz. *homogeneous*, and *heterogeneous*. The first, where our senses do not perceive the bounds, or extremes, of the parts; and thus agrees even to air, water, &c. The second, where our senses indeed perceive the extremes of certain parts, yet at the same time observe the same parts closely linked to each other; either in virtue of their situation or figure, &c. and this is chiefly attributed to the bodies of animals and plants.

The *continuity* of bodies is a ſtate merely relative to our ſight and touch: e. gr. if the diſtance of two ſeparate objects be ſuch, as that the viſual angle they ſubtend is inſenſible to the eye, which it will be if leſs than ſixteen ſeconds, the two ſeparate bodies will then appear *contiguous*. Now, the reſult of ſeveral *contiguous* objects is a *continuity*, to that any number of viſible objects, being placed ſo as that the diſtances ſubtend angles of leſs than ſixteen ſeconds, they will appear to form one *continuum*.

And hence, as we can determine the diſtance at which any given magnitude becomes inviſible; it is eaſy to find at what diſtance any two bodies, however remote from each other, will appear as contiguous; and ſeveral, as forming one *continuum*. For the phyſical cauſe of *continuity*, ſee COHESION.

Leibnitz, an eminent mathematician, has ſuppoſed what he calls a law of *continuity* to obtain in the univerſe, by which law every thing that is executed or done in nature, is done by infinitely ſmall degrees. He urges, that good ſenſe dictates this truth, *natura non operatur per ſaltum*, or that nothing can paſs from one extreme to another, without paſſing through all the intermediate degrees. Bernouilli Opera, tom. iii. p. 9, ſeq.

This law ſeems ſubject to difficulties; rigorouſly taken, it ſuppoſes actual, and yet infinitely ſmall changes, which ſome philoſophers cannot allow; and if we ſuppoſe changes only imperceptible to our ſenſes, but finite, the law of *continuity* is no leſs violated than if the univerſe was ſuddenly to be deſtroyed, as M. Maupertuis juſtly obſerves. Mem. de l'Acad. de Berlin. tom. ii. p. 284.

This law of *continuity* led Mr. Bernouilli to reject all HARD *bodies* as chimeras, and naturally impoſſible.

CONTINUO, in the *Italian Muſic*, is ſometimes applied to *baſſo*, to ſignify the thorough baſs. Thus *baſſo continuo* is the continual, or thorough baſs. It is ſometimes marked in muſic books by the letters B, C.

CONTINUO is alſo uſed for a ſpecies of harmony mentioned by Julius Pollux, and which, ſays Zarlino, anſwers to the perpetual burden of our bag-pipes, which now and then muſt be harmonious.

CONTINUOUS *fevers*. See CONTINUED *fevers*.

CONTINUUM, or CONTINUED *quantity*, in *Phyſics*, denotes a quantity, or co-extenſion, whoſe parts are not divided, but joined and connected together; ſo as to leave no room to determine where one begins, and another ends.

It is controverted, among philoſophers, whether a *continuum* be infinitely diviſible, i. e. diviſible into infinite proportionable parts?

The antients attributed the riſe of water, in pumps, to the love of CONTINUITY, and the abhorrence of a VACUUM; becauſe the weight and preſſure of the air were not then known.

Mathematicians divide QUANTITY into *continued*, and *diſcrete*.

Continued quantity is that expreſſed by lines, and makes the ſubject of *geometry*.

Diſcrete quantities are thoſe expreſſed by numbers which make the ſubject of *arithmetic*.

In medicine and chirurgery, wounds, ulcers, fractures, &c. are expreſſed by the phraſe SOLUTIO *continui*, or *ſolution of continuity*.

In a critical ſenſe, we ſay, there ought to be a *continuity*, i. e. a connexion between the parts of a diſcourſe.

In the epic poem particularly, the action ſhould have a *continuity* in the narration, though the events, or incidents, be not continued. As ſoon as ever the poet has opened his ſubject, and brought his perſons on the ſtage, the action is to be *continued* to the end; every character muſt be at work, and no ſuch thing as an idle perſon to be ſeen.

F. Boſſu obſerves, that, by retrenching dull languiſhing incidents, and intervals void of action, which break the *continuity*, the poem acquires a *continued* force, which makes it run equally throughout.

CONTOBABDITES, a ſect in the ſixth century. Their firſt leader was Severus of Antioch, who was ſucceeded by John the grammarian, ſurnamed Philoponus, and one Theodoſius; whoſe followers were alſo called Theodoſians.

Part of them, who were willing to receive a book compoſed by Theodoſius on the Trinity, made a ſeparate body, and were called *Contobabdites*, from I know not what place, which Nicephorus does not mention, but which muſt apparently have been the place where they held their aſſemblies.

The *Contobabdites* allowed of no biſhops; which is the only circumſtance given us concerning them.

CONTOPÆCTÆ, of *κοντος*, *pos*, and *πηγνυμι*, *compact*, in *Antiquity*, a ſort of artiſts who ſupported a pole on their foreheads ſo firmly, that boys could play, dance, and wreſtle together on it.

CONTOR, or CONTOR, a bird of Peru, ſaid to be the largeſt in the world. With its wings expanded, it meaſures ſixteen feet from the tip of the one to the other; a ſingle feather of it is four feet two inches long: its beak is ſtrong enough to tear off the hide, and rip up the bowels of an ox. Two of them will deſtroy a bull. Phil. Tranſ. N°. 208. p. 61. See CONDOR.

CONTORSION, the action of twiſting, or wreſting, a member of the body out of its natural ſituation.

Rope-dancers accuſtom themſelves to *contorſions* of their limbs from their youth, to render the fibres of their articulations lax and ſupple, for all kinds of poſtures.

CONTORSION, in *Surgery*, has many ſignifications. Firſt, the *diaſtaſis* is thus called; ſecondly, an *incompleta diſlocation* is thus named, when a bone is partly forced from its articulation; thirdly, a diſlocation of the vertebræ of the back ſideways, or crookedneſs of theſe vertebræ, are called *contorſions* of them: fourthly, a diſorder of the head is thus called, in which it is drawn towards one ſide, either by a ſpaſmodic contraction of the muſcles on the ſame ſide, or a palſy of their antagoniſt muſcles on the other. James's Med. Dict.

The *antorſion* of the neck is uſually occaſioned, according to Nuckæ, by a relaxation or *paraliſis*, of one of the maſtoidal muſcles: for hence it happens, that its antagoniſt, whoſe power is now no longer balanced, contracting with its proper force, draws the head towards that ſide.

He adds, that this diſorder cannot be remedied too ſpeedily; and preſcribes, from the beginning, liniments cable of relaxing and ſoftening the fibres, to be uſed, not only to the muſcle in contraction, but alſo, and principally, to the paralytic muſcle, which is the ſeat of the diſorder.

CONTOUR, *outline*; that which terminates and deſines a figure.

A great part of the ſkill of the painter conſiſts in managing the *contours*.

The *contour* of a figure makes what we call the *draught*, or *deſign*. The *contour* of a face, the Italian painters ordinarily call the *lineaments* of it.

CONTOURNE, in *Heraldry*, is uſed when beaſts are repreſented ſtanding, or running, with their faces to the ſiniſter-ſide of the eſcutcheon; they being always ſuppoſed to look to the dexter-ſide, unleſs it be otherwiſe expreſſed.

CONTOURNIATED, a term applied among *Antiquaries*, to a kind of medallions which have a broad riſing rim on each ſide; and figures that have ſcarce any relievo, in compariſon with the true medallions.

They have their name from their edges; which appear as if turned in the lathe. All we have remaining of theſe *contourniated* medals, ſeem to have been ſtruck about the ſame time. F. Hardouin conjectures them not to be earlier than the thirteenth century; other antiquaries go back as far as the fifth; and others find inſtances of them as antient as the time of Nero.

This ſort of work ſeems to have had its origin in Greece, and to have been appropriated to honour the memories of great men; principally, thoſe who had borne away the prize at the ſolemn games; ſuch are thoſe remaining of Homer, Solon, Euclid, Pythagoras, Socrates, Apollonius Tyaneus, and ſeveral athletæ, whoſe victories are expreſſed on them by palms and chariots, either biga, or quadriga.

CONTRA, or COUNTER, in *Compoſition*. See COUNTER.

CONTRA *operture*, in *Surgery*, a counter opening. This is ſometimes very neceſſary in wounds made by puncture or a bullet, in order to diſcharge whatever is contained in the wound, and prevent its growing ſiſtulous. James's Med. Dict.

CONTRA *formam collationis*, is a writ that lies where a man has given lands, in perpetuâ alms, to a religious houſe, hoſpital, ſchool, or the like, and the governor, or managers, have alienated the lands, contrary to the intention of the donor.

This was founded on the ſtatute of Weſtm. 2. cap. 41.

CONTRA *formam feoffamenti*, is a writ for a tenant, who is infeoffed by the lord's charter, to make certain ſuit and ſervice to his court; and is afterwards diſtrained for more than is contained therein. Reg. of Writs, fol. 176. Old Nat. B. ii. fol. 162.

CONTRA *formam ſtatuti*, is the uſual concluſion of every indictment, &c. laid on an offence created by ſtatute.

CONTRABAND, in *Commerce*, a prohibited commodity; or, a merchandize bought or ſold, imported or exported, in preju dice, and contrary to the laws and ordinances of a ſtate, or the public prohibitions of the ſovereign.

The word comes from the Italian *contrabando*, of *contra* and *bando*, q. d. contrary to edict, or publication of prohibition.

Contraband goods are not only liable to confiſcations themſelves,

selves, but do alſo ſubject all other allowed merchandizes found with them in the ſame box, parcel, or bale, together with the horſes, waggons, &c. which conduct them to the ſame.

There are *contraband* goods, which, beſides confiſcation, are prohibited on pain of death; as, v. gr. in France, India and China ſtuffs, ſilkens, &c.

In England there are two principal *contraband* for exportation, wools and live ſheep, which all ſtrangers are prohibited from carrying out, on pain of having the right hand cut off; the other, that of sheep-ſkins and calf-ſkins, which all foreigners are in like manner prohibited from exporting, on pain alſo of having the right hand cut off; yet the ſubjects of England are allowed to tranſport the ſame from France to England.

Other *contrabands* for exportation are raw horns, white aſhes, ſtocking-looms, or any part thereof, fullers earth, and all raw hides, or ſkins.

Of goods *contraband* as to the import, there are above fifty in the liſts made in 1662, and there are twenty-five of them which now ſtand in the tariff; the non-execution of the acts of parliament, whereby they were impoſed, ſeeming to have reſtored them to the freedom of importation.

The chief of thoſe ſtill *contrabanded*, and not tariffed, are woollen caps, woollen cloths, ſaddles and harneſs, dice, billiards, all ſorts of tanned, or dreſſed hides, dreſſed furs, all ſorts of ſhoemaker's ware, locks, and divers ſorts of cutlers ware; all painted goods, except paper; wires, buckles, gold and ſilver leaf, and horns for lanterns.

Since the year 1662, ſeveral other commodities have been made *contraband*; particularly ſilk and galloons, laces, embroidery, fringes, buttons, and other ſilk and thread manufactures; black taffaties, called *alamodes*, or luſtrings. In 1719 and 1720, an attempt was made in parliament to paſs a bill for putting gold and ſilver, whether in coined ſpecies, or otherwiſe, among the number of *contraband* goods for exportation; but in vain, by reaſon of the ſtrong oppoſition made by thoſe who enrich themſelves by the export of theſe metals; which by the laws of the kingdom, are allowed to be ſent away, upon entering them, paying the duty of the export, and making oath of their being foreign, i. e. of their not being the coin or plate of the kingdom, melted down.

CONTRACT, a mutual conſent of two or more parties, who promiſe and oblige themſelves voluntarily, to do ſomething, pay a certain ſum, or the like.

SALES, EXCHANGES, DONATIONS, LEASES, &c. are ſo many different ſpecies of *contracts*.

CONTRACT is particularly uſed, in *Common Law*, for an agreement or covenant between two, with a lawful conſideration, or cauſe.

As, if I ſell my horſe for money; or covenant in conſideration of 20*l.* to make you a leaſe of a farm; theſe are good *contracts*, becauſe there is *quid pro quo*. See SIMPLE and SPECIALTY.

CONTRACT *Nude*, and *Quaſi*. See the adjectives.

CONTRACT, *uſurious*, is a *contract* to pay more intereſt for money than the laws allow.

It is a deviaſavit in executors to pay a debt upon an uſurious *contract*.

CONTRACT. In marriage, the Romaniſts diſtinguiſh the civil *contract*, which is the conſent of the parties, from the *ſacrament*, which is the benediction of the prieſt.

Thoſe *contracts* are ſaid to be *null*, which the law prohibits: ſuch are all *contracts* between perſons incapable of *contracting*, as minors, religious, lunatics, wives without conſent of their huſbands, &c.

CONTRACT is alſo uſed for the inſtrument in writing, which ſerves as a proof of the conſent granted, and the obligation paſſed between the parties.

Among the ancient Romans, *contracts*, and all voluntary acts, were written, either by the parties themſelves, or by one of the witneſſes, or by a domeſtic ſecretary of one of the parties, whom they call a *notary*; but who was no public perſon, as among us.

The *contract*, when finiſhed, was carried to a magiſtrate, who gave it a public authority by receiving it *inter acta*, into the number of the ACTS under his juriſdiction; giving each of the parties a copy thereof, and ſealed with his ſeal. Which practice paſſed into France, where it obtained a long time.

CONTRACTILE *force*, that property, or power, inherent in certain bodies, whereby, when extended, they are enabled to draw themſelves up again to their former dimenſions.

For the cauſe of this property, which is of the utmoſt conſequence to a right underſtanding of the animal œconomy, ſee FIBRE.

CONTRACTION, in *Logic*, a ſpecies of reduction, wherein the thing that reduces does alſo abridge, or bring the thing reduced into a leſſer compaſs.

The deſign of *contraction* is to bring things, which before were too lax and diffuſive, nearer together; that ſo their mutual relation may appear the more clearly, and they may better ſtrengthen and ſupport each other.

To this head are referred the arguments, as they are called, of poems and orations; the titles and ſummaries of chapters, &c.

CONTRACTION, in *Phyſics*, denotes a diminiſhing of the extent, or dimenſions, of a body; or a bringing of its parts cloſer to each other; upon which it becomes heavier, harder, &c. See CONDENSATION.

Contraction, in this ſenſe, ſtands oppoſed to *dilatation*.

All bodies *contract* by cold, and dilate, or rarefy, by HEAT. See RAREFACTION.

CONTRACTION is frequently uſed, by anatomical writers, to expreſs the ſhrinking up of a fibre, or an aſſemblage of fibres, when extended.

Convulſions, and ſpaſms proceed from a preternatural *contraction* of the fibres of the muſcles of the part convulſed.

On the contrary, paralytic diſorders generally proceed from a too great laxneſs of the fibres of the parts affected; or from the want of that degree of *contraction* neceſſary to perform the natural motion or action of the part.

In the firſt, therefore, the animal ſpirits are ſuppoſed to flow either in too great a quantity, or irregularly; and, in the laſt, the animal ſpirits are either denied a free paſſage into the part affected, or the tenſion of the fibrillæ is ſuppoſed inſufficient to promote the circulation.

Contraction evidently appears to be the true natural ſtate of all muſcles; for, if a muſcle be at any time freed from the power of its antagoniſt, it is immediately found to *contract*; and is not, by any action of the will, or the ſpirits, to be reduced to a ſtate of dilatation.

CONTRACTION *of the heart, arteries, lungs, &c.* See SYSTOLE, HEART, ARTERY, PULSE, &c.

CONTRACTION, in *Grammar*, the reduction of two vowels, or ſyllables, into one; as, *mayn't*, for *may not*; *ſhouldſt*, for *ſhouldeſt*, &c.

The Greeks abound with *contractions*, both in their verbs, and their nouns.

CONTRADICENTE. See NEMINE *contradicente*.

CONTRADICTION, a ſpecies of direct oppoſition, wherein one thing is found diametrically oppoſite to another.

The ſchoolmen uſually define it, *oppoſitio inter res & non-entia, medio carentes*: where, by *res*, and *non-res*, are underſtood any two extremes, whereof one affirms, and the other denies; and it is ſaid to be *medio carens*, to diſtinguiſh it from the other ſpecies of compoſition; the extremes, here, neither agreeing in ſubject, as is the caſe in PRIVATION; nor in eſſence and kind, as in CONTRARIETY.

CONTRADICTION, *freedom of*. See FREEDOM.

CONTRADICTION, *imply a*. See IMPLY.

CONTRADICTOR, in a legal ſenſe, a perſon who has a right or title to contradict or gainſay.

An inventory of the effects of a minor ought to be made in preſence of his guardian, or truſtee, who is the legal *contradictor*: a decree againſt a farmer has no effect on the landlord, the firſt not being the legitimate *contradictor*.

CONTRADICTORY *propoſitions*, are oppoſites, one of which imports a mere, and naked denial of the other.

Of theſe, therefore, one muſt be poſitive, and the other negative; as *ſitting*, and *not ſitting*: *white*, and *not white*. *Contradictory* propoſitions mutually deſtroy each other.

To have two propoſitions truly *contradictory*, they muſt be oppoſite, both in quantity and quality, i. e. one muſt be univerſal, and the other particular, which make the oppoſition of quantity; and the one affirmative, and the other negative, which makes the oppoſition in quality. Thus, v. gr. *All uſe of coins and ſilver is evil*; falſe: *Some uſe of coins and ſilver is not evil*; true. To this it is neceſſary, that the one deny and the other affirm, the ſame thing, of the ſame ſubject, conſidered in the ſame circumſtances; unleſs the queſtion be about an eſſential attribute, in which caſe, no regard is had to circumſtances; every thing having always its own eſſence. This the logicians expreſs by *affirmare & negare idem, de eodem, ſecundum idem*.

There may likewiſe be *contradictory* propoſitions on a particular ſubject; e. gr. an individual. Theſe are called *ſingle contradictory propoſitions*; as, *Peter is innocent, Peter is not innocent*, or *is a criminal*. Now to have theſe propoſitions *contradictory*, Peter muſt be conſidered at the ſame time, without which they may be both true: ſince there may be a time wherein Peter was innocent, and another wherein he was a criminal.

CONTRA-FISSURE, in *Medicine*, a term applied to that ſpecies of fracture, or fiſſure, in the ſkull, where

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the side, opposite to that where the blow was received, it cracked.

This species of fracture is taken notice of by Celsus, lib. viii. cap. 4. yet Ægineta denies the possibility of it; and is herein followed by Gorræus, and many of the moderns. Their chief argument is, that the skull is not one uniform continuous bone, but is divided by several sutures, which prevent the effects of a stroke from being communicated to the opposite part, and confine the mischief to the part struck. Here, say they, if a skull be found cracked on the opposite side, or any where but in the place where the blow is immediately received, this must proceed from a second or third blow, which, perhaps, the patient, being stunned, does not remember. But there are so many cogent instances on the other side of the question, that the reality of *contra-fissures* is now generally allowed.

The usual symptoms attending a *contra-fissure*, are a delirium, sometimes a bleeding at the nose and mouth, lipothymy, and involuntary passing of the urine and excrements, and convulsions. If these happen, and after search made in the part where the injury was received, no fracture or depression of the skull be found, there is a suspicion of a *contra-fissure*; especially if the patient be apt to point to that part.

If the symptoms be by intervals, and not to a great degree, or there be reason to believe the fissure to have reached only through one of the tables, it is sufficient to bare the bone, and use a raspatory; then to fill the rima, or crack, with proper powders, as of iris, gum, myrrh, powder of dispente, &c. and above all apply a pledget, dipped in the tincture of euphorbium, or of equal parts of spirit of wine, and honey of roses. If these fail, the trepan must be had recourse to.

CONTRA-HARMONICAL *proportion*, that relation of three terms, wherein the difference of the first and second is to the difference of the second and third, as the third is to the first.

Thus, e. gr. 3, 5, and 6, are numbers *contra-harmonically* proportional: for 2 : 1 :: 6 : 3.

To find a mean contra-harmonically proportional to two given quantities: the rule is, divide the sum of the two squared numbers by the sum of the roots; the quotient is a *contra-harmonically* mean proportional between the roots.

CONTRA-INDICATION, is an INDICATION which forbids that to be done which the main scope of a disease points out.

Suppose, e. gr. in the cure of a disease a vomit were judged proper: if the patient be subject to a vomiting of blood, it is a sufficient *contra-indication* as to its exhibition.

CONTRALTO, in *Music*. See COUNTER-*Tenor*.

CONTRAMANDATIO *Placiti*, in *Law-Books*, signifies a respiting, or giving the defendant farther time to answer; or an imparlance, or countermanding of what was formerly ordered. See COUNTERMAND.

CONTRAMANDATUM, a lawful excuse which the defendant, by his attorney, alleageth for himself to *shew* that the plaintiff has no cause to complain, *si dies placiti sit contramandatus*. 11 Hen. I. See the article COUNTERMAND.

CONTRAMURE, in *Fortification*, an outwall, built about the main WALL of a city. See RAMPART.

CONTRAMURE, in *Civil Architecture*. See COUNTERMURE.

CONTRA-*Points*, in *Music*. See the article COUNTER-*point*.

CONTRAPOSITION, in *Logic*. See the article CONVERSION.

CONTRARIENTIUM *Rotulus*. See the article ROTULUS.

CONTRARIETY, that which denotes two things *contrary* to each other.

Contrariety consists in this, that one of the terms imports a negation of the other, either mediately or immediately; so that *contrariety* may be said to be the contrast, or opposition of two things, one of which implies the absence of the other.

CONTRARIETY, *freedom of*. See FREEDOM.

CONTRARIES, are positive OPPOSITES; which being of the same kind, or same common nature, and subsisting by turns in the same subject, are as remote from each other as possible, and mutually expel each other. Such are whiteness and blackness, cold and heat, &c.

Hence, properly speaking, only qualities can be *contraries*: *contrariety*, in effect, only agrees to qualities *per se*; to other things it agrees *per accidens*, or *in ordine ad qualitatem*.

CONTRARY, however, is often used in a more extensive signification, viz. for any inconsistence or difference between the nature and qualities of things. It is a popular maxim in Philosophy, that *contraria juxta se posita magis elucescunt*: *contraries* set off one another. In this sense is the word *contrary* used in the schools; and hence an argument *à contrario*.

This method of improving things *à contrario*, is much used, and with good success, by F. Bourdaloue, in his Sermons.

CONTRARY, in *Rhetoric*. F. de Colonia lays down three kinds of *contraries* in rhetoric; viz. *adversatives*, *privatives*, and *contradictories*.

Adversatives are those that differ much in the same thing, as virtue and vice, war and peace: thus Tully, *Si stultitiam fugimus, sapientiam sequamur; & benignitatem, si malitiam*. And Quintilian, *malorum causa bellum est, est emendatio pax*. Instances argues thus in Virgil:

Nulla salus belli: pacem te poscimus omnes.

Privatives are habits and their privations. *Contradictories*, are those, one whereof affirms, and the other denies, the same thing of the same subject.

CONTRARY *propositions*, in *Logic*, universal propositions, one of which affirms, and the other denies, the same predicate of the same subject; *as every square is a parallelogram*, and *no square is a parallelogram*. These propositions differ in quality, but not quantity, and therefore are distinguished from CONTRADICTORY propositions, which differ in quantity and quality.

Contrary propositions cannot be both true, but may both be false; whereas, in *contradictory* propositions one is necessarily true, and the other false.

CONTRARY *point of flexure*. See POINT.

CONTRAST, in *Painting* and *Sculpture*, expresses an opposition or difference of position, attitude, &c. of two or more figures; contrived to make a variety in a painting, &c.

The word comes from the Italian *contrasto*, *to oppose*, or *thwart*; and that, according to M. Huet, from the Latin *contra flatio*.

Thus, when in a group of three figures, one appears in front, another shews his hind-parts, and third is placed sideways, there is said to be a *contrast*.

M. de Piles defines *contrast* an opposition between the lines which form the objects; by means whereof they tend to set off one another.

A *contrast*, well managed, is one of the greatest beauties of a painting. The *contrast* is not only to be observed in the position of several figures, but also in that of the several members of the same figure: thus, if the right arm advance the farthest, the right leg is to be hindmost: if the right eye be directed one way, the right arm is to go the contrary way, &c. The *contrast* must be pursued, even into the drapery.

To CONTRAST, in *Architecture*, is to avoid the repetition of the same thing, in order to please by variety: as is done in the great gallery of the Louvre, where the pediments are, alternately, arched and angular.

CONTRAST-*wheel*, in *Clock-work*. See WHEEL, CLOCK, and WATCH.

CONTRAVALLATION, *line of*, in *Fortification*, is a trench, guarded with a parapet; made by the besiegers, betwixt them and the place besieged, to secure themselves on that side, and stop the sallies of the garrison.

It is without musket-shot of the town, and sometimes goes quite round it, sometimes not, according as the general finds occasion. The army, forming a siege, lies between the line of CIRCUMVALLATION and *contravallation*. It is now seldom used.

CONTRAVENTION, a man's failure of performing or discharging his word, obligation or duty, of the laws and customs of the place. The penalties imposed in cases of *contravention*, only pass for comminatory.

In a more limited sense, *contravention* implies the non-execution of an ordinance, or edict.

Contravention is supposed to be a degree below PREVARICATION; and to be only the effect of negligence or ignorance.

CONTRAYERVA, *Dorstenia*, in *Botany*, a genus of the *tetrandria monogynia* class. Its characters are these: it hath one common involucrum, situated vertically, upon which sit so many small flowers, which have no petals, but four short stamina; in the center is situated a roundish germen, which afterward becomes a single seed inclosed in the common fleshy receptacle. There are three species, which are natives of Spanish America.

These plants are at present very rare in Europe; nor was it known what the plant was whose roots were imported, and had long been used in medicine in England, until the late Dr. Houston informed us: for although F. Plumier had discovered one species of this plant, and had given the name of *Dorstenia* to the genus, yet he seems not to have known that the *contrayerva* was the root of that plant. Miller's Gard. Dict.

The *contrayerva* root was first brought into Europe by sir

Francis Drake, about the year 1581, and from him called *Draxena*. It is eſteemed a very great alexiterial and a ſovereign antidote againſt poiſon.

Its juice is a violent poiſon, ſaid to be uſed by the Peruvians to poiſon their arrows. *Contrayerva* ſignifies *counter-poiſon*, becauſe the root of it is ſaid to be an antidote againſt the poiſon of its juice.

The root is ſmaller than that of the iris, reddiſh without, and white within, knotty and fibrous. To be good, it muſt be new, heavy, and of a duſky red colour. In ſmell it reſembles fig-leaves; its taſte is aromatic, accompanied with ſomewhat of acrimony. It is diaphoretic and antiſeptic, and is uſed in low nervous fevers, and in thoſe of the malignant kind.

There is an officinal compoſition, which takes its name from this root, prepared with it, mixed with the teſtaceous powders, called *lapis contrayerva*. The London college directs it to be made of the compound powder of crab's claws one pound and a half, and of *contrayerva* root five ounces, mixed and powdered. Both the root and lapis are of great efficacy in the ſmall-pox, meaſles, fevers, and in all caſes where either a diaphoreſis or perſpiration is required; its ſucceſs being much more to be depended on than the Gaſcoign powder; which, among the more knowing, is now very much deſpiſed.

It is agreed on by the generality of writers, that the *contrayerva* root is one of the beſt anti-epidemics yet known. Dr. Hodges, in his treatiſe of the laſt London PLAGUE, has a recipe, which he ſays was attended with great ſucceſs, and of which this root was one of the chief ingredients.

There is another kind of *contrayerva* brought from Virginia, more ordinarily called SERPENTARIA; this is very aromatic; it is but ſeldom preſcribed ſingly, though ſaid to have the ſame ſucceſs againſt poiſons and venoms with the *contrayerva* of Peru. Thus is an excellent ſubſtitute for the *contrayerva*. See Lewis's Mat. Med. and Neuman's Chem. Works.

CONTRE-BEND, in *Heraldry*. The bar is called a *contre-bend*, or *counter-bend*, becauſe it cuts the ſhield contrary, and oppoſite ways.

They alſo ſay, *contre-chevron*, *contre-pal*, &c. when there are two ordinaries of the ſame nature oppoſite to each other; ſo as colour be oppoſed to metal, and metal to colour. And the coat is ſaid to be *contre* or *counter-poled*, *counter-bended*, *counter-veſſed*, *counter-ampaled*, or *counter-barred*, when ſo divided.

Counter-quartered is when one of the quarters is quartered again: hence alſo *counter-flowered*, *counter-coloured*, &c.—Animals are ſaid to be *counter-paſſant*, when one paſſes on one ſide, and another on another. See COUNTER-COMPONED, COUNTER-CHANGED, COUNTER-CHEVRONED, ERMINE, COUNTER-QUARTERED, &c.

COUNTER-*Queue d'Hirondo*, in *Fortification*. See QUEUE, &c.

CONTRIBUTION, the payment of each perſon's quota, or the part he is to bear in ſome impoſition, or common expence.

Contributions are either *involuntary*, as thoſe of taxes and impoſts; or *voluntary*, as thoſe of expences for carrying on ſome undertaking for the intereſt of the community.

CONTRIBUTIONS, in a military ſenſe, are impoſitions paid by frontier countries to ſecure themſelves from being plundered, and ruined by the enemy's army.

The peaſants till their ground under the faith of *contributions*, as ſecurely as in time of profound peace.

CONTRIBUTIONE *facienda*, a writ which lies where ſeveral perſons are jointly bound to the ſame thing, and one or more of them refuſe to *contribute* their ſhare.

If tenants in common, or joint, hold a mill *pro indiviſo*, and equally ſhare the profits thereof; the mill falling to decay, and one or more of them refuſing to *contribute* to its reparation, the reſt ſhall have the writ *de contributione faciendo* to compel them. And if there be three coparceners of land that owe ſuit to the lord's court, and the eldeſt performs the whole; then may ſhe have this writ to compel the refuſers to a *contribution*.

CONTRITION, in *Theology*, expreſſes a real ſorrow, reſulting from the thought of having offended God; from the ſole conſideration of his goodneſs; without any regard to the puniſhment the ſin is entitled to.

Some of the Romiſh doctors avow, notwithſtanding the practice of their church, that *contrition* is valid, and carries with it every thing neceſſary to obtain pardon, without the ceremony, or, as they call it, the *ſacrament* of confeſſion and abſolution.

And in this they make the difference between *contrition* and ATTRITION to conſiſt. This doctrine was maintained by F. Seguenot upon St. Auguſtine; but it was cenſured by the faculty of Paris.

CONTROL. See COMPTROL.

CONTROLLER. See COMPTROLLER.

CONTROVER, in *Law*, he who of his own head deviſes or invents falſe, or feigned news.

CONTROVERSIAL *divinity*. See POLEMICAL *divinity*.

CONTUMACY, in *Law*, a refuſal to appear in court when legally ſummoned; a diſobedience to the rules and orders of a court having power to puniſh ſuch offence.

The word is uſed in civil, as well as in criminal matters, but more rarely in the firſt, wherein the words *default* and *contempt*, ordinarily ſupply its place: the refuſing of the charges of a contempt, judged at the hearing, is alſo the penalty of *contumacy*. In a criminal ſenſe, the *contumacious* is condemned, not becauſe the crime is proved on him, but becauſe he is abſent.

By the Roman laws, there was no proceſs in caſe of *contumacy*, during the firſt year of abſence: they only took an inventory of the goods of the fugitive, and, if he died in the year, he died *integri ſtatus*; but, after the year was expired, he was deemed culpable.

In England, *contumacy* is to be proſecuted to outlawry.—In France, all *contumacies* are annulled, if the accuſed make his appearance in five years: if he die in that time, his relations are allowed to purge his memory.

CONTUS, *κοντος*, in *Antiquity*, a long ſpear, chiefly uſed by the horſe.

CONTUSION, *bruiſe*, in *Medicine*, a ſolution of continuity, either in fleſh or bone, occaſioned by a fall, a blow, or a violent preſſure, whereby the fleſh is damaged, but without any external rupture, or any manifeſt loſs of ſubſtance; an effuſion of blood enſues, from ſeveral little broken veſſels, ſo as to diſcolour the ſkin, though it doth not make its way through the pores.

Or, *contuſions* may be defined a particular ſort of tumors, attended with a ſtagnation of the blood in the part affected, and generally with an inflammation, diſcolouration, and pain.

Contuſions are either *internal* or *external*. When from any external injury, there proceeds an internal diſorder, e. gr. an aſthma, ſpitting of blood, or the like, the *contuſion* is ſaid to be *internal*. If only external ſymptoms appear, as a tumor, blackneſs, &c. it is termed *external*.

When the ſmall veſſels and fibres have been broken by a *contuſion*, the fluids that are contained in them will be forced out, and hence will proceed obſtructions, corruptions, inflammation, and ulcers, or even a gangrene, in proportion to the violence of the cauſe, and the nature of the affected part. When a bony part is the ſubject of a *contuſion*, the ſame miſchiefs will enſue from the injury inflicted on the periofteum, as happen to the pericranium in wounds of the head; and when the medullary juice of the bones is affected, very violent diſorders are to be expected, though the bone is not fractured. When *contuſions* happen on the joints, they uſually bring on violent pains and inflammations, convulſions, gangrenes, ſphacelus, rigidity of the limbs, and caries; and the ſame miſchiefs will indeed ſometimes happen from *contuſions* of the muſcular parts. When the internal parts are *contuſed*, great miſchiefs uſually enſue; but theſe entirely depend upon the nature of the injured part: theſe are ſometimes inflammations, ruptures of the veſſels, varices, aneuriſms, hæmorrhages, ſtagnation of the fluids, corruptions, gangrene, and ſuppuration, and very often death is the neceſſary attendant on theſe ſymptoms. When the head receives a conſiderable contuſion, the ſenſes are taken away, the limbs become either convulſed, or rigid, and death preſently follows. In *contuſions* of the thorax, a difficulty of breathing follows, with ſpitting of blood, fainting fits, inflammation, and ulcers of the lungs and death. After *contuſions* of the abdomen we may expect vomitings of blood, inflammations, ſuppurations, or gangrenes of the viſcera, and at length death; but if any large internal veſſel is burſt by the blow, it is no wonder if the patient dies upon the ſpot, even though there be no mark of violence left upon the external parts. Laſtly, if the eye is *contuſed*, tumor and inflammation will ſucceed, and frequently loſs of ſight.

Theſe are the effects of violent *contuſions* on the different parts. In the cure of ſlight *contuſions*, the principal care is to divide the inſpiſſated fluids, and prevent the parts from ſuppurating, or being affected by the gangrene: this may be done by hot wine, ſpirit of wine, ſpirit of wine with camphor, or Hungary water; or by applying cold water, or vinegar mixed with ſalt, to the part; or by clapping a broad piece of money, or a plate of lead, upon the tumor, and faſtening it on with a very tight bandage; or linen rags dipped in freſh warm urine ſhould be applied to the part. Theſe different methods ſucceed very well in tumors of the foreheads of children from falls, or any other ſlight *contuſion* in perſons of a tender make. Larger *contuſions* are to be fomented with decoctions of the warm herbs, as ſcordium, ſaxin, ſouthern-wood, and ſuch like, either alone, or mixed with wine, or with ſalt

water; great benefit alſo ariſes from applying to the parts a ſponge dipped in a decoction of Venice ſoap made in freſh urine, or warm applications of lime-water, ſpirit of wine camphorated, vinegar with litharge, and vinegar, with carraway ſeeds boiled in it. But when the *contuſion* is ſo violent, that it is apparently impoſſible to divide the ſtagnating fluids, and return them into circulation, and the parts are tending towards a gangrene, they muſt be ſcarified without delay, and by this means the ſtagnating fluids will be let out, and all danger of ſuppuration and gangrene prevented. After ſcarification warm fomentations are to be uſed, and the tumor ſhould be well rubbed with warm cloths before it is fomented, which will keep the blood in its fluid ſtate; or, if it is already concreted, will divide it, and make it fit to return to the veſſels, or, at leaſt, to eſcape through the pores of the ſkin. Into all theſe fomentations it is very proper to put wine, or ſpirit of wine, or elſe ſome other ſpirituous liquor; but if theſe are not to be had, ſalt water is to be uſed, which, if you are not near the ſea, may be had by adding a handful of ſalt to a quart of water; attenuating decoctions muſt alſo be taken inwardly; and bleeding, eſpecially in plethoric habits, is extremely neceſſary.

It ſometimes happens, when the *contuſed* parts lie very deep, or when the ſurgeon does not uſe the proper means, or the patient refuſes to ſubmit to proper treatment, that the ſtagnating fluids will corrupt and ſuppurate. When a ſuppuration on theſe occaſions is once begun, it muſt be carried on and forwarded by emollient cataplaſms, made of mallow, marſhmallow, and white lily roots, linſeed, fenugreek ſeed, pellitory, mercury, and other herbs of that kind, with crumbs of bread, and the emollient oils of lilies, chamomile, &c. Theſe muſt be laid on the part as hot as they can be borne; and ſometimes it is neceſſary to add the warm herbs, ſuch as onions, &c. and the gums, as galbanum, ammoniacum, and the others of that kind. Sometimes, in ſmall *contuſions*, a plaſter of diachylon with the gums, without any other application, will anſwer the purpoſe.

When the whiteneſs and ſoftneſs of the tumor evidently ſhew that the matter is formed, and fit to be diſcharged, the part is to be laid open with a knife, and, after the diſcharge of the matter, muſt be healed in the common way. Large *contuſions* are frequently attended with violent inflammations and gangrenes: in this caſe numerous and deep inciſions muſt be made on the part, and the wounds dreſſed with Venice treacle, ſoftened with ſpirit of wine with camphor, applying at the ſame time externally the warm fomentations. And when the parts are from very large and deſperate *contuſions*, abſolutely ſphacelated, the limb muſt be taken off in time.

In caſe of inward *contuſion*, bleeding the patient is always neceſſary, and balſamics muſt be given internally: ſuch are ſpermaceti, powder of rhubarb, Iriſh ſtaſe, oleaginous and pectoral medicines, &c. Externals proper for *contuſions*, are liniments, or ointments of marſh-mallows, oil of ſweet almonds, ſpirit of wine, with camphor; proper fomentations, and ſtrengthning emplaſters, as that of oxycroceum, &c. according as the nature of the *contuſion*, and part *contuſed*, requires.

CONTUSIONS *of the cranium*. When the cranium is violently *contuſed*, it will be diſcovered by the tumor and ſoftneſs of the part, by the ſeparation of the integuments from the cranium, and by the collection of ſtagnating blood which appears to be confined under the ſkin. In this caſe you are to endeavour to divide the confined fluids, by attenuating medicines externally applied, or to diſcharge them by making an opening with a knife; or laſtly, to bring them to a ſuppuration. When the extravaſation of fluids is very conſiderable, it is beſt to diſcharge the greateſt part of them inſtantly by inciſions, and what remains will then eaſily be diſperſed, by applying fomentations, and medicated bags of the warm herbs, rue, wormwood, ſavin, ſcordium, &c. quilted into bags, and boiled in wine, or in water with a mixture of ſpirit of wine, or malt or moliaſſes ſpirit. But where it is found impracticable to divide and attenuate the ſtagnating fluids, the ſuppuration of them muſt be attempted; and if the *contuſion* hath been but ſmall, after the ſuppuration is formed, and the matter diſcharged, the wound will eaſily heal, by the application of a vulnerary balſam.

In violent *contuſions*, when there is no opening, but a very ſmall one, the wound muſt be enlarged with the knife, to prevent the neighbouring parts from being corroded; and by this means the wound will be eaſily cleanſed, and the cure performed by the method before laid down. When the pericranium is wounded, but not in ſo great a degree as to lay the cranium bare, the wound is to be dreſſed with warm balſamic medicines. But where the cranium is expoſed and laid bare, its external lamella being robbed of its nouriſhment, by the deſtruction of the veſſels by which it was conſtantly ſupplied, it will loſe its natural colour, and become yellow, livid, black, and, by degrees, ſeparate from the neighbouring parts, and exfoliate, which will greatly protract the cure of the wound. To haſten this exfoliation, the ſurgeon ought to bore ſeveral holes through the denudated part, as deep as the diploe, with an awl, or ſuch like inſtrument. This operation not only forwards the exfoliation of the part, but makes way alſo for the ſprouting up of new veſſels. The dreſſing, which ought to be repeated each time with great expedition, is to be applied in the following manner: when the wound is well cleaned, pledgits thoroughly ſaturated with the mild balſamics, with the addition of a ſmall quantity of honey of roſes, are to be laid upon the injured part of the cranium; over theſe a ſticking plaſter is to be applied; and over that the proper bolſter and bandage. Theſe applications ſhould be continued till the cranium appears ſound, and the wound in a condition to heal. Heiſter's Surg. p. 84.

CONTUSIONS *of the eye*. See EYE.

CONVALESCENCE, in *Medicine*, the inſenſible recovery of health; or that ſtate in which after the cure of a diſorder, the body, which has been reduced, has not yet regained its vigour, but begins to reſume its powers. Proper aliments conduce to the re-eſtabliſhment of the languid faculties; but as the tone of the bowels is weakened, the digeſtive faculty is not equal to its office, which is ſhewn by light ſweats over the whole body, and the ſmalleſt exceſs in this reſpect, is oftentimes the occaſion of dangerous relapſes. A perſon in this ſtate is like a taper relumined, which the leaſt degree of wind is inſufficient to extinguiſh. Encycl.

CONVALLARIA, in *Botany*. See LILY *of the valley*.

CONVENT, a MONASTERY of religious, of either ſex.

The word comes from the Latin *conventus*, *meeting*, of *convenire*, *to come together*.

CONVENTA *potta*. See PACTA.

CONVENTICLE, a diminutive of *convent*; denoting properly, a cabal, or ſecret aſſembly, of a part of the monks of a *convent*, to make a brigue or party in the election of an abbot.

From the ill uſe of theſe aſſemblies, the word is come into diſrepute; and now ſtands for any miſchievous, ſeditious, or irregular aſſembly. F. Doucine obſerves, the occidentals always eſteemed the fifth general COUNCIL an unlawful *conventicle*. The term *conventicle* is ſaid, by ſome, to have been firſt applied in England to the ſchools of Wickliff, and has been uſed ſince to ſignify the religious aſſemblies of all in this country who do not conform to the eſtabliſhed doctrines and worſhip of the church of England. *Conventicle*, however, in ſtrict propriety, denotes an unlawful aſſembly; and cannot, therefore, be juſtly applied to the legal aſſemblies of Proteſtant Diſſenters.

By 22 Car. II. cap. 1. it is enacted, that if any perſons of the age of ſixteen years, ſubjects of this kingdom, ſhall be preſent at any *conventicle*, where there are five or more aſſembled, they ſhall be fined 5*s.* for the firſt offence, and 10*s.* for the ſecond; and perſons preaching incur a penalty of 20*l.* Alſo ſuffering a meeting to be held in a houſe, &c. is liable to 20*l.* penalty. Juſtices of peace have power to enter ſuch houſes, and ſeize perſons aſſembled, &c. And if they neglect their duty they ſhall forfeit 100*l.* And if any conſtable, &c. know of ſuch meetings, and do not inform a juſtice of peace, or chief magiſtrate, &c. he ſhall forfeit 5*l.* But the 1ſt W. and M. cap. 18. ordains, that proteſtant diſſenters ſhall be exempted from penalties; though if they meet in a houſe with the doors locked, barred, or bolted, ſuch diſſenters ſhall have no benefit from 1 W. and M. Officers of the government, &c. preſent at any *conventicle*, at which there ſhall be ten perſons, if the royal family be not prayed for in expreſs words, ſhall forfeit 40*l.* and be diſabled. Stat. 10 Anne, cap. 2.

CONVENTION, in our Law-*Books*, is uſed when a parliament is called, which ſits and is diſſolved without any act paſſed, or judgment given. It is then ſaid not to be a *ſeſſion* of parliament, but a *convention*.

CONVENTION *of Rouen*, the ſame with SYNOD of Rouen.

CONVENTION, a treaty, CONTRACT, or agreement, between two or more parties.

Every *convention* between men, provided it be not contrary to honeſty, and good manners, produces a natural obligation, and makes the performance a point of conſcience. Every *convention* has either a name, and a cauſe or CONSIDERATION, or it has none: in the firſt caſe, it obliges civilly and naturally; in the latter only naturally.

CONVENTION is much uſed both in ancient and modern pleadings for an agreement, or covenant.

In the book of rolls of the manor of Hatfield in Yorkſhire, we have a record of a pleaſant *convention*, anno 11 Edw. III. between Robert de Roderham and John de Ithen; the latter of whom ſold the devil in a firing for

three pence halfpenny to the former, to be delivered on the fourth day after the *convention*: when the purchaſer making his demand, the ſeller refuſed to give him livery; to the great loſs (as the record repreſents it), of forty ſhillings to the purchaſer, &c. But it appearing to the court, that ſuch a plea does not lie among Chriſtians, the parties were adjourned to hell for judgment.

CONVENTION is alſo the name given to an extraordinary aſſembly of parliament, or of the ſtates of the realm, held without the king's writ. Of this kind was the *convention* parliament which reſtored Charles II. This parliament met above a month before his return, and ſat full ſeven months after his reſtoration, and enacted ſeveral laws ſtill in force, which were confirmed by ſtat. 13 Car. II. c. 7. and c. 14.

The *convention* of eſtates, in 1688, after the retreat of king James II. upon mature deliberation, came to a concluſion, that king James, by his practices here, and his flight hence, had abdicated the kingdom; and that the throne was vacant; and therefore devolved to king William and queen Mary. Upon this their aſſembly expired as a *convention*, and was converted into a parliament. It was declared by ſtat. 1 W. and M. c. 1. that this *convention* formed the two houſes of parliament, notwithſtanding the want of writs and other defects of form. See ABDICATION.

There was a *convention* of the like kind in Scotland, and with the like effect.

CONVENTIONAL *ſubrogation*. See SUBROGATION.

CONVENTIONE *facienda*, in *Law*, is a writ which lies for the breach of any covenant in writing. Fitzherbert calls it a writ of *covenant*.

CONVENTUAL, ſomething belonging to a CONVENT. See CORNOBITE.

CONVENTUAL is particularly uſed, ſince the year 1250, for a religious that actually reſides in a convent: in contradiſtinction to thoſe who are only gueſts, or are entertained there, or are in poſſeſſion of benefices depending on the houſe.

CONVENTUAL likewiſe denotes a claſs of the order of Franciſcans, who adopted the relaxation introduced into that order by pope Innocent IV. which allowed of property and poſſeſſions in their community. They were ſo called in oppoſition to the *Brethren of the Obſervance*. This diviſion took place in the year 1368.

CONVENTUAL *prior*, differs from a *clauſtral prior*, in that the former has the full right and authority of an abbot; the only difference between them being in the name: whereas the clauſtral prior is a dependent of the abbot, and derives all his authority from him.

The *conventual* prior is obliged to take prieſt's orders in a year, or at moſt in two years, from the day of his admiſſion: in default whereof, the benefice becomes vacant. Some priories are actually *conventual*, i. e. they are ſtocked with religious; others are only *conventual in habitu*, v. g. where there have been no religious during the ſpace of forty years: the continuance of one ſingle religious, keeps the priory *conventual actu*; for, in default of one, the priory becomes ſimple. See PRIOR. By a declaration of the king of France, in 1680, it is decided, that a *conventuality* never degenerates, or ceaſes, while there are regular places ſubſiſting in it for twelve religious, with revenues for their ſupport.

CONVENTUAL *auditors*. See AUDITOR.

CONVERGING *ſeries*. See CURVE.

CONVERGING, or CONVERGENT *lines*, in *Geometry*, are thoſe which continually approximate, or whoſe diſtance becomes continually leſs and leſs: in oppoſition to *divergent* lines, whoſe diſtance becomes continually greater.

Lines that *converge* one way, diverge the other.

CONVERGING *rays*, in *Dioptrics*, are thoſe rays which in their paſſage out of one MEDIUM into another, of a different denſity, are refracted towards one another; ſo that, if far enough continued, they will meet in a point, or focus.

All convex lenſes make the rays *converge*, and concave ones diverge, i. e. the one inflects them towards a centre, and the other deflects them from it; and the more, as ſuch lenſes are portions of ſmaller ſpheres. On which properties all the effects of lenſes, microſcopes, teleſcopes, &c. depend.

Rays coming *converging* out of a denſer medium into a rarer, become more *convergent*, and concur ſooner, than if they were to continue their motion through the firſt. Rays coming *converging* out of a rarer into a denſer medium, *converge* leſs, and concur later, than if they had continued their motion through the firſt medium.

Parallel rays, paſſing from a denſer into a rarer medium, v. gr. from glaſs into air, the ſurface of the glaſs being towards the air, will become *convergent*, and concur in a focus.

Diverging rays, or rays coming from a point, under the ſame circumſtances, become *converging*, and meet in a focus; and as the radiant point comes nearer, the focus recedes farther off: if the radiant be near, the focus will be infinitely diſtant; i. e. the rays will be PARALLEL: and if the point be brought nearer ſtill, the rays will diverge.

CONVERGING *ſeries*, in *Mathematics*. See SERIES.

CONVERSATION, DISCOURSE; theſe two words denote an interlocution between two, or among more perſons: with this diſtinction, that *converſation* is uſed for any general intercourſe of ſentiments whatever; whereas a *diſcourſe* means a *converſation* limited to ſome particular ſubject. Thus we ſay a *converſable* man; meaning a man able to *converſe* on a variety of ſubjects, or a man of general knowledge: but we do not ſay a *diſcourſable* man. The word *diſcourſe* is generally uſed when we mention a ſuperior talking to an inferior.

CONVERSE, in *Geometry*, &c. A propoſition is ſaid to be the *converſe* of another, when, after drawing a concluſion from ſomething firſt ſuppoſed, we proceed to ſuppoſe what had been before concluded, and to draw from it what had been ſuppoſed. Thus it is demonſtrated in geometry, that if the two ſides of a triangle be equal, the two angles oppoſite to thoſe ſides are equal alſo: the *converſe* of the propoſition is, that if the two angles of a triangle be equal, the two ſides oppoſite to thoſe angles are equal alſo.

CONVERSE *direction*, in *Aſtrology*, is uſed in oppoſition to *direct* direction, i. e. by the latter, the promoter is carried to the ſignificator, according to the order of the ſigns: by the former it is carried from eaſt to weſt, contrary to the order of the ſigns.

CONVERSION, in a *Moral Senſe*, a return from evil to good; reſulting from a ſenſe, either of the natural deformity of the one, and amiableneſs of the other: or of the advantages and diſadvantages that ſpring from the one and the other, reſpectively.

Or, it is a change of the heart, with regard to the morals, paſſions, deſires, and purſuits; and of the mind, with regard to the ſentiments, &c. See REGENERATION.

CONVERSION, in *Law*, is where a perſon having the goods of another in his poſſeſſion, converts them to his own uſe, without conſent of the owner; for which the proprietor may maintain an action of TROVER and *converſion* againſt him.

CONVERSION, *Converſio*, in *Logic*, a circumſtance or affection of propoſitions, wherein the order of the terms, or extremes, is changed; ſo that the ſubject comes into the place of the predicate, and the predicate into that of the ſubject; without any alteration in the quality of either.

As, *No virtue is vice*; *No vice is virtue*: in which we ſee the ſubject of the former, made the predicate of the latter, and the predicate the ſubject: yet both true.

Converſion is uſually defined a due change of the order of the extremes, i. e. under ſuch a habitude and coherence with reſpect to each other, that the one is rightly inferred from the other.

Hence, in every legitimate *converſion*, two things are required: 1. A communication, or reciprocation of terms; not in reſpect of words, but of order. 2. The inſerence of one propoſition from the other.

Ariſtotle makes two kinds of *converſion*; the one *ſimple*, by others called *univerſal*; wherein nothing is changed beſide the order of extremes, i. e. the terms are tranſpoſed, without altering either the quality or quantity thereof: as, *No mind is body*; *No body is mind*.

The ſecond, *per accidens*, called alſo *particular*; wherein, beſides changing the places of the terms, there is a change of an univerſal ſign into a particular one; as, *Every good man ſtudies the welfare of his country*; *Some man that ſtudies the welfare of his country is good*.

To theſe, ſome of Ariſtotle's followers add a third kind of *converſion*, called *by contrapoſition*: as, *Every man is an animal*; *Every no-animal is no-man*.

CONVERSION, in *Rhetoric*, &c. is underſtood of arguments which are returned, retorted, and ſhewn on oppoſite ſides, by changing the ſubject into the attribute, and the attribute into the ſubject.

There are *converſions* of arguments, from one figure to another, and alſo from general propoſitions to particular ones. Thus Cicero againſt Antony: *Dubitis tres exercitus P. R. interfectos? Interfecit Antonius. Deſideratis clariſſimos cives? Eoſque vobis eripuit Antonius. Auctoritas horum ordinis afflicta eſt? Afflixit Antonius.*

CONVERSION, in *War*, is when the ſoldiers are ordered to preſent their arms to the enemy who attack them in flank, whereas before they were ſuppoſed to be in front: the evolution neceſſary thereto is called *converſion*, or QUARTER WHEELING.

CONVERSION *of equations*, in *Algebra*, is when the quantity ſought, or any part thereof, being in fractions, the whole

whole is reduced to one common denominator; and then, omitting the denominators, the equation is continued in the numerators only.

Thus, suppose $a-b=\frac{ad+cc}{d}+b+b$; multiply all by d, and it will ſtand thus, $ad-db=ad+cc+db+db$.

In ariſtmetic, we uſe the term *proportion by converſion of ratio*, for a compariſon of the antecedent and conſequent, in two equal ratios.

Thus, as there is the ſame ratio between two and three, as between eight and twelve; it is concluded there is the ſame ratio between two and one, as between eight and four.

CONVERSION, *centre of*, in *Mechanics*. See CENTER.

CONVERSOS. See CONVERT.

CONVERT, a perſon who has undergone a CONVERSION.

CONVERT is chiefly uſed in reſpect of changes from one religion, or religious ſect, to another.

Converts with relation to the religion turned to, are denominated *proſelytes* with regard to that they have relinquiſhed.

The Jews, formerly converted to Chriſtianity in England, were called *converſi*. Henry III. built them a houſe in London, and allowed them a competent ſubſiſtence for their lives: which houſe was called *domus converſorum*. But the number afterwards increaſing, they grew a burthen to the crown; upon which they were diſtributed among the monaſteries: and after the expulſion of the Jews under Edward III. the *domus converſorum* was given for keeping the rolls.

CONVERTS, in a *Monaſtic Senſe*, are lay friars, or brothers, admitted for the ſervice of the houſe; without orders, and not allowed to ſing in the choir.

Till the eleventh century, the word was uſed for perſons who embraced the monaſtic life at the age of diſcretion; by which they were diſtinguiſhed from thoſe devoted in their childhood by their parents, called *oblati*.

But in the eleventh century, when they began to receive into monaſteries infirm perſons, incapable of being clerics, and only deſtined for bodily labours, the ſignification of the word was neceſſarily changed. F. Mabillon obſerves, that it was John firſt abbot of Vallombroſa, who firſt introduced theſe *brothers-converts*, diſtinguiſhed by their ſtate from the monks of the choir, who were then either clerks, or capable of becoming ſo.

CONVERTIBILITY, *of ſpirits* into one another. See SPIRITS.

CONVERTIBILITY *of elements* into one another. See ELEMENT.

CONVEX, bending down on every ſide, as the outſide of a globular body.

CONVEX *ſpecies, lens, mirror, ſuperficies*. See the ſubſtantives.

CONVEXITY, the exterior ſurface of a *convex*, i. e. gibbous and globular thing; in oppoſition to *concavity*, or the inner ſurface, when hollow or depreſſed.

The word is of particular import in catoptrics, and dioptrics; where it is applied to mirrors and *lenſes*.

A *convex* MIRROR repreſents its images ſmaller than the objects; as a concave one repreſents them larger: a *convex* mirror reflects the rays from it, diverging; and therefore diſperſes and weakens their effect: as a concave one reflects them converging, ſo as they concur in a point, and have their effect increaſed; and by how much the mirror is a portion of a ſmaller ſphere, by ſo much does it diminiſh the objects, and diſperſe the rays, the more.

A *convex* LENS is either *convex* on both ſides, called a *convexo-convex*; or it is plain on one ſide, and *convex* on the other, called a *plano-convex*: or concave on one ſide, and *convex* on the other, called a *convexo-concave*, or *concavo-convex*, as one or the other ſurface prevails; i. e. as this or that is a portion of a ſmaller ſphere. See REFRACTION.

CONVEYANCE, in *Law*, a DEED, or inſtrument, by which lands, &c. are *conveyed*, or tranſferred by the proprietor, or owner thereof, to ſome other perſon.

A *conveyance* cannot be fraudulent in part, and good as to the reſt; for if it be fraudulent and void in part, it is void in all; and it cannot be divided. 1 Lill. Abr. 321. Fraudulent *conveyances* to deceive creditors, defraud purchaſers, &c. are void, by ſtat. 50 Edw. III. c. 6. 13 Eliz. c. 5. 27 Eliz. c. 4.

Conveyances are ſuch either at common law, or by virtue of the ſtatute of uſes. Of the former ſort ſome are original or primary, which are thoſe by means whereof the benefit of eſtate is created or firſt ariſes: others are ſecondary or DERIVATIVE. Original *conveyances* are thoſe by *feoffment, grant, leaſe, exchange*, and *partition*.

CONVICT, in *Common Law*, one who is found guilty of an offence by the verdict of a jury.

According to Crompton, a perſon is alſo a *convict*, or ſaid to be *convicted*, when, after having been outlawed, he appears and confeſſes it. *Conviction* and ATTAINDER are frequently confounded.

Perſons *convicted* of felony by verdict, &c. are not to be admitted to bail, unleſs there be ſome ſpecial motive for granting it; as where a man is not the ſame perſon, &c. for bail ought to be before trial, when it ſtands indifferent whether the party be guilty or not. 2 Hawk. 99: 114. *Conviction* of felony, and other crimes, diſables a man to be a juror, witneſs, &c.

CONVICT *recuſant*, he who has been legally preſented, indicted, and *convicted*, for refuſing to come to church to hear the common-prayer, according to the ſtatute 35 Eliz. and 3 Jac. I.

This is commonly underſtood to be a popiſh recuſant; though any others who refuſe coming to church on the ſame account are as properly denominated RECUSANTS.

CONVICTION, in *Theology*, expreſſes the firſt degree of repentance; wherein the ſinner becomes ſenſible of his guilt, of the evil nature of ſin, and of the danger of his own ways.

CONVICTION, in *Law*. See CONVICT.

CONVICTION, *ſummary*, is ſuch as is directed by ſeveral acts of parliament for inflicting certain penalties created by thoſe acts without the intervention of a jury: the party accuſed being acquitted or condemned by the ſuffrage of ſuch perſon only, as the ſtatute has appointed to be his judge. Of this kind are all trials of offences contrary to the laws of exciſe, and other branches of the revenue, proceedings before juſtices of the peace, and the method uſed by ſuperior courts of juſtice for puniſhing contempt by ATTACHMENT.

CONVIVIUM, *banquet*, in our *Ancient Cuſtoms*, and *Law Books*, ſignifies the ſame thing among the laity as PROCURATION among the clergy; viz. when the tenant was obliged, in virtue of his tenure, to provide meat and drink for his lord once, or oftener, in the year.

CONULUS, in *Natural Hiſtory*, the name of a genus of the *echinodermata*, of the general claſs of the *ſibulæ*. Theſe are raiſed from a circular baſe into a taller and more pointed, or a ſhorter and more obtuſe cone. The *echinites* of this genus have been called by authors, *ſcheppentiæ, pilæ*, and by ſome *baſonites*; and are generally known in Engliſh by the name of cup-ſtones. Of theſe there are four ſpecies: 1. The *albo-galerus*, or white-hat ſtone, found foſſile in our chalk-pits. 2. The *globulus*. 3. The *nanus*, the ſeries of the lines of which are ſinuous, and make the ſuperficies ſomewhat gibboſe. 4. The *bulla*, the orders of lines in which are ſtraight, and reſemble a button. Klein's Echinod.

CONVOCATION, a general aſſembly of the clergy of a province, ſummoned by the king's writ to conſult of the more weighty affairs of the church, as alſo as a parliament is convoked to conſult of thoſe of the ſtate.

The king's writ is directed to the archbiſhop of each province, requiring him to ſummon all biſhops, deans, archdeacons, cathedral and collegiate churches, &c.

Upon which the archbiſhop directs his mandate to his dean provincial, firſt citing him peremptorily; then willing him in like manner, to cite all the biſhops, deans, &c. and all the clergy of his province; but directing, withal, that one proctor ſent from each cathedral and collegiate church, and two for the body of the inferior clergy of each dioceſe, may ſuffice: which the dean accordingly does.

The place where the convocation of the province of Canterbury has been uſually held, is St. Paul's church; whence, of late, they have been prorogued to St. Peter's in Weſtminſter, in the chapel of Henry VII. or the Jeruſalem Chamber, where there is an upper and lower houſe. Chamberlayne.

The *upper* houſe, in the province of Canterbury, conſiſts of twenty-two biſhops, whereof the archbiſhop is always preſident. All, at the opening of a *convocation*, are in their ſcarlet robes and hoods.

The *lower* houſe conſiſts of twenty-two deans, twenty-four prebendaries, fifty-four archdeacons, and forty-four clerks, repreſenting the dioceſan clergy.

Each houſe hath a prolocutor choſen from among themſelves; and that of the lower houſe is preſented to the biſhops. Things are firſt uſually propoſed in the upper houſe; then communicated to the lower. All the members of both houſes have the ſame privileges for themſelves, and menial ſervants, as the members of parliament have.

The *convocation* exerciſes juriſdiction in making canons with the king's aſſent; and appeal lies from their proceedings to the king in chancery, or to his delegates.

The archbiſhop of York, at the ſame time, holds a *convocation* of the clergy of his province, after the like manner, at York; and, by conſtant correſpondence, debates and concludes on the ſame matters as are debated by that

of Canterbury. Not that the northern province is obliged to follow what the ſouthern one does.

The Engliſh clergy, anciently, had their repreſentatives in the lower houſe of parliament: as appears by the record much prized by lord Coke.

CONVOLVULUS, *bindweed*, in *Botany*; a genus of the *pentandria monogynia* claſs. Its characters are theſe: the flower hath one large bell-ſhaped petal, which ſpreads open. It hath five ſhort ſtamina, and a roundiſh germen. The empalement afterward becomes a roundiſh capſule, with one, two, or three valves, containing ſeveral ſeeds, which are convex on their outſides, but on their inſides angular. Linnæus enumerates forty-ſeven and Miller thirty-two ſpecies, natives of various parts of the world.

To this genus belong ſcammony, mechoacan, jalap, and turbith.

As to the bindweeds properly ſo called, they are cathartic, and ſaid to be good in preventing abortion; a decoction of them is recommended as a mild evacuant of bile.

CONVOLVULUS, *ſcarlet*; *quamoclit*, or *ipomœa*; in *Botany*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: the flower hath a ſmall permanent empalement, cut into five parts at the top. The petal is funnel-ſhaped, having a long cylindrical tube, whoſe brim is five pointed, ſpreading open flat. It hath five awl-ſhaped ſtamina. In the bottom of the tube is ſituated a round germen, which afterward becomes a roundiſh capſule with three cells, incloſing three oblong ſeeds. Linnæus reckons nineteen and Miller eight ſpecies.

CONVOLUTION, a winding or turning motion, proper to the trunks of ſome plants; as the *convolvulus*, or bindweeds, and the claſpers of vines, and briony.

Dr. Grew thinks, that all thoſe plants whoſe roots are twiſted, have ſuch a *convolution*: and he aſſigns two great efficient cauſes of this winding motion, the ſun and the moon. It is very eaſy to try whether there be any ſuch *convolution* or not in the trunks of plants; which may be done, as he hints, by tying a little bit of paper to any of the branches which are exactly north, ſouth, &c. and then ſeeing whether it will change its poſition, or not, in reſpect of the point of the compaſs.

CONVOY, from the French *convoyer*, *to conduct*; *eſcort*; a ſea term, ſignifying one or more veſſels of war, entruſted with the conducting of a fleet of merchants; ſerving as a watch, and a ſhelter from the inſults of the enemies of the ſtate, or of pirates. The fleet of merchantſhips bound on a voyage, to ſome particular part, is alſo called a convoy.

CONVOY is alſo uſed in ſpeaking of military affairs by land; where it ſignifies a body of forces ſent to guard a ſupply of proviſions, arms, or ammunition, going to a camp or the like.

CONUSANCE. See COGNISANCE.

CONUSOR. See COGNISOR.

CONVULSION, from *convello*, *to draw together*; *ſpaſmus*; in *Medicine*, a continued involuntary contraction of ſome parts of the body, otherwiſe accuſtomed to move according to the direction of the will.

It owes its origin to a contraction of the muſcles of the part, occaſioned by a too copious and violent influx of the nervous juice: of which there may be infinite cauſes in the blood, arteries, meninges, brain, nerves, muſcles, cranium, &c.

If the *convulſion* be univerſal, attended with violent motions, foaming at the mouth, and periodical; it is uſually called an EPILEPSY.

The uſual evacuations and medicines proper for the cure of *convulſions*, are phlebotomy, emetics, cathartics, epiſpaſtics, and proper cephalics: as *ſal volat. oleoſ.* ſpirit of lavender, ſpirit of hartſhorn, tincture of caſtor, cinnabar of antimony, caſſumunar root, valerian root, volatile ſalt of amber, &c. given in different forms. In periodical univerſal *convulſions*, a ſalivation ſometimes anſwers, after other courſes have failed. Women and children are particularly liable to *convulſions*: women after delivery; as upon a ſtoppage of the *lochia*, or a violent extraction of the *placenta*. See INFANTS, and SPASM.

CONVULSIVE, in *Medicine*, is applied to thoſe motions which, naturally, ſhould depend on the will; but which, by ſome external cauſe, become involuntary.

A *convulſive* motion is a contraction made by fits and intervals; wherein it differs from a *convulſion*, which is a continued contraction.

Convulſive motions ariſe from a diſorder in the origin of the nerves. A *convulſive* tenſion of the ſolids in one of the principal cauſes which deſtroy the equilibrium that ſhould obtain between the ſolids and the fluids.

CONVULSIVE is alſo uſed for any thing that occaſions a *convulſion*, or *convulſive motion*.

Wounds of nerves are ſaid to be *convulſive*; white hellebore is *convulſive*. Children are very liable to *convulſive* diſorders from various cauſes; as repletion, curdling of the blood in the ſtomach or inteſtines, worms, dentition, &c. The CRAMP is a *convulſive* contraction of ſome muſcular part of the body.

CONVULSIVE *aſthma*. See ASTHMA.

CONYZA, in *Botany*. See FLEABANE.

COOK, in *Ichthyology*, a ſpecies of fiſh which is ſometimes taken in great plenty on the coaſts of Cornwall. It is a ſcaly fiſh, and does not grow to any great ſize: the back is purple, the belly yellow, and the tail rounded.

COOK-ROOM, in a *ſhip*, is where the cook and his mate dreſs and deliver out the meat, &c. See *Tab. Shipping*, *fig.* 2. *n.* 22.

COOLER, among *Brewers*, *Diſtillers*, *&c.* a large veſſel, uſually of a ſmall depth and large ſurface, in which liquors are cooled, after having been boiled.

COOLERS, in *Medicine*, remedies ſo called; which may be conſidered under theſe two diviſions. 1. Thoſe which produce an immediate ſenſe of cold; which are ſuch as have their parts in leſs motion than thoſe of the organs of feeling. 2. Such as by a particular viſcidity, or groſſneſs of parts, give a greater conſiſtency to the animal fluids than they had before; whereby they are diſabled from moving ſo faſt, and will therefore have leſs of that inteſtine force on which their heat depends.

Of the former kind are fruits, and all acid liquors. To the latter belong cucumbers, and all ſubſtances producing viſcidity.

COOLNESS, in *Painting*, is a quality of colours relating only to their teint or hue: it is uſually applied to yellow and blue, and denotes a tendency to green, in either colour, by a ſlight admixture of the other. See WARMTH.

COOM, a term for ſoot that gathers over an oven's mouth: alſo for that black greaſy ſubſtance which works out of the wheels of carriages.

Coom, or ſoot, is ſometimes uſed in medicine, infuſed in wine with other ingredients, as an anti-hyſteric, and againſt palpitations of the heart, &c. The ſpirit of ſoot is alſo uſed for the ſame intentions, and in cephalic caſes.

COOMB, or COMB *of corn*. See COMB.

COOMINGS, in *Naval Architecture*. See COAMINGS.

COOP, in *Huſbandry*, a tenement or cart incloſed with boards, and uſed to carry dung, grains, &c.

COOP is alſo the name of a pen, or incloſed place, where lambs, poultry, &c. are ſhut up in order to be ſold.

COOPER, on board a *ſhip*, the perſon that looks to the caſks, and all other veſſels, for beer, water, or any other liquor. He has a mate under him.

CO-OPERATOR, derived from *con* and *opera*, *labour*, denotes any cauſe, natural or ſupernatural, which concurs with another to the production of an *effect*. Thus, nature and medicine *co-operate* in the cure of diſorders: and the will of man concurs with the grace of God in the performance of good works.

CO-OPERIRE *pallio*. See PALLIO.

CO-OPTATION, derived from *co-opto*, *I chooſe*; ſignifies the admiſſion of members into any college or ſociety. Thus it was anciently applied to the choice of the AUGURS and PONTIFFS; and in modern times, to an extraordinary nomination and election of perſons of diſtinguiſhed merit into a learned ſociety.

CO-ORDINATE, ſomething of equal ORDER, rank, or degree, with another.

CO-ORDINATION, in reſpect of cauſes, denotes an order of cauſes, wherein ſeveral of the ſame kind, order, and tendency, concur to the production of the ſame effect.

COOT, *fulica*, in *Ornithology*, the name of a diſtinct genus of birds of the order of the *grallæ*, the diſtinguiſhing character of which is, that the beak is convex, the thighs are half naked, the feet have four toes, the noſtrils oblong, and the forehead wholly naked.

The *fulica* is a water-fowl diſtinguiſhed from the moor-hen kind, by having its toes widened by a membrane, though not joined together by it, or webbed like the ducks. Of this Linnæus enumerates ſeven ſpecies; thoſe moſt known with us are, the common *coot*, and a larger kind called *macroule*, or *diable de mer*, the ſea-devil.

The common *coot* is a conſiderably large bird, weighing uſually a pound and a half; its beak is of a bluiſh white, and is a finger's breadth and half long, ſomewhat flatted and ſharp at the point; its legs are of a yellowiſh green, and above the knee there is a yellow ſpot; it has ſemicircular membranes at the joints of its toes: but what is its moſt obvious diſtinction is, that it has from the beak to the crown of the head a fleſhy excreſcence, which is roundiſh, ſoft, and ſmooth, and is always naked or deſtitute of feathers; and hence the bird is commonly called with us, the bald *coot*. It is all over black above, but of a deeper black about the head than in any other part, and its breaſt and belly are of a ſort of lead-colour; its wing-feathers have a brownneſs, mixed among the black, and ſome of them are tipped with white.

The other species, or *macraule*, called by Belloniue, the *fulica major*, is larger and of a finer black than this, and has a larger white excrescence on its head.

The common *coot* is so plentiful about Peterborough in Northamptonshire, that in the season of its laying, whole hampers full of its eggs are there brought to market, and sold at an inconsiderable price; the people boil them, and the shell is so thin, that they often eat them without taking it off. Ray.

COPAIBA, COPAIFERA, in *Botany*, the balsam of capivi-tree, a genus of the *decandria monogynia* class. Its characters are these: it hath a flower consisting of five leaves, which expands in form of a rose, and has five short stamina. The germen is fixed in the centre of the flower, which afterward becomes a pod containing one or two seeds, which are surrounded with a pulp of a yellow colour. We know but one sort of this tree; which grows near a village called Axapel, in the province of Antiochi, in the Spanish West Indies, about ten days journey from Carthagena. There are great numbers of these trees in the woods about this village, which grow to the height of fifty or sixty feet. Some of these trees do not yield any of the balsam; those which do, are distinguished by a ridge which runs along their trunks. These trees are wounded in their centre, and they place calabash shells, or some other vessels to the wounded part to receive the balsam, which will all flow out in a short time. One of these trees will yield five or six gallons of balsam; but though they will thrive well after being tapped, yet they never afford any more balsam. Miller.

COPAL, in *Natural History*, a shining transparent, citron-coloured substance, of an agreeable smell, resembling that of frankincense. It is brought from New Spain, where it oozes out from incisions made in the bark of a large tree; much after the manner in which the vine yields its sap, when cut in the spring.

Copal is accounted a cephalic, and good for the palsy, and other weaknesses of the nerves; but is not much used. What we in England call *gum copal*, is called *gum anime* in foreign parts: and on the contrary, what is there called *gum anime*, we call *copal*.

The Indians use it to burn on their altars: among the Europeans, it is used against disorders of the breast, having a warming, resolving, and humectating power. It is very rare; when good, it is of a fine transparent yellow; and melts easily, either in the mouth, or on the fire.

In defect of this is brought another kind from the Antilles, which is almost the only one known among the druggists; and its chief consumption is in the making of varnish. By digestion in linseed oil, with a heat very little less than sufficient to boil or decompose the oil, it may be dissolved; and this solution, diluted with spirit of turpentine, forms a beautiful transparent VARNISH, which, when well applied, and slowly dried, becomes very hard and durable. This varnish is used for snuff-boxes, tea-boards, and other utensils. It preserves and gives lustre to paintings, and restores the decayed colours of old pictures, by filling up the cracks and rendering the surfaces capable of reflecting light, more uniformly. It is improperly called *gum copal*, being a hard concrete juice of an American tree, which has neither the solubility in water common to GUMS, nor the solubility in spirit of wine common to RESINS, at least in any considerable degree; by its properties it resembles AMBER.

COPARCENARY, the share, or quota of a COPARCENER.

COPARCENERS, from *con*, and *particeps*, *partner*; or PARCENERS; such as have equal portions in the inheritance of their ancestor.

Coparceners are so either by *law*, or *custom*. *Coparceners by law*, are the issue female; which, in default of a male heir, come equally to the lands of their ancestor.

Coparceners by custom, are those who, by some peculiar custom of the country, challenge equal parts in such lands; as in Kent, by the custom of gavelkind. The crown of England is not subject to *coparcenary*.

COPE, an ecclesiastical ornament, usually worn by chantors and sub-chantors, when they officiate in the church-solemnity. It is also worn by the Romish bishops, and other ordinaries: it reaches from the shoulders to the feet. The ancients called it *pluviale*.

COPE, *St. Martin's*, was a relic formerly in great esteem among the French kings, and was often carried with them to war as their standard.

COPE, among *Miners*, is a duty of six pence for every load of ore, nine dishes making one load.

COPEC, a Muscovite coin. See COIN.

COPERNICAN *sphere*. See SPHERE.

COPERNICAN *system*, is that system of the world, wherein the sun is supposed at rest in the centre; and the planets with the earth, to move in ellipses round him.

The heavens and stars are here supposed at rest, and that diurnal motion which they appear to have from east to west, is imputed to the earth's motion from west to east.

This system was asserted by many of the ancients; and particularly Ecphantus, Seleucus, Aristarchus, Philolaus, Cleanthes Samius, Nicetas, Heraclides Ponticus, Plato, and Pythagoras; from the last of whom it was anciently denominated the *Pythagoric system*.

It was also held by Archimedes, in his book De Granorum Arenæ Numero; but after him it became neglected, and even forgotten, for many ages; till about three hundred years ago, when Copernicus revived it; from whom it took the new name of the *Copernican system*.

Nic. Copernicus, now a name so popular, was born at Thorn, in Polish Prussia, in the year 1472, according to Junctinus, or 1473, according to Mostlinus. After the usual domestic education, he was sent to the university of Cracow; where he applied himself to philosophy and physic, and at length commenced doctor in medicine. In the mean time, having a strong propensity to mathematics, he diligently attended the lectures of Albert Brudzewius, and even learnt of him at home. After he had here attained to the use of the astrolabe, and was entering upon astronomy, he took Regiomontanus for his guide: though he ran through all the mathematics of the age, yet he esteemed most taken with perspective; on occasion whereof he learned painting, in which he is said to have excelled. When twenty-three years of age, being at Bologna, he became acquainted with that eminent mathematician Dom. Maria Ferrariensis; and was admitted to share with him in making astronomical observations. Here, in the year 1497, Copernicus first observed an occultation of Palilicium by the moon. Going on to Rome, he taught publickly, and made some considerable observations; and at his return to Cracow, he was made canon of the church of Wermeland, or Ermeland, and at length vicar-general.

The course he took in prosecuting astronomy, which has rendered his name immortal, was as follows. Observing how the astronomers of those times were perplexed to make the planets move equably in circular orbits, viz. to suppose them to move, not about their own centre, but that of the equant; and that they could no way make out a tolerably regular system, out of all their hypotheses; he resolved to try what he could do. With this view he perused the writings of all the philosophers and astronomers extant; and selected out of each what appeared probable and elegant. In this review he was chiefly taken with two almost similar opinions (the one attributed to Martianus Capella, the other to Apollonius Pergæus): which give a very good account, of the motion of Venus and Mercury; and explain the cause of their directions, stations, and retrogradations, very happily: the latter answering the same purpose with respect to the three superior planets. But then, in both these hypotheses, the earth is supposed the centre: Copernicus chose rather to adopt the opinion of the Pythagoreans; to remove the earth out of the centre of the world; and to give it, not only a diurnal motion round its own axis, but also an annual one round the sun.

On this footing he began to observe, calculate, compare, &c. and at length, after a long solicitous disquisition, found himself in a condition to account for the phenomena and motions of all the planets; and to make an orderly arrangement, or disposition of the whole heavens; wherein nothing could be altered, or displaced, without bringing the utmost confusion into the whole.

These things he began to write down about the year 1507. He then proceeded to furnish himself with some new apparatus; particularly a parallactic instrument, and some Ptolemaic rulers, wherewith to observe the altitude of the stars, and determine the periods of the sun and moon: and without other means, composed his six books De Orbium Cœlestium Revolutionibus; containing the whole of astronomy, delivered after the example of Ptolemy, in a geometrical method. We have already observed, that he began it in 1507; he finished it in 1530. Five years after, he polished and improved it. He died of a dysentery, and a palsy in his right side, in the year 1543; having just lived to see a copy of his book, which was just printed, a few hours before his death. See the order and disposition of the heavenly bodies, as laid down by him, compared with those in the other systems, under the head SYSTEM.

This system has been established by new arguments, advanced by Kepler, Galileo, and Newton, in every succeeding age; and notwithstanding the opposition it met with, from the prejudice of sense against the earth's motion, the authority of Aristotle in the schools, the threats of ignorant bigots, and the terror of the inquisition, it has generally prevailed. Galileo after having

demon-

demonstrated the motion of the earth, was obliged, by the rancour of the Jesuits, to go to Rome, and there solemnly renounce it. Besides which cruel treatment, he was condemned to a year's imprisonment in the inquisition, and the penance of repeating daily some penitential psalms. As a specimen of the authority of the Romish church in opposition to this system, we shall only transcribe the declaration of the excellent commentators, Le Seur and Jacquier, on the Principia, prefixed to the third volume. *Newtonus in hoc tertio libro telluris motæ hypothesin assumit. Autoris propositiones aliter explicari non poterunt, nisi eadem quoque falsa hypothesi. Hinc alienum coactis sumus gerere personam. Cæterum latis a summis pontificibus contra telluris motum decretis nos obsequi profitemur.*

COPERNICUS, is the name of an astronomical instrument, contrived by Mr. Whiston, for the calculation and exhibition of eclipses, and of the motions of the planets, both the primary and secondary ones, &c.

It was so called by the inventor, as being constructed on the Copernican system; or as representing the heavenly bodies agreeable thereto. It consists of several concentrical circles of wood; upon which are inscribed numbers, transferred hither from the astronomical tables: by the various dispositions of these circles, which are made so as to slide within each other, questions are solved; and thus long calculations are saved, and the work of many hours brought into a few minutes.

For the exhibition of eclipses, there is a peculiar apparatus, consisting of a terrestrial globe, so disposed, as that, being turned round its axis, the light of the sun, or a candle, is projected through a glass plane, marked out into concentric circles, expressing digits of the eclipse: and thus is the path of the eclipse, with its degree or quantity in any part of its path, agreeably and accurately represented.

The instrument not being very common, a particular description would be superfluous. The author of it has written a book to explain it.

COPHOSIS, in *Medical Writers*, is used for deafness, whether beginning, or perfect, or from what cause soever.

The word is derived from κωφωσις, *I am deaf.*

COPHTI, Cophts, or Copti, a name given to the Christians of Egypt; who are of the sect of Jacobites.

The critics are extremely divided about the origin and orthography of the word: some write it *Gophti*, others *Cophtites*, *Cophtitæ*, *Copts*, &c. Scaliger derives the name from *Coptos*, an anciently celebrated town of Egypt, the metropolis of the Thebaid. Kircher refutes this opinion, and maintains, that the word originally signifies *east*, and *circumscribed*: and was given these people by the Mahometans, by way of reproach, because of their practice of circumcising: but P. Sollier, another Jesuit, refutes this opinion. Scaliger afterwards changed his opinion, and derived the word from Αιγυπτος, the ancient name of Egypt, by retrenching the first syllable: but this opinion, too, P. Sollier disputes. John de Leo and others say, that the Egyptians anciently called their country *Khibtah*, or *Gibti*, from Gibti their first king, whence *Cophtes*, &c. others fay from Gobim second king of Egypt. Vansleb derives the word *Cophte* from Copt, son of Misraim, grandson of Noah. All these etymologies P. Sollier rejects, on this principle, that were they true, the Egyptians ought all equally to be called *Cophti*; whereas, in effect, none but the Christians, and among those none but the Jacobites, bear the name; the Melchites not being comprehended under it. Hence he chooses to derive the word from the name *Jacobite*, by retrenching the first syllable; whence *Cobite*, *Cabea*, *Copto*, and *Cophta*.

The *Cophts* have a patriarch, who resides at Cairo, but he takes his title from Alexandria: he has no archbishop under him, but eleven or twelve bishops. The rest of the clergy, whether secular or regular, are composed of the orders of St. Antony, St. Paul, and St. Macarius, who have each their monasteries.

Besides the orders of priests, deacons, and subdeacons, the *Cophts* have likewise archimandrites, the dignity whereof they confer with all the prayers and ceremonies of a strict ordination. This makes a considerable difference among the priests; and besides the rank and authority it gives them with regard to the religious, it comprehends the degrees and functions of archpriests. By a custom of six hundred years standing, if a priest elected bishop be not already archimandrite, that dignity must be conferred on him before episcopal ordination.

The second person among the clergy, after the patriarch, is the titular patriarch of Jerusalem, who also resides at Cairo, because of the few *Cophts* at Jerusalem; he is, in effect, little more than the bishop of Cairo: only he goes to Jerusalem every Easter, and visits some other places in Palestine near Egypt, which own his jurisdiction.

To him belongs the government of the *Cophtic* church, during the vacancy of the patriarchal see.

To be elected patriarch, it is necessary the person have lived all his life in continence: it is he confers the bishoprics. To be elected bishop, the person must be in the celibate; or, if he have been married, it must not be above once.

The priests and inferior ministers are allowed to be married before ordination; but are not obliged to it, as Ludolphus erroneously observes. They have a great number of deacons, and even confer the dignity frequently on children. None but the lowest rank among the people commence ecclesiastics; whence arises that excessive ignorance found among them: yet the respect of the laity towards the clergy is very extraordinary. Their office is longer than the Roman office, and never changes in any thing; they have three liturgies, which they vary occasionally.

The monastic life is in great esteem among the *Cophts*: to be admitted into it, there is always required the consent of the bishop. The religious *Cophts* make a vow of perpetual chastity; renounce the world, and live with great austerity in deserts: they are obliged to sleep in their cloaths and their girdle, on a mat stretched on the ground: and to prostrate themselves every evening a hundred and fifty times, with their face and breast on the ground. They are all, both men and women, of the lowest class of the people; and live on alms. The nunneries are properly hospitals; and few enter but widows reduced to beggary.

F. Roderic reduces the errors and opinions of the *Cophts* to the following heads: 1. That they put away their wives, and espouse others while the first are living. 2. That they have seven sacraments; viz. baptism, the eucharist, confirmation, ordination, faith, fasting, and prayer. 3. That they deny the Holy Spirit to proceed from the Son. 4. That they only allow of three œcumenical councils; that of Nice, Constantinople, and Ephesus. 5. That they only allow of one nature, will, and operation, in Jesus Christ, after the union of the humanity with the divinity. For their errors in discipline, they may be reduced, 1. To the practice of circumcising their children before baptism, which has obtained among them from the twelfth century. 2. To their ordaining deacons at five years of age. 3. To their allowing of marriage in the second degree. 4. To their forbearing to eat blood; to which some add their belief of a baptism by fire, which they confer by applying a hot iron to their forehead or cheeks.

Others palliate these errors, and shew that many of them are rather abuses of particular persons, than doctrines of the sect. This seems to be the case with regard to their polygamy, eating of blood, marrying in the second degree, and the baptism of fire: as for circumcision, it is not practised as a ceremony of religion; nor as of any divine appointment, but merely as a custom which they derive from the Ishmaelites; and which, perhaps, may have had its origin from a view to health and decency in those hot countries.

The *Cophts*, at different times, have made several reunions with the Latins; but always in appearance only, and under some necessity of their affairs. In the time of pope Paul IV. a Syrian was dispatched to Rome from the patriarch of Alexandria, with letters to that pope; wherein he acknowledged his authority, and promised obedience; desiring a person might be dispatched to Alexandria, to treat about a re-union of his church to that of Rome: pursuant to which, Pius IV. successor to Paul, chose F. Roderic, a Jesuit, whom he dispatched in 1561, in quality of apostolical nuntio.

But the Jesuit, upon a conference with two *Cophts* deputed for that purpose by the patriarch, was made to know, that the titles of *father of fathers*, *pastor of pastors*, and *master of all churches*, which the patriarch had bestowed on the pope in his letters, were no more than mere matters of civility and compliment; and that it was in this manner the patriarch used to write to his friends: they added, that since the council of Chalcedon, and the establishment of several patriarchs independent of one another, each was chief and master of his own church. This was the answer the patriarch gave the pope, after he had received a sum of money remitted to him from Rome, by the hands of the Venetian consul.

COPHTIC, or Coptic, the language of the Cophts, the ancient language of the Egyptians, mixed with a great deal of Greek; the characters it is written in being all Greek. It has a form and constitution peculiar to itself: it has no inflections of the nouns or verbs; but expresses number, case, gender, *person*, mood, tense, and possessive pronouns, by letters and particles prefixed.

F. Kircher is the first who published a grammar, and vocabulary of the *Cophtic*. There is not known any book

extant in the *Coptic*, except translations of the Holy Scriptures, or of eccleſiaſtical offices; or others that have relation thereto, as dictionaries, &c.

The ancient *Coptic* is now no longer found but in books; the language now uſed throughout the country is Arabic.

The old *Coptic*, which Kircher maintains to be a mother-tongue, and independent of all others, had been much altered by the Greek: for beſides that it has borrowed all its characters from the Greek, with a very little variation, a great number of the words are pure Greek.

Voſſius, indeed, aſſerts, that there was no *Coptic* language till after Egypt became ſubject to the Arabs. The language, according to him, is a miſture of Greek and Arabic: the very name thereof not being in the world till after the Arabs were maſters of the country. But this, M. Simon obſerves, proves nothing; except that what was anciently called *Egyptian*, has ſince by the Arabs been called *Coptic*, by a corruption of ſpeech. There are, it is true, Arabic words in the *Coptic*; yet this by no means proves but that there was a language before that time, either *Coptic* or Egyptian. Pietro de la Valle obſerves, that the Copts have entirely loſt their ancient tongue; that it is now no longer underſtood among them; that they have nothing extant therein but ſome ſacred books; and that they ſtill ſay maſs in it.

All their other books have been tranſlated into Arabic, which is their vulgar tongue; and this has occaſioned the originals to be loſt: it is added, that they rehearſe the epiſtles and goſpels in the maſs, twice; once in Arabic, and once in *Coptic*.

Indeed, if we believe F. Vanſleb, the Copts ſay the maſs in Arabic, all but the epiſtles and goſpels, which they rehearſe both in that and *Coptic*.

COPHTIC *Bible*. See BIBLE.

COPHTIC *Liturgies* are three; one attributed to Baſil, another to St. Gregory, and the third to Cyril: they are tranſlated into Arabic for the uſe of the prieſts and people.

COPIA *libelli deferendi*, a writ which lies in caſe where a man cannot get the copy of a libel at the hands of the eccleſiaſtical judge.

COPIA, *Corn.* See CORNUCOPIA.

COPIATA, under the *Weſtern Empire*, a *grave-digger*. In the firſt ages of the church, there were clerks deſtined for this employment. In the year 357, Conſtantine made a law in favour of the prieſts *copiatæ*, i. e. of thoſe who had the care of interments; whereby he exempts them from the luſtral contribution which all other traders paid.

It was under him alſo that they firſt began to be called *copiatæ*, q. d. clerks deſtined for bodily labour, from κοπτω, *ſcindo, cædo, ferio, I cut, beat*, &c. Before that time they were called *decani* and *lecticarii*; perhaps, becauſe they were divided by decads or tens, each whereof had a bier or litter for the carriage of the dead bodies. Their place among the clerks was the next in order before the chantors.

COPING *of a wall*, the top or cover of a wall, made ſloping to carry off the water.

COPING *ſaw*, in *Carpentry*, a ſort of hanging over, not ſquare to its upright, but bevelling on its under ſide till it end in an edge.

COPIST, in DIPLOMATIC *Science*, ſignifies a tranſcriber or copier of deeds, books, &c.

COPOS, from κοπος, *labour*; in *Medical Writers*, is uſed for a wearineſs of the body, when the muſcles, or their fibres rather, are loaded and obſtructed with viſcous humours, ſo as to render them unfit for motion.

COPPA, in *Law*, a cop or cock of graſs, hay, or corn, divided into titheable portions; as the tenth cock, &c. This word in ſtrictneſs denotes the gathering or laying up the corn in copes or heaps, as the method is for barley or oats, &c. not bound up, that it may be the more fairly and juſtly tithed: and in Kent they ſtill retain the word, a *cop* or *cup* of hay, ſtraw, &c.

COPPEL, COPEL, or CUPPEL, a veſſel uſed by *Chemiſts*, *Refiners*, and *Aſſayers*, to try, and purify their metals. See *Fab. Chemical Furnaces, &c. fig.* 24.

The *coppel of aſſay*, is a little flat veſſel, made of vegetable aſhes, and bones of ſheep's feet, calcined and lixiviated, to ſeparate the ſalts, which would otherwiſe make it crack, and the inflammable principle, which might revivify the vitrified metals, and occaſion an ebullition. At the bottom of the veſſel is a little cavity filled with a kind of white varniſh, compoſed of harthorn, or pike bones, calcined and diluted in water: the uſe of this liquor is, that the gold or ſilver to be aſſayed may be more conveniently lodged, and that the button of the aſſay may be ſeparated the more eaſily.

The hollow of the *coppels*, which is to contain the metal, muſt be a ſpherical ſegment, and not very deep: firſt, that the ſurface of the melted maſs, be it ever ſo ſmall, be diſtinctly viſible to the artificer's eye; and, ſecondly, that the metal left in that cavity, may melt together into one globule. But the outſides of the *coppel* muſt be only a ſmall matter convergent towards the baſis, like a truncated cone, that it may ſtand firmly on its baſe: and that this figure may be regularly given to theſe veſſels, it is convenient to have copper or braſs moulds for the making them.

The *coppel* is uſually formed in a braſs ring from three quarters of an inch to two inches in diameter, and not quite ſo deep, placed on ſome ſmooth ſupport. When the ring is filled with the moiſtened powder, a round-faced peſtle, called the *mont*, is ſtruck down into it, with a few blows of a mallet, by which the maſs is made to cohere, and rendered ſufficiently compact, and a ſhallow cavity formed in the middle: this cavity is made the ſmoother, by ſprinkling a little of the ſame kind of aſhes, levigated into an impalpable powder, through a ſmall fine ſieve, and the monk is again ſtruck down upon it.

Though metals may be tried otherwiſe than by *coppelling*; and though the touchſtone, graver, &c. are of ſome ſervice to the goldſmith in judging of their purity; yet, without the *coppel*, it is difficult, not to ſay impoſſible, to know their preciſe degree of purity.

The *refiner's coppel*, is a large freeſtone veſſel, lined withinſide with a kind of plaiſter made of aſhes well lixiviated, cleanſed, dried, beaten, and ſifted.

In this kind of *coppel* it is that they purify their gold and ſilver, by adding lead to it, and expoſing the whole to a violent fire.

There is ſcarcely any other ſubſtance, which ſo ſtrongly reſiſts vehement fire, which ſo readily imbibes metallic ſcoriæ, and which is ſo little diſpoſed to be vitrified by them, as the aſhes of animal bones. The calcination of theſe bones is to be made in an open fire, for a few hours, according to their ſize; and ſuch ſhould be choſen as have leaſt fat about them. The calcination is known to be perfect, when there is not a black ſpot remaining, either on the outſide of the bone, or within it, when broken. When the bones are perfectly calcined, they muſt be reduced to a very fine powder, either by grinding on a porphyry, or ſifting through a fine ſieve, after beating. This powder muſt be alſo carefully waſhed in warm water; for during the calcination, the bones become almoſt always impregnated with the ſalt of the aſhes of the fewel.

This powder is called by ſome *clar*, and is an excellent ſubſtance for *coppels*. The bones of fiſhes, when ſmall, are yet more eaſily calcined than thoſe of other animals; this may be done with eaſe in an open earthen veſſel, and the powder of theſe is preferable even to the former. Parget, or plaiſter of Paris, made of various kinds of ſpar, though all kinds will not do for this purpoſe, is alſo excellent: but as there are ſome ſorts of ſpar which will not afford a proper plaiſter, it is proper to try in a ſmall quantity firſt. The calcination is to be made in an earthen veſſel, covered with a tile, in an open fire. The ſpar crackles a little with the heat; and when this noiſe is over, the calcination is perfect.

As the preparation of bone aſhes for this uſe, however, is tedious, and the proper ſort of ſpar is not always or every where to be had, the want of them may be ſupplied with the aſhes of vegetables, properly prepared. When a proper powder is obtained, it is moiſtened with juſt ſo much water as is ſufficient to make it hold together, when ſtrongly preſſed between the fingers. Some give a greater tenacity to the powder by mixing it with glutinous liquids, as whites of eggs, or gum water, or with ſtrong waſhed clay: but theſe ſhould be uſed very ſparingly, and with great caution. The calcined ſpar muſt be prepared with a ſolution of vitriol.

Coppels had better be too compact than too looſe in their texture, ſince the latter is always a miſchievous accident, whereas the former, by abſorbing the glaſs more ſlowly, is of no other hurt than the retarding the operation a little.

Coppels made of bone aſhes, or of calcined ſpar, are more valuable than thoſe of wood aſhes, as they require not ſo much caution and regularity in the management of the fire; but if wood aſhes enter the compoſition, the *coppel* muſt be made pretty hot before the metal is put into it, otherwiſe the aqueous vapours, forcing their way out, will cauſe the metal to be thrown out in drops; for *coppels* of this kind can never be perfectly dried by the air alone, there being always ſomething of an alkaline ſalt yet remaining in wood aſhes, which makes them attract the water out of the air, as the dark colour of theſe aſhes, and the ſolution of *ſal ammoniac* poured on them, alſo ſhew: for this reaſon, theſe aſhes are alſo more diſpoſed to vitrification than thoſe of bones, the latter approaching

fined to the providing of hogs, whence they were called *porcii*; and the other were charged with cattle, eſpecially oxen; whence they were called *pecuarii*, or *boarii*. Under each of theſe was a ſubordinate claſs, whoſe office was to kill, prepare, &c. called *lanii*, and ſometimes *carnifices*. Briſſonius, Modeſtus, and others, mention a pleaſant way of ſelling meat, uſed for ſome ages among this people: the buyer was to ſhut his eyes, and the ſeller to hold up ſome of his fingers; if the buyer gueſſed aright, how many it was the other held up, he was to fix the price; if he miſtook, the ſeller was to fix it. This cuſtom was abolished by Aponius, preſect of Rome; who in lieu thereof introduced the method of ſelling by weight.

Some derive the term *butcher* from *bucarius*, of *bucca*, *mouth*; others from *βοῦς*, *βοὸς*, *killer of cattle*.

The French call a place ſet apart either for the ſlaughter of cattle, or expoſing their fleſh to ſale, a *butchery*, *boucherie*. The Engliſh diſtinguiſh, calling the latter a *fleſh-ſhambles*, or *market*, the former a *ſlaughter-houſe*.—Nero built a noble edifice of this kind at Rome; on which occaſion was ſtruck that medal, whoſe reverſe is a building ſupported by columns, and entered by a perſon of four ſteps; the legend, MAC. AVG. S. C. *Macellum Auguſti Senatuſconſulto*.

In London, the furniſhing of the markets with *butchers* meat is cantoned into ſeveral offices. We have cattel-*butchers*, who kill the meat in great quantities, and ſell it out to another ſort called retail *butchers*; diſperſed in all out-parts, villages, and towns, near the city. There are, beſides, cow-jobbers, or *taleſmen*, who buy and ſell cattle, acting between the *butchers* and the breeders, or feeders. Something like this alſo obtains at Paris.

The company of *butchers* was not incorporated until the third year of king James I. when they were made a corporation by the name of maſter, wardens, and commonalty of the art and myſtery of *butchers*; yet the fraternity is ancient. Their arms are azure, two axes ſalter-wiſe argent, between three boars heads couped, attired or, a boars head gules, between two gathes vert.

There are ſome good laws made for the better regulation, and for preventing the abuſes committed by *butchers*. *Butchers*, ſelling ſwine's fleſh meaſled, or dead of the murrain, or that buy fleſh of Jews, and ſell the ſame to Chriſtians, for the firſt time ſhall be grievouſly amerced, the ſecond time ſuffer the pillory, the third time be impriſoned and fined, and the fourth time forfweat the town. 17 Edw. II. cap. 7. vide 51 Hen. III.

Stat. 4 Hen. VII. cap. 3. no *butcher* ſhall ſlay beaſts within the wall of London, upon pain to forfeit for every ox 12*d.* and for every cow and other beaſt, 8*d.* and this law ſhall be obſerved in every city and town walled in England, and in the town of Cambridge; except Berwick and Carliſle.

Stat. 15 Car. II. cap. 8. § 2. no perſon uſing the trade of a *butcher*, ſhall ſell or expoſe to ſale, any fat oxen, ſteers, runts, kine, heifers, calves, ſheep, or lambs alive, on pain to forfeit double the value of the cattle.

Stat. 5 Anne, cap. 4. § 2. no perſon uſing the trade of a *butcher* ſhall ſell, or offer to ſell, within London and Weſtminſter, or within ten miles thereof, to any perſon uſing the trade of a *butcher*, any fat cattle or ſheep, alive or dead, upon pain to forfeit the value.

Stat. 7 Anne, cap. 6. the clauſe 5 Anne, cap. 34. § 32. ſhall not extend to the ſelling of calves, ſheep, or lambs, dead, by one *butcher* to another.

No *butcher* ſhall kill any calf, to ſell, being under five weeks old; nor uſe the craft and myſtery of a tanner.

BUTCHER-*bird*, in *Ornithology*, the Engliſh name of the *lanius*, the ſmalleſt of all the European birds of prey, yet very fierce and deſtructive. Its beak is all the way ſtraight, except juſt at the end, where it is ſlightly hooked, the upper mandible furniſhed with a ſharp proceſs, and its tail faſhioned like that of the ſwallow, the outer feathers being the ſhorteſt, the reſt gradually longer, for which reaſon ſome have called it the *pica*. The ancients called it the *ſtrangus*, and in Engliſh we ſometimes alſo call it the *ſhrike*.

There are ſeveral ſpecies of the *lanius*: the principal are, 1. The common larger kind, called the MATTAGRESS. 2. The ſmaller, called the PLUMBER. And, 3. The *lanius minor*, or grey little *butcher-bird*. See *Tab. of Birds*, N° 5. The *lanius minor cinereus*, or little grey *butcher-bird*, is the name of a very ſmall ſpecies of the *lanius*, common in Italy and elſewhere, and is a very great deſtroyer of the wrens, and other ſmall birds. See WOOD *chat*.

BUTCHER'S-*broom*, *Ruſcus*, in *Botany*, a genus of the *dioecia ſyngeneſia* claſs. Its characters are theſe: it hath male and female flowers in diſtinct plants: the male have erect ſpreading empalements, compoſed of ſix oval convex leaves, whoſe borders are reflexed; they have no petals, but an oval *nectarium* of the ſize of the empalement, which is erect and inflated, opening at the mouth; they have no ſtamina, but each has three ſpreading ſummits ſitting on the top of the *nectarium*, which are joined at their baſe. The female flowers have empalements, but no petals, and *nectariums* like the male; they have no ſtamina, but have an oblong, oval germen, hid within the *nectarium*, ſupporting a cylindrical ſtyle, crowned by an obtuſe ſtigma, ſtanding above the mouth of the *nectarium*: the germen afterward becomes a globular berry, with two or three cells, incloſing two globular ſeeds. Miller enumerates eight, and Linnæus five ſpecies.

The root of *butcher's-broom*, *ruſcus oculeatus* of Linnæus, is one of the five aperient ones, and is ſeldom uſed by authors as a very powerful attenuant and reſolvent. It is good in all chronic caſes, and is frequently preſcribed in diet drinks intended to open obſtructions of the viſcera, or to promote urine. Riverius tells us of an hydropic perſon who was completely cured by uſing a decoction of *butcher's-broom* for his only drink, and taking two purges of ſena. Lewis.

BUTEO. See BUZZARD.

BUTHYSIA, *βυθυσία*, in *Antiquity*, a ſacrifice of the greateſt kind; ſuch were the hecatombs. See SACRIFICE and HECATOMB.

The Greeks frequently preſixed the particle *βυ*, *bu*, to words, to denote things of extraordinary magnitude, as alluding to the bigneſs of oxen.

BUTIGA, is an inflammation of the whole face, otherwiſe called *pottia roſacea*.

BUTLER, or BOTELER, an officer whoſe chief charge is over the cellar and diſhekables. See ARCH-*Butler*.

BUTLERS, *bottelarii*, among the Normans, denote wine-taſters, appointed to examine liquors, and ſee that they be right and legal.

BUTLER *of France*, *bottelarius Franciæ*, was one of the four great officers of the houſhold of the ancient kings of that country who ſigned all the royal patents, or at leaſt was preſent at the diſpatch of them. His ſeat was among the princes, and he even diſputed the precedency of the conſtable of France. He had a right of preſiding at the chamber of accounts; and in the regiſters of that office of the year 1307, mention is made that Jobude Bourbon, grand *butler* of France, was admitted there as firſt preſident. But the title is now aboliſhed, and, inſtead thereof, a new office of *grand echanſon*, or cup-bearer, erected.

BUTLER'S *ale*. See ALE.

BUTLER'S *ſpirit*, a medicinal preparation, of which the ancient chemiſts relate wonders. See Boyle's Works, Abr. vol. i. p. 50.

The inventor, from whom it takes its name, was a Scotchman, in great favour with king James I. and is ſaid to have done wonders with it, not only in the ſpeedy cure of the moſt dangerous diſtempers, but in the making of gold out of lead and quickſilver.

The preparation of this ſtone is given by Morley. Collect. Chym. Loyd. cap. 325.

BUTLERAGE and PRISAGE, theſe were originally the only cuſtom that was payable upon the importation of wines, and were taken and received by virtue of the regal prerogative, for the proper uſe of the crown: but for many years paſt, there having been granted by parliament ſubſidies or aids to the kings of England, and their duties not repealed, but confirmed, they have been pleaſed to grant the ſame away to ſome noblemen, who by virtue of ſuch grant or patent, are to enjoy the full benefit and advantage thereof, and may cauſe the ſame to be levied and collected in the ſame manner as the kings themſelves did, and were formerly wont to do. *Butlerage* is a duty of two ſhillings for every ton of wine imported by merchants ſtrangers; being a compoſition (in lieu of the priſage payable in kind by Engliſh only) in conſideration of the liberties and freedoms granted to them by king John, and king Edward I. by a charter called *Charta Mercatorum*. 31 Edw. I. cap. 1. & 2.—27 Edw. III. cap. 26.

BUTMENTS, in *Architecture*, thoſe ſupporters or props, on or againſt which the feet of arches reſt.

The word comes from the French *bouter*, to abut or *terminate* on any thing; or rather from *butter*, or *prop*.

The name *butment* is alſo given to little plates taken out of the yard, or the ground-plot of a houſe, for batteries, ſculleries, &c.

Buttments of arches are the ſame with butteſſes. They anſwer to what the Romans call *ſolidum*, the French, *corps* and *butées*.

BUTMENTS, or ABUTMENTS of a BRIDGE, denote the two maſſives at the end of a bridge, whereby the two extreme arches are ſuſtained and joined with the ſhore on either ſide.

The *butments* of bridges near the banks ſhould be built more firm and ſolid, as ſerving to ſuſtain the whole ſeries of arches, and hinder them from ſpreading.

BUTOMUS, the *flowering rush*, in *Botany*. See RUSH.

BUTORIUS, in *Zoology*, a name by which ſome have called the *ardea ſtellaris*, or BITTERN.

BUTRO, in *Natural Hiſtory*, the name of a wild bull. See BISON.

BUTT, in our *Ancient Customs*, denotes a place erected for archers to shoot at, and in which a mark or white was fixed.

BUTT is used for a veſſel, or meaſure of wine, containing two hogſheads, or 126 gallons.—Otherwiſe called PIPE.

A *butt* of currants is from fifteen to twenty-two hundred weight.

BUTT, or BUTT-*end*, in the *Sea Language*, denotes the end of any plank, which joins to another on the outſide of a ſhip, under water.

Hence, when a plank is looſe at one end, they call it *ſpringing a butt*; to prevent which, ſhips are uſually bolted at the *butt-heads*, that is, at the plank's end.

BUTTER, a fat, unctuous ſubſtance, prepared, or ſeparated from milk, by beating or churning it.

The word is formed from *βουτυρον*, a compound of *βους cow*, and *τυρος, cheeſe*; q. d. *cow's cheeſe*.—Some authors, out of regard to this etymon, affect to write the word *butter*, and *butyr*.

It was late ere the Greeks appear to have had any notion of *butter*. Homer, Theocritus, Euripides, and the other poets, make no mention of it; and yet are frequently ſpeaking of milk and cheeſe: and Ariſtotle, who has collected abundance of curioſities relating to the other two, is perfectly ſilent on this. Pliny tells us, that *butter* was a delicate diſh among the barbarous nations; and was that which diſtinguiſhed the rich from the poor. Hiſt. Nat. lib. xxviii. cap. 35.

The firſt time the word *βουτυρον* occurs is in Hippocrates, in ſpeaking of the Scythians, from whom the Greeks appear to have firſt learnt the art of making it. In reality what reaſon can be given, why Herodotus ſhould deſcribe the Scythians proceſs of making *butter* with ſo much exactneſs, if the ſame had been in uſe among the Greeks. Herod. Melpom.

It muſt not be forgot, that the ancient Jews appear to have been acquainted with the method of preparing *butter*. Solomon, Iſaiah, and even Moſes, ſpeak of it. The laſt repreſents it as in uſe in Abraham's time, unleſs we ſhould ſuppoſe, with ſome modern writers, that by *butter* in theſe paſſages we are to underſtand CHEESE. See Prov. xxx. 33. Iſa. vii. 15.

The Romans uſed *butter* no otherwiſe than as a medicine, never as a food. Schoolkius obſerves, that it is owing to the induſtry of the Dutch, that there is any ſuch thing as *butter* in the Eaſt Indies: that in Spain, *butter* is only uſed medicinally, for ulcers; and adds, that the beſt opiate for making the teeth white, is the rubbing of them with *butter*.

Cl. Alexandrinus obſerves, that the ancient Chriſtians of Egypt burnt *butter* in the lamps at their altars, inſtead of oil; and the Abyſſinians, according to Godignus, ſtill retain a practice much like it. Clemens finds a religious myſtery in it.—In the Roman churches, it was anciently allowed, during Chriſtmas time, to uſe *butter* inſtead of oil; by reaſon of the great conſumption thereof, in other ways.

In the cathedral of Rouen there is a tower called the BUTTER *tower*, *tour du beurre*, becauſe George d'Amboiſe, archbiſhop of Rouen in 1500, finding the oil fail in his dioceſe during Lent, permitted the uſe of *butter*, on condition that each inhabitant ſhould pay ſix deniers for the liberty, with which ſum this tower was erected. There are other *butter* towers at Notre Dame, Bourges, &c.

Butter is made in the greateſt plenty from cows milk; but ſometimes alſo from goats, and the richeſt from ſheeps milk, as is obſerved by Pliny; though Galen ſeems to doubt it. Inſtances have alſo been known of *butter* made from woman's milk, which is extolled by Hoffman as a ſovereign remedy againſt the *phthiſis*. And, that the ancient Scythians, according to Hippocrates, made *butter* of mares milk; the method of preparing which is deſcribed by that author.

If cows feed on ſhort graſs, they will yield more *butter*, though leſs milk, than if they fed on long rank graſs. The milk of ſome cows, though fed on the ſame graſs, will not yield ſo much *butter* as that of others. In many caſes the *butter* is found to retain the taſte of the plant on which the cows feed.

Writers on the dairy deſcribe the proceſs of making and ordering *butter*. The chief means whereby *butter* is produced, is a long continued agitation of milk, whereby its texture is broken. After the *butter* is come, as they call it, they take it out, waſh it, and beat it, to expreſs the milk. In Bengal, *butter* is eaſily made, by the ſlight turning of a ſtick in milk. Phil. Tranſ. N° 337. p. 227.

In Barbary, *butter* is made by putting the milk or cream into a goat's ſkin, ſuſpended from one ſide of the tent to the other, and preſſing it to and fro in one uniform direction. This quickly occaſions the neceſſary ſeparation of the unctuous and wheyey parts. Shaw's Trav. p. 241.

If the milk be not well wrought out, the *butter* will not keep. When *butter* begins to decay and taſte rank, working it well anew, and waſhing it with water, will reſtore it.

In Bengal, to make *butter* paſs for freſh when old and rank, they melt it, and pour on it four curdly milk; ſome hours after which, they ſtrain it through a cloth for ſale.

BUTTER, *clarified*, and TALLOW, are ſaid to be ſpecifics againſt the *bloody* FLUX, and deſtuxions of the eyes and breaſt. The proceſs of *clarifying butter* is as follows.—Take new-churned *butter*, without ſalt, melt it over a clear fire, and ſkim off the curdy part. Two ſpoonfuls of the clarified remainder are to be given twice or thrice within the day.

This oil of MILK, which is naturally diſtributed through all the ſubſtance of the milk, conſiſts of very ſmall particles, which are interpoſed betwixt the caſeous and the ſerous parts, among which it keeps itſelf ſuſpended, by a light adheſion, but without being diſſolved. It is in the ſame ſtate in which oil is in emulſions; hence, the ſame whiteneſs in MILK and in EMULSIONS; and hence by reſt, the oily parts ſeparate from both theſe liquors to the ſurface, and form a cream. When *butter* is in the ſtate of cream, its proper oily parts are not yet ſufficiently united together to form a homogeneous maſs. They are ſtill half ſeparated by the interpoſition of a pretty large quantity of caſeous and ſerous particles. The *butter* is completely formed by preſſing out theſe heterogeneous parts, by means of continued percuſſion. It then becomes an uniform maſs.

The trade of *butter* is very conſiderable. It is chiefly made within forty miles round the city. Fifty thouſand firkins are ſaid to be ſent yearly from Cambridge and Suffolk alone; each firkin containing 56 pounds. Uxbridge in Staffordſhire is a market famous for good *butter*, inſomuch that the London cheeſemongers have an eſtabliſhed factory here for *butter*. It is bought by the pot, of a long cylindrical form, weighing 14 pounds.

Divers abuſes are practiſed in the packing and ſalting of *butter*, to increaſe its bulk and weight, againſt which we have a ſtatute expreſs. 4 Car. II. cap. 26.

By 13 and 14 Car. II. cap. 26. no *butter* which is old or corrupt, ſhall be mixed or packed with that which is new and ſound.—Nor any whey-BUTTER be mixed or packed with *butter* made of cream.—But each ſort ſhall be packed ſeparately.—No *butter* ſhall be ſalted or ſaved with any great ſalt, but all with ſmall ſalt.

Butter, as a wholeſome aliment, ſhould be freſh and free from rancidity, and not fried or burnt; otherwiſe the acid being diſengaged by age and fermentation, as well as by fire, it will diſorder digeſtion, render it difficult and painful, excite acrid, empyreumatic belchings, and introduce much acrimony into the blood.

Butter is an emollient, and has virtues approaching to thoſe of oil; having a peculiar power of reſiſting poiſon, and obtunding the acrimony thereof. By its ſuppling and relaxing the parts, Dr. Quincy thinks it has a tendency to ſtop in the capillaries and glands, and ſoul the *viſcera*; whence proceed blotches, and cutaneous diſeaſes. Some repreſent it as a diuretic, purgative, and promoter of expectoration.

BUTTER, *May*, BUTYRUM *Majale*, is a medicine in ſome repute among good women, for ſtrains, aches, and wounds. It is made of *butter* churned at that time, and expoſed to the ſun of the whole month, till, by repeated waſhings, it be brought to a whiteneſs. Helmont calls it *magiſtery of graſs*. Quincy allows it is no better than plain lard.

Naturaliſts ſpeak of ſhowers and dews of *butter*. See DEW.

BUTTER-*milk*, the MILK which remains after the *butter* is come by churning.

Butter-milk is eſteemed an excellent food, in the ſpring eſpecially, and is particularly recommended in hectic fevers.

Some make curds of *butter-milk*, by pouring into it a quantity of new milk hot.

BUTTER-*bump*. See BITTERN.

BUTTER-*bur*, *Petaſites*, in *Botany*, an officinal plant, both in figure and virtues reſembling *maſter-wort*. Linnæus has comprehended this plant under the genus of *tuſſilago*, which belongs to the claſs of *ſyngeneſia polygamia ſuperflua*. Its characters are theſe: the flowers is compoſed of ſeveral hermaphrodite florets, which are included in one common cylindrical empalement; they are tubulous or funnel-ſhaped, of one petal, cut into five ſegments at the brim. They have each five ſmall hair-like ſtamina, terminated by cylindrical ſummits, and a ſhort germen, crowned with down, ſupporting a ſlender ſtyle, crowned by a thick ſtigma; the germen afterward becomes an oblong

oblong, compreſſed ſeed, crowned with a hairy down. There are five ſpecies; the firſt of which is the common *butter-bur*, or peſtilent-wort, the *tuſſilago petaſites*, of Linnæus, which grows naturally by the ſides of rivers and ditches in moſt parts of England. It is reputed an alexipharmic and detergent, and uſed in many compoſitions, eſpecially with the firſt of thoſe intentions. There is alſo a compound water denominated from it, though rejected in the laſt college diſpenſatory.

The root is the part principally uſed; and beſide theſe virtues it has thoſe of an aperient and detergent. It is preſcribed in ſuppreſſions of the urine and *menſes*, and in coughs, aſthmas, and other diſeaſes of the breaſt.

BUTTER-*nut*, a fruit in New-England, whoſe kernel yields a great quantity of ſweet oil.

BUTTER-*wort*, *Pinguicula*, in *Botany*, a genus of the *diandria monogynia* claſs. The corolla conſiſts of a ſingle ringent petal; the longer lip is ſtraight, obtuſe, trifid, and ſubine; the ſhorter lip is bifid, more obtuſe, and patent; the *nectarium* is cornicultated, and produced from the baſe of the petal; the fruit is an oval capſule, compreſſed at top, and containing one cell, in which are ſeveral ſmall ſeeds of cylindric figure. There are *four* ſpecies. The common butter-wort or *pinguicula vulgaris* of Linnæus, is found growing on bogs in many parts of England, and flowers in June; but is never cultivated in gardens.

BUTTER, *Butyrum*, is alſo uſed to expreſs ſeveral chemical ſubſtances—as, *butter* of ANTIMONY, of ARSENIC, of BISMUTH, of CACAO, of FLAX, of SATURN, of TIN, of WAX, &c. on account of their form of conſiſtence reſembling that of *butter*.

BUTTER *of ſtone*, a kind of mineral drug found on the higheſt mountains, and hardeſt rocks of Siberia, being drawn by the ſun's heat, in the way of tranſudation, from the dry ſubſtance of the ſtones themſelves, and adhering to the ſurface thereof like a ſort of calx, which, having received its full coction, is ſcraped off by the inhabitants under the name of *kamene maſſe*. The Ruſſians aſcribe many virtues to it. It is much uſed for the dyſentery and venereal diſeaſes; but its operation is ſo violent, however corrected by other ingredients, that none but the Ruſſians dare uſe it.

BUTTER-*fiſh*, a ſmall fiſh, common in Cornwal, ſhaped ſomewhat like an eel, and diſtinguiſhed by two rows of black ſpots along its back, and called *gunellus*.

BUTTER-*fly*, in *Zoology*. See PAPILIO.

BUTTER-*fly fiſh*, the Engliſh name for the fiſh called by authors BLENNUS, or BLENNIUS.

It has its name of the *butter-fly fiſh* from a ſpot in the fin, which reſembles thoſe in the wings of ſome *butter-flies*.

BUTTER-*fly ſhell*. See VOLUTA.

BUTTER-*fly, Satyrion*, in *Botany*. See ORCHIS.

BUTTER-*nuts*, flowers of the wild TARRAGE.

BUTTERY.—Officers in the king's *buttery*, are a gentleman, yeoman, and three grooms of the *buttery*. The *buttery* among us is uſually placed near the cellar; being commonly the room next the top of the cellar ſtairs.

BUTTING, *imbuture*, in *Middle Age Writers*, is uſed for tunning of wine, or putting it into butts.

BUTTING-*pillar*. See PILLAR.

BUTTOCK *of a ſhip* is her full breadth right aſtern from the tuck upwards.—According as a ſhip is built, broad or narrow at the tranſom, ſhe is ſaid to have a *broad* or *narrow buttock*.

BUTTONS make an article in dreſs, whoſe form and uſe are too familiar to need a deſcription.—The matter whereof they are made is various; as metal, ſilk, mohair, &c.

BUTTONS, *metal*, are various; both with regard to the matter and manner of making; beſides thoſe caſt in moulds, much in the manner of other ſmall works (ſee FOUNDERY), there are now made great quantities with thin plates, or leaves of gold, ſilver, and braſs; eſpecially of the two laſt.—The invention of theſe *buttons* being very late, as not having been ſet on foot before the beginning of the eighteenth century; and their ſtructure very ingenious, though but of indifferent uſe, we ſhall here ſubjoin it.

BUTTONS, *manner of making plated*. The metal to be uſed being reduced into thin plates, or leaves, of the thickneſs intended (either by the goldſmith or brazier), is cut into little round pieces, of a diameter proportionable to the wooden mould they are made to cover: this cutting is performed with a ſharp punch, on a leaden block or table.—Each piece of metal thus cut, and taken off from the plate, is reduced to the form of a *button*, by beating it ſucceſſively in ſeveral ſpherical cavities, with a round piece of iron, in form of a puncheon; ſtill beginning with the ſtarteſt cavity, and proceeding to the more ſpherical, till the plate has got all the relievo required; and the better to manage to thin a plate, they form ten or twelve to the cavities at once; and alſo boil the metal to make it more ductile.

The inſide thus formed, they give an impreſſion to the outſide, by working it with the ſame iron puncheon, in a kind of mould like the minter's coins, engraven *in creux*, or indentedly; and faſtened to a block or bench. The cavity of this mould, wherein the impreſſion is to be made, is of a diameter and depth ſuitable to the ſize of *button* to be ſtruck in it; each kind requiring a particular mould. Between the puncheon and the plate is placed ſome lead, which contributes to the better taking off all the ſtrokes of the graving; the lead, by reaſon of its ſoftneſs, eaſily giving way to the parts that have relievo; and as eaſily inſinuating itſelf into the trace, or engraving of the dentures.

The plate thus prepared makes the upper part or ſhell of the *button*. The lower part is formed of another plate, made after the ſame manner, but ſtarter, and without any impreſſion. To this laſt, is ſoldered a hook ere made of wire, of the ſame metal, for the *button* to be faſtened by.

The two plates are ſoldered together with a wooden mould, covered with wax, or other cement, between, in order to render the *button* firm and ſolid; for the wax covering all the cavities formed by the relievo of the other ſide, fulfains it, prevents it flattening, and preſerves its boſſe or deſign. Ordinarily, indeed, they content themſelves to cover the naked mould with the ſhell; and in this caſe, for the faſtening, they paſs a thread or gut acroſs the middle of the mould.

Buttons made of hair, or other foreign *buttons*, ſhall not be imported, on pain of forfeiture, &c. 13 and 14 Car. II. cap 13.—4 W. and M. cap. 10. Alſo *buttons* are not to be made of cloth, ſtuff, or wood, under penalties. Stat. 4 and 5. W. and M.—10. W. III. cap 2. 4 Geo. I. cap. 7.—7 Geo. I. ſtat. 1. cap 12.

BUTTON, in *Botany*, denotes a *flower* or cluſter of leaves not yet expanded; and is much of the ſame import with BUD. The term *button* is chiefly uſed in ſpeaking of vines and roſes; and in other wiſe denominated *eye*, *ſprout*, *bud*, *burgeon*, &c.

BUTTON, in *Building*, denotes a ſlight faſtening for a door or window, made to turn on a nail.

BUTTON *of a lock*, denotes a round head ſerving to move the bolt.

BUTTON, in *Chemiſtry*, ſignifies the metal which is collected generally in a roundiſh maſs at the bottom of a crucible after fuſion, or which remains in the cupels after cupellation.

BUTTON, in *Fencing*, ſignifies the end or tip of a foil, being made roundiſh, and uſually covered with leather, to prevent making contuſions in the body.

BUTTON *of the rein of a bridle*, in the *Manege*, is a ring of leather, with the reins put through it, running all along the length of the reins.

To put a horſe under the *button*, is when he is ſtopt, having no rider on his back, by the reins being laid on his neck, and the button lowered, ſo far as that the horſe's head is brought in by the reins, and fixed to the true poſture or carriage.

BUTTON-*antennæ*, a name given by *Naturaliſts* to thoſe *antennæ* or horns, as they are called of Butterflies, which are ſlender and terminated at the top by a ſort of *button*, in form of an olive, or part of one. The French naturaliſts, from Reaumur, call theſe *antennes à boutons*. See FEELERS.

BUTTON-*ſtone*, in *Natural Hiſtory*, a kind of figured ſtone, ſo denominated from its reſembling the *button* of a garment.

The *button-ſtone* is called by *Naturaliſts*, *porpites*. Some make it a ſpecies of ECHINITES.

Dr. Hook gives the figure of three ſorts of *button-ſtones*, which ſeem to have been nothing elſe but the ſilling up three ſeveral ſorts of ſhells. They are all of them very hard ſtones, and have this in common, that they conſiſt of two bodies, which ſeem to have been the filling up of two holes or vents in the ſhell. Poſth. Works, p. 284.

Dr. Plot deſcribes a new ſpecies of *button-ſtone*, finely ſtriated from the top, after the manner of ſome hair buttons, on which account it may be denominated *porpites*, unleſs we ſhould rather take it for a new ſpecies of ECHINITES. Hiſt. Oxf. chap. 5. § 178.

This name is alſo given to a peculiar ſpecies of ſlate found in the marquiſate of Bareith, in a mountain called Fichtelberg; which is extremely different from the common ſorts of ſlate, in that it runs with great eaſe into glaſs in five or ſix hours time, without the addition of any ſalt, or other foreign ſubſtance, to promote its vitrification, as other ſtones require.

It contains in itſelf all the principles of glaſs, and really has mixed in its ſubſtance, the things neceſſary to be added to promote the fuſion of other ſtony bodies.

The Swedes and Germans make *buttons* of the glaſs produced from it, which is very black and ſhining, and it has hence its name *button-ſtone*. They make ſeveral other things alſo of this glaſs, as the handles of knives, and the

the like, and send a large quantity of it unwrought in round cakes, as it cools from the fusion, into Holland.

BUTTON-*tree*, *Cephalanthus*, in *Botany*, a genus of the *tetrandria monogynia* class. The characters are these: it hath a number of small flowers collected into a spherical head, and each particular flower hath a funnel-shaped empalement, divided into four parts at the top; the flower is funnel-shaped, of one petal, divided at the top into four parts, inclosing four stamina, which are inserted in the petal. The germen is situated under the flower, which becomes a globular hairy capsule, inclosing one or two oblong, angular seeds, those are joined to an axis, and form a round head. Miller mentions two, and Linnæus one species.

BUTTON-*tree of Jamaica*, *Conocarpus*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flowers are collected in a globular head, each standing in a scaly empalement. At the bottom is situated a large compressed germen, divided into five parts at the top. The flower has one petal, which is cut into five equal parts, and five slender stamina, which extend beyond the petal. The germen becomes a single seed, inclosed in the scale of the fruit, which is shaped like the cone of the alder-tree. Linnæus enumerates three, and Miller two species.

BUTTON-*wood*. See SPERMACOCE.

BUTTRESS, a *buttment*, or mass of stone, or brick, serving to prop or support the sides of a building, wall, or the like, on the outside; where it is either very high, or has any considerable load to sustain on the other side, as a bank of earth, &c. See ARCH, and ARC-BOUTANT.

The theory and rules of *buttresses*, or props for easing walls, is ranked among the desiderata of architecture. They are usually placed leaning against the offsets they are to sustain. We find them used against the angles of steeples, churches, and other buildings of stone; also along the walls of such buildings as have great and heavy roofs, which would otherwise be subject to thrust the wall out. They are also placed as supports against the feet of arches turned cross great halls, in old palaces, &c. and are much used in fortification.

BUTTRESS, BUTTRICE, or BUTTERIS, likewise denotes a tool, used by farriers, to pierce the sole of a horse's foot, which is overgrown; to pare the hoof; to fit the shoe; and to cut off the skirts of the sole, that overcast the shoe.

BUTYROUS, or BUTYRACEOUS, something that partakes of the nature or qualities of butter.

BUVETTE, or BEUVETTE, in the *French Lawes*, an established place in every court, where the lawyers and counsellors may retire, warm themselves, and take a glass of wine by way of refreshment, at the king's charge.

There is one for each court of parliament, but these are only for persons belonging to that body; there are others in the *palais* whither other persons also resort.

BUXBAUMIA, in *Botany*, a genus of the *cryptogamia musci*.

BUXTON *waters*. See WATERS.

BUXUS, in *Botany*. See BOX-*tree*.

BUYER, *Emptor*. See BUYING and EMPTOR.

BUYING, the act of making a PURCHASE, or of acquiring the property of a thing for a certain price.

Buying stands opposed to selling, and differs from BORROWING or hiring, as in the former the property of the thing is alienated for perpetuity, which in the latter is not. By the civil law, persons are allowed to *buy* hope, *spem pretii emere*, that is, to purchase the event or expectation of any thing. E. gr. The fish or birds a person shall catch, or the money he shall win in gaming.

There are divers species of *buying* in use among traders; as *buying* on one's own account, opposed to *buying* on commission; *buying* for ready money, which is when the purchaser pays in actual specie on the spot; *buying* on credit, or for a time certain, is when the payment is not to be presently made, but, in lieu thereof, an obligation given by the buyer for payment at a time future; *buying* on delivery, is when the goods purchased are only to be delivered at a certain time future.

BUYING *the reversal*, is giving money for the right or liberty of purchasing a thing at a fixed price, in a certain time to come; chiefly used in dealing for shares in stock.

This is sometimes also called by a cant name, *buying the bear*.

BUYING *the small pox*, is an appellation given to a method of procuring that disease by an operation nearly akin to INOCULATION; frequent in South Wales, where it has obtained time out of mind.

It is performed either by rubbing some of the *pus* taken out of a pustule of a virulous person on the skin, or by making a puncture in the skin with a pin dipped in such *pus*. Phil. Trans. N° 375. See INOCULATION and POX.

BUZ, in *Ichthyography*, the name of a fish more commonly known by that of ALBULA, and caught in the German lakes.

BUZIDAN, in the *Materia Medica of the Ancients*, a name given by Avicenna, and others, to a wood produced in Africa, which had the same virtues with the radix ben, or white and red behen, or ben root. We are not acquainted with this medicine at this time, but it appears to have been of the colour of our red saunders; so that it could only serve to adulterate the red ben root; though they lay, in general, that it was used to adulterate the ben when scarce.

BUZZARD, BUTEO, in *Ornithology*, the name of a bird of prey, of the long-winged hawk kind, belonging to the genus of FALCON in the Linnæan system; of which there are several species. 1. The bald *buzzard*, so called from the whiteness of his crown, sometimes called *ospray*. 2. The common *buzzard*, distinguished from the former by the shortness of its wings, and its smaller size. 3. The honey *buzzard*, or apivorous *buzzard*, which feeds its young from the bee-hives. See APIVORUS *Buteo*. 4. The HENHARRIER, the male of which has been usually called the hen-harrier, the female the ring-tail; though by later observations males have been found of this species; and, 5. The moor *buzzard*, common in marshy places, and called BUTEO RADIOSUS by authors.

The common *buzzard* is a bird of the long-winged hawk kind, of the size of a pheasant, or small pullet. It feeds on moles, field-mice, and other small birds, and sometimes will seize on rabbits. In want of better food, it will live on beetles, worms, and the like. Its eggs are white, more or less sprinkled with irregular red spots. In age, or by some other accidents, the head and back in this species, are sometimes found grey.

The *moor buzzard* is a bird of the long-winged hawk kind, smaller than the common *buzzard*, and not so flat on the head. Its beak is large and crooked, covered with a greenish yellow skin near the top, and black in other places. Its mouth is bluish within; its head is of a whitish orange colour, variegated with black streaks; its throat is of the same colour; and all the rest of its body, as well back as belly, is of a dusky ruft colour, only that in each wing there is a yellowish white spot; and the feathers at the root of the tail are yellowish. Its legs are long and slender, and of a yellowish colour. The inside of its wing-feathers are whitish. It is common with us about heaths and marshes.

BYAS is used by Petty for the central point supposed in the middle of each ATOM or CORPUSCLE.

BY-LAWS, BYE-LAWS, or BI-LAWS, private or peculiar orders and regulations for the good government of a city court, or other community, made by general consent of the members thereof; being not repugnant to the general laws of the realm.

By Stat. 9 Hen. VII. cap. 7. *bye laws* made by corporations are to be approved by the lord-chancellor, or chief-justices, under penalty of 40*l*.

The word is formed from the Saxon *by*, *habitation*, *village*, and *laza*, q. d. *lex villæ*, or *town-ball*.—They are also called *burlawes*, *burlawes*, and *burlaws*, *burlagre*, and *hallepleas*. Such is the custom in Kent of deciding controversies among neighbours about boundaries, by the seneschals, or bailiffs.

In Scotland, those are called *laws of burlaw*, or *burlaw*, which are made and determined by neighbours, elected by common consent in burlaw-courts; wherein cognizance is taken of complaints betwixt neighbour and neighbour.—The men thus chosen as judges or arbiters are called *burlaw-men*, or *by-law-men*.

BYRRHUS, in *Natural History*, a genus of insects of the order of *coleoptera*, with elevated, almost solid, and compressed antennæ. There are five species.

BYRSODEPSICON, from βυρσα, *skin*, and δεψω, *I dress*, an epithet given to *sumach*, denoting its use in dying of leather. See SUMACH.

BYSSUS, or BISSUM, a fine sort of thready matter produced in India, Egypt, and about Elis in Achaia, of which the richest apparel was anciently made, especially that wore by the priests both Jewish and Egyptian.

In reality, the ancients seem to have applied the name indifferently to any kind of matter that was spun and wove finer than wool: so that it is probable there were divers sorts of *byssus*. This is certain, that Aristotle gave the name *byssus* to the hair or silken threads of the *pinna marina*; whether it were on account of its resemblance to the *byssus* of which cloths were made, or whether it were that this was the true *byssus* itself. What countenances this latter opinion is, that the *byssus* of the *pinna marina* may be spun, and consequently there is little doubt but that in ages when silk was scarce, it might be used in the cloaths of great men. Add, that this *byssus*, though grossly spun, appears much finer and more beautiful than wool, and comes not much short of silk. Stockings and other such manufactures are still made of it, which would be more valuable if silk were less common.

mon. To spin this *byssus*, they leave it some days in a cellar to moisten and grow soft; after this they comb it to get out the impurities, and, lastly, spin it as they do silk.

Authors usually distinguish two sorts of *byssus*, that of Elis, and that of Judea, which was the finest. Of this latter were the priestly ornaments made. Bonfrerius notes, that there must have been two sorts of *byssus*, one finer than the ordinary, by reason there are two Hebrew words used in Scripture to denote *byssus*, one of which is always used in speaking of the habit of the priests, and the other of that of the Levites. See Luke xvi. 19.

It is probable the *byssus* of the ancients was a very fine sort of cotton, or a mixture of linen and cotton. Forster. De Bysso Antiquorum.

BYSSUS, in *Botany*, a word used to express a genus of mosses, described by some of the ancients under the name of *ulvenium*, and belonging, in the Linnæan system, to the class of *cryptogamia algæ*, the most imperfect of the whole class of vegetables. The characters of this genus are, that the mosses of it are composed of simple and uniform parts, and always appear in form of excrescences, either of a woolly or of a dusty matter. It seems properly a genus of vegetables of a middle kind, between the mushrooms and the mosses, but most approaching to the latter, in that the several species of it are of a longer duration, and want that fleshy texture which distinguishes the *fungus* class, and in that they never produce heads, nor have any thing of the figure or texture of *fungi*. The *byssi* differ from the CONFERVÆ, in that they do not grow in the water, and in their being composed of slenderer and shorter filaments. They have not yet been discovered to have either flower or seed, but appear always in form of threads, or of a light down, or fine powder, on the surfaces of many different bodies but principally such as are liable to putrefaction. Micheli, in his Nova Genera Plantarum, p. 210. mentions the seeds of some of the *byssi*: but later observers, and particularly the indefatigable Dillenius, were never able to observe them. This last author has described twenty species of these small plants. See in the Philosophical Transactions, vol. xlviii. part i. N° 54. an. 1753 an account, with observations, of this *genus* of plants, which in the order of nature comes between the mosses and the *fungi*. This vegetable is found in England, as well as in many parts of Europe, covering the ground like a carpet. See *Tab.* XIII. *Botany*, N° 1.

BYTTNERIA, in *Botany*, a genus of the *pentandria monogynia* class; the corolla is composed of five petals; the capsule has five lobes, and is covered with prickles. There is only one species.

BYZANT. See BEZANT.

BYZANTINA *blatta*. See BLATTA.

C.

C, The third letter, or second conſonant of the alphabet, has two ſounds, one like *ſ*, as in the word *ceſs*; and the other like *s*, as in *Caſar*. It has the former ſound before *a*, *o*, *u*, or a conſonant; and the latter before *e*, *i*, and *y*. C is formed, according to Scaliger, from the *κ* of the Greeks, by retrenching the ſtem or upright line; though others derive it from the ג of the Hebrews, which has in effect the ſame form; allowing only for this, that the Hebrews, reading backwards, and the Latins, &c. forwards, each have turned the letter their own way. However, the C not being the ſame as to ſound with the Hebrew *caph*; and it being certain the Romans did not borrow their letters immediately from the Hebrews, or other Orientals, but from the Greeks; the derivation from the Greek *κ* is the more probable. Add, that F. Montfaucon, in his Paleographia, gives us ſome forms of the Greek *κ*, which come very near that of our C; this, for inſtance, ς: and Suidas calls the C, the Roman kappa. The ſecond ſound of C reſembles that of the Greek Σ; and many inſtances occur of ancient inſcriptions, in which Σ has the ſame form with our C. Gruter, vol. i. p. 31. vol. iii. p. 1020.

All grammarians agree, that the Romans pronounced their Q like our C, and their C like our K. F. Mabillon adds, that Charles the Great was the firſt who wrote his name with a C; whereas all his predeceſſors of the ſame name wrote it with a K; and the ſame difference is obſerved in their coins.

C was alſo a numeral letter of the Romans, ſignifying an hundred: according to the verſe,

Non plus quam centum C littera ſcribere habebit.

Some add, that a daſh over it, made it ſignify an hundred thouſand.

C is alſo an ABBREVIATURE.

In proper names C. is uſed for Caius; as C. Cæſar, &c. Their lawyers uſe it ſingly for *Conſul* or *Conſules*, and doubled, CC. for *Conſuſſhus*.

C was alſo uſed in their courts, as a letter of condemnation, and ſtood for *condemno*; in oppoſition to *A*, which ſignified *abſolvo*.

C, in *Muſic*, denotes the higheſt part in a *thorough bass*; and when placed after the clef, it intimates, that the muſic is in common time.

CAABA, a ſquare ſtone edifice in the temple of Mecca, ſuppoſed to have been built by Abraham and his ſon Iſhmael; being the part principally reverenced by the Mahometans, and to which they always direct themſelves in prayer. See KEBLA.

The word is Arabic, *caaba*, and *caabah*, a denomination which ſome will have given to this building, on account of its height, which ſurpaſſes that of the other buildings in Mecca; but others, with more probability, derive the name from the quadrangular form of this ſtructure.

CAAMINA, in *Botany*, a name given by the Spaniards and others to the fineſt ſort of the Paraguay tea. It is the leaves of a ſhrub which grows on the mountains of Maracayu, and is uſed in Chili and Peru as the tea is with us. The mountains, where the trees which produce this valuable leaf grow naturally, are far from the inhabited parts of Paraguay; but the people of the place know ſo well the value and uſe of it, that they conſtantly furniſh themſelves with great quantities of it from the ſpot. They uſed to go out on theſe expeditions many thouſands together, and their country was left to the inſults of their enemies in the mean time, and many of them periſhed with the fatigue.

To remedy theſe inconveniences, they have of late planted the trees about their habitations; but the leaves of theſe cultivated trees have not the fine flavour or the virtues of the wild ones. The king of Spain has permitted the Indians of Paraguay to bring to the town of Sanſoy, twelve thouſand arobes of the leaves of this tree every year: but they are not able to procure ſo much of the wild leaves annually; about half the quantity is the moſt they bring of this; the other half is made up of the leaves of the trees in their own plantations, and this fells at a lower price, and is called *baber*. The arobe is about five and twenty pounds weight; the general price is four piſtrees for the arobe, and the money is always divided equally among the people of the colony.

CAA-APIA, in *Botany*, the name of a Braſilian plant, deſcribed by Margrave, Piſo, and others; the root of which ſo much reſembles the ipecacuanha in its virtues, that ſome have erroneouſly called it by the ſame name. It is an aſtringent and emetic, as the ipecacuanha, but it poſſeſſes both theſe qualities in a much weaker degree, and is therefore neceſſarily given in a much larger doſe, a dram being the quantity commonly given at once. The Braſilians bruiſe the whole plant, and expreſs the juice, which they take internally, and alſo apply it externally to wounds made by poiſoned arrows, and by the bites of ſerpents. Some have ſuppoſed the root of this plant to be the white ipecacuanha; but this is an error, that being little different from the grey. Mem. Acad. Par. an. 1700. p. 134. hiſt. 69. Geoffroy.

CAAPIBA, in *Botany*, the name given by Plumier to a genus of plants, called afterwards by Linnæus CISSAMPELOS.

CAB, or KAB, denotes a Hebrew meaſure of capacity, equal to the ſixth part of the ſeah, or an eighteenth of the EPHA. Arbuthnot's Tab. Anc. Coins, &c. p. 14. and 15.

The *cab* of wine contained two Engliſh pints; the *cab* of corn, 2¼ pints corn meaſure.

We alſo find mention of the *cab* as a dry meaſure, in Grecian and Roman writers: ſome make it equal to the Grecian CHOENIX, and ſuſpect it to be the quantity of what a labourer eats per day, as aſſigned by Cato.

CABAL, a name given to a ſort of drink made of dried raiſins. The manner in which the Portugueſe make *cabal* is this; they take out the ſtones of about twenty pounds of raiſins, and then bruiſing the raiſins a little, they put them into a barrel of white wine, in the month of January or February, and let them ſtand till about Eaſter. It is then very clear and rich, luſcious and palatable to the taſte. It is recommended to ſtop coughs, and give ſtrength to the ſtomach. It is worth while to try the experiment with the ſame proportion of raiſins to the ſame quantity of our Engliſh cyder, which would probably prove a fine drink. Phil. Tranſ. N° 157.

CABALA *vein*, in *Natural Hiſtory*, a name given by our Suſſex miners to one kind of the iron ore commonly wrought in that country. It is a ſtony ore, of a brownish colour, with a bluſh of red, which is more or leſs conſpicuous in different parts of the ſame maſſes. It is uſually found in thin ſtrata, lying not far from the ſurface, and is not very rich in iron, but it runs very readily in the fire.

CABALATAR, in *Natural Hiſtory*, a name given by ſome of the chemical writers to nitre, called alſo *cerberus chymicus*, and *ſal infernalis*.

CABALISTE, in *Commerce*, a term uſed at Thouloufe, and in the whole province of Languedoc; which ſignifies a merchant who does not trade in his own name, but is concerned in the trade of another merchant in chief. See ANONYMOUS *partnerſhip*.

CABALLEROS, in *Commerce*, wools of *caballero*, or *caballero*, are Spaniſh wools of which there is a conſiderable trade at Bayonne in France.

CABALLI, among *Aſtrologers*, denote the ſhades,

or aſtral bodies of men who died any ſudden or violent death, before the expiration of their predeſtinated term of life.

The *caballi*, called alſo *cabales* and *cabalei*, are ſuppoſed to wander as goblins or ghoſts over the face of the earth, till their deſtined term is accompliſhed; being doomed to live out the time as ſpirits, which they ought to have ſpent in the fleſh.

CABALLINA, *Aloe*, is a denomination given to the coarſeſt and rankeſt kind of ALOES, as being little uſed unleſs for purging horſes. Hiſt. Acad. Scienc. an. 1708. p. 60.

CABALLINUM, *Sulphur*, denotes common brimſtone or SULPHUR.

CABALLINE, CABALLINUS, from the Greek καβαλλος, *a horſe*, ſomething relating to, or partaking of, the nature and qualities of a horſe.

CABBAGES, in *Gardening*; for the characters, ſee BRASSICA. The common ſorts of *cabbages* are largely cultivated about London. The common white, red, flat, and long-ſided ones, are chiefly for winter uſe. The ſeeds of theſe ſorts muſt therefore be ſown in the end of March, and beginning of April, in beds of good freſh earth; and in May, when the young plants will have about eight leaves a-piece, they are to be pricked out into ſhady borders, about three inches ſquare, and, about the beginning of June, they muſt be tranſplanted to the places where they are to remain; and this is commonly between cauliflowers or artichokes, at about two feet and a half diſtance in the rows. They muſt be watered at times, and the earth muſt be hoed up about their roots, and kept clear from weeds.

Theſe *cabbages* will be fit for uſe ſoon after Michaelmas, and will continue till the end of February, if not deſtroyed by bad weather; to prevent which, the gardeners about London pull up their *cabbages* in November, and trench the ground in ridges, laying their *cabbages* againſt the edges, as cloſe as poſſible on one ſide, burying their ſtems in the ground; and in this manner they let them remain till after Chriſtmas, when they cut them for market.

The Germans make great uſe of a preparation of *cabbages*, which they call *ſour kraut*, and CHOUCROUTE.

The Ruſſian *cabbage* is ſmall, and not much cultivated now. It is to be raiſed as the others, but may be planted nearer, as not ſo large. It is fit for uſe in July.

The early and ſugar-loaf *cabbages* are ſown for ſummer uſe, and are commonly called Michaelmas *cabbages*. The ſeaſon for ſowing theſe is the end of July or beginning of Auguſt, in an open ſpot of ground. The plants are pricked out at three inches diſtance, when they have eight leaves. It is common to ſow ſpinach in the ſame beds with theſe, boeing it up from about their ſtalks in ſpring; in May and June theſe begin to turn their leaves for cabbaging, and may be brought to it much ſooner than naturally they would, by tying them about the top with an oſier band.

The Savoy *cabbages* are for winter uſe, and are to be ſown about the middle of April; they are to be treated as the common *cabbage*, and planted out at two feet and a half diſtance, in an open place.

The *borecole* may be cultivated in the ſame manner, but muſt be planted only at one foot diſtance; theſe are not fit to cut till the freſts have nipped them. See BORECOLE and CAULIFLOWER.

The method of getting good *cabbage*-ſeed is this: chooſe out ſome fair plants about the end of November, pull them up, and hang them up three days with the root upward, in a ſhady place; then plant them under a warm hedge, burying the whole ſtalk and half the *cabbage* in the earth; cover them with ſtraw or peaſe haum, if the winter be ſevere, and in ſpring they will ſhoot out many branches. When theſe begin to pod, the ends of the upper ones muſt be cut off, to give ſtrength to the other pods. The ſeed muſt be preſerved from the birds, by fixing ſome lime twigs about the plants, where the catching of one or two will intimidate the reſt. When ripe, it muſt be threſhed out, and kept for uſe. Miller.

The culture of *cabbages* as food for cattle, makes a very conſiderable branch of modern huſbandry. Thoſe in common uſe for this purpoſe are the great Scotch *cabbage*, the turnep *cabbage*, and, on account of its peculiar hardineſs and duration, the turnep-rooted *cabbage*. By proper management, a ſucceſſion of different *cabbage* crops may be obtained through the winter. *Cabbages* afford a wholeſome and nutritive food for cattle, ſheep, horſes, and hogs: and if they are cultivated on good ground, well manured, and horſe-hoed after the method of Mr. Tull, they produce very large crops, from 30 to 60 tons on an acre. An Iriſh acre (which is in proportion to the Engliſh as 156 to 121) was planted with *cabbages* by Mr. Baker in July, at the diſtance of two feet from each other, in the middle of ridges five feet aſunder, and hoed in Mr. Tull's method, and produced by December 52,838lb. weight of *cabbages*, each weighing at an average about 7 lb. 6 oz. The ſame quantity of ground planted with turnep *cabbages*, and treated in the ſame manner, yielded in the whole 57,761 lb each *cabbage* weighing at an average 8 lb. 12 oz. Bore-cole planted in the ſame manner, and on the ſame ſpace of ground, yielded 40,656 lb. each plant at an average weighing 5 lb. 10 oz. Mr. Baker, by ſubſequent trials found, that larger crops might be obtained by planting his *cabbages* on four feet ridges, and eighteen inches diſtant in the rows: and the ſmaller kinds at the diſtance only of one foot.

CABBAGE-*ſprub*, *Aſpius*, or *Colewort*, a plant which has been for ſome time cultivated in France, and lately introduced into England. It is an excellent vegetable for the kitchen, good food for cattle, and greatly increaſes the milk of cows. The *dry ſtalk* of this plant ſerves for fewel. It will grow in any ſoil that is well dunged. The ſeeds are ſown in June; and the plants are to be well watered and kept free from weeds, and tranſplanted into the common field where they are to remain till November. The Marquis de Turbilly, in a letter to Mr. Mills, has given particular directions for the management of them. See COLEWORT.

CABBAGE, *Dog's*, *Teaſtaſwm*, in *Botany*, a genus of the *monœcia polyandria* claſs. Its characters are theſe: it has male and female flowers on the ſame plant; the male flowers have a turbinated empalement of one leaf, cut into two ſegments which turn backward. It has no petal, but ſeveral erect ſtamina of the length of the empalement, terminated by ſingle ſummits. The female flowers have a ſmall bifid empalement of one leaf, which is permanent. It has no petals, but has a globular germen, ſupporting a ſhort ſtyle, crowned by no obſolete ſtigma. The germen afterwards becomes a thick globular capſule with one cell, including one globular ſeed. We have but one ſpecies, which grows naturally in the ſouth of France, in Italy, and Tartary; and is the *cynocrambe*, or *dog's cabbage* of Dioſcorides.

CABBAGE, *Turnep*, is the *Braſſica napiformis orbicularis carnoſa eſculenta* of Linnæus. It is to cated, becauſe the fleſhy ſtem an oblate or bunch near the root, but a ſtale above the ground. This plant has been long known in England as an object of curioſity in botanic gardens, or as an obſcure herb; but the firſt perſon who introduced it into uſe as an article of huſbandry was Mr. Baker, not twenty years ago. It has ſince been cultivated by many others, and found to be an excellent fodder for cattle in ſeverе winters, though not ſo hardy as the ſpecies of *cabbage* deſcribed in the next article.

CABBAGE, *Turnep-rooted*, or *Engliſh ſea-cabbage*, is comprehended in the fifth ſpecies of *braſſica*, denominated by Linnæus *braſſica radice orbiculato carnoſa*. Its root is larger than that of the common turnep, and runs into ſeveral ramifications, which are thicker than a man's thumb at their inſertion; in taſte and conſiſtence it reſembles the kernel of the cocoa-nut, being much ſofter, more oily, and leſs ſucculent than the common turnep. From the root ariſes a ſtalk, ſmooth, round, and branched into ſeveral arms. The leaves near the root are like thoſe of the ſea-*cabbage*, roundiſh and jagged: but thoſe which riſe from the ſtalks are oblong, narrow, and ſinuated. The flowers are large and yellow, of a deeper colour than thoſe of the common kind of *cabbage*: to their ſucceed narrow pods about an inch long. This plant has been long cultivated in the more northern parts of Europe; but it was firſt introduced into England, as an article of agriculture, by Mr. Reynolds, not quite ten years ago. It is a very valuable acquiſition on account of its hardineſs and duration through the whole year: as it may be eaſily raiſed on ground not rich and without manure, and as the produce it affords is very conſiderable, and in quality wholeſome and nutritive.

CABBAGE-*bark tree of Jamaica*, in *Botany*, is a ſpecies of the CONVOLVULUS of Linnæus. The wood of this tree is uſed in building, but it is chiefly valued for its bark which is adminiſtered in different forms, viz. by decoction, ſyrup, powder, and extract, as an anthelmintic medicine. From this medical property it is alſo called the *worm-bark* tree. The decoction made by boiling an ounce of the bark in a quart of water, is moſtly uſed in Jamaica; and it ſeldom fails to periſh every thing that can be expected from an anthelmintic medicine, by deſtroying worms in the inteſtines, and bringing them away in great quantities. The bark is externally of a grey colour, and internally black and furrowed: its taſte when freſh, is mucilaginous and ſweet, and its ſmell, which is retained in the decoction, *diſagreeable*. Dr. Wright of Jamaica recommends it as a very valuable remedy. See his deſcription of the tree, with a drawing, and of the method of preparing and adminiſtering the bark in the Phil. Tranſ. vol. lxvii. pt. ii. art. 28.

CABBAGE-*tree*. See PALM-*tree*.

CAB-

CABBAGING, among *Gardeners*, is sometimes used to denote the knitting or gathering of certain pot-herbs into round bunched heads.

In which sense the word amounts to the same with what Evelyn calls *pruning*, *pommet*, q. d. appling, or growing applewise. Others call it simply heading or bunching.

To make lettuce *cabbage*, they transplant it, taking care, during the great heats, to water it; otherwise, instead of pomming, it runs to seed. To promote the *cabbaging* of cabbage, thole who live on the sea-coall, put sea-weed, with a little urine, under their roots.

Cabbage plants of the early kind begin to turn in their leaves for *cabbaging* in May. The Banstica fort cabbage apace when they once begin, and as soon grow hard and burst open; but the sugar loaf kind is longer before it comes, and is so slow in its *cabbaging*.

CABBALA, a mysterious kind of science, delivered by revelation to the ancient Jews, and transmitted by oral tradition to thole of our times; serving for interpretation of the books both of nature, and Scripture.

The word is also written *Cabbala*, *Cabbalia*, *Kabbala*, *Kabala*, *Cabbalistica*, *Ars Cabala*, and *Cabalia*. It is originally Hebrew, קבלה, *kabbalah*; and properly signifies *reception*; formed from the root קבל, *kibel*, to *receive by tradition*, *or from father to son*, especially in the Chaldee and Rabbinical Hebrew.

Cabbala, then, primarily denotes any sentiment, opinion, usage, or explication of Scripture transmitted from father to son. In this sense, the word *cabbala* is not only applied to the whole art; but also to each operation pertio med according to the rules of that art. Thus it is R. Jac. Ben Aicher, surnamed Baal-Hatturim, is said to have compiled moll of the *cabbala* invented on the books of Moles before his time.

As to the origin of the *cabbala*: the Jews believe, that God gave to Moles on mount Sinai, not only the law, but alio the explication of that law; and that Moles, after his coming down, retiring to his tent, rehearsed to Aaron both the one and the other. When he had done, Aaron standing on the right hand, his sons, Eleazar and Ithamar, were introduced to a second rehearsal: this being over, the seventy elders that compoled the sanhedrim were admitted; and lastly, the people, as many as pleased: to all of whom, Moles again repeated both the law and explanation, as he received them from God. So that Aaron heard it four times, his sons thrice, the elders twice, and the people once. Now, of the two things which Moles taught them, the laws and the explanation, only the first were committed to writing; which is what we have in Exodus, Leviticus, and Numbers: as to the second, or the explication of those laws, they were contented to imprint it well in their memory, to teach it their children; they, to theirs, &c. Hence, the first part they call simply the law, or the written law; the second, the oral law, or *cabbala*. Such is the original notion of the *cabbala*.

Among these explications of the law, which, in reality, are little else but the several interpretations and decisions of the Rabbins on the laws of Moles, some are mystical; consisting of odd arbitrary significations given to a word, or even to the letters whereof it is compoled: whence, by different combinations, they draw meanings from Scripture, very different from those it seems naturally to import. The art of interpreting Scripture after this manner, is called more particularly *cabbala*: and it is in this last sense the word is more ordinarily used among us. This *cabbala*, called alio *scientia cabbala* (to distinguish it from the first kind, or simple tradition), is divided into three sorts. The first, called *gematria*, consists in taking letters as figures, or arithmetical numbers, and explaining each word by the arithmetical value of the letters whereof it is compoled: which is done various ways. The second is called *notaricon*, and consists either in taking each letter of a word for an entire diction, or in making one entire diction out of the initial letters of many. The third kind, called *themurah*, q. d. *changing*, consists in changing and transposing the letters of a word; which is done various ways.

This is by some called the acromatic philosophy of Moles, by way of contradistinction from the exoteric or popular doctrine. See ACROMATIC.

The generality of Jews prefer the *cabbala* to the Scripture; comparing the former to the sparkling lustre of a precious stone, and the latter to the fainter glimmering of a candle.

The *cabbala* only differs from *midrash*, as the latter denotes the science of reading the Scripture, the former of interpreting it. Both are supposed to have been handed down from generation to generation by oral tradition only, till at length the readings were fixed by the *nowels* and accents, as the interpretations were by the *midrash* and *gemara*. Prideaux Conn. p. 1. lib. v. p. 506.

The first author who delivered any thing of the *cabbala* was Jesuhalidei, or Simeon son of Jochai, who publish that famous cabbaliftical work intituled Zohar: Scaliger, he lived about the time of the destruction of Jerusalem by Titus; others, only in the tenth century. Basnage, Hiſt. of the Jews.

Dr. Burnet examines into the merits of the several parts of the *cabbala*, which he finds to be without rational foundation, and not conducing to any real knowledge. But he conjectures, that the moſt ancient *cabbala* before it was confounded and defiled with fables, might contain something of the original of things, and their gradations; particularly, that, before the creation all things had their being in God; that from them they flowed as emanations; that they will all flow back again into him, when they are deſtroyed; and that there will ſucceed other emanations and regenerations, and other deſtructions and abſorptions to all eternity, as they had been from all eternity; that nothing is produced out of nothing; and that the things produced never return to nothing, but always have their ſubſiſtence in God. Burn. Archæol. lib. i. cap. 7. Phil. Trans. N° 201. p. 800.

The *cabbala* hitherto ſpoken of, may be called *ſpeculative cabbala*; in oppoſition to the following, which may be called *practical cabbala*.

CABBALA is alſo applied to the uſe, or rather abuſe, which viſionaries and enthuſiaſts make of Scripture, for diſcovering ſecrets, by the ſtudy and conſideration of the combination of certain words, letters, and numbers, in the ſacred Writings. All the words, terms, magic figures, numbers, letters, charms, &c. uſed in the Jewiſh magic, as alſo in the hermetical ſciences, are comprized under this ſpecies of *cabbala*. But it is only the Chriſtians that call it by this name, on account of the reſemblance this art bears to the explication of the Jewiſh *cabbala*: for the Jews never uſe the word *cabbala* in any ſuch ſenſe, but ever with the utmoſt reſpect and veneration. It is not, however, the magic of the Jews alone which we call *cabbala*, but the word is alſo uſed for any kind of magic.

CABBALIC *art*, *Ars caballica*, is uſed by ſome writers for *ars paleſtrica*, or the art of wreſtling.

CABBALISTIC *art*. See CABBALA, and CABBALIST. D. Franc. Bertrandi, a Theatin of Venice (under the fictitious name of C. Berardo Schinffinni), has publiſhed a *Cabballomachia*, or Refutation of the *Cabbaliſtic* Art.

CABBALISTS, a ſect among the Jews, who follow and practiſe the *cabbala*, or interpret Scripture according to the rules of the literal *cabbala*, above laid down.

The Jews are divided into two general ſects; the Karaites, who refuſe to receive either tradition, or the Talmud, or any thing but the pure text of Scripture: and the Rabbiniſts or Talmudiſts, who, beſide this, receive the traditions of the ancients, and follow the Talmud.

Theſe latter are again divided into two other ſects; pure Rabbiniſts, who explain the Scripture in its natural ſenſe, by grammar, hiſtory, and tradition; and *Cabbaliſts*, who, to diſcover hidden myſtical ſenſes, which they ſuppoſe God to have couched therein, make uſe of the *cabbala*, and the myſtical rules and method above mentioned.

There are viſionaries among the Jews, who believe that Jeſus Chriſt wrought his miracles by virtue of the myſteries of the *cabbala*. Some learned men are of opinion, that Pythagoras and Plato learned the *cabbaliſtic* art of the Jews in Egypt; and fancy they ſee evident footſteps thereof in their philoſophy: others, on the contrary, ſay, it was the philoſophy of Pythagoras and Plato, that firſt furniſhed the Jews with their *cabbala*. Be this as it will, it is certain, that in the firſt ages of the church, moſt of the hereſies gave into the vain notions of the *cabbala*: particularly the Gnoſtics, Valentinians, and Baſilidians. Hence ariſe the *abraxas*, and the multitude of talismans, where with the cabinets of the virtuoſi were ſtocked.

See a particular account of the *cabbaliſtic art*, as practiſed not only by Jews, but by Heathens and Chriſtians, in Baſnage's Hiſt. of the Jews, book iii. chap. 10—28.

GABBIN. See CABIN.

CABEBI, a name given by ſome authors to the ſcales of iron. Rulandus.

CABECA, or CABESSE, in *Commerce*; the Portugueſe who carry on the trade of ſilks in the Eaſt Indies, diſtinguiſh them by the names of *cabeça*, and *bariga*: that is to ſay, head and belly. The *cabeça* ſilks are the fineſt; the *bariga* being from fifteen to twenty *per cent.* inferior to them. The Indian workmen endeavour to mix them together; for which reaſon the more experienced European merchants, who carry on that trade, take care to open the bales, and to examine the ſkains.

CABELOS. See CAVELOS.

CABELIAU, in *Ichthyology*, a name by which ſome authors have called the common COD-*fiſh*, the *merluus* and *aſellus major* of other writers.

CABIN, or CABBIN, is sometimes used for the huts or cottages of savages, and other poor people.

The habitations of the Indians in Virginia are *cabins*, about nine or ten feet high, which are made after this manner: they fix poles into the ground, and bring the tops of them one within another, and so tie them together; the outside of their poles they line with bark, to defend them from the injuries of the weather, but they leave a hole in the top, right in the middle of the *cabin*, for the smoke to go out; round the inside of their *cabins* they have banks of earth cast up, which serve instead of stools and beds. Phil. Trans. N° 126.

CABINS, or CABBINS, in a ship, are small cells, or apartments for the officers of the ship to lie in; very narrow, and in form of armories or presses; used in several parts of the ship, particularly on the quarter-deck, and on each side of the sheerage. The bed-places erected for sailors at the ship's side, in merchantmen, are likewise called *cabins*. The word comes from the French *cabane*, Spanish *cabana*, or Italian *capanna*, *a little straw hut*; and that from the Greek καπανη, *a stall* or *manger*.

CABINET, or CABBINET, the most retired place in the finest apartment of a building; set apart for writing, studying, or preserving any thing very precious.

A complete apartment consists of a hall, anti-chamber, chamber, and *cabinet*; with a gallery on one side.

CABINET is sometimes particularly used for a place at the end of a GALLERY, wherein are preserved the paintings of the best masters, conveniently ranged, and accompanied with busts, and figures of marble and bronze, with other curiosities.

In this sense, *cabinet* amounts to the same with what is called by Vitruvius, *pinacotheca*. Sometimes there are several pieces or rooms destined for this use, which are all together called *cabinet*, or GALLERY.

CABINET also denotes a kind of basket or chest of drawers, partly for the preservation of things of value, and partly as a decoration of a chamber, gallery, or other apartment. In the repository of the Royal Society is a Chinese *cabinet*, filled with the instruments and simples used by the surgeons of that country. The most remarkable are those which are contrived for scratching, picking, and tickling the ears, in which the Chinese take great pleasure. Phil. Trans. N° 240. p. 390, seq.

CABINET, in *Gardening*, is a little insulated building in manner of a summer-house, built in some agreeable form, and open on all sides; serving as a place of retirement, and to take the fresh air under cover.

According to Miller, a *cabinet* is a kind of saloon, placed at the end or in the middle of a long ARBOUR.

It differs from an arbour, which is long, in form of a gallery, and arched over head; whereas the *cabinet* is either square, circular, or in cants, making a kind of saloon.

CABINET is also used in speaking of the more select and secret councils of a prince or administration.

Thus we say, the secrets, the intrigues of a *cabinet*.

To avoid the inconveniencies of a numerous council, the policy of Italy, and practice of France, have introduced *cabinet* councils; a remedy worse than the disease.

King Charles I. is charged with first establishing this usage in England. Besides his privy council, that prince erected a kind of *cabinet* council, or junto, under the denomination of a council of state; composed of archbishop Laud, the earl of Strafford, and lord Collington, with the secretaries of state.

Yet some pretend to find the substance of a *cabinet* council of much greater antiquity, and even allowed by parliament, who anciently settled a quorum of persons most confided in, without whose presence no arduous matter was to be determined; giving them power to act without consulting the rest of the council. As long since as the 28th of Henry III. a charter passed in affirmance of the ancient rights of the kingdom; which provided, that four great men, chosen by common consent, who were to be conservators of the kingdom, among other things, should see to the disposing of moneys given by parliament, and appropriated to particular uses; and parliaments were to be summoned as they should advise. But even of these four, any two made a quorum; and generally the chief justice of England and chancellor were of the number of the conservators. Math. Par. 28 Hen. III.

In the first of Hen. VI. the parliament provides, that the quorum for the privy council be six, or four at least; and that in all weighty considerations, the dukes of Bedford and Gloucester, the king's uncles, should be present; which seems to be erecting a *cabinet* by law.

CABIRI, in *Antiquity*, certain deities worshipped more especially by the Samothracians, and in the isle of Imbros, and some other parts of Greece.

The *Cabiri*, according to Sanchoniathon, were also adored by the Phœnicians. Diodorus Siculus ascribes to them the invention of fire, and the art of working iron. Whence it is that on a medal of Gordian, and another of Furia Sabina Tranquillina, both struck at Carthæ, where the *Cabiri* were worshipped, we find the figure of a *Cabirus* on a column, holding a hammer in his right hand. For the same reason, Herodotus observes, they were represented like Vulcan. Died. Sic. lib. v. Herod. lib. iii.

The word *cabiri*, considered as of Hebrew or Phœnician origin, denotes *great* and *powerful*; and some have supposed that the deities worshipped under this appellation were Ceres, Proserpine, Pluto, and Mercury; whilst others have comprehended under it all the principal heathen deities: though it is disputed who, and how many, the *Cabiri* were, whether they be of Phœnician, Samothracian, or Egyptian origin; and whether the sons of Vulcan or Jupiter.

CABIRI is also used to denote the *Gabri*, or Persian FIRE-*worshippers*. Hyde de Rel. Persarum, cap. 29. See GABRE.

CABIRIA, Καβειρια, religious feasts held by the ancient Greeks of Lemnos and Thebes, in honour of the gods *Cabiri*.

These feasts were very ancient, and prior even to the time of Jupiter; who is said to have restored them: they were held by night. Children above a certain age were here consecrated; which consecration was supposed to be a preservative against all dangers of the sea, &c.

The ceremony of consecration called *Synnesis*, or *Synnesus*, q. d. *contheurizing*, consisted in placing the initiated youth on a throne, the priests dancing round him: the badge of the initiated was a girdle or scarf.

When a person had committed any murder, the *cabiria* gave him an asylum.—Meursius is very particular in the proof of each of these points.

CABLE, a thick, long, three-strand rope, ordinarily of *hemp*, serving to hold ships firm at anchor, and to tow vessels in large rivers. In Europe, the *cables* are commonly made of hemp; in Africa, of long straw or rushes called *lusf*; and in Asia, of a peculiar kind of Indian grass.

The word *cable* comes from the Hebrew word *chobel*, *cord*. Du Cange derives it from the Arabic, *hebl*, *cord*, *or tobaita*, *rope*: Menage, from *capulum*, *or cabulum*; and that from the Greek κωπη, or the Latin *camelus*. The term *cable* is sometimes also applied to the cordage used to raise massy loads, by means of cranes, wheels, and other like engines; though, in strictness, *cable* is not to be applied to ropes of less than three inches circumference. Every *cable*, of whatever thickness it be, is composed of three strands; each strand of three twists; and each twist of a certain number of caburns, or threads of rope yarn, more or less, as the *cable* is to be thicker or smaller.

To make a *cable*: after forming the strands, they use staves: which the first pass between they strands, that they may turn the better, and be interwisted the more regularly together. And to prevent any entangling, a weight is hung at the end of each strand. The *cable*, being properly twisted, neither too much, so as to become stiff, nor too little, so as to be weakened, is untwisted again three or four turns, that the rest may the better retain its state. The usual allowance for the diminution of length by twisting, is one third of the whole; so that for a cable of 120 fathoms, the rope-yarn must be 180 fathoms long.

The number of threads which each kind of *cable* is to be composed of, is always proportioned to its length and thickness; and it is by this number of threads that its weight and value are ascertained. Supposing, then, the lengths to be equal, the number of threads and the weights will be as the areas of their bases, or, which comes to the same, as the squares of their circumferences. Having, then, the weight and number of threads of any one *cable*, we may easily calculate the following table:

Circumference.	Threads.	Weight.
3 Inches	48	192 Pounds
4	77	308
5	121	484
6	174	696
7	238	952
8	311	1244
9	393	1572
10	485	1940
11	598	2392
12	699	2796
13	821	3284
14	952	3808
15	1093	4372
16	1244	4976
17	1404	5616
18	1574	6296
19	1754	7016
20	1943	7772

Every merchant-veſſel, how ſmall ſoever, has three *cables*; viz. the main or maſter-*cable*, which is that of the chief anchor, called the ſheet-*cable*; and the two *bowers*, beſt and ſmall. The ordinary length of the great *cable*, is 120 fathoms or braces.

A long *cable* is not ſo apt to break as a ſhort one, becauſe it draws more horizontally on the anchor than the other; and a ſhip will ride more ſmoothly as well as more ſafely with a long *cable*, becauſe ſhe will not be ſo liable to plunge deep in the water with her fore-part.

By ſtat. 21 Hen. VIII. c. 12. ſect. 2. no perſon dwelling within five miles of the town of Bridport, in the county of Dorſet, ſhall ſell out of the market, holden within the ſaid town, any hemp which ſhall grow within the ſaid five miles, upon pain of forfeiture of the hemp.

Sect. 3. No perſon other than ſuch as ſhall dwell within the ſaid town, ſhall make out of the ſaid town, any *cables*, hauſers, ropes, traces, halters, or other tackle made of hemp, within five miles of the ſaid town; upon pain of forfeiture of the ſaid *cables*, &c.

Sect. 4. Twenty pounds weight ſhall be accounted the ſtone.

Sect. 5. Every perſon dwelling within the ſaid diſtance, may make *cables* and other tackle for their own uſe. This act to endure to the next parliament. Continued indefinitely by 3 Car. I. c. 4. 16 Car. I. c. 4.

Stat. 35 Eliz. c 8. ſect. 3. If any perſon ſhall make *cables* of any old or overworn ſtuff, which ſhall contain above ſeven inches in compaſs; every perſon ſo offending, ſhall forfeit four times the value; and if any perſon ſhall tar any halſers or other cordage made within this realm, of ſuch old and overworn ſtuff, being of leſſer aſſiſe, and not containing in compaſs ſeven inches; and by retail put to ſale the ſame being ſo tarred; every perſon ſo offending, ſhall forfeit treble the value, &c.

Sect. 4. Every perſon who ſhall offend againſt this act, ſhall be impriſoned during her majeſty's pleaſure.

Stat. 6 Ann. c. 10. ſect. 13. Foreign cordage or *cable*-yarn imported, upon exportation, ſhall have no allowance or drawback of duties.

CABLE, *ſtream*, a hauſer, or rope, ſmaller than the *bowers*, uſed to moor a ſhip in a river or haven.

The ſeamen ſay, the *cable is well laid*, when it is well wrought or made.

Serve the cable, or *plat the cable*, i. e. bind it about with ropes, cloots, &c. to keep it from galling in the hawſe.

To *ſplice a cable*, is to make two pieces faſt together, by working the ſeveral ſtrands of the rope one into another.

To *end the cable*, is to roll it up round in a ring; of which, the ſeveral rolls one upon another are called *cable-tiers*.

Pay more cable, pay along the cable, veer more cable, that is let it more out from the ſhip, that the boat which carries the anchor may the more eaſily drop it into the ſea.

Heave in the cable, that is, draw it into the ſhip by winding it about the capſtern or windlaſs.

When two *cables* are ſpliced together, it is called a SHOT *of a cable*.

Bit the cable. See BITS.

CABLE, or CABLE'S-LENGTH, is alſo uſed for a meaſure of 120 fathoms, being the uſual length of the *cable*.

CABLED, in *Heraldry*, is applied to a croſs formed of the two ends of a ſhip's cable: ſometimes alſo to a croſs covered over with rounds of a rope; more properly called a croſs corded.

CABLING, in *Architecture*, the figure of a ſtaff, or reed, either plain or carved, in reſemblance of a rope, or a ruſh, wherewith a third part of the flutings of a column are ſometimes filled up; hence called *cabled flutings*.

There are alſo *cablings* in relievo without fluting, eſpecially on certain pilaſters, as in the church of Sapienza at Rome. See FLUTES.

CABLISH, *Cablicia*, in the *Foreſt Law*, denotes bruſh or browſe wood; though Spelman takes it more properly to ſignify trees, or branches, thrown down by the wind; from the French *chabler* or *bois chablis*, which denotes the ſame.

CABOCHED, CABOSHED, or CABOSSED, in *Heraldry*, is where the head of a beaſt is cut off behind the ears, by a ſection parallel to the face; or by a perpendicular ſection; in contradiſtinction to couped; which is done by a horizontal line; beſides that it is farther from the ears than *caboſſed*.

The word is formed from the obſolete French *caboche*, from *caput*, head.

CABOCLES, a name given in the Weſt Indies by the Portugueſe to thoſe produced between Americans and Negroes.

CABOTE, in *Ichthyology*, the name of a fiſh of the cuculus kind, more uſually known among authors by the name of the CORAX.

CABRUSI, in the *Writings of the Ancients*, a word frequently uſed to expreſs Cyprian, or coming from the iſland of Cyprus. The ancient Greeks had almoſt all their vitriols and ſtyptic minerals from this iſland; they therefore ſometimes called theſe *cabruſi*, without any other. It is very probable that our worm-coppera, the common name of green vitriol, is a falſe pronunciation of this word *cabruſi*.

CABUIA, a Weſt Indian ſpecies of hemp, produced in the province of Panama, from a plant ſomewhat like the *chardon ou tris*; when ripe, they lay it to ſteep in water, and after drying it again, beat it with wooden mallets till nothing but the hemp remains, which they afterwards ſpin, and make thread and ropes of it; the former of which is ſo hard and rough, that with it they ſaw iron, by fitting it on a box, and laying a little fine ſand over the metal as the work proceeds.

CABURE, in *Ornithology*, the name of a ſmall Braſilian bird of the owl-kind; very beautiful, and very eaſily tamed. It is of a brown colour, variegated with white, and is feathered down to the toes. The Braſilians keep it tame for its diverting tricks; it will play with people like a monkey, and is perfectly harmleſs.

CABUREIBA, in *Botany*, a name by which ſome authors have called the tree which affords the black Peruvian balſam of the ſhops.

CABURNS, in *Sea-language*, denote ſmall lines made of ſpun yarn, wherewith to bind cables, ſeize tackles, and the like.

CACABOGA, in *Zoology*, the name of an American ſpecies of ſerpent, by ſome accounted the ſame with the TARBINOIA, or black water-ſnake of that part of the world; but by others deſcribed as yellow in colour, living about houſes, and doing great miſchief among poultry, though not fatal to mankind in its bite.

CACAGOGA, in *Ancient Medicinal Writings*, a word uſed for certain ointments intended for rubbing on the fundament to procure ſtools. The moſt common of theſe was made of alum mixed with honey, and boiled till the whole was of a tawny colour. This anointed on the fundament, procured a great many ſtools, but not without ſome pain.

CACALIA, in *Botany*. See *Foreign* COLT'S-FOOT.

CACAO, in *Botany*, *Theobroma* of Linnæus, the chocolate-nut tree; a genus of the *polyadelphia pentandria* claſs. Its characters are theſe: the flower hath five petals, which are irregularly indented; and hath five erect ſtamina; in the centre is placed the oval germen, which afterward becomes an oblong pod ending in a point, which is divided into five cells, filled with oval, compreſſed, fleſhy ſeeds. We have but one ſpecies of this plant, which is a native of America, and is found in great plenty in ſeveral places between the tropics; but particularly at Carthea, and Carthagena, on the river Amazon, in the iſthmus of Darien, at Honduras, Guatimala, and Nicaragua. At all theſe places it grows naturally without culture; but is cultivated in many of the iſlands poſſeſſed by the French and Spaniards; and was formerly planted in ſome of the iſlands which are in poſſeſſion of the Engliſh.

The native Mexicans call the *cacao-tree*, *cacahua quahuitl*; and the Spaniards, *cacaotal*. It reſembles our cherry-tree; but is ſo very delicate, and the fruit it grows in to hot, that to guard it from the ſun, they always plant it in the ſhade of another tree, called mother of *cacao*.

It is very proper to obſerve, that the chocolate-nut will not retain its vegetative faculty long after they are taken from the trees, ſo that there is no poſſibility of tranſporting them to any great diſtance for planting: nor ſhould they be kept long out of the ground in the natural places of their growth. In order therefore to cultivate this plant for curioſity in Europe, it will be neceſſary to have the nuts planted in boxes of earth, in the countries where they grow, ſoon after they are ripe. Theſe plants muſt be frequently but gently watered, and proteſted from the ſun and the cold, according to the latitudes they paſs through; and when arrived, muſt be carefully preſerved in a hot ſtove.

The fruit is incloſed in a kind of pod, of the ſize and figure of a cucumber; except that it begins and ends in a point. Within the pod, which is half a finger thick, is formed a pleaſus of white fibres, very ſucculent, a little acid, and good to appeaſe thirſt. In the middle of theſe fibres are contained ten, ſometimes twelve, and ſometimes more, as far as forty-ſeeds, of a violet colour, and dry as acorns. Each ſeed, which is covered with a little bark or rind, when ſtripped thereof, ſeparates into five or ſix unequal pieces, in the middle whereof is a kernel having a tender bud, very difficult to preſerve.

Of this ſeed, with the addition of vanilla, and ſome other ingredients, the Spaniards, and after their example, the reſt of Europe, prepare a chocolate confection, or cake; which, diluted in hot water, makes that delicious, wholeſome drink called CHOCOLATE.

It is likewiſe made into a ſweet-meat; and there is an oil

oil extracted from it, to which they give the name of butter. That oil is as sweet as the oil of almonds, and is made after the same manner. It is an extraordinary remedy for the cure of burns and scalds. Some of the Creolian ladies use it as a paint, to render their complexion fresh, and their skins smooth.

In some parts of America, the *cacao* seeds are used by the Indians as money: twelve or fourteen are esteemed equivalent to a Spanish real, or six pence three farthings sterling.

There are two kinds of *cacao*: the most common, which is likewise the best, is of a dark colour, bordering on red and round: the other is called *pattaye*, which is white, larger, thicker, and flatter; its quality is deficative. Some druggists, however, sell four kinds; viz. the great and little *caracas*, and the great and little *cacas* of the islands: these, however, may be properly reduced to the two kinds above mentioned, it being only the greatness and smallness that multiplies the name and kinds. They were procured in great plenty from one of the islands called King George's islands, by commodore Byron, in his late voyage through the South Seas, and found to be an excellent antiscorbutic. Many, he observes, while limbs were become as black as ink, who could not move without the assistance of two men, and who, besides total debility, suffered excruciating pain, were in a few days, by eating these nuts, although at sea, so far recovered as to do their duty, and could go even aloft as well as they did before the distemper seized them. Hawkesworth's Voyages, vol. i. chap. x. p. 134.

Cacao is one of the most oily fruits which nature produces; and has this singular advantage, that it never grows rank, how old so ever it be, as all other fruits do which have any analogy with this: such as walnuts, almonds, kernels of pine apples, pistachio-nuts, olives, &c. The *cacao* nuts are esteemed by the Mexicans an antidote, and used, even now, to advance paint of the bowels.

CACAO TREE, in *Natural History*, the name by which the Brasilians call the ARIMMIXEI, which is very common there as well as with us.

CACATORY *fever*, a denomination given by Sylvius to an intermittent fever, accompanied with a severe looseness, and sometimes gripes.

CACAVATE, in *Botany*, a name given by some authors to the COCOA-*tree*; which is also sometimes called *cauvera*.

CACAVIA, in *Botany*, a name given by the Greek authors and some of the others to the LOTUS or nettle-tree. It obtained this name from the resemblance of its fruit when ripe, to the HALICACCABUM or winter-cherry.

CACCALIA, in *Botany*, a name given by some of the old Greek writers to the *holeacanthum* or *alkekengi*, the winter-cherry; a kind of nightshade or plant allied to that family, but distinguished from all the others by the fruit being covered with a membranaceous bag.

CACCABON, in *Botany*, a name given by some authors to the *water-*LILY or *nymphæa*.

CACEDONIUS *torturum*, is peccant matter in the human body, generated from separations by the secretive faculty, which are not immediately succeeded by the operation of the expultive faculty.

CACHALOT, in *Ichthyology*, a cetaceous fish, with teeth in the lower jaws only; classed by Linnæus under the *physeter*. The blunt-headed *cachalot* is one of the species that yields the *spermaceti*: there are besides the round-headed, and the high-finned *cachalots*. See PHYSETER.

CACHEF, or CACHEFF, in the *Turkish Affairs*, the governor of a city, town, or even a province in Egypt.

The title *cachef* is also given to the captains or commanders of little flying armies, intended to keep the Arabs in obedience.

Egypt is divided by the Turks into thirty-nine *cachefficks*, or governments.

CACHEXY, in *Medicine*, an ill state or disposition of body; wherein the nutrition is depraved throughout the whole habit; accompanied with a swelling, or bloating of the fleshy parts; a flaccid state of the body, easily perceived externally, and arising from a viscosity of the juices, and a remission of the tonic motions of the parts.

The word is formed from κακὸς, *ill*, and ἕξις, *habit* or *disposition*.

The *cachexy* is distinguished from the anasarca by the flesh hanging flaccid and pendulous, and being soft in it; whereas in the anasarca, it is often so distended and hard that the skin shines, and looks as if it would burst. The anasarca also usually forms œdematous tumors in many parts of the body, but the *cachexy* never does this. It differs from the sickies in that this disease only affects the lower parts of the body, but the *cachexy* the whole; but it differs only from the chlorosis as genus from species. Physicians distinguish the *cachexy*, into simple and compound: the first is, when it is combined with no other disease; in the other, it is frequently compounded with the scurvy.

CACHEXY, *fignes of the*. There is no disease more readily known than this, as none has such obvious and distinctive symptoms. The face, hands, feet, and legs, are always bloated, and swelled beyond their natural dimensions; the natural heat of the body decreases, and there is an evident and actual sensation of cold in the parts. This is attended with an universal languor, and anxiety of mind, and a painful weakness in going up stairs, or walking up hill; the appetite is very uncertain, and loathings of food are very frequent: after food, there are all the symptoms of a bad digestion, as tensions and oppressions about the stomach and flatulencies. The bowels are in a very uncertain state, sometimes remaining costive for a long while; and at others, throwing off the food undigested, in the manner of a tenery: the patients have all a great propensity to sleep, but they are not refreshed by it. The urine is but small in quantity, and is sometimes crude and reddish; sometimes limpid, but always has a livid appearance. The pulse is languid and weak; and the blood, if it happens to be seen by any accident, is pale and thin, and abounds in serosities. The patients always complain also of a shortness of the breath, and a difficulty of breathing, especially after the body has been at any time in motion. Heats and flushings come on at times, and the head is always disturbed; always torpid and inclined to sleep, and sometimes vertiginous and violently painful; and œdematous tumors appear in the feet, when the patient is standing up, but disappear again when he lies down.

There is always also a sense of weight and pressure in the abdomen; sometimes in the right hypochondrium, sometimes in the left; and often deeply inward under the navel: sometimes the whole abdomen is inflated and hard, and sometimes it is only partially so; hardnesses and inequalities being feasible to the touch in it.

It most frequently attacks persons of a phlegmatic habit, and is more common among women than men, as well on account of their softer texture, as of the frequent disorders the irregularity of their menstrual discharges throws them into. Women, however, are brought into it through a defect of the menses than by the excess of that discharge.

Causes of it. Among these are to be reckoned, the living in wet and damp rooms; the leading of an idle and sedentary life, and the feeding on viscous things, and drinking great quantities of water. On the contrary, the abuse of spirituous liquors will also occasion it; and the taking of astringent medicines at the times when the blood is in violent emotions, as in hæmorrhages, and acute fevers; the flushing in of cutaneous fevers will also sometimes occasion it; and very often the omission or suppression of habitual discharges of blood, by whatever passages. Great loss of blood is vulgarly supposed to be one of the principal agents in bringing on this disease, but improperly: for when this succeeds such discharges, it is rather owing to their being long continued than violent, and to the improper diet of the patient afterwards, which prevents a proper supply of blood again from the actual loss of it. Improper treatment of the gout, and the abuse of volatile salts in high fevers, are also too often the cause of this disease.

According to Boerhaave, *cachexies* may arise either from a vitiated state of the nutritious juice, from some disorder of the vessels that are to receive it, or from a defect in the faculty that should apply it. The juices, he observes, may be depraved, either from the quality of the food; as if it be farinaceous, leguminous, fat, fulsome, sharp, aqueous, or viscous; from the want of exercise; from the organs being vitiated by too much weakness, or too much strength; and their again may be occasioned by immoderate secretions and evacuations of any kind, the scirrhosity of some of the viscera, or the retention of something that should be secreted: and hence a diminution of the solids, or a repletion of the liquids with things that cannot pass; whence arise two notable ill effects of this evil, viz. a leucophlegmatia, and an anasarcous dropsy. According to the various colour, quantity, tenacity, acrimony, and fluidity of the nutritious liquor, arise also various disorders, as the effects of the *cachexia*; v. g. paleness, yellowness, lividness, greenness, blackness, or redness of the skin; heariness, windiness, palpitation of the heart and arteries increased with the least motion, crude thin urine, spontaneous watery sweats; and, at length, a leucophlegmatia and dropsy. For the vessels that receive the nutritious juice, there cannot well be assigned any universal fault; unless their too great laxity, and the disorders accruing from them, may be admitted as such. Lastly, nutrition is impeded and perverted, by a defect in the faculty that should apply it; as when the circulating force is either too languid or too violent.

Prognostics. When this disease is plenary, and the whole

trafs of the humours is depraved by it, it is very difficult of cure; it is in general more eafily cured in young people than in older; and in thefe laft, it ufually degenerates into a dropfy, and hectic; and when driven back, it often produces a fuffocative catarrh. When the difeafe is not plenary, or in its full ftate, but rather may be called a *cachectic* difpofition than a *cachexy*, as is frequently the cafe with young people; particularly with girls, on account of the fuppreffions of the menfes; then it is in general eafily cured, unlefs the bad regimen of the patient for fome time before has rendered it more than ufually obftinate and violent; in general, the fooner it is undertaken, the more eafily it is cured.

The chlorofis of young girls, which feems to be of a middle nature, between a cachectic difpofition and a confirmed *cachexy*, is a chronic cafe, and feldom admits of a fudden cure, unlefs there be a remarkable change of life in the patient, as by marriage. This chlorofis is in itfelf rather troublefome than dangerous, as it gives an univerfal languor, both of body and mind, a bad colour, palpitations of the heart, and other painful fymptoms; but it fometimes degenerates into a *cachexy*, or a hectic.

Method of cure. The general method muft be by correction of the vitiated humours; a reftoration of the vifcera; an evacuation of the humours, when thus prepared for it; and, finally, a reftitution of the due tone to the folids.

For the firft fortnight, the patient fhould be treated with refolvents and digeftives: fuch as the *tartarum vitriolatum*, and abforbents rated with acids, as crab's eyes with lemon juice; and with aperient decoctions of the woods of guaiacum and faffafras, as the roots of pimpernel, and the like; and either during this time, or afterwards, evacuants are to be given, fuch as fena, jalap, and dwarf-elder. When the improper treatment of a fever has been the occafion of the malady, the mild alexipharmica are to be given at times; and when an obftruction of the menfes is in the cafe, the time they are to be expected is to be carefully regarded, and fomenta, gargles and baths for the feet, are to be ordered at thofe periods. When obftructions of the hæmorrhoidal difcharges are in the cafe, then, after the firft fortnight, leeches fhould be applied to the hæmorrhoidal veins; and if the difeafe has arifen from long continued hæmorrhages, then analeptics are to be trufted to, with very gentle correctives for fear of exciting new commotions in the blood; and in thefe cafes, bleeding in the arm is fometimes found neceffary.

It is of the utmoft confequence in this cafe, that a proper diet be obferved; all coarfe and heavy foods are to be avoided, as alfo all acid and falt things; and much water is as carefully to be guarded *againft*, as an exceffive ufe of fpirituous liquors. Finally, when the difeafe is cured, its return is to be guarded againft, by taking proper purgatives once a month. To this purpofe, Stahl greatly recommends a mixture of gum ammoniacum, galbanum, and myrrh, and fmall quantities of calomel, with the purges. It is too common a practice to give boldly the forcing medicines, as they are called, to young women in *cachectic* complaints; fuch as myrrh, faffron, favin, and the like; but this very often throws them into an *efcites*, or other diforders, worfe than the firft.

CACHEXY, *cachexia*, a term ufed by Hoffman for the *fluor albus*.

CACHLEX, in *Natural Hiftory*, a name ufed by fome authors for the fmall pebbles found on the fea and river fhores, which being heated red-hot, and quenched in whey, are faid to give an aftringent virtue.

CACHORRODOMATO, in *Zoology*, the name by which the Portugueſe in America call the TAITU; a creature in many refpects refembling the OPOSSUM, and fuſpected to be the male of that creature.

CACHRYS, in *Botany*, a genus of the *pentandria digynia* claſs. Its characters are theſe, it hath an umbellated flower, the involucrum compoſed of many narrow ſpear-ſhaped leaves, with five ſpear-ſhaped erect petals; it hath five ſingle ſtamina; the rudimental germen is ſituated under the corolla; the empalement afterward becomes a large, oval, blunt fruit, dividing in two parts, each having one large ſeparate ſeed. Linnæus mentions two, and Miller five ſpecies.

The ſeed of *cachrys*, though not uſed in the preſent pharmacy, was recommended by the ancients for its heating and drying qualities; and therefore judged a proper ingredient in emeſtines. It alſo made a good plaſter for the head in deſluxions upon the eyes, provided it is taken off at the end of three days, and taken with pepper and ſalt, it was ſaid to be good for the epilepſy. James.

CACHRYS, or CANCHRYS, among *Ancient Botaniſts*, denoted a ſcaly tuft, growing like a catkin on certain trees; as the oak, beech, pine, and the like; or, according to others, an unſeaſonable kind of germen or bud, appearing either in the ſpring, or autumn, and which, after the winter is over, ſpreads or ſhoots into branches. The word is ſometimes alſo uſed for the ſeed of roſemary, or even the plant itſelf; ſometimes for barley roaſted in a furnace, to render it more eaſy to grind into flour.

CACHU, CACHOU, or CATECHU. See CATECHU.

CACHUNDE, the name of a medicine, highly celebrated among the Chineſe and Indians, and made of ſeveral aromatic ingredients, the perfumes, medicinal earth, and precious ſtones: they make the whole into a ſtiff paſte, and form out of it ſeveral figures, according to their fancy, which are dried for uſe: theſe are principally uſed in the Eaſt Indies, but are ſometimes brought over to Portugal. In China, the principal perſons uſually carry a ſmall piece in their mouths, which is a continued cordial, and gives their breath a very ſweet ſmell. It is a highly valuable medicine alſo, in all nervous complaints; and is eſteemed a promoter of *life*, and a provocative to venery, the two great intentions of moſt of the medicines in uſe in the Eaſt.

CACHYMIA, in *Metallurgy*, a term uſed by Paracelſus for an imperfect metalline ore, as he expreſſes it, an immature metalline body, which is neither a ſaline ſubſtance nor a metal.

The *cachymia* may be divided into ſulphureous, as marcaſſite; mercurial, as arſenic or orpiment; and ſaline, as all talcs.

CACOCHYMIA, a vicious ſtate of the vital humours, eſpecially of the maſs of blood; ariſing either from a diſorder of the ſecretions or excretions, or from external contagion.

The word is compounded of κακος, *ill*, and χυμος, *juice*.

Gorræus gives this name to the abundance, or exceſs of any ill humour; whether it be bile, *pituita*, or any other; provided there be only one that thus offends in quantity; and *plethora* he calls the abundance, or exceſs, of all the humours together.

CACODES, in the *Ancient Writers of Medicine*, a name given to ſeveral kinds of *matter* diſcharged from the human body, which had an ill ſmell. The offenſive matter voided ſometimes by vomit, has this name, as alſo that evacuated by ſtool, and the diſcharge of foul ulcers.

CACOETHES, or CACORTHIA. See MALIGNANT.

CACOPHONIA, in *Grammar* and *Rhetoric*, the meeting of two letters, or ſyllables, which yields an uncouth, and diſagreeable ſound.

The word is compounded of κακος, *evil*, and φωνη, *voice*.

CACOPHONIA, in *Medicine*, denotes a vice or depravation of the voice, or ſpeech; of which there are two ſpecies, *aphonia*, and *dyſphonia*.

CACTONITES, in *Natural Hiſtory*, a name given by ſome old writers, to a beautiful pale red ſtone, ſuppoſed to be the ſame with our pale *carnelian*.

CACTUS, in *Botany*. See *Melon* THISTLE.

CACULE, in the *Materia Medica*, a name given by Avicenna, Serapio, and all the other Arabian writers, to the *cardamum* ſeeds. They diſtinguiſh two kinds of this fruit, a larger, and a ſmaller. The larger is the grain of paradiſe, and the ſmaller the common cardamom ſeed of theſe times. They alſo called the cardamoms, in general, by the name *hail*, and diſtinguiſhed the ſmall kind, now principally in uſe, by the word *hilburi*, which after-writers corrupted into *hilbate* and *hilbuti*, or *hilbun*.

CADABI, or KADARI, a ſect of Mahometans, who aſſert free-will, attribute the actions of men to men alone, not to any ſecret power determining the will; and deny all abſolute decrees, and predeſtination.

The author of this ſect was Mabed ben Kaled Al Giboni, who ſuffered martyrdom for it.

The word comes from the Arabic, קדר, *cadara*, *power*. Ben Aun calls the *Cadarioni*, the Magi, or Manichees of the Muſſulmen.

CADE, a cag, cask, or barrel; uſed in the book rates for a determinate number of ſome ſorts of fiſh.—Thus a *cade* of herrings is a veſſel containing the quantity of five hundred herrings, and of ſprats one thouſand.

Anciently the *cade* of herrings appears to have contained ſix hundred fiſh, reckoning ſix ſcore to the hundred.

CADE-*lamb*, a young lamb weaned, and brought up by hand, in a houſe; called in the North, *pet-lamb*.

CADE-*oil*, in the *Materia Medica*, a name given to an oil much in uſe in ſome parts of France and Germany. The phyſicians call it *oleum cadæ*, or *oleum de cade*. This is ſuppoſed by ſome to be the *ſpiſſeum* of the ancients, but improperly; it is made of the fruit of the *oxycedrus*, which is called by the people of thoſe places, *cade*.

CADE-*worm*, in *Natural Hiſtory*, a name given by authors to the *phryganea*, a common worm, found in ditches, and uſed as a bait for fiſh. The fly produced from this worm has a long body, four wings, and a forked tail, and is found on the banks of Argall very frequent on waters.

CADENCE, in *Music*, denotes a kind of *close*, or *rest*, either at the end of a song, or some of its parts, into which it is divided as into members, or periods.

The word seems a metaphor drawn from the dancing-school, where it properly signifies a *pause*, or *fall*, from motion to rest. A *cadence* is properly when the parts fall, and terminate on a *chord*, or note, the ear seeming naturally to expect it. Regularly it is to be made on the first or dominant, though sometimes also on the mediant, or middle chord of a mode.

Cadences in singing answer nearly to points or stops in discourse. They are rests contrived to favour the weakness of the performers, as well as the beauty, of a musical composition. Men are not able to sustain their attention, or their voice, beyond the space of two measures; even in this short interval we perceive the song to fall, and tend rapidly to a pause, or rest: the notes which introduce these pauses, are called *cadences*, on the proper conducting and expressing of which a great part of the musician's skill depends. The chief *cadence* or close is the key itself, in which the bass must always conclude; the next in dignity to the first above, and the next to that the third. Or if the bass be sharp, the fourth or second above the key.

In modulation, *cadences* are made on several keys, though still with some relation to the principal one: the harmony must always return to the key appropriated to the piece, and often terminate there by middle as well as final *cadences*.

Cadences usually occur in every two measures, and always in the note which begins the measure they happen in. It requires a nice taste to distinguish the tone upon which the *cadences* essentially fall; because they usually seem to fall on another note presented in the song. It is by the natural progression of the fundamental bass that we are enabled to make the discovery. As often as two bass falls a fifth, or rises a fourth, there is a *cadence*. In reality, this disposition imitates a close so well, that when we come to the first found of this *cadence*, we find ourselves as it were forced to fall on the other. So that it requires an extraordinary effort of the voice to sustain it self on the first, or only to fall a third. Hence it is that the first found which makes its fifth of the tonic, is called its dominant, being in reality the top, or highest part of the harmonical system, and that second from the fundamental found; thus *sol* is the dominant of *ut*; and *re*, of *sol*. In making a *cadence*, the bass must always fall a fifth, or rise a fourth.

CADENCE, among the French *Musicians*, is used to signify a *trill*, or *shake*, but improperly, according to Brossard. In effect, the *cadence* is properly the transition from the note on which the shake is made, to a note which is a tone lower, or a semi-tone major higher, in the treble part. See CADENZA *Staccata*.

CADENCES, in the *Ancient Music*, denotes a series or succession of musical notes, in certain intervals, which strike the ear agreeably; and especially at the close of a song, couplet, or stanza. In which sense, *cadence* amounts to much the same with *rhythmus*.

CADENCE, in *Oratory*, and *Poetry*, denotes the running of verse, or prose; otherwise called the *numbers*, and by the ancients *rhythmus*. See RHYTHM.

CADENCE, in the *Modern Dancing*, is when the several steps and motions follow, or correspond to, the notes or measures of the music.

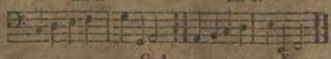
CADENCE, in the *Manege*, denotes an equal measure, or proportion observed by a horse in all his motions, when he is thoroughly managed, and works justly either at the gallop, *terra à terra*, or the air.

A horse's working in *cadence* imports, that his times or motions are uniform, and that one does not take in more ground than another.

CADENCY, in *Heraldry*, the state, or quality, of a CADET. Nisbet has an essay on the abdominal figures and marks of *cadency*. See DIMINUTION.

CADENZA *Staccata*, in the *Italian Music*, is used when a part instead of ascending or descending the proper interval, to form a *cadence*, proceeds by some other interval. For instance, when the bass, instead of rising a fourth or falling a fifth, ascends only by a tone, or semi-tone major.

Ex. 1. Ex. 2.



Thus, in Ex. 1. where the bass, instead of proceeding to C, the key-note, after G, goes to A. Thus also, in Ex. 2. after E, the bass would naturally expect to rise to A, the key-note; but this is avoided, and F put in its place.

CADETS, the younger brothers of a family: a *term* naturalized in our language from the French.

In Paris, among the citizens, the *cadets* have an equal portion with the eldest: in other places, the eldest has all. According to the custom of Spain, one of the *cadets*, in great families, takes the mother's name.

CADET also denotes a young gentleman soldier, who, to attain to some knowledge in the art of war, and in expectation of preferment, chooses to carry arms as a private man in a company of foot.

Cadets differ from volunteers, as the former takes pay, though only that of a private man, whereas the latter serves without pay.

Formerly there were allowed only two *cadets* in each company. In 1682, the King of France established companies of *cadets*, wherein the young gentry were trained up to war, and taught the arts and exercises belonging thereto, as riding, fencing, mathematics, &c.

CADGE, a round frame or wood, on which falconers carry their hawks when they expose them to sale.

CADI, among the Turks and Saracens, denotes an ordinary judge, who decides in all civil controversies within the district of a town, or city, though subject to appeals to superior judges.

The word is Arabic קדי or קאדי, q. d. *judge*, formed of קדי, *to judge*. D'Herbelot writes it *cadhi*.

The term *cadi*, used absolutely, denotes the judge of a smaller town or village; those of cities being called *molla*, or *mollas*, sometimes *molwadin*, or *great cadis*.

We find numerous complaints of the avarice, extortion and iniquity of the Turkish *cadis*: all justice is here venal: the people bribe the *cadis*; the *cadis* bribe the *moollas*; the *moollas* the *casselebeys*; and the *casselebeys* the *mufti*.

It is usually vain to appeal from the sentences of the *cadi*; since the whole is over heard anew, but judgment is pulled on the *cadi*, as stated by the case. The *cadis*, nevertheless are often cashiered, and punished for notorious iniquities with the bastinado and mulct; but the few forbids them to be put to death. Constantinople has had *cadis* ever since the year 1396, when Bajazet I. obliged Isaac Palæologus, emperor of the Greeks, to receive *cadis* into the city, to judge all controversies happening between the Greeks and the Turks settled there. In some countries of Africa, the *cadis* are also judges of religious matters. Among the Moors, *cadi* is the denomination of their higher order of priests, or doctors, answering to the rabbins among the Jews.

CADIANG, in *Botany*, a kind of lentiscus in Batavia, and the adjacent country, which makes a considerable part of the food of the common people. Dr. Hawkesworth's Account of the Voyages to the South Sea, vol. iii. p. 7.

CADILESCHIER, or CADI-LESKER, a capital officer of justice among the Turks, answering to a chief justice among us.

The word comes from the Arabic *kadi*, *judge*, the particle *al*, *and above*, or *over*; as being at their first institution chiefly judges of the soldiery, of whose causes they have still the sole cognizance. D'Herbelot writes the name *cadi-leskier*, or *cadhi-asker*.

It is said that this authority was originally confined to the soldiery; but that at present it extends itself to the determination of all kinds of law-suits; yet nevertheless subject to appeals.

There are but three *cadileskiers* in all the grand signior's territories; the first is that of Europe; the second, of Natolia; and the third resides at Grand Cairo. This last is the most considerable. They have their seats in the divan next to the grand visir.

The *cadileskiers* have much the same authority in the provinces, that the *muftis* have at Constantinople: they even frequently rise to be *muftis*: their chief study is the Alcoran, which is the code of their civil, as well as canon law. Appeals are sometimes brought to them from the sentences of the *cadis* in civil affairs; and they have the superintendance of all other officers of justice within the empire. They nominate the *cadis*, and *naibs cadis*; but these last only with the consent of the grand signior. On any grievous complaints against the *cadis*, they condemn and depose them. Tournef. Voyage Lev. tom. ii. let. 14. Pococke, Egypt. p. 170.

CADITES, an appellation given by Pliny to a kind of figured stone, resembling a *cadus* or barrel.

The *caditæ* swells in the middle, and goes tapering to both ends, being divided lengthwise, with such roundish lineaments, as are usually made by the staves of a barrel, but without hoops, nor yet hollow.

CADIZADELITES, a sect among the Mussulmen, resembling the ancient Stoics, who avoid all smiling and diversion, and affect an uncommon gravity in all they do

to say. Those of them who inhabit the frontiers of Hungary, &c. agree in many things with the Christians, and drink wine, even in the fast of the Ramazan.

They read the Sclavonic translation of the Bible, as well as the Alcoran. Mahomet, according to them, is the Holy Ghost, which descended on the apostles at the feast of Pentecost.

CADLOCK, in *Botany*. See MUSTARD.

CADMEAN *Letters*, the ancient Greek or Ionic characters, such as they were first brought by Cadmus from Phœnicia; whence Herodotus also calls them, *Phœnician letters*.

According to some writers, Cadmus was not the inventor nor even importer of Greek letters, but only the modeller and reformer thereof; and it was hence they acquired the appellation *Cadmean*, or *Phœnician letters*; whereas before that time they had been called *Pelasgian letters*. See LETTER and WRITING.

CADMIA, in *Pharmacy*, a name which has been variously applied; but it usually denotes a mineral substance, whereof there are two kinds, *natural* and *artificial*.

The *natural cadmia*, again, is of two sorts; the one containing arsenic, and called *cadmia fossilis*, or COBALT: the other containing zinc, called calamine, or *lapis CALAMINARIS*.

The *artificial cadmia*, called *cadmia fornacum*, is prepared from ores containing zinc, when smelted in furnaces of this there are five kinds; the first called *botryitis*, being in form of a bunch of grapes; the second, *placitis*, as resembling a sea-shell; the third, *pisolitis*, becoming resembling stuff; the fourth, *capnitis*, *anthos*; and the fifth *cadmitis*: this last hangs round certain iron rods, wherewith the matter of the copper is stirred in the furnace; which being shaken off, bears the figure of a quill, called in Latin *calamus*.

The *cadmia botryitis* is found in the middle of the furnace; the *placitis* at the bottom; the *pisolitis* at the top; and the *capnites* at the mouth of the furnace.

This *cadmia* is desiccative and detersive; it is generally used in flinking ulcers; which by means hereof are brought to cicatrize. The *botryitis*, and *placitis*, are also good in diseases of the eyes. See TUTTY.

CADMIA is also used by Pliny for copper ore, or the stone of which copper is made. And hence the several appellations, *cadmia fossilis*, *cadmia fornacum*, *cadmia metallica*, *cadmia aeramentaria*, and *cadmia pro caerulea*. Hist. Nat. lib. xxxiv. cap. 10. rum Hard. Not.

CADMITES, in *Natural History*, a kind of gem, nearly resembling the OSTRACITES; from which it only differs in that the latter is sometimes gilt with blue spots.

In some MSS. for *cadmites*, we read *calamites*.

CADRITES, a kind of religious among the Mahometans; whose founder was Abdul Cadri, a great philosopher and lawyer; whence they take their name. *Cadrites*.

They live in common, and in a kind of monasteries; which, however, they are also wont to quit, if they request it, and to marry on condition of their wearing black bonnets on their garments, to distinguish them from the rest of the people.

In their monasteries, they pass the greatest part of every Friday night in running round, holding each other's hand, and crying incessantly, *Hhai, Hhuy*, one of the names of God: one of their number plays all the time on a flute, to animate them in this extravagant dance.

CADUCEATOR, in *Antiquity*, a denomination given to heralds or messengers of peace. See CADUCEUS.

CADUCEUS, or CADUCEUM, Mercury's rod, or sceptre; a wand entwisted with two serpents, worne by that deity as the ensign of his quality and office.

The poets attribute wondrous virtues to the *caduceus*; as that of throwing people into a sleep, raising the dead, &c. It was also used by the ancients as a symbol of peace and concord: the Romans sent the Carthaginians a javelin, and a *caduceus*, offering them their choice, whether of war or peace.

Among that people, those who denounced war were called *fetiales*, and those who went to demand peace, *caduceatores*; because they bore a *caduceus* in their hand.

The *caduceus* found on medals, is a common symbol, signifying good conduct, peace, and prosperity. The rod expresses power, the two serpents prudence, and the two wings diligence.

Wedelius has given a dissertation expressly on *caduceated* medals.

CADUCEUS is also a name given to a staff covered with velvet, and decorated with *fleurs de lys*, which the French heralds of arms bear in their hands on solemn occasions. That borne by the king at arms has a golden *fleur de lys* at the end, and is by some called sceptre.

CADUCUS *morbus*, in *Medicine*. See EPILEPSY.

CADUS, an ancient liquid measure of capacity, containing ten, sometimes twelve *congii*; and sixty, or according to others, seventy-two *sextaries*.

The *cadus* is the same with what is otherwise denominated *metretes*, and *cerameus*, &c. See AMPHORA.

CÆCÆ *Gonduræ*. See GELANOS.

CÆCILIA, in *Zoology*, the name of a genus of serpents: See SLOW-*worm*.

CÆCILIA, in *Ichthyography*, a name used by some authors for the fish more usually known by the name of the ACUS.

CÆCILIANA, in *Botany*, a name used by Pliny and some other authors for the *tussilago*, or *ambrosiacum*. Ger. Emac. Ind. 2.

CÆCUM, in *Anatomy*. See COECUM.

CÆLATURA, or COELATURA, the art of ENGRAVING on metals, stones, woods, or the like, with instruments of steel, diamond, &c. See SCULPTURE.

CÆLESTIANS, the followers of Cœlestius, a monk, who flourished under the empire of Arcadius, about the year 409, and taught much the same doctrines as Pelagius. See PELAGIANS.

CÆMENT, in a general sense, any composition of a glutinous or tenacious nature, proper to bind, unite, or keep things in cohesion.

The word is also written *cement*, and even *ciment*. It is formed from the Latin *cementum*, of *cædo*, *I beat*.—Though M. Felibien observes, what the ancient architects called *cæmentum*, was a very different thing from our *cement*. The name *cement*, with them, signified a kind of masonry, or manner of laying the stones, and even the quality of the stones; as when the walls were built of rude, unequal stones. In reality, the stones were cut for such work, but not squared nor uniform: so that *cementum* stood opposed to *quadratum lapidem*.

CEMENT is particularly used, in *architecture*, for a strong binding sort of mortar, used to bind, or unite bricks or stones together, for some kinds of mouldings; or to make a block of bricks, for the carving of scrolls, capitals, &c.

It is of two sorts; the *hot cement*, which is the most common, is made of resin, bees-wax, brick-dust, and chalk, boiled together. The bricks to be *cemented* are heated, and rubbed one upon another, with *cement* in them.

The *cold cement* is less used; it is made of Cheshire cheese, milk, quick-lime, and whites of eggs.

Mortar, solder, glue, &c. are *cements*. The BITUMEN brought from the Levant is said to have been the *cement* used in the walls of Babylon.

Equal quantities of powdered glass, sea-salt, and iron filings, mixed with loam, make a very hard and durable *cement*.

Mr. Boyle informs us, that the best method to close and repair pipes of subterraneous aqueducts is with tobacco-pipe clay pulverized, and mixed with a large quantity of powdered flocks, and carefully beat up with linseed oil into a stiff paste. See MORTAR and TARRAS.

CEMENT is also used among *Goldsmiths*, *Engravers*, *Jewellers*, &c. for a composition of fine brick-dust, well sifted, resin, and bees-wax; in strewing those artificers to keep the metals to be engraven, or wrought on, firm to the block, &c. as also to fill up what is to be chiselled.

The receiver of an air-pump may be fastened to a metalline plate by means of a *cement* of bees-wax and turpentine, made with equal parts, for the winter; and three parts of the former to two of the latter, for the summer. We have various receipts for making *cements* to mend broken china and glasses: one of the finest, and at the same time strongest, *cements* for this purpose, is the juice of garlick, stamped in a stone mortar; this, if applied with care, will leave little or no mark. Another *cement* for broken glasses, china, or earthen-ware, may be prepared by beating the white of an egg very clear, and mixing it with fine powdered quick-lime; or flint-glass, powdered chalk, and a little lime, may be mixed together, and dissolved in fair water; with which the glasses, &c. are to be *cemented*, and then set in the shade to dry.

Drying oil with white lead is also frequently used for this purpose; but where the vessels are not exposed to heat or moisture, isinglass glue, with a small quantity of tripoli, or chalk, is better.

Some have recommended a *cement* made by tempering quicklime with the curd of milk, till it become of a proper consistence for use; but as cheese has a greater degree of tenacity than milk, the following composition will be preferable. Let the thin shavings of sweet cheese be *steeped* with *boiling* water [illegible] when the tenacious slime has been worked [illegible] fine, let it be mixed, on a hot [illegible] quantity of unslaked lime, into the [illegible] and it will prove a strong and [illegible] wood, stone, earthen-

earthen-ware, and glass; and it has this advantage, that when it is thoroughly dry, it will receive no injury from water.

A *cement* may be prepared for chemical glasses that will bear the fire, by mixing equal quantities of white flour, fine powdered Venice glass, pulverized chalk, with half the quantity of fine brick-dust, and a little scraped lint, in the whites of eggs: this mixture is to be spread upon a linen cloth, and applied to the cracks of the glasses, and should be well dried before they are put into the fire.

Old varnish will likewise answer the same purpose. A very useful *cement* for joining alabaster, marble, porphyry, and other stones, may be prepared in the following manner. Melt two pounds of bees-wax, and one pound of resin; add a pound and a half of the same kind of matter pulverized, as the body to be *cemented* is composed of, and stir them well together; let the mass be kneaded in water, and heated when applied to the heated parts of the body to be *cemented*. The colour of this mass may be adapted to that of the body on which it is employed, by varying the proportion of the powdered matter added to the mass of bees-wax and resin.

The best *cement* for electrical purposes is made with two parts of resin, two of bees-wax, and one of the powder of red ochre. These ingredients are melted, and mixed together in any vessel over the fire, and afterwards kept for use. This adheres well, is less brittle than resin, and insulates as well.

For the manner of preparing a *cement* to bind together the various embellishments of grottos, see GROTTO. See also GLUE, PUTTY, and SOLDER.

CEMENT, in *Chemistry*, is a general name, comprehending all pastes or powders, which, by means of fire, and proper crucibles, are capable of producing changes in any body. See BRASS, STEEL, and PORCELAIN.

It is particularly used to denote a compound mass, or saline powder, used for the purifying of gold and consuming the improper metals mixed therewith.

The principal *cement* used for this purpose is composed of four parts of bricks powdered and sifted, of one part of green vitriol calcined, till it becomes red, and of one part of common, or sea-salt. A paste is made of this mixture, by moistening it with water or urine. This is called *royal cement*, from its use in purifying gold, the king of metals; and because gold, previous to the discovery of platina, was the only metal capable of resisting it. Some writers on this subject recommend a mixture of nitre in substance, with an equal weight of calcined green vitriol, and twice its weight of powdered bricks.

CEMENT *for gilding by*. See GILDING *of Iron*.

CEMENT, or *cement copper*, is copper precipitated from vitriolic waters by iron. The name is derived, it is said, from a vitriolic water in Hungary, called *cement*.

CEMENT-*pots*, in *Assaying*, are vessels made for the *cementation* of metals.

These pots are cylindrical vessels, made of potter's clay, with rules adapted to them, and may be conveniently turned by the potters. The fire of these vessels must be proportioned to the quantity of *cement* to be put in them. It is not prudent, however, to make them of more than eight or ten inches broad, because when they are larger the fire acts but difficultly and unequally upon them, especially on that part of the matter near their centre.

It is to be observed, in the making of these vessels also, that all kinds of clay contract and take up a smaller space in the drying and baking; the purer clay will contract one tenth part of their diameter, but the more sand or other dry powder there is in the mixture, the less it contracts. If a vessel, therefore, of any determinate size is to be made of clay without admixture, it must be made one tenth larger than the expected size; if of clay with these admixtures, experience alone can shew what must be the excess in size, when moist. Cramer.

CEMENTATION, a manner of purifying gold from other metals, by means of *cement*. Or, as it is defined by Stahl, a method of corroding metals in a dry form by the fumes of dry fats.

It is performed thus: thin plates, or lamins, are flattened in a crucible with the royal *cement*; the crucible is covered up, luted with a mixture of clay and sand, and encompassed with fire for twenty-four hours, till being thus calcined, the fats have imbibed and consumed the impurities of the gold.

The crucible is then left to cool, and the gold is to be carefully separated from the *cement*, and boiled at different times in a large quantity of pure water. It is often necessary, for the [illegible] of the gold, to repeat the [illegible] which has obtained the name of [illegible] Dr. Lewis, is incommodious [illegible] or ascertaining its purity, and [illegible] used. Its principal use is for extracting silver or base metals from the surface of gold, and thus giving superficial purity and high colour to alloyed or pale gold. Lewis's Comm. Phil. p. 155. See DEPART, GOLD, REFINING, and SILVER.

CÆRITES, or CERITUM *tabulæ*, in *Antiquity*, denote the censors tables, wherein were entered the names of such persons as, for some misdemeanor, were to lose their right of suffrage in elections at Rome.

The original of the appellation arose hence; that during the captivity of Rome under the Gauls, the *Cærites*, or inhabitants of Cære, a city in Etruria, preserved their sacred books, and other matters belonging to the worship of the gods, in gratitude for which, the Romans dignified the *Cærites* with the appellation of Roman citizens, but without admitting them into any part of the administration.

CÆRULEUS, in *Ornithology*, a name given by authors to a kind of the thrush or blackbird kind, and somewhat resembling that species of blackbird commonly called the solitary sparrow.

CERULEUS is also a name given by Solinus to the great Indian worm described by Pliny and others, as inhabiting the Ganges. It is probable that all the accounts we have of this monstrous animal are only false descriptions of the crocodile.

CÆSALPINIA, in *Botany*, *Brasiletto*, a genus of the *decandria monogynia class*, deriving its name from Cæsalpin, the famous botanist and physician to Pope Clement VIII. The characters are these: the flower has five petals, which are situated like those of the butterfly-flowers; it hath ten declining filamina, which are distinct; it hath an oblong germen; the empalement afterward becomes an oblong compressed pod with one cell, enclosing three or four compressed seeds. There are two species.

The first sort is the tree which affords the brasiletto wood, which is so much used in dying. It grows naturally in the warmest parts of America, from whence the wood is imported for the dyers; and the demand for it has been so great, that there are no large trees left in any of the British colonies; the largest scarcely exceeding eight inches in diameter, and fifteen feet in height. It hath very slender branches, which are armed with recurved thorns.

These plants are propagated by seeds, which should be sown in small pots filled with light rich earth early in the spring, and plunged into a hot-bed of tanner's bark. Being tender, they should always be kept in the bark-stove, and have a moderate share of heat in the winter; and being placed among other tender exotics of the same country, will afford an agreeable variety.

CÆSAR, among the Romans, was a long time used for the heir intended, or presumptive of the empire; as *Heir of the Romans* is now used for that of the German empire.

The *Cæsars* were a kind of assistants or associates of the empire, *partakers imperii*. They were the imperial mantle, purple, and diadem, and walked with other marks of the sovereign dignity: they were created like the emperors, by putting on the purple robe.

The dignity of *Cæsar* continued the second of the empire, till Alexius Comnenus made Nicephorus Melissenus *Cæsar* by contract, and it being necessary to confer some higher dignity on his own brother Isaacius, he created him Sebastocrator, with the precedency over Melissenus, ordering that in all acclamations, &c. Isaacius Sebastocrator should be named the second, and Melissenus *Cæsar* the third.

The title took its rise from the cognomen, or surname of the first emperor, C. Julius *Cæsar*, which by a decree of the senate all the succeeding emperors were to bear. Under his successor, the appellation Augustus being appropriated to the emperors, in compliment to that prince, the title *Cæsar* was given to the second person in the empire, though it still continued also to be given to the first: and hence the difference between *Cæsar* used simply and *Cæsar* with the addition of Imperator Augustus. Authors are divided as to the origin of the word *Cæsar*, the cognomen of the Gens Julia. The more common opinion is, that the word *Cæsar* comes *a cæso matris utero*; because his mother's womb was cut open to give him birth.

Some pretend that the laurel crown on medals is never given to *Cæsars*, but only to *Augusti*; which is overthrown by a medallion of Maximus; but to mention another medal of the lower empire, wherein Crispus *Cæsar* is crowned with laurel.

Card. Norris observes, that the years of the *Cæsars* were frequently marked on their medals; of which we have instances in the medals of Constantine, Chlorus, and divers others, whose years are expressed on their coins, though they were never more than *Cæsars*.

CÆSARIAN

CÆSARIAN *section*, in *Midwifery*, the operation of extracting the *fœtus* from the mother, whether living or dead, by an incision through the *abdomen* into the *uterus*. Those brought into the world in this manner, are called *Cæsones*, and *Cæsones, à cæso matris utero*; as were C. Julius Cæsar, Scipio Africanus, Manlius, and one Edward VI. See DELIVERY.

Many have exclaimed against the cruelty of this operation: and certainly it is too terrible to be used on any but the most emergent occasions: but there seem three cases in which it is justifiable, nay absolutely necessary. The first is, when the mother is dead, either in labour, or by some other accident, and the child is perceived to be alive. The second is, when the mother is living, and the *fœtus* dead, and incapable of being extracted by the common passages by any help of the midwife. And the last, when the mother and child are both living, and there is found an utter impossibility of delivery any other way. In all these cases the *Cæsarian* practice is justifiable to save life, that must otherwise be inevitably lost.

In the first case, the operation must be performed immediately after the death of the mother, otherwise it is to no purpose, for the child can live but a very little time afterwards in the body. The surgeon is, in this case, to make a crucial incision, as in the common dissections; or a longitudinal one on one side, without regard to the course of the fibres or vessels: and if the *fœtus* should have fallen into the cavity of the *abdomen*, through a rupture of the *uterus*, it should then be taken out; or if it be yet in the womb, or in the Fallopian tube, these parts must be carefully opened, and the child being taken out, must have Hungary water, or the like, held at some small distance from its nose to revive it, and the navel-string be tied up as usual. The *fœtus* is not always preserved, or found alive after this operation; but as there is often a probability of it, it is certainly better to open an hundred dead women in vain, than to lose the life of one infant.

In the second case, when a dead *fœtus* is contained in the cavity of the *abdomen*, in the Fallopian tube, or in a kind of hernia or sac without the *abdomen*, of all which cases there are instances recorded; or when, from the particular structure of the parts, as is sometimes the case in crooked women, and others; and when, as in many instances, there is no possibility of the extraction of the infant, even by incision of it: there is no way but the opening of the *abdomen*, and if necessary, the *uterus* of the mother, and taking out the *fœtus*: and this is often the means of preserving the mother, and when in parallel cases the child is also alive, there have been not a few instances of both being preserved.

The *Cæsarian section* is recommended by several authors, and Mr. Hellvetius communicated to the Academy of Sciences at Paris, a well studied history of a woman recovering after the operation had been performed upon her by a midwife. Vide Hist. de l'Acad. des Scienc. 1733.

We have also an account of this operation successfully performed by a midwife in Ireland. See Med. Ess. Edinb. vol. v. art. 37.

There is likewise an account of the *Cæsarian* operation successfully performed by a butcher on a woman in Ireland. Vide Phil. Trans. N° 401. sect. 17.

Cyprianus, professor at Rennekor, gives an extraordinary case of the *Cæsarian* operation, whereby a *fœtus*, which had been dead twenty-one months, was drawn out of the *tuba uteri*, yet the mother preserved. M. Jobert, physician at Chateau Thieri, relates the history of a woman, in the neighbourhood of that place, who was twice delivered of children by the *Cæsarian* operation; the first time in 1682, the second time eleven months after, and recovered from both.

See an account of two cases in which this operation was performed in London, both of which proved fatal to the mothers, with remarks on the history of the operation, in the Medical Observ. and Inq. vol. iv. p. 282. 292. and vol. v. p. 217.—See also enquiries relative to this operation, by Mons. Simon, in the 8th volume of the Memoirs of the Academy of Surgery at Paris.

CÆSARIANS, or CÆSARIENSES, in *Antiquity*, were ministers or officials of the procurator *Cæsaris*, to whom belonged the keeping of the fiscal accounts, and taking possession of effects devolving or escheating to the emperor. These were also called *catholicani*. From the appellation *Cæsariani* some deduce the modern word sergeant. See SERGEANT.

CÆSARIS, *Emplastrum*, among *Physicians*, a name given to a plaster compoſed of aſtringents, to prevent abortion.

CÆSIAS, in *Meteorology*, denotes the north-east wind; called, in the Mediterranean, *vento Greco*, or *Greco levante*.

CÆSTUS, a large leathern gantlet, loaded with lead, uſed in the combats, or exerciſes, of the ancient athletæ. It was called *caſtus, à cædendo*, from *cædo, to ſtrike*, or *beat*.

Caſaubon ſays it was a kind of a club with leaden balls hanging from it, ſuſpended by leathern thongs: but he was miſtaken, it being only a leathern thong ſtudded with nails of lead or iron; part of it was twiſted round the hand and arm, to prevent their being broken or diſlocated. See CESTUS.

CÆSURA, in the *ſublime Poetry*, is when, in the ſcanning of a verſe, a word is divided, ſo that one part remains cut off, and goes in a different foot from the reſt; e. gr.

Mœſti | lo | ca ne | ſcio | quam mœn | dacia profunt.

Where the Syllables *ri, ſi, quam*, and *mœ* are *cæſuræ*.

Or, it denotes a certain agreeable diviſion of the words between the feet of a verſe; whereby the laſt ſyllable of a word becomes the firſt of a foot: as in

Arma virumque cano, Trojæ qui primus ab oris.

Where the ſyllables *ne* and *jæ* are *cæſuræ*.

CÆSURA, in the *Modern Poetry*, denotes a reſt or pauſe towards the middle of a long Alexandrine verſe; by which the voice and pronunciation are aided, and the verſe as it were divided into two hemiſtichs.

CÆTERIS *paribus*, a Latin term, in frequent uſe among mathematical and phyſical writers.

The words literally ſignify, *other things being equal*; which expreſſes pretty nearly their meaning as a term. Thus, we ſay the heavier the bullet, *cæteris paribus*, the greater the range; i. e. by how much the bullet is heavier, if the length and diameter of the piece, and the quantity and ſtrength of the powder, be the ſame, by ſo much will the utmoſt range or diſtance of a piece of ordnance be greater.

Thus alſo in a phyſical way, we ſay, the velocity and quantity of blood circulating in a given time, through any ſection of an artery, will, *cæteris paribus*, be according to its diameter; and recíprocally to, or diſtance from the heart.

CAFFA, in *Commerce*, cotton cloths painted with ſeveral colours, and of divers deſigns; they are manufactured in the Eaſt Indies, and ſold at Bengal. The length and breadth are not the ſame in all pieces.

CAFFACA, in *Natural Hiſtory*, a name given by the Turks and Tartars to a peculiar kind of earth, of a grey colour, having a light call of green in it. It is very ſoft and unctuous, and ſomething reſembles our fullers earth; but is more aſtringent, and adheres very firmly to the tongue: theſe people bathe very frequently, and they uſe this earth on thoſe occaſions.

CAFFILA, a company of merchants or travellers, or both together, who join company, in order to go with more ſecurity through the dominions of the Great Mogul, and through other countries on the continent of the Eaſt Indies. There are alſo ſuch *caffilas*, which croſs ſome parts of the deſerts of Africa, particularly what is called the ſea of ſand, which lies between Morocco, and the kingdoms of Tombut and Gago. This is a journey of four hundred leagues, and takes up two months in going, and as many in coming back; the *caffila* travelling only by night, becauſe of the exceſſive heat of the country. The chief merchandize they bring back conſiſts in gold-duſt.

The *caffila* is properly what is called caravan in the dominions of the grand ſignior, and other parts of the Eaſt. See CARAVAN.

On the coaſt of Guzerat or Cambaya, it ſignifies a ſmall fleet of merchant-ſhips.

CAFRES, according to Ludolf, an opprobrious appellation given by the Arabs to all thoſe who do not profeſs the Mahometan religion. It comes from the Arabic word *cafir*, which ſignifies *infidel*, or *unbeliever*.

CAGADO *de agua*, in *Zoology*, a name by which the Portugueſe in America call a ſpecies of tortoiſe common there, and uſually known among authors by its Braſilian name JURURA.

CAGADO *de terra*, in *Zoology*, the name by which the Portugueſe in America call a remarkable ſpecies of tortoiſe, called by the Braſilians JABOTI.

CAGANUS, or CACANUS, an appellation anciently given by the Huns to their kings.

The word appears alſo to have been formerly applied to the princes of Muſcovy, now called CZAR.

From the ſame alſo, probably, the Tartar title CHAN, or *can*, had its origin.

CAGAO, in *Natural Hiſtory*, the Indian name for a large bird which inhabits the mountains, and feeds on the pitanha nuts, and many other fruits, all which it ſwallows whole: it is very voracious, and its food paſſes off very quickly;

quickly; the piſtachias only looſe their rind in its ſtomach, and the almonds their pulpy covering; the kernel and the ſtone being voided whole: it is of the ſize of a common hen, but has a longer neck.

CAGASTRUM, is uſed by *Paracelſus* to denote a morbific *ſtamen*, not connate or hereditary, but accidental, owing to corruption.

In which ſenſe the word ſtands oppoſed to *diaſtroma*. The plenitude, plethory, fever, &c. are ranked by that author in the number of *cagaſtra* diſtrafts.

CAGE, an incloſure made with wire, wicker, or other matter, interwoven latticewiſe, for the detention of wild beaſts or birds.

The word is French. *cage*, formed from the Italian *gaggia*, of the Latin *cavea*, which ſignifies the ſame: *a cavea theatralibus in quibus includebantur feræ*.

Beaſts were uſually brought to Rome ſhut up in oaken or beechen *cages*, artfully framed, and covered or ſhaded with boughs, that the creatures, deceived with the appearance of a wood, might fancy themſelves in their foreſt. The fierceſt ſort were put in iron *cages*, leſt wooden priſons ſhould be broke through.

In ſome priſons there are iron *cages* for the cloſer confinement of criminals.

The French uſe diſtinguiſh two ſorts of *bird-cages*, viz. high, or ſinging *cages*, and low, or *dumb-cages*; thoſe who expoſe birds to ſale are obliged to put the hens in the latter, and the cocks in the former, that perſons may not be impoſed on, by buying a hen for a cock.

CAGES, *cauſæ*, denote alſo places in the ancient amphitheatres, wherein wild beaſts were kept, ready to be let out for ſport. The *cauſæ* were a ſort of iron *cages* different from dens, which were under ground and dark; whereas the *cauſæ* being airy and light, the beaſts ruſhed out of them with more alacrity and fierceneſs than if they had been pent under ground.

CAGE, in *Carpentry*, ſignifies an outer work of timber, incloſing another within it.

In this ſenſe we ſay, the *cage* of a wind-mill.

The *cage* of a ſhip-caſe denotes the wooden ſides, or walls which incloſe it.

CAGGAW, in *Botany*, a name given by the people of Guinea, to a plant which they boil in water, and uſe the decoction to waſh the mouth with, as a cure for the tooth-ach. The leaves of this are ſmooth and ſhining, like thoſe of the laurel, but they are thin, and bend like thoſe of the bay. Phil. Trans. N° 232.

CAGIT, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands, to a ſpecies of parrot, very common in their woods; it is of a middling ſize, and is all over of a fine green colour.

CAGUI, in *Zoology*, the name of a kind of Braſilian monkey called alſo *pargi*, of which there are two ſpecies, the one larger, the other ſmaller. The large kind is of a grey colour, with a mixture of black, and its hairs are longer than thoſe of the ſmall ſpecies; its face is round, and it has ſomething of the look of a lion; its ears are ſmall, round, black, and naked; its eyes are alſo black, as is its mouth, and its forehead is covered with a mixture of grey and black hairs; its tail is above a foot long, and is covered with hairs of a tawny colour.

The leſſer *cagui* is a ſmall and tender animal, but has the ſame lion-like face with the larger. Its body is not above ſix fingers breadth long; its tail about ten fingers; its head is ſmall, ſcarce ſo large as a ſmall apple; its noſe is ſmall and flat; its eyes very tender, its mouth little, and its teeth extremely ſharp; its ears are round, and ſurrounded with white hairs in a very beautiful order; its hair is all of a reddiſh tawney toward the body, and toward the ends of a mixture of white and brown; and its tail is variegated with circular rings of white and brown; its voice is extremely ſhrill; it is naturally an extremely lively and nimble creature, but cannot bear the leaſt cold. Ray.

CAHELO, in *Ichthyology*, a name given by ſome authors to the fiſh uſually called the LUPUS *marinus*, or wolf-fiſh.

CAIA, in the *Turkiſh Military Orders*, an officer ſerving in the poſt of a deputy or ſteward, and acting for the body of the janizaries.

CAIANI, in *Eccleſiaſtical Antiquity*, a ſort of heretics, thus denominated from one Caianus of Alexandria, their leader, otherwiſe denominated APHTHARTODOCETÆ.

The ſame name is ſometimes alſo given to the ſect of Cainians or Cainites.

CAIC, CAIQUE, CAICA, in *Sea-language*, is uſed to denote the ſkiff, or boop, belonging to a galley.

The Coſſacks give the ſame name, *caic*, to a ſmall kind of bark uſed in the navigation of the Black Sea. It is equipped with ſowy or fifty men, all ſoldiers: their employment is a kind of piracy. The Turks have alſo a ſort of *caics*, which ſome render by *biremes*.

CAJEPUT, an oil brought from the Eaſt Indies. The ſmell of the oil of *cajeput* reſembles that of cardamoms; hence Dr. Trew judges the plant from which it is obtained to be the *elegans malagetæ ſpecies*, deſcribed by Sobelius, or the *gramis paradiſi ſive malagetæ affinis fructus*. Four or five drops of this oil of *cajeput*, in a proper liquor, are recommended as an excellent nervous medicine, and as of great efficacy in the cardialgia.

CAIMACAN, or CAIMACAM, a dignity in the Ottoman empire, anſwering to that of lieutenant, or vicar, amongſt us.

The word is compoſed of the two Arabic words, *Caim maham*, q. d. *he who holds the place*, or *diſcharges the function of another*.

There are uſually two *caimacams*: one reſides at Conſtantinople, who is the governor thereof; the other attends the grand vizir, in quality of his lieutenant. Sometimes there are three *caimacams*; one conſtantly attending the grand ſignior, another the grand vizir, and a third conſtantly at Conſtantinople, who examines affairs of police, and regulates them in great meaſure. The *caimacam* that attends the vizir, only officiates when at a diſtance from the grand ſignior; his function ceaſing, when the vizir is with the ſultan. The *caimacam* of the vizir is his ſecretary of ſtate, and the firſt miniſter of his council.

CAINITES, or CAINIANS, a ſect of ancient Gnoſtics, that ſprung up towards the cloſe of the ſecond century, and paid extraordinary honours to thoſe perſons repreſented in Scripture as the worſt of mankind; as called from Cain, whom they eſteemed their patriarch, and the chief object of their veneration. They held that Cain and Eſau, Lot, and thoſe of Sodoma, were born of a moſt eminent celeſtial virtue; that Abel, on the contrary, was born of a virtue much leſs eminent; to Cain, and others of the ſame order, who, according to them, had a mighty knowledge of all things, they allocated Judas, whom they held in ſo much eſteem, that they had a book among them called the Goſpel of Judas. St. Epiphanius refutes, and at the ſame time refutes, their errors.

CAINITO, in *Botany*, the name given by Plumier, to the *ſtar-apple*.

CAINS, in the iſland of Candia, denote Greeks revolted, and retired to the Venetians, either at Suda, or Spina Longa; who, in time of war, burn, pillage, and commit all manner of cruelties on their ancient brethren under the Turks.

When a *cain* or falſe brother is taken, there is no mercy for him; they either impale him, or put him to the queſtion.

CAJOU, CASHEW, or CASSU. See ANACARDIUM.

CAIRINA, in *Ornithology*, a name by which ſome authors have called the Muſcovy duck.

CAISSON, in the *Military Art*, is ſometimes uſed for a cheſt; and in particular for a BOMB-CHEST.

The *caiſſon* is conſidered as a ſuperficial MINE, or *fourneau*.

CAISSON is alſo a covered waggon to carry bread, or ammunition.

CAISSON is alſo uſed for a kind of cheſt uſed in laying the foundations of the piers of bridges. See BRIDGE.

CAITAIA, in *Zoology*, the name of an American monkey, remarkable for its ſweet ſmell; it has indeed ſomewhat of a ſcent of muſk about it; its hair is long and of a whitiſh yellow colour; its head is round; its forehead depreſſed, and very ſmall; its noſe ſmall and flatted, and its tail arched. It is eaſily tamed and kept about houſes, but is very clamorous and quarrelſome.

CAKE, a finer ſort of BREAD, denominated from its flat, round figure.

We meet with divers compoſitions under the name of *cakes*; as *ſeed-cakes*, made of flour, butter, cream, ſugar, coriander and caraway ſeeds, mace, and other ſpices and perfumes, baked in the oven; *plum-cake*, made much after the ſame manner, only with fewer ſeeds, and the addition of currants; *pan-cakes*, made of a mixture of flour, eggs, &c. fried; *cheeſe-cakes*, made of cream, eggs, and flour, with or without cheeſe curd, butter, almonds, &c. *ſut-cakes*, made of fine oaten flour, mixed with yeaſt, and ſometimes without, rolled thin, and laid on an iron or ſtone to bake over a low fire; *ſugar-cakes*, made of fine ſugar beaten and ſcarced with the fineſt flour, adding butter, roſe-water, and ſpices; *roſe-cakes*, *placentæ roſatæ*, are leaves of roſes dried and preſſed into a maſs, ſold in the ſhops for epithems. See EPITHEM.

CAKE-*mans*, a denomination ſometimes given to the white or virgin WAX.

CAKE-*ſoap*, ſtands diſtinguiſhed from roſe-ſoap, and ball-ſoap. See SOAP.

CLABA, in *Botany*, the name given by Plumier to a genus of plants afterwards called by Linnæus CARYOPHYLLUM.

CALABASH, in *Botany*. See MELOPEPO.

CALABASH-*tree*, *Crescentia*, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower hath one petal which is irregular, having a carved gibbous tube; it hath an empalement of one leaf, cut into two obtuse segments, which are concave; it hath four stamina, two of which are the length of the petal, the other are shorter; with an oval germen, which afterward becomes an oval or bottle-shaped fruit with a hard shell, enclosing many flat, heart shaped seeds. Linnæus mentions one, and Miller two species, the first of which grows naturally in Jamaica, and in all the Leeward Islands; it has a thick trunk, covered with a whitish bark, which rises from twenty to thirty feet high, and at the top divides into many branches, forming a large regular head. From the lower part of the tube of the flower, arises a long slender foot-stalk, supporting an oval germen, which afterward turns to a large fruit of different forms and size, sometimes with a contracted neck like a bottle, and so large that when the pulp and seeds are cleaned out, the shells will contain three pints or two quarts. These fruits are covered with a thin skin of greenish yellow when ripe, which is peeled off, and under it is a large ligneous shell, enclosing a yellowish soft pulp, of a tart unsavoury flavour, surrounded with a great number of seeds. See BAOBAB.

These fruits are seldom eaten, but the shell is converted to many useful purposes when dried; and serves to make cups, ladles, and many other articles of houshold furniture; for cases to put divers kinds of goods in, as pitch rosin, or the like.

The word is Spanish, *calabaça*, which signifies the same. The Indians also, both of the North and South Sea, put the pearls they have fished in *calabaças*; and the Negroes on the coast of Africa do the same by their gold-dust.

The smaller *calabas* are also frequently used by these people as vessels, by which they sell their precious commodities to the Europeans.

CALABRINI, in *Botany*, a name by which some authors call the rough SPLEENWORT, or *hastatis affera*. Ger. Emac. Ind.

CALADE, in the *Manege*, a descent or slope in a riding ground, by which to bring a horse to bend his haunches, and form his slop, with the aids of the calves of the legs, bridle, and cavesson, as formerly given.

The *calade* is also called, by the French, *la pesade*. They say, to ride or gallop down the *calade*.

CALAE, CALAIN, or CALAMUM, denotes a species of Indian tin, which, by force of fire, is transmutable into cerus, like that made of our lead.

Alchemists also pretend, that it may be converted by cementation into silver; and allege it as an argument in behalf of a possibility of the transmutation of other metals into gold.

CALAINUS, in *Natural History*, a name given to the substance otherwise called CALLAIS.

CALAMANCO, in *Commerce*, a woollen stuff manufactured in Brabant and in Flanders, particularly at Antwerp, Lille, Tournay, Torcoin, Roubaix, and Lannoy. There are also a great many made in England.

It is commonly woven wholly of wool; there are some, however, wherein the warp is mixed with silk, and others with goat's hair. There are *calamancos* of all colours, and diversly wrought. Some are quite plain, others have broad stripes adorned with flowers; some with plain broad stripes; some with narrow stripes; and others watered. This is also no inconsiderable branch of the woollen manufacture in England, both for home wear and exportation.

CALAMARIÆ, in *Botany*, an order of plants in the Fragmenta Methodi Naturalis of Linnæus. See CULM.

CALAMBA, or CALAMBAC, in *Commerce*, a kind of wood brought from China, usually sold under the denomination of *lignum* ALOES, or AGALLOCHUM.

Sir Phil. Vernati makes *calambac* and *lignum aloes* synonymous. Others seem to distinguish, restraining *calamba* wood to the best sort of aloes wood, growing chiefly in Malacca and Sumatra; and much used in India for making of beads and crucifixes. *Phil. Transf.* N° 43. p. 864.

CALAMIFEROUS, a denomination given by some to those otherwise called CULMIFEROUS plants.

CALAMINARIS *lapis*, CALAMINE-*stone*, a kind of fossile of some use in medicine, but of more in foundery; being used to make copper yellow, i. e. to convert it into brass. It is either of a brownish colour, as that of Germany and England; or reddish, as that about Liege, and in some parts of France, which is accounted the best, because it turns yellow by calcination. It is dug out of mines, usually in small pieces; having always eyes, sometimes veins, of lead in it, though it be not always found in lead-mines. We have mines of *calamine* at Wrington in Somersetshire, and elsewhere. It is generally dug in barren rocky grounds; its courses running, usually at six o'clock, as they call it, i. e. from east to west; sometimes at nine, and sometimes at twelve; or perpendicular, which is accounted the best.

Dr. Lawson was the first who publicly proved *calamine* to be the ore of ZINC. It consists, says Mr. Kirwan, of a mixture of quartz and argill, with the calces of iron and zinc; its colour is yellow, red, or brown, and it is moderately hard. Elem. Mine. p. 280.

Calamine-stone is a species of *lapis* CADMIA; some even take it for the true cadmia of Galen and the ancients, to which it certainly bears a near resemblance: when burnt, it fumes gathers and grows on the sides of the chimney.

When dug, it is washed, or huddled, as they call it, in a running water, which carries off the impure and earthy parts; leaving the lead, *calamine*, and sparry parts at bottom; they then put it in a fire, and shaking it well in water, the lead mixed with it sinks to the bottom, the sparry parts get to the top, and the *calamine* lies in the middle: thus prepared, they bake it in an oven or reverberatory furnace four or five hours; the flame being so contrived, as to pass over, and so to heat and bake the *calamine*, stirring and turning it all the while with iron rakes. Or, it may be roasted or calcined by setting fire to a conical pile, composed of horizontal layers of *calamine* and of charcoal placed alternately one upon the other, and of a lower stratum consisting of large pieces of wood; in which lower stratum are four horizontal channels, through which the air maintaining the fire passes to the centre, and it thence arises through a chimney or perpendicular empty space, left for that purpose, along the axis of the conical pile. The length of time and degree of heat for this operation, are different according to the qualities of the minerals. This done, they beat it to powder, and sift it; picking out of it what flames they find. And thus it is fit for use.

For the manner of applying *calamine* in the prepatation of brass, see BRASS.

Besides the two natural *calamines*, this and cobalt, there are two artificial ones: the best is that called *pompholyx*, the other *tutty*.

Calamine is of some medicinal virtue, being astringent, desiccative, and detersive; and is much used for taking off films from the eyes of horses, &c.

CALAMINT, in *Botany*, an officinal plant, whose leaves are reputed warm, aperient, and diaphoretic, and enter several alexipharmic compositions. It is enumerated by Miller among the species of *mentha*, or thyme. For its general characters, therefore, see BALM.

There are three sorts of *calamint* in use, viz. the *sylvestris*; the *montana*, or *montana*; and *pulegii*, or *agrestis*; of which the first ought to be the officinal sort, though the scarcity of it among us usually brings the second to market in its stead; the third is taken into the college dispensatory, but rarely used. In the college dispensatory, we find a compound powder denominated from *calamint*. See Phil. Trans. vol. xlix. pt. ii. p. 838.

CALAMISTRUM, in *Natural History*, a name by which Linnæus and some authors have called a small plant, known among us by the name of *pepper-grass*, from its having grassy leaves, and round globules at their insertions, resembling pepper-corns. Mr. Vaillant has more properly named it PILULARIA.

CALAMITA, or CALAMITIS, is used to denote the MAGNET or loadstone.

CALAMITA *alba*, in *Natural History*, the name of an earth dug in Spain and Italy, of a hard texture, a white colour, and flyptic taste, they pretend that this attracts flesh in the same manner as the magnet does iron, and thence call it MAGNES *carneus*.

CALAMITA *fluvia*. See STOBAX.

CALAMITES, in *Natural History*, a name given by some to the ostreocelle, which, when in small pieces, sometimes pretty exactly resembles the barrel of a quill; others have called some of the fossile corallioides by this name, there being frequently in them the resemblance of several quills cemented together in stone.

CALAMITIS is used for a species of artificial *cadmia*, found adhering to the flicks, ladles, and other utensils wherewith they stir the copper when in fusion in the furnace.

It is denominated *calamitis*, from the Latin *calamus*, a *reed*, on account of its resemblance to the figure of a reed cloven in the middle.

CALAMUS, in *Botany*, a genus of the *hexandria monogynia* class of plants: the calyx consists of six leaves; it has no corolla; and the fruit is a single seeded berry. There is one species.

CALAMUS is commonly used to denote the same with *arundo*, a reed, rush, cane, or flag.

CALAMUS, in the *Pastoral*, denotes a simple kind of pipe, or fistula, the musical instrument of the shepherds and herdsmen, usually made either of an oaten stalk, or a reed.

CALAMUS *aromaticus*, in *Pharmacy*, a spicy bitterish root, produced by a peculiar kind of water-plant, growing in the Levant, and even in several parts of England. See ACORUS.

The best is that which is greyish without, and reddish within; its pulp white, and taste somewhat bitter: but its leaves, as well as roots, sweet-scented.

The agreeable flavour and peculiar taste of the root, are owing to an essential oil. Neumann.

CALAMUS *Indicus pseudo-aromaticus*, in the *Natural History of the Ancients*, a name given to a substance found often in the fossile kingdom, usually of about three inches long, half an inch broad, and one third of an inch thick, and covered all over its surface with large round figures, in form of radiated stars within. This very much resembled in external appearance the rest of our common *calamus aromaticus* of the shops turned into stone, and seems to have been vulgarly supposed to be that substance petrified. The more accurate among the early writers, however, have by no means countenanced so wild a conjecture; and Theophrastus, though he records the substance under that name, as it had an other in his time, yet joins it to the canes which, he says, grow in the sea, and are vegetables; and adds, that there, and this fabulous race, are properly the subjects of another treatise, not of a history of stones. See *Tab. of Fossil. Class 7.*

This author's placing it among the CORALS is perfectly right, since the specimens of it now found are plainly no other than corals of the radiated kinds, which have been long buried in the earth.

CALAMUS *odoratus*, in the *Materia Medica*, the name of a reed of the East Indies, of a very sweet smell. Our CALAMUS *aromaticus*, which is the root of a water-plant, is a very different substance.

CALAMUS *scriptorius*, properly denotes a reed or rush to write with, answering the use of the ancient stylus and modern pen.

The ancient Egyptian *calamus* was a sort of *arundo aquatica* growing plentifully about Memphis, and on the banks of the Nile, whence it was also called *calamus Memphiticus, Nilotica*, &c.

CALAMUS *scriptorius*, in *Anatomy*, is a distortion of the fourth ventricle of the BRAIN; so called from its figure, which resembles that of a quill.

CALAMUS *sonorarius*, or *calamus Aristeus*, among *Farriers*, signifies a *hard-CALE*.

CALAMUS also denotes a sort of measure otherwise called CANNA, CANE, or REED.

CALANDRE, in *Natural History*, a name given by the French writers to an insect that does vast mischief in granaries. It is properly of the scarab class.

The female lays a considerable number of eggs, and the increase of these creatures would be very great, but nature has so ordered it, that while in the egg state, and even while in that of the worm, they are subject to be eaten by mites: these little vermin are always very plentiful in granaries, and they destroy the far greater number of their larger animals.

CALANGAY, in *Natural History*, a name given by the people of the Philippine islands to a species of parrot very common there; it is all over white, and has a crest of white feathers on its head; it is of the size of a pigeon, and is easily kept tame, and learnt to talk. It is called also in some of the Philippines *catanai* and *abaay*.

CALASH, or CALESH, a small light kind of chariot, or chair, with very low wheels, used chiefly for taking the air in parks and gardens.

The word is French, *calache*, which Menage derives from the Latin *carrus, carri, carrifex, carrefex, carrefex, calefex, calefex*.

The *calash* is for the most part richly decorated, and open on all sides, for the convenience of the air, and prospects; or at most enclosed with light mantlets of waxed cloth, to be opened and shut at pleasure.

In the Philosophical Transactions, we have a description of a new sort of *calash*, going on two wheels, not hung on traces, yet safer than the common coaches; having this farther advantage, that whereas a common coach will overturn if one wheel goes on a furface a foot and a half higher than that of the other, this will admit of a difference of three feet and one third, without danger of overturning. Add, that it would turn over and over, that is, after being turned fo as that the fpokes are parallel to the horizon, and one wheel ftat over the head of him that rides in it, and the other ftat under him, it will turn once more, by which the wheels are placed in *ftatu quo*, without any diforder to the horfe, or rider. N° 172. p. 1028.

CALASIRIS, or CALASIS, in *Antiquity*, a linen tunic worn by the Phœnician, Ægyptian, Roman, and other priests. We alfo find mention of the *calafiris* as worn by the foldiers and by women. In which laft fenfe it is faid to have been a knot in the women's gown, whereby it was drawn about the neck.

CALATHIANA *gala*, in *Botany*, a name given by many writers to a fpecies of GENTIAN, called alfo by others *pneumonanthe*.

CALATHUS, in *Antiquity*, a kind of hand-basket made of light wood, or rushes; ufed by the women fometimes to gather flowers, but chiefly after the example of Minerva to put their work in.

The figure of the *calathus*, as repreſented on ancient monuments, is narrow at the bottom, and widening upwards like that of a top. Pliny compares it to that of a lily. Hift. Nat. lib. xxi. cap. 5.

The *calathus*, or work basket of Minerva, is fo lefs celebrated among the poets than her ægifas.

CALATHUS is alfo ufed to denote a drinking-cup. Pliny feems likewife to ufe it for the CALYX of a flower. Hift. Nat. lib. xxv. cap. 5.

CALATOR, in *Antiquity*, a crier, or officer appointed to publifh fomething aloud, or call the people together.

The word is formed from *calare*, or *calere*. Such miniſters the pontifices had, whom they ufed to fend before them when they went to ſacrifice on feaſts or holidays to advertiſe the people to leave off work.

The magiſtrates alſo uſed *calatores* to call the people to the COMITIA, both *curiata* and *centuriata*. The officers in the army alſo had *calatores*, as had likewiſe many private families, to invite their guefts to entertainments.

CALATRAVA, a military order, inſtituted in 1158, by Sancho III. king of Caſtile, on the following occaſion. The Moors going to attack the little city *Calatrava*, and the Templars, who held it, ſurrendering it up to the king, on a ſuſpicion of their inability to defend it; Diego Velaſquez, a Ciſtercian monk, but a man of quality, perſuaded Raimond, abbot of Fitero, a monaſtery of Ciſtercians, to beg *Calatrava* of the king. He obtained it; and Raimond and Diego put themſelves in it; being followed by a great number of people who joined them out of zeal for the defence of *Calatrava*. The Moors abandoning the enterprize, many of thoſe, who came to the defence of the city, entered the order of the Ciſtercians; and that under a habit more fit for military than monaſtic exerciſes. Accordingly, they began to make excurſions on the Moors, and this was the riſe of the order of *Calatrava*.

The firſt grand-maſter was Garcias; under whoſe government the order was approved by Alexander III. in 1164, and confirmed by Innocent III. in 1198. In 1483, Ferdinand and Iſabella, with the conſent of pope Innocent VIII. reunited the grand maſterſhip of *Calatrava* to the Spaniſh crown: ſo that the kings of Spain are now become perpetual adminiſtrators thereof.

The knights bear a croſs gules, fleury with green. See. Their rule and habit were originally that of the Ciſtercians, but their dreſs was a little ſhortened, on account of their exerciſes: and in proceſs of time they were permitted a ſecular habit.

Alphonſus IX. having recovered Alcantara from the Moors, in the year 1212, committed the cuſtody and defence thereof, firſt to the knights of *Calatrava*; and two years afterwards to the knights of the Pear-tree, another military order inſtituted in 1170, by Gomez Fernand, and approved by pope Alexander III. under the rule of St. Benedict: upon which they changed their name, and took the denomination of knights of Alcantara.

CALAUDRA, in *Ornithology*, the name of a bird of the lark-kind, and of the ſhape of the common lark, but conſiderably larger. This bird is either the ſame with the common Engliſh bunting, called by authors *emberiza alba*, or very like it.

CALAURITIS, in the *Materia Medica of the Ancients*, a name given to a ſort of litharge. We find the litharge made in the ſame operation will be of different colours, according to the degree of heat it receives; and we have accordingly diſtinguiſhed it with the ſounding names of litharge of gold, and litharge of ſilver: the Greeks went yet farther, and added to theſe a third kind, which they called a litharge of lead, or *molybditis*. All theſe ſorts of litharge were brought in great abundance from Calaurea, a ſmall iſland near Crete, to the Greeks, for their uſe in medicine.

CALCADIS, in the *Materia Medica*, a name given by the Arabians to white vitriol, or to ſome white vitriolic mineral.

CALCAGIUM, in *Middle Age Writers*, a tax or contribution paid by the neighbouring inhabitants towards the making or repairing of a common cauſeway.

CAL-

CALCANEUM, or CALCANEUS, in *Anatomy*, the same as calx, os calcis, calcar, or the heel-bone.

It lies under the *astragalus*, to which it is articulated by *ginglymus*; behind it is a large protuberance, which makes the heel, and into which the *tendo Achillis* is inserted.

CALCANTHUM, in *Mineralogy*. See VITRIOL.

CALCAR, in *Anatomy*, the same with CALCANEUM.

CALCAR, in *Glass-making*, is the name of a small oven, or reverberatory furnace, in which the first calcination of sand and salt of pot-ashes is made, for turning them into what they call FRIT.

CALCAREOUS, something that partakes of the nature and qualities of CALX, or lime.

We say, a *calcareous* earth, *calcareous* stone.

Lister speaks much of a *calcareous* nitre.

Several authors attribute the heat of *thermæ*, or hot springs, to the admixture of a *calcareous* earth or stone, with the water.

Calcareous earths and stones, properly so called, have been found by experiment to consist of the following component parts; viz. quick-lime, or pure *calcareous* earth; fixed air, which, when extricated from them, is permanently elastic; and water. But if the term is more generally applied according to common use, the earths and stones calcined for making quick-lime, are intermixed with various other substances, such as sand, or vitrifiable earth, clay, and metallic calces. These earths acquire causticity, and lose a great part of their weight by calcination, and by dissolution in acids, in consequence of the discharge of a considerable quantity of fixed air. See AIR *fixed*, PRIESTLEY, and *Quick*-LIME.

CALCAREUS *lapis*, the stone of which lime is made.

The *lapis calcareus* is found unfit for the making of glass, by reason of the acid salt it abounds with.

CALCEARIUM, or CALCIARIUM, in *Antiquity*, a donative, or largess, bestowed on the Roman soldiers for buying shoes.

In the monasteries, *calcearium* denoted the daily service of cleaning the shoes of the religious.

CALCEDONIANS, a denomination given by Copt writers to the MELCHITES, on account of their adherence to the council of Calcedon. See COPTI, MONOPHYSITES, &c.

CALCEDONY, *Lapis* CALCEDONIUS, one of the lowest-prized among precious stones; diversified with various colours, partly transparent, and partly opake.

Salmasius derives the word, by corruption, from *carbedonius*; taking the modern *calcedony* to be the same with the *lapis carbedonius* of the ancients.

The *calcedony*, or *calcedony*, nearly resembles the common agate, and is reputed a species thereof: its colour is a *milky grey*, clouded with *blue*, *yellow*, or purple. It is supposed to be the white agate of the ancients; though we sometimes find pieces of it blackish.

It is very fit for the graver; and much used, either to engrave arms, &c. upon, as being harder and preferable to crystal, if good; or to paint them on the backside. In some parts, vases, cups, religious beads, &c. are made thereof. The clearest and best is that with a pale cast of blue.

The Italians make it into beads, and both they and the Germans call these *enfumées*; but they are not determinate in the use of the word, but call beads of several of the agates by the same name.

Many chimerical virtues are attributed to this stone; but its true medicinal virtues seem to consist in its absorbent quality, when reduced to a fine powder, and exhibited like other earthy and absorbent powders. But because apothecaries have other substances of the same virtues, and, at the same time far more easily prepared, it is rarely prescribed by the moderns.

Neri shews how to make artificial *calcedonies* of the colour of agate, and oriental jaspers.

CALCEDONIUS is also a term used by the jewellers for a defect in some precious stones; when, in turning them, they find white spots, or stains, like those of the *calcedony*.

This defect is frequent in granates and rubies. The lapidaries usually remedy it by hollowing the bottom of the stone.

CALCENA, a term used by some medicinal writers to denote a morbid tartareous humour in the body.

CALCEOLUS, in *Botany*. See LADY'S *slipper*.

CALCHACCA, in *Botany*, a name by which some authors have called the tree whose bark is the *cassia lignea*, used in medicine.

CALCHOCRUM, in *Botany*, a name by which some authors call the *fumaria* or *fumitory*.

CALCHOPHONOS *lapis*, among the *Ancients*, a name given to a stone of a black colour, and considerable hardness, which, when cut into thin plates, and struck against by any other hard body, gave a sound like that of brass: it seems to have been one of the hard black marbles.

CALCIFRAGA, in *Botany*, a name given by some authors to samphire.

The ancients also gave the appellation *calcifraga* to the sea-fennel, though on a different account, because of its sprouting up in the middle of stones.

CALCIFRAGUS, *stone-breaking*, an appellation given by some to the *peripneumon*, by others to *pimpernel*, on account of their lithontriptic quality.

CALCINATION, the act of reducing any matter into a CALX, or very subtile white powder, by fire, whereby it is deprived of its volatile or inflammable principles; sometimes also called *thorough calcination*.

Calcining differs from mere burning, as the latter leaves the bodies of a black colour, the former of a white one. If white wine tartar, or the white crystals of such tartars are burnt without being truly *calcined*, the *ashes* remain will be black. But if the *calcination* be continued till the tartar is perfectly reduced to ashes, and kept long enough in a strong fire, the remaining calx will be white. And to we see, that not only other vegetable substances, but even white woods, as the hazel, will yield a black charcoal, and afterwards whitish ashes. Thus also animal substances, as bone, by burning, become white, and egg-shells, grow black upon being burnt, and white again, when perfectly *calcined*.

Hence the rule *adopt negra, purgat alba*; which yet does not hold so universally, but that Mr. Boyle finds several exceptions to it. Lead *calcined* by a strong fire turns to *massicot*; which is of a red colour.

Calcination also differs from mere combustion, or burning, in that the former requires the presence and assistance of the air, whereas the latter may be done without it. Thus a coal kept in a vessel exactly closed, will not be *calcined* though kept ever so long in a strong fire; but when taken out in the open air, readily falls to pure white ashes, without the help of any new *calcination*.

By *calcination*, the parts of bodies are not only much broken, but rarefied and rendered specifically lighter. Thus the gravity of crude lead compared to water, is above eleven to one; of *calcined* lead, only as nine to one. And the like holds of other metals: yet in some bodies *calcination* sometimes increases the absolute gravity, while it diminishes the specific: thus four ounces of regulus of antimony, by being kept in fusion an hour and a half will gain two drams and a half, notwithstanding all that it has lost by evaporation; the reason of which seems difficult to assign.

The increase of weight in minium, which is prepared from *calcined* lead, is said to amount to one fourth the weight of the lead; and the lead recovered from the minium, to be one twentieth less than the original weight of the metal: and the quantity of lead recoverable, is less in proportion to the vehemence and continuance of the *calcination*.

The increase of weight, which the imperfect or calcinable metals acquire by *calcination*, has been long known to the chemists, though, before the modern discoveries with respect to fixed air, they had not been able to assign any probable cause of it. Dr. Pemberton, in his Chemical Lectures, observed, that the air, by acting on the inflammable substance either in metals or other bodies, expels it from them, and unites itself (in part at least) to the remains of the body, and to this he ascribed the additional weight acquired by their calces; that portion of air which loses its elasticity, and seems to be consumed by burning bodies, being absorbed by them in the process of *calcination*. It had not escaped the notice of the ingenious Dr. Hales that the calces of metals contain air of some kind or other, and that this air contributes to their additional weight. Many facts have since been alledged in proof of this observation. Dr. Priestley found, that no weight is either gained or lost by the *calcination* of tin in a close glass vessel; and in an experiment for revivifying the calx of lead, he perceived a considerable generation of air: and he afterwards expelled a quantity of air, by heating a small phial filled with red lead, about four or five times the bulk of the lead, together with a small quantity of water; whence he concluded, that the water and air together must be the cause of the addition of weight in the calx; and this, he apprehends, is, in some instances, owing to a nitrous acid attracted from the common air in which metallic substances are calcined. M. Lavoisier had about the same time made a similar discovery, and he explains the whole process of *calcination* by means of the combination of fixed air with metals converted into calces. He observed, that metals cannot be calcined in vessels that are either closely stopped or exhausted of air; that the facility of *calcination* depends on the extent of surface in the

metal, that is exposed to the air; that the effervescence which takes place, when the metallic substance passes from the state of a calx to that of a metal, is no more than the separation of an elastic fluid which before existed under a fixed form, and at this instant recovers its elasticity; and that whenever a metal passes from its metallic state to that of a calx, there is an absorption of the same fluid, and that the *calcination* is nearly proportionable to this absorption. Dr. Priestley had observed, that a diminution in the volume of air was produced by the *calcination* of metals; and M. Lavoisier adds, that this diminution is nearly answerable to the augmentation of weight in the metal. He concludes, however, from some subsequent experiments, that the air which may be obtained from all metallic calces, is not fixed, but common air, in a state rather more pure than that which we usually breathe; and that the fixed air, which is produced from reductions in the common method, does not proceed from the calx, but from the charcoal employed in the process: whereas Dr. Priestley found, that several of the metallic calces yielded fixed air by heat only, as we have already observed, without any addition of charcoal. See Pemberton's Course of Chemistry, p. 243. Priestley's Exp. and Obf. on Air, vol. ii. p. 194, &c. Lavoisier's Essays Physical and Chemical, vol. i. pt. ii. chap. 5, 6, 7, and Appendix.

CALCINATION, in a more extensive sense, includes also the solution of metalline bodies by corrosive matters.

In this sense, *calcination* is divided into *actual*, and *potential*.

CALCINATION, *actual*, is that effected by actual fire, of wood, coals, or other fewel, raised to a certain heat, according to the nature of the substance to be calcined.

Actual *calcination* is subdivided into *incineration*, and *reverberation*. To this head also belongs the *extinction* of things ignited.

CALCINATION, *potential*, is that procured by potential fire; viz. by salts, sulphurs, and other drugs, which have, as it were, the force of fire; as strong waters, corrosive spirits, &c.

Gold is calcined by a reverberatory fire, with mercury, and *sal ammoniac*; silver with common salt, and alkali salt; copper with salt, and sulphur; iron with *sal ammoniac*, and vinegar; tin, with antimony, lead, and sulphur; mercury, with *aqua fortis*: this salt, also, as well as most other minerals, calcines with fire alone, without any other ingredient.

CALCINATION, *potential, philosophical*, or *chemical*, comprehends AMALGAMATION, PRECIPITATION, EVAPORATION, FUMIGATION, and CEMENTATION; and DETONATION by nitre is also reduced by Libavius to this species of *calcination*.

CALCINATION *by dry corrosion*, is that effected without moisture, by the application of dry corrosive salts; to which head belongs CEMENTATION.

CALCINATION *by vaporous corrosion*, is when metalline bodies, being reduced to thin plates, are exposed to the action of an acrimonious fume or vapour.

There are divers ways of performing this; sometimes the plates are suspended over *aqua fortis*; sometimes over vinegar, or the recruments of pressed grapes; sometimes, especially the nobler metals, over melted lead or quicksilver, &c.

CALCINATION, *humid*, is either by vapour, or immersion. Iron is calcined to a subtile crocus, by a vaporous corrosion over strong *aqua fortis*. Lead is calcined to cerusse over vinegar, copper over the recruments of grapes.

CALCINATION, *humid, by immersion*, is when the body is dipt into the corrosive fluid, and is either performed by amalgamation or precipitation.

CALCINATION, *reverberatory*, properly denotes the solution or reduction of a body into a CALX or impalpable powder; sometimes also denominated ALCOHOL.

CALCINATION *of gold and silver by electricity*, was effected by Mr. Canton, who, by the heat of electrical explosions, produced numberless beautiful globules of transparent gold, and also others tinged with all the varieties of colour from those metals. He made it also probable that the *black soot* discharged from the brass chain, and other pieces of metal in such experiments, is the calx or glass of the metal reduced to smaller particles than the laws of optics require to produce colour. Phil. of Electricity, 1752, vol. ii. p. 290. See ELECTRICAL *Battery*.

CALCINATUM, a CALX or body which has undergone CALCINATION.

CALCINATUM *in ipso*, is used by alchemists for any thing rendered sweet by chemical art, which of its own nature was not so; as *mercurius dulcis*, or *saccharum saturni*.

CALCINATUM *mundi*, denotes a thing which is naturally sweet, as sugar, manna, &c.

CALCIS *Os*. See *Os Calcis*.

CALCITRAPA, in *Botany*. See CENTAURY.

CALCITRAPOIDES, thorny knap-weed, in *Botany*. See CENTAURY.

CALCULARII, in *Antiquity*, a sort of jugglers who practised sleight of hand. Their art consisted in laying several calculi, or counters on the table, then covering them with cups, and shifting and changing them with dexterity, like what is practised by our jugglers.

CALCULARY *of a pear*, a congeries of little stony knots dispersed through the whole parenchyma of the fruit.

The *calculary* is no vital, or essential part of the fruit; the several knots whereof it consists being only so many concretions of precipitations out of the sap, as we see in urines, wines, and other liquors.

CALCULATION, the art of computing several sums, by adding, subtracting, multiplying, or dividing. See ARITHMETIC.

An error in *calculation* is never protected, or secured, by any sentence, decree, &c. In stating a counts, there is always understood, *salvo errore calculi*.

The word *calculus* is used in this sense, in allusion to the practice of the ancients, who used *calculi*, or little stones, in making computations, in taking suffrages, and in keeping accounts, &c. as we now use counters, figures, &c.

A merchant or trader is said to have been mistaken in his *calculation* or accounts, when he has happened to take false measures, and has not succeeded in his undertakings so well as he expected.

CALCULATION is more particularly used to signify the computations in astronomy and geometry, for making tables of logarithms, ephemerides, finding the times of eclipses, &c.

CALCULATION *of clock and watch-work*. See CLOCK and WATCH-WORK.

CALCULATOR, a machine contrived and constructed by Mr. Ferguson, in the shape of an orrery, for exhibiting the motions of the earth and moon, and resolving a variety of astronomical problems. See the construction, figure, and use of this machine, in Ferguson's Astronomy, 4to. p. 265, &c.

CALCULATORES, in *Antiquity*, accomptants who reckoned their sums by *calculi*. There were several servants under this denomination in great families. Children also at school were taught to practise the same.

In the ancient canons we find a sort of diviners, or enchanters, censured under the denomination of *calculatores*.

CALCULUS primarily denotes a little stone, pebble, or counter, anciently used in making computations, taking of suffrages, playing at tables, and the like.

Hence the phrase *ponere calculos*, to denote a series of reasons, and a multitude of others alluding to the use of these *calculi* in accounts. Computists were by the lawyers called *calculones*, when they were either slaves, or newly freed men; those of a better condition were denominated *calculatores*, or *numerarii*: ordinarily there was one of these masters in each family of distinction, the title of whose office was a *calculus*, or a *rationibus*.

The Roman judges anciently gave their opinions by *calculi*, which were white for absolution, and black for condemnation.

Hence *calculus albus*, in ancient writers, denotes a favourable vote, either in behalf of a person to be absolved and acquitted of a charge, or elected to some dignity or post: as *calculus niger* did the contrary.

This usage is said to have been borrowed from the Thracians, who marked their happy or prosperous days by white, and their unhappy, by black pebbles put each night into an urn. Hence also the phrase, *figere, notare albicante calce, nigerrimo lapillo seu calculo*.

Besides the diversity of colour, there were some also which had figures or characters painted or engraven on them; as those which were in use in taking the suffrages both in the senate and at assemblies of the people.

The letters marked upon these *calculi* were U. R. for *uti rogas*, and A. for *antiquo*; the first of which expressed an approbation of the law, the latter a rejection of it.

Afterwards the judges, who sat in capital causes used *calculi* marked with the letter A. for *absolvo*, C. for *condemno*, and N. L. for *non liquet*; signifying a more full information was required.

We may also mention another species of *calculi* used at the public games, whereby the rank and order in which the athletæ were to fight was determined. If for instance they were twenty, then twenty of these pieces were cast into an urn; each ten were marked with numbers from one to ten, and the law was, that each of

those who drew, should fight him who had drawn the same number.

These were called *calculi athletici*.

CALCULUS is also used in *Ancient Grammatic Writers* for a kind of weight equal to two grains of *wheat*. Some make it equivalent to the *scripus*, which is equal to three grains of barley. Two *calculi* make the *ceratium*.

CALCULUS *differentialis* is a method of differencing quantities, or of finding an infinitely small quantity, which, being taken infinite times, shall be equal to a given quantity: or, it is the arithmetic of the infinitely small differences of variable quantities.

The foundation of this *calculus* is an infinitely small quantity, or an infinitesimal, which is a portion of a quantity incomparable to that quantity, or that is less than any assignable one, and therefore accounted as nothing; the error accruing by omitting it being less than any assignable one. Hence two quantities, only differing by an infinitesimal, are reputed equal.

Thus, in *Astronomy*, the diameter of the earth is an infinitesimal, in respect of the distance of the fixed stars; and the same holds in abstract quantities. The term infinitesimal, therefore, is merely respective, and involves a relation to another quantity; and does not denote any real ens, or being.

Now infinitesimals are called *differentials*, or differential quantities, when they are considered as the differences of two quantities. Sir Isaac Newton calls them *moments*; considering them as the momentary increments of quantities; v. g. of a line generated by the flux of a point; or of a surface by the flux of a line. The *differential calculus*, therefore, and the doctrine of FLUXIONS, are the same thing, under different names; the former given by M. Leibnitz, and the latter by Sir Isaac Newton: each of them lay claim to the discovery.

There is, indeed, a difference in the manner of expressing the quantities resulting from the different views wherein the two authors consider the infinitesimals; the one as moments, the other as differences: Leibnitz, and most foreigners, express the differentials of quantities by the same letters as variable ones, only prefixing the letter *d*: thus the differential of *x* is called dx, and that of y, dy: now dx is a positive quantity, if *x* continually increase; negative, if it decrease.

The English, with Sir Isaac Newton, instead of dx, write $\dot{x}$ (with a dot over it); for dy, $\dot{y}$, &c. which foreigners object against, on account of that confusion of points, which they imagine arises, when differentials are again differenced; besides, that the printers are more apt to overlook a point than a letter. Stable quantities being always expressed by the first letters of the alphabet a, b, c, &c. wherefore $d.(a+y-v) = dx+dy$, and $d.(x-y+v) = dx-dy$. So that the differencing of quantities is easily performed, by the addition or subtraction of their compounds.

To difference quantities that multiply each other; the rule is, first, multiply the differential of one factor into the other factor, the sum of the two factors is the differential sought: thus, the quantities being xy, the differential will be $x\dot{y}+\dot{x}y$, *i. e.* $d.(xy) = dy+ydx$. Secondly, if there be three quantities mutually multiplying each other, the factum of the two must then be multiplied into the differential of the third: thus, suppose $v = xy$, let $v = z$, then $vy = zy$; consequently $d.(vy) = d.(zy) = ydz+zdy$; but $dz = vdx+xdv$. These values, therefore, being substituted in the antecedent differential, $ydz+zdy$, the result is, $d.(xyz) = vxdy+vydx+xydv$. Hence it is easy to apprehend how to proceed, where the quantities are more than three.

If one variable quantity increase, while the other y decreases, it is evident $ydx-xdy$ will be the differential of xy.

To difference quantities that mutually divide each other; the rule is, first, multiply the differential of the divisor into the dividend; and, on the contrary, the differential of the dividend into the divisor: subtract the last product from the first and divide the remainder by the square of the divisor: the quotient is the differential of the quantities mutually dividing each other. See FLUXIONS.

CALCULUS *exponentialis*, is a method of differencing exponential quantities, or of finding and summing up the differentials or moments of exponential quantities; or at least bringing them to geometrical constructions.

By exponential quantity, as here understood a power, whose exponent is variable; v. g. x^x, a^x, x^y, where the exponent *x* does not denote the same in all the points of a curve, but in some stands for 2, in others for 3, in others for 5, &c.

To difference an exponential quantity: there is nothing required but to reduce the exponential qualities to logarithmic ones; which done, the differencing is managed as to logarithmic quantities. Thus, suppose the differential of the exponential quality x^x required, let

$$x^x = z$$

Then will $y\,lx = lz$

$$\frac{l\,x\,dy + \frac{y\,dx}{x} = \frac{dz}{z}}{}$$

$$z\,l\,x\,dy + \frac{zy\,dx}{x} = dz$$

That is, $x^x\,l\,x\,dy + yx^{x-1}\,dx = dz$. Bernouilli Opera, tom. i. p. 183. See EXPONENTIAL.

CALCULUS *integralis*, or *summatorius*, is a method of integrating, or summing up moments, or differential quantities; *i. e.* from a differential quantity given, to find the quantity from whose differencing the given differential results.

The *integral calculus*, therefore, is the inverse of the differential one: whence the English, who usually call the differential method, *fluxions*, give this *calculus*, which ascends from the fluxion, to the flowing or variable quantities, or, as foreigners express it, from the differences to the sums, by the name of the *inverse method of* FLUXIONS.

Hence, the integration is known to be justly performed, if the quantity found, according to the rules of the *differential calculus*, being differenced, produce that proposed to be summed.

Suppose f the sign of the sum, or integral quantity; then $\int y\,dx$ will denote the sum, or integral of the differential $y\,dx$.

To integrate, or sum up a differential quantity. It is demonstrated, first, that $\int a\,dx = x$: secondly, $\int (dx+dy) = x+y$: thirdly, $\int (a\,dy+y\,dx) = a\,y$: fourthly, $\int (m\,x^{m-1}\,dx) = x^m$: fifthly, $\int (m:n)\,x^{\frac{m-n}{n}}\,dx = x^{\frac{m}{n}}$: sixthly, $\int (y\,dx - x\,dy) : y^2 = x : y$. Of these, the fourth and fifth cases are the most frequent; wherein the differential quantity is integrated, by adding a variable unity to the exponent, and dividing the sum by the new exponent multiplied into the differential of the root; v. g. the fourth case, by $m-(+1)\,dx$, i. e. by $m\,dx$.

If the differential quantity to be integrated, doth not come under any of these formulas, it must either be reduced to an integral finite, or an infinite series, each of whose terms may be summed.

It may be here observed, that, as in the analysis of finites, any quantity may be raised to any degree of power; but not *vice versa*, the root cannot be extracted out of any number required: so in the analysis of infinites, any variable or flowing quantity may be differenced; but, *vice versa*, any differential cannot be integrated. And as, in the analysis of finites, we are not yet arrived at a method of extracting the roots of all equations; so neither has the *integral calculus* arrived at its perfection: and as, in the former we are obliged to have recourse to approximation; so in the latter we have recourse to infinite series, where we cannot attain to a perfect integration.

CALCULUS *literalis*, or *Literal* CALCULUS, is the same with specious arithmetic, or algebra, so called from its using the letters of the alphabet: in contradistinction to numeral arithmetic, which uses figures.

In the literal *calculus*, given quantities are expressed by the first letters, *a*, *b*, *c*, &c. and quantities sought by the last *x*, *y*, *z*, &c. Equal quantities are denoted by the same letters.

CALCULUS, in *Medicine*, the disease of the stone in the bladder, or kidneys.

The term is Latin, and signifies a *little pebble*.

The *calculus* in the bladder is called *lithontis*; and in the kidneys, *nephritis*. See STONE.

CALCULUS *Minervæ*, among the *Ancient Lawyers*, denoted the decision of a cause, wherein the judges were equally divided. The expression is taken from the history of Orestes, represented by Æschylus and Euripides; at whose trial, before the Areopagites for the murder of his mother, the votes being equally divided for and against him, Minerva interposed, and gave the casting vote, or *calculus*, in his behalf.

M. Cramer, professor at Marpurg, has a dissource expres, De Calculo Minervæ; wherein he maintains, that all the effect an entire equality of voices can have, is to leave the cause *in statu quo*.

CALCULUS *tiburtinus*, a sort of figured stone, formed in great plenty about the cataracts of the Anio, and other rivers in Italy; of a white colour, and in shape oblong, round, or echinated. They are a species of the *silicia lapidea*, and generated like them; and so like sugar-plums in the whole, that it is a common jest at Rome to deceive the unexperienced by serving them up at deserts.

CALDA, or CALDUM, in the *Ancient Diet*, denotes hot water,

water, uſed much among the Romans, anciently, as a drink partly for pleaſure, and partly for health.

The word is formed from *calidus*, *hot*; *aqua* being underſtood; *calda*, q. d. *calida aqua*.

Lipſius, Caſtalio, Mercurialis, Baccius, and Freinſhemius, have treated largely *de potu calda*, or *calde*. Act. Erud. Lipſ. 1721.

CALDARIA *Judiciaria*, the method of trial, or PURGATION by boiling water. See ORDEAL.

CALDARIUM, in the *Ancient Baths*, denoted a brazen veſſel or ciſtern, placed in the hypocauſtum, full of hot water, to be drawn thence into the *piſcina* or BATH, to give it the neceſſary degree of heat.

In this ſenſe, the *caldarium* ſtood contradiſtinguiſhed from the *tepidarium* and *frigidarium*.

CALDARIUM alſo denoted the ſtove, or ſudatory, being a cloſe vaulted room, wherein by hot dry fumes, without water, people were brought to a profuſe ſweat.

In which ſenſe, *caldarium* was the ſame with what was otherwiſe denominated *capnobarium ſudatorium*, and *laconicum*; in the Greek baths, *hypocauſtum*, ὑποκαυστον.

CALDARIUM *æs*, denotes POT-*Metal*.

CALDRON, a large kitchen utenſil, commonly made of copper; having a moveable iron handle, whereby to hang it on the chimney hook.

The word is formed from the French *chaudron*, or rather the Latin *caldarium*.

CALDRON, *boiling in*, *caldarii decoquere*, is a capital puniſhment ſpoken of in the middle age writers, decreed to divers ſorts of criminals, but chiefly to debaſers of the coin.

One of the torments inflicted on the ancient Chriſtian martyrs, was boiling in caldrons of water, oil, &c.

CALE, or KALE, in *Botany*, a ſpecies of the BRASSICA, or *cabbage*. See BORECOLE and COLEWORT.

CALE, *ſea*. See CRAMBE.

CALEA, in *Botany*, a genus of the *ſyngeneſia polygamia æqualis* claſs of plants; the receptacle of which is covered with a hairy down, and the calyx imbricated. There are three ſpecies.

CALEDONIANS, in *Antiquity*, the ancient inhabitants of that part of Britain which lies northward beyond Graham's Dyke, or the wall of Antoninus Pius, afterwards called Picts by the Romans and Provincials. The term *Caledonii* became, in proceſs of time, ſo common among the Roman writers, that they applied it generally to all Britain, and all the foreſts of Britain.

Camden derives the name from the plural *kaledlion*, of the Britiſh word *kaled*, *hard*; whence *Caledonii*, denoting a people *hardy*, *uninvited*, and *ruſtic*. Buchanan derives it from the old Scottiſh word *colden*, *hazle-tree*.

CALEFACIENTIA, in *Medicine*. The *calefacientia* of the Latins are the ſame with the θερμαντικα of the Greeks; and denote no more than what we commonly call warming medicines. That the natures and qualities of the ſeveral medicines coming under this denomination may be the more thoroughly underſtood, it is neceſſary to obſerve, that there may be heat without any external appearance of fire, and that it diſcovers itſelf by numberleſs effects; but in no inſtance more conſpicuouſly than by the diſtation of the air in the thermometer. Boerhaave's Chemiſtry, vol. i.

The means then by which warmth is generated in bodies, are the very ſame with thoſe by which apparent fire is produced. Where there is a heat, there is alſo a proportionable and correſpondent motion and agitation of the parts of the body ſaid to be hot; and, *vice verſa*, where there is an agitation of the parts of a body there is a proportionable heat and warmth.

CALEFACTION, a ſchool term for the action of fire in heating a body; or the impulſe which the particles of a hot body impreſs on other bodies around.

The word is particularly uſed in pharmacy; where *calefaction* is diſtinguiſhed from coction: the firſt being applied, where the thing is only heated, without boiling.

CALENDAR, KALENDARIUM, CALENDARIUM, or KALENDAR, a diſtribution of time, accommodated to the uſes of life; or a table, or ALMANAC, containing the order of days, weeks, months, FEASTS, &c. happening throughout the YEAR. See TIME, MONTH, YEAR, &c.

It is called *calendar* from the word *kalendæ*, anciently wrote in large characters at the head of each month. See CALENDS.

The days in *calendars* were originally divided into octoades, or eighths, but afterwards, in imitation of the Jews into hebdomades, or ſevens; which cuſtom, Scaliger obſerves, was not introduced among the Romans till after the time of Theodoſius.

There are divers *calendars*, according to the different forms of the year, and diſtributions of time, eſtabliſhed in different countries. Hence the Roman, the Jewiſh, the Perſian, the Julian, the Gregorian, &c. *calendars*.

The ancient Roman *calendar* is given by Ricciolus, Stevinus, Danet, and others; by which we ſee the order and number of the Roman holy-days, and work-days.

The three Chriſtian *calendars* are given by Wolfius in his Elements of Chronology.

The Jewiſh *calendar* was fixed by rabbi Hillel, about the year 360, from which time the days of their year may be reduced to thoſe of the Julian *calendar*.

CALENDAR, *the Roman*, owed its origin to Romulus; but it has undergone various reformations ſince his time. That legiſlator diſtributed time in ſeveral periods, for the uſe of the people under his command: but as he was much better verſed in matters of war than of aſtronomy, he only divided the year into ten months, making it begin in the ſpring, on the firſt of March: imagining the ſun made his courſe through all the ſeaſons in three hundred and four days.

Romulus's *calendar* was reformed by Numa, who added two months more, January and February; placing them before March: ſo that his year conſiſted of three hundred fifty-five days, and began on the firſt of January. He diſſe, however, in imitation of the Greeks, to make an intercalation of forty-five days, which he diviſed into two parts, intercalating a month of twenty-two days at the end of each two years; and at the end of each two years more, another month of twenty-three days; which month, thus interpoſed, he called *Mercedonius*, or the intercalary February.

But theſe intercalations being ill obſerved by the pontiffs, to whom Numa committed the care of them, occaſioned great diſorders in the conſtitution of the year; which Cæſar, as ſovereign pontiff, endeavoured to remedy: to this end, he made choice of Soſigenes, a celebrated aſtronomer of thoſe times: who found, that the diſpoſition of time in the *calendar* could never be ſettled on any ſure footing, without having regard to the annual courſe of the ſun. Accordingly, as the ſun's yearly courſe is performed in three hundred ſixty-five days ſix hours, he reduced the year to the ſame number of days: the years of this correction of the *calendar* was a year of confuſion; they being obliged, in order to ſwallow up the ſixty-ſeven days that had been imprudently added, and which occaſioned the confuſion, to add two months beſides the *Mercedonius*, which chanced to fall out that year; ſo that this year conſiſted of fifteen months, or four hundred forty-ſeven days. This reformation was made in the year of Rome 708, forty-two or forty-three years before Chriſt. See YEAR.

The Roman called alſo *Julian calendar*, from its reformer Julius, is diſpoſed into quadriennial periods; whereof the three firſt years, which he called *communes*, conſiſt of three hundred ſixty-five days; and the fourth *biſſextile*, of three hundred ſixty-ſix; by reaſon of the ſix hours, which in four years make a day, or ſomewhat leſs; for in one hundred thirty-four years an intercalary day is to be retrenched. On this account it was, that pope Gregory XIII. with the advice of Clavius and Ciaconius, appointed, that the hundredth year of each century ſhould have no biſſextile, excepting in each fourth century: that is, a ſubſtraction is made of three biſſextile days in the ſpace of four centuries; by reaſon of the eleven minutes wanting in the ſix hours whereof the biſſextile conſiſts. See BISSEXTILE.

This reformation of the *calendar*, or the new ſtyle, as we call it, commenced on the fourth of October 1582, when ten days were thrown out at once; ſo many having been introduced into the computation ſince the time of the council of Nice, in 325, by the defect of eleven minutes.

CALENDAR, *Julian Chriſtian*, is that wherein the days of the week are determined by the letters A, B, C, D, E, F, G, by means of the ſolar cycle; and the new and full moons, eſpecially the paſchal full moon, with the feaſt of Eaſter, and the other moveable feaſts depending thereon, by means of golden numbers, rightly diſpoſed through the Julian year. See CYCLE, and *Golden* NUMBER.

In this *calendar*, the vernal equinox is ſuppoſed to be fixed to the twenty-firſt day of March, and the cycle of nineteen years, or the golden numbers, conſtantly to indicate the places of the new and full moons; yet both are erroneous. And hence ariſe a very great irregularity in the time of Eaſter. To ſhew this error the more apparently, let us apply it to the year 1715. In this year, then, the vernal equinox falls on the tenth of March; and therefore comes too early by eleven days. The paſchal full moon falls on the ſeventh of April; and therefore too late, with regard to the cycle, by three days. Eaſter, therefore, which ſhould have been on the tenth of April, was that year on the ſeventeenth. The error, here, lies only in the metemptoſis, or poſt-poſition of the moon, through the defect of the lunar cycle. If the full moon had fell on the eleventh of March, Eaſter

would have fallen on the thirteenth of March; and therefore the error, arising from the anticipation of the equinox, would have exceedingly augmented that arising from the post-position. These errors, in course of time, were to multiplied, that the *calendar* no longer exhibited any regular Easter. Pope Gregory XIII. therefore, by the advice of Aloysius Lilius, in 1582, threw ten days out of the month of October, to reduce the equinox to its place, viz. the twenty-first of March; and thus introduced the form of the Gregorian year, with such a provision, as that the equinox should be constantly kept to the twenty-first of March. The new moons and full moons, by advice of the same Lilius, were not to be indicated by golden numbers, but by epacts. The *calendar*, however, was still retained in England, without this correction: whence there was a difference of eleven days between our time and that of our neighbours. But by 24 Geo. II. cap. 23. the Gregorian computation is established here, and accordingly took place in 1752. See STYLE.

CALENDAR, *Gregorian*, is that which, by means of epacts, rightly disposed through the several months, determines the new and full moons, and the time of Easter, with the moveable feasts depending thereon, in the Gregorian year. The Gregorian *calendar*, therefore, differs from the Julian, both in the form of the year, and in that epacts are substituted in lieu of golden numbers; for the use and disposition whereof, see EPACT.

Though the Gregorian *calendar* be preferable to the Julian, yet it is not without its defects (perhaps, as Tycho Brahe and Calliui imagine, it is impossible ever to bring the thing to a perfect juliiefs.) For, first, the Gregorian intercalation does not hinder but that the equinox sometimes exceeds the twenty-first of March, as far as the twenty-third; and sometimes anticipates it, falling on the nineteenth; and the full moon, which falls on the twentieth of March, is sometimes the paschal, yet not so accounted by the Gregorians. On the other hand, the Gregorians account the full moon of the twenty-second of March, the paschal; which yet, falling before the equinox, is not paschal. In the first case, therefore, Easter is celebrated in an irregular month; in the latter, there are two Easters in the same ecclesiastical year. In like manner, the cyclical computation being founded on mean full moons, which yet may precede or follow the true ones by some hours, the paschal full moon may fall on Saturday, which is yet referred by the cycle to Sunday; whence, in the first case, Easter is celebrated eight days later than it should be; in the other it is celebrated on the very day of the full moon, with the Jews and Quartodecimian heretics; contrary to the decree of the council of Nice. Scaliger and Calvisius shew other faults in the Gregorian *calendar*, arising from the negligence and inadvertency of the authors: yet is this *calendar* adhered to by the Romanists throughout Europe, &c. and used wherever the Roman lavisury is used.

CALENDAR, *reformed*, or *corrected*, is that which, setting aside all apparatus of golden numbers, epacts, and dominical letters, determines the equinox, with the paschal full moon, and the moveable feasts depending thereon, by arithmetical computation, according to the Rudolphine tables.

This *calendar* was introduced among the protestant states of Germany, in the year 1700, when eleven days were at once thrown out of the month of February; so that in 1700, February had but eighteen days; by this means the corrected style agrees with the Gregorian. This alteration in the form of the year, they admitted for a time; in expectation that, the real quantity of the tropical year being at length more accurately determined by observation, the Romanists would agree with them, on some more convenient intercalation.

CALENDAR, *construction of the almanac*. 1. Compute the sun's and moon's place for each day of the year, or take them from ephemerides. 2. Find the dominical letter, and, by means thereof, distribute the *calendar* into weeks. 3. Compute the time of Easter, and thence fix the other moveable feasts. 4. Add the immoveable feasts, with the names of the martyrs. 5. To every day add the sun's and moon's place, with the rising and setting of each luminary; the length of day and night; the crepuscula, and the aspects of the planets. 6. Add, in the proper places, the chief places of the moon, and the sun's entrance into the cardinal points; i. e. the solstices and equinoxes; together with the rising and the setting, especially heliacal, of the planets, and chief fixed stars: means for each of which will be found under the proper heads.

The duration of the crepuscula, or the end of the evening and beginning of the morning twilight; together with the sun's rising and setting, and the length of days, may be transferred from the *calendars* of one year into those of another; the differences in the several years being too small to be of any consideration in civil life. Hence it appears, that the construction of a *calendar* has nothing in it of mystery, or difficulty; if tables of the heavenly motions be at hand. See ALMANAC.

Some divide *calendars* or *almanacs* into public and private, perfect and imperfect; others into heathen and Christian.

Public *almanacs* are those of a larger size, usually hung up for common or family use; private are those of the smaller kind, to be carried about either in the hand inscribed on a staff, or in the pocket; perfect, those which have the dominical letters as well as primes, and feasts inscribed on them; imperfect, those which have only the primes and immoveable feasts. Till about the fourth century, they all carry the marks of heathenism; from that age to the seventh, they are generally divided between heathenism and Christianity.

Almanacs are of somewhat different composition, some containing more points, others fewer. The essential part is the *calendar* of months and days, with the rising and settings of the sun, age of the moon, &c. To these are added various *paterga*, alluronomical, astrological, meteorological, chronological, and even political, rural, medical, &c. as calculations, and accounts of eclipses, solar ingresses, aspects, and configurations of the heavenly bodies, lunations, heliocentrical and geocentrical motions of the planets, prognostics of the weather, and predictions of other events, tables of the planetary motions, the tides, terms, interest, twilight, equation, kings, &c.

CALENDAR, *Genalean*, or *Jellalean*, is a correction of the Persian *calendar*, made by order of sultan Gelaleddin, in the 479th year of the Hegira; of Christ 1089. See EPOCHA and YEAR.

CALENDAR is also applied to divers other compositions respecting the twelve months of the year.

In this sense, Spencer has given the shepherd's *Calendar*; Evelyn, and Miller, the gardener's *Calendar*, &c.

CALENDAR is used for the catalogue, or table, anciently kept in each church, of the saints, both universal, and those particularly honoured in each church; with their bishops, martyrs, &c. *Calendars* are not to be confounded with martyrologies, for each church had its peculiar *calendar*; whereas the martyrologies regarded the whole church in general; containing the martyrs and confessors of all the churches. From all the several *calendars* were formed one martyrology; so that martyrologies are posterior to *calendars*. See MARTYROLOGY.

CALENDAR is also extended to an orderly table, or enumeration of persons or things.

Lord Bacon wishes for a *calendar* of doubts. A late writer has given a *calendar* of the persons who may inherit estates in fee-simple.

CALENDAR, *Kalendarium*, originally denoted among the Romans a book containing an account of monies at interest, which became due on the calends of January; the usual time when the Roman usurers let out their money. Senec. de Benef. lib. vii. c. 10. Idem. lib. i. c. 2. Ejusd. Epist. 14. Idem, Ep. 87. Fab. Thes. p. 417.

CALENDAR *months*, the solar months as they stand in the calendar, viz. January 31 days, &c.

CALENDAR, *ephemeridis*, an instrument engraved upon copper-plates printed upon paper, and pasted on board, with a brass filder which carries a hair, and the use by inspection, the sun's meridian altitude, right ascension, declination, rising, setting, amplitude, &c. to a greater exactness than our common globes will shew.

CALENDAR *of prisoners*, is a list of all their names, with their separate judgments in the margin, which the judge signs, and the execution of which is committed to the respective sheriff. In the case of a capital felony, the words "hanged by the neck" are annexed to the prisoner's names, instead of "*fac. per collum*," for *pessonabitur per collum*, which was the ancient form. Judge Blackstone well observes, that the execution of a man seems to be too important and terrible a task to depend on a marginal note. Blackst. Com. vol. iv. p. 396.

CALENDAR-*lights*, *virtuous calendars*, a name formerly given by some writers to a thermometer, or graduated tube, whereby to measure the degrees of heat.

CALENDAR-*brothers*, *fraternæ calendarii*, a sort of devout fraternities, composed of ecclesiastics as well as laymen; whose chief business was to procure masses to be said, and alms distributed, for the souls of such members as were deceased. They were also denominated *calends-brothers*, because they usually met on the *calends* of each month, though in some places only once a quarter.

CALENDARIUM *festum*. The Christians retained much of the ceremony and wantonness of the calends of January, which for many ages was held a feast, and celebrated

brated by the clergy with great indecencies, under the names *festum fatuorum*, or *stultorum*, or *hypodiaconorum*, or *fatuorum*, that is, the feaſt of fools; ſometimes alſo *libertas decembria*. The people met maſked in the church, and in a ludicrous way proceeded to the election of a mock pope, or biſhop, who exerciſed a juriſdiction over them ſuitable to the feſtivity of the occaſion: fathers, councils, and popes long laboured to reſtrain this licence, to little purpoſe. We find the feaſt of the calends in uſe as low as the cloſe of the fifteenth century. Du-Cange.

CALENDER, a machine uſed in the manufactories, for preſſing certain ſtuffs, ſilks, and even linens; to make them ſmooth, even and gloſſy. It is alſo uſed for watering, or giving the waves to tabbies and mohairs.

The word is formed from the *French calandre*, of Spaniſh *cazandra*, which ſignify the ſame; and which ſome derive further from the Latin *calendæ*: becauſe the whole effect of the machine depends upon a cylinder. Borel derives the name from that of a little bird, of the ſwallow kind, on account of the agreement between the feathers of the bird, and the impreſſion of the machine.

The *calender* conſiſts of two large wooden rollers, round which the pieces of ſtuff are wound: theſe are put between two large, cloſe, poliſhed planks of wood, or plates of iron, the lower reſting as a fixed baſe, and the upper moveable, by means of a wheel like that of a crane; with a rope, faſtened to a ſpindle which makes its axis: this upper part is of a prodigious weight, ſometimes twenty or thirty thouſand pounds. It is the weight of this part, together with its alternate motion, that gives the poliſh, and makes the waves on the ſtuffs, by cauſing the cylinders on which they are put to roll with great force over the loweſt board. The rollers are taken off and put on again, by inclining the machine.

At Paris they have an extraordinary machine of this kind, called the *royal calender*, made by order of M. Colbert; the lower table or plank of which is made of a block of ſmooth marble, and the upper lined at bottom with a plate of poliſhed copper.

This is called the *great calender*; they have alſo a ſmall one with two tables of poliſhed iron or ſteel.

There are alſo *calenders* without wheels, which are wrought by a horſe harneſſed to a wooden bar, which turns a large arbour placed upright; at the top of which, on a kind of drum, is wound a rope, the two ends of which being faſtened to the two extremities of the upper plank of the engine, give it motion. But the horſe *calender* is no leſs chearful than the wheel kind, as the motion of this latter is more equable and certain.

We read of *calenderers* worſted. To improve linen farther, the drapers get ſeveral ſorts of their cloths *calendered*; whereby their threads are made to lie flatter and ſmoother.

CALENDER alſo denotes the workman who manages the machine above deſcribed; applying the cloth or ſtuff underneath, after having firſt wound it on the rollers.

CALENDERS is alſo the name of a ſect of Derviſes ſpread through Turky and Perſia, whoſe order is not in general eſteem among the Mahometans, as being reputed leſs auſtere and ſtrict in morals than ſome other orders. They derive their name from Calenderi, their founder. See DERVIS.

CALENDS, CALENDÆ, in the *Roman Chronology*, the firſt day of every month.

The word is formed from KARA, *I call*, or *proclaim*; becauſe, before the publication of the Roman faſti, it was one of the offices of the pontifices to watch the appearance of the new moon, and give notice thereof to the *Rex Sacrificulus*; upon which a ſacrifice being offered, the pontif ſummoned the people together in the Capitol, and there, with a loud voice proclaimed the number of *calends*, or the day whereon the nones would be; which he did by repeating this formula, as often as there were days of *calends*: *Calo Jovis Nonas*. Whence the name *calendæ* was given thereto, from *calo*, *calare*. This is the account given by Varro. Plutarch, and after him Gyrac, derive the word from *nium*: *Quia luna calendis nium fit*: but this is far fetched. Others derive the appellation hence: that the people being convened on this day, the pontifex called or proclaimed the ſeveral feaſts or holidays in the month; a cuſtom which continued no longer than the year of Rome 450, when C. Flavius, the curule ædile, ordered the faſti, or calendar, to be ſet up in public places, that every body might know the difference of times, and the return of the feſtivals.

The *calends* were reckoned backwards, or in a retrograde order: thus, v. gr. the firſt of May being the *calends* of May; the laſt, or thirtieth of April, was the *pridie calendarum*, or ſecond of the *calends* of May; the twenty-ninth of April, the third of the *calends*, or before the *calends*: and ſo back to the thirteenth, where the ides commence; which are, likewiſe, numbered invertedly to the fifth, where the nones begin; which are numbered after the ſame manner to the firſt day of the month, which is the *calends* of April. See IDES, and NONES.

The rules of computation by *calends*, are included in the following verſes:

Prima dies menſis cujuſque vocatur dicta calendæ:
Sex Maius tenet, Octobrem, Julius, & Mars;
Quatuor at reliqui: bene ianus quilibet octo.
Inde dies reliquos omnes dic eſſe calendas;
Quas retro numerans dices a menſe ſequente.

To find the day of the *calends* anſwering to any day of the month we are in; ſee how many days there are yet remaining of the month, and to that number add two: for example; ſuppoſe it the twenty-ſecond of April; it is then the tenth of the *calends* of May. For April contains thirty days: and twenty-two taken from thirty, there remains eight; to which two being added, the ſum is ten.

The reaſon of adding *two* is, becauſe the laſt day of the month is called *ſecundo calendas*, the laſt but one *tertio calendas*, &c.

The Roman writers themſelves are at a loſs for the reaſon of this abſurd and whimſical manner of computing the days of the month; yet it is ſtill kept up in the Roman chancery; and by ſome authors, out of a vain affectation of learning, preferred to the common, more natural, and eaſy manner.

CALENDS, *Kalendæ*, are alſo uſed in *Church Hiſtory* to denote conferences anciently held by the clergy of each deanry, on the firſt day of every month, concerning their duty and conduct, eſpecially in what related to the impoſition of penance. Du-Cange.

CALENDS *of January*, in *Roman Antiquity*, was a ſolemn feſtival conſecrated to Juno and Janus; wherein the Romans offered vows and ſacrifices to thoſe deities, and exchanged preſents among themſelves, as a token of friendſhip.

It was only a melancholy day to debtors, who were then obliged to pay their intereſts, &c. Hence Horace calls it *triſtes calendæ*. Lib. 1. Serm. Sat. 3.

CALENDULA, in *Botany*, the herb, or flower popularly called MARYGOLD, uſed in the ſhops as a cardiac and alexipharmic, of like, though inferior virtue to ſaffron.

CALENDULA, in *Ornithology*, a ſpecies of the MOTACILLA in the order *paſſeres*, found in Pennſylvania.

CALENTES, in *Logic*, a mood of ſyllogiſm in the fourth, commonly called *Galenical* FIGURE, wherein the minor propoſition is univerſal and affirmative; and the ſecond or minor, as well as the concluſion, univerſal and negative.

This is intimated by the letters it is compoſed of, where the A ſignifies an univerſal affirmative, and the two E's as many univerſal negatives. E. g.

CA. *Every affliction in this world is only for a time.*
LEN. *No affliction which is only for a time, ought to be diſmaid at.*
TES. *No affliction ought to diſturb us, which happens in this world.*

The Ariſtotelians not allowing the fourth figure of ſyllogiſms, turn this word into CELANTES, and make it only an indirect mood of the firſt figure.

CALENTURE, an inflammatory fever, frequent at ſea, attended with a delirium; wherein the patients imagine the ſea to be green fields; and if not prevented, will leap over-board.

The word *calenture* is Spaniſh, *calentura*, and ſignifies a heat, fever, or ague; from the Latin *calere*, *to be hot*. *Calentures* are chiefly found in ſailing towards the Weſt Indies, as they approach the tropic. Thoſe affected with them have a fierce look, and are very unruly, being ſo eager to get to their imaginary coaſt verdure, and ſo ſtrong, that ſix men ſometimes ſcarce ſuffice to detain them. The diſeaſe chiefly ſeizes the young and ſtrong, eſpecially of a ſanguine complexion; the pulſe is extremely low. When taken in time, it rarely proves mortal.

The ſeat of this diſorder is in the ſtomach, and its principal ſource ſeems to be the eating of ſalt proviſions for a long time together.

The firſt ſtep toward a cure is the giving of a brisk vomit; this has the immediate effect of diſpelling the fancy of the green leaves and trees in the water; after this, ſalt of wormwood, a little diaſcordium, and conſerve of roſes vitriolated are proper, and bleeding in the arm: and if that does not take effect, the opening of the temporal artery is proper: a thin diet and cream of tartar in water-gruel, after theſe things, generally remove the remains of the diſeaſe.

When they are ſeized with this violent heat and diſorder, which for the moſt part happens in the night, they

steal privately over-board into the sea, imagining themselves to be going into the green fields. *Calentures* happen oftener by night than by day, because ships are more closely shut up by night, and are left airy than they are in the day-time. Phil. Trans. abr. vol. iv. by Dr. Oliver.

CALESIAM, in *Botany*, H. M. *Arbor baccifera racemosa, viris floribus actuli oblongis compressis monopyrenis*. It is a very tall and beautiful tree; the wood is of a dark purple colour, smooth and flexible; the flowers grow in clusters at the ends of the boughs, very like the flowers of vines, and are succeeded by berries in clusters, like grapes or currants, full of a succulent and insipid pulp, enclosing a stone having a white insipid kernel.

It grows common in Malabar, bears fruit once a year, and is fruitful from ten years standing to fifty and upward: of the wood they make sheaths for knives and swords.

The bark, pulverized and made into an ointment with butter, cures the *spasmus cynicus*, and convulsions excited by great wounds; it heals also malignant ulcers, and mitigates the pain in the gout. The juice of the bark cures *aphthæ*; and, taken inwardly, is a remedy for the dysentery. The bark of this tree with that of the codampulli reduced into a powder, purges the belly, and carries off pituitous and atrabilious humours. Half a tea-cup full of the decoction of the leaves and bark in water, is usually given to women just before their labour, to promote an easy delivery.

CALF, *vitulus*, in *Zoology*, the young one of a cow, an animal too well known to need a particular description. There are two ways of breeding calves that are intended to be reared; the one is to let the *calf* run with its dam all the year round: this is the method in the cheap breeding countries, and is generally allowed to make the best cattle. The other way is to take them from the dam after they have sucked about a fortnight; they are then to be taught to drink flat milk, which is to be made but just warm for them, it being very dangerous to give it them too hot.

The best time of weaning *calves* is from January to May; they should have milk for twelve weeks after, and a fortnight before that is left off, water should be mixed with the milk in larger and larger quantities. When the *calf* has fed on milk about a month, little whisps of hay should be placed all about him in cleft sticks, to induce him to eat. In the beginning of April they should be turned out to graze; only for a few days they should be taken in for the night, and have milk and water given them; the same may also be given them in a pail sometimes in the field, till they are fo able to feed themselves that they do not regard it. The grass they are turned into muft not be too rank, but short and sweet, that they may like it, and yet get it with some labour.

Calves should be always weaned at grass, for if it be done with hay and water, they often grow big-bellied on it, and are apt to rot. When those among the males are selected which are to be kept as bulls, the reft should be gelt for oxen: the sooner the better. Twenty days old is a very good time, or between that age and ten days. About London, almoft all the *calves* are fatted for the butcher. The reason of this is, that there is a good market for them; and the lands here are not so profitable to breed upon as in cheaper countries. The way to make the *calves* fat and fine is, the keeping of them very clean, giving them fresh litter every day, and the hanging of a large chalk-ftone in some corner where they can eafily get at it to lick it, but where it is out of the way of being fouled by their dung and urine. The cribs are to be so placed as not to have too much fun upon them, and so high above the ground that the urine may run off. They also bleed them once when they are a month old, and a fecond time before they kill them: this is a great addition to the beauty and whiteness of their flesh: the bleeding is by some repeated much oftener; but this is fufficient.

Calves are very apt to be loofe in their bowels: this wastes and very much injures them. The remedy is, to give them chalk fcraped into milk, pouring it down with a horn. If this does not succeed, they give them hole semence in large doses, and use the cold bath every morning. If a cow will not let a ftrange *calf* fuck her, the common method is to rub both her nofe and the *calf*'s with a little brandy: this generally reconciles them, after a few ftrellings.

Calves, befides their flesh, afford two sorts of commodities for trade, namely, the hide and the hair.

CALF-*skin*, in the leather manufacture, are prepared and dreffed by the tanners, fkinners, and curriers, who fell them for the use of the fhoe-makers, faddlers, bookbinders, and other artificers, who employ them in their several manufactures.

CALF-*skin dreffed in jumack*, denotes the skin of this animal curried black on the hair fide, and dyed of an orange colour on the flesh fide by means of fumach, chiefly used in the making of belts.

The *English calf-skin* is much valued abroad, and the commerce thereof very confiderable in France and other countries; where divers attempts have been made to imitate it, but hitherto in vain.

What is like to baffle all endeavours for imitating the *English calf* in *France* is, the fmallnefs and weakneft of the *calves* about *Paris*; which, at fifteen days old, are not fo big as the *English* ones when they come into the world.

Golden-CALF. See GELDING.

CALF, *fea*, in *Zoology*. See SEA-*calf*.

CALF, among *Sportfmen*, is ufed for a male hart or hind of the firft year.

CALF alfo denotes the young of the WHALE.

CALF's *foot*, in *Botany*. See SNAP-DRAGON.

CALI is alfo to denote pot-afhes, or the ait of the plant KALI.

CALIBER, or CALIBRE, in a general fenfe, notes the extent of any round thing in thickneft, or diameter.

In which fenfe we fay, a column is of the fame *caliber* as another, when they are both of the fame diameter.

CALIBER more particularly denotes the bore, or width of a piece of ordnance, or other fire-arms; or the diameter of the mouth thereof; or the ball it carries.

The *caliber* is the rule by which all the parts of a cannon, or mortar, as well as of its carriage, are proportioned.

CALIBER-*compaffes*, a fort of *compaffes* made with arched legs, to take the diameter of convex or concave bodies.

Caliber-compaffes are chiefly ufed by gunners, for taking the diameters of the feveral parts of a piece of ordnance, or of bombs, bullets, &c. Their legs are therefore circular, and more on an arch of brafs, whereon are marked the inches, and half-inches; to fhew how far the points of the *compaffes* are opened afunder.

Some are alfo made for taking the diameter of the bore of a gun or mortar.

The gaugers alfo fometimes ufe *calibers* to embrace the two heads of any cafk, in order to find its length.

The *caliber*, ufed by carpenters and joiners, is a piece of board notched triangular-wife in the middle, for the taking of meafure.

CALIBER, CALIBER-*rule*, or *Gunner's* CALLIPERS, is an inftrument, wherein a right line is fo divided, as that the firft part being equal to the diameter of an iron or leaden ball of one pound weight, the other parts are to the firft as the diameters of balls of two, three, four, &c. pounds, are to the diameter of a ball of one pound. The *caliber* is ufed by engineers, from the weight of the ball given to determine its diameter, or *caliber*; or *vice verfa*.

The gunner's *callipers* confifts of two thin plates of brafs joined by a rivet, fo as to move quite round each other: its length from the centre of the joint is between fix inches and a foot, and its breadth from one to two inches: that of the moft convenient fize is about nine inches long. Many fcales, tables, and proportions, &c. may be introduced on this inftrument; but none are effential to it, except thofe for taking the *caliber* of fhot and cannon, and for meafuring the magnitude of faliant and entering angles. The moft complete *callipers* is exhibited *Tem. Gunnery, fo.* 21. the furniture whereof is of which we fhall now briefly defcribe. Let the four faces of this inftrument be diftinguifhed by the letters A, B, C, D: A and D confift of a circular head and leg; B and C conffft only of a leg.

On the circular head adjoining to the leg of the face A are divifions denominated *fhot diameters*, which fhew the diftance in inches and tenths of an inch of the points of the *callipers* when they are opened: fo that if a ball not exceeding ten inches be introduced between them, the bevil edge E marks its diameter among thefe divifions.

On the circular bevil part E of the face B is a fcale of divifions diftinguifhed by *lb. weight of iron fhot*. When the diameter of any fhot is taken between the points of the *callipers*, the inner edge of the leg A fhews its weight in avoirdupoife pounds, provided it be lb. $\frac{1}{8}$, 1, $1\frac{1}{8}$, 2, 3, 4, 5, 6, 8, 9, 12, 16, 18, 24, 26, 32, 36, or 42: the figures neareft the bevil edge anfwering to the fhort lines in the fcale, and thofe behind them to the longer ftrokes. This fcale is conftructed on the following geometrical theorem, viz. that the weights of fpheres are as the cubes of their diameters.

On the lower part of the circular head of the face A is a fcale of divifions marked *bore of guns*; for the ufe of which, the legs of the *callipers* are flipped acrofs each other, till the fteel points touch the concave furface of the gun in its greateft breadth; then the bevil edge F of the face B will cut a divifion in the fcale fhewing the diameter of the bore in inches and tenths.

Within the fcales of *fhot* and *bore* diameters on the circular part of A, are divifions marked *pounders*: the inner figures $\frac{1}{8}$, $\frac{1}{4}$, 3, $5\frac{1}{2}$, 8, 12, 18, 26, 36, correfpond to the

the longeſt lines; and the figures 1, 2, 4, 8, 16, 24, 32, 42 to the ſhort ſtrokes. When the bore of a gun is taken between the points of the *callipers*, the bevil edge F will either cut or be near one of theſe divisions, and ſhew the weight of iron ſhot proper for that gun.

On the upper half of the circular head of the face A are three concentric ſcales of degrees; the outer ſcale conſiſting of 180 degrees numbered from right to left, 10, 20, &c. the middle numbered the contrary way, and the outer ſcale beginning at the middle with 0, and numbered on each ſide to 90 degrees. Theſe ſcales ſerve to take the quantity of an angle, either entering or falliant. For an entering, or internal angle, apply the legs of the *callipers* ſo that its outward edges coincide with the legs of the given angle, the degree cut by the bevil edge F in the outer ſcale ſhews the meaſure of the angle ſought; for a falliant, or external angle, ſlip the legs of the *callipers* acroſs each other, ſo that their outward edges may coincide with the legs forming the angle, and the degree marked on the middle ſcale by the bevil edge E will ſhew the meaſure of the angle required. The inner ſcale will ſerve to determine the elevation of cannon and mortars, or of any oblique plane. Let one end of a thread be fixed into the centre on that plane B, and any weight tied to the other end: apply the ſtraight ſide of the plate A to the ſide of the body whoſe inclination is ſought; hold it in this poſition, and move the plate B, till the thread falls upon the line near the centre marked *Per.* Then will the bevil edge F cut the degrees on the inner ſcale, ſhewing the inclination of that body to the horizon.

On the face C, near the point of the *callipers*, is a little table ſhewing the proportion of troy and avoirdupoiſe weights, by which one kind of weight may be eaſily reduced into another.

Near the extreme of the face D of the *callipers*, are two tables ſhewing the proportion between the pounds weight of London and Paris, and alſo between the lengths of the foot meaſure of England and France.

Near the extreme of the face A is a table containing four rules of the circle and ſphere; and geometrical figures with numbers annexed to them: the firſt is a circle including the proportion in round numbers of the diameter to its circumference; the ſecond is a circle inſcribed in a ſquare, and a ſquare within that circle and another circle in the inner ſquare: the numbers 28, 22 above this figure exhibit the proportion of the outward ſquare to the area of the inſcribed circle; and the numbers 14, 11 below it, ſhew the proportion between the area of the inſcribed ſquare and the area of its inſcribed circle. The third is a cube inſcribed in a ſphere; and the number 893 ſhews that a cube of iron inſcribed in a ſphere of 12 inches in diameter, weighs 893. The fourth is a ſphere in a cube, and the number 243, expreſſes the weight in pounds of a ſphere inſcribed to the cube whoſe ſide is 12 inches: the fifth repreſents a cylinder and cone of one foot diameter and height: the number in the cylinder ſhews that an iron cylinder of that diameter and height weighs 364 lb. and the number 121.5 in the cone expreſſes the weight of a cone, the diameter of whoſe baſe is 12 inches, and of the ſame height: the ſixth figure ſhews that an iron cube, whoſe ſide is 12 inches, weighs 464 lb. and that a ſquare pyramid of iron, whoſe baſe is a ſquare foot and height 12 inches weighs 154 lb. The numbers which have been hitherto fixed to the four laſt figures were not ſtrictly true; and therefore they have been corrected in the figure here referred to; and by theſe the figures on any inſtrument of this kind ſhould be corrected likewiſe.

On the leg B of the *callipers*, is a table ſhewing the weights of 2 cubic inch or foot of various bodies in pounds avoirdupoiſe.

On the face D of the circular head of the *callipers* is a table contained between five concentric ſegments of rings: the inner one marked *Gun* ſhews the nature of a gun, or the weight of the ball it carries; the two next rings contain the quantity of powder uſed for proof and ſervice in braſs guns; and the two outermoſt rings ſhew the quantity for proof and ſervice in iron cannon.

On the face A is a table exhibiting the method of computing the *number of ſhot or ſhells* in a triangular, *ſquare*, or rectangular pile. Near this is placed a table containing the principal rules relative to the *fall of bodies*, expreſſed in an algebraic manner: nearer the centre we have another table of rules for raiſing water, calculated on the ſuppoſition, that one horſe is equal in this kind of labour to five men, and that one man will raiſe a hogſhead of water to eight feet of height in one minute, and work at that rate for ſome hours. N. B. Hogſheads are reckoned at ſixty gallons.

Some of the leading principles in gunnery, relating to *ſhooting* in cannon and mortars, are expreſſed on the face B of the *callipers*. Beſides the articles already enumerated, the ſcales uſually marked on the SECTOR are laid down on this inſtrument: thus, the line of inches is placed on the edge of the *callipers*, or on the ſtraight borders of the faces C, D: the logarithmic ſcales of numbers, lines, verſed ſines, and tangents are placed along theſe faces, near the ſtraight edges: the line of lines is placed on the ſame faces in an angular poſition, and marked *Lin.* The lines of plane or ſuperficies are alſo exhibited on the faces C and D, tending towards the centre, and marked *Plan.* Finally, the lines of ſolids are laid on the ſame faces, tending towards the centre, and diſtinguiſhed by *Sol.* See farther on the conſtruction and uſe of this inſtrument, Robertſon's Treatiſe of Mathematical Inſtruments, &c. Appendix.

CALICAPHA, in *Botany*, a name uſed by ſome authors for the white thorn.

CALICULARIS, in *Botany*, a name given by ſome authors to the common *hyoſciamus* or HENBANE.

CALIDRIS, *Bellonii, Turd.* in French *Chevalier*, in *Ornithology*, a water-fowl of the bigneſs of a pigeon, well feathered, with a long red bill, blackiſh towards the upper part; its head, neck, wings, and tail of an aſh colour; its belly white; with very long legs.

Becauſe its body is high mounted, and its walk *ſwift*, it is called the *chevalier*; as though it were mounted on horſeback. It lives about meadows, pools, and rivulets; its fleſh is delicious, and of a good ſmell: there are ſeveral ſorts of them, which differ in colour.

They contain much volatile ſalt, with oil ſomewhat exalted, and reſtorative, and corroborative.

CALIDUCTS, from *calor*, *heat*, and *duco*, *I lead*; a kind of pipes, or canals, diſpoſed along the walls of houſes and apartments; uſed by the antients for the conveyance of heat to ſeveral remote parts of the houſe, from one common furnace.

The ancient *calidučti* ſeem both for thrift and uſe preferable to the German ſtoves; and might even challenge the advantage over our own faſhion, were it not that the very ſight of a fire adds ſomething of luſtre to a room.

CALIETA, in *Botany*, a name uſed by ſome authors for a ſort of yellow fungus, common about the roots of trees, as the juniper, &c.

CALIGA, in *Roman Antiquity*, was the proper ſoldier's ſhoe, made in the ſandal faſhion, without upper leather to cover the upper part of the foot, though otherwiſe reaching to the middle of the leg, and faſtened with thongs. The ſole of the *caliga* was of wood, like the ſabot of the French peaſants, and its bottom ſtuck full of nails: which alſo are ſuppoſed to have been very long in the ſhoes of the ſcouts and centinels; whence theſe were called by way of diſtinction, *caligæ ſpeculatoriæ*; as if by mounting the wearer to a higher pitch, they gave a greater advantage to the ſight: though others will have the *caligæ ſpeculatoriæ* to have been made ſoft and woolly, to prevent their making a noiſe. Plin. Nat. Hiſt. lib. ix. cap. 18. lib. xxxiv. cap. 14. Hard. Suet. in Calig. cap. 9. & cap. 52.

From theſe *caligæ* it was that the emperor Caligula took his name, as having been born in the army, and afterwards bred up in the habit of a common ſoldier.

A ſort of *caligæ* was alſo worn by monks and biſhops, when they celebrated maſs pontifically. Du Cange.

CALIGATI, an appellation given by ſome ancient writers to the common ſoldiers in the Roman armies, by reaſon of the *caligæ* which they wore.

The *caligæ* was the badge or ſymbol of a ſoldier: whence to take away the *caligæ* and belt imported a diſmiſſion or caſhiering.

CALIGO, or CALIGATIO, in *Medicine*, an opacity, or cloudineſs of the anterior ſurface of the cryſtalline, cauſing a dimneſs or ſuffuſion of ſight.

The *caligo* is the ſame with what the Greeks call ἀχλυς, ACHLYS.

CALIMUS. See CALLIMUS.

CALIN, the name of a ſort of mixt metal, ſeemingly compoſed of lead and tin. It is prepared by the Chineſe, and they make ſeveral utenſils of it, as candlеſticks, coffee-pots, and the like. In ſome places alſo they cover their houſes with it as we do with lead.

CALIPH, CALIF, KALIPH, denotes a ſucceſſor of Mahomet, in the ſpiritual as well as temporal empire erected by that legiſlator.

The word is originally Arabic, *khalifah*, which properly denotes a *ſucceſſor*, or *heir*.

After the death of Mahomet, Abubeker having been elected by the muſſulmans to ſupply his place, he would take no other title but that of *khalifah reſſul allah*, i. e. *vicar of the prophet*, or *meſſenger of God*. Omar, coming afterwards to ſucceed Abubeker, repreſented to the Mahometan chiefs, that if he took the quality of vicar, or ſucceſſor of Abubeker, the vicar or ſucceſſor of the prophet, the word vicar would, in courſe of time, come to be repeated and multiplied without end: upon which, at

the

the motion of Mogsirah. Omar took the title of *emir mumenin*, that is, *lord, or prince of believers*; an appellation accepted and borne by all the legitimate *caliphs*, or successors of Mahomet, from that time: not but they still retained the title *caliph*, without other addition. The *caliphs* in the Mahometan, bear a near affinity to the popes in the Christian religion.

At one of the windows in the *caliph's* palace, there hung always a piece of black velvet, twenty cubits long, which reached to the ground, and was called the *caliph's* sleeve; which the grandees of his court never failed to kiss, with great respect, every day.

The honours paid the *caliphs* were excessive, and bred a pride in them, of which they ceased not to give marks even when their authority was at the lowest. They affected great splendor and magnificence in every thing. Abulpharagius relates, that the *caliph* Motazem had no less than a hundred women in his seraglio, and three hundred eunuchs to keep them.

But this splendor was much diminished during the reign of the Bonides in Persia, who stript them of every thing, taking from them their vizirs, and leaving them no higher officer than a secretary to take care of their affairs.

The *caliphs* lost their authority, and almost their name, in that deluge of destruction by the Tartars, who over-run all the East. Since the destruction of the *caliphats*, the Mahometan princes have a particular officer appointed in their respective dominions, who sustains the sacred authority of *caliph*. In Turkey he goes under the denomination of *mufti*, and in Persia under that of *sadre*.

CALIPPIC *period*, in *Chronology*, a series of seventy-six years, perpetually recurring; which elapsed, the middle of the new and full moons, as its inventor Calippus, an Athenian, imagined, return to the same day of the solar year.

Meton, a hundred years before, had invented the *period*, or cycle, of nineteen years (*see* ATHENS. CYCLE); assuming the quantity of the solar year 365d. 6h. 18′ 56″ 50‴ 34‴; and the lunar month 29d. 12h. 45′ 47″ 36‴ 48‴ 30‴: but Calippus, considering that the Metonic quantity of the solar year was not exact, multiplied Meton's *period* by 4, and thence made a *period* of 76 years, called the *Calippic*. The *Calippic period*, therefore, contains 27759 days: and since the lunar cycle contains 235 lunations, and the *Calippic period* is quadruple of this, it contains 940 lunations. This period began in the third year of the 112th Olympiad, or the 438th of the Julian period.

It is demonstrated, however, that the *Calippic period* itself is not accurate; that it does not bring the new and full moons precisely to their places: 4h. 3′ 52″ 60‴, being the excess of 940 lunations above 76 solar years; but brings them too late, by a whole day, in 125 years.

CALIX, or CALYX. See CALYX, and CHALICE.

CALIXTINS, a name given to those among the Lutherans, who follow the sentiments of George Calixtus, a celebrated divine, and professor at Helmstadt, in the duchy of Brunswick, who died in 1656: he opposed the opinion of St. Augustine on predestination, grace, and free-will, and endeavoured to form an union among the various members of the Romish, Lutheran, and reformed churches; or, rather, to join them in the bonds of mutual forbearance and charity. See SYNCRETISTS.

The *Calixtins* are allowed a kind of SEMI-PELAGIANS.

CALIXTINS also denote a sect in Bohemia, derived from the Hussites, about the middle of the fifteenth century, who asserted the use of the cup as essential to the eucharist.

And hence their name; which is formed from the Latin *calix*, a *cup*. See CALYX.

The *Calixtins* are not ranked by Romanists in the list of heretics, since in the main they still adhered to the doctrine of Rome. The reformation they aimed at terminated in the four following articles. 1. In restoring the cup to the laity. 2. In subjecting the criminal clerks to the punishment of the civil magistrate. 3. In stripping the clergy of their lands, lordships and all temporal jurisdiction. 4. In granting liberty to all capable priests to preach the word of God. See TABORITES.

CALKING, or CAULKING, in *Sea-language*, &c. See CAULKING.

CALKING, in *Painting*. See CALQUING.

CALKINS, or CALTRES, a part prominent from a horse-shoe, intended to secure the beast from sliding.

The *calkins* are the end or extremity of horse-shoes, turned or bent downwards, and forged to a sort of point, to make the beast step more safe and steady on the ice.

The inconvenience of *calkins* is, that they hinder the horse from treading evenly on the ground, and thus occasion wrenches on the foot, or strains in the sinews; especially in slony ways, where the hardness of the bottom will not suffer the *calkins* to penetrate: add, that they are apt to make a horse cut.

Calkins are either single or double, i. e. at one end of the shoe, or at both; the latter are reputed less hurtful, as they allow the creature to tread more even; some are made large and square; the best are in form of the point of a hare's ear.

CALL, in *Hunting*, a lesson blown upon the horn, to comfort the hounds.

Among *Fowlers*, it means the note or cry of a bird, especially to its young, or its mate in coupling time.

One method of catching partridges, is by the *natural call* of a hen trained for the purpose, which drawing the cocks to her, gives opportunity for entangling them in a net.

Calls are also a sort of artificial pipes, made to catch several sorts of birds, by imitating their notes.

Different birds require different *sorts* of artificial *calls*: but they are most of them composed of a pipe or reed, with a little leathern bag or purse, somewhat in form of a bellows, which, by the motion given thereto, yields a note like that of the species of bird to be taken.

The *call* for partridges is formed like a boot, bored through, and fitted with a pipe, or swan's quill, &c. to be blown with the mouth, to make the noise of the cock partridge, which is very different from the *call* of the hen.

Calls for quails, &c. are made of a leathern purse in shape like a pear, stuffed with horse hair, and fitted at the end with the bone of a cat's, hare's, or coney's leg, formed like a flageolet: they are played by squeezing the purse in the palm of the hand, at the same time striking on the flageolet part with the thumb to counterfeit the *call* of the hen quail.

CALL, in *Sea-language*, a sort of whistle or pipe, of silver or brass, used by the boatswain and his mates to summon the sailors to their duty, and direct them in their several employments. It is founded to various strains, adapted to the different exercises, as hoisting, heaving, &c. and the *piping* of it serves the same purposes among sailors, as the beat of the drum among soldiers.

CALL, among *Bitters*. See TELAUDIA.

CALL *of the house*, in a parliamentary sense, has been sometimes practised, to discover whether there be any in the house not returned by the clerk of the crown; then more frequently to discover what members are absent without leave of the house, or just cause.

In the former case, the names of the members being called over, every person answers to his name, and departs out of the house, in the order wherein he is called. In the latter, each person stands up uncovered, at the mention of his name.

CALL *of the plaintiff, in Law*. See NON-SUIT.

CALLA, *African arum*, in *Botany*, a genus of the *gynandria polyandria* class of plants: the spatha is plain, the spadix is covered with small flowers; it has neither calyx nor petal, and the fruits are berries containing many seeds. There are two species.

CALLAF, in *Botany*, a low, shrubby tree, growing in the East; of smooth wood, and leaves somewhat resembling the cherry-tree, serrated on the edges, and growing out from the extremities of the branches, which are straight, without joints, flexible, and of a yellowish colour. The flowers, which are produced before the leaves, come forth very thick in December, at equal distances; and are a sort of oblong, downy, little bells, of a whitish yellow, or true yellow colour, and of a fragrant smell. It has a place in the gardens of the nobility, on account of its incomparable fragrancy; and is cultivated with great care by the peasants, for the profit they make of its flowers.

An excellent water is prepared from the flowers, especially at Damascus, which is of so strengthening a nature, that we have nothing to compare with it: for by the extraordinary sweetness of its smell, it wonderfully relieves persons under a lipothymy. The Moors use this water both internally and externally, in burning and pestilential fevers; it refrigerates and moistens. An oil also is made of the flowers, which is serviceable for many purposes.

CALLARIAS, by some called *pisces callarias*, in *Ichthyology*, a fish of the cartilaginous kind, called by Aldrovandus *lingua marina*, and by Rondeletius and Gesner *physis*. It usually grows to about a foot in length, and is in shape something flattish; it is covered with small scales, and is of a greyish colour, but somewhat purple on the head; its tail is roundish, not forked; it is a very well tasted fish, and is common in the Mediterranean, and brought to market at Rome, Venice, &c.

CALLENDER, in *Manufactures*. See CALENDER.

CALLIBER, or CALIPER. See CALIBER.

CALLIBLEPHARA, from καλλος, *beauty*, and βλεφαρον, *eye-lid*, in the *Medicinal Writings of the Ancients*, a name given to certain compositions intended to make the eye-lids beautiful; and as the eye-lids are subject to be deformed several ways, there were several different sorts of these medicines.

CALLICARPA, in *Botany*. See JOHNSONIA.

CALLICHTHUS, in *Ichthyology*, a name given by some writers to the *aurita*, a small fish caught in the Adriatic and supposed to be a certain token of there being no voracious fishes near the place where it is found; it is called also *sacer pisces*, the *holy fish*, and is a very beautiful fish.

CALLICO, in *Commerce*, a sort of cloth resembling linen, made of cotton.

This name is taken from that of *Callicut*, a city on the coast of Malabar, being the first place at which the Portuguese landed when they discovered the India trade. The Spaniards still call it *calica*.

Callicoes are of divers kinds, plain, printed, painted, stained, dyed, chintz, muslins and the like, all included under the general denomination of *callicoes*.

A great naturalist has suggested that the Indian *callicoes* is made of the fibres of nettle-stalks; but this is not confirmed: to the contrary, there are *callicoes* made in the island of Candia, which, it is known, are made of cotton.

The printing of *callicoes* was first set on foot in London about the year 1676.

By an act of parliament made in 1722, the use of dyed, painted, or printed *callicoes* is forbid, either in apparel or furniture, on the forfeiture of five pounds to the informer for every offence; and drapers selling such *callicoes* forfeit 20*l*. 7 Geo. I. stat. 1. cap. 7. § 2. but this prohibition does not extend to *callicoes* dyed blue.

The design of this prohibition was to promote the consumption of our own manufactures. But its chief effect has been to promote the use of printed linen. Upon the act's taking place, the *callico*-printers fell to work to imitate the Indian *callicoes*, by making the same stamps and impressions, and with the same beauty of colours upon linen. This sell chiefly on Scots and Irish linen, the manufacture of which has been hereby greatly increased, many hundred thousand ells thereof being yearly imported from those countries, and printed or stamped in England.

CALLIDRYS, in *Ornithology*, a name given by Ballonius and some other authors, to a water-bird, known among us by the name of the REDSHANK.

CALLIDRYS *nigra*, in *Ornithology*, the name of a bird described by *Belloniu*s, and supposed by some to be that bird which we call the KNOT.

CALLIDRYS. See CALIDRIS.

CALLIGONUM, in *Botany*, a genus of the *polyandria digynia* class; the calyx has four leaves; the plant has neither petal nor style; the *fruit* is bristly, with a single seed. There is one species.

CALLIGRAPHUS, anciently denoted a copyist, or scrivener, who transcribed fair, and at length, what the notaries had taken down in notes or minutes.

The word is compounded of καλλος, *beauty*, and γραφω, *I write*. The minutes of acts, &c. were always taken in a kind of cypher, or short-hand; such as the notes of Tyro in Gruter: by which means the notaries, as the Latins called them, or the *exceptores* and ταχυγραφοι, as the Greeks called them, were enabled to keep pace with a speaker or person who dictated. These notes being understood by few, were copied over fair, and at length, by persons who had a good hand, for sale, &c. and these were called *calligraphi*; a name frequently met with in the ancient writers.

CALLIGRAPHY, the art of fair writing.

Callicrates is said to have written an elegant distich on a sesamum seed. Junius speaks of a person, as very extraordinary, who wrote the apostles creed, and beginning of St. John's Gospel, in the compass of a farthing. What would he have said of our famous Peter Bale, who, in 1575, wrote the Lord's prayer, creed, ten commandments, and two short prayers in Latin, with his own name, motto, day of the month, year of the Lord, and reign of the queen, in the compass of a single penny, inchased in a ring and bordure of gold, and covered with a crystal, all so accurately wrought, as to be very legible?

CALLIMUS, in *Physiology*, a stony substance found in the cavity of the ACITES, or eagle stone.

The word is also written *callimus*, and in some copies of Pliny, *calamus*; which latter reading seems to receive

The *calimus* fills the hollow of the *aetites*, much as the yolk does the white of an egg.

The ONOCH, instead of a *calimus*, or solid stone, have a loose, sandy, chalky, or earthy substance, and the ENHYDRI a liquid substance.

CALLION, in *Botany*, a name given by Pliny, and some other authors to the *ofterleaf*, or *wintergreen*.

Some of the Greeks called it also *syllis*.

CALLIONYMUM, in *Botany*, a name given by some authors to the LILY *of the valley*.

CALLIONYMUS, in *Ichthyology*, a name used by Appian, and some other authors, for the fish called the *uranoscopus*, or the star-gazer.

In the Linnæan system, it is a genus of the order of *jugulär* fishes, comprehending three species.

CALLIOPE, the chief of the nine Muses, called by Horace *Regina*. The distinguishing office of this Muse was to record the worthy actions of the living; and accordingly she is represented with tablets in her left hand.

CALLIPÆDIA, the art of getting or breeding fair and beautiful children.

The word is formed from καλλος, *fair*, and παις, *puer*, either boy or girl.

We find divers rules and practices relating to this art, in ancient and modern writers.

The Jews are said to have been so solicitous about the beauty of their children, that care was taken to have some very beautiful child (such as was Jochanan, the disciple of Judah, author of the Mishna) placed at the door of the public baths, that the women at going out, being struck with his appearance, and retaining the idea, might all have children as fine as he.

The Chinese take great care of their breeding women, to prevent unseemly objects of any kind from striking their imagination.

Callipædia, nevertheless, seems to have been first erected into a full art by Claude Quillet de Chinon, a French abbot, who, under the fictitious name of Calvidius Lætus, has published a fine Latin poem, in four books, under the title of *Callipædia, seu de pulchræ prolis habendæ ratione*; wherein are contained all the precepts of the art. Paris, 1656, 8vo. & Lond. 1708, 8vo.

CALLISIA, in *Botany*, a genus of the *triandria monogynia* class, with a three-leaved calyx, three petals, a double anthera, and bilocular capsule. There is one species.

CALLISTIA, in *Antiquity*, a Lesbian festival, wherein the women presented themselves in Juno's temple, and the prize was assigned to the fairest.

The word is formed from καλλος, *beauty*, q. d. beauty's rewards. The like contest of beauty was held at the festival of Ceres Eleusinia, among the Parthasians, first set on foot by Cydelus, whole wife Herodice was honoured with the first prize. Another obtained among the Eliens, where the contest was among the men, the most beautiful of whom was presented with a suit of armour, which he consecrated to Minerva, to whose temple he walked in procession, adorned with ribbons, and crowned with a myrtle garland. Pott. Arch. Græc. lib. ii. cap. 20.

CALLITRICHE, in *Botany*, a genus of the *monandria digynia* class; it has no calyx, two petals, and the capsule has two cells, with four seeds. There are two species.

CALLITRICHUS, in *Zoology*, a species of MONKEY, with a black, flattish face, white hairs on the sides, and black ears, and the upper parts of the body are covered with soft hair, of a yellowish green colour, whence it is called the green monkey; and the lower parts with hair of a silvery colour. It is about the size of a small cat.

CALLOSUM *corpus*, in *Anatomy*, denotes a part in the medulla of the brain of a white colour, and a texture somewhat harder and more compact than the rest; approaching to that of a *callus*.

The *corpus callosum* runs along the whole tract of the *falx*; at the extremity next the cerebellum it sends out two *processus*, whose juncture constitutes the *fornix*; under which lies the *septum lucidum*.

The *corpus callosum* is an assemblage of bundles of fibres springing from the glands, which compass the cineritious part, and serve as excretory ducts thereto: those fibres as descending towards the *medulla oblongata*, all meet there; and serve to connect the lobes of the brain. Signior Lancisi makes the *corpus callosum* to be the immediate seat of the soul. See BRAIN.

CALLOUS, *Callosus*, something of the nature or consistence of a CALLUS.

Physicians speak of *callous* nodes or excrescences, *callous* ulcers, and the like.

CALLOUS *eggs*, *ova callosa*, the longer and better sort, supposed to contain male chicks; having a thicker white, and richer flavour than the rest. See EGG.

CALLUS, or CALLOSITY, in a general sense, denotes any cutaneous, fleshy, or bony hardness, whether natural or preternatural.

In which sense, *shard*, or corns, are a species of *callus*. See CLAVUS.

CALLUS is also frequently used for a kind of node, which joins the extremity of a fractured bone.

The formation of a *callus* seems to be as follows: the juice that feeds the bone, running among its fibres, becomes extravasated in the place where those fibres are broken: so that stopping, and gathering together round the extremities of the fracture, it there dries, knits, and hardens, to a consistence like a strong glue; leaving only a little inequality in the place where it is formed.

But as the new flesh in wounds will frequently sprout up too fast, so will also the *callus* in fractures: and by this means render the limb uneven and deformed. The only methods that can be taken to prevent the *callus* from exceeding its due bounds, are to make the bandage somewhat tighter than ordinary, and wet it with the spirit of

wine; for by this means the *callus* is not only often kept within its due bounds, but the induration of it is also much forwarded; but when once the *callus* is indurated, we have no medicines by which it can be taken down or destroyed. *Heister.*

Callous frequently grow so firm as to supply the place of whole bones. In the Philosophical Transactions, we have an instance of a *callus* supplying the place of the *os femoris*, taken out upon its being carious, by Mr. Fowler; and another of a *callus* supplying the place of the *os femoris*, and the person continued as strong as ever, and walked without any lameness.

CALLUS is also a hard, dense, insensible knob, or substance, rising on the hands, feet, &c. by much friction, and pressure against hard bodies.

Mr. Leewenhoek examining the callus formed on the hands and feet, observed that it was a substance composed of several layers of particles so loosely connected, that it was a wonder they could hang together; on putting a piece of this into fair water, since it had stood a considerable time to steep, he found that the particles of which it was composed, would easily separate from one another with a little touch of a quill, and these separated particles put into a drop of water, and examined before the microscope, were found to be all of the same regular shape, which was like that of a weaver's shuttle, being broad in the middle, and pointed at each end, with a line in the middle like those upon the uppermost, or outside skins of fruits, or of our bodies, but generally irregular. These pieces were thick in proportion to their size; and when they are put into water, and separated again, they naturally form a great number of other particles, all of which are of the same regular figure with the original piece. Phil. Trans. No. 323 p. 1160.

By this we see the reason of the increase in thickness of the skin of the hands of those who labour hard, and of the feet of such people as walk much; which is wholly owing to the addition of vast numbers of these shuttle-like particles, which form combinations together; but these so loosely, that it is no wonder they are so easily separated on mollifying.

The people who labour ever so hard will have no *callus* upon their hands, if they wash them often; the washing of the hands daily rubs off a great quantity of these particles or scales, if they may be so called; but they are quickly renewed.

CALLUS is by some also applied to those knots, or tophaceous BODIES, generated in the joints of gouty patients. See TOPHUS.

CALLUS is also especially used to denote a hardness of the eye-lashes, occasioned by the congestion of an acid, or tartarous juice therein.

Paravicius also gives the denomination *callus* to an abscess or ulcer, caused by the acrimonious, or arsenical quality of the nutritious juice, and exciting a vehement itching.

CALLYCHTHIS, in *Ichthyology*, the name of a broad and flat sea-fish, brought to market at Rome under the name of the *lanigera*, and commonly called BEATRONATRUS; and by the Venetians the *botta*.

In the Linnæan system, it is a species of the ARTURUS.

CALLYONTUS. See CALLIONYMUS.

CALM, in *Sea Language*, that state of the air and water when there is no wind stirring.

They say that *calm*, a dead or stark *calm*. A *calm* is more terrible to a sea-faring man than a storm, if he has a strong ship, and sea-room enough; for under the line extreme heat sometimes produces such dead *calms*, that ships are obliged to stay two or three months without being able to stir one way or other.

Two opposite winds will sometimes make a *calm*. This is frequently observed in the gulf of Mexico, at no great distance from the shore, where some gulf or land-wind will so poise the general easterly wind, so as to produce a perfect *calm*.

Calms are never so great on the ocean as on the Mediterranean, by reason the flux and reflux of the former keep the water in a continual agitation, even where there is no wind; whereas there being no tides in the latter, the *calm* is sometimes so dead, that the face of the water is as clear as a looking glass; but such *calms* are almost constant prefages of an approaching storm. On the coasts about Smyrna, a long *calm* is reputed a prognostic of an earthquake.

When a ship is close under the lee of another, the windward veffel is faid to *become* the leeward.—A ship is alfo faid to be *becalmed* when near the land, which keeps the wind from it.

It is not uncommon for the veffels to be *calmed*, or *becalmed*, as the failors exprefs it, in the road of the conftant levantine winds, in places where they ride near the land. Thus between the two capes of Carthoche toward the main, and cape Antonio in Cuba, the *fea* is narrow, and there is often a *calm* produced by fome gulf of a land-wind, that poifes the levantine wind, and renders the whole perfectly ftill for two or three days.

In this cafe, the current that runs here is of ufe to the veffels, if it fets right; when it fets cafterly, a fhip will have a paffage in three or four days to the Havannah; but if, otherwife, it is often a fortnight or three weeks loft; the fhip being conftrayed in the gulf of Mexico.

When the weather is perfectly *calm*, no wind at all ftirring, the failors try which way the current fets, by means of a boat which they fend out, and which will ride at anchor, though there is no bottom to be found, as vegetables and weeds are obferved by the ftrongeft anchor to the bottom.

The method is this: they row the boat to a little diftance from the fhip, and then throw over their pigmeant, which is about forty pounds weight; then let this fink to about two hundred fathom; and then, though it never reaches the bottom, the boat will turn head againft the current, and ride as firmly as can be.

CALM *Latitudes*, in *Sea Language*, are fituated in the Atlantic ocean, between the tropic of Cancer, and the latitude of 30° N. or they denote the fpace that lies between the trade and variable winds, becaufe it is frequently fubject to *calms* of long duration.

CALOGERI, Καλογεροι, or CALOYERS, monks, or religious in Greece, both male and female; inhabiting particularly mount Athos, but difperminated alfo throughout all the churches of the Eaft. They follow the rule of St. Bafil, and make vows like the weftern religious. Tournefort fays, the females are moft of them only a more moderate fort of Magdalens, who, as they grow old, make a vow to practife thofe virtues they had much neglected in their youth, and retire into convents to lead a life fomewhat lefs fcandalous than before, under the eyes of a fuperior or *hegumena*, who is far from being too fevere.

The *Caloyers*, in fome places, are divided into Cœnobites, Anachorites, and Ascetics, or hermits; the life of which laft is the moft fevere and recluſe.

The Turks alfo ufe the word *Caloyers* for their dervifes, or religious muſſulmen. See DERVIS.

CALOMEL, in *Pharmacy*, a name given to *mercurius dulcis*, fublimated; or, it is a combination of the marine acid with as much mercury as that acid is capable of conceiving and uniting with. The denomination *calomel* rather feems to have firſt belonged to the Æthiops mineral; from καλος, *fulcher*, *fair*; and μελας, *niger*, *black*, becaufe white or pale bodies, rubbed herewith, become black.

Calomel is the *panchymagogum* of Quercetanus. It is an effectual purge, and given not only to adults, but even to children, to carry off the flimy humours from whence the worms arife. *Calomel*, rubbed with fulphur of antimony, is alfo found a powerful alterant. See MERCURY, and PLUMIER'S *Ethiops*.

CALONDRONIUS, a name given by the writers of the middle ages to a ſtone of which they have left us no deſcription, only a large account of its great virtues, in giving clearneſs to the prefent view, warts it, and preventing the power of magic and enchantment.

CALOPHYLLUM, in *Botany*, the name given by Linnæus to a genus of plants of the *polyandria monogynia* claſs, called by Plumier *calaba*, the characters of which are theſe: the cup is coloured and occiduous, and conſiſts of one leaf divided into four acute ſegments; the flower conſiſts of four roundiſh, hollowed, and expanded petals; the ſtamina are numerous capillary filaments, ſhorter than the flower; the antheræ are roundiſh; the germen of the piſtil is roundiſh; the ſtyle is ſimple, and of the length of the ſtamina; the ſtigma is headed; the fruit is a large, globoſe, unilocular drupe; and the ſeed is a large pointed nut, of a roundiſh figure. There are two ſpecies.

CALOTTE, a CAP, or coif of hair, ſattin, or other ſtuff; uſed firſt for neceſſity, but now become an eccleſiaſtical ornament, in France, &c.

It was firſt worn by cardinal Richelieu: the red *calotte* is a badge of a cardinal.

CALOTTE, in *architecture*, a round cavity, or depreſſure, in form of a cup, or cap, lathed and plaiſtered, uſed to diminiſh the *riſe*, or elevation of a chapel, cabinet, alcove, &c. which, without ſuch an expedient, would be too high for other parts of the room.

CALQUING, or CARKING, a term in *Painting*, &c. uſed where the back ſide of any deſign is covered with black lead, red chalk, and the ſtrokes or lines traced through on a waxed plate, wall, or other matter; by paſſing lightly over each ſtroke of the deſign with a point, which leaves an impreſſion of the colour on the plate or wall. This method of *off-tracing* may likewiſe be performed by pricking the original print, or drawing, and tranſmitting a coloured powder through the punctured holes, in order to make the outlines on a new ground; or, by diſſolving part of the printing ink by means of ſoap, and impreſſing it in that ſtate on a freſh ground. See DELINEATION.

CALTHA, in *Botony*. See *Marsh*-MARYGOLD.

CALTROP, or CALTHROP, an instrument with four iron points, each three or four inches long, disposed triangularwise; so that there are always three points bearing on the earth, the fourth being in the air.

Several of these, fixed in the ground, or thrown into breaches where the cavalry is to pass, stick into the horses feet and embarrass them.

CALTROPS, *Tribulus*, in *Botony*, a genus of the *decandria monogynia* class. Its characters are: the empalement of the flower is cut into five acute parts: there are five oblong blunt petals to the flower, which spread open; and ten small awl-shaped stamina, terminated by single summits; and an oblong germen the length of the stamina, having no style, but crowned by a headed stigma: the germen turns to a roundish, prickly fruit, divided into five cupsules, armed with three or four angular thorns on one side, joining together. The cells are transverse, and contain two or three pear-shaped seeds. There are three species, natives of warm countries. It derives its name from the form of its fruit, which resembles those instruments of war that were cast in the enemy's way, to annoy their horses.

The plant, taken inwardly, is a vulnerary; and is said to be of service in diuretics, and the stone.

CALTROPS, *water*. See TRAPA.

CALVARIA, or CALVA, the scalp or upper part of the HEAD; so called from its growing bald first. See BALDNESS.

The external parts of the *calvaria* are the *sinciput*, *occiput*, *vertex*, and temples; all invested with the hair, and the common integuments of the body.

The *calvaria* in adults consists of eight bones, one of the forehead, another of the *occiput*, two of the *sinciput*, two of the temples, and two others common also to the upper jaw, viz. the *cuneiforme* and *spongiosum*.

CALVARY, a term used in catholic countries for a kind of chapel of devotion, raised on a hillock near a city; in memory of the place where Jesus Christ was crucified near Jerusalem.

The word comes from the Latin *calvarium*, and that from *calvus*, *bald*; the top of that hillock was bare, and destitute of verdure; which is also signified by the Hebrew word *golgotha*.

Such is the *Calvary* of St. Valerian, near Paris; which is accompanied with several little chapels, in each whereof is represented in sculpture one of the mysteries of the passion.

CALVARY, in *Heraldry*, a cross so called, because it resembles that on which our Saviour suffered: it is always set upon steps.

CALVINISM, the doctrine and sentiments of Calvin, one of the principal reformers in the fixteenth century, a native of Noyon in France, and afterwards pastor and professor of divinity at Geneva, and of his followers, with regard to matters of religion.

Calvinism subsists in its greatest purity in the city of Geneva; and from thence it was first propagated into Germany, France, the United Provinces, and England. In France it was abolished by the revocation of the edict of Nantes, in 1685. It has been the prevailing religion in the United Provinces ever since the year 1571. The theological system of Calvin was adopted, and made the public rule of faith in England, under the reign of Edward VI. and the church of Scotland was modelled by John Knox, the disciple of Calvin, agreeably to the doctrine, rites, and form of ecclesiastical government, established at Geneva. In England it hath declined since the time of queen Elizabeth; though it still subsists, some say a little allayed, in the articles of the established church; and in its rigour in Scotland. See REFORMATION and *Reformed* CHURCH.

The distinguishing theological tenets of *Calvinism*, as the term is now generally applied, respect the doctrines of PREDESTINATION, or *particular* ELECTION and REPROBATION, *original* SIN, *particular* REDEMPTION of *saints*, or, as some have called it, *irresistible* GRACE in *regeneration*, JUSTIFICATION *by faith*, PERSEVERANCE, and the TRINITY. See each of these articles. See also ARMINIANS.

Besides the doctrinal part of Calvin's system, which, so far as it differs from that of other reformers of the same period, principally regarded the absolute decree of God, whereby the future and eternal condition of the human race was determined out of mere sovereign pleasure and free will; it extended likewise to the discipline and government of the Christian church, the nature of the eucharist, and the qualification of those who were intitled to the participation of it. Calvin considered every church as a separate and independent body, invested with the power of legislation for itself. He proposed that it should be governed by presbyteries and synods, composed of clergy and laity, without bishops, or any clerical subordination; and maintained, that the province of the civil magistrate extended only to its protection and outward accommodation. In order to facilitate an union with the Lutheran church, he acknowledged a real, though spiritual presence of Christ in the eucharist, that Jesus Christians were united to the man Christ in this ordinance, and that divine grace was conferred upon them, and sealed to them, in the celebration of it; and he confined the privilege of communion to pious and regenerate believers. See EUCHARIST, *&c.* and LUTHERANISM.

In France the *Calvinists* are distinguished by the name of *Huguenots*; and, among the common people, by that of *Parpaillots*. In Germany they are confounded with the Lutherans, under the general title *Protestants*, only sometimes distinguished by the name *Reformed*.

CALVINISTS, *Crypto*, a name given to the favourers of *Calvinism* in Saxony, on account of their *secret* attachment to the Genevan doctrine and discipline. Many of them suffered by the decrees of the convocation of Torgaw, held in 1576. See *Form of* CONCORD.

The *Calvinists* in their progress have divided into various branches, or lesser sects.

CALVITIES, or CALVITIUM. See BALDNESS.

CALUMET, among *Travellers*, a mystic kind of pipe used by the American savages as the ensign of peace, and for religious fumigation.

The *calumet* is a sort of tobacco-pipe, made of red, black, or white marble. The shank is decorated with rounds of feathers, and locks of hair, or porcupine's quills: in it they smoke in honour of the sun. P. Lafitau will have it to be the original CADUCEUS of Mercury, of which that used by the Greeks and Romans, with its wings and its serpents, was only the copy.

The *calumet* is the symbol and security of traffic; by it they pronounce life and death, peace and war: they also ascribe to it a power of raising the souls of the dead.

CALUMNY, the crime of accusing another falsely and knowingly of some heinous offence. *Calumnia est malitiosa & mendax infamatio.*

It is an ancient maxim, which experience shews us to be too well founded: *Audacter calumniare, semper aliquid hæret.*

CALUMNY, *oath of*, *juramentum*, or *iuramentum*, or *iusiurandum calumniæ*, among civilians and canonists, was an oath which both parties in a cause were obliged to take; the plaintiff that he did not bring his charge, and the defendant, that he did not deny it, with a design to abuse each other, but because they believed their cause was just and good; that they would not deny the truth, nor create unnecessary delays, nor offer the judge or evidence any gifts or bribes. If the plaintiff refused this oath, the complaint or libel was dismissed; if the defendant, it was taken *pro confesso*.

This custom was taken from the ancient athletæ, who, before they engaged, were to swear they had no malice, nor would use any fraudulent or unfair means for overcoming the other.

The *juramentum calumniæ* is much disused, as a great occasion of perjury.

Anciently the advocates and proctors also took this oath; but of late it is dispensed with, and thought sufficient that they take it once for all at their first admittion to practice.

CALUMNIA *fulsitum*, was an action brought against the plaintiff in a court for a false and malicious accusation.

When an accuser did not prove his charge, nor seemed to have sufficient or probable grounds for bringing any, the judges in pronouncing sentence used the formula *calumniator es*; which gave the defendant a right to bring an action of *calumny*; the penalty of which was *fronti inscribi*, or burning on the forehead.

CALX literally signifies LIME, a sort of stone burnt or calcined in a kiln for that purpose, to be used in the making of mortar, *&c.*

It is also made of the bones of large fishes, and from the shells of huscums, oysters, and the like, burnt. That is more particularly called *calx peregrina*, and *calx* [illegible] *alba*.

CALX, in *Chemistry*, a kind of ashes, or fine friable impalpable powder, which remains of metals, minerals, &c. after CALCINATION by fire, solution by acid menstrua, or DETONATION by nitre; by means of which all metallic substances, except gold, silver, platina, and mercury, may be deprived of their phlogiston, and consequently of their metallic properties, acquiring at the same time an accession of air which becomes fixed in them during the reduction; and thus lose their fusibility, become more fixed, and less soluble in acids.

Calces differ from ashes not only as the former is the effect of calcination, and the latter of mere burning, but as the former is of a more solid consistence than the latter; and that the bodies reduced to a *calx*, as metals and minerals, may frequently be restored out of these *calces*, which can never be done out of the ashes of wood and other bodies consumed by BURNING.

Calces are divided into *reducible* and *irreducible*, *fixed* and *volatile*. Chemists speak of fire retained and fixed in all *calces*,

calces, and of hard salt, procurable from *calces*. Hist. Acad. Scienc. an. 1732. p. 56, seq. Hist. Acad. Scienc. lib. iv. *sect.* 6. c. 3. See FIRE and SALT.

Many metals and some minerals, whole parts are most homogeneous, do not appear to lose their nature with their form. Thus gold, silver, and quicksilver, cannot be so destroyed by CALCINATION, but that they may easily be revived. So out of *cals* of tin, the tin itself may be restored; and the like holds of the *cals* of lead, though the most impure of all metals; and even of antimony, the first substance of which may be extracted either from its *cals*, or even glass. See REVIVIFICATION. Paracelsus calls the boles and argillaceous earths, *calces terræ*. See BOLE and CHALK.

The same author also gives the denomination *calx* to the chalky matter formed in the joints of gouty persons.

CALX *antimonii*, a name given in the late London Dispensatory to the preparation of ANTIMONY, called before *antimonium diaphoreticum*.

CALX *of brass*, is called *AS USTUM*.

CALX *jovis*, the *calx* of TIN, called *PUTTY*.

CALX *lunæ*, the *calx* of SILVER.

CALX *martis*, the crocus or saffron of IRON.

CALX *mercurii*, precipitated MERCURY.

CALX *nativa*, in *Natural History*, a native marly earth which, without burning, has some of the qualities of the artificial lime, and was called by the ancients, *gypsum spontaneum*.

It is hard, dry, and somewhat coarse earth; it never constitutes a fracture of itself, but is sometimes found in the fissures of other strata, and sometimes lying loose upon or among the next strata of gravel, and the like. It is usually found in masses of two, three, or four inches in diameter, of irregular surfaces, and generally flattish. It is found in some parts of England, and appears to have been well known to the ancients, and in common use among them.

CALX *saturni* is cerusse calcined with spirit of vinegar, or in the sun. See CERUSSE.

CALX *saturni*, is also used for MINIUM or *red* LEAD.

CALX *solis*, denotes calcined GOLD.

CALX *veneris*, VERDIGRISE.

CALX *viva*, quick-lime, that on which no water has been cast since its burning, in opposition to *calx extincta*, that slacked by the effusion of water. See LIME.

CALX *vivi plumbi*, denotes that made of quicksilver.

CALX, in *Anatomy*. See CALCANEUM.

CALYBITES, the inhabitant of a cottage, an appellation given to divers hermits on account of their long residence in some hut, by way of mortification.

The word is formed from καλυβη, *tugurium*, *I cover*; whence καλυβιτης, *a hermit*, &c.—The Romish church commemorates St. John the Calybite on the 15th of December.

CALYCANTHEMI, in *Botany*, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

CALYCISTÆ, among the *Botanical Authors*. See BOTANY.

CALYCULUS, in *Ancient Naturalists*, denotes a SILIQUA or seed-case.

CALYCULATED, an appellation given by some naturalists to the fruits of those trees which have the CALYX of their flower non-deciduous, and whose FRUIT stands as in a cup. Phil. Trans. N°. 204. p. 928. See PLANT, TREE, &c.

CALYPTRA, from καλυπτω, *I hide*, among *Botanists*, a thin membranous involucrum, usually of a conic figure, which covers the parts of fructification. The capsules of most of the MOSSES have *calyptræ*.

CALYX, or CALIX, in a general sense, denotes a cup. See CHALICE.

CALYX, in *Botany*, is sometimes applied to a FLOWER whose body, or even a part of it, is formed in manner of a cup or *chalice*: such is that of a tulip, &c.

Ray defines the *calyx* the cavity in the middle of a flower, wherein the stamina and apices are contained. Ausonius calls it *calathus*.

CALYX is more particularly used for that outward greenish cover, which encompasses and defends the petals and other parts of a flower; serving also as a basis or support to the whole. In which sense, *calyx* is the same with what is otherwise called *perianthium*, and by Dr. Grew, the *empalement* or *flower-cup*.

The *calyx* is that set of leaves which involves the petals, as the petals do the immediate organ of generation.

The *calyx* is in some plants of one entire piece; as in pinks, &c. and in some is divided into several; as in roses, &c.—Saffron has no calyx; its flower comes out of the earth before its leaves.

The cups of flowers are very various in their structure, and are distinguished by the names of *AMENTUM*, *CALYPTRA*, *GLUMA*, *INVOLUCRUM*, *PERIANTHIUM*, *SPATHA*, and *VOLVA*.

Botanists distinguish two sorts of *calyces*, one external, called the *calyx* of the flower, by the ancients *perianthium*, as encompassing the flower and seed; the other internal, called the *calyx* of the fruit, by the ancients *pericarpium*, as being the capsule which encompasses the fruit, and is itself encompassed by the petals.

The external *calyx* may also be divided into two sorts, one which surrounds the flower, another which sustains it, different from the pedicle; in that this latter spreads itself underneath the flower to give room for the nutritious juice to rise more freely; the cavity of the pedicle enlarged, is reputed part of the *calyx* both external and internal.

CALYX, *calix*, in *Botany*, a term used by authors to express one kind of the perianthia of the compound flowers. A cup is that called when it consists of a single and equal series of scales, which are of an oblong figure, and surround the flowers; and another small series of scales, which only surround these, close to the base.

The ancients have often used the word *calyx* to express the rose when in the bud, and not yet shewing its petals, except between the segments of the cup.

CALYX, in *Ancient Agriculture*, denotes a brazen measure or cup, put over a head or cathedon, to which pipes were fitted.

CAMÆA, in *Natural History*, the name of a genus of the semipellucid genus, the characters of which are these: they are obscurely transparent stones approaching to the onyx structure, being composed of zones, and formed on a crystalline base, but having their zones very broad and thick, and laid alternately on one another with no other matter between them.

Of this genus we have four known species.

CAMAHÆ, in the *Modern Medica*, a name given by Avicenna and others to the large truffles found in the deserts of Numidia, and many other parts of Africa, in great abundance. These are white on the outside: the modern Africans call them *terfas*, and are very fond of them; they eat them stewed with milk, water, and spices, and account them wholesome and nutritive.

CAMAIEU, or CAMAYEU, a word used to express a peculiar sort of onyx: also by some to express a stone, whereon are found various figures, and representations of landscapes, &c. formed by a kind of *lusus naturæ*; so as to exhibit pictures without painting.

The word comes from *camahæus*, a name the Orientals give to the onyx, when they find in preparing it, another colour; as who should say, *a second stone*.

It is of these *camiews* Pliny is to be understood when he speaks of the manifold picture of gems, and the party-coloured spots of precious stone; *Gemmarum pictura tam multiplex, lapidumque tam discolores maculæ*. Plin. Hist. Nat. lib. ii. c. 63.

CAMAIEU is also applied by others to those precious stones, as onyxes, cornelians, and agats, wherein the lapidaries employ their art to aid nature, and perfect those representations. See CAMÆA.

CAMAIEU is also frequently applied to any kind of gem, whereon figures may be engraven either indemedly, or in relievo.

In this sense the lapidaries of Paris are called in their statutes, *cutters of camayeux*.

A society of learned men at Florence undertook to procure all the *camaieux* or *camayeux*, and intaglios, in the great duke's gallery to be engraven; and began to draw the heads of divers emperors to *camaieux*.

CAMAIEU is also used for a painting, wherein there is only one colour; and where the lights and shadows are of gold, wrought on a golden, or azure ground.

When the ground is yellow, the French call it *grisaille*; when grey, *grisaille*. This kind of work is chiefly used to represent bass-reliefs: the Greeks call pieces of this sort *monochromata*.

CAMALDULIANS, CAMALDUNIANS, or CAMALDOLITES, an order of religious, founded by Romuald, an Italian fanatic, in 1023, in the horrible desert of Camaldoli, otherwise called Campo Maldoli, situate in the state of Florence, on the Appennines.

Their rule is that of St. Benedict; and their houses, by the statutes, are never to be less than five leagues from cities. The *Camaldulians* have not borne that title from the beginning of their order; till the close of the eleventh century they were called *Romualdins*, from the name of their founder. Till that time, *Camaldulian* was a particular name for those of the desert Camaldoli; and D. Grandi observes, was not given to the whole order, in regard it was in this monastery that the order commenced, but because the regulation was best maintained here.

Guido Grandi, mathematician of the great duke of Tuscany, and a monk of this order, has published *Camaldulian* Dissertations, on the origin and establishment of it. The *Camaldulites* were distinguished into two classes, of which the one were CONVENTUES, and the other ERÆMITES.

CAMARA, a name given by Plumier to an American species of LANTANA.

CAMAROSIS, *from* καμαρόω, *I arch over*, in *Architecture*, denotes an elevation with an arch or vault.

CAMAROSIS, among *Physicians*, denotes a FRACTURE of a bone, wherein the two broken ends rise and form a kind of *camera*, or arch.

This is also called *camurum*, and by modern Latin writers *cumeratio*, sometimes *fornicatio*.—It is commonly restrained to fractures in the skull.

CAMBAYES, in *Commerce*, cotton cloths made at Bengal, Madrafs, and fome other places on the coaft of Coromandel. They are proper for the trade of Marfeilles, whither the Engliſh at Madrafs fend great numbers of them. Many are alſo imported into Holland.

CAMBER-*beam*, in *Building*, a piece of timber cut archwiſe, or with an obtuſe angle in the middle, commonly uſed in platforms; as church-leads, and on other occaſions, where long and ſtrong beams are required. A *camber-beam* is much ſtronger than another of the ſame ſize; ſince being laid with the hollow ſide downwards, as they uſually are, it repreſents a kind of arch.

CAMBERED-*deck*, in *Ship-building*. See DECK.

CAMBIO, an Italian word which ſignifies *exchange*; commonly uſed at Provence, and in ſome other countries, particularly Holland.

CAMBIST, a name given in France to thoſe who trade in notes and bills of exchange. The word *cambiſt*, though a term of antiquity, is even now a technical word, or ſome uſe among merchants, traders, and bankers. Some derive it from the Latin *cambium*, or rather *cambio*.

CAMBLET, or CHAMBLET, a ſtuff ſometimes of wool, ſometimes ſilk, and ſometimes hair, eſpecially that of goats, with wool or ſilk: in ſome, the warp is ſilk and wool twiſted together, and the woof hair.

The true or oriental *camblet* is made of the pure hair of a ſort of goat, frequent about Angora, and which makes the riches of that city, all the inhabitants whereof are employed in the manufacture and commerce of *camblets*. It is certain we find mention in middle age writers of ſtuffs made of camel's hair, under the denominations of *camelotum* and *camelinum*, whence probably the origin of the term; but theſe are repreſented as ſtrangely coarſe, rough and prickly, and ſeem to have been chiefly uſed among the monks by way of mortification, as the hair-ſhirt of later times. Du-Cange, Gloſſ. Lat.

We have no *camblets* made in Europe of the goats hair alone; even at Bruſſels they find it neceſſary to add a mixture of woollen thread.

England, France, Holland, and Flanders, are the chief places of this manufacture. Bruſſels exceeds them all in the beauty and quality of its *camblets*; thoſe of England are reputed the ſecond.

CAMBLETS, *figured*, are thoſe of one colour, whereon are ſtamped various figures, flowers, foliages, &c. by means of *hot irons*, which are a kind of moulds, paſſed together with the ſtuff, under a preſs. Theſe are chiefly brought from Amiens and Flanders: the commerce of theſe was anciently much more conſiderable than at preſent.

CAMBLETS, *water*, thoſe which, after weaving, receive certain preparation with water; and are afterwards paſſed under a hot-preſs, which gives them a ſmoothneſs and luſtre.

CAMBLETS, *waved*, are thoſe whereon waves are impreſſed, as on tabbies; by means of a calender, under which they are paſſed and repaſſed ſeveral times.

The manufacturers, &c. of *cambliets*, are to take care they do not acquire any falſe and needleſs plaits; it being almoſt impoſſible to get them out again. This is notorious, even to a proverb: we ſay, a perſon is like *cambiet*, he has taken his plait.

CAMBNITES *lapis*, a name given by the *Writers of the Middle Ages* to a ſtone, of which they record virtues which appear to favour too much of imaginary ones, ſuch as the curing of the dropſy by being tied to the arm: it ſeems to have been only a cloudy and leſs valuable kind of brown cryſtal.

CAMBOGIA, in *Botany*, a genus of the *polyandria monogynia* claſs; the corolla is made up of four petals, the calyx has four leaves, and the fruit is a kind of apple containing eight cells, with ſingle ſeeds. There is one ſpecies.

CAMBRASINES, in *Commerce*, fine linen made in Egypt, of which there is a conſiderable trade at Cairo, Alexandria, and Roſetta or Raſchit. They are called *cambraſines*, from their reſemblance to cambrics.

CAMBRIC, in *Commerce*, a ſpecies of linen made of flax, very fine and white; the name of which was originally derived from the city of Cambray, where they were firſt manufactured. They are now made at other places in France.

The manufacture of *cambrics* hath long ſince proved of extraordinary advantage to France. For many years it appeared that England did not in this article contribute leſs than 200,000 *l.* per annum to the intereſt of France. This proved motive ſufficient to induce the parliament of Great-Britain to enact many ſalutary laws to prevent this great loſs of our wealth. *See* 18 Geo. II. c. 36. and 21 Geo. II. c. 26. See alſo that, 32 Geo. II. c. 32. and 4 Geo. III. c. 37. which regulates the *cambric* manufactory now long ſince introduced into Wincheſter in Suſſex; but very ſoon aboliſhed. The *cambrics* now allowed in this country are manufactured in Scotland and Ireland. Any perſons convicted of wearing, ſelling (except for exportation), or making up for hire any *cambrics* or French lawns, are liable to a penalty of 5*l.* by the two firſt ſtatutes cited as above.

CAMBRIDGE *Manuſcript*, a copy of the Goſpels and Acts of the Apoſtles in Greek and Latin. It was found in the monaſtery of Irenæus, at Lyons, in the year 1562, and gave it to the univerſity of Cambridge in 1568. It is a quarto ſize, and written on vellum; but ſeveral leaves of it are much torn and mutilated, ten of which are ſupplied by a later tranſcriber. Beza conjectures that this *manuſcript* might have exiſted as early as the time of Irenæus: Weſtein apprehends, that it either returned or was firſt brought from Egypt into France; that it is the ſame copy which Druthmar, an ancient expoſitor who lived about the year 840, had ſeen, and which, he obſerves, was aſcribed to St. Hilary; and that R. Stephanus had given a particular account of it in his edition of the New Teſtament in 1550. It is uſually called Stephen's ſecond manuſcript. Mill agrees with F. Simon in opinion that it was written in the weſtern part of the world by a Latin ſcribe, and that it is to a great degree interpolated and corrupted: he obſerves, that it agrees ſo much with the Latin Vulgate, as to afford reaſon for concluding, that it was corrected or formed upon a corrupt and faulty copy of that tranſlation. From this and the CLERMONT copy of St. Paul's Epiſtles, Beza publiſhed his larger Annotations in 1589. See Weſtein's Prolegomena to his folio edition of the New Teſt. vol. i. p. 28. Kuſter's edition of Mill's Teſtament, Proleg. p. 132. Mill. Prolor. in New Teſt. Amſt. 1735.

CAMEA. See CAMMA.

CAMEHUIA. See CAMAIEU.

CAMEL, *Camelus*, in the Linnæan ſyſtem of *Zoology*. This is a diſtinct genus of animals; of the order of *pecora*; the great character of which is the want of horns, which all the other genuſes of the *pecora* have: they have ſix cutting teeth in the lower jaw and none in the upper; and the upper lip is divided like that of hare. The hoofs are ſmall.

The word is formed from the Greek καμηλος, which ſignifies the ſame; and, according to Nicod, from the Hebrew *gamel*; but according to others from καμπτω, on account of the bunch on its back.

There are four ſpecies of *camels*: 1. The *camel*, with one bunch on its back, called the DROMEDARY. 2. The Bactrian *camel*, with two bunches. 3. The Peruvian *camel*, called GUANA, and by ſome *alpaka-camels*, with a pectoral bunch. And, 4. The PACO, uſually called the Indian or Peruvian ſheep, without any bunch at all.

The dromedary is chiefly uſed for riding; the Bactrian *camel*, or that with two bunches on its back, for travelling with loads.

The *camel* is a domeſtic beaſt of burden, of gentle diſpoſition, much uſed for carriage in divers parts of Aſia; and making the chief riches of the Arabs.

In Perſia they only diſtinguiſh two ſorts of *camels*, viz. the ſouthern, which are ſmaller, and not fit to carry above ſeven hundred weight; and the northern, which are bigger, and able to carry twelve or thirteen hundred weight.

The name *camel*, among us, is vulgarly reſtrained to that ſort which has but one bunch on the back; the appellation *dromedary* being given to thoſe which have two. In this we follow the example of Solinus, contrary to Pliny, Ariſtotle, and the generality of ancient naturaliſts. The bunch on the *camel*'s back is not formed by the cavity of the *ſpina dorſi*, but is uſually ſaid to be a callous ſort of fleſh. The academiſts of Paris found it mere hair; and that when this was preſſed cloſe down, the creature appeared no more bunch-backed than a ſwine. Pliny affirms, that the *camel* can endure four days without drink; whence Perſius gives it the appellation *ſitiens*. They can live on the little ſhrubs which the deſerts produce, and are ſatisfied for a whole day with half a gallon of beans and barley, or balls made of the flour. The fleſhy foot of the *camel* is formed for travelling on the hot lands, which would parch and deſtroy the hoof. Pococke's Deſcript. of the Eaſt, vol. i. p. 208. Shaw's Travels, p. 239.

Camel's milk is ſaid to be ſovereign againſt the dropſy, for which purpoſe the Arabs drink a pint per day for three weeks.

Native *ſal* AMMONIAC is commonly ſuppoſed to be the urine of camels.

The Turks reckon the flesh of the young *camel* delicious food; but prohibit the use of it to Christians, lest the breed should be destroyed.

Camels call their hair in the spring, which is gathered up with great care, on account of the traffic thereof, which is very considerable. When left bare of hair they pitch them over to defend them from the flies.

They spin the *camel's* hair and weave it into stuffs: it is sometimes also used with other hairs in making of hats. The belt hair is that from the *camel's* back.

Camels are chiefly used in CARAVANS; and they travel for fifteen or sixteen hours without stopping, at the rate of two miles and a half an hour. They are very apt to slide; for which reason, in passing slippery ways, their leaders strew carpets under them, sometimes to the number of a hundred, one before another.

The *camel* that carries Mahomet's standard, which the caravan of pilgrims offer yearly on the tomb of their prophet, is exempted the rest of its life from all services. It is even pretended that this happy beast will rise again at the general resurrection, and enjoy the pleasures of paradise.

On medals the *camel* is the symbol of Arabia, when found on the coins of any other nations. Thus, on a medal of the gens Plautia, we find a woman's head with a mural crown, *L. Plautius Ædil. Cur. S. C.* and on the reverse, *Judæa*; and on the exergue, *Bacchius*; the device, a man on his knees, holding with his right hand a *camel* by the bridle, and with the left, a branch of palm. It also denotes alliance with Arabia.

CAMEL, in *Mechanics*, a kind of machine used in Holland for raising or lifting ships.

The *camel* was invented by a burgomaster of Amsterdam, towards the close of the last century. It took the denomination from its heaviness or strength.

Its use is to raise vessels, in order to bring them over the Pampus, which is at the mouth of the river Y, where the shallowness of the water hinders large ships from passing.

CAMELS *hay*, *fœnum cameli*num, an appellation given to the plant *tragacantha*, or *juncus odoratus*. See SCAMANTH, and ICHLEMUM.

CAMELEON, CHAMÆLEON, in *Natural History*, a little animal, famous among the ancient and modern writers, for a faculty it is supposed to have, of changing its colour, and assuming those of the objects near it.

It is a species of the LIZARD, with a short, round, incurvated tail, and two or three toes joined together.

There are four distinct varieties of this animal: 1. The Arabian kind, which is small, and hardly exceeding the green lizard in size: this is of a whitish colour, variegated with yellow and reddish spots. 2. The Ægyptian, which is twice as large as the Arabian, and is of a middle colour, between the whitish hue of the Arabian and a fair green: this changes its colour to a paler or deeper yellow. 3. The Mexican. And, 4. a kind sometimes shewn about as a sight, and met with by J. Faber Lynceus at Rome, which differed from all the others. The Arabian and Mexican *cameleons* seldom exceed six inches in length: the Ægyptian is nine or more. The head is very like that of some fishes, and is joined almost immediately to the breast, the neck being extremely short, and having at the sides two cartilaginous eminences, in the manner of fishes. It has a creft standing up in the middle of the forehead, and two others over the eyes, and between the creft there are two remarkable depressions; the nose and mouth, running from the eyes with a double edge to the end of the snout, resemble those of a finger at the extremity of the nose there are two perforations, which seem to serve as nostrils; the mouth being always kept close shut, and the creature appearing to have no power of respiring but by means of these. Its mouth is furnished with teeth, or rather with continued denticulated bones. These are of no service to the creature in eating, since it preys on flies, and swallows them whole; but may serve for its defence for holding fast a stick in its mouth, which, according to Ælian, this creature does, placing the stick cross-ways, to prevent its being swallowed by serpents.

The structure and motion of this creature's eyes are very surprising; they are very large, and set in large cavities, appearing to be large spheres, of which one half stands out of the head, and is covered with a thin skin, perforated with a small hole at the top, through which is seen a very vivid and bright pupil, surrounded with a yellow iris; this hole is properly a longitudinal slit, which the creature opens more or less wide at pleasure, and the eye seems fixed to this eye-lid, so as to follow all its motions, not turning round within it, as in other creatures. The motion of the eyes of this creature is not less singular than their structure, since it can turn them so as to see what passes either far backward, on either side, or directly behind it, without at all moving the head, which is fixed to the shoulders; and the creature can give one eye all these motions, while the other is perfectly still. The trunk of the body is properly all great, for the creature has no belly, its ribs being confined to the *thighs*; the feet have all five toes, two behind, and three before, the hinder ones being as large as the others. This creature moves as slow as the tortoise, which appears very singular, as its legs are sufficiently long, and it has no great weight of body to carry; but it is said, that on trees, in its wild state, it moves very nimbly. Its tail, when inflated, is round as that of a rat or snake; when empty, it is very flat, and has three longitudinal ridges running along it, which are owing to the apophyses of the spine. This tail is a great safety to the creature on trees, as it twists it round the branches when in any danger of falling. See *Tab. of Serpents*.

The accounts given by the ancients, and later writers, of the long hollow tongue of the *cameleon*, which it can dart with such celerity to take flies, by means of a fringy nodule at the end, is found, on experience of those who have kept the creature alive, to be true. M. de la Hire thinks that it is provided with two kinds of muscles, the one circular and the other longitudinal, by the action of the former of which it is extended, and contracted by that of the latter. Those among the fostner, therefore, who suppose the *cameleon* lived on the air only, were greatly mistaken; some, of late, have also favoured this opinion, because of the long time the creature will live without food; but this is the case with all the serpent kind also, which yet we know to eat solid food when they can get it.

The tongue is half the length of the animal; consisting of a white flesh, round as far as the tip, which is flat and hollow; somewhat like an *elephant's proboscis*, or trunk; and accordingly, some call it a *trunk*.

The thickness of its body is not to be determined, as the creature alters that at pleasure, whilst it more or less inflates its body; and this inflation not only goes through the whole body, but into the legs and tail. This inflation is not at all like the breathing of other animals, for the body, when thus puffed out, will remain to two hours, only gradually and insensibly sinking all the time, and afterwards will be inflated again, but much more quickly than it subsided. It is also a long time to continue either of these states, but more frequently remains empty for a considerable space, in which time, though it appeared before in good case, it looks miserably lean and lank, and its back-bone may be clearly seen, its ribs counted, and even the large tendons of the feet distinctly observed by the naked eye through the skin. The back-bone, however, is not serrated, as many have affirmed, but makes, in this its lean state, a *plain sharp* ridge, and the whole animal looks so *miserably meagre*, that it has not unaptly been called a *living skin*.

Naturalists are very little agreed, as to the *reason* or manner of its change of colour: some, as Seneca, maintain it done by *suffusion*; others, as Solinus, by *reflection*; others, as the Cartesians, by the *different disposition* of the parts that compose the skin, which give a different modification to the rays of light. Kircher ascribes the change of colour in the *cameleon* to the power of imagination in the animal, because it lasts it when dead: others, as Dr. Goddard, ascribe the change to the grains of the skin; which in the several postures, he thinks may shew several colours; and, when the creature is in full vigour, may have, as he terms it, *rainbow spots*; that is, the effect of mirrors, and reflect the colours of bodies adjacent.

The animal having it in its power to fill the skin more or less, has it so in its power not only to alter the tone and texture of the fibres, upon which their reflective quality, in a great measure, depends; but also to bring parts into sight which before lay concealed, or to conceal such as before lay open: and it is more than probable, that the parts which are ordinarily covered, are of a somewhat different colour from those constantly open to the air.

On these principles, probably, all the phenomena in the *cameleon's* colour may be solved. The animal, it is evident, has a power to reflect different-coloured rays from the same parts; also to make certain parts reflect; and to prevent others reflecting; and hence that variety, that medley of colours.

See an account of a particular species of *cameleon*, by Dr. Parson's, Phil. Trans. vol. xvii. N° 29. an. 1568.

Matthiolus relates several superstitious notions of the ancients touching the *cameleon*. Pliny affures us, that Democritus had composed a whole book of such follies. This is not the only animal poffeffed of the property of changing its colour; Gron mentions another sort of lizard, which, when he swells with anger, changes his colour from green to a kind of ruffet. The like is faid of the *major musciel*, or lizard in the island of Nevis.

CAMELEON, CHAMALEON, in *Astronomy*, one of the constellations of the southern hemisphere, near the pole, and invisible to us.

The stars in this constellation, according to Sharp's Catalogue, are ten; their magnitude, situation, longitude, and latitude are as follow.

Situation of the stars.	Sign.	Longitud.		Latitude.		Magnitudes.
		°	′	°	′	
In the fore-foot.	♑	1	31	33	43	5
In the neck.	♒	28	26	37	58	5
In the back.		26	30	10	38	5
In the hind-feet.	♓	1	43	44	47	5
In the root of the tail.		3	33	49	1	5
5.						
In the middle of the tail.		3	39	49	32	5
		0	18	42	53	5
		1	38	30	15	6
In the extremity of the tail.	♈	25	22	29	58	5
		27	4	31	15	5

CAMELITA, *bos*, in *Natural History*. See BISON.

CAMELLIA, in *Botany*, a name given by Linnæus to a genus of plants mentioned in Kempfer's Japan, under the name of *tsubaki*. It belongs to the class of *monadelphia polyandria*. The characters of the genus are these: the perianthium is composed of several leaves, and is of a roundish figure, and imbricated, being formed of a number of roundish scales, the internal ones growing gradually larger than the others, and all of them hollowed and deciduous; the flower is composed of five petals of an oval figure, and growing together at the base; the filamina are a great number of filamenta that stand erect, and are formed in the lower part into a sort of cocoon, which is larger than the style. They are free at the top, and are shorter than the flower; the antheræ are simple; the pistil has a roundish germen; the style is pointed, and of the same length with the filamina; and the stigma is acute and bent; the fruit is a turbinated woody capsule, with some furrows on its surface. There is one species.

CAMELOPARDAL, in *Zoology*, an animal of a very singular kind, and seeming properly to belong to no known genus of animals, but to be perfectly *sui generis*. It is called *camelopardalis* by Latin authors, *giraffa* and *zurnapa* by eastern nations. Linnæus makes it a species of the *cervus*, or *stag* kind, with simple horns, and fore-legs very long. See a letter concerning a species of this animal found about the Cape of Good Hope, by captain Carteret, in the Philosophical Transactions, vol. lx. N° 3. an. 1770.

It is not certainly known whether it chews the cud or not; but as its hoofs are cloven, as it has horns on its forehead, as it wants the fore-teeth in its upper jaw, and feeds on vegetables, it is probable that it does.

It is a singular, elegant, and beautiful creature, and is very remarkably tame and tractable, even scarce less so than a sheep, and seems intended by nature for a domestic, not a savage animal. Its head is wholly of the make of a stag's, but differs in sex, and has two little obtuse horns, which are not more than six fingers-breadth long, and are hairy: the male and female both have these, and the latter is distinguished by having them shorter than the former. Its ears are long, and like those of the ox kind; its tongue is also like that of an ox, and it wants the fore-teeth in the upper-jaw. Its neck is remarkably long, straight, and slender, in a grown animal. The neck is usually seven feet long, and the measure from the tail to the top of the head eighteen feet; and when it stands erect, its head is sixteen feet from the ground; it has a small mane; its legs are very slender, and the fore-legs very long; the hinder ones very short, so that the creature seems always to stand upright.

Its hoofs are cloven exactly like those of the ox, its tail reaches down to its hams, and is rounded and covered with very thick hairs; the middle of its body is slender: it is very like the camel in all its natural properties: when it runs it holds the two fore-feet together, it lies down on the belly, and claps its neck down on the thighs and breast in the manner of the camel. As it stands it can scarce reach to eat the grass, unless its fore-legs are very far expanded, and that is a posture of great pain to it; so that nature seems to have allotted it to feed in its wild state on the leaves of trees, which its long neck will very well enable it to get at. It is very beautifully spotted all over its body in the manner of the leopard.

The velvety covering of its horns seems to make it of the stag kind, but its shape is wholly different from those of that genus.

It is found in Ethiopia, and other parts of Africa. The horns and hoofs rasped, pulverised, and taken inwardly, are good for the epilepsy, stop a looseness, and resist poison.

CAMELOPARDALUS, in *Astronomy*, a new constellation of the northern hemisphere, formed by Hevelius, consisting of 32 stars still observed by him, situate between Cepheus, Cassiopeia, Perseus, the two Bears, and Draco, and containing 58 stars in the British Catalogue.

Situation of the stars.	Sign.	Longitude.		Latitude North.		Magnitudes.
		°	′	°	′	
	♊	11	40	50	31	34
		11	57	8	30	57
		12	51	59	30	33
Between the hind-feet.		13	54	51	54	1
Below the left knee of the hind-foot.	♋	24	49	40	32	25
5						
In the hoof of the left foot.		25	12	24	32	55
		14	57	53	30	51
		15	18	8	30	11
		Unknown		Unknown		4
		16	56	13	37	23
10						
		17	10	19	35	53
		17	11	35	31	56
		16	36	52	29	24
		18	22	48	39	19
		19	10	41	34	52
15						
		19	46	30	14	15
		Unknown		Unknown		6
		21	14	38	31	32
		22	26	24	40	13
		21	38	13	53	6
20						
		22	25	38	38	30
		22	13	37	31	57
		23	17	20	38	1
		22	54	5	33	8
		22	59	14	31	8
25						
		23	2	23	32	39
		Unknown		Unknown		5
		23	33	51	33	28
		24	8	37	33	0
		24	32	8	35	19
30						
		24	54	32	36	24
		24	50	2	12	13
		25	33	28	12	10
		25	32	50	11	53
		Unknown		Unknown		6
35						
Between the fore-feet.		27	28	28	22	15
		27	30	30	35	28
		27	25	41	35	42
		Unknown		Unknown		6
		28	7	9	36	33
40						
	♌	1	40	37	38	39
		2	28	46	24	23
		2	56	32	42	23
		8	5	53	56	17
		8	8	30	56	30
45						
		8	35	50	16	56
		8	28	38	37	20
		11	18	43	37	28
		11	24	47	20	48
		14	12	52	28	56
50						
		11	4	9	47	27
		14	40	7	34	57
		14	28	51	18	49
		16	5	20	33	50
		Unknown		Unknown		5
55						
		16	30	40	19	22
		16	0	28	41	28
		Unknown		Unknown		5

CAMERA *Lucida*, a contrivance for blowing the fire, for the fusion of ores, without BELLOWS; by means of water falling through a funnel into a close vessel, which forces from it so much air or vapour, as continually blows the fire: if there be the space of another vessel for it to evaporate in by the way, it there lets fall its humidity, which otherwise might hinder the work.

The contrivance was named *camera Æolia* by Kircher. Hook, Phil. Coll, N° 3. p. 80.

CAMERA *lucida*, a contrivance of Dr. Hook for making the image of any thing appear on a wall in a light room, either by day or night.

Opposite to the place or wall where the appearance is to be, make a hole of at least a foot in diameter, or if there

there be a high window with a casement of this dimension in it, this will do much better without such hole, or casement opened. At a convenient distance, to present its being perceived by the company in the room, place the object or picture intended to be represented, but in an inverted situation. If the picture be transparent, reflect the sun's rays by means of a looking-glass, so as that they may pass through it towards the place of representation; and to prevent any rays from passing aside it, let the picture be encompassed with some board, or cloth. If the object be a statue, or a living creature, it must be much enlightened by casting the sun's rays on it, either by reflection, refraction, or both. Between this object and the place of representation put a broad convex glass, ground to such a convexity, as that it may represent the object distinctly in such place. The nearer this is situate to the object, the more will the image be magnified on the wall, and the farther the less; such diversity depending on the difference of the spheres of the glasses. If the object cannot be conveniently inverted, there must be two large glasses of proper spheres, situate at suitable distances, easily found by trial, to make the representations erect. This whole apparatus of object, *glasses, &c.* with the persons employed in the management of them, are to be placed without the window or hole, so that they may not be perceived by the spectators in the room, and the operation itself will be easily performed. Phil. Trans. N° 38. p. 741, seq.

CAMERA *obscura, or dark chamber*, in *Optics*, a machine, or apparatus, representing an artificial eye; wherein the images of external objects, received through a double convex glass, are exhibited distinctly, and in their native colours, on a white matter placed within the machine, in the focus of the glass.

The first invention of the *camera obscura* is ascribed to Baptista Porta. See his Magia Naturalis, lib. xvii. cap. 6. first published at Frankfort, about the year 1589, or 1591. The first four books of this work were published at Antwerp in 1560.

CAMERA *obscura, the use of the*, is manifold: it serves to very good purposes in explaining the nature of vision; and hereof in that some call it the *artificial eye*. It affords very diverting spectacles; both by exhibiting images perfectly like their objects, and each clothed in their native colours; and by expressing, at the same time, all their motions; which latter, no other art can imitate. By means of this instrument, especially by the third contrivance under mentioned, a person unacquainted with designing, will be able to delineate objects with the greatest accuracy and justness; and another well versed in painting, will find many things herein to perfect his art.

CAMERA *obscura, the theory of the*, is contained in the following proposition.

If an object A B (*Tab. Optics, fig.* 16.) radiate through a small aperture C, upon a white wall opposite to it; and the place of radiation behind the aperture *d C a* be dark; the image of the object will be painted on the wall, in an inverted situation.

For the aperture C being very small, the rays issuing from the point B will fall on *b*, those from the points A and D will fall on *a* and *d*, wherefore since the rays issuing from the several points are not confounded, they will by reflection exhibit its appearance on the wall. But since the rays A C and B C intersect each other in the aperture, and the rays from the lowest points fall on the highest, the situation of the object will of necessity be inverted.

Hence, since the angles at D and *d* are right, and the vertical ones at C are equal; B and *b*, and A and *a*, will be also equal; consequently, if the wall, where the object is delineated, be parallel to it, *a b*: A B :: *d* C : D C. That is, the height of the image will be to the height of the object, as the distance of the image from the aperture is to the distance of the object from the same.

CAMERA *obscura, construction of a*, wherein the images of external objects shall be represented distinctly, and in their genuine colours, either in an inverted, or an erect situation. 1. Darken a chamber, one of whose windows looks into a place set with various objects; leaving only a little aperture open in the one shutter. 2. In this aperture fit a lens, either plano-convex, or convex on both sides: so as to be a portion of a large sphere. 3. At a due distance, to be determined by experience, spread a paper, or white cloth, unless there be a white wall for the purpose; for on this the images of the desired objects will be delineated invertedly. 4. If it be rather desired to have them appear erect, it is done either by means of a concave lens placed between the centre and the focus of the first lens, or by receiving the image on a plane speculum inclined to the horizon under an angle of 45°, or by means of two lenses included in a draw-tube, in lieu of one.—Note, if the aperture does not exceed the bignets of a pea, the objects will be represented, even though there be no lens at all used.

To render the images clear and distinct, it is necessary the objects be illuminated by the sun's light coming on the objects from the opposite quarter; so that, if the prospect is western, the phenomena will be best in the forenoon; if eastern, in the afternoon: if northern, when they are the brightest, about noon: a southern aspect is the least eligible of any: they will be still brighter, if the spectator first stay a quarter of an hour in the dark. Care must likewise be taken, that no light escape through any chinks; and that the wall be not too much illuminated. Farther, the greater distance there is between the aperture and the wall, the larger and more distinct will the images be; but the rays becoming, thus, too much dilated, the brightness of the image is weakened, till at length it becomes invisible.

CAMERA *obscura, construction of a portable*. 1. Provide a little chest, or box of dry wood (*Tab. Optics, fig.* 17.) of the figure of a parallelepiped; its breadth about ten inches, and its length two or more feet, according to the different magnitude of the diameters of the lenses. 2. In the plane B D fit a sliding tube, E F with two lenses; or, to let the image at a less distance from the tube, with three lenses convex on both sides; the diameter of the two outer, or forwarder, to be $\frac{7}{8}$ of a foot; that of the inner less, v. gr. $\frac{3}{4}$. 3. Within the chest, at a proper distance from the tube, let up an oiled paper, perpendicularly, G H, so as images thrown upon it may be seen through. Lastly, in I make a round hole, so that a person may look conveniently through it with both eyes.

If then the tube be turned towards the objects (the lenses being at their proper distance, to be determined by experiment), the objects will be delineated on the paper G H, erect as before.

If the machine be to contrived, that a looking-glass may pass from G to C, the image will be reflected upon a rough glass plane placed horizontally at A B, with its unpolished side upwards, and a copy of it may be sketched out with a black-lead pencil. The horizontal glass plane rests on two grooves in the sides of the box, and this, as well as the looking-glass, may be lodged in a drawer at the bottom of the machine. This box is covered with an horizontal lid, under which are two wings, which open to right angles at each side of it, in order to shade the image upon the rough glass: oiled paper strained in a frame is sometimes used instead of the rough glass; a metalline speculum is preferable to the looking-glass.

CAMERA, *another portable*, may be thus made. 1. In the middle of a cistula, or chest (*Tab. Optics, fig.* 18.) raise a little turret, either round or square H I, open towards the object A B. 2. Behind the aperture, incline a little plain mirror *a b*, to an angle of 45°; which may reflect the rays. A *a* and B *b*, upon a lens convex on both sides G, included in a tube G L; or the lens may be fixed in the aperture. 3. At the distance of the focus thereof, place a table covered with a white paper E F, to receive the image *n d*. Lastly, in N M make an oblong aperture to look through, and an opening may be made in the side of the box for the convenience of drawing.

This kind of *camera* may easily be converted into a *show-box*, for viewing prints. Place the print at the bottom of the box, with its upper part inwards, where it is enlightened through the front left open for this purpose, either by day or candle-light; and the print may be viewed through the aperture in H I: the lens used in this show-box should be large enough to admit both eyes, to see the print or picture at once; and it would be convenient to have it moveable, in order to suit different eyes. See a variety of contrivances for this purpose described by Mr. Harris, in his Optics, b. ii. § 2. A considerable improvement in the *camera obscura* has been lately made by Mr. Storer, for which he has obtained a patent; this instrument, which he calls a *delineator*, is formed of two double convex lenses and a plane mirror, fitted into a proper box. One lens is placed close to the plane mirror, and making with it an angle of 45°: the other lens is placed at right angles to the former, and is fixed in a moveable tube: if the moveable lens be directed towards the object to be viewed or copied, and moved nearer to or farther from the plane mirror, till the image is distinctly formed on a ground glass, laid upon that surface of the upper lens which is next the eye, it will be found more sharp and vivid than those formed in the common *camera*; because the image is taken up by near the upper lens: by increasing the diameter of the lenses, and using those of a short focus, the effect will be much heightened.

CAMERARIA, in *Botany*, a genus of *the pentandria monogynia* class; so called by Plumier, in honour of Camerarius, a celebrated botanist of Nuremberg. Its characters are these: the flower is of one leaf, salver-shaped, and divided at the top into five acute segments; it hath five

five short inflexed stamina. In the bottom of the tube are situated two roundish germina, which afterward become two long, taper, leafy capsules, filled with oblong cylindrical seeds. There are two species, which are natives of the West Indies, and must therefore be kept in a bark stove, but in warm weather should have plenty of fresh air.

CAMERARIUS, or *Chamberlain*, an officer who had the care of the DORMITORY in ancient religious houses.

CAMERLINGO, or CAMARLINGO, the chamberlain of the pope's court or the person who has the administration of the apostolical chamber.

The word imports as much as keeper of the chamber, or treasurer; though the *camerlingo* has divers other jurisdictions which have no relation to the office of treasurer. The name anciently denoted a *cubicularius*, or gentleman of the bed-chamber; but this is now expressed by *camerario*. The *camerlingo* is the most conspicuous officer in the court of Rome; because all the revenues of the holy see are managed by the chamber of which he is president.

This office was anciently performed by the archdeacon of Rome, a dignity which was suppressed by pope Gregory VII. as of too great power and interest; insomuch that he could often controul the pontiff himself, and generally by his intrigues raised himself to the papacy. In his stead was placed a cardinal, under the title of *camerlingo*, who is assisted in his function by twelve prelates called clerks of the chamber, *clerici de camera*.

The cardinal *camerlingo*, on the death of a pope, does not enter the conclave with the rest, to assist at the election of a new one, but stays without, keeps possession of the pope's apartment in the Vatican, and whenever he goes abroad is attended by the Swiss guards, like the pope himself. He even coins money in his own name, and with his own arms; and, in fine, is a kind of vice-pope, governing the ecclesiastical state during the vacancy of the holy see.

The cardinals have also their *camerlingo*, or treasurer of their college, distinct from that of the pope: the former is elected every year, whereas the latter is for life. The person chose to this office has the receipt of all the revenues belonging to the college, which he is to distribute at the end of the year in equal portions to the cardinals then at Rome; those who are absent having no share therein after they have been six months from court.

CAMERONIANS, a sect or party in Scotland, who separated from the Presbyterians in 1666, and continued to hold their religious assemblies in the fields.

The *Cameronians* took their denomination from Richard Cameron, a famous field-preacher, who refusing to accept the indulgence to tender consciences granted by king Charles II. as such an acceptance seemed an acknowledgment of the king's supremacy, and that he had before a right to silence them, made a defection from his brethren, and even headed a rebellion, in which he was killed. His followers were never entirely reduced till the Revolution, when they voluntarily submitted to king William.

The *Cameronians* adhered rigidly to the form of government established in 1648.

CAMERONIANS, or CAMERONITES, is also the denomination of a party of Calvinists in France, who asserted, that the cause of men's doing good or evil proceeds from the knowledge which God infuses into them; and that God does not move the will physically, but only morally, in virtue of its dependence on the judgment of the mind.

They had this name from John Cameron, a famous professor, first at Glasgow, where he was born 1580, and afterwards at Bourdeaux, Sedan, and Saumur; at which last place he broached his new doctrine of grace and free-will, which was followed by Amyraut, Cappel, Bocan, Dallie, and others of the most learned among the reformed ministers, who judged Calvin's doctrine on these heads too harsh.

The Cameronians are a sort of mitigated Calvinists, and approach to the opinion of the ARMINIANS. See UNIVERSALISTS, *Arminians*.

CAMES, a name given to the small slender rods of cast-lead, of which the glaziers make their turned lead.

Their lead being cast into slender rods of twelve or fourteen inches long each, is called the *cames*; sometimes also they call each of these rods a *came*, which being afterwards drawn through their vice, makes their turned lead.

CAMILLI and CAMILLÆ, in *Antiquity*, boys and girls of ingenuous birth, who ministered in the sacrifices of the gods; and especially those who attended the *flamen dialis*, or priest of Jupiter.

The word seems borrowed from the language of the ancient Etrurians, where it signified minister, and was changed from *cernibus*.

The Tuscans also gave the appellation *Camillus* to Mercury in quality of minister of the gods.

CAMINI, or *yerva* CAMINI; an American herb, the same with what is otherwise called PARAGUAY, or *yerva conpalti*.

CAMIS, or KAMIS, in the *Japanese Theology*, denote deified souls of ancient heroes, who are supposed still to interest themselves in the welfare of the people over whom they anciently commanded.

The *camis* answer to the heroes in the ancient Greek and Roman theology, and are venerated like the saints in the modern Romish church.

Besides the heroes or *camis* beatified by the consent of antiquity, the *mikadoes*, or pontiffs, have deified many others, and continue still to grant the apotheosis to new worthies; so that they swarm with *camis*: the principal one is *Tensio Dai Sin*, the common father of Japan, to whom are paid devotions and pilgrimages extraordinary.

CAMISADE, in the *Art of War*, an attack by surprize, in the night, or at the point of day; when the enemy are supposed in bed.

The word is said to have taken its rise from an attack of this kind; wherein, as a badge, or signal to know one another by, they bore a shirt, in French called *chemise*, or *camise*, over their arms.

CAMISARDS, or CAMISARS, an appellation given by the French to the Calvinists of the Cevennes, who formed a league, and took up arms, in their own defence, in the year 1688. The etymology of the name is disputed; but it is most probably formed from *camisat*. See the preceding article.

CAMLET. See CAMELET.

CAMMOCK, in *Botany*. See REST-*harrow*.

CAMMOROS, in *Botany*, a name given by some of the old writers to the poisonous plant called by the Romans *cicuta*, or hemlock.

Cammaros was a common name among the Greeks for hemlock; and this *cammaros* is the same word, only spoke according to the Doric dialect.

As hemlock was a poisonous plant, it soon became a custom to call other poisonous plants also by its name; and *cammaros* became hence a name for the mandrake, and some of the nightshades, with some authors. Dioscorides has called one kind of aconite or wolf's-bane by this name, and others have adapted it to other such plants; but the more judicious have only given it as an additional epithet to these, expressing their being poisonous, and have added the peculiar name of the plant before it.

Many of the moderns, and even some among the ancients, have erred greatly in confounding the *cammaros* with the *cammaros*, which is an insect in figure resembling the root of this aconite.

CAMOCLADIA, in *Botany*, a genus of the *triandria monogynia* class: the calyx and corolla are divided into three parts: the drupe is oblong, with a two-lobed nucleus. There are two species.

CAMOMILE. See CHAMOMILE.

CAMP, a spacious post, or spot of ground, where an army rests, intrenches itself, or plants a picquet watch, to lodge secure either in tents, or barracks.

The *camp* is sometimes covered by an intrenchment; sometimes only by the advantages of its post: sometimes it is inclosed by *chevaux de frise* laid across each other, the ordinary practice of the old prince of Orange.

The chief skill of a general lies in the art of encamping well; this the Romans were unacquainted with, till the war with Pyrrhus; from whose camp they learned to model their own. Till then, they knew not how to post themselves to advantage, nor with any order in their *camps*.

An *encampment*, or *standing camp*, is always to have the advantage of water, forage, and fuel; with the means of covering and retrenching itself.

Where the grounds are equally dry, those *camps* are always most healthful which are pitched on the banks of large rivers; because in the hot feafon fituations of this kind have a ſtream of freſh air from the water, ſerving to carry off the moiſt and putrid exhalations. On the other hand, next to marſhes, the worſt *encampments* are on low grounds cloſe beſet with trees: for then the air is not only moiſt and hurtful in itſelf, but, by ſtagnating, becomes more ſuſceptible of corruption. However, let the ſituation be ever ſo good, *camps* are frequently rendered infectious by the putrid effluvia of rotten ſtraw, and the privies of the army; more eſpecially if the bloody flux prevails, in which caſe the beſt method of preventing a general infection is to leave the ground with the privies, foul ſtraw, and other filth of the *camp* behind. This is to be frequently done, if conſiſtent with the military operations; but when theſe render it improper to change the ground often, the privies ſhould be made deeper than uſual, and once a day a thick layer of earth thrown into them till the pits are near full, and then they are to be well covered, and ſupplied by others. It may alſo be a proper caution, to order the pits to be

made either in the front or rear, as the then ſtationary winds may beſt carry off their effluvia from the *camp*. Moreover, it will be neceſſary to change the ſtraw frequently, as being not only apt to rot, but to retain the inſect-ious ſteams of the ſick; but if freſh ſtraw cannot be procured, more care muſt be taken in airing the tents as well as the old ſtraw.

An army always encamps fronting the enemy, and generally in two parallel lines, about five hundred yards diſtant: the horſe and dragoons on the wings, and the foot in the centre; ſometimes three or four brigades encamp between the two lines, and are called the body of RESERVE. The artillery and bread-waggons are in the rear of the two lines. See PARK *of Artillery*.

A regiment of foot, conſiſting of ten companies, is allowed for encampment, one hundred and fifty yards in front, viz. five yards for pitching the tents of the two flank companies, twenty yards for four double rows of tents, thirty-five for the grand ſtreet, and ninety for four ſmaller ſtreets; but when the flank companies are detached, the right battalion companies require an extent of an hundred and twenty yards, viz. five for two ſingle rows of tents, fifteen for three double rows, and an hundred for four ſtreets: the depth of the *camp* is two hundred and ninety yards: the quarter-GUARD tents are placed in a line with thoſe of the two centre companies, fronting each other, and about the diſtance of a hundred yards from the front of the regiment: the officers tents front outwards towards the beſt of arms: the bells of arms of the regiment front the poles of the ſerjeants tents; the colours are placed in the centre of the grand ſtreet, in a line with the bells of arms: captains and lieutenants pitch in the rear of the reſpective companies: the captain-lieutenant as captain in the rear of the colonel's company: the field officers front the centres of the two ſtreets on the right and left of the battalion: the colonel fronts the colours, at the diſtance of about a hundred yards: the ſtaff-officers front the ſtreets on the right and left of the grand ſtreet; the hut-men's tents front their horſes; the grand-maſter is placed in the rear of the colonel at the diſtance of about fifty yards: the kitchens ſtand ſingly or in pairs behind their reſpective companies: and the front poles of the tents or huts of the petit-maſters are in a line with the centres of the kitchens; and the rear-GUARD's tents front outwards: when circumſtances admit, the neceſſaries ſhould be an hundred paces behind the rear-guard. If field pieces with artillery-men are attached to the battalions, the intervals are thirty yards. This diſpoſition of encampment is taken from the grand *camp* at Cox-Heath in 1778.

A ſquadron of horſe is allowed thirty paces *for* its *camp*, and thirty for an interval, or more, if the ground will admit of it. See *Standard*, and *Grand*-GUARD.

The order and contrivance of the Roman *camp* was admirable. Its figure was a ſquare, diviſed into two principal parts: in the upper part were the general's pavilion, or *prætorium*, and the tents of the chief officers; in the lower, thoſe of the inferior degree were placed.

On one ſide the *prætorium* ſtood the *quæſtorium*, or apartment of the treaſurer of the army; and near this the *forum*, both for the market-place, and the aſſembling of councils. On the other ſide of the *prætorium* were lodged the *legati*; and below it, the tribunes had their quarters oppoſite to their reſpective legions. Aſide of the tribunes were the *præfecti* of the foreign troops, over-againſt their reſpective wings; and behind theſe were the lodgments of the *equitati*, then thoſe of the *extraordinarii* and *alacri equites*, which concluded the higher part of the *camp*.

Between the two partitions was a ſpot of ground called *principia*, for the altars and images of the gods, and probably alſo the chief enſigns.

The middle of the lower partition was aſſigned to the Roman horſe; next to whom were quartered the *triarii*, then the *principes*, and cloſe by them the *haſtati*: afterwards the foreign horſe, and, laſtly, the foreign foot.

They fortified their *camp* with a ditch and parapet, which they termed *foſſa* and *vallum*: in the latter, ſome diſtinguiſh two parts, viz. the agger or earth, and the ſudes or wooden ſtakes driven in to ſecure it.

The *camps* were ſometimes ſurrounded with walls made of brown ſtone; and the tents themſelves formed of the ſame matter.

The Roman *camps* ſometimes gave the origin to cities, which were formed of them, and often took their denomination from thoſe whoſe *camps* they had been. This chiefly happened when any army continued long in a place, eſpecially in the winter, where they were obliged to build many works, and fortify themſelves exactly. Thus the Caſtra Cornelia, a city of Africa, not far from Utica, was originally the *camp* of Cornelius Scipio. Liv. lib. xxix. cap. 35.

Antiquaries obſerve, that all the modern towns among us, whoſe names end in *cester* or *chyſter*, were originally theſe *caſtra hyberna* of the Romans.

In the Grecian *camps*, the moſt valiant of the ſoldiers were placed at the extremities; the reſt in the middle, that the ſtronger might be as a guard to the weaker, and ſuſtain the firſt onſets. Thus Achilles and Ajax are poſted by Homer at the ends of the Grecian *camp* before Troy, as bulwarks on each ſide. Il. b. ver. 806.

In *camps* for continuance, they erected altars to their gods, places for public aſſemblies, courts of juſtice, and the like.

According to Plutarch, the Lacedæmonians alone had no ſtage-players, buffoons, dancers, or ſongſtreſſes in their *camps*. Yet the Spartan law never allowed his people greater liberty in the *camp* than in the city, to allure them to ſtrive with more delight in the wars. Hence their exerciſes were more moderate, their fare leſs hard, and their actions leſs ſeverely noted when in the field than at home; ſo that they were the only people in the world to whom war gave repoſe. Plut. in Cleom. & in Lycurg.

The Spartan *camp* was of a circular figure, which was preferibed by Lycurgus as the beſt fitted for defence, contrary to the Roman rule, whoſe *camps* were always quadrangular. All angular forms were rejected by Lycurgus, by reaſon the angles are neither ſo for ſervice, nor defenſible, unleſs guarded by a river, mountain, wall, or other work.

The magnificence of the Turkiſh court appears more in the *camp* than in the ſeraglio: the tents of the great officers appear ſo many palaces, both for extent, ornament, and coſtly furniture; having all the accommodations both of city and country; each grandee has two ſets of tents; one of which is advanced a conce, or day's journey, before the other; ſo that leaving one tent in the morning, they find another ready furniſhed in the evening.

In the front of the Turkiſh *camp* are quartered the janizaries, and other foot, whoſe tents encompaſs their aga. In the rear are the quarters of the ſpahis and other horſemen. The body of the *camp* is poſſeſſed by the ſtately tents or pavilions of the vizier or general, *tent ofjendi* or chancellor, *bahrja* or ſteward, the *teſterdar kaſeha* or lord treaſurer, and *kapiſſer kahiſſe* or maſter of the ceremonies.

In the middle of theſe tents is a ſpacious field, wherein are erected a building for the *divan*, and a *boſſon* or treaſury.

When the ground is marked out for a *camp*, all wait for the pitching of the tent *ioſier*, the place where the courts of juſtice are held; it being the ſituation of this that is to regulate the diſpoſition of all the reſt.

CAMP, *city*, *caſtra urbana*, was a place near the city-wall, not far from the *Via Nomentana*, where the prætorian guards were encamped; whence it was alſo called the *prætorian camp*, *caſtra prætoria*, or *prætorium*. The like we alſo read of at Jeruſalem, called by St. Luke abſolutely the *camp*, παρεμβολη. By which we are doubtleſs to underſtand the *caſtra Antonia*, which, Joſephus tells us, was afterwards uſed as a caſtle.

CAMP, *moveable*, *caſtra lunata*, thoſe made in figure of a half-moon.

CAMP, *naval*, *caſtra navalia*, or *navalia*, denoted a ſtation of ſhips.

CAMP, *flanding*, *caſtra ſtativa*, was that wherein they deſigned to continue longer in a place; and therefore more pains were taken to fortify and regulate it.

The Roman *camps*, in a march, were alſo called in the middle age *manſiones*.

CAMP, *ſummer*, *caſtra æſtiva*, among the Romans, was ordinarily light and moveable; ſo that they might be ſet up or taken down, and removed in a night. To which caſe it was alſo called ſimply *caſtra*.

CAMP, *winter*, *caſtra hyberna*, or winter-quarters, were uſually taken up in ſome city or town; or elſe to contrived as to make almoſt a town of themſelves.

CAMP, *tertiated*, *caſtra tertiata*, thoſe which were a third part longer than broad, which Hyginus repreſents as the Roman model. *Caſtra in quantum fieri poterit tertiata eſſe debebunt—ut pauo in longum duo millia quadringenti, in latum mille ſexcenti pedes.*

CAMP, *flying*, is a ſtrong body of horſe or dragoons, to which are ſometimes added foot, commanded uſually by a lieutenant-general.

This always keeps the field, making frequent motions both to cover the garriſons in poſſeſſion, and to inſult and keep the adverſary in continual alarm, and oblige him to make diverſions.

CAMP is alſo uſed among the Siamoſe and Eaſt Indians, for a quarter of a town aſſigned to foreigners, wherein to carry on their commerce.

In thoſe *camps*, each nation forms itſelf a kind of city apart,

apart, in which their store-houses and shops are, and the factors and their families reside.

The Europeans at Siam, and in most other cities of the East, are exempted from this restraint, and allowed to live in the cities or suburbs, as they find them most commodious.

CAMP *colour-men*, are soldiers appointed to attend and assist the quarter-master general, in marking out, and keeping the *camp* clean, receiving and distributing provisions, &c.

The *camp colour-men* are drawn a man out of a company, and are exempt from all other duty during the campaign: each carries either a spade or a hatchet.

CAMP, *disease*, *Morbi castrenses*, those chiefly prevalent in armies. Under *camp*, or *field diseases*, come the plague, malignant fever, scurvy, flux, &c. Willius, physician to the king of Denmark, has a treatise on *camp diseases*. See DISEASE and SOLDIER.

The *camp disease*, *morbus castrensis*, absolutely so called, is a malignant fever. Dudley Digges died of the *camp* DISEASE, which raged in the garrison at Oxford, in 1643. On which Ed. Greaves, physician to king Charles II. has a treatise expressly under the title of Morbus Epidemicus, or the New Disease.

The *camp fever* is the same with what is otherwise called the Hungarian FEVER, and bears a near affinity to the petechial fever. See BILIOUS *fever*.

CAMP *flux*, a name frequently given to the dysentery; not as if it were of a different kind in armies, but because it is more usual there than elsewhere.

CAMP *duty*, in its utmost extent, includes every part of the service performed by the troops during the campaign. But in a more particular sense, denotes the guards ordinary and extraordinary kept in *camps*.

A great part of the *camp duty* is performed in the same manner as that of a garrison.

CAMP *fight*, or CAMP *fight*, in *Law Writers*, denotes the trial of a cause by duel, or a legal combat of two champions in the field, for decision of some controversy.

In the trial by *camp fight*, the accuser was, with the peril of his own body, to prove the accused guilty; and by offering him his glove, to challenge him to this trial, which the other must either accept of, or acknowledge himself guilty of the crime whereof he was accused.

If it were a crime deserving death, the *camp fight* was for life and death: if the offence deserved only imprisonment, the *camp fight* was accomplished, when one combatant had subdued the other, so as either to make him yield or take him prisoner. The accused had liberty to chuse another to fight in his stead, but the accuser was obliged to perform it in his own person, and with equality of weapons.

No women were permitted to be spectators, nor men under the age of thirteen. The priest and the people, who looked on, were engaged silently in prayer, that the victory might fall on him who had right. None might cry, strike, or give the least sign; which in some places was executed with so much strictness, that the executioner stood ready with an axe to cut off the right hand or foot of the party that should offend herein.

He that, being wounded, yielded himself, was at the other's mercy either to be killed or suffered to live. But if life were granted him, he was declared infamous by the judge, and disabled from ever bearing arms, or riding on horseback. Verstег. Rest. Dec. Intell. cap. iii. p. 51.

CAMP *hospital*. See HOSPITAL.

CAMP *law*, a method of deciding controversies by duel or CAMP *fight*.

CAMPAIGN, a military term, signifying the space of time during which armies are maintained, yearly, in the field.

The Germans begin their *campaign* very late; usually waiting for harvest: the French are always early, and begin sometimes in winter, by which they have reaped great advantages.

The beginning of every *campaign* is considerably more unhealthy than if the men were to remain in quarters. After the first forming of three weeks encampment, the sickness increases daily; the most infirm being by that time in the hospitals, the rest more hardened, and the weather growing daily warmer. This healthy state continues throughout the summer, unless the men get wet cloaths or wet beds; in which case a greater or lesser degree of the dysentery will appear, in proportion to the preceding heats. But the most sickly part of the *campaign* begins about the middle or end of August, whilst the days are still hot, but the nights cool and damp, with fogs and dews: then, if not sooner, the dysentery prevails: and though its violence is over by the beginning of October, yet the remitting fever, gaining ground, continues throughout the rest of the *campaign*, and never entirely ceases, even in winter-quarters, till the frosts begin.

At the beginning of a *campaign* the sickness is so uniform, that the number may be nearly predicted; but, for the rest of the season, as the diseases are then of a contagious nature, and depend so much upon the heats of summer, it is impossible to foresee how many may fall sick from the beginning to the end of autumn. It is also observed, that the last fortnight of a *campaign*, if protracted till the beginning of November, is attended with more sickness than the first two months of the encampment: so that it is better to take the field a fortnight sooner, in order to return into winter-quarters so much the earlier.

As to winter-expeditions, though severe in appearance, they are attended with little sickness, if the men have strong shoes, quarters, fuel, and provisions.

Long marches in summer are not without danger, unless made in the night, or so early in the morning as to be over before the heat of the day.

CAMPANA *Flora*, in *Botany*, a name given by Helwing, and some other of the German authors, to the plant we call *pulsatilla*, or the *passe fleur*. It was named *campana Floræ*, or Flora's bell, by Helwing, because of its being the signal of the approach of spring. In the Linnæan system, this is a species of the ANEMONE. Its characters, according to Miller, are as follow: the flower has a leafy involucrum, ending in many points; it hath two orders of petals, three in each, and a great number of slender stamina, about half the length of the petals, terminated by erect twin summits; and a great number of germina collected in a head: the germina afterward become so many seeds, having long hairy tails sitting upon the oblong receptacle. There are four species.

We generally find the *pulsatilla* on dry and barren places, as sandy hills, sterile downs, and the like; but in Prussia it is most frequent in woods, and among pines and firs, and often is found in a loose, spungy, and wet soil. There is in Prussia, a very remarkable species of it, which has a white flower; the leaves are of the jagged kind, and resemble those of the anemone; and the back part of the petals is tinged with a faint blue.

The whole genus of the *pulsatilla*, are of an acrid and caustic quality, approaching to that of the ranunculus; and, if they are given internally, without proper correctors, are poisonous; but, like the colchicum root, and some other of those caustic plants, when given with proper mixtures, and in proper doses, it proves a very valuable alexipharmic: externally it is of great service in cleansing foul ulcers.

CAMPANACEÆ, in *Botany*, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

CAMPANIAN *disease*, *Morbus campanus*, in *Antiquity*, is variously explained by modern writers. Some will have it only a sort of tubercles, or warts, on the face, to which the people of Campania were liable. Others maintain it to be the venereal disease; and hence draw an argument against the supposed novelty of that malady. Dacier will have it to be something still worse; the Campanians, it seems, were addicted to a sort of commerce too abominable to be named, *ære merigeri erant*. Whence it is, Plautus represents them as more pathic or passive than the Syrians themselves. Her. Sat. v. lib. i. ver. 62. cum not. Dacier.

CAMPANIFORMIS *flos*, in *Botany*, the term used for a flower resembling a bell in shape, and making the character of one of M. Tournefort's genuses. See BOTANY.

CAMPARCIUM. See CHAMPART.

CAMPANOLOGIA, from *campana*, *bell*, and λογος, *science*, the art or science of ringing of bells.

CAMPANULA, in *Botany*, the bell-flower, a genus of the *pentandria monogynia* class. Its characters are these: the flower is of one leaf, shaped like a bell, spreading at the base; in the bottom is situated a five-cornered nectarium, which is joined to the top of the receptacle; it hath five short stamina; below the receptacle is situated the angular germen; the empalement afterward becomes a roundish angular capsule, which in some species have three, in others five cells; each having a hole toward the top, through which the seeds are scattered when ripe. There are forty-three species.

The different sorts of this plant make beautiful ornaments for chimnies, and other places, being very tall, very much branched, and full of large and beautiful flowers, which retain their beauty a long time.

They are propagated by sowing their seeds in March, in a bed of light and unchanged soil, or by parting the roots; but the latter method, being the more expeditious, is most practised. Almost every slip, taken from the roots in September, and in March, will thrive; but the plants raised from seeds are seen to produce the finest flowers: they are very tedious, however, this way, being three or four years before they flower. They

should

should, therefore, be transplanted the September after their sowing into nursery-beds, which should be of a light soil and not wet; they should be set here at 6x inches square; and, in frosty weather, the whole beds should be covered with mats, which will greatly strengthen the roots. In the September of the third year, they should be removed into pots, and sheltered, during the severe weather, in glass frames; or else in wet weather, the pots must be turned sideways; and in very cold, they must be set under a warm wall, and covered with haum, and surrounded with a little thing on the outside of the pots, to preserve the roots from the frosts. These plants will often succeed without this care, but with it they produce their flowers in such beauty and plenty, as amply to reward it.

CAMPANULA *bifrondes*. See CONVOLVULUS.

CAMPANULATA cortex, in *Botany*, denotes bell-shaped *flowers*.

CAMPEACHY-WOOD, a *kind* of wood brought from Yucatan, a province in America, and used in dying.

The heart of the tree, which alone is used, is at first red; *after* it has been *felled* some time, it becomes black; and, if steeped in water, gives a black tincture, which may be used in writing.

It is very heavy, and burns admirably, and gives a clear lasting flame. See LOGWOOD.

Campeachy wood seems to be the same with what is otherwise called BRASIL. It takes the former denomination from the city Campeachy, about which it grows in greatest plenty.

CAMPESTRE, in *Antiquity*, a sort of cover for the privities, worn by the Romans soldiers in their field exercises; being girt under the navel, and hanging down to the knees.

The name is *supposed* to be formed from *campus*, the field or place where the Roman soldiers performed their exercises.

CAMPHOR, or CAMPHIRE, a vegetable, concrete, transparent, friable, inflammable, odoriferous, volatile substance, of an acrid, aromatic taste, easily soluble in spirit of wine; procured from a kind of laurel called *laurus camphorifera*, frequent in the islands of Borneo, and Japan, and the neighbouring mountainous coasts of India; resembling a walnut-tree. See BAY-*tree*.

The word comes from the Arabic *cafur*, or *cephur*; which signify the same thing.

All the parts of the tree are impregnated with *camphor*; but it is principally extracted from the roots by distillation. Newmann says, that it is obtained by distilling the roots, and sometimes the wood, and leaves, with water, in large iron pots, filled with earthen heads stuffed with straw: the *camphor* concretes among the straw in its crystalline form: this is called *rough camphor*, and looks like East Indian saltpetre, or common bay-salt. In this state it is imported into Europe, in canisters; and the Dutch take care that it comes all refined by sublimation, and prepared to our hands.

CAMPHOR, *manner of refining crude*. It is sublimed in low flat-bottomed glasses placed in sand: the *camphor* concretes, in the upper part of the belly of the glass, into a solid cake, which, after the vessel has been broke, is pared with a knife, and is the refined *camphor* of the shops. *Rough camphor* may be commodiously and effectually purified by distilling it in rectified spirit of wine: the spirit is recoverable by distillation, and the remaining *camphor* may be melted into a cake in the bottom of the vessel, or of another glass. Newmann's Chemical Works by Lewis, p. 316. 320.

Camphor is neither a salt nor a gum, since it is not soluble in water; nor is it a resin, since it does not yield by distillation either a phlegm, or oil, or an acid spirit, as all resins do; much less does it leave a *coal* or *caput mortuum* like those bodies. It totally vanishes and evaporates in the open air; in hot water it first runs and then evaporates; and in spirit of wine, or spirit of nitre, it wholly dissolves. It is no oil, because it is not unctuous to the touch, but is a firm, dry, crystallized matter; in its evaporation in the air, it leaves no remainder; and in close vessels over the fire, it rises entire without distillation, and appears at the top of the vessel in a dry form. It is subject to no separation of parts, and takes no empyreumatic smell; in mixing with concentrated spirit of nitre, it makes no ebullition, but placidly resolves into a sort of oil. This is extremely different from the effect of all vegetable oils, which are known to effervesce violently with this acid, and some even to take fire, and are finally converted by it into a dry resin. When broken, it appears bright, smooth, and saponaceous, but not unctuous to the touch; it consists of a copious inflammable principle, a small portion of water, and yet less of very fine and subtle earth, mixt intimately together. *Act. Eruditor.* 1727. p. 534.

The common ways of keeping it from evaporation, are by burying it in linseed, millet, pepper, or the like; but the rational way is, by keeping it from the external air; this is best done by wrapping it up in a paper or bladder, and then putting it into a leaden box, or an earthen or glass vessel set in a cool place. Or it may be preserved in large quantities, only by papering it up carefully, and putting it in wooden vessels in a cellar. Notwithstanding that it is a body so nicely and intimately combined in its own texture, yet it is ready of all vines for medicinal use; and as it is not easy to give it any preparation, so it needs none. In its natural state, it readily mixes with all oils and inflammable spirits, and this without fear of evaporation; it has no change of colour in solution with spirit of nitre, but, when dissolved with oil of vitriol, it becomes brown, and finally red; and if water be added to either of the solutions, the *camphor* is precipitated in its proper and solid form: it may, however, be absolutely dissolved, by long maceration, and frequent drawing over by the retort, with either of these menstruums.

Camphor has various uses in fire-works; in making varnish, which proves an excellent preservative of animal and vegetable bodies, as it resists worms and other insects. The substance of it also laid among cloaths, will preserve them from moths. In the courts of the eastern princes, it is burnt, together with wax, to illumine the night. It is exceedingly inflammable, so as to burn and preserve its flame in water; and in burning it consumes wholly, leaving no *feces* behind: but its principal use is in medicine.

Camphor is used in medicine as sedative and antiseptic: it succeeds well in many convulsions and other nervous affections. It is successfully used as a powerful antiseptic. The two medicinal preparations of *camphor*, in use now in the shops, are the solution of it in wine and in oils: the one called camphorated spirit of wine, the other oil of *camphor*.

The preparation of the first is by bare mixture, and requires no distillation, whether salt of tartar be or be not added to it.

The oil of *camphor* is either prepared by solution, or sublimation: the first is, either by dissolving *camphor* in the nitrous acid, or in some expressed vegetable oil, or by separating the oil which swims upon the surface of a strong solution of *camphor* in spirit of wine. To prepare the other, one part of *camphor* is to be mixed with three parts of bole Armenic, and put over the fire in a retort. The sublimed *camphor* is to be again mixed with fresh bole, and this to often repeated till no more *camphor* is found to be sublimed in the process; from this, the liquid matter, separated by distillation, is to be separated, and the oil preserved.

Camphor may also be dissolved in oil of turpentine, or mixed with Venice soap, and thus distilled, and, finally, rectified. All these oils are strongly antipruriantic, and therefore the *camphor*, in its natural state, is greatly preferable to them all. *Camphor* water, and the *flowers* of *camphor*, are also greatly inferior to the crude substance. When *camphor* is to be mixed with powders it should be gently moistened, in the rubbing, with spirit of wine; when it is to be mixed with aqueous menstruums, it should be rubbed with blanched almonds, or incorporated with the yolk of an egg.

Dr. Shaw recommends a mixture of nitre and *camphor*, as a quieter, indeed *opium*.

The learned Fr. Hoffman extols the virtues of *camphor*, given internally, as a most excellent discutient, resisting putrefactions, and as the chief alexipharmic. He adviseth it in malignant fevers, and in the venereal disease in inflammations he adds nitre. See his Dissertation, de *Camphora* Usu interno recordatione et præstantissimo.

Camphor is the most efficacious diaphoretic known: its great subtilty diffusing itself through the substance of the parts, almost as soon as the warmth of the stomach has let it in motion. It is used also in excess of the humors, as a detergent in wounds, to refill gangrene, &c. When mixed with the subtile parts of cantharides, it prevents their injuring the bladder: its exquisite fumes resisting it to follow them into all the meanders of the veins, and so thereby check aphrodisia.

Dr. Quincy observes, that *camphor* begins to be mixed, and that to good purpose, with mercurials, to guard against their stimulating properties, and to send them into the finest passages, to operate by fusion, and the force of impulse. For not only *nervina acria*, or calomel, may be hereby refrained from manifest operation in the glands about the mouth; but also the mineral turbith, which of itself acts very languidly by stool and vomit, when mixed with *camphor*, will be much less felt in those respects; and will go into the farthest circuit of motion, and promote the cutaneous discharge, in a more efficacious manner than any medicine of less specific gravity.

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M. Lemery endeavoured at a chemical analysis of *camphor*, but in vain; either its parts were too fine and volatile to be carried to any greater degree of purity or subtilty by any chemical process; or it was owing to the close union of its principles, which led him to suspect that it must be an oil, and a volatile salt, that they could not be separated.

He found that *camphor* was heavier than spirit of wine, of the same specific gravity with oil of turpentine, and lighter than oil of olives. Mem. Acad. Paris, 1708.

Camphor, he observes, does not diffolve in aqueous or phlegmatic liquors, but in fulphureous ones it does; not in alkalines, nor even in fome acids, but in fpirit of nitre. It diffolves perfectly, and without commotion. This diffolution is ordinarily called oil of *camphor*; and it is to this the medicinal virtue of *camphor* in wounds, gangrenes, and caries, is afcribed. It is not taken internally, for fear of its fharpnefs and corrofivenefs; though M. Lemery has found good effects from two or three drops by the mouth, in obftructions and fits of the mother: in thefe cafes, indeed, he generally mixed it with as much oil of amber.

There is a common verfe to the difcredit of *camphor*, as if its fmell emafculated:

Camphora *per nares caftrat odore mares.*

But the proverb, according to Scaliger and Tulpius, is falfe.

Camphor, being boiled in *aqua vitæ*, in a clofe place, till the whole be evaporated; if a lighted torch or candle be introduced, the air in the whole place will immediately catch fire, and appear in a flame, without doing any damage to the place or fpectators.

It has been found in Ceylon, that the root of the tree which yields cinnamon, yields, by infition, a matter that has a ftrong fmell of *camphor*, and many of its virtues; whence naturalifts, by miftake, have fuppofed that all *camphor* came from that tree.

Modern chemifts have difcovered, that many aromatic plants, as thyme, rofemary, fage, and almoft all the labiated kinds yield a fubftance of the nature of *camphor*, which may be extracted, although in fmall quantities.

What is called *artificial camphor*, is prepared with gum fandarach, and white vinegar diftilled, kept twenty days in horfe-dung, and afterwards expofed a month to the fun to dry; or the end of which the *camphor* is found, in form of the cruft of a white loaf.—This is alfo called *juniper gum*, *white varnifh*, and *maftic*.

CAMPHOR-*julep*. See JULEP.

CAMPHORA, the *camphor-tree*, is a fpecies of the *laurus* or BAY, which grows naturally in Japan, and feveral parts of India. It is a tree of middling ftature, with oval, fpear-fhaped leaves, having three longitudinal veins which unite above the bafe. Thefe are male and female on different trees. The *camphor-tree* requires no artificial heat in winter, but will thrive very well in a warm, dry green-houfe.

CAMPHORATA, a medicinal plant, the *camphorofma* of Linnæus; called, in Englifh, ftinking ground-pine; reputed cephalic and nervine; though little ufed in the modern practice.

It takes the name from its fmell, which bears fome refemblance to that of camphor.

The *camphorata Montpelienfis*, growing by the road-fides in Languedoc, and efpecially about Montpelier, has been lately produced as a fpecific for the dropfy, and aſthma. Mr. Bartlet has given its hiſtory, analyſis, and an account of its virtues. A. D. S. an. 1703. p. 65. H. 55. For its characters fee CAMPHOROSMA.

CAMPHORATED, denotes a thing tinctured, or impregnated with CAMPHOR.

Spirit of wine *camphorated*, is a remedy frequently applied externally in cafes of inflammations, &c.

CAMPHOROSMA, in *Botany*, a genus of the *tetrandria monogynia* claſs: the calyx is pitcher-fhaped and indentedly three; there is no corolla; and the capſule contains a ſingle ſeed. There are four ſpecies. See CAMPHORATA.

CAMPICURSIO, in the *Ancient Military Art*, a march of armed men for ſeveral miles, from and back again to the camp, to inſtruct them in the military uſes. This exerciſe was nearly akin to the *decurſio*, from which it only differed, in that the latter was performed by horſemen, the former alſo by foot.

CAMPIDOCTORES, or CAMPIDUCTORES, in the *Roman Army*, were officers who inſtructed the ſoldiery in the diſcipline and exerciſes of war, and the art of handling their weapons to advantage. Theſe are alſo ſometimes called *campiones*, and *campidactores*.

CAMPIDUCTOR, in *Middle Age Writers*, ſignifies the leader or commander of an army, or party.

CAMPION, *Lychnis*, in *Botany*, a genus of the *decandria pentagynia* claſs. Its characters are theſe: the flower has five petals, whoſe tails are the length of the empalement. It has ten ſtamina, which are alternately ranged, and faſtened to the tails of the petals. In the centre is ſituated an almoſt oval pyramis: the empalement afterward becomes an oval capſule with one cell, opening with five valves, filled with roundiſh ſeeds. Linnæus enumerates ſeven, and Miller eight ſpecies of this plant, which, for the beauty of their flowers, are cultivated in our gardens; they are very hardy plants, and are eaſily propagated, either by parting the roots, or by the ſeed.

The roots ſhould be parted in the latter end of Auguſt, or beginning of September, and planted in a light dry ſoil.

If they are to be raiſed from ſeed, they ſhould be ſown in March upon a bed of light freſh earth, and in May the young plants ſhould be removed into another bed of the like earth, at about ſix inches diſtance from each other, and watered and ſhaded till they have taken root; after which they will require no farther care, but to be kept clear from weeds; at the end of the September following they may be removed, for the laſt time, into the borders where they are to ſtand, and they will flower in the June and July following; when, if their ſeeds are ſuffered to ripen, they will ſow themſelves, and come up without any farther trouble.

CAMPION, *wild*. See AGROSTEMA.

CAMPIPARS. See CHASSERET.

CAMPITÆ, in *Church Hiſtory*, an appellation given to the DONATISTS on account of their aſſembling in the fields for want of churches.

For a ſimilar reaſon, they were alſo denominated *Montenſes*, and *Rupitani*.

CAMPUSA, in *Botany*, a name given by Myreplus and others to the plant we call SCABIOUS.

CAMPODES, in *Botany*, a name given by Rivinus to a plant comprized by Linnæus under the genus of *ſonchus*, the *lerpidoles* of other authors. See CATERPILLARS.

CAMPUS, in *Antiquity*, a field or vacant plain in a city not built on, left vacant either upon account of ſhews, combats, exerciſes, or other uſes of the citizens.

CAMPUS *Aluii*, in *Antient Cuſtoms*, an anniverſary aſſembly of our anceſtors, held on May-day; where they confederated together for defence of the kingdom againſt all its enemies.

CAMPUS *Martius*, a large plain field in the ſuburbs of antient Rome, lying between the Quirinal and Capitoline mounts, and the Tyber; thus called becauſe conſecrated to the god Mars, and ſet apart for military ſports and exerciſes, to which the Roman youth were trained; as the uſe and handling of arms, and all manner of feats of activity.

Here the races were run, either with chariots or ſingle horſes; here alſo ſtood the *villa publica*, or palace for the reception of ambaſſadors, who were not permitted to enter the city. Many of the public *comitia* were held in the ſame field, part of which, for that purpoſe, was encloſed with rails.

The place was alſo nobly decorated with ſtatues, arches, columns, porticos, and the like ſtructures.

CAMPUS *Martius* is alſo uſed in a more general ſenſe by *Middle Age Writers*, for any large plain open place near a great city, wherein the inhabitants were trained to the exerciſe of arms. Of ſuch we find mention at Verona, Tyers, Dornic, and even Conſtantinople.

Among the French, *campus martius* was an appellation given to the yearly aſſemblies of the people called by the kings, either for enacting new laws, or deliberating on the great affairs of the nation. They were thus denominated, either becauſe uſually held in the month of March, or in imitation of the *campus martius* of the Romans, which was allotted for the like uſe. In after-times they were called *campus majus*, and, by corruption, *campus madius*, and *magius*, becauſe the time of holding them was altered by Pepin to the month of May.

Under the third line of kings, their aſſemblies took the denomination of ſtates general, *ſtati generales*.

CAMERIA *Scelerates*, a place without the walls of ancient Rome, where the Veſtals, who had violated their vow of virginity, were buried alive. Kennet.

CAMSHALL, a word uſed in Zetland, to denote the *os ſepiæ*, which is ſometimes found on the ſhores of that iſland. Phil. Tranſ. N° 473. ſect. 8. See CUTTLE-*fiſh bone*.

CAMURI, in *Ichthyology*, the name of a ſea-fiſh of the *lupus* or *baſſe* kind, common in the ſeas and large rivers of America. It grows to about two feet long, and a foot thick.

Its head is monſtrouſly large, and its mouth extremely wide; it has a large and ſtrong fin on its back, which is armed with ſharp prickles, and has a furrow in the back behind it, into which the fiſh can lay it down upon occaſion; its ſides are yellowiſh, and its belly white; its fins of a brownith yellow; and its ſide-lines, which run from the gills to the tail, broad and of a fine black. Willoughby.

CAMUS, probably derived from *καμπτω*, *I bend*, a perſon with a low, flat noſe, hollowed or ſunk in the middle. The Tartars are great admirers of *camus* beauties. Rubruquis obſerves, that the wife of the great Genghis Kan, a celebrated beauty, had only two holes for a noſe.

CAN, in *Sea Language*.—A pump's *can*, is a ſort of wooden jug or pitcher, wherewith ſeamen pour water into pumps to make them work.

CAN-*hoys*. See BUOY.

CAN *hook*, an inſtrument uſed to ſling a cask by the ends of the ſtaves: it conſiſts of a broad and flat hook fixed to each end of a ſhort rope, and the tackle which ſerves to hoiſt or lower it is faſtened to the middle of the rope.

CANADA *flag*, *Cornu Canadenſe*, the ſame with the *Virginian* DEER. See MOOSE.

CANAL, *Canalis*, in general, denotes a long, round, hollow inſtrument, through which a fluid matter may be conveyed.

In which ſenſe it amounts to the ſame with what we otherwiſe call a pipe, tube, channel, &c. Thus the *canal* of an aqueduct, is the part through which the water paſſes; which, in the ancient edifices of this kind, is lined with a coat of maſtic of a peculiar compoſition.

CANAL more particularly denotes a kind of artificial river, often furniſhed with locks and ſluices, and ſuſtained by banks or mounds. They are contrived for divers purpoſes; ſome for forming a communication between one place and another, as the *canal* between Bruges and Ghent, or between Bruſſels and Antwerp; others for the decoration of a garden, or houſe of pleaſure, as the *canals* of Verſailles, Fontainbleau, St. James's Park, &c. others are made for draining wet and marſhy lands; which laſt, however, are more properly called water-gangs, ditches, drains, &c.

Egypt is full of *canals*, dug to receive and diſtribute the waters of the Nile at the time of its inundation. They are dry the reſt of the year, except the *canal* of Joſeph, and four or five others, which may be ranked as conſiderable rivers.

There were alſo ſubterraneous *canals*, dug by an ancient king of Egypt, whereby thoſe lakes formed by the inundations of the Nile, were conveyed into the Mediterranean.

The *canal of Egypt*, for a communication between the Nile and the Red Sea, was begun, according to Herodotus, by Necus ſon of Pſammeticus, who deſiſted from the attempt on an anſwer from the oracle, after having loſt ſix ſcore thouſand men in the enterprize. It was reſumed and completed by Darius ſon of Hyſtaſpes, or, according to Diodorus and Strabo, by Ptoleiny Philadelphus; who relate, that Darius relinquiſhed the work on a repreſentation made to him by unſkilful engineers, that the Red Sea being higher than the land of Egypt, would overwhelm and drown the whole country. It was wide enough for two galleys to paſs a-breaſt; its length was four days ſailing. Diodorus adds, that it was alſo called *Ptolemy's river*; that this prince built a city at its mouth on the Red Sea, which he called *Arſinoe*, from the name of his favourite ſiſter; and that the *canal* might be either opened or ſhut, as occaſion required: policy probably had ſome ſhare in the diſuſe to which it afterwards fell. Died. Sic. Bibl. lib. i. Strab. Rer. Geog. lib. xvii. Herodot. Hiſt. lib. ii.

It ſeems to have been opened afreſh about the year 635, under the caliph Omar. Elmacin indeed ſays, that a new *canal* was then made for the conveyance of the corn of Egypt to Arabia; but this is more naturally underſtood of a renewal of the ancient one, the navigation of which, towards the decline of the Roman empire, had been much neglected. The ſame author adds, that it was ſtopped again on the ſide next the Red Sea by the caliph Abugidar Almanzor II. of the family of Abbas, in the year of the Hegira 150, anſwering to the year of Chriſt 775. There are ſome traces of it ſtill ſubſiſting: M. Boutier, in 1703, diſcovered the end which unites out of the moſt eaſterly branch of the Nile. Hiſt. Acad. Scienc. ann. 1703. p. 109, ſeq.

A new *canal* for conveying the waters of the Nile from Æthiopia into the Red Sea without paſſing into Egypt, was projected by Albuquerque, viceroy of India, for the Portugueſe, in order to render Egypt barren and unproſitable to the Turks.

M. Gaudereau attributes the frequency of the plague in Egypt, of late days, to the decay, or ſtopping up of theſe *canals*, which happened upon the Turks becoming maſters of the country.

In China, there is ſcarce a town or village but has the advantage either of an arm of the ſea, a navigable river, or a *canal*, by which inland navigation is rendered ſo common, that there are almoſt as many people on the water as the land.

The *great canal of China*, is one of the wonders of art, made about 800 years ago. It runs from north to ſouth quite croſs the empire; beginning at the city Canton. By it all kinds of foreign merchandize entered at that city are carried directly to Pekin, a diſtance of 825 miles. Its breadth and depth are ſufficient to carry barks of conſiderable burden, which are managed by ſails and maſts, as well as towed by hand. On this *canal* the emperor is ſaid to employ 10,000 ſhips, abating one, for a reaſon very peculiar. It paſſes through, or by, 41 large cities; there are in it 75 vaſt locks and ſluices to keep up the water, and paſs the barks and ſhips, where the ground will not admit of ſufficient depth of channel, beſides ſeveral thouſand draw and other bridges.

F. Magaillane aſſures us, there is a paſſage from one end of China to the other, the ſpace of 600 French leagues, always either by *canals* or rivers, except a ſingle day's journey by land, neceſſary to croſs a mountain; an advantage which this Jeſuit, who made the voyage himſelf, obſerves is not to be found in any other ſtate of the univerſe. Nouv. Relat. de Chine, chap. 8.

The *canal of Languedoc*, called alſo the *canal of the two ſeas*, as ſerving to join the Mediterranean and Cantabrian ſeas, was firſt propoſed under Francis I. but begun and finiſhed under Louis XIV. By means of it, a ready communication is made between the two fertile provinces of Guyenne and Languedoc. The *canal* is 64 leagues long, extended from Narbonne to Thouloſe, and receiving ſeveral little rivers in the way, ſupported at proper intervals with 104 ſluices. In ſome places it is conveyed over aqueducts and bridges of incredible height, built on purpoſe, which give paſſage underneath to other rivers. What is moſt extraordinary is, that in ſome places, for a mile together, a paſſage is dug for it through the rock. The expence was thirteen millions of livres, of which the king contributed near ſeven millions: the province of Languedoc the reſt.

The *canal of Briere*, called alſo *canal of Burgundy*, begun under Henry IV. and finiſhed in the reign of Lewis XIII. makes a communication between the Loire and the Seine, and ſo to Paris: to the great advantage of all this part of France, and even to Burgundy itſelf. This *canal* has 42 ſluices.

The *canal of Orleans* was begun in 1675, for eſtabliſhing a communication between the Seine and the Loire. It is conſiderably ſhorter than that of Briere, having only 20 ſluices.

The *canal of Bourbon* was but lately undertaken; its deſign being to make a communication from the river Oiſe to Paris.

The *new canal of the Lake Ladoga*, cut from Volkowa to the Neva, whereby a communication is made between the Baltic, or rather ocean, and the Caſpian ſea, was begun by the czar Peter I. 1719; by means of it, the Engliſh and Dutch merchandize is eaſily conveyed into Perſia, without being obliged to double the cape of Good Hope. There was a former *canal* of communication between the Ladoga lake and the river Wolga, whereby timber and other goods had been brought from Perſia to Peterſburgh; but the navigation of it was ſo dangerous, that a new one was undertaken.

In England, that ancient *canal* from the river Nyne, a little below Peterborough, to the River Witham, three miles below Lincoln; called by the modern inhabitants *Carrdike*; may be ranked among the monuments of the Roman grandeur, though it is now moſt of it filled up. It was 40 miles long; and ſo far as appears from the ruins, muſt have been very broad and deep; ſome authors take it for a Daniſh work. Morton will have it made under the emperor Domitian. Urns and medals have been diſcovered on the banks of this *canal*, which ſeem to confirm that opinion. Hiſt. Northampton. ch. 10.

The *canal* for ſupplying London with water by means of the New River, was undertaken and begun by Mr.

(afterwards

(afterwards Sir Hugh) Middleton, in the year 1608, and finished in five years. This *canal* commences near Ware, in Hertfordshire, and takes a course of 60 miles before it reaches the cistern at Illington, which supplies the several water-pipes that convey it to the city and parts adjacent. In some places it is 30 feet deep, and in others it is conveyed over a valley between two hills, by means of a trough supported by wooden arches, and rising above 23 feet in height. See *New River* COMPANY.

The *Duke of Bridgewater's canal*, projected and executed under the direction of Mr. Brindley, was begun soon after he had obtained an act for this purpose in 1759. It was first designed for conveying coals from a mine on his grace's estate to Manchester, but has since been applied to many other useful purposes of inland navigation. This *canal* begins at a place called Worsley-mill, about seven miles from Manchester, where the duke has cut a bason capable of holding all his boats, and a great body of water which serves as a reservoir or head to his navigation. The canal runs through a hill by a subterraneous passage, big enough for the admission of long flat bottomed boats, which are towed by a rail on each hand, near three quarters of a mile, to the coal-works. There the passage divides into two channels, one of which goes off 300 yards to the right, and the other as many to the left; and both may be continued at pleasure.

The passage is, in some places, cut through the solid rock, and in others, arched over with brick. Air-funnels, some of which are near 37 yards perpendicular, are cut, at certain distances, through the rock to the top of the hill. The arch at its entrance is about six feet wide, and about five feet high from the surface of the water; it widens within, so that in some places the boats may pass one another, and at the pits it is ten feet wide. When the boats are loaded and brought out of the bason, five or six of them are linked together and drawn along the *canal* by a single horse or two mules. The *canal* reaches Manchester in a course of nine miles; it is broad enough for the barges to pass or go abreast, and on one side there is a good road for the passage of the people, and the mules employed in the work. The *canal* is raised over public roads by means of arches, and it passes over the navigable river Irwell near fifty feet above it, so that large vessels in full sail pass under the *canal*, whilst the duke's barges are at the same time passing over them. This *canal* joins that which passes from the river Mersey towards the Trent, taking in the whole a course of 34 miles.

The Lancaster *canal* begins near Kendal, and terminates near Eccleston, comprehending the distance of 72½ miles.

The *canal* from Liverpool to Leeds is 108½ miles; that from Leeds to Selby, 23½ miles; from Chester to Middlewich, 26½ miles; from the Trent to the Mersey, 88 miles; from the Trent to the Severn, 46½ miles. The Birmingham *canal* joins this near Wolverhampton, and is 24½ miles: the Droitwich *canal* is 5½ miles: the Coventry *canal*, commencing near Litchfield, and joining that of the Trent, is 36½ miles: the Oxford *canal* breaks off from this, and is 82 miles. The Chesterfield *canal* joins the Trent near Gainsborough, and is 44 miles.

A communication is now formed, by means of this inland navigation, between Kendal and London, by way of Oxford; between Liverpool and Hull, by the way of Leeds; and between the Briftol channel and the Humber, by the junction formed between the Trent and the Severn. Other fchemes have been projected, which the preſent ſpirit of improvement will probably ſoon carry into execution, of opening a communication between the German and Iriſh ſeas, ſo as to reduce a hazardous navigation of more than 800 miles by ſea, into a little more than 120 miles by land; and alſo of joining the Iſis with the Severn.

There are many obvious advantages which accrue from theſe inland navigations. By diminiſhing the price of carriage, and facilitating the communication between remote parts of the country, they greatly conduce to the improvement and extenſion of our manufactures and commerce. They likewiſe tend, in a variety of ways, to advance and perpetuate the value of eſtates near which they paſs, by the eaſe with which manure may be procured, by the eſtabliſhment of manufactures, and by the cheap conveyance of their produce to large towns and ſea-ports: not to add, that they ſerve as drains for moiſt lands, and that they furniſh a ſupply of water for thoſe that are dry. And beſides, navigable *canals* give employment to the induſtrious labourer, as well as the ingenious artiſan.

We alſo read of divers projects and undertakings of *canals*, which were never atchieved. Demetrius Poliorcetes, Julius Cæſar, the emperors Caligula and Nero, attempted in vain to cut through the iſthmus, whereby Peloponneſus is joined to the reſt of Greece, and make a *canal* of communication between the Ionian and Ægean ſeas. Plin. Nat. Hiſt. lib. iv. cap. 4.

Seleucus Nicanor had a deſign to make a *canal* between the Euxine and Caſpian ſeas. Lucius Verus, who commanded the Roman army in Gaul under Nero, attempted to make a *canal* between the Moſelle and the Rhine.

The Spaniards have ſeveral times had in view the digging of a *canal* through the iſthmus of Darien, from Panama to Nombre de Dios, to make a ready communication between the Atlantic and the South ſea, and thus afford a ſtraight paſſage to China and the Eaſt Indies.

CANAL is alſo applied to the furrows on the face of, or underneath a LARMIER; ſometimes alſo called porticos; and fitted up with reeds or flowers: ſometimes to thoſe cavities, ſtraight or winding, made on the cauliculos of a capital. See SOFFITA.

CANALS are alſo uſed for the flutings of a column or pilaſter.

CANAL *of the volute*, in the Ionic capital, is the face of the circumvolutions, incloſed by a liſtel.

CANAL, *Canalis*, in *Anatomy*, a duct, or paſſage, through which any of the juices, or fluids of the body flow.

Under *canals* are included all kinds of veſſels, as arteries, veins, nerves, &c. See ARTERY, VEIN, &c.

The hole or perforation through the *vertebræ* of the neck whereby the ſpinal marrow communicates with the brain, is by ſome called the ſacred or great *canal*, *ſupra* *vide*.

CANALES *ſemicirculares*, in *Anatomy*, are three *canals* in the labyrinth of the ear; which open by as many orifices into the *veſtibulum*.

They are of three different ſizes, *major*, *minor*, and *minimus*. In different ſubjects they are frequently different, but are always alike in the ſame: the reaſon Valſalva ingeniouſly conjectures to be, that as a part of the tender auditory nerve is lodged in theſe *canals*, ſo they are of three ſeveral ſizes, the better to ſuit all the variety of tones; ſome of the *canals* ſuiting ſome tones, and others others. And though there be ſome difference in the form and ſize of theſe *canals* in different perſons; yet, laſt there ſhould be any diſcord in the auditory organs, theſe *canals* are always in exact conformity to one another, in the ſame man.

CANALICUM *aurum*, or CANALIENSE, that gold which is dug out of mines, or veins under ground.

CANALICULATE *leaf*, among *Botaniſts*. See LEAF.

CANALICULATE *ſtalk*. See STALK.

CANALIS is uſed by *Surgeons* for an oblong, concave inſtrument, in which to put a broken limb, leg or thigh. It is made either of braſs, wood, or earthen ware, ſometimes even of ſtraw fitted with linen cloth.

CANALIS, or CANALICULUS *arteriosus*, in *Anatomy*, a veſſel, obſerved in *fœtuſes*, but which after delivery, grows uſeleſs, and diſappears. It is a little tube, which joining the pulmonary artery and aorta, ſerves to convey the blood out of one into the other, without paſſing through the lungs. See FOETUS.

Dr. Agricola deſcribes a valve at the entry of the *canalis arteriosus* into the *aorta deſcendens*, compoſed of four ſides. Two of them prevent its being thruſt till after birth, and the other two prevent its being thruſt off from the orifice of the *canalis arteriosus*.

There have been ſome diſputes between Meſſieurs Mery, Buiſſiere, Rohault, and others, about the real uſe of the *canalis arteriosus*, as well as of the FORAMEN *ovale*.

CANALIS *naſalis*, a kind of ſulcus or furrow formed in the *oſſa unguis* and *maxillaria*, whereby a mucous humour is conveyed from the *puncta lachrymalia* to the noſe.

CANALIS *cysticus*, a duct in the liver of a fœtus, whereby a communication is maintained between the porta and cava; which, becoming uſeleſs after the birth, gradually dries up. Drake and Heiſter.

CANALIS, in *Zoology*. See TUBULUS *marinus*.

CANARIA *herba*, in *Botany*, a name given by the ancient Romans ſometimes to the rough fruit of the common agarine or chives, and ſometimes to the plant itſelf. Pliny calls this plant *ſuppa* and *ſuppago*; and the fruit of it, *ſuppæ bubrix*, *ſuppæ canarinæ*, and *ſuppæ caninæ*.

CANARIES, in *Muſic*, an old Engliſh air, having a ſprightly movement of two ſtrains, with eight bars in each; and three quavers in a bar: the firſt pointed.

CANARIUM, from *canis*, *dog*, in *Antiquity*, a Roman ſacrifice, wherein dogs of a red or ruddy colour were ſacrificed, for a ſecurity of the fruits of the earth againſt the raging heats, and diſorders of Sirius in the dog-days.

CANARIUM, in *Botany*, a genus of the *decia pentandria* claſs: its characters are, that it hath male and female flowers; that, in both, the calyx has two leaves, and the corolla conſiſts of three petals: the fruit is a drupe with a three-cornered nut. There is one ſpecies.

CANARY-*bird*, *Paſſer Canarienſis*, a ſpecies of ſinging birds, greeniſh yellow in colour, formerly brought only from

from the *Canary* islands, but of late chiefly from Germany and Switzerland; which laft, called alfo German birds are preferred to the former. The chief place for breeding *Canary-birds* is Infpruck and its environs, from whence they are fent to Conftantinople, as well as every part of Europe. They are a fpecies of the *fringilla*.

Canary-birds are diftinguifhed by different names at different times and ages: fuch as are about three years old are called *runts*; thofe above two, are named *eerfts*; thofe of the firft year under the care of the old ones, are termed *brunchers*; thofe that are new-ftown, and cannot feed themfelves, *pofers*; and thofe brought up by hand, *neftlings*.

The *Canary-birds* may be bred with us, and, if treated with proper care, they will become as vigorous and healthful as in the country from whence they have their name. The cages in which thefe birds are kept are to be made of either walnut-tree or oak, with bars of wire, becaufe thefe, being woods of ftrength, do not require to be ufed in large pieces. The common fhape of cages, which are cylindric, is very improper for thefe birds; for this allows little room to walk, and without that the birds ufually become melancholy. The moft proper of all fhapes is the high and long, but narrow.

If thefe birds eat too much, they grow over fat, lofe their fhape, and their finging is fpoiled; or at leaft they become fo idle that they will fcarce ever fing. In this cafe their victuals is to be given them in a much fmaller quantity, and they will by this means be recovered by degrees, to all their beauty, and will fing as at firft.

At the time that they are about to build their nefts, there muft be put into their cages fome hay, dried thoroughly in the fun: with this muft be mixed fome mofs dried in the fame manner, and fome dog's hair; and great care is to be taken of breeding the young, in the article of food. As foon as the young birds are eight days old, or fomewhat more, and are able to eat and pick up food of themfelves, they are to be taken out of the cage in which they were hatched, and each put feparately into another cage, and hung up in a room where it may never have an opportunity of hearing the voice of any other bird. After they have been kept thus about eight days, they are to be excited to fing by a bird pipe; but this is not to be blowed too much, or in too ſhrill a manner, leſt they fing themſelves to death.

For the firſt fifteen days the cages are to be covered with a black cloth, and for the fifteen days following with a green one. Five leſſons in a day from the pipe are ſufficient for theſe young creatures; and they muſt not be diſturbed with ſeveral ſounds at the ſame time, leſt they confound and puzzle them: two leſſons ſhould be given them early in the morning, one about the middle of the day, and two more at night.

The genius and temper of the ſeveral birds of this kind are very different. The males are almoſt always melancholy, and will not ſing unleſs they are excited to it by hearing others continually ſinging about them. The male bird of this kind will often murder the female put to him for breeding; and when there are ſeveral females together with the males, they will often do the ſame to one another from jealouſy. It is therefore not eaſy to manage the article of their breeding well in this particular, unleſs in this manner; let two female birds be put into one cage, and when they have lived together ſome time, they will have contracted a ſort of love for one another, which will not eaſily be diſſolved. Put a male bird into the cage with theſe two, and every thing will go well: their friendſhip will keep them from quarrelling about his favours, and from danger of his miſchievous diſpoſition; for if he attacks one of them, in order to kill her, the other will immediately take her part; and, after a few of theſe battles, the male will find that they are together an overmatch for him at fighting, and will then diſtribute his favours to them, and there will not fail of being a young breed or two, which are to be taken away from their parents, and educated as before directed. Some males watch the time of the female's laying, and devour the eggs as faſt as ſhe depoſits them; and others take the young ones in their beak, as ſoon as hatched, and cruſh them to death againſt the ſides of the cage, or ſome other way deſtroy them. When a male has been known once to have been guilty of this, he is to be ſhut up in a ſmall cage, in the middle of the large one in which the female is breeding her young, and thus he will often comfort her with ſinging all day long, while ſhe ſits upon the eggs or takes care of the young ones: and when the time of taking away, to put them into ſeparate cages, is come, the male is to be let out, and he will always after this live in friendſhip with the female.

If the male become ſick during the time of the female's ſitting or bringing up her young, he muſt be removed immediately, and only brought to the ſide of her cage at certain times, that ſhe may ſee him, till he is perfectly cured; and then he is to be ſhut up again in his cage in the middle.

Canary-birds are various in their notes: ſome having a ſweet ſong, others a lowiſh note, others a long ſong, which is beſt, as having the greateſt variety of notes: but they ſing chiefly, either the titlark, or nightingale notes. *See Song of birds.*

CANARY *grafs*. See PHALARIS.

CANARY-*weed*. See ARCHIL.

CANAYTE CANNELLE, a name given by the Ceyloneſe to a peculiar kind of cinnamon growing in that iſland: this is eſteemed the ſecond kind in value, and the name they give to it ſignifies bitter and ſtringent cinnamon. The bark of this kind of cinnamon tree comes off very eaſily, and is of a very fragrant ſmell when freſh; but it has a bitter taſte. It is not very common in the iſland, and is not eaſily diſtinguiſhed on the tree from the beſt cinnamon. The trees which yield the eight different kinds of cinnamon, ſo very various in flavour and virtue, are all ſo like one another, that it requires a great deal of attention to diſtinguiſh them. The root of this kind of cinnamon-tree yields a very fine ſort of camphor. Phil. Tranſ. N° 469.

CANAVAY, in *Natural Hiſtory*, a name given by the inhabitants of the Philippine iſlands to a ſea-bird which is deſcribed as being of the bigneſs of a pigeon, and laying its eggs on the naked rocks, where it ſits and hatches them. Some ſuppoſe this bird no other than the common King fiſher. But this is ſcarce probable; as we have no account of its being very beautifully coloured; and this is a circumſtance which can hardly have eſcaped thoſe who mentioned it, being ſo very remarkable. It is much more probably ſome ſea-bird wholly unknown in this part of the world.

CANCAMUM, in the *Materia Medica*, a name given by the Greeks to a gum or reſin, and continued down to the preſent age, though not without ſome uncertainty in its ſignification. The Arabian writers in general have looked on the word *cancamum* as a ſynonymous term for gum lac, which the Greeks have called *lacuna* and *lacha*, and Avicenna, *lech*.

CANCELIER, in *Falconry*, is when a light flown hawk, in her ſtooping, turns two or three times upon the wing, to recover herſelf before ſhe ſeizes.

CANCELLARIUS, in *Antiquity*. See CHANCELLOR.

CANCELLI, in *Building*, lattices, or a ſort of windows made with croſs bars of wood or iron chequer-wiſe.

The term is alſo applied to the balluſters and rails which compaſs a court of juſtice, a communion table, or the like.

CANCELLI, in a *Military* ſenſe, the ſame with BARRIER.

CANCELLING, in the *Civil Law*, an act whereby ſome former deed is rendered null, and void. This is otherwiſe called *reſciſſion*.

The word comes from the Latin *cancellare*, *to encompaſs*, or *paleſade*.

To the proper ſenſe of the word, *to cancel*, is to deface an obligation, by paſſing the pen from top to bottom, or acroſs it; which makes a kind of chequer lattice, which the Latins call *cancelli*.

CANCELLUS, in *Ichthyology*, the *wrong boir*, is a very ſmall ſpecies of CRAY-*fiſh*, which the French call *bernit*, or *St. Bernard the bernit*, becauſe it ſhuns others, and retires into the firſt ſhell it meets with. Its body is ſomewhat long, but in general, much reſembling a ſpider, except that it is a little thicker. It is found in the ſhore near rocks, enclofed commonly in a ſhell as big as a nut, of a conic figure, thick, very hard, ragged, furrowed, and grey without-ſide, but ſmooth and white within. This ſhell is ſo well adapted to the animal, that it is a hard matter to force it out of its enclofure. Some wafh it, drefs it, and eat it. It contains abundance of volatile ſalt; is aperitive, and good for the ſtone. The oil prepared from it is brought from America, and is uſed for the rheumatiſm.

In the American iſlands they find a much larger ſpecies of this animal, being three or four inches long. It is called the *ſoldier*, becauſe it purſues and fortifies itſelf in a ſhell which it ſets its own. Its naturel ſhell leaving its hinder parts naked, it employs itſelf, as ſoon as it is there, enough, in ſearching out another which may be proportioned to its ſize; into which it ſhuts its hind parts and adjuſts itſelf. But as it grows larger, and finds itſelf confined, it is obliged from time to time to go in ſearch of others; and it is good direction for the curious, to obſerve how he ſtops at all the ſhells he meets with, to conſider them, and when he finds one fit for his purpoſe, how he quits his own, and with great precipitation crouds into his new tenement, as if he was aſhamed of being naked; and if two of theſe animals are engaged at the ſame time, to enter the ſame ſhell, they fight until the weakeſt gives way.

The inhabitants fish for them, string them up by the head, and expose them to the sun, which dissolves them all but the solid parts; which dissolved substance or oil is esteemed excellent for rheumatisms, to which the savages are very subject.

CANCER, in *Astronomy*, one of the twelve signs of the zodiac; ordinarily represented on the globe in form of a crab, and in astronomical books denoted by a figure much resembling that of the number sixty-nine; thus, ♋. The reason generally assigned for its name as well as figure, is a supposed resemblance which the sun's motion in this sign bears to that of the crab-fish. As the latter walks backwards, so the former in this part of his course begins to go backwards, or recede from us, though the disposition of stars in this sign is by others supposed to have given the first hint to the representation of a crab. The stars in the sign *Cancer*, Ptolemy makes 13; Tycho 15; Bayer and Hevelius, 29; Mr. Flamsteed, no less than 83. Their orders, names, places, longitude, latitude, magnitude, &c. in the Britannic Catalogue, are as follow:

Names and situations of the stars.	Mag.	Longitud.	Latitude.		Mag.
		° ′ ″	° ′ ″		
In the extremity of preced. north foot.	ε	13 49 13	4 52 49	S	6
		22 49 38	4 45 11	N	6
		24 24 46	3 12 31	S	6
Subsequent, and more southern.	φ	23 4 11	4 27 13	N	6
		24 45 35	4 0 21	S	6
5.					
	χ	22 54 28	7 11 26	N	5
		24 10 40	1 55 13	N	8
In the preced. and more southerly leg.		26 18 34	7 5 39	S	6
		24 56 35	2 16 21	N	7
In the preced. north foot, south.	μ	25 9 26	1 19 13	N	5
10.					
		24 7 46	7 8 1	N	
		27 1 42	6 24 35	S	6
In the second north leg, upper	ψ	24 42 23	5 30 4	N	6-7
under	ψ	24 54 49	5 18 44	N	4
	ψ	24 35 27	9 21 22	N	5
15.					
Against the tail, Ptolem. 2 ph II.	ζ	27 0 22	2 17 52	S	5,6
Aph. the extrem. of the 2d in. foot	ξ	29 56 19	10 19 6	S	4-5
The north of the 3d north foot.	χ	26 38 3	7 27 32	N	6
In the origin of the 3d north foot.	χ	27 29 33	4 20 33	N	6
In the back, behind the tail.	ω	29 47 6	1 2 39	S	6
20.					
	Ω	1 20 11	8 31 32	S	6
The first in the 4th north foot.	ω	27 52 28	8 25 43	N	6-7
The second.	φ	28 20 32	7 30 00	N	6
In the orig. of preced. north claw.	φ	28 44 18	5 10 36	N	6
Subsequent and more southerly.	ω	Ω 0 20 24	9 7 51	S	6
25.					
The last of three.	ω	28 7 13	8 27 32	N	6
	Ω	1 34 58	6 22 16	S	6
The second.	ω	29 15 40	4 53 45	N	6-7
	Ω	1 39 24	4 45 20	S	6-7
The third.	ω	29 55 6	4 59 48	N	6
30.					
The preced. fo. of 3 of the breast.	θ	Ω 1 24 42	0 47 46	S	6-5
Fourth and subsequent.	ε	0 25 24	5 5 36	N	7-6
Preced. north in the ♋ of the breast	θ	1 2 29	1 32 33	N	6-7
		3 58 01	8 31 50	S	6
		1 53 29	0 32 1	N	7
35.					
The preced. in the 3d south. foot.	ι	4 49 27	8 39 1	S	6
The subsequent.	ι	5 4 30	8 42 4	S	6
Nebulous stars in the middle of the breast, called *Præ-sepe.*	ε	3 53 10	1 31 18	N	6
		3 53 33	1 34 10	N	8
40.					
In the cloud.		3 05 25	1 6 22	N	7
	ζ	3 05 9	1 18 32	N	7-8
Subseq. no. in the ♋ called *N. Asellus.*	γ	3 13 0	3 9 41	N	4
		4 2 35	0 3 15	S	6
Preced. in the 4th south. foot.	A	5 29 46	5 20 36	S	6
45.					
		1 11 49	12 10 46	N	6
South. sterin ♋ called *S. Asellus.*	β	4 23 40	0 3 46	N	4
In the north claw.		3 0 43	10 23 40	N	
In the extrem. of the 4th fo. foot		6 32 22	7 44 58	S	6
Subsequent in the southern foot.	A	6 31 37	5 39 18	S	6
50.					
First over the northern claw.	ν	8 12 44	14 18 33	N	6
First of those following the northern claw.	δ	6 27 0	1 37 13	S	6
Second.	δ	3 23 2	10 25 12	N	6
	Ω	6 37 10	2 16 16	S	7
55. Third.	δ	Ω 3 26 2	10 21 47	N	6
	Ω	3 47 1	10 24 34	N	6
Preced. in the mid. of the n. claw		3 6 12	12 35 34	N	5-6
Fourth.	δ	4 10 54	10 8 24	N	6
Second.	ω	4 29 35	14 59 41	N	5-6
That preced. the southern claw.	ω	8 46 38	5 30 34	S	4-5

Names and situations of the stars.	Mag.	Longitud.	Latitude.		Mag.
		° ′ ″	° ′ ″		
and subf. in middle of the claw		8 3 59	0 13 22	N	6
In the orig. of the south claw	ι	8 3 56	1 53 30	S	6
Second and southern.	ι	8 3 51	1 56 45	S	6
Third.		7 20 30	1 40 0	N	6
In the southern claw.	4	9 18 39	5 0 27	N	4
60.					
The last of four.	ω	4 7 21	14 37 46	N	6
First of those following the northern claw.	δ	5 20 37	12 30 5	N	6-7
		5 19 41	8 7 35	N	6
In the southern eye.		6 24 12	7 14 53	N	6
Last of those following the northern claw.	δ	6 0 20	10 37 43	N	6-7
65.					
		9 13 40	0 39 31	N	7
In the extr. of the apert. of the northern claw.		6 18 14	15 31	S	6-7
		10 20 56	1 18 45	S	6
		11 27 3	1 51 15	S	6
		7 23 52	9 46	N	6-7
70.					
Subseq. in the southern claw.		11 10 41	5 36	S	6-5
In the southern eye.		8 52 41	5 23 24	N	6
		10 11 12	1 0 54	N	6
		9 7 11	5 24 49	N	6
		10 39 15	1 45 5	N	7
80.					
In the apert. of the south. claw.		11 41 7	1 8 31	S	7
		12 19 42	0 48 45	S	6
		12 20 54	1 56 7	N	6

CANCER, *tropic of*, in *Astronomy*, a lesser circle of the sphere parallel to the equator, and passing through the beginning of the sign *Cancer*. See TROPICS.

CANCER, in *Ichthyology*. See CRAB, and SQUILLA.

CANCER, in *Medicine*, a roundish, hard, ragged, immoveable tumor, of an ash or livid colour, encompassed round with branched turgid veins, full of black foul blood; situate chiefly in the glandulous parts: so called, as some will have it, from the resemblance which the turgid veins shooting from it bear in figure to the crab-fish; or, as others say, because like that fish, when once it has got hold, it is scarce possible to drive it away. A *cancer* differs from a *fistula*, in that the latter is without pain. See SCIRRHUS.

Cancers also differ from those called simply *cancerous ulcers*, or tumors, which, though of a like general nature, vary in many circumstances.

Cancers appear with such a diversity, that it seems impossible to give a definition which shall agree to all. Some have a round, unequal, livid, painful hardness; others are flat without lividity, and sometimes indolent. The variety arises chiefly from their size, and the different parts they are seated in: as the breast, womb, lips, nose, eyes, ears, &c. Phil. Trans. N° 260. p. 476.

Some restrain *cancer* to those on women's breasts, which alone exhibit the appearance of crabs; and give the name *carcinoma*, and *cancer ulcer*, to those on the other parts.

It begins without any pain, and appears, at first, like a chich-pea; but grows apace, and soon becomes very painful. The *cancer* arises principally on the lax glandulous parts, as the breasts and emunctories; it is most frequent in women, especially such, says Stoberiath, as are barren, or live single. The reason of its appearing in the breasts more than other parts, is, that being full of glands, with lymphatics and blood-vessels, among them, the smallest contusion, compression, or punction, extravasates those liquors; which growing, by degrees, acrimonious, form the *cancer*. Hence it is said that a *cancer* is that in the glands, which a caries is in the bones, and a gangrene in the fleshy parts. The *cancer*, however, is sometimes found in other soft, spongy parts of the body; and there have been some found in the gums, belly, neck of the matrix, ureter, lips, nose, cheeks, abdomen, thighs, and even the shoulders.

A *cancer* arising on the legs, is called a *lupus*; on the face, or nose, a NOLI *me tangere*.

Cancers are divided, according to their several stages, into *occult*, and *open* or ulcerated.

Cancers, occult, are those not arrived at their state, or not yet broke.

It is a famous aphorism, that occult *cancers* are better uncured than cured; and that the patient will live longer with them than without them. Hippoc. Aphor. 38. 56. But physicians are not to be deterred by an old aphorism; they attempt not only a palliative, but a radical cure: the former partly by externals of the narcotic kind, to allay the pain, and hinder the spreading of the *cancer*; partly by internals, the chief of which are the *diaphoreticum Poterii*, martials, several preparations of earth-worms, and tincture of antimony, but especially the juice of the *solanum lethale*, which is a topic of great fame for the palliative cure of *cancers*. It was the great secret of Percival Willoughby.

Gendron improves it by the addition of *saccharum saturni*. The true cure of *cancers*, according to this writer, is either by exsection or amputation of the part, or by the application of cauterics. The former may be used where the tumor is moveable, and its base terminates abruptly, does not adhere to the adjacent parts, and consequently has sent no filaments to the same; as is the case in all *cancers* arising from scirrhous or scrophulous tumors. But the true *cancers*, he observes, are seldom extirpated with success; and the operation would be less in repute, if scirrhi, strumæ, and other similar tumors, were not frequently mistaken for *cancers*. Phil. Trans. N° 480.

Cancers, *ulcerated*, are known by their roughness and fulness of holes, through which ooses a filthy, stinking, gluttinous matter, frequently yellowish; by their pungent pain, which resembles the pricking with a thousand pins; and by their blackness; the swelling of the lips of the ulcer; and the veins about it, which are blackish, tumid, and varicous.

Sometimes the extremities of the blood-vessels are gnawed off, and the blood issues out. In a *cancer* of the breast, the adjacent flesh is sometimes so consumed, that one may see into the cavity of the thorax. It occasions a slow fever, a loathing, oftentimes faintings, sometimes a dropsy, and lastly death.

The generality of authors ascribe the cause of *cancers* to an acid ferment which first coagulates the juices in the glands, and afterwards corrodes and ulcerates the part. Gendron, refuting this theory, substitutes another; *the cancer*, according to him, is not a disease of the fluids, but of the solids. It arises from a disorder of the lymphatic and excretory vessels of the glands, which becoming by some accident impervious, and ceasing to filtrate and convey their liquors, by degrees degenerate into a compact horny mass, capable of germination and ulceration. What seems to confirm this origin is, that in grown *cancers* there is always found a hard callous substance not unlike horn, with blood-vessels disseminated through it, which yet are smaller and narrower than before the formation of the hardness. This callosity is found in cutaneous *cancers*, though it there extends itself in a different manner, appearing at first like a small wart, from which spring cutaneous filaments. When the ulceration has made some progress, these appear like pinheads in the flesh, which are no other than the extremities of the filaments. This substance, always found in true *cancers*, according to M Gendron, is the *cancer* itself, formed by the transmutation of the glandular and lymphatic vessels. On this principle he resolves the spreading of a *cancer* into a vegetation performed by the conveyance of the nutritious juices through the ramifications of the tumor, as through horns, nails, or the like substances. The pain proceeds from the compression of the nervous parts, as that in corns, and the lividity from the obstruction of the blood; not as commonly supposed from a caustic salt, which would soon cause an eschar. Genil. Hecherch. sur la Nat. &c. des *Cancers*, cap. 3. *Act. Erud. Lipf.* an. 1701.

The *cancer* is one of those diseases for which no competent remedy has been yet found, nor even when taken early or in its occult state. The most that medicine can do is to palliate, or keep it back by diet and general remedies. La Clerc, Treat. Chir. Operat. chap. viii. p. 198, fen. where the operation of cutting off a cancerous breast is described.

However, in the Memoirs of the Royal Academy of Sciences, mention is made of the radical cure of three inveterate *cancers*, by an infusion of the leaves of plumbago in olive oil; these *cancers* had been deemed incurable, by reason of their adherence to bony parts. Mem. Acad. Sc. 1739.

Cancers are sometimes internal. We have histories of two such in the Philosophical Transactions, from which Dr. Barrien endeavours to deduce the diagnostics of a *cancer* within the abdomen. N° 464.

Cancers, *to prevent*. When there is danger of an approaching *cancer*, the acrimony of the blood is, if possible, to be corrected by the use both of internal and external remedies, and a strict regimen in regard to diet is to be observed. Broths and soups made of the flesh of young animals, and with proper herbs boiled in them, as forrel, cresses and the others of that tribe, are very beneficial in these cases; the most wholesome drink is either fair water, or a decoction of China root, or sarsaparilla, or the like; and when the pains are violent from the scirrhus, which is now threatening to become a *cancer*, white poppy seeds may be added in considerable quantities to the decoction, and it may be sweetened with a proper quantity of syrup of diacodium. Two or three times a day also should be taken a dose of Gascoigne's powder, salt of wormwood, native cinnabar, crude and diaphoretic antimony; adding to each dose, as there shall be occasion, half a grain of laudanum, to assuage the violence of the pain. Great benefit is also sometimes received in this case by taking either the powder or juice of millepedes, with spermaceti.

Purges also of the mercurial kind frequently do great service, as do also bleeding and cupping frequently in the spring and autumn. A thin plate of lead well impregnated with quicksilver may also be very conveniently worn on the part with great advantage; for this method cannot but weaken the sense of pain, and may often prevent a *cancer*.

If the application of the plate of lead shall prove insufficient, plasters and ointments composed of such ingredients as are known to assuage pains may also be applied; the following are of this kind, and are frequently found of service. Take of the *unguentum diapompholygos*, two ounces; of opium, half a scruple; mix these into an ointment, and frequently rub the part affected with it; or take of an amalgama of quicksilver and lead two ounces; mix this with a sufficient quantity of ointment of roses, or any the like unguent; then spread a part of it on a linen rag, and apply it in the manner of a plaster to the part: or take litharge vinegar, an ounce; expressed oil of henbane seeds, poppy seeds, and the infused oil of roses, of each two ounces; mix them by a long and continued stirring together into an ointment, adding toward the end of the operation purified opium from six to ten grains, as the urgency of the symptoms may require; this is to be spread in like manner on linen rags, and applied at times to the part.

If the daubing of these ointments is disliked, a refrigerant plaster may be used in their stead; such is the lead plaster of Myrtychi, and plasters of red lead, or pompholyx, or the excellent plaster made by the following prescription: take of the fresh and depurated juices of henbane, garden-poppy, and water-hemlock, of each four ounces; boil these to a thickness over a gentle fire, adding toward the end of the boiling eight ounces of white wax, and one ounce of oil of roses, and make the whole into a plaister: or take of sugar of lead, of cerusse, of the amalgamation of quicksilver and lead, and of the expressed oil of henbane seed, and infused oil of roses, of each two ounces; make these into a plaster. If the pains are very violent, a small quantity of opium may be added to either of these plasters. Hrister's Surg. 223. Soultzer, physician to the duke of Saxe-Gotha, after observing that an effectual cure for a *cancer* is still among the *desiderata* of physic, and that mercury, antimony, and all alteratives, as well as the *belladona* and *cicuta*, have generally failed, recommends the following poultice: take carrots fresh gathered, and reduce them to a coarse powder; squeeze out the juice, and warm the pulp, and apply it in the form of a thick poultice, so that it may touch the ulcers in every part; and let the whole be covered with a warm napkin. The dressing must be renewed twice in every four hours, and the ulcers cleaned with lint dipped in a warm decoction of hemlock. This application, he says, will abate the pain, take away the loathsome smell, diminish the suppuration, and produce the discharge of a laudable pus; by continuing the use of it, the callous edges of the ulcers will be softened, the tumor diminish, and at length disappear; new flesh will be gathered, a cicatrix will be formed, and the cure completed. The extract of hemlock may be safely administered at the same time. See an account of the effects of the *cicuta* and a carrot-poultice upon a *cancer* of the breast, in the Med. Obs. and Inq. vol. iv. art. 31. The *sanies* of a *cancer*, when the carrot-poultice has failed, has been sweetened by *fixed air*, applied externally, the pain mitigated, and a better digestion produced. Dr. Percival remarks, from repeated trials, that the progress of *cancers* seems to be checked by the fixed air; but, he adds, it is to be feared, that a cure cannot thus be effected. Priestley on Air, vol. i. Appendix, p. 302.

Cancer, in a more vague sense, is extended to all ulcers disposed to putridity.

Such are the most inveterate, malignant, cavernous, sinuous, varicous, and colliquative ulcers. The Arabs call the *elephantiasis* the universal *cancer*. Celsus even ranks the gangrene and sphacelus in the class of *cancers*. Others include the caries of bones in the number. Ephem. Acad. N. C. dec. 1. an. 1. p. 8.

Cancers, primitive, are those which come of themselves, appearing at first about the bigness of a pea, and only painful at intervals; but growing bigger, and more troublesome by degrees.

Cancers, *degenerate*, are those which succeed obstinate, ill-managed tumors, or impostumes. These commence ulcerated *cancers*, without ever having been occult ones.

Cancer *album*, the white *canker*, is used by French writers for a white chalky excrement, sometimes found adhering to the tongue, and internal parts of the mouths of children, and which, unless timely brushed away, is apt to ulcerate.

In which ſenſe, it ſeems to amount to the ſame with APHTHÆ.

CANCER is alſo applied to a ſpecies of BANDAGE for the head, and divided into ſeveral parts, reſembling the legs of a crab-fiſh.

CANCER, in the *Military Art*. See ARIES.

CANCRIFORM, *Cancriformis*, the ſame with *cancroides*, or *cancerous*.

Wedelius has a diſcourſe of hard rebellious *cancriform* tumors. Ephem. Acad. N. C. dec. 3. an. 1. obſ. 12.

CANCRINE *verſes*, the ſame with RETROGRADE.

CANCROMA, in *Ornithology*, a genus of birds of the order of *grallæ*; having a gibbous beak, and the upper jaw in the form of a boat turned upwards. Linnæus reckons two ſpecies, the *cochlearia*, and the *cancrophaga*; the former is found in Guiana, and the latter in the Braſils.

CANDELARES, in *Botany*, an order of plants in the Fragmenta Methodi Naturalis of Linnæus.

CANDELARIA, in *Botany*, a name by which ſome authors have called the great white MULLEIN.

CANDELARIA, in *Entomology*, is a ſpecies of inſect, belonging to the genus of *fulgora*, and order of *hemiptera* in the Linnæan ſyſtem. It is common in China.

CANDERROO, in the *Materia Medica*, a name of an Eaſt Indian gum, not much known among us, though ſometimes imported. It has much the appearance of common amber, only that it wants its yellow colour, being white and pellucid; we ſometimes ſee it turned into toys of various kinds, which are very light, and of a good poliſh. Garcias and ſome other authors tell us, that the people of Borneo, and ſome other places where camphor is produced, have the art of adulterating the crude camphor, which they ſend over to us, with large quantities of this gum.

CANDIDATE, a perſon who ſets up for ſome poſt or place, either of honour or profit.

The word is formed of *candidus*, *white*; on account of a white ſhining garment, *toga candida*, which in thoſe who aſpired to preferments in ancient Rome, were habited at the time of their appearing for the ſame, eſpecially at the public aſſemblies, in order to diſtinguiſh them from the croud.

The white gown worn by *candidates* was looſe and ungirded, nor was there any cloſe garment under it, which ſome interpret as done with deſign to avoid any ſuſpicion people might have of bribery; though Plutarch rather thinks it done to gain the affections of the people, by ſuing in ſuch an humble garb; or elſe that ſuch as had received wounds in the ſervice of the country, might more eaſily demonſtrate thoſe tokens of their courage and fidelity.

The Roman *candidates* uſually declared their pretenſions a year before the time of election, which was ſpent in making intereſt and gaining friends. Various arts of popularity were practiſed for this purpoſe, and frequent circuits made round the city, and viſits and compliments to all ſorts of perſons, the proceſs of which formed what was called AMBITUS.

CANDIDATI *principis*, were thoſe who were recommended to any offices by the emperors. Alſo an office in the court of the emperor of Conſtantinople, anſwering to a ſecretary of ſtate among us.

The *candidatus principis* was alſo denominated *Quæſtor principis*, or *Auguſti*.

CANDIDATE *of baptiſm*, in the *Ancient Church*, was called CATECHUMEN.

CANDIDATES, in the COLLEGE *of Phyſicians*, London, is the order of members, out of whom the fellows are choſen. The *candidates* muſt be natives of England, doctors of phyſic, admitted to the degree in our own univerſities, and ought to have practiſed phyſic four years before they are admitted into the order. The number of *candidates* is never to exceed twelve.

CANDIDATE, in *Academical Orders* or *Degrees*, denotes a perſon to whom, after full examination, and the performance of inaugural exerciſes, licence is granted to take up the higheſt or doctoral dignity when he pleaſes. See DEGREE, DOCTOR, LICENTIATE, &c.

CANDIDATI *milites*, were an order of ſoldiers of tall ſtature, who ſerved as the emperor's body-guards, to defend him in fight. They were thus denominated, becauſe clothed in white, either that they might be the more conſpicuous, and their actions more taken notice of, or becauſe they were conſidered as in the way to higher preferments. Cedrenus obſerves, that it was the younger Gordian who inſtituted the *candidati*, as alſo the *protectores* and *ſcholares*. The *ſcholares* were choſen out of the troops, and conſiſted of perſons who beſt underſtood the art of war; and out of theſe *ſcholares* were choſen the *candidati*, who were ſuch as were talleſt and ſtrongeſt, and had moſt of the martial air, and were proper to inſpire terror, ſays the Chronicon of Alexandria. The *protectores* were a middle order.

CANDLE, a cotton or linen wick, looſely twiſted, and covered with tallow, wax, or ſpermaceti, in a cylindrical figure; which being lighted at the end, ſerves to illuminate a place in the abſence of the ſun.

The word *candle* comes from *candeo*, and that from *candor*, of *candeo*, *I burn*; whence alſo the middle-age Greek καυδηλα.

A *tallow candle*, to be good, muſt be half ſheep's tallow and half bullock's; the fat of hogs makes them gutter, give an ill ſmell, and a thick black ſmoke.

Tallow candles are of two kinds; the one *dipped*, the other *moulded*: the firſt, which are thoſe in ordinary uſe, are of an oval ſtanding; the latter are ſaid to be the invention of the four le Brets, at Paris. The manufacture of the two kinds is very different, excepting in what relates to melting of the tallow, and making the wick, which is the ſame in both.

CANDLES, *method of making*. The tallows, being weighed and mixed in their due proportion, are cut or hacked into pieces, to facilitate their melting, and thrown into a pot or boiler, having a cavity of ſome depth running round the top, to prevent its boiling over. Being thus perfectly melted and ſkimmed, a certain quantity of water is thrown in, proportioned to the quantity of tallows; this ſerves to precipitate the impurities of the tallow, which had eſcaped the ſkimmer, to the bottom of the veſſel. The tallow, however, intended for the firſt three dips, muſt have no water; becauſe, the dry wick, imbibing the water readily, makes the *candles* ſpit and crackle in the burning. The melted tallow is now emptied through a ſieve into a tub, having a tap for letting it out, as occaſion requires. The tallow, thus prepared, may be uſed after having ſtood three hours; and will continue fit for uſe twenty-four hours in ſummer, and fifteen in winter. As to the wicks, they are made of the cotton which the chandlers buy in lreins; and wind off three or four together, according to the intended thickneſs of the wick, into bottoms, or clues, whence they are cut out with an inſtrument contrived for that purpoſe, into pieces of the length of the *candle* required; then put on the ſticks, or broches, or elſe placed in the moulds, as the *candles* are intended to be either dipped or moulded.

CANDLES, *making of dipped*. The liquid tallow is drawn off from the tub above mentioned, into a veſſel called the mould, ſink, or abyſs, of an angular form, perfectly like a priſm, except that it is not equilateral; the ſide on which it opens being only ten inches high; and the others, which make its depth, fifteen. On the angle, formed by the two great ſides, it is ſupported by two feet, and is placed on a kind of bench, in form of a trough, to catch the droppings, as the *candles* are taken out at each dip. At a convenient diſtance from this, is ſeated the workman, who takes two ſticks or broches, at a time, ſtrung with the proper number of wicks, viz. fifteen, if the *candles* are to be of eight in the pound weight, if of ſix in the pound, &c. and holding them equidiſtant by means of the ſecond and third finger of each hand, which he puts between them, he immerges the wicks two or three times for their firſt lay, and, holding them ſome time over the opening of the veſſel to let them drain, hangs them on a rack, where they continue to drain and grow hard. When cooled, they are dipped a ſecond time, then a third, as before; only for the third lay they are immerged but twice, in all the reſt thrice. The operation is repeated more or leſs times, according to the intended thickneſs of the *candles*. With the laſt dip they neck them; i. e. plunge them below that part of the wick where the other lays ended.

It muſt be obſerved, that during the operation, the tallow is ſtirred from time to time, and the ſcum ſupplied with freſh tallow. When the *candles* are finiſhed, their peaked ends, or bottoms, are taken off; not with any cutting inſtrument, but by paſſing them over a kind of flat bottom place, heated to a proper pitch by fire underneath; which melts down as much as is requiſite.

CANDLES, *method of making moulds*. Theſe *candles* are made in moulds of different matters; braſs, tin, and lead, are the moſt ordinary. Tin is the beſt, and lead is the worſt. Each *candle* has its mould, conſiſting of three pieces, the neck, ſhaft, and foot: the *ſhaft* is a hollow metal cylinder, of the diameter and length of the *candle* propoſed; at the extremity of this is the *neck*, which is a little metallic cavity, in form of a dome, having a moulding within ſide, and pierced in the middle with a hole big enough for the wick to paſs through. At the other extremity is the *foot*, in form of a little tunnel, through which the liquid tallow runs into the mould. The neck is ſoldered to the ſhaft, but the foot is moveable, being applied when the wick is to be put in, and taken off again when the *candle* is cold. A little beneath the place where the foot is applied to the ſhaft, is a kind of ſtring of metal, which ſerves to ſupport that part of the mould, and to prevent the ſhaft from entering too deep in the table to be mentioned hereafter. Laſtly, in the hook of the foot, is a leaf of the ſame metal, ſoldered within ſide, which,

advancing into the centre, serves to keep up the wick; which is here hooked on, precisely in the middle of the mould. The wick is introduced into the shaft of the mould by a piece of wire, which being thrust through the aperture of the hook, till it come out at the neck, the wick is tied to it; so that in drawing it back, the wick comes along with it, leaving only enough a-top for the neck; the other end is fastened to the hook, which thus keeps it perpendicular. The moulds, in this condition, are disposed in a table pierced full of holes, the diameter of each being about an inch: these holes receive the moulds inverted, as far as the ring in the foot. Being thus placed perpendicularly, they are filled with melted tallow (prepared as before) drawn out of the cap into a tin pot, and thence poured into the foot. After the moulds have stood long enough to cool, for the tallow to have arrived at its consistence, the *candle* is taken out, by taking off the foot, which brings the *candle* along with it. Those who aim at perfection in their work, bleach or whiten their *candles*, by fastening them on rods or broches, and hanging them out to the dew, and exposing them to the sun for eight or ten days: care being taken to screen them in the day-time from the too intense heat of the sun; and in the night from rain, by waxed cloths.

CANDLES, *wax*, are made of a cotton or flaxen wick, slightly twisted, and covered with white or yellow wax. —Of these there are several kinds; some called *tapers*, used to illuminate churches, and in processions, funeral ceremonies, &c. and others used on ordinary occasions.

For the first kind, their figure is conical, still diminishing from the bottom, which has a hole to receive the point in the candlestick; to the top, which ends in a point: the latter kind are cylindrical. The first are either made *with a ladle*, or *with the hand*.

CANDLES, *wax, manner of making with the ladle*. The wicks being twilled, and cut off at the proper length, a dozen of them are tied by the neck, at equal distances, round an iron circle, suspended directly over a large bason of copper tinned, and full of melted wax: a large ladle full of this wax is poured gently, by inclination, on the tops of the wicks, one after another; so that running down, the whole wick is thus covered; the surplus returning into the bason, where it is kept warm by a pan of coals underneath it. They thus continue to pour on the wax, till the *candle* arrive at its destined bigness: still observing, that the three first ladles be poured on at the top of the wick, the fourth at the height of $\frac{1}{3}$, the fifth at $\frac{1}{2}$, and the sixth at $\frac{2}{3}$; by which means the *candle* arrives at its pyramidal form. The *candles* are then taken down hot, and laid aside of each other, in a feather-bed folded in two, to preserve their warmth, and keep the wax soft: they are then taken and rolled, one by one, on an even table, usually of walnut-tree, with a long square instrument of box, smooth at the bottom. The *candle* being thus rolled and smoothed, its big end is cut off, and a conical hole is made in it.

CANDLES, *wax, manner of making by the hand*. The wick being disposed, as in the former, they begin to soften the wax, by working it several times in hot water, contained in a brass caldron, tinned, very narrow and deep. A piece of the wax is then taken out, and disposed, by little and little, around the wick, which is hung on a hook in the wall, by the extremity opposite to the neck; so that they begin with the big end, diminishing still, as they descend towards the neck. In other respects, the method is the same here, as in the former case; only that they are not laid in the bed, but are rolled on the table, just as they are formed. It must be observed, however, that in the former case, water is always used to moisten the several instruments to prevent the wax from sticking; and in the latter, lard, or oil of olives, for the hands, table, &c.

CANDLES, *wax, cylindrical*, are made either with the *ladle*, or *drawn*. The first kind are made of several threads of cotton, loosely spun, and twisted together, covered with the ladle, and rolled, as the conical ones, but not pierced.

CANDLES, *wax, drawn*, are so called, because actually drawn in the manner of wire, by means of two large rollers, or cylinders of wood, turned by a handle, which turning backwards and forwards several times, puts the wick through melted wax, contained in a brass bason; and at the same time through the holes of an instrument, like that used for drawing wire, fastened at one side of the bason: so that, by little and little, the *candle* acquires any bulk, at pleasure, according to the different holes of the instrument through which it passes: by this method, may four or five hundred ells at length be drawn, running. The invention of this was brought from Venice by Pierre Bleismare, of Paris, about the middle of the last century.

The ascent of the tallow up the wick in a burning *candle*, may be resolved into the same principle of filtration, or attraction, as that of water up a heap of ashes, or even a capillary tube. The wick of a *candle* is but slightly twisted, that all its hairs may be easily come at; which being very small, and abounding in sulphur, soon take the flame: and the flame by its heat rarefying the air, and dissolving the tallow underneath, makes the globules thereof ascend into the rarefied spaces of the wick, and there, with the air about it, prove food for the flame. The Roman *candles* were at first little strings dipt in pitch, or surrounded with wax; though afterwards they made them of the papyrus, covered likewise with wax; and sometimes also of rushes, by stripping off the outer rind, and only retaining the pith. For religious offices, wax *candles* were used; for vulgar uses, those of tallow. Serv. ad Æn. lib. i. v. 730. Plin. Nat. Hist. lib. xvii. cap. 37. Lord Bacon proposes *candles* of divers compositions and ingredients, as also of different sorts of wicks; with experiments of the degrees of duration, and light of each. Good housewives bury their *candles* in flour, or bran, which, it is said, increases their lasting, almost half.—Some speak of perpetual *candles* made of salamander's wool. Bac. Nat. Hist. Cent. 4. § 369. and Cent. 8. § 744.

If any chandlers mix with their wares any thing deceitfully, &c. the *candles* shall be forfeited. Stat. 23 Eliz. And a tax or duty is granted on *candles*, by 8 and 9 Anne, cap. 9. & cap. 6. made for sale, of 1*d*. a pound, besides the duty upon tallow, by 8 Anne, cap. 9. And by 24 Geo. II. cap. 11. an additional duty of a halfpenny a pound: and by the same an additional duty of a halfpenny a pound is laid upon all *candles* imported (except those of wax and spermaceti, for which see WAX-*candles*), subject also to the two additional 5 per cents. imposed by 10 and 22 Geo. III. besides the duty of 2*s*. formerly imposed by 2 W. sess. 2. cap. 4. 8 Anne, cap. 9 and 9 Ann. cap. 6. And every maker of *candles*, other than wax-*candles*, for sale, shall annually take out a licence at 1*l*. In four weeks within the bills, and elsewhere in six weeks, after entry, he shall clear off the duties, on pain of double duty; nor sell any after default in payment, on pain of double value. 8 Ann. cap. 9. The makers of *candles* are not to use melting houses, without making a true entry, on pain of 100*l*. and to give notice of making *candles* to the excise officer for the duties; and of the number, &c. or shall forfeit 50*l*. stat. 11 Geo. I. cap. 30. See also 23 Geo. II. cap. 21. and 26 Geo. II. cap. 32.

No maker of *candles* for sale shall begin to make *candles*, without notice first given to the officer, unless from Sept. 29, to Mar. 25, yearly, between seven in the morning and five in the evening; and from Mar. 25, to Sept. 29, between five in the morning and seven in the evening, on pain of 10*l*. 10 Ann. cap. 26. The penalty of obstructing the officer, or of removing *candles* before they are surveyed, is 20*l*. 8 Ann. cap. 9. The penalty of privately making *candles* is the forfeiture of the same and utensils, and 100*l*. 5 Geo. III. cap. 43. And the penalty of mingling weighed with unweighed *candles*, of removing them before they are weighed, or of concealing them, is the forfeiture of 100*l*. 11 Geo. cap. 30.

Candles, for which the duty hath been paid, may be exported, and the duty drawn back; but no drawback shall be allowed on the exportation of any foreign *candles* imported. 8 Ann. cap. 9. 23 Geo. II. cap. 21.

It is observable, in *Optics*, that the flame of two candles joined, give a much stronger light than both of them separate. The observation was suggested by Dr. Franklin. Probably the union of the two flames produces a greater degree of heat, whereby the vapour is attenuated, and the particles of which light consists more copiously emitted. Priestley's Hist. of Vision, p. 807.

CANDLES, *medicinal, candelæ fumales*, are compositions of odoriferous, aromatic, and inflammable matters, as benzoin, storax, olibanum, turpentine, and the like, mixed up with mucilage of tragacanth, and formed into wicks in shape of *candles*. The effluvia and odours whereof, when burnt, are supposed to be salutary to the breast, &c. *Candles* for caruncles of the urinary passage, are made of wax and turpentine melted, and wicks dipt into the same, till brought to the due thickness; then smeared over with an unguent of ceruss, and precipitate and butter of antimony, to the end up the yard till they reach the caruncula. See DOUCIL.

CANDLE-*tree*, in the West Indies, a tree of whose fruit, boiled to a thick fat consistence, are made good *candles*. It seems to be the same as the candle-berry-tree.

CANDLE-*berry-tree*, *Myrica*, in *Botany*, a denomination of an aromatic evergreen, from whose berries are drawn, by boiling, a green wax, of which *candles* are made. It is also called the *Virginia myrtle*. It is a genus of the *dioecia tetrandria* class. Its characters are these: the male flowers are upon different plants from the female; and are produced in a loose, oblong, oval catkin, imbricated on every side; under each scale is situated one moon-shaped flower, having no petal, but it hath four or six short slender stamina, terminated by large twin summits, whose lobes are bifid; the female flowers have neither pe-

petal nor ſtamina, but an oval germen ſupporting two ſlender ſtyles, crowned by ſingle ſtigmas. The germen afterward becomes a berry with one cell, enclosing a ſingle ſeed. There are five ſpecies.

There is one ſort that grows naturally upon bogs in many parts of England, particularly in the northern and weſtern counties; as alſo in Windſor Park, and near Tunbridge Wells. This riſes, with many ſhrubby ſtalks, near four feet high; which divide into ſeveral ſlender branches, garniſhed with ſtiff ſpear-ſhaped leaves of a light green, ſmooth, and a little ſawed at their points, emitting a fragrant odour when bruiſed.

Moſt of the other ſorts grow naturally in North America, where, as it is there obſerved, the inhabitants get a ſort of green wax from the berries, which they make into candles. The method is deſcribed by Mr. Cateſby, in his Natural Hiſtory of Carolina.

CANDLE-*wood*, ſlips of pine about the thickneſs of the finger, uſed in New England, and other colonies, to burn inſtead of *candles*, giving a very good light.

The French inhabitants of the iſland of Tortuga uſe ſlips of yellow ſantal wood for the ſame purpoſe, and under the ſame denomination of *bois de chandelle*, which yields a clear flame, though of a green colour.

CANDLE-*fiſh*, or *anſhow by inch of*. See INCH *of Candle*.

There is alſo a kind of *Excommunication by inch of* CANDLE; wherein the time a lighted *candle* continues burning, is allowed the ſinner to come to repentance; but after which he remains excommunicated to all intents and purpoſes.

CANDLEMAS, a feaſt of the church, held on the ſecond of February, in memory of the Purification of the Bleſſed Virgin.

It takes its name either from the number of lighted candles uſed by the Romiſh church, in the proceſſions of this day; or becauſe, before *maſs*, the church conſecrated *candles* for the whole year. This ceremony was prohibited in England, by an order of council in 1548.

Candlemas is alſo called, in ancient writers, *Hypapante*; and among moderns, the *Purification*.

Some will have this feaſt to have been inſtituted by pope Gelaſius, in lieu of the heathen lupercalia; and that proceſſion was thereon made with lighted *candles* round the fields and grounds, by way of exorciſm. Hence Bede ſays, "It is happy for the church to have changed "the luſtrations of the heathens, held in the month of "February, around the fields, for the proceſſions with "hallowed *candles*, in remembrance of that divine light "wherewith Chriſt illuminated the world, whence he "was ſtyled by Simeon, *a light to lighten the Gentiles*."

Others aſcribe the origin of *Candlemas* to pope Vigilius, in the year 536, and ſuppoſe it ſubſtituted for the feaſt of Proſerpine, held with burning tapers by the heathens in the beginning of February.

CANDLESTICK, a houſhold utenſil, contrived to hold one, or more lighted candles. Larger, and more ſtately *candleſticks*, contrived for holding a great number of candles, are called *branches* and *girandoles*; and when made of glaſs, *luſtres*.

The *golden candleſtick* was the richeſt utenſil in the Jewiſh tabernacle. It was made of ſolid gold, and weighed a talent; and, according to Cumberland, the value of it, excluſive of the workmanſhip, was 5076 pounds. It contained ſeven lights, ſix branching out in three parts from the upright ſtem, and one on the top of it.

This ſacred utenſil was, after the Babyloniſh captivity, placed in the Temple, and when the Temple was deſtroyed, it was depoſited in the Temple of Peace built by Veſpaſian; and the repreſentation of it ſtill remains on the triumphal arch, at the foot of mount Palatine, on which Veſpaſian's triumph is delineated.

CANDLESTICK, *water*, a kind of jet or fountain raiſed on a foot which ſupports a little baſon reſembling the diſk of a *candleſtick*, down which the water falls into another larger baſon.

CANDO, CONDI, or CONDY, in *Commerce*, a long meaſure uſed in ſeveral parts of the Eaſt Indies, particularly at Goa, the capital of the Portugueſe ſettlements there.

Silk and woollen ſtuffs are meaſured by the *covre*, and linen by the *cando*. The *cando* uſed in Pegu is equal to the Venetian ell.

CANDOU, in *Botany*: *Parkinſ. Theatr. Dombeil. Acbar Maldivenſis*, a tree much like the cork-tree, and of the height of the walnut-tree. The trunk is fungous, and lighter than cork; the bark whitiſh, and it bears no fruit.

CANDY, in ſpeaking of SUGAR, denotes a preparation of that ſubſtance, made by melting, and cryſtallizing it ſix or ſeven times over, to render it hard and tranſparent.

CANDYING makes an operation in *Pharmacy*, as well as confectionary; thoſe ſimples which are preſerved in ſubſtance by boiling in ſugar being ſaid to be *candied*: though the performance of it is now tranſferred to the confectioner from the apothecary, to whom, originally, it belonged.

CANDY *carrot*. See SEIGNEL.

CANDY *tuft-tree*. See THERIS.

CANDY *lion's foot*. See *Cardus* LION'S *foot*.

CANE, in *Commerce*, the ſame with reed, called among botaniſts ARUNDO. See BAMBOE and REED.

Canes make a conſiderable article in commerce. There are imported two ſorts, viz. *ſwalling*, and *rattan canes*.

CANES, *ſwalling*, are ſaid, by Bradley, to be joints of the roots of a ſort of reed, called *cana Indica*. This plant ſhoots in joints about three or four feet long, near the ſurface of the ground, and at every knot produces great numbers of fibres, by which it receives its nourihſment. The joints are made ſtraight by the fire, which occaſions thoſe ſhades or clouds frequently ſeen in them. Bradley thinks, the *cow-tree* might be propagated here by planting ſome of the roots with their knots in artificial bogs, &c. *Canes* may be ſtained like tortoiſe ſhell, by a mixture of aqua fortis and oil of vitriol, laid on them at ſeveral times, over live coals, to cauſe it to penetrate the deeper, and afterwards giving them a gloſs with a little ſoft wax, and a dry cloth. Boyle.

CANES, *rattan*, are a ſmaller ſort brought from China and Japan, very tough; which being ſplit, are uſed for making of *cane* chairs. They are produced of a reed called *rattang Malabaricus minor*, or leſſer rattan. Theſe, when dry, being ſtruck againſt each other, will give fire, and are uſed accordingly, in ſome places, in lieu of flint and ſteel. Being twiſted together, they make cordage of them. The Chineſe and Japaneſe veſſels are ſaid to have their cables made of them; which are leſs liable to rot in the water than hemp. Phil. Tranſ. N° 244. p. 346. and N° 267. p. 717.

CANE *ſugar*. See SUGAR-*cane*.

CANE, *ſnuth*. See WAKE-*robin*.

CANE, *ſiſhing-rod*. See REED.

CANE, *Indian*. See CANNA.

CANE-*apple*, in *Natural Hiſtory*, a name given by the common people of Ireland to the *arbutus*, or ſtrawberry-tree. See ARBUTUS.

CANE, CANNA, a long meaſure, frequent in Italy, Spain, and the ſouth parts of France: of greater or leſs length, according to the places where it is uſed.

At Naples, the *canne* is equal to ſeven feet 3⅛ inches, Engliſh meaſure; to the *canna* of Tholouſe, and the upper Languedoc, is equal to the *vara* of Arragon, and contains five feet 83 inches; at Montpellier, in Provence, Dauphiné, and the Lower Languedoc, to ſix Engliſh feet 5⅛ inches.

CANELLA *alba*, in *Botany*, the ſame with what is otherwiſe called WINTERANIA, and ſometimes ſubſtituted for the CORTEX *Winteranus*.

CANENTES, in *Natural Hiſtory*, a name uſed by ſome of the older writers for a ſpecies of foſſile thell not known to us in its recent ſtate, but deſcribed by Klein, under the name of the *tubulus marinus tenuiſtriatus*, and by other of the late authors under thoſe of *polythalamium* and *arthrocerites*.

CANEPHORÆ, Κανηφοροι, from κανη, a *reed*, and φερω, *I bear*, in *Antiquity*, were two virgins of quality at Athens, kept in Minerva's temple in the Acropolis, who at the feaſt of the Panathenæa, carried baſkets on their heads with ſomething ſecret or myſterious therein, and delivered to them by the prieſteſs.

The baſkets were uſually crowned with flowers, myrtles, &c.—The *Canephoræ*, in their ceremonies, always marched the firſt, the prieſt next, and the chuſt of maſts followed.

The learned are at variance about the contents of the baſkets borne by the *Canephoræ*. Some will have it, that neither they, nor the prieſteſs herſelf, knew what was in them. Others conjecture that they contained the things neceſſary for ſacrifice, &c.

There were alſo *Canephoræ* in the ceremonies of Ceres and Bacchus. Thoſe in the Bacchanalia carried golden baſkets, in which were divers ſorts of firſt fruits, &c. Among ancient monuments, we find mention of divers figures of *canephoræ*. In that famous Cornelian called Michael Angelo's ring, there are three *Canephoræ* with their baſkets on their heads.

The appellation *Canephoræ* was alſo given to virgins at Athens, when, becoming marriageable, they preſented certain baſkets full of little curioſities to Diana, in order to procure leave to quit her train, and change their ſtate of life.

CANEPHORIA was a ceremony, which made part of a feaſt celebrated by the Athenian virgins on the eve of their marriage-day. The *Canephoria*, as practiſed at Athens, conſiſted in this: that the maid, conducted by her father and mother, went to the temple of Minerva; carrying with her a baſket full of preſents, to engage the goddeſs to make the marriage happy; or rather, as the ſcholiaſt

scholiaſt of Theocritus has it, the baſket was intended as a kind of honourable amends made to that goddeſs, the protectreſs of virginity, for abandoning her party; or it was a ceremony to appeaſe her wrath.

CANES, in Egypt, and other Eaſtern countries, a poor ſort of buildings for the reception of ſtrangers and travellers. People are accommodated in theſe with a room at a ſmall price, but with no other neceſſaries; ſo that, excepting the room, there are no greater accommodations in theſe houſes than in the deſerts, but that there is a market near.

CANES *Venatici*, in *Aſtronomy*, the *Grey-hounds*, two new conſtellations, firſt eſtabliſhed by Hevelius, between the tail of the Great Bear, and Bootes' arm, above the Coma Berenices. The firſt is called *Aſterion*, being that next the Bear's tail; the other *Chara*. They comprehend 23 ſtars, of which Tycho only obſerved two. The longitudes and latitudes of each are given by Hevelius.

In the Britiſh Catalogue they are 25. See the following table.

Situation of the ſtars.	Stars.	Longitud.		Latitude.		Magnitude
		°	′	°	′	
In the left fore-foot of *Chara*.	28	0	5	48	46	6
	10	0	58	18	14	5
	4	51	40	45	39	6
	10	28	18	30	56	6
	3	26	20	48	6	6
5.						
Under the head of *Chara*, near to the cheek.	13	13	4	37	45	5
	4	40	42	48	40	7
In the fore-head of *Chara*, under the tail of Urſa Major.	13	26	9	40	33	4
	14	44	4	40	37	30
	17	11	53	39	54	30
10.						
	10	59	54	37	56	40
Under the tail of the Bear.	20	13	22	30	7	3
	25	43	4	33	56	30
In the back of *Chara*.	23	59	5	19	0	4
	23	7	40	21	40	15
15.						
	13	4	49	41	55	44
	23	13	58	41	40	31
	21	42	17	32	42	35
	22	47	56	44	14	3
	23	27	40	34	12	24
20.						
	15	54	2	51	47	1
	Unknown			Unknown		6
	14	24	5	44	7	2
	11	1	0	22	58	0
	23	5	50	51	42	5

CANGA, in the *Chineſe Affairs*, a wooden clog borne on the neck, by way of puniſhment for divers offences.

The *canga* is compoſed of two pieces of wood notched, to receive the criminal's neck; the load lies on his ſhoulders, and is more or leſs heavy according to the quality of his offence. Some *cangas* weigh 200 pounds; the generality from 50 to 60 pounds. The mandarins condemn to the *canga*. Sentence of Death is ſometimes commuted for by the penalty of the *canga*.

CANI, *grotto del*. See GROTTO *del Cani*.

CANIA, in *Botany*, a name given by Pliny, and ſome other authors, to the common ſtinging nettle.

CANICULA, in *Zoology*, the name by which Ariſtotle, and ſince him Bondeletius, Aldrovandus, and ſome others, have called the CATULUS.

CANICULA was alſo uſed by Pliny, and the old Romans, for that fiſh which the Italians expreſs by the ſame ſort of diminutive name, at this time the *lamiola*. It is the *galeus* CANIS of authors, the fiſh we in Cornwall call the *tope*. It is a ſpecies of SQUALUS, called by Artedi the *ſqualus* with the noſtrils placed near the mouth, and with ſmall foramina near the eyes.

CANICULA is the name given to one of the ſtars of the conſtellation CANIS *Major*; called alſo ſimply the *Dog-ſtar*, by the Greeks, SEIRIOS, *Sirius*.

Pliny and Galen alſo give the appellation Procyon to the *canicula*; though, in propriety, PROCYON is the name of another ſtar in the Leſſer Dog.

Canicula is the fourth in order in the Britannic Catalogue; in Tycho's and Ptolemy's it is the ſecond. It is ſituate in the mouth of the conſtellation, and is of the firſt magnitude; being the largeſt, and brighteſt, of all the ſtars in the heavens. Its longitude, latitude, &c. ſee among thoſe of the other ſtars of CANIS *major*.

From the riſing of this ſtar, that is, its emerſion from the ſun's rays, which now happens about the twenty-ſixth day of Auguſt, the ancients reckoned their *dies caniculares*, or dog-days.

The Egyptians and Ethiopians began their year at the riſing of *Canicula*; reckoning to its riſe again the next year, which is called the *Annus Canicul.*

CANICULAR *days*, properly denote a certain number of days, preceding and enſuing the heliacal riſing of *Canicula*, or the *Dog-ſtar*, in the morning.

Some authors tell us, from Hippocrates and Pliny, that the day the *Canicula* riſes, the ſea boils, wine turns ſour, dogs begin to grow mad, the bile increaſes and irritates, and all animals grow languid; and that the diſeaſes ordinarily occaſioned in men by it, are burning fevers, dyſenteries, and phrenſies.

The Romans ſacrificed a brown dog every year to *Canicula* at its riſing, to appeaſe its rage. They ſuppoſed *Canicula* to be the occaſion of the ſultry weather, uſually felt in the dog-days; Homer's Il. lib. xxii. v. 22. but by miſtake: in five or ſix thouſand years more, *Canicula* may chance to be charged with bringing froſt and ſnow; for it will riſe in November or December; and he actually riſes with the ſun on different days, in different horizons.

However, the almanac-makers uſually mark the beginning of the *canicular* days about the 30th of July, and their end about the ſeventh of September.

CANICULAR *year*, denotes the Egyptian natural year, which was computed from one heliacal riſing of *Canicula* to the next.

This is alſo called *annus canicul.*, and *annus cynicus*; by the Egyptians themſelves the *Sothic year*, from *Sothi*, a denomination given by them to Sirius. Some alſo call it the *heliacal year*.

The *Canicular* year conſiſted ordinarily of 365 days, and every fourth year of 366 days, by which it was accommodated to the civil year. The reaſon of their choice of *Canicula* before the other ſtars, to compute their time by, was not only the ſuperior brightneſs of that ſtar, but becauſe its heliacal riſing was in Egypt a time of ſingular note, as falling on the greateſt augmentation of the Nile, the reputed father of Egypt. Epheſtion adds, that from the aſpect of *Canicula*, its habit and colour, the Egyptians drew prognoſtics concerning the riſe of the Nile; and, according to Horus, predicted the future ſtate of the year. So that the firſt riſing of this ſtar was yearly obſerved with great attention. Bainbrigge, Canicul. cap. 4. p. 20.

CANICULUM, or CANICULUS, in the *Byzantine Antiquities*, a golden handkin, or ink-veſſel, decorated with precious ſtones, wherein were kept the ſacred *encauſtum*, or red ink, wherewith the emperors ſigned their decrees, letters, &c.

The word is by ſome derived from *canis* or *canichus*; alluding to the figure of a dog, which it repreſented; or rather becauſe it was ſupported by the figures of dogs. By Salmaſius from *κανεον*, an *inkhorn*.

The *canicelum* was under the care of a particular officer of ſtate, hence called *cancellarius* or *cancellus*, who was in great requeſt. Du Cange will have the *cancellarii* to have been the ſame with the LOGOTHETA.

CANICUM, in *Botany*, a name given by Avicenna, and ſome other authors, to the ſmall celandine, or PILEWORT.

CANINA *appa*, in *Botany*, a name given by ſome of the old Roman authors to the fruit of the aparine or gooſe-graſs. They are called by others *lappa bogrios*, and *lappa canariæ*, and the plant *lappa* and *lappago*. See ULPAVERS.

CANINANA, in *Zoology*, the name of a ſpecies of ſerpent found in America, and eſteemed one of the leſs poiſonous kinds. It grows to about two feet long, and is green on the back, and yellow on the belly. It feeds on eggs and ſmall birds; the natives cut off its head and tail, and eat the body as a delicate diſh. Ray.

CANINE, in a general ſenſe, ſomething that relates to dogs. Dr. Douglas gives frequent compariſons between the *canine* muſcles and the human.

The voice of perſons hired with the *hydrophobia* is frequently uttered with a *canine* hoarſeneſs, and bears ſome reſemblance to the barking of a dog. Dr. Lifter accounts for the cynical appearances in the *hydrophobia* from a ſuppoſition, that the patient has undergone ſomewhat of a tranſformation in the *canine* nature, or that certain of the organical parts of his body, eſpecially the *guts*, tongue, &c. are diſpoſed after the manner of a dog. Phil. Tranſ. N° 207, and N° 147.

CANINE *appetite*, *appetitus*, or *fames canina*, amounts to much the ſame with *bulimus*, though the more exact writers make a diſtinction between them two. See BULIMY. We have a late ſurpriſing inſtance of the *canine* appetite, mentioned in the Philoſophical Tranſactions, N° 476. p. 366. & ſeq. and p. 382.

CANINE *laughter*, *riſus ſardonius*, that wherein the lips are drawn far back, and the mouth much extended.

CANINE *ligament*, that whereby the prepuce of the human PENIS is faſtened to the *glans*, otherwiſe called the FRENUM.

CANINE

CANINE *madness*, *rabies canina*, is usually supposed the same with HYDROPHOBIA, though some distinguish, applying the former denomination where the patient raves, or has loft all ufe of reafon; the latter where he ftill retains his reafoning faculty, only his members are fubject to certain involuntary convulfive motions, as thofe of an epileptic or aguith perfon. See MADNESS.

The *rabies canina* is never without the *hydrophobia*, but the latter frequently without the former.

CANINE *fulphur*, a fort of native SULPHUR difcovered near Rome, intermixed with earthy or ftony matters; thus called by reafon that dogs are fo fond of it, as to dig it out of the earth.

CANINE *teeth*, CANINI *dentes*. See TEETH.

CANINUS *mufculus*, the fame as ELEVATOR *labii fuperioris*.

CANINUS *ferpens*, in *Zoology*, a name given by fome writers to the *manhalla* of the Cyclopedia, a fnake that flies at every thing that comes in its way, in the manner of our dogs.

CANIS, *dog*, in the Linnæan fyftem of *Zoology*, makes a diftinct, but very large *genus* of animals, of the order of *feræ*, and claft of *mammalia*, taking in all the dog kind, which this author only accounts fo many varieties, and other diftinct *fpecies*. The characters of this genus are, that the feveral fpecies of it have fix upper fore-teeth; that the lateral ones are longer than the others: the intermediate ones of a lobated figure. There are alfo fix fore-teeth in the lower-jaw, of which the lateral ones are lobated: the canine teeth are fingle and incurvated; the grinders are fix or feven in number.

The fpecies are the common DOG, the WOLF, the HYÆNA, the FOX, the ALOPEX, the SAGOUIN, the JACKALL, or *lupus aureus*, the *Mexican* DOG, or *American mountain cat*, with a tail bent downwards, and an afh-coloured body, variegated with brown and yellow fpots; and the TIGUIS.

CANIS *Major*, *the Great Dog*, in *Aftronomy*, a conftellation of the fouthern hemifphere, below Orion's feet, though fomewhat to the weftward of him; which ftar Ptolemy makes 20; Tycho obferved only 134 Hevelius 21; in the Britannnic Catalogue they are 32. Their order, names, places, longitude, magnitude, &c. are as follow.

Names and Situations of the Stars.	Epact's Chara.	Signs.	Longitud.		Latitude			Magnitude.
			°	′	°	′	″	
In the preced. poſterior foot		♋	3	7	43	24	27	3
In th. extrem. of the anterior foot			2	54	58	41	17	4
Inform. under the poſterior cut			4	12	39	56	44	4
Preced. of two in the lower knee		♌	6	20	14	16	30	5
Subſeq. and South of the ſame			7	21	25	40	5	5
5.								
South, in the upper knee			7	16	48	21	46	23	5
North, in the ſame knee			7	25	41	32	21	25	5
Exceeding bright one in the mouth, *Sirius*		♋	7	42	57	42	19	24	5
		♌	9	49	1	39	32	1	1
In the ham of the right leg			12	12	14	53	53	0	6
10.									
			9	59	38	37	19	38	5
South. and preced. in the breaſt			10	57	2	43	53	19	6
In the lower leg			14	5	35	55	12	5	4
In the north eaſt			11	52	53	14	44	34	5
Preced of the contig. in the breaſt			12	55	4	12	55	53	6
15.									
Preced. of two in the ſhoulder			13	50	34	46	48	50	5
South. of the contig. in the breaſt			14	25	56	43	3	20	6
In the head			12	44	25	10	41	50	4
Third of thoſe following in breaſt			13	34	29	12	26	32	6
South. in the neck			13	13	3	39	42	8	4
20.									
Bright one under belly, between the thighs			16	24	46	51	23	57	2-3
			17	22	31	50	16	0	4
North. of two in the neck			13	17	41	38	1	50	3
Subſeq. of two in the ſhoulder			16	41	25	46	10	13	5-4
Bright one in middle of the body			19	3	30	18	29	37	2-3
25.									
			20	18	26	7	53	45	3
			20	59	58	48	12	31	7
			21	12	34	48	36	53	5
			21	56	10	46	15	41	6
			22	3	25	56	38	50	5
30.									
Bright one in the tail			23	12	16	30	38	56	2-3

CANIS *Minor*, the *Little Dog*, in *Aftronomy*, a conftellation of the northern hemifphere; called alfo by the Greeks, *Procyon*, and by the Latins *Antecanis*, and *Canicula*.

The ſtars in the conſtellation *Canis minor*, are in Ptolemy's Catalogue 2; in Tycho's 5; in Hevelius's 13. Their order, names, places, longitude, latitude, magnitude, &c. in the Britiſh Catalogue, which contains 14, are as follow.

Names and ſituations of the Stars.	Epact's Chara.	Signs.	Longitud.		Latitude			Magnitude.
			°	′	°	′	″	
In the head			1	19	58	12	36	14	6-7
North. in the neck			28	57	51	28	13	30	3
South. in the neck			1	3	23	12	51	51	6
Under thoſe as in the ſhoulder			28	18	14	14	49	24	6
5.									
Inſormis, over the neck			17	56	51	9	41	18	6
North. againſt preced. poſit. foot			20	10	49	49	37	58	6
Middle			20	14	7	48	13	51	6
South			20	28	51	48	6	22	6
In the thigh. *Procyon*			21	30	31	35	57	55	1-2
10.									
Inſormis, towards the tail			21	58	22	10	20	35	6
In the hind-leg			23	22	23	28	15	15	5-6
			25	19	47	28	53	0	5
			20	27	30	28	6	12	6

CANIS *carcharias*, in *Natural Hiſtory*, a name given by Rondeletius, and other authors, to that ſpecies of ſhark called the *lamia*, or white ſhark by others, or *carcharias*, *lamia*, &c. See *Tab. of Fiſhes*, N° 3.

CANIS *piſcis*, in *lchthy logy*, the name of a large fiſh of the ſhark kind. It has three rows of extremely ſharp teeth; the eyes are ſmall for the ſize of the fiſh, the pupils are proportionably ſmall, and the iris of a fine bright ſilver colour, with a caſt of blue or green. It is brought to market in Rome, and is ſometimes caught alſo on our own coaſts, as about Penzance in Cornwall. It is extremely fond of human fleſh, and will venture to leap up even upon the ſhore for it.

CANIS *volans*, in *Zoology*, the name of an animal properly of the bat or vefpertilio kind, and diſtinguiſhed by Linnæus by the name of *vefpertilio cauda anilis*, the bat without a tail.

CANKER, ſometimes denotes a ſpeck made by a ſharp humour, which gnaws the fleſh almoſt like a cauſtic; very common to children, in their mouth eſpecially.

CANKER ſeems alſo popularly uſed for a GANGRENE, or beginning mortification.

CANKER is alſo a diſeaſe in dogs, which ſeizes their ears.

CANKER, in hawks, breeds in the throat and tongue, occaſioned by foul feeding. It is cured by waſhing the mouth with honey and white wine boiled together, then ſhewing it with cheriſil-powder.

CANKER, in horſes, is a loathſome ſoreneſs, which, if it continue long uncured, ſo feſters and putrifies the part, that it will eat to the very bone; and if it happens to come upon the tongue will eat it aſunder; ſighting upon the noſe it devours the griſtle through.

CANKER, in trees, a term uſed by our farmers to expreſs a wound or blemiſh in the trunk of a tree, which does not heal up by nature, but will increaſe and damage, if not endanger, the whole tree. Theſe wounds are ſometimes occaſioned by accidents, as blows, or by the branches of one tree galling another by the motion they are put into by the winds; if this latter be the caſe, the offending branch muſt be cut off, or drawn another way, or elſe all remedies are vain.

The wound muſt be cut and enlarged every way to the quick, and all the decayed wood muſt be taken clean out; then the whole internal ſurface of the wound muſt be filled up with tar mingled with oil, and after this it muſt be filled up with clay and horſe-dung mixed together, or with horſe-dung alone, which many eſteem beſt of all. In this caſe the dung muſt be bound over with a rag; hog's dung is by many preferred to horſe-dung for this purpoſe; and it is proper to add to this application the keeping of the roots cool and moiſt, by laying fern and nettles about them. If the *canker* be only in one of the boughs of the tree, the beſt way is to cut off the bough at once. If that be a large one, it ſhould be cut off at ſome diſtance from the body of the tree; but if a ſmall one it ſhould be cut off cloſe. The adding of a coat of dung, and pond or river mud, about the roots of trees, if they are ſubject to this from their ſtanding in a dry barren land, as is often the caſe, is a very good care. See DARE, and DISEASES *of Plants*.

CANKER *worm*. See SCARABÆUS.

CANNA, in *Botany*, *Indian* CANE, or *flowering-reed*, a genus of the *monandria monogynia* claſs. Its characters are theſe: the flower hath one petal, which is divided into ſix parts, the three upper ſegments are erect, and broader than the lower: two of which are erect, and the other runs back, and is twiſted. It hath one ſpear-ſhaped ſtamen, riſing as high as the petal, having the appearance of a ſegment. Below the empalement is ſituated a roundiſh, tough germen; which becomes an oblong, roundiſh, membranaceous capſule, having three longitudinal furrows, crowned by the empalement, which hath

both these cells filled with round, smooth seeds. There are three species.

All the sorts are propagated by *seeds*, which should be sown on a hot-bed in the spring; and when the plants are fit to remove, they should be transplanted into separate small pots, and plunged in a moderate hot-bed of tanner's bark.

CANNA, in the *Ancient Pharmacy* and *Botany*, denoted the *calamus aromaticus*, or, according to others, *cassia fistula*.

CANNA also denotes a sort of long measure, otherwise called by modern authors a CANE, by the Latins *calamus*, and in Scripture a reed.

CANNABINA, in *Botany*. See *Bastard* HEMP.

CANNABIS. See HEMP.

CANNACORUS, in *Botany*. See CANNA.

CANNEL-*coal*, a black bituminous fossil, frequent in Staffordshire and Lancashire, of a fine hard texture, so as to receive a polish, and become of service for divers works instead of ivory, but chiefly used for fuel, as affording a brighter and purer flame than the common *sea*-COAL.

Dr. Woodward takes our *cannel coal* to be the same with the *lapis* ANTHRACITES of the ancients, and the *lapis* OBSIDIANUS of some later writers. This sort of coal contains most pitch and in a less dense state; so that it burns with a bright lively flame: its specific gravity is about 1,27. *Cannel-coal*, or, as some call it, *candle-coal*, is also found in Cumberland, and some other counties of the North.—It is apt to take a texture, that it will take a tolerable polish. The chairs of the cathedral of Lincheld is said to be in a great measure paved with *candle-coal* for the black, and alabaster for the white, which when clean resembles marble. It also turns like ivory into many pretty works, as ink-standishes, salts, candlesticks, &c.

In disposing it for fire regard is had to the grain. If they would have it burn slow, they lay it flat-wise on the fire: if clear, they set it edgewise, in which case it burns as light as a candle.

CANNEQUINS, in *Commerce*, white cotton cloths brought from the East Indies. They are a proper commodity for trading on the coast of Guinea, particularly about the rivers Senega and Gambia. These cloths are folded square wise, and are about eight ells long.

CANNEVAROLA, in *Ornithology*, a name by which Aldrovandus, and some other authors, have called the lesser reed-SPARROW, called by others *fringilla cannabina*, and, by Mr. Ray, *passer arundinaceus minor*.

CANNIBAL, or CANIBAL, is used by modern writers for an ANTHROPOPHAGOUS, or man-eater, more especially of the West Indies.

CANNOCK, or CANNOT-*stone*, a base sort of iron-ore, in the Staffordshire mines, of which the worst metals is made.

CANNON, in *War*, a military engine for throwing iron, lead, or stone bullets, by force of gunpowder, to a place directly opposite to the axis of the cylinder whereof it consists. See *Tab. Gunnery, fig.* 1.

The word seems derived from the Italian *cannone*, an augmentation of *canna*, *cane*; because a *cannon* is long, straight, and hollow, like a cane.

The first *cannons* were called *bombarde*, from *bombus*, by reason of their noise. They were constructed of several pieces of iron adapted to each other lengthways, and hooped with iron rings, and employed in throwing stone bullets of a prodigious weight; accordingly their bore was enormously large, and they were very inconvenient for use. The parts and proportions of a *cannon* about eleven feet long, are its barrel, or cavity, nine feet; its tolerum, or support, fourteen, and its axis seven; the bore, or diameter of the mouth, six inches, and two lines the play of the ball; the diameter of the ball therefore five inches, and its weight thirty-three pounds. In present practice, the diameter of a shot is divided into twenty equal parts, and that of the bore in twenty-one of these parts: the French use the proportion of twenty-six to twenty-seven; and Mr. Muller recommends a kind of medium between both; or that of twenty-four to twenty-five. The metal thick about the mouth, two inches, and at the breech six. It weighs about five thousand six hundred pounds: its charge is from eighteen to twenty pounds. It carries point-blank, six hundred paces; and loads ten times in an hour, sometimes fifteen; in a day one hundred and twenty times. Its ball fifteen feet bound, and twenty long, for the rebound. It requires twenty horses to draw it. See CALIBRE, GUN, and WINDAGE.

Lurray makes brass *cannon* the invention of J. Owen; and says, the first known in England, were in 1535; and iron *cannon* was first cast in England in 1547. Lennard, however, he owns, were known before; and observes, that at the battle of Crecy, in 1346, there were five pieces of *cannon* in the English army, which were the first that had been seen in France. Mezeray also says, that King Edward struck terror into the French army, by five or six pieces of *cannon*; it being the first time they had seen such thundering machines.

In the bill of aids raised for the redemption of king John of France, in 1368, mention is made of an officer in the French army called *master of the king's cannon*, and of his providing four great *cannons* for the garrison of Harfleur. Father Daniel (dans la Vie de Philip V. dit de Valois, tom. ii.) produces a proof from the records of the chamber of accompts at Paris, that *cannon* and gunpowder were used in the year 1338.

Du Cange even finds mention of the same engines in Froissart, and other French historians some time earlier. The Germans carry the invention of *cannon* farther back, and attribute it to Albertus Magnus, a Dominican monk, about the year 1250. Isaac Vossius rejects all these conjectures, and finds *cannon* in China almost seventeen hundred years ago. According to him, they were mounted by the emperor Kitcy, in the year of Christ 85. The ancients had their fiery tubes, or *cannon*, which being loaden with pitch, flames, and iron-balls, were exploded with a vehement noise, smoke, and great effect, though much inferior to our bombs.

Cannon are made cylindrical, that the motion of the ball may not be retarded in its passage; and that the powder, when on fire, may not slip between the ball and the surface of the *cannon*, which would hinder its effect. Wolfius would have the *cannon* always decrease towards the mouth or orifice; because the force of the powder always decreases, in proportion to the space though which it is expanded. The *cannon* made after the Spanish manner, had a cavity, or chamber, at the bottom of the barrel, which helped their effects. But the *cannon* are now made with a plain cylindrical bore without any CHAMBER. A *cannon* is found to recoil two or three paces after explosion; which some account for from the air's rushing violently into the cavity, as soon as it is discharged of the ball: but the real cause is, the powder's acting equally on the breech of the *cannon*, and the ball. For a battering-piece, whose ball is thirty-six pounds, there must be two cannoneers, three chargers, and thirty pioneers.

Cannons are distinguished from the diameters of the balls they carry; but this distinction is different in different nations. The proportion of their length to their diameter, depends rather on experience than any reasoning *a priori*; and has been accordingly various, in various times and places; the rule is, that the gun be of such a length, as that the whole charge of powder be on fire before the ball quit the piece. If it be made too long, the quantity of air to be driven out before the ball, will give too much resistance to the impulse; and that impulse ceasing, the friction of the ball against the surface of the piece will take of some of its motion. Formerly, *cannons* were made much longer than at present; till some made by chance 24 feet shorter than ordinary, taught them that the ball moves with a greater impetus through a less space than a larger. This Gustavus king of Sweden proved by experience in 1624, when an iron-ball, forty-six pounds weight, was found to go farther from a new short *cannon*, than another ball of ninety-six pounds out of an old, longer piece: whereas, in other respects, it is certain the larger the bore and ball, the greater the range. Professor Euler apprehends, that the alteration in the length of *cannon* has not been supported by proper experiments; so that we may be allowed to infer, that those of the present construction will throw a shot with a greater velocity than the longer *cannon* did. And he is of opinion, that the principal reason for laying aside the use of very long and heavy *cannon* was the great difficulty of transporting them from place to place with an army. Principles of Gunnery investigated, &c. p. 246. See also on this subject, Robins's Tracts. vol. i. p. 248, &c.

The names of the several *cannons*, their length, their weight, and that of their balls, as they obtain among us, are as in the following table; though their names are generally derived, especially in naval use, from the weight of the ball which they discharge: thus a piece that discharges a ball of twenty-four pounds, is called a twenty-four pounder, &c.

Names of Cannon.	Weight of an iron ball.	Weight of the Cannon.	Length of the Cannon.
Cannon Royal	66 lb.	8000 lb.	12 *Feet.*
Demi-cannon large	30	6000	12
Demi-cannon ordinary	34	5600	12
Demi-cannon lefs	30	5400	11
Culverin large	20	4800	12
Culverin ordinary	17 lb. 5 oz.	4500	12
Culverin leſs	13	4000	11
Demi-culverin ordinary	10	2700	11
Demi-culverin leſs	9	2000	10
Saker ordinary	6	1500	10
Saker leſs	4 12	1400	8
Minion large	3 12	1000	8
Minion ordinary	3 4	800	7
Falcon	2 8	750	7
Falconet	1 5	400	6
Rabinet	8	300	5.6 *Dig.*
Base	5	200	4.6

Cannon Royal is otherwise called *Cannon of Eight*.

The velocity of a ball or bullet, discharged from a *cannon*, was formerly supposed to be only about 500 or 600 feet in a second of time. See BULLET. But Mr. Robins, Muller, and others, have since found, that it is much greater; or from 1000, even to 2000 feet, according to the length of the piece, the charge and the weight of the bullet. See GUNNERY and VELOCITY.

The greatest range of a *cannon* is ordinarily fixed at an elevation of 45°. Dr. Halley shews it to be at 44°.

It should be remarked, that this range supposes the initial velocity to be very small, because every different velocity and ball require a different elevation to produce the greatest range; from 45° downwards gradually to 30°, or even less in very great velocities. See VELOCITY *initial*.

M. S. Julian adjusts the ranges of the several pieces of *cannon*, from the weight of the ball they bear, the charge of gunpowder being always supposed in a subduple ratio of the weight of the ball: thus,

Weight of a leaden ball.	Horizontal range.	Greatest range.	Weight of a leaden ball.	Horizontal range.	Greatest range.
33 *lib.*	3600 *paces.*	6000	12	450	5000
24	3360	6000	8	400	4500
18	3200	6000	2	150	1500

For the proportions of the lengths of guns, weight of ball, and ranges, deduced from later experiments and conclusions, see GUN.

For the several parts of a *Cannon*, see ASTRAGAL, BASE-*ring*, BREECH, CALIBER, CASCABEL, CHASE, MUZZLE, OGEE, REINFORCED *ring*, TRUNNIONS, &c. See also GUN and GUNNERY.

CANNON, *boring of*, has lately been used instead of the method of casting them hollow by means of a mould. The machine for this purpose, as well as for smoothing the inner surface, which is sometimes done after they have been cast hollow, is composed of a rectangular frame of timber, A B C D (*see* TAB. *Gunnery*, *fig.* 3.), fixed upon a solid plank E F, which is raised eight or ten feet above the floor of the workhop. This frame contains two upright beams *f*, *f*, F *f*, placed level and exactly parallel to each other, and strongly fixed on the pieces of wood G, G, with their ends resting on the cross-bars that connect the sides of the frame. Their length should be about three times that of the *cannon* to be bored. In the inner side of these beams are two grooves, to which are applied two bars of wood 22, 22, which are connected together by the traverse pieces 33, 33. 33, between which the *cannon* H is fastened, so that the whole inclosed frame 22, 22, with the piece of ordnance fixed to it, may slide in the grooves of the beams F *f*, F *f*, being raised or lowered by means of the ropes and pullies K *k*, K *k*, fixed above to the upper part of the frame, and below to the breech of the *cannon*. The rope belonging to each block of pullies coils round an axis Y, Y, bearing at each end the cogged wheels N, M. Each of these wheels lays hold of a trundle N, N, containing the same number of rounds: the trundles are fixed on a common axis Z, Z, the ends of which pass beyond the sides of the frame, and bear spoked wheels *o* P, *o* P, by means of which the workmen turn the whole machine; and thus elevate or depress the *cannon* with the frame to which it is annexed at pleasure. On the floor of the workhop, directly under the frame F *f*, F *f*, a block of stone is fastened in the ground; and this supports a plate of iron or copper, placed exactly level and under a line, supposed to be parallel to the beams F *f*, F *f*, dividing the spaces between them on either side into equal parts, and coinciding with the true axis of the *cannon*.

The instrument for boring is represented in *fig.* 6. The upper part of it *a* is formed with a double slope, and it is open at *d* for admitting the square part *b d* of the trunk, which is a strong bar of iron, round at the part which is to enter the *cannon*, and terminating at its lower part in a pivot, which rests on the plate E. About three or four feet above the plate, the trunk of the borer is square, and bears upon it a strong box of wood or iron S, through which levers, as T S, pass, that are turned by men or horses. The box or trough *w* serves to receive the pieces of metal that are taken off in the operation. By this motion, and the pressure of the *cannon* on the point of the borer, it is gradually bored, till the *cannon* sinks, by the contrivance already described, to a certain mark on the borer, which answers to the required depth of its bore. It is then elevated, till the borer may be taken out. When the borer is removed, an instrument formed for smoothing the inner surface of the *cannon* is substituted in its room. This is represented by D (*fig.* 7). It is made of copper, and of a cylindric figure: in the middle there is a square hole capable of admitting the square, and a small portion of the pyramidal part of the trunk of the borer. This cylindric piece has four grooves parallel to its axis, into which are fixed cutting instruments of tempered steel, represented by CC. This instrument serves to enlarge the inside of the *cannon*, and to smooth it, by turning the trunk which supports it in the same manner as when the piece was bored. When this four-edged squarer has passed into the piece, another of five, and then another of six sharp edges is made to enter it: the last of these pairs of all the inequalities which the others had left, and gives to the inside of the *cannon* that perfectly cylindrical and polished figure which it ought to have. The *cannon*, after being thus bored and smoothed, is sent to the chafery, by whom it is finished: with them the touch-hole is bored, and there it is prepared for being mounted on its carriage; and nothing remains previous to its being used, but proving it. The method of casting solid *cannon*, and boring them with this machine, was adopted, because several inconveniences attending the other method of casting them hollow on a mould were avoided by it. The first of these instruments was constructed at Strasburgh, and remained long a secret, though it is now pretty generally used. One of their machines will serve for three furnaces. Encyclopedie, art. ALESAGE.

A machine of this kind, with some little variation in the position of its bar, very lately been introduced into this country, and is now generally used for iron and brass guns. The gun to be bored lies with its axis parallel to the horizon, and in that position, is turned round its axis by means of wheel-work, moved by one or more horses. The borer is *laid*, as above described, in the direction of the axis of the gun, and is incapable of motion in any direction except that of its length; and in this direction it is constantly moved by means of a fusil rack-wheel, kept in proper motion by a man, who thus makes the point of the borer to bear against the part of the gun that is boring, as to pierce and cut it. The outside of the gun is smoothed at the same time by men with instruments fit for the purpose whilst it turns round, so that the bore may be exactly in the centre of the metal.

For the *Methods of casting Cannon*, see FOUNDERY.

As for the metal of *cannon*, it is either iron or a mixture of copper, tin, and brass: the first added to the copper, to make the metal more dense and compact; so that the better or heavier the copper is, the less tin is required. Some to a hundred pounds of copper, add ten of tin, and eight of brass; others, ten of tin, five of brass, and ten of lead.

What are commonly called *brass cannon*, are not made of pure brass; they cannot be made either of this, or of pure copper; but it is always found necessary to mix with these metals some coarser ones, in order to make the whole run the closer and founder; such are lead, and what the founders call pot-metal. As bell-metal is a mixture of copper and tin, so pot-metal is copper and lead. About twenty pounds of lead is usually put to a hundred weight of pot-metal, but about six pounds is sufficient for a hundred weight of gun-metal, and is of full service.

Guns are now usually made of iron, because they are found to be much stronger and more durable, as well as cheaper than the compositions with brass. Mr. Muller, however, contends for the use of the latter, especially for ships, as being, upon the whole, cheaper, and more serviceable than the former. Treat. of Artil. p. 18.

Brandius describes a method of making *cannon* of leather, on occasion, and it is certain the Swedes made use of such in the long war of the last century; but these burst too easily to have much effect.

It is found, by experience, that of *two cannons* of equal *bore*, but of different lengths, the longer requires a greater charge of powder than the shorter, in order to reach the same range. The ordinary charge of a *cannon*, is for the weight of its gunpowder to be half that of its ball. See CHARGE.

Cannons are sometimes cooled by sponging them with sheep-skin dipped in water mixed with vinegar. Without this precaution they are apt to burst after many discharges. It is also requisite to clean them with the sponge, that no fire may be left behind to endanger the next charge of powder.

After each thirty discharges, the *cannon* is to be cooled with two pints of vinegar mixed with four of water, poured into the barrel; the touch-hole being first stopped.

CANNONS, *ordinary*, are those of the common or middling length, each according to the proportions of its kind; e. g. 32 calibers for a culverin.

CANNONS, *extraordinary*, are those which are longer than the usual proportion allowed to their species; e. gr. from 32 to 48 or 50 calibers for a culverin.

CANNON, *bollard*, those which are shorter than ordinary, whether they be of the whole cannon, cannon, or demi-cannon, or quarter-cannon kind. Such c. gr. are culverins from 32 to 26 calibers.

Some call those *extraordinaries* which are longer than ordinary *cannon*, yet do not reach the length of culverins. But these ought rather to be called *extraordinary cannon* or bastard culverins.

Cannon longer than ordinary are also called *finger*, *double*, &c. as those further are called *case*.

CANNON, *enforced*, or *forefted*, those stronger and thicker in metal than ordinary, which have their metal at the touch-hole one diameter thicker, in the middle five or six eighths, and at the neck three eighths.

All chambered cannon are enforced.

CANNON, *fort*, are stronger in metal than those used by land, on account of the necessity they are often under of being charged with chain-shot. They lie on ship-carriages, having four small wheels, without spokes, with two ropes to stop their running back, and bring them again to their place upon the battery.

CANNON *of energy*, or *Chace*-CANNON, in a galley, is the largest, most general, and most effective of the guns placed in the prow, or chase of the vessel, and which delivers in that over the very beak, generally carrying a shot of 33 or 34 pounds weight. It is a long piece, and recoils all along the middle of the galley to the mast.

CANNON-*mouth of a ſea*, in the *Sluices*, denotes a round, long piece of iron, sometimes compoſed of two pieces coupled together and bent in the middle. See BEE.

CANNON-*mouths*, in the *Mines*, are contrived to keep a brisk in subjection, bring it ordered that they tile gradually toward the middle, and afterd toward the paſſage, that the void space left underneath may afford a liberty to the tongue.

CANNONADE, in *Military Language*, is the application of artillery to the purposes of beating or destroying a ship, battery, or fortress.

CANNONEER, or CANNONIER, an officer in the artillery, who has the care of charging, pointing, and firing a cannon.

The *cannonier* is the same with what is otherwiſe called *gunner* in the brestſhot, *vaſſan*, and all other places, *constable*.

CANNULA, or CANULA, in *Chirurgery*, a little tube, or pipe, which the ſurgeons leave in wounds and ulcers, that they cnare not to heal up; because fluid ſuppurating. The *cannula* is to be made of gold, silver, or lead; and is perforated, that the pus, entering within it, may fall upon a ſponge, dipped in ſpirit of wine, and placed at the orifice, to keep the ulcer warm, and to prevent the external air from entering: ſome of theſe *cannulæ* have rings, whereby to keep them faſt in the wound; and others have holes with tubuluſs through them, to bind them down: ſome are round, others oval, others crooked. See *Tab. Surgery*, *fig.* 10.

There is a particular kind of *cannula*, formed taper-wiſe, with a ſcrew faſtened to one end, in manner of a cock: its uſe is for the diſcharge of the water out of the abdomen, after tapping, in an aſcites, or dropſy. To this end it is inſerted into the body, through a hole made near the navel, with a pointed inſtrument, and ſometimes a gunch; and is faſtened into its place by a bandage, and guarded from any injury of the cloaths, &c. by a caſe or cover. It has this advantage over the common tapping, that by means thereof, the water is drawn out when, and in what meaſure the patient pleaſes. See TAPPING.

There is likewiſe a kind of copper, or iron *cannula* made for the more convenient application of actual cauteries: they are made very ſhallow, and are, in effect, little more than hoops; through the aperture whereof, the actual cautery is conveyed; which, by this means, is kept from damaging the adjacent parts.

CANNULA, or CANOLA, in *Ecclesiaſtical Writers*, was a tube of silver, or other metal, wherein were put the reliks, which the people kiſſed as perfons to holineſs, &c.

CANNULA, or CANOLA, was alſo a ſort of ſyphon, through which they anciently ſucked the wine in the eucharift.

CANOE, a name given to the little boat uſed by the ſavages in both Indies, as well as by the negroes in Guinea; made chiefly of the trunks of trees dug hollow; ſometimes of pieces of bark faſtened together.

The common *canoes*, among the Indians, are thoſe made of trees hollowed; being either greater or leſs according to the ſize of the tree they are made of. They are rowed with paddles, and rarely carry ſails: the keeling is laid at the bottom; but having no ballaſt, they are frequently turned upſide down. They have no rudder, the want of which is ſupplied by the *hind* oar. The Negroes of Guinea uſe the ſame ſort of *canoes*, though made in a different manner. They are long ſhaped, having only room for one perſon in width, and ſeven or eight in length; they ſhew little wood above the water: thoſe who row are extremely dexterous, not only in giving the ſtrokes with cadence and uniformity, by which their *canoes* ſeem to fly along the ſurface of the water; but alſo in ballancing the veſſel with their bodies, and preventing their overturning, which, otherwiſe, on account of their lightneſs, would continually happen. Add, that when they are overturned, they have the addreſs to turn them up again in the water itſelf, and mount them anew. They venture as far as four leagues to ſea, but dare not venture farther.

They are uſually fifteen feet long, and a foot or two wide, though there are ſome larger, as far as thirty-five feet long, five wide, and three high, uſed for the carriage of cattle, and expeditions in war. They are fitted with ſails made of ruſhes.

On return from a voyage, the *canoe* are not left in the water, but preſently drawn aſhore, where they are hung by the two ends, and left to dry; in which ſtate they are ſo light, that two men will eaſily carry them on their ſhoulders.

The *canoes* of the Canadeſe are made of the bark of the birch-tree, ſometimes large enough to hold ſous or five perſons. Thoſe of the ſavages of Terra del Fuego, and the other iſlands of the ſtraits of Magellan, are alſo of bark, and faſhioned with great ſkill, from ten to fifteen feet long, and two wide, capable of holding eight men, who row ſtanding, with a ſurpriſing ſwiftneſs.

In the repoſitory of the Royal Society is the model of a Greenland *canoe*, covered with ſeal-ſkin, and reſembling a great bladder; ſo as that, however the waves daſh over it, the perſon in it is ſafe. It is rowed with a ſingle paddle.

CANON, a perſon who poſſeſſes a prebend, or revenue allowed for the performance of divine ſervice, in a cathedral, or collegiate church.

Canons are of no great antiquity: Paſchier obſerves, that the name *canon* was not known before Charlemagne; at leaſt, the firſt we hear of, are in Gregory de Tours, who mentions a college of *canons*, inſtituted by Baldwin XVI. archbiſhop of that city, in the time of Clotharius I. The common opinion attributes the inſtitution of this order to Chrodegangus, biſhop of Metz, about the middle of the eighth century.

Originally *canons* were only prieſts, or inferior eccleſiaſtics, who lived in community; reſiding by the cathedral church to aſſiſt the biſhop; depending entirely on his will; ſupported by the revenues of the biſhopric; and living in the ſame houſe, or the dormitories, or cloiſters, &c. They even inherited his moveables, till the year 817, when this was prohibited by the council of Aix-la-Chapelle, and a new rule ſubſtituted in the place of that which had been appointed by Chrodegangus, and which was obſerved for the moſt part in the Weſt till the twelfth century. By degrees, theſe communities of prieſts, ſhaking off their dependence, formed ſeparate bodies; whereof the biſhops, however, were ſtill heads. In the tenth century, there were communities or congregations of the ſame kind, eſtabliſhed even in cities where there were no biſhops: theſe were called *collegiate*, as they uſed the term *congregation* and *college* indifferently: the name *chapter*, now given to their bodies, being much more modern. Under the ſecond race of the French kings, the *canonical*, or collegiate life, had ſpread itſelf all over the country; and each cathedral had its chapter, diſtinct from the reſt of the clergy.

They had the name *canon* from the Greek *κανων*, which ſignifies three different things; *a rule*, *a penſion* or *fixed revenue to live on*, and *a catalogue* or *matricula*; all which are applicable to them.

In time, the *canons* freed themſelves from their rules, the obſervance relaxed, and, at length, they ceaſed to live in community; yet they ſtill formed bodies; pretending no other functions beſides the celebration of the common office in the church; yet aſſuming the rights of the reſt of the clergy; making themſelves as a neceſſary councill of the biſhop; taking upon them the adminiſtration of a ſee during a vacancy, and the election of a biſhop to ſupply it. There are even ſome chapters excepting from the juriſdiction of the biſhop, and owning no head but their dean. After the example of cathedral chapters, collegiate ones alſo continued to form bodies, after they had abandoned living in community.

Canons are of various kinds; as,

CANONS, *cardinal*, which are thoſe attached, and as the Latins call it, *incardinati* to a church, as a prieſt is to a pariſh.

CANONS, *domiciliary*, were young *canons*, who, not being in orders, had no right in any particular chapters.

CANONS, *expectatives*, were ſuch as, without having any revenue or prebend, had the title and dignities of *canons*, a ſeat in the chapter, and a place in the choir; till ſuch time as a prebend ſhould fall.

CANONS, *foreign*, were such as did not officiate in the canonries to which they belonged.—To these were opposed *manifestary canons*, or *canons residentiary*.

CANONS, *lay* or *honorary*, are such among the laity, as have been admitted, out of honour and respect, into some chapter of *canons*.

CANONS *regular*, are *canons* that still live in community; and who, like religious, have in process of time, to the practice of their rules, added the solemn profession of vows.

They are called *regulars*, to distinguish them from those *secular canons* who abandon living in community, and at the same time, the observance of the *canons* made as the rule of the clergy, for the maintainance of the ancient discipline.

The *canons* subsisted in their simplicity till the eleventh, some say the twelfth century, when some of them, separating from the community, took with them the name of *canons* or *perpetuous priests*, because they declined to live in community with the bishop; and those who were left, thenceforth acquired the denomination of *canons regular*, and adopted most of the professions of the rule of St. Augustine. This order *of regular canons of St. Augustine*, was brought into England by Adelwald, confessor to Henry I. who erected a priory at Nostel in Yorkshire, and obtained for them the church of Carlisle as an episcopal see, with the privilege of chusing their own bishop. They were singularly protected and encouraged by Henry I. who gave them the priory of Dunstable in 1107, and by queen Maud, who, in the following year, gave them the priory of the Holy Trinity in London. It appears, that under the reign of Edward I. they had fifty-three priories.

CANONS, *tertiary*, those who had only the third part of the revenues of the canonicate.

CANON, in an *Ecclesiastical sense*, is a LAW or rule, either of doctrine or discipline, enacted especially by a council, and confirmed by the authority of a sovereign.

Canons are properly decisions of matters of religion; or regulations of the polity and discipline of a church, made by COUNCILS, either general, national, or provincial.

Such are the *canons* of the council of Nice, or Trent, &c. See CONSTITUTIONS.

There have been various collections of the *canons* of the Eastern councils; but four principal ones, each ampler than the preceding. The first, according to Usher, A. D. 380, containing only those of the first ecumenical council, and the first provincial ones; they were but 165 in number. To these, Dionysius Exiguus, in the year 520, added the 50 *canons* of the apostles, and those of the other general councils. The Greek *canons* in this second collection, end with those of the councils of Chalcedon; to which are subjoined those of the council of Sardica, and the African councils. The fourth and last collection comes down as low as the second council of Nice; and to it are added, that Basilensian and Romanian have commented. See Hardouin's Acta Conciliorum et Epistolæ decretales ac Constitutiones Summorum Pontificum, in 11 tomes; commencing with the year 34, and terminating in 1714. Prod. Paris 1715.

CANONS, *Apostolical*, are those which have been usually ascribed to St. Clement. Bellarmin, Baronius, &c. will have them to be genuine *canons* of the apostles: Cotelerius observes, that they cannot be ascribed to the apostles or Clement, because they are not received with other books of Scripture, are not quoted by the writers of the first ages, and contain many things not agreeable to the apostolical times: Hincmar, De Marca, Beveridge, &c. take them to be framed by the bishops who were the apostles disciples in the second or third century: S. Basnage is of opinion, that they were collected by an anonymous writer in the fifth century; but Daille, &c. maintain them to have been forged by some heretic in the fifth century; and S. Basnage conjectures, that some of them are ancient, and others not older than the seventh century. The Greek church allow only eighty-five of them, and the Latins only fifty; though there are eighty-four in the edition given of them in the Corpus Juris Canonici.

CANON is also used for the authorized catalogue of the Sacred Writings. See BIBLE.

The ancient *canon*, or catalogue of the books of the Old Testament was made by the Jews, and is ordinarily attributed to Ezra; who is said to have distributed them into the LAW, the PROPHETS, and the HAGIOGRAPHA, to which our Saviour refers, Luke, chap. xxiv. ver. 44. The same division is also mentioned by Josephus, cont. Appion.

This is the *canon* allowed to have been followed by the primitive church, till the council of Carthage; and according to St. Jerom, this consisted of no more than twenty-two books; answering to the number of the Hebrew alphabet; though at present they are classed into twenty-four divisions, containing Genesis, Exodus, Leviticus, Numbers, Deuteronomy, Joshua, Judges, Samuel, Kings, Isaiah, Jeremiah, Ezekiel, the twelve minor Prophets, the Psalms, the Proverbs, Job, Canticles, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra comprehending the book of Nehemiah and the Chronicles. However, this order is not universally observed, either among Jews or Christians: nor were all the books above enumerated admitted into the *canon* in Ezra's time. It is most likely, says Dr. Prideaux, that the two books of Chronicles, Ezra, Nehemiah, Esther, and Malachi, were added in the time of Simon the Just, when the *canon* was completed. Connection, &c. vol. ii. p. 476, &c.

But that council enlarged the *canon* very considerably, taking into it the books which we call apocryphal; which the council of Trent has further enforced, enjoining all these to be received as books of Holy Scripture, upon pain of anathema, and being attainted of heresy. The Romanists, in defence of this *canon*, say, that it is the same with that of the council of Hippo, held in 393; and with that of the third council of Carthage, in 397, at which were present forty-six bishops, and, among the rest, St. Augustine; who declared that they received it from their fathers.

Their *canon* of the New Testament perfectly agrees with ours. See Hardouin's Collect. tom. i. p. 968. art. 47. This *canon* consists of books that are well known; some of which have been universally acknowledged; such are the four Gospels, the Acts of the Apostles, thirteen Epistles of St. Paul, one Epistle of St. Peter, and one Epistle of St. John: and others concerning which doubts were entertained, but which were afterwards received as genuine; such are the Epistle to the Hebrews, that of James, the second of Peter, the second and third of John, that of Jude, and the Revelation. These books were written at different times, and they are authenticated, not by the decrees of councils, or infallible authority, but by such kind of evidence as is thought sufficient in the case of any other ancient writings. They were very extensively diffused; they were read in every Christian society; they were valued and preserved with care by the first Christians; they were cited by Christian writers of the second, third, and fourth century, as by Irenæus, Clement the Alexandrian, Tertullian, Origen, Eusebius, &c. and their genuineness is proved by the testimony of those who were contemporary with the apostles themselves, and by tradition. The four Gospels, and most of the other books of the New Testament, were collected either by one of the apostles or some of their disciples and successors, before the end of the first century. The catalogue of *canonical* books, furnished by the more ancient Christian writers, as Origen about the year 210, Eusebius and Athanasius in 325, Epiphanius in 370, Jerome in 382, Austin in 394, and many others, agree with that which is now received among Christians. For the name of writings of the several books of the New Testament, see the titles of the books themselves; as the Gospel of St. Matthew, Mark, &c.

Some of the fathers distinguish the inspired writings into three classes: PROTO-*canonical*, DEUTERO-*canonical*, and APOCRYPHAL.

CANON, *paschal*, a table of the moveable feasts, shewing the day of EASTER, and the other feasts depending on it, for a cycle of nineteen years.

The *paschal canon* is supposed to be the calculation of Eusebius of Cæsarea, and to have been done by order of the council of Nice.

CANON, in *Monastic Orders*, a book wherein the religious of every convent have a fair transcript of the rules of their order, frequently read among them as their local statutes.

This is also called *Regula*, as containing the rule and institution of their order.

The *canon* differs from the MISSALE, MARTYROLOGIUM, and NECROLOGIUM.

CANON, again, is used for the catalogue of saints acknowledged and canonized in the Roman church.

CANON is also used, by way of excellence, in the Romish church, for the secret words of the mass, from the preface to the *Pater*; in the middle of which the priest consecrates the host. The common opinion is, that the *canon* of the mass commences with *Te igitur*, &c. The people are to be on their knees, hearing the *canon* and are to rehearse it to themselves, so as not to be heard.

CANON, in the *Ancient Music*, is a rule or method of determining the intervals of notes.

Ptolemy, rejecting the Aristoxenian way of measuring the intervals in music, by the magnitude of a tone (which was supposed to be formed by the difference between a diapente and a diatessaron), thought that musical intervals should be distinguished, according to the ratios or proportions which the sounds terminating those inte-

vals bear to one another, when considered according to their degrees of acuteness or gravity; which, before Aristoxenus, was the old Pythagorean way. He therefore made the diapason consist in a double ratio; the diapente, in a sesquialterate; the diatessaron, in a sesquitertian; and the tone itself, in a sesquioctave; and all the other intervals, according as the proportion of the sounds that terminate them; wherefore taking the canon (as it is called) for a determinate line of any length, he shews how this canon is to be cut accordingly, so that it may represent the respective intervals: and this method answers exactly to experiment, in the different lengths of musical chords. From this canon, Ptolemy and his followers have been called *Canonici*; as those of Aristoxenus were called *Musici*.

CANON, likewise denotes a musical compolition, in which the parts follow each other in the same melody and intervals.

CANON, in *Geometry* and *Algebra*, a general rule for the folution of all cafes of a like nature with the prefent inquiry. Thus every laft ftep of an equation is a *canon*; and, if turned into words, becomes a rule to folve all queftions of the fame nature with that propofed.

CANON, *natural, of triangles*, is a table of fines, tangents, and fecants together: fo called, becaufe, ferving principally for the folution of triangles.

CANON, *artificial, of triangles*, is a table wherein the logarithms of fines and tangents are laid down. See SINE, under which article the method of conftructing the *natural* and *artificial canon* will be explained.

CANON *Law*, a collection of eccleſiaſtical conſtitutions, decifions, and maxims, taken partly from Scripture, partly from the ancient councils, and partly from the decrees of popes, and the reports and ſayings of the primitive fathers, whereby all matters of policy in the Roman church are regulated.

The *canon law* that obtained throughout the Weſt, till the twelfth century, was the collection of *canons* made by Dionyſius Exiguus in 520, the capitularies of Charlemagne, and the decrees of the popes, from Siricius to Anaſtaſius.—No regard was had in any thing not comprifed in theſe; and the French ſtill maintain the rights of the Gallican church to conſiſt in their not being obliged to admit any thing elſe, but to be at liberty to reject all innovations made in the canonical juriſprudence ſince that compilation, as well as papal decrees before Siricius.

Indeed, between the eighth and eleventh centuries, the *canon law* was mixed and confounded with the papal decrees, from St. Clement to Siricius; which till then had been unknown: this gave occaſion to a new reform, or body of the *canon law*; which is the collection ſtill extant, under the title of Concordia Diſcordantium Canonum, firſt made by Ivo in 1114, and perfected in 1151, by Gratian, a Benedictine monk, from texts of Scripture, councils, and ſentiments of the fathers, in the ſeveral points of eccleſiaſtical policy; and containing thoſe conſtitutions which have been determined, by way of concurrence, the DECRETS, and forming the firſt part of the *canon law*. It is now generally known by the name of the Decretum of Gratian, which was formed in imitation of the Pandects of Juſtinian; and is a confuſed immethodical compilation, full of errors and forgeries.

The ſecond part of the *canon law* conſiſts of the decrees of the popes, from the time of pope Alexander III. to pope Gregory IX. and publiſhed, under the auſpices of that pope, about the year 1230, in five books, entitled Decretalia Gregorii Noni.

In 1298, pope Boniface VIII. continued the papal decrees as far as his time, under the title of Sextus Decretalium. To theſe, pope John XXII. added the Clementines, or the five books of the conſtitutions of his predeceſſor Clement V. firſt publiſhed about the year 1317. And to all theſe were afterwards added twenty conſtitutions of the ſaid pope John, called the Extravagantes; and ſome other conſtitutions of his ſucceſſors, called Extravagantes Communes. Theſe are uſually called the DECRETALS.

All theſe compoſe the body of the *canon law*; which, including the Comments, make three volumes in folio; the rule and meaſure of church government. Indeed, with us, ſince the Reformation, the *canon law* has been much abridged and reſtrained; only ſo much of it obtaining, as is conſiſtent with the common and ſtatute laws of the realm, and the doctrine of the eſtabliſhed church. Beſides the foreign *canon law*, we have our *legatine* and *provincial* CONSTITUTIONS. In the reign of Henry VIII. it was enacted, that the *canon law* ſhould be reviewed; and till that review took place, ſuch canons, conſtitutions, ordinances, and ſyndals provincial as had been made, and were not repugnant to the law of the land or king's prerogative, ſhould ſtill be uſed and executed. The review was propoſed again in the reign of Edward VI. and of queen Elizabeth; but as it was never accompliſhed, the authority of the *canon law* in England depends upon the ſtatute of the 25th Henry VIII. c. 19. which was regulated indeed by queen Mary, and again revived by 1 Eliz. c. 1.

As to the conſtitutions and *canons* made in the convocation of the province of Canterbury in 1603, ratified by the king, and ſoon after adopted in the province of York; theſe never obtained a parliamentary confirmation; and it has been therefore adjudged, upon the principles of law and the conſtitution, that they do not bind the laity, however the clergy may regard them. Strange's Rep. 1057.

CANONARCHA, or CANONARCHUS, a dignity in the Greek church, anſwering to the PRECENTOR in the Latin, or CHANTER in the Engliſh church.

The word is formed from κανων and αρχω, *beginning*, or *governing*; becauſe it belongs to this officer to ſet the canons, or church hymns, and to direct the choir in ſinging them.

A like officer we alſo find in the ancient monaſteries, under the denomination *cannarcha*, whoſe buſineſs was to beat the ſemantrum, or wooden inſtrument, whereby the monks were called to choir to ſing canons. There appear to have been ſeveral *cannarchæ* in the ſame monaſtery.

CANONE *al ſoſpiro*, in the Italian *Muſic*, a canon, the parts of which ſucceed each other by a *ſoſpiro*, that is, the time of a crotchet.

CANONESS, in the *Romiſh Church*, a woman who enjoys a prebend, eſtated, by the foundation, to maids; without their being obliged to renounce the world, or make any vows.

There are few of theſe, except in Flanders and Germany; they are rather looked upon as a ſeminary and retreat of girls for marriage, than an engagement for the ſervice of God.

CANONESSES *of St. Auguſtine*, or *Regular* CANONESSES, are a kind of religious, who follow the rules of St. Auguſtine; of which there are various congregations.

The order of *canoneſſes* was firſt inſtituted by Lewis the Meek, in the beginning of the ninth century.

CANONICA, in *Pneumatical Hiſtory*, an appellation given by Epicurus to his doctrine of logic.

It was called *Canonica*, as conſiſting of a few canons, or rules, for directing the underſtanding in the purſuit and knowledge of truth.

Epicurus's *Canonica* is repreſented as a very ſlight and inſufficient logic, by ſeveral ancients who put a great value on his ethics and phyſics.

The ſtreſs of Epicurus's *Canonica* conſiſts in his doctrine of the *criteria* of truth.

All queſtions in philoſophy are either concerning words or things: concerning things we ſeek their truth; concerning words, their ſignification: things are either natural or moral: and the ſenſes are either perceived by themſelves, or by the underſtanding. Hence, according to Epicurus, ariſe three *criteria* of truth, viz. ſenſe, anticipation or prænotion, and paſſion. The great ſource, or principle, of Epicurus's logic is, that the ſenſes are never deceived; and therefore that every ſenſation, or perception of an appearance, is true. Stanley's Hiſt. Phil. p. xiii. p. 35.

CANONICA is alſo uſed by ſome ancients to denote the art of muſic.

CANONICA is more particularly uſed to denote that ſpecies of muſic, which does not determine the intervals of ſounds by the ear, but by a canon or ſtretched chord See CANON.

CANONICAL, ſomething that belongs to, or partakes of the nature of a rule or canon.

Canonical amounts to much the ſame with what we otherwiſe call regular.

CANONICAL is an appellation more peculiarly given to thoſe writings which have been received as the rule of our faith and practice, and comprehended in the canon or catalogue of the Scriptures.

In which ſenſe, *canonical* ſtands contradiſtinguiſhed from *apocryphal*.

The conditions then requiſite to conſtitute a book *canonical* are, that it be allowed to be written by divine inſpiration, and that it be ſolemnly accepted, and conſigned by the church for a perpetual guide or rule of faith and practice.

Divines generally hold, that thoſe books only of the new Teſtament are to be accounted *canonical*, which were either written, or at leaſt approved and authorized, by the apoſtles.

Formerly they were not ſo well diſtinguiſhed as among us. In the firſt ages of the church, Dodwell obſerves, the genuine writings of the apoſtles uſed to be bound up together with thoſe now called ſpurious, and apocryphal; for that it was not manifeſt, by any public judgment,

which of them was to be preferred to the other; but latter times thought fit to make a separation.

The Jews allow of no book for *canonical*, but those written before or soon after the return from the Babylonish captivity, when the gift of prophecy ceased among them. Eusebius lays down three marks, by which the spurious writings forged by heretics, under the name of the apostles, were distinguished from the genuine and *canonical*. Hist. Eccles. lib. iii. cap. 25.

CANONICAL, *pay*, or *duties*. See CANON, and DEUTERO-*Canonical*.

CANONICAL is also an appellation given to those epistles in the New Testament, more frequently called catholic, or general epistles.

CANONICAL, *canonicus*, was also an appellation given to all the officers and ministers of a church or monastery, from the bishop or abbot to the meanest servant, including priests, monks, virgins, and all who were entered in canon, that is, in the matricula or register of the church.

CANONICAL *horses*, *caballi canonici*, was an ancient tax or tribute, imposed on certain provinces, whereby they were obliged to furnish the emperor with so many horses to mount his cavalry.

CANONICAL *hours*, are certain stated times of the day, configned, more especially by the Romish church, to the offices of prayer and devotion. Such are *matutini*, *laudes*, *prima*, *tertia*, *vespers*. In our country the canonical hours are from eight to twelve in the forenoon, before or after which marriage cannot be legally performed in any parish-church.

CANONICAL *initiation*, a regular and legitimate collation to a benefice, agreeable to the rules of the canon-law.

CANONICAL *letters*, in the *Ancient Church*, were a sort of testimonials of the orthodox faith, which the bishops and clergy sent each other, to keep up catholic communion, and distinguish orthodox Christians from Arians, and other heretics.

When they had occasion to travel into other dioceses, or countries, humility and recommendatory letters, also letters of peace, were sent to many species of *canonical letters*. See LITTERÆ.

CANONICAL *liberty*, a freedom to which certain churches are left, being granted by the ancient canons and usages established before the papal hierarchy was carried to its height: such is that which, of later days, the French call the *Gallican liberty*.

CANONICAL *life*, the method or rule of living prescribed by the ancient clergy who lived in community.

The *canonical life* was a kind of medium between the monastic and clerical lives.

CANONICAL *obedience*, is that submission which by the ecclesiastical laws the inferior clergy are to pay to their bishops, and religious, to their superiors.

CANONICAL *portion*, is much of the effects of a person deceased, as the canons allow to the parish church to which he belonged.

CANONICAL *punishments* are those which the church may inflict: such are excommunication, degradation, and PENANCE, in Roman catholic countries; also fasting, alms, whipping, &c.

CANONICAL *purgation*, were ancient methods of proving innocency, by ORDEAL PURGATION, &c.

CANONICAL *sins*, in the *Ancient Church*, those which were capital or mortal: such especially were idolatry, adultery, murder, heresy, and schism.

CANONICUM, in a general sense, denotes a tax, or tribute.

CANONICUM is more particularly used in the Greek church for a fee paid by the clergy to bishops, archbishops, and metropolitans, for degrees and promotions.

CANONICUM also denotes a due of first-fruits, paid by the Greek laity to their bishops, or, according to Du-Cange, to their parishes. The *canonicum* is assessed according to the number of houses, or chimnies, in a place.

The emperor Isaac Comnenus made a constitution for regulating the *canonicum* of bishops, which was confirmed by another made in 1086, by his nephew Alexis Comnenus. A village containing thirty fires, was to pay for its *canonicum*, one piece of gold, two of silver, one sheep, six bushels of barley, six of wheat-flour, six measures of wine, and thirty hens. Du-Cange, Gloss. Gr. tom. i. p. 578.

CANONIST, a person skilled in, or who makes profession of the study and practice of the CANON law.

Canonists and *Civilians* are usually combined in the same person. And hence the title of *doctor juris utriusque*, or *legum doctor*, usually expressed in abbreviature, LL. D. or J. U. D.

CANONIZATION, a declaration of the pope, whereby, after a great deal of solemnity, he enters into the list of saints some person who has lived an exemplary life, and wrought miracles; or, as is often the case, performed some singular service for the church, in which a principal part of the kind of merit consists.

The word *canonization* seems to be of later origin than the thing; there being no instance of the use of the word before the twelfth century, whereas St. Ulricus was *canonized* in the tenth. The term is form'd from *canon*; because the primitive *canonizations* were only orders of the popes, or bishops, whereby persons eminent for piety, &c. were inserted in the canon of the mass, that they might be commemorated in the services peculiar to those days, the use of martyrologies was unknown in the church.

Matthew Paris distinguishes two kinds of *canonization*; a *general*, and *particular*, the first made by a general council, or a pope; the second, by a bishop, a particular church, or a provincial council.

There are instances likewise of *canonization*, or at least of something very like them, by subosts.

At first, only martyrs were *canonized*; but by degrees they came to confessors, &c.

Canonization anciently consisted in inserting the saint's name in the sacred diptychs, or *canon* of saints, in appointing a proper office for invoking him, and erecting churches under his invocation, with altars for mass to be celebrated on; raising up the body from the place of its first burial, and the like ceremonies: by degrees other formalities were added; and processions were made with the saint's image in triumph; the day of his death was declared a festival and to render the thing still more solemn, Honorius III. in 1225, added several days indulgence to a *canonization*.

It is a great dispute among the learned, when the right of *canonizing*, which it is owned was anciently common to ordinaries, especially metropolitans and primates, with the pope, became first peculiar to the pope. Some say, Alexander III. made this reserve to the holy see. The Jesuits of Antwerp, in their Prophanum, assert, it was not established till two or three ages ago; and then by a mere custom, which passed tacitly into a law; which appears not to have been generally received in the tenth and eleventh centuries. Thomassin, in his ancient discipline, thinks it was generally allowed before pope Alexander III. but since has there we read of no saints *canonized* by any but the popes: and the archbishop of Vienne in France, and his suffragans, acknowledge it in an authentic manner in the year 1231, by a letter written to Gregory IX. desiring him to canonize Stephen, bishop of Die, who died in 1208. *Quia nemo*, say they, *quantalibet miracula præsumptive polleat, absque Dei per sanctæ ecclesiæ, aut canonizantis ejus, sive primi per solum appellatum ejus sanctitas fuerit approbata.*

CANONRY, or CANONICATE, the benefice filled by a canon.

Canonicate is distinguished from prebend, in that the prebend may subsist without the *canonicate*, whereas the *canonicate* is inseparable from the prebend. It is to the *canonicate*, not to the prebend, that the right of suffrages, and other privileges are annexed. See PREBEND.

CANOPUS, in *Astronomy*, a bright star of the first magnitude in the rudder of Argo, a constellation of the southern hemisphere. See ARGO.

The longitude of *Canopus*, as given by Halley, for the year 1700, is 10° 52′ of Cancer, and its southern latitude, 72° 49′. E. Noel, in 1697, found its right ascension 93° 54′, its declination *southwards*, 52° 19′. F. Feuille, in the beginning of March 1708, observed the declination of *Canopus* 52° 30′ 4″. F. Thomas, in January 1682, found the declination 52° 33′ 35″, its right ascension 93° 32′ 20″, longitude, 10° 52′, of Cancer, latitude southern, 75° 55′. Wolf. Lex. Math. p. 303, seq. Mem. Acad. Scienc. ann. 1711. p. 292, seq.

CANOPY, in *Architecture* and *Sculpture*, a magnificent kind of decoration, serving to cover, and crown an altar, throne, tribunal, pulpit, chair, or the like. See BALDACHIN.

The word is formed from the barbarous Latin *canopeum*, or *canopium*, *a veil spread over a bed to keep off the gnats*, from *canon*, a gnat.

Canopies are also borne over the head in processions of state, after the manner of umbrellas.

The *canopy* of an altar is more peculiarly called CIBORIUM.

The Roman grandees had their *canopies*, or spread veils, called *thalæ*, over their chairs: the like were also in temples over the statues of the gods. The modern cardinals still retain the use of *canopies*.

CANOPUS, in *Hydrography*, the name by which Salvian, and some other authors have called the CABLE *galeus*, and *muscle* a kind of mark.

CANQUIN, in *Commerce*, a sort of cotton cloth made in China with this cloth they make the first garment next their skin, which is properly their shirt.

CANSCHY, in *Japan*, is the name of a tree in Japan, from which the inhabitants of that country make their paper. See a particular account of the process, from the

Ephem. N. C. in the Coll. Acad. P. Etr. tom. iv. p. 144.

CANSTRISIUS, an officer in the church of Constantinople, whose business is to take care of the patriarchs pontifical vestments, assist in robing him, and during mass to hold the incense pot, and sprinkle holy water among the people, while the hymn of the Trinity is singing. The word is also written *Canstrisius*: it is usually derived from *Canistrum*, a name which some suppose given to the incense pot, others to the kind of basket in which the patriarchs vestments were kept. Du-Cange.

CANT, a quaint, affected manner of speaking, or writing, adopted chiefly by the lower sort.

Cant is originally derived from *Andrew Cant*, a Cameronian preacher in Scotland, who, by exercise, had obtained the faculty of talking in the pulpit in such a tone and dialect as was understood by none but his own congregation.

CANT, or *Canting language*, is also applied to words and phrases affected by particular persons, or professions for low ends, and not authorized by the established language. *Cant* is not restrained to the style of gypsies, thieves, and beggars, but possesses a large department in the politer provinces of the English language.

An anonymous author has given a *canting* dictionary, comprehending all the terms used in the several tribes of gypsies, beggars, shoplifters, highwaymen, footpads, and other clans of cheats and villains, with a collection of songs in the *canting* dialect. Lond. 1725. 8vo.

A writer in the Tatler, assigns divers sources of new words: as *phiz, hippo, mob, pozz, bamm*, &c. Tatl. N° 230.

The tea-language will most of it come under the denomination of *cant*: and the like fields of the terms in alchemy, heraldry, not to say in astrology, or even chemistry, pharmacy, &c. In reality, the difference between a *cant*-term, and a technical term is not easily assigned, unless we choose to restrain the former to words introduced out of folly, affectation, or imposture; and the latter to such as are introduced for the sake of clearness, precision, and significancy.

CANT is also used to denote a tile by section.

The origin of the word, in this sense, is dubious; it may come, according to *some*, from *quantum*, how much; according to others, from *canture*, to sing, or cry aloud; agreeable to which we sometimes also call it an *balcony*.

CANT is also a term used by some carpenters, principally in ship-building; when a piece of timber comes the wrong way in their work, they say *cant* it; i. e. turn it over.

Accordingly, *cant-timbers* are those which are situated at the two ends of a ship: and they are so called, because they are *canted*, or raised obliquely from the keel, and are hereby distinguished from those whose planks are perpendicular to it.

CANT is also popularly used for an angle or corner.

CANTABRIAN, the ancient language of the north-eastern part of Spain, in use before the country was subdued by the Romans.

Dr. Wallis seems to make the *Cantabrian* the ancient language of all Spain: which, according to him, like the Gaulish, gave way to a kind of broken Latin called *romance*, or *romanfe*; which by degrees was refined into the Castilian or present Spanish. But we can hardly suppose, that so large a country, inhabited by such a variety of people, spoke all the same language.

The ancient *Cantabrian*, in effect, is still found to subsist in the more barren and mountainous parts of the province of Biscay, Alsturia, and Navarre, as far as Bayonne, much as the British does in Wales; but the people only talk it: for writing, they use either the Spanish or French, as they happen to live under the one or the other nation. Some attribute this to a jealousy of foreigners learning the mysteries of their language; others to a poverty of words and expressions. The *Cantabrian* does not appear to have any affinity with any other known language, abating that some Spanish words have been adopted in it for things whose use the Biscayens were formerly unacquainted with. Its pronunciation is very disagreeable.

The Lord's prayer, in the *Cantabrian* tongue, runs thus: *Gure aita cerucian aicena, santifica bedi bere isena, etbor bedi bere resuma, egain bedi bere varendaco cerucn beceta larrosen ere, &c.*

CANTABRICA, in *Botany*, a name by which different authors call two different species of plants. The *cantabrica* of Pliny is the ranunculus. The *cantabrica* of Turner, the clove-gillyflower.

CANTABRICA is also a name used by Clusius and some others for the little narrow-leaved bind-weed. See CONVOLVULUS.

CANTABRUM, in *Antiquity*, a large kind of flag used by the Roman emperors, distinguished by its peculiar colour, and bearing on it some words or mottos of good omen, to encourage the soldiers.

CANTALIVERS, in *Architecture*, pieces of wood framed into the front, or sides of a house, to sustain the mouldings and eaves over it.

Cantalivers are the same with modillions, except that the former are plain and the latter carved. They are both a kind of cartouches set at equal distances under the corona of the cornice of a building.

CANTALIVER-CORNICE, is a cornice with *cantalivers* or modillions under it.

Those which project much are now out of fashion, and with good reason, especially in London, as they darken, by their heaviness, the upper chambers at least; and are apt to spread, and communicate fire, in case of a misfortune of that kind; besides, that in the present mode of building, use, convenience, and simplicity are more studied than ornament.

CANTAR, or CANTARO, an eastern weight, of different value in different places, equivalent at Acra in Turky to 603 pounds, at Tunis and Tripoli to 134 pounds.

CANTAR is also an Egyptian weight, which is denominated a *cantar*, and consists of a hundred, or of an hundred and fifty *rotoli*, according to the goods they are to weigh.

CANTARO is also an Egyptian weight, which at Naples is equivalent to 75 pounds, at Genoa to 150 pounds. At Leghorn there are three kinds of *cantaro*, one weighing 150 pounds, another 144, and a third 160 pounds.

CANTARO is also a Spanish liquid measure, in use especially at Alicant, containing three gallons.

CANTARO is also a measure of capacity, used at Cachin, containing four *rubics*, the rubi 32 rotolos.

CANTATA, in *Music*, a sort of song or composition, intermixed with recitatives, airs, and variety of motions; ordinarily intended for a single voice, with a thorough bass; sometimes for two, three, or more voices, with one or more violins, or other instruments.

The *cantata* passed from Italy into France, and thence to us: it has something in it extremely fantastical and capricious, and seems only to please by its variety. The word in Italian, where it signifies the same thing.

CANTATRICES, in *Middle Age Writers*, hired weepers, and waiters at funerals.

CANTENS, in *Military Language*, are tin vessels in the form of square bottles, used for carrying water to supply the soldiers in camp.

CANTEL, *cantellus*, in *Ancient French Writers*, denotes a custom of selling by the lump, without tale or measure.

Spelman derives the word from *cantus*, and defines it by over measure, or what is added over and above strict measure. Kennet derives it from the old word *cant*, a hundred, q. d. the sale of about a hundred weight; answering to what we now call the taking of a hundred pound on content; as when we take it in a bag, sealed up without telling the pieces.

CANTERBURY-BELL, in *Botany*. See CONVOLVULUS.

CANTERII, or CANTHERII, in *Ancient Architecture*, rafters or joists of a house, which reach down from the ridge to the eave.

CANTHARÆ, among the *Ancients*, a kind of candlestick. See BRANCH.

CANTHARIAS *lapis*, in *Natural History*, a name given by some writers to a fossile substance supposed to resemble a beetle. We sometimes meet with parts of the ichthyopeita or bony parts of fishes, which are ridged longitudinally, much in the manner of the outer wing of some of the beetle tribe; and from their size and shape, which is an oblong, or oval one, of the bigness of a common beetle, and sometimes of the largest, and at others of the very smallest kinds; these have been called by some petrified beetles and *cantharias lapideas*; others have extended the name to such species of amber as have in them the body or any fragment of the beetle of any species.

CANTHARIDES, in *Medicine*, a kind of poisonous insects, with wings and feet like beetles; much used as an epispastic for the raising of blisters.

The stimulating power of *cantharides* is caused by a very acrid refinous substance contained in their insects, two scruples of which Neumann extracted from four ounces of *cantharides* by spirit of wine.

The word is formed from *cantharus*, the name of a sort of beetle, and called also *scarabæus cornutus*. The *cantharides* are properly a species of the beetle or scarab kind.

Cantharides, called also *Spanish flies*, though they ought rather to be denominated *Spanish beetles*, are produced from a kind of little worms, hatched on wheat, the leaves of the poplar, &c. There are various kinds of *cantharides*, but all of a greenish and golden line; the best are those which appear with different colours, having yellow lines running across their wings, thick, and fresh. They are killed by exposing them over a very strong vinegar, which is made to boil for that purpose; after which they are dried, and may be preserved a year or two.

Cantharides are very sharp and corrosive, abounding with a sub-

a fubtile, caustic, volatile falt; whereby they become exceedingly inſerious to the bladder, ſo as to ulcerate it, even when applied externally, if ſuffered to lie on too long. They are much commended in fevers, as they raiſe and ſtrengthen a low trembling pulſe, give relief in delirious ravings, ſoporiferous ſtupors, loſs of reaſon, &c. (the common ſymptoms of high and dangerous fevers); they often alſo reduce continual fevers to regular and diſtinct remiſſions; and to make way for the bark; cleanſe and open the obſtructed glands and lymphatics; bring on critical ſweats, &c.

Dr. Morgan accounts for theſe effects of *cantharides* thus: "the ſubtile and volatile pungent parts, of which the "*cantharides* conſiſt, being carried into the blood, and "paſſing with the lymph or ſerum into the glandules "pipes, and there by diſſolving, attenuating, and rare"fying the viſcid emotions of the lymph; and by its "oozing the nervous coats of the veſſels, they throw "off their ſtagnant fluidities, and thus reſtore the cir"culation and free drain of lymph from the arteries to "the veins; cleanſe the expiratory glands, and bring "on critical ſweats and urines. Thus, the extremely "ſubtile, active, and pungent volatile ſalts, derived from "the *cantharides*, purge the glands and lymphatics uni"verſally much after the ſame manner as common ca"thartics do the guts." Philoſoph. Principl. of Medicine, p. 304.

The ancients held them a poiſon when taken internally, undoubtedly on account of their tendency to ulcerate the bladder. Yet ſome moderns, as Langius, Bartholin, and others, have ventured to give them internally, ſupported by the authority of Hippocrates, who appears to have given them in dropſies and jaundices: and in the Philoſophical Tranſactions, we have inſtances of their internal uſe, and that with ſucceſs, by Mr. Young, in dropſical and other caſes; ſometimes mixed with camphor, and ſometimes without; only well waſhed down with large draughts of poſſet, piſſan, emulſions, or the like. The form wherein he tells us he uſes to adminiſter this fiery inſect, is that of a ſoft pill, or bolus, compoſed of three *cantharides pulver. Vrech. & Myrrhæ* 5 ß. *Sen. Anal. pr.* vi. *Reb. Lycopf. q. ſ.* This, in ſtubborn ſuppreſſions of the menſes and lochia, in difficult childbirth, and retention of the ſecundines, he finds does wonders: he adds, that the heat or pain it occaſions in the neck of the bladder, is much ſhort of what he has an hundred times ſeen, and ſometimes felt, from the application of an epiſpaſtic to the back.

Grosnault has a treatiſe expreſs on the uſe internal of *cantharides*, wherein he recommends them, eſpecially againſt ulcers in the bladder, for which he ſuffered a perſecution from the college of phyſicians, though farther experience has ſhewn he had juſtice on his ſide.

Dr. Morgan propoſes a tincture of *cantharides*, made with the *ſtone cantharis*, as good in the DIABETES.

Their principal uſe, however, is in veſicatories, to raiſe bliſters on the ſkin; and by that means to turn off and diſcharge ſome ſhare of ill humours.

Cantharides are ſometimes applied to the temples for the tooth-ach: the Germans uſe them in ſeveral diſeaſes of horſes. They muſt be choſen new, dry, and whole: they will not keep above two years, without ſpoiling or moulde ring into a duſt, which is of no uſe.

CANTHARIS. *See* GLOW-*worm*.

CANTHARUS *of a* FOUNTAIN, among Roman *Writers*, denotes the part, or apparatus, out of which the water iſſued.

It was made in divers forms, ſometimes that of a ſhell, at other times in that of an animal, which yielded water at its mouth, eyes, and the like.

CANTHARUS, in *Eccleſiaſtical Writers*, denotes a fountain, or ciſtern in the middle of the *atrium*, before the ancient churches, wherein perſons waſhed their hands and faces before they entered.

CANTHARUS, in *Ichthyology*, the name of a ſea-fiſh much reſembling the ſparus and targus in ſhape, but of a duſkier and blacker colour, covered with ſmall ſcales, and not marked with the annular black ſpots which both theſe fiſhes have near the tail. It is common in the Mediterranean, and is frequently brought to market in Rome, &c. being eſteemed a very well-taſted fiſh.

The *cantharus* of the ancients is called by Artedi the *ſtar-eyed* SPARUS, with longitudinal and parallel yellow lines on each ſide. Gesa calls this fiſh *ſcarabæus*.

CANTHARUS *auriculæ*. *See* OIL BEETLE.

CANTHUS, in *Anatomy*, the corner or angle of the EYE; formed by the commiſſure or joining of the upper and lower eyelids.

That corner next the noſe, is called the *great*, *inner*, and *domeſtic canthus*; and by ſome phyſicians the *foveolum*.—The other, towards the temples, is called the *little*, or *external canthus*.

CANTHUS, in *Chemiſtry*, the lip of a veſſel; or that part of the mouth of a veſſel which is a little hollowed, or depreſſed, for the eaſy pouring off a liquor.

Hence, to pour by decantation, *is to pour through that* place.

CANTICLES, a canonical book of the Old Teſtament, otherwiſe called the Song of Solomon; by the Jews, the Song of Songs, *Canticum Canticorum*.

The book of *Canticles* is uſually ſuppoſed to be an epithalamium compoſed by Solomon, on occaſion of his marriage with the king of Egypt's daughter. But thoſe who penetrate farther into the myſtery, ſecond to that in it the marriage of Jeſus Chriſt with human nature, the church, and good men.

On this principle the *Canticles* is held to be a continued allegory, wherein, under the terms of a common wedding, a divine and ſpiritual marriage is repreſented.

The Jews themſelves, apprehending the book liable to be underſtood in a groſs and carnal manner, prudently prohibited the reading of it before the age of thirty, and the ſame uſage anciently obtained in the Chriſtian church. Orig. Præf. in Cant. Teod. Op. tom. 1. p. 985. Hieron. in Ezek. Wolf. Bib. Heb. tom. 1. p. 126.

Among the ancients, Theodore Mopſueſtenus rejected the book of *Canticles*, as not divine. Divers rabbins have alſo queſtioned its being written by inſpiration. It is acknowledged that the name of God is not once found in it. Mr. Whiſton has a diſcourſe expreſs to prove, that the *Canticles* is not a ſacred book of the Old Teſtament. He alledges it indeed to have been written by king Solomon, the ſon of David, but aſſerts, that it was compoſed at the time when that prince, blinded by his concubines, was ſunk in filthy love, and even idolatry. This he chiefly infers from the general character of vanity and diſſoluteneſs which reigns through the *Canticles*, in which there is not, according to Whiſton, one thought that leads the mind toward religion, but all is wordly and carnal, to ſay no worſe. For the myſtic ſenſe, he aſſerts it to be without any foundation, and that the book is not cited as canonical by any writer before the deſtruction of Jeruſalem. Mr. Whiſton will have it to have been taken into the canon between the years 77 and 128, when allegories came in vogue, and the rabbins began to corrupt the text of Scripture.

CANTIMAROONS, or CANTIMAROONS, a kind of floats or rafts, uſed by the inhabitants of the coaſt of Coromandel to go a fiſhing in, and to trade along the coaſt. They are made of three or four ſmall canoes, or trunks of trees dug hollow, and tied together with cocoa ropes, with a triangular ſail in the middle, made of mats. The perſons who manage them are almoſt half in the water, there being only a place in the middle a little raiſed to lay their merchandiſe; which laſt particular is only to be underſtood of the *trading cantimaroons*, and not of thoſe who go fiſhing.

CANTING-*arms*, among *Heralds*, are thoſe ARMS which expreſs their owner's ſurname.

Thoſe anſwer to what the French call *armes parlantes*; they are a ſort of rebuſes, and are never preſumed to be noble.

CANTING-*pieces*, in *Ship Building*, the ſame as *cant-timbers*. *See* QUOIN.

In Harris's Lex. Techn. they are called *canting-rules*, but this ſeems an error of the preſs. Manwayring calls them *canted-quoynes*.

CANTO denotes a part or diviſion of a poem, anſwering to what is otherwiſe called a book.

The word is Italian, where it properly ſignifies *ſong*.

Taſſo, Ariotto, and ſeveral other Italians, have divided their longer or heroic Poems into *cantos*. In imitation of them Scarron has alſo divided his Gigantomachia, and Boileau his Lutrin, into *chants*, or *ſongs*. The like uſage has been adopted by ſome Engliſh writers, as Boiſter, who divides his Bubalbrun, and Dr. Garth his Diſpenſary, into *cantos*. A late tranſlator of part of Virgil's *Æneid* has even ſubdivided a book of Virgil into ſeveral *cantos*.

CANTO, in the *Italian Muſic*, ſignifies a ſong: hence *canto ſimplice* is where all the notes or ſtrokes are equal, called alſo *canto ſemplice*; *canto figurato*, that where the figures are unequal, and expreſs different motions.

CANTO alſo ſignifies the treble part of a ſong: hence *canto tenorizante*, the treble of the little chorus; *canto ripieno*, the treble of the grand chorus, or that which ſings only now and then, in particular places.

Canto ſignifies the firſt treble, unleſs ſome other word be added to it, as *ſecondo*; in which caſe it denotes the ſecond treble.

CANTON, a quarter of a city, conſidered as ſeparated and detached from the reſt.

The word ſeems formed from the Italian *cantone*, a *ſquare ſtone*, or *corner ſtone*.

CANTON is alſo more frequently uſed for a ſmall country, or diſtrict under its ſeparate government.

Such are the thirteen Swiſs *cantons*; each of which forms

a republic apart; but all are leagued together, and constitute what is called the Helvetic body.

CANTON, in *Heraldry*, is one of the nine honourable ordinaries; being a square portion of the escutcheon parted from the rest.

It has not any fixed proportion; though regularly it should be less than a quarter; it is often only a ninth part, and most as an addition, or difference, frequently to express bastardy. The *canton* is sometimes placed at the right corner, and sometimes at the left; in which latter case, it is called a *canton sinister*. Its form is expressed in *Tab. Heraldr. fig.* 12.—He bears ermin a *canton* argent, charged with a chevron gules.

CANTON is also used for the spaces left between the branches of a cross, or lattice.

CANTONED, a word used in *Architecture*, when the corner of a building is adorned with a pilaster, an angular column, rustic quoins, or any thing that projects beyond the naked of the wall.

CANTONED, CANTONNE, or CANTONNEE, in *Heraldry*, is when the four *cantons*, or spaces round a cross, or lattice, are filled up with any pieces.—He bears gules, a cross argent, *cantoned* with four scallop shells.

The word is also used, when there are little pieces in the *cantons*, or places of any principal figure of an escutcheon. Thus the father of Lenos is *cantoned* with four *tales*.

CANTONING, in *Middle Age Writers*, denotes the dividing a thing into hundreds, or selling it by hundred weights, or hundreds in tale.

CANTONING, in the *Military Art*, is a method of quartering troops in a town, where the garrison is so numerous, that several regiments must be quartered on the inhabitants for want of casrtas, or barracks, to contain them.

In this case they divide the town into as many parts as there are regiments to be so quartered, that the officers and soldiers of each may have a distinct part to themselves. This, in the military phrase, is called *cantoning of a town*.

CANTRED, or CANTRY, denotes a district or division of an HUNDRED towns or villages.

The word is British, compounded of *cant*, *hundred*, and *tref*, or *trev*, *town* or *village*.

In Wales the counties are divided into *cantreds*, as those in England are into hundreds. Anglesey, in particular, is divided into three *cantreves* or *cantreds*, which are each subdivided into six *cantons* or *commots*, each *canton* containing about forty *trevs* or townships. The general partition of Wales into *cantreds* and *cants* is very ancient. Rowl. Monath. Ant. Edit. 1. c. p. 176, &c.

CANVAS, or CANVASS, a coarse sort of linen or hempen cloth, usually woven open, and regularly, in little squares; serving for divers domestic purposes, and especially for the ground of tapestry-work, and painting. We have divers sorts and denominations of *canvass*, most of them imported from abroad; as Dutch, Barras, and Hessian *canvass*; packing *canvass*; guttings and ravens *canvass*; peledavies, ebbing, or Queenborough *canvass*, working *canvass*, for boots or cushions, narrow, broad, and broadest.

CANVAS also is the cloth on which painters usually draw their pictures; the *canvass* being smoothed over with a slick-stone, then lined, and afterwards whited over, makes what the painters call their *primed cloth*, on which they draw their first sketches with a coal or chalk, and afterwards finish with colours.

CANVAS is also a name sometimes given to sail-cloth.

CANVAS-*bags*, in the *Military Art*, contain about a cubic foot of earth or sand, with which they are filled. Their use is to raise a parapet in haste, or to repair one, when beaten down. See SACKS *of earth*.

CANVAS is also used among the French, for the model, or first words, whereon to air, or piece of music, is composed, and given to a poet to regulate and finish. The *canvass* of a song, contains certain notes of the composer, which shew the poet the measure of the verses he is to make. Thus De Lorbye, he has *canvass* for ten sonnets against the Muses.

CANULA. See CANNULA.

CANUTI *son*. See TRITON.

CANZONE, in the *Italian Music*, in the general, signifies a song, particularly a sort of Italian ode, or lyric poem, consisting of several stanzas, though all which the same order and disposition of verses, measures, and rhimes, are observed as in the first.

The *canzone* is usually very long, and may be set to music in much the same style with the CANTATA.

The *canzone* is a composition somewhat resembling, but less elaborate, than the MADRIGAL. It admits of little figures and points, and seldom exceeds three parts; though the name is sometimes given to a song for one voice.

There are also pieces of symphony without words, called *canzone*, much the same with sonatas.

The word *canzone* in sonatas serves to indicate that the airs it is put under are airs of brisk movement; such as are the usual figures otherwise marked with ALLEGRO.

CANZONETTA *denotes a little canzone*. See CANZONET.

The word is a diminutive of the Italian *canzone*, or *canzon*.

CANZURI a name given by some authors to a peculiar kind of camphor more esteemed than any other sort. Some have supposed it thus called from *Kanzur* or *Cansur*, the name of a place where they suppose it to be produced, which seems the more probable opinion, though Scaliger rejects it, and will have it that this fine camphor had its name from a certain gum called *canzur*, which, according to Garcias, and some others, is frequently mixed with the camphor by the people who collect it for sale.

This gum, he says, is called also *canduras*; and that it is somewhat like the crude amber, only that it is whiter. There is this great objection to this being the true sense of the word, that it expresses an adulterated kind, which it is scarce probable should be true of that which all the authors who have mentioned this kind of camphor, have agreed in calling the best and most excellent of all the sorts.

CAOUANNE, in *Zoology*, the name of a species of tortoise very much resembling the JOUANNAS of the Brasilians, but having a thicker shell, and a harder, rough, and stringy flesh of a very bad taste.

CAOUKE, in the *Turkish Dress*, a high flat turban, worn by the janissaries, or heads of the chambers of janizaries, when they go in procession.

CAOUTCHOUC, in *Natural History*, is one name, among many more, given to a very elastic resin, the produce of a tree which grows along the banks of the river of the Amazons. This tree grows to a very great height, perfectly straight, having no branches, except at top, which is but small, exceeding no more than a circumference of ten feet. It leaves bear some resemblance to those of the *manioc* (*jatropha manihot*); they are green on the upper part, and white beneath. The seeds are three in number, and contained in a pod, consisting of three cells, not unlike those of the *ricinus*, or *palma Christi*, and in each of them there is a kernel, which being thrashed and boiled in water produces a thick oil or fat, answering the purposes of butter in the cookery of the country. The juice, which is applied to a great variety of uses, is gathered chiefly in time of rain, because then it may be collected in greater quantities, it flows then most abundantly. It is extracted from the tree by simple incision, and flows in the form of a milky liquor. The means employed to inspissate and indurate it, M. de la Condamine says, are not a profound secret. M. Bomare, and others, affirm, that it thickens and hardens gradually, by being exposed to the air; and as soon as it acquires a firm consistence, it manifests a very extraordinary degree of flexibility and elasticity. Accordingly the Indians made boots of it, which water cannot penetrate, and which, when smoaked, have the appearance of real leather. Bottles are also made of this substance, to the necks of which are fastened hollow reeds, so that the liquor contained in them may be squirted through the reeds or pipes by pressure. One of these filled with water is always presented to each of the guests at their entertainments, who never fail to make use of it before eating. This whimsical custom led the Portuguese in that country to call the tree that produces this resin *pao de seringa*, and hence the name of *seringas* is given both to the tree, and to its resinous production.

Flambeaux, an inch and a half in diameter, and two feet long, are likewise made of this resin, which give a beautiful light, have no bad smell, and burn twelve hours. A kind of cloth is also prepared from it, which the inhabitants of Quito apply to the same purposes as our oil-cloth and tail-cloth. It is formed, by means of earthen moulds, into a variety of figures for use and ornament. Ever since this resin has been known in Europe, its chemical qualities, and other unfolding properties, have been very diligently investigated. It was soon found that it may be softened by warm water; but it could neither be dissolved in water, nor in spirit of wine; and though it may be dissolved in certain oils, yet the solution remains soft, of a viscous consistence, and totally incapable of being reduced to a solid and elastic state. Many attempts were made for dissolving this substance, without destroying its peculiar properties. M. Macquer, in particular, employed various oils, camphor, and different kinds of salts, for this purpose, without effect. He made use of Papin's digestor, and of the milky juices of some of our European plants, and particularly of the *milk-thistle*, without success. In some of these operations, the resin was not at all affected; and,

in others, it was altered or destroyed. At last he had recourse to the *vitriolic æther*, which quickly and easily dissolved this anomalous substance; forming with it a transparent tincture, and after evaporation leaving the resin behind, possessed of its former consistence, elasticity, and other properties, and of such a form as he chose to give it, while in its liquid state. He observes, however, that two pints of the best æther, obtained by rectifying eight or ten pints of the common æther by a gentle heat, must be used, in order to the success of the operation. The distinguishing properties of this substance, viz. its solidity, flexibility, and elasticity, and its quality of resisting the action of aqueous, spirituous, saline, oily, and other common solvents render it extremely fit for the construction of tubes, cushions, and other instruments, in which these properties are wanted. In order to form this resin into small tubes, M. Macquer prepared a solid, cylindrical mould of wax of the desired size and shape; and then dipping a pencil into the æthereal solution of the resin, daubed the mould over with it, till he had covered it with a coat of resin of a sufficient thickness. The whole piece is then thrown into boiling water; by the heat of which the wax is soon melted, and rises to the surface, leaving the resinous tube completely formed behind. This substance is very useful in drawing, &c. for erasing the strokes of black lead pencils, and is popularly called *rubber*, and *Indian-eater*.

A resin similar to this was not long since discovered by M. Poivre, in the Isle of France; and there are various milky juices extracted from trees in America and elsewhere, which by previous mixtures and preparations are formed into an elastic resin, but of an inferior quality to that of Cayenne. Hist. de l'Acad. Roy. des Scient. 1763. Ib. 1768. Ib. 1769.

CAP, a garment serving to cover the head, and made nearly of the figure thereof.

The æra of *caps* and hats is referred to the year 1440, the first seen in these parts of the world being at the entry of Charles VII. into Rouen: from that time they began, by little and little, to take place of the hoods, or chaperoons, that had been used till then. M. le Gendre, indeed, goes farther back; they began, says he, under Charles V. to let fall the angles of the hood upon the shoulders, and to cover the head with a cap, or bonnet: when this cap was of velvet, they called it *mortier*; when of wool, simply *bonnet*: the first was laced, the latter had no ornament, besides two horns, raised a moderate height one of which served in covering and uncovering. None but kings, princes, and knights, were allowed the use of the *mortier*.

The *cap* was the head-dress of the clergy and graduates. Paſquier says, that it was anciently a part of the hood worn by the people of the robe; the skirts whereof being cut off, as an incumbrance, left the round *cap* an easy commodious cover for the head; which round *cap* being afterwards assumed by the people, those of the gown changed it for a square one, first invented by a Frenchmen, called Patrouillet: he adds, that the giving of the *cap* to the students in the universities, was to denote, that they had acquired full liberty, and were no longer subject to the rod of their superiors; in imitation of the ancient Romans, who gave a *pileus*, or cap, to their slaves, in the ceremony of making them free; whence the proverb, *Recepit servum ad pileum*. Hence, also, on medals, the *cap* is the symbol of liberty, whom they represent holding a *cap* in her right hand, by the point.

The Romans were many ages without any regular covering for the head: when either the rain or sun was troublesome, the lappet of the gown was thrown over the head; and hence it is that all the antient statues appear bareheaded, excepting sometimes a wreath, or the like. And the same usage obtained among the Greeks, where, at least during the heroic age, no *caps* were known.

The sorts of *caps* or covers of the head in use among the Romans on divers occasions, were the *pileus*, *pileus*, *cucullus*, *galerus*, and *pallium*; the differences between which are often confounded by ancient as well as modern writers.

The French clergy wear a shallow kind of *cap*, called *calotte*, which only covers the top of the head, made of leather, satin, worsted, or other stuff.

The *red cap* is a mark of dignity allowed only to those who are raised to the cardinalate.

The secular clergy are distinguished by black leathern *caps*, the regulars by knit and worsted ones.

The Chinese have not the use of the hat, like us; but wear a *cap* of a peculiar structure, which the laws of civility will not allow them to put off; it is different for the different seasons of the year: that used in summer, is in form of a cone, ending at top in a point. It is made of a very beautiful kind of mat, much valued in that country, and lined with fattin: to this is added, at top, a large lock of red silk, which falls all round as low as the bottom; so that, in walking, the silk fluctuating regularly on all sides, makes a graceful appearance: sometimes, instead of silk, they use a kind of bright red hair, the lustre whereof no weather effaces. In winter they wear a plush *cap*, bordered with martin's or fox's skin; as to the rest, like those for the summer. Nothing can be neater than these *caps*; they are frequently sold for eight or ten crowns; but they are so short, that the ears are exposed.

CAP, *square*.—The *cap*, or bonnet, is a mark, or ornament of certain characters; thus churchmen, and the members of universities, students in law, physic, &c. as well as graduates, wear *square caps*. In most universities, doctors are distinguished by peculiar *caps*, given them in assuming the doctorate. Wicklif calls the canons of his time *hornedi*, from their *cap*. Paſquier observes, that, in his time, the *caps* worn by the churchmen, &c. were called *square caps*; though, in effect, they were round, yellow *caps*.

The *cap* is sometimes also used as a mark of infamy: in Italy the Jews are distinguished by a *yellow cap*; at Lucca by an *orange one*. In France, those who had been bankrupts were obliged even after to wear a *green cap*, to prevent people from being imposed on in any future commerce. By several arrets in 1584, 1622, 1628, 1688, it was decreed, that if they were at any time found without their *green cap*, their protection should be null, and their creditors impowered to call them into prison: but the sentence is not now executed.

CAP *of maintenance*, one of the regalia or ornaments of state belonging to the kings of England, before whom it was carried at the coronation and other great solemnities; and also of the mayors of several cities in England.

CAP *of a gun*, is a piece of lead which is put over the touch-hole of a gun, to keep the priming from being wetted or spilt.

To cap, is laid of a ship in the trials of the running or setting of currents.

CAP, in a ship, is a square piece of timber, put over the head, or upper end of a mast, having a round hole to receive the mast. By these *caps*, the top-masts, and top-gallant-masts, are kept steady and firm in the respective trees, where their feet stand: as those of the lower-masts do in the steps. See *Nav. Sheep. fig.* 1. n. 31. 58. 76. Vol. 113. 143. and *fig.* 1. n. 15.

CAP, in *Chemistry*, signifies the piece which terminates the top of a *mixing* FURNACE.

CAP, or *great* CAP, in *Heraldry*, a denomination of a kind of compendious baudage, serving for almost all occasions of the *head*, being in figure not unlike a helmet.

Among chirurgical instruments we meet with a *silver cap*, *pileolus argenteus* (though of late also made of wood, or even white wax), perforated at both ends, applied to the paps of nursing women, when ulcerated, for the more commodious giving of suck.

CAP, in *Physiology*, a name given to the husk or green succulent coat which covers the upper part of a nut, and connects it to the parent tree.

The *cap* consists of a pilling and parenchyma derived from the bark, and ramulets from the ligneous body of the branch.

CAP *of a* MUSHROOM, is the head or superior part expanded over the foodstalk, somewhat in manner of a canopy, or umbrella.

CAP, *black*, in *Zoology*. See PEWIT.

CAP, *Neptune's*. See NEPTUNE.

CAP, *priest's*, in *Fortification*. See BONNET *à prêtre*.

CAP-*merchant*, in a trading ship, is the same officer who is called purser on board a man of war. The French call him writer (*écrivain*.) He is appointed by the merchant to whom the ship belongs, to take care that nothing be embezzled or squandered away.

CAPACITY, in a general sense, an aptitude, or disposition to retain or hold any thing.

Our law allows the king two *capacities*, a *natural*, and a *political*: in the first he may purchase land to him, and his heirs; in the latter, to him, and his successors.—The clergy have the like.

CAPARASON, or CAPARISON, the covering or clothing laid over an horse; especially a sumpter, or horse of state.

The word is Spanish, being an augmentative of *capa*, *cape*, *hood*.

Anciently the *caparasons* were a kind of iron armour, wherewith horses were covered in battle.

CAPASH, a kind of head-dress worn by the women of Candia. It is of a stiffened fine muslin, and is made so

as to stand up very high, and extends out a great way on the right side. Pococke's Egypt. vol. ii. part. ii. p. 10.

CAPE, in *Geography*, a head-land; or a piece of land running out beyond the rest, into the sea.

Sicily was called by the ancients *Trinacria*, by reason of its three *capes*, or promontories, represented on medals, by three naked legs joined together at the top of the thigh, and bent at the knee; which pretty nearly resembles the triangular figure of that island.

CAPE, in *Law*, a writ touching pleas of lands and tenements; so termed, from the word which carries the chief intention or end of it.

Cape is of two kinds, the *magnum* and *parvum*; which in their effect are alike, as to the taking hold of things immoveable; though in certain circumstances they differ: 1. In that the *cape magnum*, or *grand cape*, lies before; and the *cape parvum*, or *petit cape*, after appearance. 2. *Cape magnum* summons the defendant to answer the default; and besides to the demand out: *cape parvum* only to the default. It is called *petit cape*, not because of its small force; but because it is contained in few words.

CAPE *magnum* is thus defined in the old Nat. Brev. "Where a man hath brought a *præcipe quod reddat* of a "thing that touches pleas of land, and the tenant makes "default at the day to him given in the original writ; "then this writ shall be for the king to take the land "into his hands; and if the tenant come not at the day "given him by the writ, he loses his land."

CAPE *parvum*, or *petit cape*, is thus defined, ibid. "Where "the tenant is summoned in plea of land, and comes "at the summons, and his appearance is recorded; and "at the day given him, prays the view; and having it "granted, makes default; then shall this writ issue for "the king, &c."

CAPE *ad valentiam*, a species of *cape magnum*, so called from the end to which it tends: it is thus described. "Where "I am impleaded of lands, and I vouch to warrant an- "other, against whom the summons *ad warrantandum* "hath been awarded, and the sheriff comes not at the "day given; then, if the defendant recover against me, "I shall have a writ against the vouchee; and shall re- "cover so much in value of the lands of the vouchee, if "he has so much: otherwise, I shall have execution of "such lands and tenements as descend to him in fee; "or, if he purchase afterwards, I shall have a re-sum- "mons against him: and if he can say nothing, I shall "recover the value."

CAPEDUNCULA, in *Roman Antiquity*, the vessels wherein the sacred fire of Vesta, was preserved. See VESTALS.

CAPELAN, in *Ichthyology*, a name given by some authors to the small species of whiting called by the Venetians *molly*, and by authors the *asellus minimus minutus*, and *merlangus*.

CAPELINE, a kind of bandage used by the French surgeons in cases of amputations; consisting of a roller with two equal heads.

CAPELLA, in *Astronomy*, a bright star of the first magnitude, in the left or preceding shoulder of the constellation AURIGA.

CAPELLA, in *Ornithology*. See LAPWING.

CAPER-*bush*, *Capparis*, in *Botany*, a genus of the *polyandria monogynia* class. Its characters are these: the flower hath four large roundish petals, and a great number of slender stamina. In the midst of these arises a single style, longer than the stamina, with an oval germen, which afterward becomes a fleshy turbinated capsule with one cell, filled with kidney-shaped seeds. Linnæus reckons thirteen and Miller ten species. The first is the common *caper*, whose full grown flower-bud is pickled, and brought to England annually from Italy and the Mediterranean. This is a low shrub, which generally grows out of the joints of old walls, the fissures of rocks, and among rubbish, in most of the warm parts of Europe. Some say the plant grows in Oxfordshire, and might doubtless be propagated in other places. In England, broom-buds pickled are frequently substituted for *capers*. When the *capers* are budded for flowering, the shoots are cut away, and the leaves and flower-buds stript off; and being passed through a sieve, the *capers* are thereby separated from the leaves.

This is a speedy way, without which they would come too dear for common use.

They are dried in a shady place; then infused in vinegar; to which, at last, salt is added: after which they are put up in barrels to be used as a pickle, chiefly in sauces; and sometimes also in medicine, as being very aperitive, and entering certain compositions for diseases of the spleen.

All the *capers* sold throughout Europe, are brought from about Toulon, in France; except some small salt *capers* from Majorca, and a few flat ones from about Lyons.

The bark of the *caper*-tree, when dried, is much prescribed by the French physicians in oppilations of the spleen.

CAPER, *bean*. See BEAN-*caper*.

CAPERS, *long*, are the style or pistil of the flower which grows into a fruit, long and round like an olive or acorn when ripe, containing divers hard brown seeds, like the grains of grapes.

CAPERS, *trifoliate*, are produced by a plant formerly brought from India; thus called, because the bottom of the calyx of the flower resembles the *capuche* of the religious of St. Francis.

CAPER is also a vessel used by the Dutch, for trolling and taking prizes from the enemy.

In which sense, *caper* amounts to the same with PRIVATEER.

Capers are commonly double-officered, and crowded with hands even beyond the rates of ships of war, because the thing chiefly in view is boarding the enemies.

CAPH, a Jewish measure of capacity for things estimated by Kimahi at the 30th part of the log, by Arbuthnot at the 36th part of the hin, or 3rd of the scah, amounting to five eighths of an English pint.

The *caph* does not occur in Scripture as the name of any measure.

CAPHAR, a toll, or duty, imposed by the Turks on the Christian merchants, who carry or send merchandizes from Aleppo to Jerusalem.

The *caphar* was first levied by the Christians themselves, when masters of the Holy Land, for the support of troops and forces posted in the most difficult parts, to watch the Arabs, and prevent their pillages. But the Turks, who have continued, and even raised the toll, abuse it; exacting arbitrary sums of the Christian merchants and travellers, on pretence of guarding them from the Arabs; with whom they yet frequently keep an understanding, and even favour their robberies.

CAPHRA, the name with *camphor*. The Arabians call it caphur and color. The authors who have written full of the navigation and trade of the East Indies, have distinguished three kinds of camphor, which they say are put to different uses, and bear a different price in the Indies. See CAMPHOR.

CAPI-AGA, or CAPI-AGASSI, a Turkish officer, who is governor of the gates of the Seraglio; or grand-master of the Seraglio.

The *capi-aga* is the first dignity among the white eunuchs: he is always near the person of the grand signior: he introduces ambassadors to their audience: nobody enters, or goes out of the grand signior's apartment, but by his means. His office gives him the privilege of wanting the timbrel in the Seraglio, and of going every where on horseback. He accompanies the grand signior to the apartment of the sultanas, but stops at the door without entering. His appointment is very moderate; the grand signior bears the expence of his table, and allows him at the rate of about forty French livres per day; but his office brings him in abundance of presents; no affair of consequence coming to the emperor's knowledge without passing through his hands. The *capi-aga* cannot be bastinadoed when he quits his post.

CAPIAS, a writ, or process, which is of two sorts; one before judgment, called *Capias ad respondendum*; granted in an action personal, when the sheriff, upon the first writ of distress, returns, *Nihil habet in balliva nostra*.

The other is a writ of execution after judgment, which is also of various kinds; as, *Capias ad satisfaciendum*, *Capias pro fine*, *Capias utlagatum*, &c.

CAPIAS *ad satisfaciendum*, is a writ of execution after judgment; lying where a man recovers in an action personal, as for debt, damages, &c. in which case, this writ issues to the sheriff, commanding him to take the body of him against whom the debt is recovered; who is to be kept in prison till he make satisfaction.

It is usual to take out this writ, where the defendant hath no lands nor goods, whereof the debt recovered may be levied: and when the body is taken upon a *Ca. Sa.* and the writ is returned and filed, it is an absolute and perfect execution against the defendant, and no other execution can be against his lands and goods. But this is unless the defendant escape, or die in execution, &c. for where a person dies in execution, his lands and goods are liable to satisfy judgment, by stat. 21 Jac. I. c. 24.

CAPIAS *pro fine*, is where one being by judgment fined to the king, upon some offence against a statute, does not discharge it according to the judgment: by this writ, therefore, his body is to be taken, and committed to prison till he pay the fine.

It is used in other cases, for not making out some pleas in civil actions. 3 Rep. 12.

CAPIAS *ultlagatum*, a writ which lies against one outlawed upon any action, perfonal or criminal; by which the fheriff is ordered to apprehend the party outlawed, for not appearing on the exigent, and keep him in fafe cuftody till the day of return; when he is to present him to the court, to be there further ordered for his contempt.

CAPIAS *in Withernam*. See WITHERNAM.

CAPIAS *ad refpondendum ad prafcriptionem*, an original writ, which lies, by the common law, againft any foldier who has covenanted to ferve the king in war, and appears not at the time and place appointed. It is directed to two of the king's ferjeants at arms, to arreft and take him wherever he may be found; and to bring him *coram concilio noftro*, within a limit of fuftenance.

CAPIATUR, *judgment quod*. When the plaintiff had obtained judgment, it was formerly conftered that the defendant fhould be either amerced, for his *willful* delay of juftice in not immediately obeying the king's writ, by rendering the plaintiff his due; or be taken up, *capiatur*, to pay a fine to the king, in cafe of any forcible injury. But now, by ftat. 5 and 6 W. and M. c. 12. no writ of *capias* fhall iffue for this fine, but the plaintiff fhall pay 6*s.* 8*d.* and be allowed it againft the defendant in his other coffs. In the court of common pleas, they enter that the fine is remitted; but in the court of king's bench, they take no notice of any fine or *capiatur* at all.

CAPICATINGA, in the *Mantua Medica*, a name by which fome authors have called the *arvum agreftius*, or Auftic fweet-flag.

CAPIDODIUS, in *Ichthyology*, a name given by Paulus Jovius, and fome others, to the fifh we call the GRAMPUS, and the generality of authors the ORCA. According to the Artedian fyftem, it is a fpecies of the *delphinus* or dolphin; and it is diftinguifhed by that author by the name of the dolphin with the fnout bending upwards, and with broad ferrated teeth.

CAPIGI, a porter, or door-keeper of the Turkifh Seraglio. There are about five hundred *capigis*, as porters in the Seraglio, divided into two companies; one conffiting of three hundred, under a chief called *Capigi-Baffa*, who has a ftipend of three ducats per day; the other conffts of two hundred, diftinguifhed by the name of *Cuavicapigi*, and their chief *Cuavicapigi-Baffa*, who has two ducats. The *capigis* have from feven to fifteen afpers per day; fome more, others lefs. Their bufinefs is to affift the janizaries in the guard of the firft and fecond gates of the Seraglio; fometimes all together; as when the Turk holds a general council, receives an ambaffador, or goes to the mofque; and fometimes only in part; being ranged on either fide, to prevent people entering with arms, any tumults being made, &c. The word, in its original, fignifies *porter*.

CAPILLAMENT, literally fignifies *hair*, being formed of the Latin *capillus*, of *caput*, q. d. *hair of the head*. Hence the word is figuratively applied to feveral things, which, on account of their length, or their finenefs, refemble hairs: as,

CAPILLAMENTS *of the nerves*, the fine fibres, or filaments, whereof the nerves are compofed.

CAPILLAMENTS, in *Botany*, more ufually called ITAMINA, are thofe fmall threads, or hairs, which grow up in the middle of flowers; and are headed with little knobs, called APICES.

Bradley feems to reftrain *capillaments* to the fmaller flowers; and *ftamina* (which he corruptly calls *apices*) to the larger.

CAPILLAMENT is alfo applied to the ftrings or threads about the roots of plants.

CAPILLARY, of the Latin *capillus*, *a hair*, is applied to feveral things, to intimate their exceeding fmallnefs, or finenefs, refembling that of a hair.

CAPILLARY *veffels*, in *Anatomy*, are the leaft, minuteft, infenfible ramifications of the veins and arteries; which, when cut, or broken, yield but very little blood.

The *capillary* veffels fhould be conceived as vaftly finer than hairs: they are beft compared to the threads of cobwebs, and are fometimes called *evanefcent* veffels.

CAPILLARY, or CAPILLACEOUS *plants*, a fpecies of plants, thus denominated from their form, and manner of growth, as having no principal ftalk, or ftem, with branches, &c. fhooting out of the fame; but growing from the ground, like hairs from the head: and bearing their feed in little tufts, or prominences, on the backfide of their leaves.

The principal of thefe is, the *capillus veneris*, or ADIANTUM; from which the reft take their name.

This genus is placed in Linnæus's twenty-fourth clafs, entitled *cryptogamia*; where he has ranged the ferns, maidenhairs, polypodium, &c. with the mofs, mufhroom, and all thofe plants which do not produce flowers confpicuous to the naked eye; being either concealed in their fructification, or fo fmall as not to be perceived without the help of glaffes. The firft order of this clafs is *filices*, &c. moft of which have their flowers and feeds on the backs of their leaves.

Capillary plants, account to touch the fame with what are otherwife denominated ACAULOUS plants. See Phil. Tranf. N° 180. p. 784.

All the *capillaries* are reputed of ufe in medicine, efpecially in the making of pectoral fyrups; to which, medicinal virtues are attributed. But, in effect, only the *capillary* of Montpellier, *adiantum album Monfpelienfe*, and that of Canada, *adiantum album Canadenfe*, are regularly ufed for that purpofe; the reft only ferve to counterfeit them.

CAPILLATUS or CAPILLATA, *Arbor*, an ancient tree at Rome, on which the Veftal virgins when fhaven for their office, hung up their hair, and confecrated it to the gods.

CAPILLARY is alfo ufed by *Mineralifts* in fpeaking of ores which ramify or fhoot out fine branches like threads.

In which fenfe it anfwers to the fame with what is otherwife called *arborefcent* and *ftriated*. Woodward fpeaks of *capillary* or arborefcent *filver*; and Boyle defcribes a piece of pure *capillary copper* from the mine at Herrengrund, the feveral tufts, or capilli of which are fhort, of a reddifh golden colour, growing together almoft like thofe of the little mofs.

CAPILLARY *roots*. See FIBROUS *roots*.

CAPILLARY *tubes*, in *Phyfics*, are little pipes, whofe canals are the narrowed poffible; not fuch, whofe diameters do not exceed that of a common hair, for fuch can be made. The uſual diameter of *capillary* tubes, is a half, third, or fourth of a line: though Dr. Hook affures us he drew tubes in the flame of a lamp much fmaller, as fine almoft as a thread of a cobweb.

CAPILLARY *tube, the afcent of water, &c. in*, is a famous phenomenon which has long entertained the philofophers. Let one end of a fmall tube, open at both ends, be immerged in water, and the liquor within the tube will rife to fome fenfible height above the external furface: or immerge two or more tubes in the fame fluid, one of them a *capillary* one, and the other confiderably larger; the water will afcend confiderably higher in the *capillary* tube than the other, in the reciprocal ratio of the diameters of the tubes, both in open air and in vacuo. See ASCENT.

Mr. Hauckbee, and others, have recourfe to the attraction of the annuli of the concave furface of the tube; to which opinion Dr. Morgan fubfcribes.

But fince in every *capillary* tube, the height to which the water will fpontaneoufly afcend, is reciprocally as the diameter of the tube; it follows, that the furface, containing the fufpended water, is always a given quantity. But the columns of water fufpended in every tube, is as the diameter of the tube: therefore, if the attraction of the containing furface be the caufe of the water's fuſpenſion; it will follow, that equal caufes produce unequal effects; which is abfurd. And, again, not only his folution, but his phenomenon alſo, is extended too far: for it is not in all fluids that the phenomenon obtains; but in mercury the very contrary is found; that fluid in a tube not rifing fo high as the level of that in the veffel; and the defect being found the greater, as the tube is fmaller.

We muſt, therefore, recur to Dr. Jurin's folution of this phenomenon, which is well fupported by experiments. "The fuſpenſion of the water (in that gentleman's "fyſtem) is owing to the attraction of the periphery of "the concave furface of the tube, to which the upper "furface of the water is contiguous, and adheres:" this being the only part of the tube, from which the water muſt recede upon its fubſiding; and conſequently the only one which, by the force of its cohefion and attraction, oppoſes the deſcent of the water. This he ſhews to be a cauſe proportional to the effect; becauſe the periphery, and the ſuſpended column, are both in the ſame proportion as the diameter of the tube. The ſuſpenſion thus accounted for, the ſeemingly ſpontaneous aſcent will eaſily be ſolved: for ſince the water that enters a *capillary* tube, as ſoon as its orifice is dipped therein, has its gravity taken off by the attraction of the periphery, with which its upper ſurface is in contact, it muſt neceſſarily riſe higher; partly by the preſſure of the ſtagnant water, and partly by the attraction of the periphery, immediately above that which is already contiguous to it. Phil. Tranſ. abr. vol. iv. p. 423, &c. N° 345. or Cotes's Hyd. and Pneum. Lect. p. 205.

Some doubt whether the law holds throughout, of the aſcent of the fluid being always higher as the TUBE is ſmaller; Dr. Hook's experiments, with tubes almoſt as fine as cobwebs, ſeem to ſhew the contrary. The water in theſe, he obſerves, did not riſe ſo high as one would have

have expected. The highest he ever found was at 21 inches above the level of the water in the basin, which is much short of what it ought to have been by the law above mentioned.

Capillary tubes which naturally discharge water only in separate drops, yield, when electrified, a continued and accelerated stream; and the acceleration is proportional to the smallness of the tube: and the effect of electricity is so considerable, that it produces a continued stream from a very small tube, out of which the water had not before been able to drop. Priestley's Hist. Electr. 8vo. vol. i. p. 171. ed. 3d.

CAPILLARY *muscles*. Many small vessels of animal bodies have been discovered by the modern invention of injecting the vessels of animals with a coloured fluid, which upon cooling grows hard. But though most anatomists know the manner of filling the large trunks, few are acquainted with the art of filling the *capillaries*. Mr. Monro has given us what he, after many trials, has found most successful, in the Medic. Ess. Edinb. vol. i. art. 9. where he enters into a very nice detail of the operation, to which we must refer the curious. Some particulars we shall give under the head INJECTION.

CAPILLARY *worm*, in children, are the same with what are otherwise called CRISONES, *tenebrae*, and *dracunculi*.

CAPILLARY *fracture*. See CAPILLATION.

CAPILLATION, or CAPILLARY *fracture*, according to some writers, is a fracture in the skull, so small that it can scarce be perceived; but yet it often proves mortal. See FRACTURE.

CAPILLITIUM *Veneris*, in *Physiology*, denotes a meteor appearing in the air, in form of fine threads resembling a spider's web.

Some think that the *capillitium Veneris* derives its origin from a cloud, the watery parts of which having been exhaled by the sun's heat, only the earthy and sulphureous parts are left behind, which shoot into this figure.

It is sometimes also found hanging about woods and coppices, or even extended on the ground like a fine net, frequently enough mistaken for spiders webs.

CAPILLUS. See HAIR.

Capillus Veneris. See ADIANTUM.

CAPIPLENIUM, from *caput*, *head*, and *plenus*, *full*; used by some authors for a catarrh; but more properly, by the Italian physicians, for a continual heaviness of the head, frequent at Rome, and almost endemic.

CAPISCOLUS, or CAPISCHOLUS, in *Ecclesiastical Writers*, denotes a dignitary in certain cathedrals, who had the superintendency of the choir, or band of music, answering to what in other churches is called CHANTER or *precentor*.

The word is also written *cabiscolus*, and *vapischolus*, q. d. *the head of the school*, or *dean of music*.

The *capiscolus* is also called *scholasticus*, as having the instruction of the young clerks and choristers, how to perform their duty.

CAPISTRUM, among the *Ancient Musicians*, was a kind of headstall, or bridle made of leather, fastened round the head, which passing over the mouth, compressed the lips and cheeks so close, that the person, whatever effort he made, could not give his pipe, or flute, above the due quantity of wind requisite to make it speak.

The figure of a musician equipt with a *capistrum*, is given by Salmasius, who maintains it to be that of Marsyas the satyr, who, according to Plutarch, was the inventor of this instrument; in virtue of which he had even dared to contend with Apollo. It was copied from an ancient teal, formerly belonging to Velleron. Plut. Sympot. lib. vii. cap. 8. Salmas. Exerc. ad Solin. p. 585.

Some pretend that the use of the *capistrum* was to hide the deformity of bloated cheeks, and a gaping mouth; especially where the teeth were bad; others, that it was intended to save the lips and cheeks from being exumbled so as to endanger hurting; others, to fortify the part, that it might yield the stronger noise. But the chief use appears to have been, to temper and moderate the breath, and prevent its animating the pipe beyond the due pitch. See PHORBEA.

The chemists give the denomination *capistrum auri* to BORAX.

CAPISTRUM, in *Surgery*, a headstall, or bandage used in case of injuries of the head, especially fractures of the jaw.

CAPITA, or CAPITUM, in *Antiquity*, denotes a tax among the Romans for the maintenance of the horses in the army, levied according to the number of heads thereof.

CAPITA, *distributive by*, is such a distribution, that every man has an equal share of *personal* estate, when all the claimants claim in their own rights, as an equal degree of kindred, and not *jure representationis*. Blackit. Com. vol. ii. p. 517.

CAPITA, *succession by*, is that where the claimants are next in degree to the ancestor, in their own right, and not by right of representation. Blackit. Com. vol. ii. p. 218.

CAPITAL, of the Latin *caput*, is used on various occasions, to express the relation of a head, chief, or principal: thus,

CAPITAL *city*, intimates the principal city of a kingdom, province, or state; as, London is the *capital*, or *capital city* of England; Moscow, of Russia; Constantinople, of the Ottoman Empire; Rouen, of Normandy, &c. See METROPOLIS.

Mr. Basle has a discourse on the advantages of being born and living in the *capital* of the country.

CAPITAL *court*, or *chief court*, the chief manor-house, or place-house where the lord of the manor holds his court; called also in Kent the court-lodge.

Capital court is sometimes used for the same with *capital* MESSUAGE.

CAPITAL *honor*, *capitale honor*, denotes the chief honour, or prime barony of the whole county, as that in ancient times usually enjoyed by the count or earl of such county.

CAPITAL *lord*, *capitalis dominus*, the lord of the fee, from whom the state is held by inferior tenants.

CAPITAL *picture*, in *Painting*, denotes one of the most excellent pieces of any celebrated master.

F. Chamillard gives a list of the pieces of each famous painter, and the places where they are found.

CAPITAL, or CAPITAL *stock*, in *Commerce*, is the fund, or stock, of a trading company, or corporation; or the sum of money which they jointly furnish, or contribute, to be employed in trade.

It is also used to denote the stock which a merchant or tradesman employs in business on his own account.

The power given by parliament to the South sea company, to increase their *capital*, was the source of all the mischief which ensued in the year 1720.

CAPITAL, in *Money Matters*, denotes the sum of money put out to interest.

In which sense it amounts to the same with *principal*, and stands opposite to *interest*.

CAPITAL *crime*, is that which subjects the criminal to a *capital* punishment; i. e. to the loss of life, either natural or civil.

CAPITAL *lees*, are the strong lees made by the soap-boilers from pot-ashes.

They are also used, in Surgery, as a caustic; and to make the *lapis infernalis*.

CAPITAL *letters*. See CAPITALS.

CAPITAL *medicines*, in *Pharmacy*, are the great, or principal preparations of the shops: these are remarkable for the number of their ingredients, and their extraordinary virtues; such as Venice treacle, mithridate, &c.

CAPITAL, in *Architecture*, the uppermost part of a column, or pilaster, serving as the head, or crowning thereof; placed immediately over the shaft, and under the entablature.

CAPITAL *of necklace*, properly, is that whose plain is round. Whereas the CAPITAL *of a pilaster* is that whose plan is square, or at least rectilinear.

The *capital* is a principal and essential part of an order of columns, or pilasters: it is made differently in the different orders; and is that which chiefly distinguishes and characterizes the orders themselves.

CAPITAL, *Tuscan*, is the most simple and unadorned: its members, or parts, are but three; viz. an abacus; under this, an ovolo, or quarter-round; and under that, a gorge, or collarino. The gorge, or neck, terminates in an astragal, or fillet belonging to the *shaft*.—See *Tab. Architec. fig.* 22.

The character of this *capital*, whereby it is distinguished from the Doric, &c. is, that the abacus is square, and quite plain, and has no ogee, or other moulding; and that there are no annulets under the ovolo.

Indeed, authors vary a little as to the character of the Tuscan *capital*. Vignola gives the abacus a fillet, in lieu of an ovolo; Vitruvius and Scamozzi add an astragal and fillet, between the ovolo and neck; Serlio only a fillet; Philander rounds the corner of the abacus. In the Tuscan column there is no neck; but the astragal of the shaft is confounded with that of the *capital*.

The height of this *capital* is the same with that of the base, viz. one module, or semidiameter. Its projecture is equal to that of the cincture at the bottom of the column; viz. eight fifths of the module. See COLUMN.

CAPITAL, *Doric*, beside an abacus, an ovolo, and a gorge, in common with the Tuscan, has three annulets, or little square members, underneath the ovolo, in lieu of the astragal in the Tuscan; and a talon, cima, or ogee, with a fillet over the abacus. See *fig.* 25.

Authors vary too, as to the characters of this *capital*: Palladio, Vignola, &c. put roses under the corners of the abacus, and in the neck of the *capital*.

The height of this *capital*, Vitruvius, &c. make one module;

dule; and its projecture thirty-seven minutes and a half.—*See Tab. Archit. fig.* 25.

CAPITAL, *Ionic*, is compoſed of three parts: an abacus, conſiſting of an ogee, and a fillet; under this a rind, which produces the volutes, or ſcrolls, the moſt eſſential part of this *capital*; and, at the bottom, an ovolo, or quarter-round: the aſtragal, under the ovolo, belongs to the ſhaft. The middle part is called the *rind*, or bark, from its ſuppoſed reſemblance to the bark of a tree laid on a vaſe, whoſe brim is repreſented by the ovolo, and ſeeming to have been ſhrunk up in drying, and to have twiſted into the volutes.

The ovolo is adorned with eggs, as they are ſometimes called, from their oval form: the Greeks call it the *echinus*.

The height of this *capital* M. Perrault makes eighteen minutes; its projecture, one module, ſeven tenths.—*See Tab. Archit. fig.* 26.

The differences in the character of this *capital* flow moſtly from the different management of the volutes; and conſiſt in this: that in the antique, and ſome of the modern, the eye of the volute anſwers not the aſtragal of the top of the ſhaft, as Vitruvius, and moſt of the moderns, make it: that the face of the volute, which uſually make a flat, a ſometimes curved and convexed, ſo that the circumvolutions go advancing outwards; as is frequent in the antique: that the border, or rim of the ſcroll in the volute, is ſometimes not only a plain ſweep, as ordinarily; but the ſweep is accompanied with a fillet: that the leaves which inveſt the baluſter, are ſometimes long and narrow; ſometimes larger and broader: that the two faces of the volutes are ſometimes joined at the outer corner; the baluſters meeting in the inner, to make a regularity between the faces on front and back of the building, with thoſe of the ſides: that among the moderns, ſince Scamozzi, the Ionic *capital* has been altered, and the four faces made a like, by taking away the baluſter, and hollowing all the faces of the volutes inwards, as in the Compoſite: that Scamozzi, and ſome others, make the volutes to ſpring out from the ovolo, as from a vaſe, after the manner of the modern Compoſite; whereas in the antique the bark paſſes between the ovolo and abacus quite ſtraight, only twiſting at its extremities, to form the volute. And, laſtly, that of late years the ſculptors have added a kind of little feſtoons, ſpringing from the flower whoſe ſtalk lies on the firſt circumvolution of the volute; and ſuppoſed to repreſent the locks of hair hanging down on both ſides of the face. See IONIC.

CAPITAL, *Corinthian*, is much the richeſt it has no ovolo; and its abacus is very different from thoſe of the Tuſcan, Doric, or Ionic; as having its faces circular, and hollowed inward, with a roſe in the middle of each ſweep: inſtead of an ovolo, and annulets, here is only a brim of a vaſe; and the neck is much lengthened and enriched with a double row of eight leaves in each, bending their heads downwards; and between them, ſmall ſtalks ariſing: whence ſpring the volutes; which do not reſemble thoſe of the Ionic *capital*; and which, inſtead of the four in the Ionic, are here fifteen; four on each ſide, under the four horns of the abacus, where the volutes meet in a ſmall leaf, which turns back towards the corner of the abacus. The leaves are divided, each making three ranges of leſſer leaves, whereof they are compoſed: each leſſer leaf is, again, generally parted into five, called *olive-leaves*; ſometimes into three and called *laurel-leaves*: the middle leaf, which bends down, is parted into eleven. In the middle, over the leaves, is a flower, ſhooting out between the ſtems and volutes, like the roſe in the abacus. The height of this *capital* is two modules and one third; and its projecture, one and ſeven thirds.

The differences in the character of this *capital* are, that in Vitruvius, &c. the leaves are in form of the acanthus; whereas, in the antique, they are more ordinarily olive-leaves: that their leaves are uſually unequal, the undermoſt being made commonly talleſt, ſometimes the ſhorteſt, though ſometimes they are all equal. Sometimes the leaves are raffled; ſometimes quite plain: the firſt row generally belly out towards the bottom, but are ſometimes ſtraight; ſometimes the horns of the abacus are ſharp at the corners, which ſeems agreeable to the rules of Vitruvius; but they are more commonly cut off. There is ſome difference too, in the form and ſize of the roſe; again, the volutes are ſometimes joined to each other; ſometimes wholly ſeparate: ſometimes the ſpires of the volutes continue twiſting even to the end of the ſame courſe; and ſometimes they turn back again near the centre, in the form of an S.—*See Tab. Archit. fig.* 21. and 27.

CAPITAL, *Compoſite*, is ſo called, becauſe compoſed of members borrowed from the *capitals* of the other columns. It takes a quarter-round, or ovolo, from the Doric; an aſtragal under this, together with volutes, or ſcrolls, from the Ionic; and a double row of leaves from the Corinthian, which it reſembles in moſt other things; conſiſting, generally, of the ſame members, and the ſame proportions. In the middle of the abacus is a flower; and under the thorns, leaves which return upward, as in the Corinthian; indeed, inſtead of ſtalks in the Corinthian, the Compoſite has ſmall flowers, lying cloſe to the vaſe, or bell; twiſting round towards the middle of the face of the *capital*, and terminating in the roſe.

The height of the Compoſite *capital* is two modules and one third; and its projecture, one module and two thirds, as in the Corinthian.—*See Tab. Archit. fig.* 28.

The differences of the character of this *capital* conſiſt in this: that the volutes, which ordinarily deſcend, and touch the leaves, are, in ſome works of the antique, ſeparate from them: that the leaves, which are generally unequal in height, the lower rank being talleſt, are ſometimes equal: that the volutes of the moderns generally ſpring out of the vaſe: whereas, in the antique, they ordinarily run ſtraight the length of the abacus, over the ovolo, without ſtirking into the vaſe: that the volutes, whoſe thickneſs is contracted in the middle, and enlarged above and below in the antique, have their ſides parallel in the works of the moderns: and, laſtly, that the volutes, which have been hitherto, both by the ancients and moderns, made as if ſolid, are now much lighter, and more airy; the folds ſtanding hollow, and at a diſtance from each other.

For the proportions of the ſeveral members of the *capitals* of columns, ſee COLUMN. See alſo each member under its proper head, as ABACUS, ACANTHUS, VOLUTE, &c.

Some architects diſtinguiſh the Tuſcan and Doric *capitals*, which have no ornaments, by the title of *capitals of mouldings*; and the three others, which have leaves and ornaments, they call *capitals of furniture*.

CAPITAL, *Impoſt*, is that which bears the return of an entablature, at the corner of the projecture of a pilaſter.

CAPITAL, *Filled*, in *Architecture*, that of a pilaſter in a re-entering angle, whether right or obtuſe.

CAPITAL, *Mutilated*, that whoſe projecture is leſs on one ſide than on another, as being too near ſome adjacent body or angle.

CAPITAL, *Attic*, that which has water-leaves in the gorgerin.

CAPITALS, *Symbolical*, thoſe adorned with the attributes of heathen deities. Such are moſt of the antique *capitals*, in which we find thunderbolts and eagles for Jupiter, trophies for Mars, lyres for Apollo, &c. Such alſo among the moderns are thoſe which bear the arms and devices of a nation, the marks of a victory, a dignity, or the like.

CAPITAL, *of a baluſter*, is that part which crowns the baluſter; which ſometimes bears a reſemblance to the *capitals* of ſome columns, particularly the Ionic.

CAPITAL *of a Niche*, is a kind of little canopy over a ſhallow niche, covering or crowning a ſtatue.

CAPITAL *of a Triglyph*, is the plat-band over the triglyph; called, by Vitruvius, *tænia*. It is ſometimes alſo a triglyph which does the office of a *capital* to a Doric pilaſter.

The *capitals* of triglyphs, according to Vitruvius, are to be a ſixth part of the module. Over them is to be placed a corona.

CAPITAL, in *Chemiſtry*, ſignifies the head of an ALEMBIC.

CAPITAL *of a Baſtion*, in *Fortification*, is a line drawn from the angle of the polygon to the point of the BASTION. The *capitals* of baſtions are from thirty-five to forty fathoms long, from the point of the baſtion to the point where the two demigorges meet.

CAPITAL *of a Lantern*, the covering which terminates the lantern of a dome, either in the figure of a bell, as that of the Sorbonne; or of a cupola, or a ſpiral, as that of the church of Sapienza at Rome.

CAPITAL *of a Mill*, the covering thereof in form of a cone, which turns vertically on the round tower, in order to expoſe the ſails to the wind.

CAPITALS, in *Printing*, large or initial letters, wherein titles, &c. are compoſed; and with which all periods, verſes, &c. commence.

All proper names of men, countries, kingdoms, terms of art, ſciences, and dignities, uſually begin with *capitals*.

The ancient MSS. both Greek and Latin, are written wholly in *capitals*.

In the early days of printing, there were alſo ſeveral editions of books in *capitals*, as of Homer, the Greek Anthology, Apollonius, &c. Johannes Laſcaris ſeems to have

have brought the ancient printers to give editions in *capitali*.

CAPITALIS *reflexus*, in *Surgery*. See CAPELINE.

CAPITANA, or CAPTAIN *galley*, the chief or principal galley of a fleet, not dignified with the title of a kingdom.

The *capitana* was anciently the denomination of the chief galley of France, which the commander went on board of. But fince the fuppreffion of the office of captain-general of the galleys in 1669, they have no *capitana*, but the firft galley is called *reale*, and the fecond *patrone*.

CAPITANEATE, in a general fenfe, the fame with CAPITANIA.

Capitaneate, in Pruffia, are a kind of noble feuds, or eftates, which, befides their revenue, raife their owners to the rank of nobility. They are otherwife called *feoda militia*. Eibl. Germ. tom. vi. p. 11.

CAPITANEI, or CATANEI, in Italy, was a denomination given to all dukes, marquiffes, and counts, who were called *capitanei regis*. The fame appellation was alfo given to perfons of inferior rank who were inveſted with fees, formerly diſtinguiſhed by the appellation *valvaſores majores*. Du-Cange.

CAPITANEUS, *in Ancient Law Writers*, denotes a tenant in CAPITE, or chief.

CAPITANEUS *caſtoræ*, the fame with advocate. Du-Cange, Gloſſ. Lat. tom. i. p. 802.

CAPITANIA, the office or dignity of a captain, and more eſpecially a perpetual feud. See CAPITANEATE.

CAPITANIA is alſo a denomination given to the twelve governments eſtabliſhed by the Portugueſe in Braſil.

CAPITATÆ *Plantæ*, in *Botany*, are thoſe plants whoſe flowers are ſtiftular, compoſed of many edged and hollow little flowers. They were thus called by *Mr.* Ray, becauſe their ſcaly calyx (or cup of the flower) moſt uſually ſwells out into a large round head, containing within it the pappous ſeed: as in the cardaus, centaury, guapweed, cinara, cirſium, lappa major, cyanus, &c.

CAPITATION, a tax or impoſition, raiſed on each perſon, in conſideration of his labour, induſtry, office, rank, &c. This kind of tributs is very ancient, and anſwers to what the Greeks called ἐπικεφάλαιον; the Latins, *cenſio, capitatio*, and *tributum*, or *tributum capitis*, or *capitulare*. By this term, taxes on the perſon are diſtinguiſhed from taxes on merchandiſe, which were called *veſtigalia, quia vehebantur*.

CAPITATION alſo denotes a certain ſum of money impoſed per head, in exigencies of ſtate.

CAPITATUS, in *Ichthyology*, a name given by Johannes Cuba, and ſome others, to that fiſh which we commonly call the bull-head, and miller's thumb, the *cottus* and *gobio capitatus* of authors. It is of the genus of the *cotti*, according to the Artedian Syſtem, and it is diſtinguiſhed by that author by the name of the fifteenth ſcalcelia *cottus*.

CAPITE, in *Law*, an ancient tenure, whereby a perſon held of the king immediately, as of his crown, either by knight's ſervice, or ſoccage.

By a ſtatute, 12 Car. II. c. 24. all ſuch tenures by knight's ſervice of the king, or of any other perſon, knights ſervice *in capite*, or SOCCAGE, with all rights, &c. are annulled.

CAPITE *cenſi*, in *Antiquity*, the loweſt rank of Roman citizens, who in public taxes were rated the leaſt of all, being ſuch as were never worth above 365 aſſes.

They were ſuppoſed to have been thus called, becauſe they were rather counted and marſhalled by their heads than their eſtates. Aul. Gell. lib. vii. cap. 13.

The *capite cenſi* made part of the fixth claſs of citizens, being below the *proletarii*, who formed the other moiety of that claſs.

The *capite cenſi* were not inrolled in the army, as being judged not able to ſupport the expences of war; for in thoſe days the ſoldiers maintained themſelves. It does not appear that before Caius Marius any of the Roman generals liſted the *capite cenſi* in their armies. Salluſt. Jug. p. 135.

CAPITIS *nævus*, in *Anatomy*, the name given by Fallopius, to one of the muſcles of the head, deſcribed by Albinus under the name of the *rectus capitis internus major*, and by Winſlow and others under that of the *rectus capitis anterior longus*. See HEAD.

CAPITIS *per tertium*, in *Anatomy*, a name given by Fallopius, and others of his time, to a muſcle ſince called, by Winſlow, COMPLEXUS *minor*, and *maſtoideus lateralis*; and by Cowper and Albinus, *trachelomaſtoideus*.

CAPITO, in *Ichthyology*, the *chub*; it is alſo called by ſome authors the *cephalus* and *ſqualus*, and *cyprinus*, and in ſome parts of England the *chevin*. It is a longer-bodied fiſh than the carp; and its head is black, large, and ſomewhat flat. It has no teeth either in the jaws, palate, tongue, or throat; its tail is forked, and all its fins are of a bluiſh black colour. Its belly is ſomewhat prominent; it is a river-fiſh, and loves the covert of old ſtumps of trees and hollow banks, and gives the angler much diverſion: it will not live in ponds; it ſpawns in May, and is in beſt ſeaſon in April, when full of ſpawn, but is never a very delicate fiſh. Ray. See CHUB.

CAPITO is alſo a name given by ſeveral authors to the *mugil* or *mullet*. GESA ſeems to have given riſe to this error: he found the word CEPHALUS in Ariſtotle as the name of the mullet, and tranſlated it by the word *capito*; not conſidering that he by that name confounded this fiſh with another, namely, the chub.

CAPITO *anadromus*, in *Ichthyology*. See ZERTA.

CAPITO *cæruleus*, the blue *chub*, a fiſh common in the Danube, and other of the large rivers in Germany, and frequently called the JERTING.

CAPITO *ripex*, in *Ichthyology*, a name given by ſome authors to the CORVUS *piſcis*, a fiſh of the ſhape of our river-chub.

CAPITOL, CAPITOLIUM, in *Antiquity*, a famous fort, or caſtle, on the Mons Capitolinus at Rome, wherein was a temple dedicated to Jupiter, thence alſo denominated *Capitolinus*, in which the ſenate anciently aſſembled, and which ſtill ſerves as the city-hall, or town-houſe, for the meeting of the conſervators of the Roman people.

It had its name *Capitol from caput, a man's head*; ſaid to have been found freſh, and yet bleeding, upon digging the foundation of the temple, built in honour of Jupiter. Arnobius adds that the man's name was Tolus; whence *capitolium*.

The firſt foundations of the *Capitol* were laid by Tarquin the Elder, in the year of Rome 139. His ſucceſſor, Servius, raiſed the walls; and Tarquin the Proud finiſhed it in the year 221: but it was not conſecrated till the third year after the expulſion of the kings, and eſtabliſhment of the conſulate. The ceremony of the dedication of the temple was performed by the conſul Horatius, in 246.

The *Capitol* conſiſted of three parts: a nave, ſacred to Jupiter; and two wings, or iſles, to Juno and Minerva. It was aſcended by ſtairs; Liſius reckons one hundred in number, becauſe there were ſo many in the aſcent of the Tarpeian rock. The frontiſpiece and *ſides* were encompaſſed with galleries, wherein thoſe, who had the honour of a triumph, entertained the ſenate at a magnificent banquet, after the performance of ſacrifice to the gods. Both inſide and outſide were enriched with numerous ornaments; the ſtatue of Jupiter, with his golden thunderbolt, his ſceptre, and crown, were the moſt diſtinguiſhed.

In the ſame *Capitol* there were, likewiſe, a temple to Jupiter the Guardian, and another to Juno; with the mint: and on the deſcent of the hill was the temple of Concord.

The *Capitol* was burnt under Vitellius, and rebuilt under Veſpaſian: it was burnt a ſecond time by lightning, under Titus; and was again reſtored by Domitian.

Anciently, the name *Capitol* was likewiſe applied to all the principal temples, in moſt of the colonies throughout the Roman empire: as, at Conſtantinople, Jeruſalem, Carthage, Ravenna, Cyprus, &c.

CAPITOLINE *Games*, *Ludi* CAPITOLINI, were annual games, or combats, inſtituted by Camillus, in honour of Jupiter Capitolinus; and in commemoration of the Capitol's not being ſurpriſed by the Gauls.

Plutarch tells us, that a part of the ceremony conſiſted in the public cryer's putting up the Hetrurians to ſale by auction: they alſo took an old man, tying a golden bulla to his neck, ſuch as were worn by their children, and expoſed him to the public deriſion. Feſtus ſays, they dreſſed him in a prætexta, hung a bulla at his neck; not as accounting him a child, but becauſe this was an ornament of the kings of Hetruria.

There was alſo another kind of *Capitoline games*, called *Agones Capitolini*, inſtituted by Domitian, and celebrated each five years; wherein there were rewards and crowns beſtowed on the victorious poets, and put on their heads by the emperor himſelf. Theſe games became ſo celebrated that the manner of accounting time by luſtres, which had obtained till then, was changed, and they began to count by *Capitolina* games, as the Greeks by Olympiads. The feaſt was not for poets alone, but alſo for athletæ, orators, hiſtorians, comedians, muſicians, &c.

CAPITOLINI, in *Roman Antiquity*, a college of men reſiding in the Capitol and art, to whom was committed the care of celebrating the Capitoline games.

CAPITOUL, or CAPITOL, an appellation given to the chief magiſtrates of Thoulouſe who have the adminiſtration of juſtice and policy, both civil and mercantile, in the city.

The *Capitouls* at Thoulouſe are much the ſame with the echevins

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echevins at Paris, and the conſuls, bailiffs, burgermaſters, mayors, and aldermen, &c. in other cities. In ancient acts they are called *conſules capitularii*, or *capitulini*, and their body *capitulum*. From this laſt come the words *capitularis* and *capitulo*. The appellative *capitulini* ariſe hence, that they have the charge and cuſtody of the town-houſe, which was anciently called *capitole*.

The office only laſts one year, and ennobles the bearers. In ſome ancient acts they are called *capitulum nobilium Tolioſæ*. Thoſe who have borne it, ſtyle themſelves afterwards burgeſſes. They are called to all general councils, and have the *jus imaginum*; that is, when the year of their adminiſtration is expired, their pictures are drawn in the town houſe; a cuſtom which they have retained from the ancient Romans, as may be ſeen in Signonius.

CAPITOULATE, an appellation given to the ſeveral quarters or diſtricts of the city of Tholouſe, each under the direction of a CAPITOUL; much like the wards of London under their aldermen.

Tholouſe is now divided into eight *capitoulates* or quarters, which is ſubdivided into *meuliers*, each of which has its tithing-man, whoſe buſineſs is to inform the *capitoul* of what paſſes in his tithing, and to inform the inhabitants of the tithing, of the orders of the *capitoul*.

CAPITULA *ruralia*, denote chapters held by the rural dean and clergy within the precincts of each deanry, anciently held every three weeks, then once a month, and more ſolemnly once a quarter.

CAPITULAR, or CAPITULARY, denotes an act paſſed in a chapter, either of knights, canons, or religious.

The *capitularia*, or *capitulare* of Charlemagne, Charles the Bald, &c. are the laws, both eccleſiaſtical and civil, made by thoſe emperors in the general councils, or aſſemblies of the people: which was the way in which the conſtitutions of moſt of the ancient princes were made: each perſon preſent, though a plebeian, ſetting his hand to them.

Some diſtinguiſh theſe from laws; and ſay, they were only ſupplements to laws.—They had their name, *capitulares*, becauſe divided into *capitula*, chapters or ſections. In theſe *capitulares* did the whole French juriſprudence anciently conſiſt.—In proceſs of time, the name was changed for that of *ordonnances*.

Some diſtinguiſh three kinds of *capitulars*, according to the difference of their ſubject-matter: thoſe on eccleſiaſtical affairs, are really canons, extracted from councils; thoſe on ſecular affairs, real laws; thoſe relating to particular perſons, or occaſions, private regulations.

CAPITULATION, a treaty made with the garriſon or inhabitants of a place beſieged; whereby they ſurrender themſelves up, on certain articles and conditions ſtipulated with the beſiegers.

Before a ſurrender the governor of the garriſon gives orders for beating the CHAMADE, and for fixing one or more white colours on the rampart; one of which remains either on the breach or rampart, during the time of negociation. When the chamade is beat, the fire ceaſes on both ſides, and the governor ſends ſome officers of diſtinction to the commander in chief of the beſiegers, who deliver to him the conditions on which the governor propoſes to ſurrender the town; and as a ſecurity for theſe officers, the beſiegers ſend a like number into the town. If the governor's conditions are not ſatisfactory to the general of the beſiegers, he preſcribes the conditions of ſurrender; threatening to allow no conditions, if thoſe propoſed are not complied with within a certain time. If the conditions are too hard, the officers return, and the drums are beat upon the rampart, for the recommencement of hoſtilities. During the ſuſpenſion of arms, no work ſhould be done for the ſecurity either of the beſieged or beſiegers; however, ſtratagems are counted lawful, and ſhould be guarded againſt.

If the terms of *capitulation* are agreed upon, the governor ſends two or three of his principal officers into the camp, and the general ſends the ſame number and of the ſame rank into the town, as a ſecurity for accompliſhing the *capitulation*. When every thing is finiſhed, the hoſtages on both ſides return. The conditions of the beſieged are of various kinds, according to their circumſtances. A garriſon ſhould have proviſion and ammunition at leaſt for three days, to be entitled to a compoſition, without which they are to be made priſoners of war; but this ſhould be known before the *capitulation* is ſigned. When the *capitulation* is ſettled, an officer of artillery from the beſiegers comes into the place with an officer of artillery from the garriſon, who takes an inventory of all the artillery and ammunition remaining; and a commiſſary of proviſions takes an account of the proviſions. When the beſieged have delivered a gate of the place to the beſiegers, the firſt regiment of the army enters and mounts guard. When the garriſon leaves the place, the army of the beſiegers is put under arms, and ranged in two lines, at the head of which are the general and principal officers, between which the garriſon paſſes. See further on this ſubject, Muller's Math. &c. vol. vi. p. 1557, &c.

CAPITULATION denotes alſo a kind of treaty, *pactæ conventæ*, or original contract, drawn up by the electors, before the election of an emperor; which the emperor is to ratify before his coronation, and to obſerve inviolably in the courſe of his reign.

Theſe imperial *capitulations* have only been obtained ſince the time of Charles V. They were occaſioned by the jealouſy the German princes had entertained of the too great power of the emperor. Frederic, duke of Saxony ſurnamed the Wiſe, paſſes for the author of the imperial *capitulation*; who declining the empire, which was offered him after the death of Maximilian, adviſed the electors to chooſe Charles V. under ſuch conditions as might ſecure the liberty of the empire.

The deſign of the *capitulations* is, on the one hand, to prevent the emperor from abuſing his power: to the oppreſſion of the people; and on the other, to prevent the people from breaking in on the juſt rights of the emperor. The imperial *capitulations* are conſidered as fundamental laws of the empire; and though the drawing up, preſenting, procuring the ſignature, and taking care of the execution of them, be commited to the electors, they are reputed the act of the ſtates of the empire.

The king of the Romans alſo, when elected, ſigns the emperor's *capitulations*, as being in right of ſuch election to ſucceed to the empire after the death of the emperor.

CAPITULUM, in *Anatomy*, a little head, eſpecially of a bone, anſwering to the Greek *condylus*.

CAPITULUM, in *Botany*, the head, or compound flower, of any plant; being compoſed of many leaves and threads, or ſtamina, cloſely connected in a globous, circular, or diſcous figure; as the flowers of bluebottles, ſcabious, cardunc, &c.

CAPITULUM, in the *Ancient Military Art*, was a tranſverſe beam, wherein were holes through which paſſed the ſtringa whereby the arms of huge engines, as balliſtæ, catapultæ, and ſcorpiones, were played or worked. Vitruv. de Arch. lib. i. cap. 1.

CAPITULUM, in *Eccleſiaſtical Writers*, denoted part of a chapter of the Bible read and explained.

In which ſenſe they ſaid, *ire ad capitulum, to go to ſuch a lecture*. Afterwards the place or apartment where ſuch theological exerciſes were performed, was denominated *domus capituli*.

CAPWARD, in *Zoology*, in Portugueſe, a *water-dog*, which is deſcribed to be an amphibious animal, with a body like a hog, a head like a hare, and without a tail. It keeps itſelf almoſt continually on its poſteriors, like an ape. It is found in Braſil; it lives all day in the ſea, and at night comes aſhore to ravage the gardens, and to root up the trees: the fleſh is wholeſome food.

CAPIVI. See BALSAM.

CAPNELÆON, from καπνος, *ſmoke*, and ελαιον, *oil*, among *Ancient Naturaliſts*, denotes a ſpecies of reſin, which flows ſpontaneouſly, being warmer, thinner, and more fluid than all other ſorts of reſine, ſo as nearly to approach the nature of oil, and evaporating plentifully on being expoſed to the fire; whence the denomination, which imports as much as ſmoaking oil. It is ſometimes alſo called *piſſinthos*, or flower of pitch.

CAPNICON, in *Antiquity*, chimney-money, or a tax which the Roman emperors levied for ſmoke, and which of conſequence was due from all, even the pooreſt, who kept a fire. This was firſt invented by Nicephorus.

CAPNISTON, among *Ancient Phyſicians*, denotes oil whoſe fumes rendered aromatic by burning ſpices, are conveyed to a part affected.

CAPNITIS, or CAPNITAS *jaſpis*, in the *Natural Hiſtory of the Ancients*, the name of a ſpecies of chalcedony, of a browniſh ground, clouded with a large miſt of blackiſh, looking like a column of ſmoke. The ancients alſo called our common chalcedony a jaſper, not allotting any peculiar generical name to theſe miſty ſtones; and the name they gave this ſpecies very happily expreſſed its character, becauſe it looks exactly as if obſcured by a cloud of thick ſmoke.

It is very common in the Eaſt-Indies, and is ſometimes found in Germany and France, but is ſeldom worked into any thing better than knife-hafts.

CAPNOIDES, in *Botany*. See FUMITORY.

CAPNOMANCY, a kind of divination by means of ſmoke uſed by the ancients in their ſacrifices.

The word comes from καπνος, *ſmoke*, and μαντια, *divination*. The general rule was, when the ſmoke was thin, and light, and roſe ſtraight up, it was a good omen; if the contrary, it was an ill one.

There was alſo another ſpecies of *capnomancy*, conſiſting in the obſervation of the ſmoke riſing from poppy and jeſſamin-ſeeds caſt upon lighted coals.

CAPO, in *Ichthyology*, a name given by Paulus Jovius and some others to the fish called *cucio* by the ancient Greeks, *cuculus* by the Latin writers, and by some *lyra*. It is a species of the *trigla*, distinguished by Artedi by the name of the *red trigla*, with a bifid snout, and with the coverings of the gills ftriated.

CAPO *nigra*. See DUCK.

CAPO *rufa*. See DUCK.

CAPOC, in *Commerce*, a fort of cotton fo fine and fo fhort, that it cannot be fpun. It is ufed in the Eaft Indies to ftuff palanquins, to make beds, matraffes, cufhions, pillows, &c.

CAPOLLIN, in *Botany*, *Mexicanorum Hernandez*, *feu Cerafus dulcis Indica*. It is a tree of moderate bignefs, with leaves like thofe of an almond, or our country cherry-tree. The flowers hang down in bunches, which are fucceeded by fruit refembling our cherries. It bloffoms in the fpring, and bears fruit all the fummer; it requires a temperate climate and grows in gardens and fields in Mexico, as well fpontaneoufly as by cultivation.

The juice of the young buds mollifies the tongue when parched by heat. A decoction of the bark being expofed to the fun for fifteen days, and the weight of a dram of it taken, cures the dyfentery. The powder helps inflammations. In times of dearth they make bread and drink of the fruit; but it affords an aliment inclining to melancholy, giving a rankneſs to the breath, and making the teeth black. There are three fpecies of this tree, which differ only in fruit; but all of them hang in cluſters.

CAPON, a cock chicken caſtrated young, generally as ſoon as left by the dam.

The word is formed from the Latin *capo*, of the Greek κοπτω, which ſignifies the ſame.

Capons, beſide their ufe for the table, ſerve to lead chickens, ducklings, turkey-poults, pea-hens, pheaſants, or partridges, in lieu of their natural dams, over which they have ſeveral advantages, by the largeneſs of their body, which will brood, or cover, thirty or forty young.

CAPON'S-*tail grafs*. See PERIPOCA.

CAPONE, in *Ichthyology*, a name given by the Italians to the fifh called the *hirundo* and *cernus* by authors, and by Artedi made a ſpecies of the *trigla*. It is diſtinguiſhed from the reſt of this genus by that author under the name of the *trigla* with an aculeated head, and with three appendages on each ſide to the pectoral fins.

CAPONIERE, or CAPONNIERE, in *Fortification*, is a paſſage from one work to another, ten or twelve feet wide, covered on each ſide by a parapet, terminating in a ſlope or glacis.

In dry moats, the paſſage from the curtain to the ravelin, or that from the covert-way to the arrows or detached redoubts, are called *caponieres*.

Single parapets raiſed at the entrance of the ditch, before the ravelin, behind which are placed ſmall cannons and men, to diſpute the paſſage over the ditch, are likewiſe called *caponieres*.

The *Caponiere* differs from the coffer, in that the latter poſſeſſes the whole breadth of the ditch, whereas the former only takes up part of it. See COFFER.

Caponieres are partly under ground, and partly above it. They are ſo well ſecured at the top, that no bomb or carcaſs can penetrate them.

CAPOT, in *Piquet*, is when one of the gameſters wins all the cards, in which caſe he gains forty points.

CAPPADINE, in *Commerce*, a ſort of ſilk thread, taken from the upper part of the ſilk-worm cod, after the true ſilk has been wound off. It is alſo called *laſſis* and *embaſſis*, becauſe ſlight ſtuffs under thoſe names are made of it.

CAPPANUS, in *Natural Hiſtory*, the name given by ſome authors to the ſea-worm which bores into the bottoms of ſhips.

In order to prevent the pernicious effects of this worm, ſeveral ſhips have lately been ſheathed with copper.

CAPPARIS, in *Botany*. See CAPER-*bufh*.

CAPPEROI, *Cornide*, a name given by the Ceyloneſe to a peculiar kind of cinnamon, eſteemed the third in value: this has a very ſtrong taſte and ſmell of camphor, and is by the natives ſignifies camphorated cinnamon. The tree which produces it, grows very plentifully in many parts of the iſland of Borneo, but is not met with in the eaſtern parts of it. This is often ſold to the Danes and Engliſh who come to trade on the coaſts of Coromandel; it is prohibited exportation from the iſland, but ſo long as only one port is open, there are people enough who will carry out great quantities of it.

There is a ſpecies of canella very much reſembling this kind of cinnamon-tree, which grows very frequently on the continent of India toward Goa; and another canella or wild cinnamon on the coaſt of Malabar, in many reſpects reſembles this. The barks of all theſe trees are greatly inferior to the true cinnamon in ſmell, taſte, and virtue; yet they are too often ſold to the leſs judicious traders in theſe things, either alone or mixed with the ſeveral better kinds of cinnamon, to the great damage of all that afterwards buy them. Phil. Tranſ. N° 400.

CAPRA, in *Aſtronomy*, a denomination given to the ſtar CAPELLA; and ſometimes alſo to the conſtellation CAPRICORN.

Some repreſent *Capra*, or the *She-goat*, as a conſtellation in the northern hemiſphere, conſiſting of three ſtars, comprized between the 45th and 55th degree of latitude. The poets ſay, it is Amalthea's goat, which ſuckled Jupiter in his infancy. Horace, making mention of it, calls it, *Jovis ſidera capræ*.

CAPRA *Saltans*, or CAPRA *Saltantes*, in *Meteorology*, a fiery meteor, or exhalation, which ſometimes appears in the atmoſphere, and is not fired in a ſtraight line, but with inflexions, and windings in and out, reſembling the capers of a goat.

The *capræ ſaltantes* are not ſo called from their figure, which is various, ſometimes round, ſometimes long, but from their moving by jerks ſomewhat like the leaps of that animal; and from the little tongues of fire which hang at, and ſometimes fall from them, which antiquity has been pleaſed to fancy like the beard or locks of a goat's hide.

Ariſtotle diſtinguiſhes the *capra* from the *trabs*, in that the latter proceeds with an uniform motion, the former with an irregular one, and as it were by jumps. Ariſt. Met. lib. i. cap. 5. Mem. Ac. Inſcr. tom. vi. p. 95.

The *capræ* ſeem to be very low, yet ſometimes fly ſo high, that meteorologiſts have placed them in the upper region, though not ſo conſtantly, but they are ſometimes alſo found in the middle region.

Of tubular *capræ* we have divers inſtances, in ancient as well as modern naturaliſts. Such was the flame ſaid by Seneca to have been ſeen in form of a huge ball about the bigneſs of the moon, when Paulus Æmilius waged war againſt Perſeus. Such another, he tells us, was ſeen at the death of Auguſtus; another on the tragedy of Sejanus, another at the death of Germanicus. Such was that ſeen about Michaelmas 1676, by no leſs than twelve counties at once; it is deſcribed by Mr. Nath, as it appeared near Leighland in Staffordſhire, as of a globular figure moving by jerks, and making ſhort reſts at every one of them, letting fall drops of fire, which were parts of its body; for it decreaſed in magnitude the farther it went, and the oftener it ſtopped, till at length it wholly diſappeared. Seneca Nat. Quæſt. lib. i. cap. 1. Phil. Tranſ. N° 135. p. 863. ſeq. Plott. Nat. Hiſt. Stafford. cap. i. § 40.

CAPRA *triturantis*, in *Ancient Huſbandry*, was a kind of iron leg, made in the figure of a goat, which was laid on the *tribula*, to make it more effectual in ſeparating the corn from the ears, the ancient way of threſhing.

CAPRA, in *Zoology*. See GOAT.

CAPRARIA, *ſweet-wood*, in *Botany*, a genus of the *didynamia angioſpermia* claſs. Its characters are theſe: the flower is bell-ſhaped, of one leaf, divided at the top into five equal parts; it hath four ſtamina which are inſerted in the baſe of the petal, and but little more than half ſo long as two of the lower being ſhorter than the other. It hath a conical germen, which afterwards becomes an oblong conical capſule, compreſſed at the point, having two cells divided by a partition, filled with roundiſh ſeeds. We have but one ſpecies, which grows naturally in the warm parts of America, where it is often a troubleſome weed.

CAPREA, in *Zoology*. See *Roe* DEER.

CAPREOLATÆ *plantæ*, are ſuch plants as turn, wind, and climb along the ſurface of the earth, and ſticks or trees, by means of their *capreoli*, or tendrils; as gourds, melons, cucumbers, &c.

CAPREOLI, in the *Ancient Architecture*, a ſort of rafters or timbers ſerving to ſuſtain the *cantreli*, either in buildings or machines.

CAPREOLUS, in *Botany*, the ſame with *cirrus*, or tendril.

They were thus called, not, as Philander imagines, from their reſemblance to the *capreoli*, or tendrils of vines, but from the affinity of their form and office to wild goats: as theſe butt and repel things with their horns, ſo do the former oppoſe their heads or horns to the weight of the *cantreli*.

CAPREOLUS, in *Anatomy*, denotes the *helix*, or outer ambit of the ear.

CAPREOLUS, in *Botany*, the claſper, or tendril, by which vines, peas, and ſuch like creeping plants, faſten themſelves to thoſe things which ſtand near, or are deſigned to ſupport them. This is alſo ſometimes called *clavicula*.

CAPREOLUS, in the *Ancient Huſbandry*, a kind of iron hoe or inſtrument with two forks or fangs, wherewith to ſtir and move the ground.

CAPREOLUS, in *Zoology*. See *Roe* DEER.

CAPRICE, in *Muſic*, is ſometimes uſed for an irregular compoſition, which ſucceeds rather by the force of genius than obſervation of the rules of art.

The word is French, where it signifies humorousness, fancifulness. Some deduce it from the Italian *capriccio*, and that from the Latin *caput*, *goat*, to whose wantonness it is supposed to bear allusion. Morvol. Polyhist. tom. 1. lib. ii. cap. 1.

CAPRICE is applied in *Architecture* to an edifice of a singular taste, and deviating much from the common rules of building.

CAPRICORN, in *Astronomy*, according to some, the tenth sign of the zodiac; from which also the tenth part of the ecliptic takes the same denomination.

The character whereby *capricorn* is represented in astronomical writing, is ♑.

The ancients accounted *Capricorn* the tenth sign, and when the sun arrived thereat, it made the winter solstice, with regard to our hemisphere; but the stars having advanced a whole sign towards the east, *Capricorn* is now rather the eleventh sign; and it is at the sun's entry into Sagittary, that the solstice happens: though the ancient manner of speaking is still retained.

The sign is represented on ancient monuments, medals, &c. as having the fore-part of a goat, and the hind-part of a fish; which is the form of an aegipan; and sometimes, simply, under the form of a goat.

The stars in the constellation of *Capricorn*, in Ptolemy's and Tycho's Catalogue, are 28; in that of Hevelius's 29; though it is to be observed, none of those in the tail, of the fifth magnitude, marked in Tycho's book the twenty-seventh, was lost in Hevelius's time. Mr. Flamsteed, in the Britannic Catalogue, gives 51 stars in *Capricorn*. The order, names, longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and situations of the stars.	Bayer's Cha.	Longitud.		Latitude.			Magnitudes.
		s	°	′	″		
		9	28	6	0	27	5 N 5
In the extrem. of the preced. horn	ξ	9	28	16	25	19	10 0
		9	29	11	45	6	54 N 6
		9	27	20	30	1	25 S 6
Preced. star in the subseq. horn	ι	9	29	19	7	1	31 N 4
	1.2						
The last of the conjoined stars		9	29	32	21	6	58 0 N 5
That under the right eye	2	9	28	21	44	0	29 9 N 6
The middle star in subseq. horn	γ	♒	0	7	30	30	51 N 6
Most south of 3 in subseq. horn	δ	9	29	43	37	4	37 N 5
Foremost of three in the nose	π	♒	0	23	53	0	6 N 6
	40.						
North of three.		♒	0	31	5	1	14 17 N 6
South of those in the nose.	ρ		0	34	19	0	20 9 S 4.6
			3	28	57	3	19 2 N 6
North of two in the neck.	τ		3	58	44	3	52 20 N 6
More south.	ο		3	20	53	0	1 46 N 6
	45.						
That under the upper knee.	ψ		2	56	11	6	58 23 S 5
			3	56	58	2	22 34 S 6
In the lower and best knee	ω		3	37	5	8	55 5 S 6
			6	47	22	21	9 8 N 5.7
			7	34	24	1	11 10 S 5.7
	50.						
			8	17	2	0	29 37 S 6
Prec. & N. of 3 in mid. of body	ε		8	25	55	2	57 43 S 5
Preced. of 2 in the back	ζ		9	31	40	0	33 0 S 4
That in the shoulder	A		7	30	46	8	3 32 S 6
South in the middle of the body	1.2		8	57	54	4	31 8 S 6
	55.						
Second in the middle of the body	2.3		0	54	57	3	56 46 S 6
Subsequent	3.4		0	52	7	3	58 9 S 6
Last of 3 in middle of the body	ρ		10	42	44	4	29 50 S 6
			12	10	37	0	43 46 N 6
			12	2	31	2	7 23 S 6
	60.						
			12	36	0	1	39 3 S 7
Obseq. of 2 in the back	λ		13	21	50	1	20 13 S 5
			12	33	55	3	37 36 S 6
That contiguous to the shoulder	ζ		12	32	40	0	57 36 S 5
			13	8	8	5	50 27 S 6
	65.						
Subseq. of the latter	δ		13	15	20	6	31 45 S 6
			13	10	57	5	22 15 S 6
			15	8	37	5	31 16 S 6
Preced. in south fin	ι		15	52	54	4	56 58 S 4
Preced. in root of the tail.	γ		17	27	42	2	51 18 S 4
	70.						
			15	42	16	8	53 38 S 6
North part of the tail	1.2		18	40	40	0	0 13 S 6
Subseq. in south fin	ε		17	19	14	4	28 36 S 5
North in part of the tail	2.3		18	55	46	0	57 44 S 6
Subsequent			19	0	0	1	1 54 S 6
	75.						
North in extrem. of the tail	1.2		21	5	32	4	33 51 N 6
Another, subsequent	2.3		21	19	32	3	50 38 N 6
Middle in north part of the tail	ω		19	41	41	5	57 24 N 5
Subseq. in root of the tail	β		19	13	19	2	31 19 S 5
			20	36	58	1	32 23 N 6
	80.						
Subseq. in north part of the tail	μ		21	29	18	0	39 10 S 5

CAPRICORN, *tropic of*, a leſſer circle of the ſphere, parallel to the equator; paſſing through the beginning of *Capricorn*. See TROPIC.

CAPRICORN-*beetle*, the Engliſh name of a ſpecies of *cerambyx*. See BEETLE.

CAPRICORNUS, in *Zoology*. See MOSCHELLA.

CAPRIFICATION, a name given in the iſlands of the Archipelago to a peculiar method of propagating and ripening the fruits of the domeſtic figs-tree, by means of inſects. Plin. Hiſt. Nat. lib. xv. cap. 19.

M. Tournefort aſſures us, that this method is ſtill practiſed every year in moſt of the Grecian iſlands; and he admired the patience of thoſe who ſpent above three months in carrying the flies from one fig-tree to another. *Caprification* is formed from *caprificus*, the wild-fig-tree, from whoſe fruits the inſects are produced, which are the chief inſtruments of *caprification*. This tree bears three different ſpecies of fruit, called *formiæ*, *cratitiæ*, *and orni*, which anſwer no other purpoſe but that of facilitating the above operation. The *formiæ* appear in Auguſt, and contain little worms, hatched from eggs depoſited by flies; in October and *November*, thoſe worms become flies, which pierce the ſecond figs called *cratitiæ*, which do not appear till the end of September: theſe figs continue to the month of May following, and furniſh a lodgment for the eggs of the ſecond claſs of flies. In May, the third ſpecies of figs, called *orni*, appear; and when they are grown to a certain ſize and begin to open at the eye, they are pierced by the flies produced by the *cratitiæ*, or winter figs. When the worms bred in theſe ſpring figs are tranſformed into flies, which happens in the months of May or July, the peaſants gather them, and tranſport them to the garden fig-trees. The ſucceſs of the *caprification* depends on this circumſtance, and therefore they viſit their wild fig-trees, and their garden fig-trees every morning, to examine the eye of the fig; by which they judge when the flies are about to iſſue from the wild figs, and when they may be applied ſo as to pierce the garden figs. They are then depoſited on ſuch trees as are fit to receive them, and enter the fruit by the eye, where they lay eggs, the worms of which cauſe the garden figs to attain their proper degree of luſcioſneſs and maturity. The conſequence of this operation is, that garden fig-trees, which would ſcarcely yield twenty-five pounds of ripe figs, and theſe for drying, yield two hundred and eighty pounds.

As to the manner whereby the puncture of the flies contributes to the maturation of the fruit, poſſibly it may be by lacerating the veſſels, and extravaſating the nutritious juice when they depoſit their eggs; or when with the egg they alſo convey ſome liquor which gently fermente with the juice of the fig, and ſoftens its pulp. Even the Provence and Paris figs ripen much ſooner by wounding their buds with a ſtraw or feather dipped in ſome ripe or rotten pears alſo wounded by inſects are found to ripen the ſooneſt, and in theſe the pulp about the wound is more exquiſite than the reſt. Mem. Acad. Scienc. ann. 1705. p. 347. ſeq.

CAPRIFICATION is alſo applied in a leſs proper ſenſe to the art of propagating the palm-tree. Act. Erudit. Lipſ. 1721. p. 84.

CAPRIFICUS, in *Botany*, a term by which ſome authors, particularly Pliny, call the leſſer SPURGE *or ſpalax*. Gen. Plmac. ind. 7.

CAPRIFOLIUM, the *honey-ſuckle*. See the article HONEYSUCKLE.

CAPRIMULGUS, in *Ornithology*. See *Goat-Sucker* and *Churn-Owl*.

CAPRIOLES, in *Horſemanſhip*, are leaps which a horſe makes in one and the ſame place, without advancing forwards; and that in ſuch manner that when he is in the air, at the height of his leap, he yerks or ſtrikes out with his hind-legs as near and even together, and as far out as he can ſtretch them; in which action, he claches, or makes a noiſe with them.

The word comes from *capreolus*, a diminutive of *capra*, *goat*.

The *capriole* is the moſt difficult of all the high raiſed airs: there are ſeveral kinds of *caprioles*; as a *right capriole*, *back capriole*, *ſide capriole*, *broken capriole*, the *equa capriole*, &c.

CAPRISCUS, the *goat-fiſh*. See GOAT-FISH.

CAPSARIUS, from *capſa*, *ſatchel*, in *Antiquity*, a ſervant who attended the Roman youth to ſchool, carrying a ſatchel with their books in it, ſometimes alſo called *librarius*.

CAPSARIUS was alſo an attendant at the baths, to whom perſons committed the keeping of their cloaths.

CAPSARIUS, from *capſa*, *cheſt*, among the Roman *Bankers*, was he who had the care of the money-chell, or coffer.

CAPSICUM, *Guinea*, or *Bonnet pepper*, in *Botany*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: the flower hath but one petal, which is wheel-ſhaped, and hath five ſmall ſtamina; it hath an oval germen,

germen, which afterward becomes a soft fruit or capsule, of an indeterminate figure, having two or more cells divided by intermediate partitions to which adhere many compressed kidney-shaped seeds.

Guinea-pepper is more used as a sauce, and in pickle, than in physic, being frequently put into fish-sauces, or into any thing that is flatulent and windy; for which purpose it is ordered divers ways, either green or ripe, pickled, or rubbed to powder with salt. A decoction of it with pennyroyal is commended by some to expel a dead child.

The skins boiled, and used as a gargle, are good against the tooth-ach; a cataplasm of the seeds, powdered and mixed with honey, applied to the throat, is good for the quinsy.

CAPSQUARES, in *Gunnery*, strong plates of iron, which come over the trunnions of a gun, and keep it in the carriage.

These are fastened by hinges to the prize-plate, that they may lift up and down. They form a part of an arch in the middle, to receive a third part of the thickness of the trunnions; for two-thirds of them are let into the carriage, and the other end is fastened by two iron wedges, which are called the *forelocks* and *key*.

CAPSTAN, a large massy column, shaped like a truncated cone, and placed perpendicularly on the deck of a ship, and turned by levers, or bars, which pass through holes pierced in its upper extremity, serving by means of a cable which winds round the barrel, to draw up burdens fastened to the end of the cable. See *Tab.* III. *Mechanics*, *fig.* 70.

The word is also written *capstand*, *capstern*, and even *capstow*. It is formed from the French *cabestan*, which signifies the same.

The power of the *capstan* is reducible to that of the AXIS *in peritrochio*.

De Camus considers the *capstan* as a perpetual LEVER.

By the *capstan* vessels are drawn ashore, and hoisted up to be refitted; anchors weighed, and sails hoisted, &c.

There are commonly two *capstans* in a ship of war; the *main-capstan* placed behind the main-mast, standing on the first deck, and reaching four or five feet above the second: this is also called *double capstan*, because it has two drum-heads, and serves two decks for drawing of anchors; and because its force may be doubled by applying hands on each deck. It has bars, whelps, &c. for turning and stopping it. See *Tab. Ship. fig.* 2. *n. n.* 32. or *Tab.* III. *Mechanics*, *fig.* 71. And the *fore-capstan*, or *little-capstan*: this stands on the second deck, between the main-mast and the mizen: its use is, chiefly, to heave upon the fore-rope, or to heave upon the viol, to hold on by when the anchor is weighed; and on other occasions where a less force is required, than to weigh the anchors, &c. See *n.* 33, or *fig.* 70. *Tab.* III. *Mech.*

The French call that an *English capstan* where there are only half-bars used; and which, for that reason, is only half perforated: this is thicker than the others.

There is also a *flying capstan*, which may be moved from place to place.

The parts of a *capstan* are, the foot *a*, which is the lowest part; the spindle *f*, the smallest part of which turns round in an iron socket, called the saucer; the whelps, *b*, a sort of brackets let into the body of the *capstan* close under the bars, and reaching downwards from the lower part of the drum-head to the deck; the barrel A, the main body of the whole; the *drum-head c*, which is a broad cylindric piece of wood fixed above the barrel and whelps, in which are the holes for the bars to be put into; the bars, which are small pieces of timber by which the men heave; the pins, as *e*, which are little bolts of iron, thrust perpendicularly through the holes of the drum-head, and through a correspondent hole in the end of the bar, made to receive them when the bars are fixed; the pawls, which are pieces of iron bolted to one end of the beams of the deck, close to the body of the *capstan*, but so as that it have liberty to turn about every way; and against them do the whelps of the *capstan* bear; so as that by them the *capstan* may be stopped from turning back. There are also hanging pawls, as *g*, *g*. *fig.* 71. which reach from the deck above the drum-head immediately beneath it; and lastly, the swifter, which is a rope passed horizontally through holes in the outer ends of the bars and drawn tight, designed to keep the men steady whilst they work, and to afford room for a greater number to work at once.

The terms belonging to the use of the *capstan* are, *rig the capstan*, i. e. fix the bars in their respective holes; *heave the capstan*, i. e. go round with it heaving on the bars; *surge the capstan*; and *come up capstan*, that is, slacken the cable which you heave by; in a like sense they also say *launch the capstan*; *pawl out the capstan*, signifies, stop it from going back.

CAPSULA, or CAPSELLA, denotes a bag, pouch, or receptacle of divers kinds of things.

The word is a diminutive of the Latin *capsa*, literally signifying, a little box, or case; particularly a bag, or satchel, wherein boys carry their books, &c. to school.

CAPSULA, or CAPSULE, among *Botanists*, a species of *pericarpium* composed of dry elastic valves, which usually burst open at the point: this kind of PERICARPIUM sometimes contains only one cell or cavity, sometimes more; in the first case it is called *unilocular*; in the second, *bilocular*, *trilocular*, &c. according to the number of cells in it for the reception of seeds.

Those plants whose seeds are inclosed in *capsulæ*, are denominated *angiospermous*; and those whose seeds have no *capsulæ*, *gymnospermous*.

CAPSULA *communis*, or *of the Porta*, in *Anatomy*, is a membrane arising from the *peritonæum*; and including the trunk of the vena *porta* after its entrance into the liver, as a case, or cover; dividing itself into the same number of branches, and accompanying all, even in its smallest ramifications.

The same *capsula*, or membrane, likewise includes the *vasa biliaria*, and other vessels of the liver; whence it takes the name of *capsula communis*.

CAPSULA *cordis*, a membrane investing the heart; more usually called the *pericardium*.

CAPSULÆ *atrabiliariæ*, in *Anatomy*, called also *renes succenturiati*, and *glandulæ renales*, are two glands situate near the kidneys: called *atrabiliares*, from a black liquor found in their cavity; and *succenturiati* and *renales*, from their position. They are about the bigness of a nut *vomica*; their figures are somewhat various; in some bodies round, in others triangular, square, &c. The membrane wherewith they are covered is very thin; their cavity is pretty large for their bulk. Their use is very obscure; probably it is to secrete the black humour found in their cavity, which, being afterwards discharged by their duct into the emulgent, mixes with the blood; and serves, according to some, as a ferment; according to others, only to dilute its thickness: in a fœtus they are almost as big as the kidneys.

CAPSULA *of the crystalline*. See CRYSTALLINE.

CAPSULÆ *seminales*, are the same with VESICULÆ *seminales*.

CAPSULA, in *Chemistry*, is an earthen vessel, in form of a pan; wherein things are frequently placed, that are to undergo very violent operations of the fire.

CAPSULATE *plants*, CAPSULATÆ *plantæ*, are such as have a tetrapetalous regular flower, consisting of four difform petals in each flower, and which bear their seeds in short *capsulæ*: by which they are distinguished from the *siliquosæ*, which have their seed in long cases, or pods.

CAPTAIN, a military office, whereof there are various kinds and degrees, distinguished by their commands: as,

CAPTAIN *of a company*, or *troop*, is an inferior officer, who commands a company of foot, or troop of horse, under the colonel.

In the like sense, we say, a *captain* of dragoons, of grenadiers, of marines, of invalids, &c.

In the horse and foot *guards*, the *captains* are styled *colonels*; being usually persons of rank, and general officers of the army. In the colonel's company of a regiment, i. e. the first company, or that whereof he himself is *captain*, the commanding officer is called *captain-lieutenant*.

The duty of this officer is to be careful to keep his company full of able-bodied soldiers, to visit their tents and lodgings, to see what is wanting, pay them well, cause them to keep themselves neat and clean in their cloaths, and to keep their arms bright. He has power in his own company of making sergeants and corporals.

CAPTAIN, *second*, one whose command having been taken away, that is joined to another *captain*, to serve under him, and receive pay as a *captain* reformed.

Among the French, those are also *second captains*, who never had companies of their own.

CAPTAIN *en pied*, a *captain* kept in pay, that is not yet reformed.

The expression, though altogether French, occurs sometimes.

CAPTAIN-*lieutenant*, is he who commands a troop, or company in the name or place of some other person, who has the commission, with the title, honour, and pay thereof; but is dispossessed withal, on account of his quality, from performing the functions of his post.

Thus, the colonel, being usually likewise *captain* of the first company of his regiment, the company is commanded by his deputy, under the title of *captain-lieutenant*. So in England, France, &c. the king, prince, dauphin, &c. have usually the titles, dignities, &c. *of captains of the guards*, *gens d'armes*, &c. the real duty of which offices is performed by *captain-lieutenant*.

CAPTAIN, *reformed*, is one, who, upon a reduction of the forces, has his commission and company suppressed; yet is continued *captain*, either as second to another, or without any post or command at all.

CAPTAIN *of the guides*, an officer appointed for providing

guides

guides for the army. Of these he ought always to have a sufficient number with him, who know the country very well; that they may guide the army on a march, or go with convoys, parties, baggage, artillery, and detachments. To provide such the *captain* ought to have a party of horse to go to the adjacent villages, castles, or forts, to bring boors to his quarters, and keep them under a guard, till the army comes to another ground, where he may be provided with others. He ought to understand several languages, especially that of the country in which the army is.

CAPTAIN-*general* of an army, is the general or commander in chief.

CAPTAIN-*general of Great Britain* is the highest military post in our army.

In Holland the office of *captain-general* is usually joined with that of STADTHOLDER, and though, by the perpetual edict passed in 1667, the two offices were for ever disjoined, so that whoever was possessed of one, was rendered incapable of the other; this regulation lasted but five years.

CAPTAIN of *militia*, is he who commands a company of militia or trained-bands.

CAPTAIN-*bashaw*, signifies the Turkish high-admiral. See BASHAW.

He possesses the third office in the empire, and is invested with the same power at sea, that the vizir has on shore. Solyman II. instituted this office in favour of the famous Barbarossa; with absolute authority over the officers of marine and arsenal, whom he may punish, cashier, or put to death, as soon as he is without the Dardanelles. He commands in chief in all the maritime countries, cities, castles, &c. and at Constantinople is the first magistrate of police in the villages on the side of the Porte, and the canal of the Black Sea. The mark of his authority is a large Indian cane, which he carries in his hand, both in the arsenal and in the army.

The *captain-bashaw* enjoys two sorts of revenues; the one fixed, and the other casual. The first arises from a capitation of the islands of the Archipelago, and certain governments in Natolia and Gallipoli. The latter consists in the pay of the men who die during the campaigns; in a fifth of all prizes made by the beys in the provinces accruing from the labour of the slaves, whom he hires as rowers to the grand signior; and in the contributions he exacts in all places where he passes.

CAPTAIN *reis*, or CAPUDAN *reis*, an appellation given by the Turks to the grand pilot, answering to pilot royal among the French.

CAPTAIN *of a ship*, is a sea-officer, where we make two kinds; the one of a ship of war, the other of a trading vessel; though, in propriety, the title *captain* belongs only to the commanders of ships of war.

CAPTAIN *of a ship of war*, is the commanding officer of a ship, galley, fire ship, or the like.

The *captain of a man of war* is held equivalent to that of a colonel at land. The *captain* is accountable for the ship, if lost or taken by his misconduct; and his province extends to the military government, navigation, and equipment of the ship which he commands, and to the conduct of the inferior officers and men, which he is required to superintend and regulate.

In admiral ships, and all ships of the first rate, the French have two *captains*, two lieutenants, and two ensigns.

The pay of sea *captains*, in the English service, was formerly small, which defect was made up to them, by indulging them in many privileges not now allowed, as plundering of prizes, taking convoy money, and even carrying merchant goods, plate, &c. King James II. taking this last privilege away, in lieu thereof granted them an annual allowance of table monies, almost equal to their whole former pay. But this not taking place by reason of the abdication, king William III. in 1693, ordered the pay of the *captains* to be doubled, but the fund for this failing, at the peace of Ryswick, a new establishment was made in 1700, whereby nearly one third was retrenched from the sea-pay, and that of a first-rate fixed at 1*l.* of a second rate at 16*s.* and a third rate at 13*s.* 6*d.* of a fourth rate at 10*s.* of a fifth rate at 8*s.* of a sixth rate at 6*s.* per day.

CAPTAIN *of a merchant-ship*, is the master thereof; or he who has the command or direction of the ship, her crew, lading, &c. This officer is more usually called the *master*; especially in ordinary voyages.

On the Mediterranean he is called the *patron*, or *patroon*; and in long voyages, as the East Indies, South Sea, &c. the *captain*.

The proprietor of the vessel appoints the *captain*, or master; and the *captain* is to form the crew, and choose and hire the pilots, mates, seamen, &c. though when the proprietor and master reside on the same spot, this is usually done in concert with the proprietor.

CAPTAINS *of port*, in the French *Marine Affairs*, officers established in some considerable sea-ports where there are arsenals. To them belong the command of the guard of the place, the watching of the sea, and the care and custody of the vessels brought into port.

There are such *captains* at Toulon, Rochefort, Brest, Havre, Dunkirk, and Port Louis. They are to take care of mooring the king's ships, and oblige all to give the due salutes.

CAPTAINRY, *capitainerie*, in the French *Law*, denotes the government or command of a royal palace, and the lands dependent thereon.

The name is also applied to the office of *captains* of chases or woods. Such are the *capitainries* of Fontainbleau, the wood of Boulogne, &c.

CAPTION, in *Law*, is when a commission is executed, and the commissioners names subscribed to a certificate, declaring when and where such commission was executed. The *caption* usually commences with these words, *Virtute istius commissionis nos, &c. vi, Executio istius commissionis patet in quodam schedula annexata, &c. or, Capt. & exam. &c. &c. Capt. fuit hac recipr.*

The *caption*, and the executions of the commissions, must now be in English, by 4 Geo. II. cap. 26.

CAPTIVE, a SLAVE, or person taken by the enemy in war, or by a PIRATE or corsair.

CAPTIVUS, *captive*, among the Romans, differed from *debitor*, as the former were taken by force, whereas the latter surrendered themselves.

By the *Lex Cornelia*, a Roman citizen taken *captivus*, in case he returned, was reputed as having never been taken; if he died in captivity, he was reputed for dead the moment he was taken; in the former case he recovered all his right, and even the dominion over his children; in the latter his son became free from the time of his father's detention. Julius Inst. lib. 1. tit. 16. § 5. Formerly *captivus* in war became the slave of those who took them; and though slavery, such as obtained among the ancients, be now abolished, some shadow of it still subsists in respect of prisoners of war, who are reputed the property of their captors, and have no right to liberty, but by concession from them, or till their ransom is paid. Negro servants likewise, who are purchased when *captives*, continue in some degree the property of the masters who buy them; though the property consists rather in the perpetual service, than in the body or person of the captive. Black. Com. vol. ii. p. 402.

The Romans used their *captives* with great severity; their necks were exposed to the soldiers to be trampled on, and their persons afterwards sold by public auction.

Captives were frequently burnt in the funeral piles of the ancient warriors, as a sacrifice to the infernal Gods. See BURIAL.

Those of royal or noble blood had their heads shaven, and their hair sent to Rome, to serve as decorations in female toys, &c. They were led in triumph loaden with chains through Rome, in the emperor's train, at least as far as the foot of the Capitoline mount, for they were not permitted to ascend the sacred hill, but carried thence to prison. Those of the prime quality were honoured with golden chains on their hands as well as feet, and golden collars on their necks. If they made their escape, or killed themselves, to avoid the ignominy of being led in triumph, their images or effigies were frequently carried in their place.

CAPTIVITY is used, in *Scripture*, to denote the punishment inflicted by Providence on the Jews for their idolatry and wickedness. The principal *captivities*, if we except the Egyptian bondage, from which they were rescued by Moses, are the Assyrian and Babylonish. The Assyrian *captivity* was that of the ten tribes, begun in the reign of Pekah king of Israel, and completed by Shalmaneser 2 Kings, xv. 29. 2 Kings, xvii. 5, 6.

The greater part of the ten tribes were lost in this *captivity*, which put a period to the kingdom of Israel; though some of them returned with those of Judah and Benjamin, upon the decree of Cyrus, to their own land. The Babylonish *captivity* was that of the kingdom of Judah, or of the two tribes who adhered to the house of David. This was begun by Nebuchadnezzar, and completed by Nebuzaradan. 2 Chron. xxxvi. 6, 7. 2 Kings, xxv. 8. Jer. lii. 30. This lasted seventy years, and terminated in the famous decree of Cyrus, in the year before Christ 536, for restoring the Jews to their own land, and for rebuilding Jerusalem and the Temple. Ezra, i. 1. 3.

Some have computed these years from the fourth of Jehoiakim to the first issuing of Cyrus's decree. 2 Kings xxiv. 10, &c. 6th ch from the destruction of Jerusalem to the publication of Darius's decree for building the Temple, in the fourth year of his reign, Zechar. vii. 1; either of which computations will give seventy years for again, they may be computed from the twenty-third year of Nebuchadnezzar to the first Passover celebrated in the new

Temple, in the seventh year of Darius's reign. Prid. Conn. vol. i.

CAPTIVITY, *princes of the*, are heads or chiefs of the Jewish nation, appointed for the administration of justice among them, during their captivity both in the East and West, since the destruction of their temple by the Romans.

The prince of the *captivity* in the East, is said to have had the government of the Jews who dwelt at Babylon, in Chaldea, Assyria, and Persia. The prince of the *captivity* in the West, had the direction of those who lived in Judea, Egypt, Italy, and other parts of the Roman empire.

The former were called *rabbans*, and were supposed to have descended from David, in a direct line by the males; the latter called *rabbani*, only descended from David by the females.

The Jews, we are told by Philoteus, after the loss of their authority, still kept up the title, and for many ages had a person of the house of David residing about Babylon, who, under the name of the head of the *captivity*, was acknowledged and honoured as a prince among that people, and had some sort of jurisdiction, as far as was consistent with the subordination they were under, always vested in him, and sometimes even a ratification of it was obtained from the sovereigns of the country. Something of this pageantry is said to be still kept up; perhaps that they may be furnished with an answer to the Christians, when they urge the prophecy of Jacob against them; the Scripture they pretend being still preserved among them in the head of the *captivity*. See ÆCHMALOTARCHA.

CAPTURE, a prize, or prey; particularly that of a ship taken at sea.

Captures made at sea were formerly held to be the property of the captor after a possession of twenty-four hours; but the modern authorities require, that before the property can be changed, the goods must have been brought into port, and have continued a night *intra præsidium*, in a place of safe custody, so that all hope of recovering them was lost. Black. Com. vol. ii. p. 401. See PRIZE and PARAVERSA.

CAPTURE also denotes an arrest, or seizure of a criminal, *debtor*, &c. at land.

CAPUCHE. See COWL, and the next article.

CAPUCHINS, religious of the order of St. Francis, in its strictest observance.

The *Capuchins* are thus called, from *capuce* or *capuchon*, a *cowl*, or *cape*, wherewith they cover their heads; and which they added to the ordinary Franciscan habit.

They are clothed with brown or grey; are always barefooted; and never go in a coach, nor ever shave the head.

The *Capuchins* are a reform made from the order of Minors, commonly called *Cordeliers*, set on foot in the fifteenth century by Matthew de Baſi, a religious observant of the monastery of Montefalcone, who, being at Rome, said he was advertised several times from Heaven, to practise the rule of St. Francis to the letter. Upon this he made application to pope Clement in 1525, who gave him permission to retire into a solitude; and not only him, but as many others as would embrace the strict observance which same did accordingly. In 1528, they obtained the pope's bull. In 1529, the order was brought into complete form; Matthew was elected general, and the chapter made constitutions. In 1543, the right of preaching was taken from the *Capuchins* by the pope; but in 1545, it was restored to them again with honour. In 1556, there were seventeen general chapters in the order of *Capuchins*.

The *Capuchins* were at first restrained from spreading out of Italy; but Charles the IX. of France, writing to pope Gregory XIII. to demand some *Capuchins*, that pope, by a bull, dated in 1575, took off the prohibition, and granted them leave to settle any where. The cardinal of Lorraine built them a convent at Meudon, and Henry III. another at Paris, in the rue St. Honore. F. Zacharias de Boverio has written the annals of the *Capuchins* in Latin, in three volumes folio, from the year 1524 to 1643.

CAPUCHIN is also the name of a particular species of pigeon, in shape and make much like the Jacobine or Jack, but something larger than that; its beak also is longer, and it has a tolerable head of feathers on the back part of its head, but it has no cravat or chain down the throat as that species has. Its marks are the same with the Jacobine, and it seems to be no other than a bastard breed between that and a common pigeon.

CAPUCIATI, an appellation given to the followers of Wickliff in the fourteenth century, by reason they did not uncover themselves before the host, but kept on their *caput*, or cap used in those times. Spondanus speaks of the *capuciati*, under the year 1387.

CAPUCIATI is also the denomination of a faction which appeared in Auvergne in 1783, having at their head a carpenter named Durand; thus called because they wore the image of the Virgin in their white linen capuces, as the badge of their engagement.

CAPUCINE, in *Botany*, the name by which the French call the CARDAMINDUM, or *nasturtium Indicum*, a plant commonly kept in our gardens for the beauty of its flower, and its use in salads and pickles.

CAPUENA, in *Ichthyology*, the name of a fish caught in the American seas among the rocks, and about the shore, and esteemed a very delicate one for the table. It is of a long and round shape: its usual length is about five inches.

CAPUT. See HEAD.

CAPUT *baronia* the head of the BARONY, in *Scotch Customs*, denotes the ancient or chief seat, or castle of a nobleman, where he made his usual residence, and held his courts: sometimes also called *caput honoris*, or the head of the honour.

The *caput baronia* could not be settled in dowry; nor could it be divided among the daughters, in case there were no son to inherit; but was to descend entire to the eldest daughter, *exteris filiabus aliunde satisfactis*.

CAPUT *cerebelli*, in *Anatomy*, the name given by Douglas, and some others, to a muscle, described by Albinus under the name of the *intertransversi serviæ colli*, among some others of the same nature, which he distinguishes according to their situation into *priores* and *posteriores*; this being of the former number. Winslow calls it the TRANSVERSALIS *secundus anterior*.

CAPUT *cordis*, a name sometimes given to the upper and largest side of the HEART, otherwise called its BASIS.

CAPUT *draconis*, a denomination given by some to a fixed star of the first magnitude, in the head of the constellation DRACO, called the by the Arabs *Rastaben* and *Rastaban*. See NODE.

CAPUT *galinaginis*, or *gall-stalinum*, *cock's head*, is a kind of ferrum, or fringious border, at the extremities or aperitures of each of the *vasculæ seminales*, serving to prevent the seed coming from one side, from ruining upon, and so stopping the discharge of the other.

Some will have its use to be, to prevent the impulse of the seed from diluting the others of the *testes*, and so ouling out, except when assisted by the contractions of the surrounding parts; as in copulation; but this according to Dr. Drake, is rather the office of a distinct muscle placed at each orifice, and acting as a valve.—See *Tab. Anat. Spec. & Fig.* 8. *fig.* 1.

CAPUT *jejunii*, a name given to Ash-Wednesday, as being the first day of the Lent-fast.

CAPUT *lupinum*. An outlawed felon is anciently said to have *caput lupinum*, and might be knocked on the head like a wolf, because having renounced all law, he was to be dealt with as in a state of nature; but now the wilful killing of such a one is murder, unless in the endeavour to apprehend him.

CAPUT MEDUSÆ, a northern constellation included in that of PERSEUS.

CAPUT *mortuum*, in *Chemistry*, the *faces* remaining of any body, after all the volatile and humid parts, as the phlegm, spirit, salt, &c. have been extracted therefrom, by force of fire. As these *faces*, or *residua*, are very different, modern chemists specify them more particularly, by adding a term expressive of their qualities; as *earthy residuum*, *watery* or *saline residuum*, &c.

What remains after distillation is properly called *faces*. This, before it be *caput mortuum*, must likewise have pulled the *worst*, or open fire.

The *caput mortuum*, called also *terra damnata*, is found in form of a friable, porous matter, without taste or smell: it is ranked among the chemical elements, and supposed to constitute the dry, fixed, earthy, and solid part of all mixed bodies. As an element, it is more commonly expressed by the name *earth*.

It is what the chemists call a *passive element*, or *principle*; serving as the basis or support of the active ones.

The term is sometimes more immediately restrained to the remains of vitriol, after distillation; otherwise called *colcothar vitrioli*.

The *caput mortuum* is never pure, but there is still some active principle remaining in it, and particularly a fixed SALT.

Thus the *colcothar vitrioli*, exposed to the air, is reconverted into vitriol.

CAPUT *mortuum secundæ*, in *Anatomy*, a name given by Palfopius, and others, to a muscle called by Albinus *triventer cervicis*, and by some the *complexus*.

CAPUT *porcinum*, *swine's head*, a denomination given by the Romans to an order of BATTLE more frequently called *cuneus*.

CAPUT *purgii*, a barbarous term used by some physicians to denote medicines which cleanse the head, either in the way of sneezing, more frequently called *errhines*, or

by shewing in the way of salivation, called APOPHLEGMATIZANTS. See ERRHINA and STERNUTATIVE.

CAPUTIATI. See CAPUCIATI.

CAPYBARA, in *Zoology*, the name of an animal found in many parts of America, and somewhat approaching to the nature of the river-horse, but with so much of the general figure of the hog-kind, that Margrave, and some others, have called it the *porcus marinus*, or sea hog. It is of the size of a half-grown hog, measuring in length, from the head to the rump, about two feet; its belly is as prominent at that of a fat hog. It has no tail; its feet are wholly like those of the hog, but that the fore ones have four claws each, and the hinder ones only three. Its head is very thick, and proportionably too large for the body; its eyes are large and black, its ears small and round; the lower jaw is shorter than the upper, and each has two long crooked teeth that stand out a finger and a half from the jaw, and are buried two fingers in it; but these do not shew themselves outwardly when the mouth is shut. It feeds on vegetables, and its flesh is eaten by the Indians, but is not well tasted. Ray.

CAR. See CARR.

CARA, in *Botany*, a name given by the old Roman authors to a plant with large and efculent roots. We are told that the soldiers of Cæsar, in some of their marches, when distressed for provisions, made a sort of bread of the root of the *cara*. And we learn from Paulus Ægineta, and Dioscorides, that this plant was of the *pastinacha*, or parsnip kind. It was probably the *elaphoboscum*, or wild parsnip, which has roots long and thick, and of as good a taste as the garden parsnips, only that they are not so tender. It is supposed by some that our word carrot is derived from this *cara*.

CARABE, or KARABE, denotes yellow AMBER.

CARABINE, a small sort of fire-arm, shorter than a fusil, and carrying a BULLET of twenty in the pound; borne by the light horse, hanging at a belt over the left shoulder. The *carabine* is a kind of medium between the pistol and the musquet, and bears a near affinity to the harquebuss, only that its bore is smaller.

It was formerly made with a match-lock, but of late only with a flint lock.

The barrel is two feet and a half long, and is sometimes furrowed spirally within, which is said to add to the range of the piece.

CARABINEERS, a sort of light horse, carrying longer *carabines* than the rest; and used sometimes as foot, like the dragoons. The French have formed entire corps of these *carabineers*, chosen out of the whole cavalry, and better paid than the rest. There are but few of them in the English army.

CARABUS, in *Zoology*, the name of a genus of four-winged flies, belonging to the Linnæan order of *coleoptera*, whose *antennæ* are oblong, slender, and setaceous; the thorax is somewhat convex, marginated, of a cordated figure, and truncated in the hinder part.

CARACALLA, in *Antiquity*, a long garment, having a sort of capuchin, or hood a-top, and reaching to the heels; worn equally among the Romans by the men and the women, in the city and the camp.

Spartian and Xiphilin represent the emperor Caracalla as the inventor of this garment, and hence suppose the appellation *Caracalla* was first given him. Others, with more probability, make the *Caracalla* originally a Gallic habit, and only brought to Rome by the emperor above mentioned, who first enjoined the soldiery to wear it. The people called it *Antoninian*, from the same prince, who had borrowed the name of Antoninus.

The *Caracalla* was a sort of casock, or surtout. Salmasius, Scaliger, and after them Du-Cange, even take the name *Casiqua* to have been formed from that of *Caracalla* for *Caracalla*. This is certain from St. Jerom, that the *Caracalla*, with a retrenchment of the capuchin, became an ecclesiastical garment. It is described as made of several pieces cut and sewed together, and hanging down to the feet; but it is more than probable there were some made shorter, especially out of Rome, otherwise, we do not see how it could have fitted the soldiers purposes.

CARACALLA, in *Botany*. See *Kidney*-BEAN.

CARACARA, in *Ornithology*, the name of a Brasilian bird of the genus of the hawk, called by the Portuguese *gavicaon*. It is property of the sparrow-hawk kind, but of the size of a kite. They are great destroyers of the poultry. See *Tab. of Birds*, N° 4.

CARACOL, in the *Manage*, a motion which a cavalier makes half round; or a half-turn from left to right; changing hands; that his enemy may be uncertain on which side he intends to attack; whether in front or flank. The word comes from the Arabic *garagal*, and that from the Hebrew *ourac*, *involuere*: but we have it immediately from the Spanish, where *caracol* signifies properly a *snail*, and figuratively the evolution described above.

CARACOL is also the half-turn each horseman in an army makes after his discharge, to pass from the front of the squadron to the rear.

CARACOL is sometimes also used in *Architecture*, for a staircase in a helical, or spiral form.

CARACOLI, in *Commerce*, a factitious metal whereof the natives of the Caribbee islands make a kind of ornament, in form of a half-moon, which is called by the same name. The metal is brought from the *Terra Firma*; and the common opinion is, that it is composed of gold, silver, and copper; but the mixture is so perfect, that a metal results from the whole, which never rusts nor tarnishes, how long soever kept either in the sea, or the ground. The English and French goldsmiths have made frequent attempts to imitate it. Those who have succeeded best, use six parts of silver, three of purified copper, and one of gold. But the curious find all the imitations much inferior in beauty to the original metal of the savages.

M. Hauterive, procurator-general of Martinico, makes the *caracoli* to be compounded of gold only with a sort of copper found in the *Terra Firma* of America. F. Labat takes it for a native, or simple metal. The Americans also make rings, buckles, cane-heads, and the like, of *caracoli*. A. D. S. an. 1724. p. 26. It is there recommended as a remedy for the head-ach. Hist. 28.

CARACT, or CARAT, a denomination given to the weight which expresses the degree of goodness, fineness, and perfection, or imperfection of GOLD.

The word is also written *carrat*, *carrot*, *karrat*, and *karrot*. Its original is contested: but we choose to follow Kennet, who derives it from *carata*, a term which the author observes anciently denoted any weight, and came not till of later days to be appropriated to that which expresses the fineness of gold, and the gravity of diamonds. The mint-men fix the highest purity and perfection of gold at twenty-four *carats*; and the several degrees are estimated from the divisions hereof, which are called *grains*: but it is to be observed, that what care soever is taken in purifying gold, to clear it from drofs, it can never be brought to twenty-four *carats*; but still comes short, at least $\frac{1}{8}$ of a *carat*, or a grain: this grain they call a *sixteenth*; and this sixteenth they subdivide into two eighths; and each of those eighths into two fixteenths; on which calculation, they say, gold may be purified as far as the first fixteenth of the second eighth, but no further.

Gold of twenty-two *carats*, is that which has twenty-two parts of fine gold, and two of silver, or other metal; or that which, in refining, loses two parts in twenty-four of its weight. The goldsmiths generally work in gold of twenty-two *carats*; that being the standard gold of this kingdom. By the laws of France they are prohibited from working in gold below twenty-three *carats*. In England, the *carat* is divided into four grains; in Germany, into twelve parts; and in France, into thirty-two. The Chinese reckon by TOUCHES, a hundred of which correspond to our twenty-four *carats*.

Carat fine, as above, is the twenty-fourth part of the goodness of a piece of pure gold.

Carat price is the twenty fourth part of the value of an ounce or mark of gold.—They also sometimes say, the *carat weight*, which is the twenty-fourth part of the weight of the ounce or mark. Two troy grains make a *carat* grain.

CARAT is also the weight used in weighing diamonds, pearls, and precious stones; where it consists of four grains. In this sense, the word is by some supposed to be derived from *ceration*, a fruit which the Latins call *siliqua*, and we *carob bean*; each of which may weigh about four grains of wheat: whence the Latin *siqua* has also been used for a weight of four grains.

The *carat* by which jewellers estimate the weight of diamonds and pearls, is about $\frac{1}{103}$ of a troy ounce. Jeffreys on Diamonds.

Hence the *carat* is about $3\frac{1}{6}$ grains troy.

Carats are divided into halves, quarters, or grains; and further, into eighths, fixteenths, and thirty-two parts. Id. Ibid.

CARAGACH, in *Commerce*, a cotton that comes from Smyrna, by the way of Marseilles.

CARAGANA, in *Botany*. See *Bitter*-VETCH.

CARAGROUCH, a silver coin of the empire, weighing nine drams, which does not quite amount to a French crown, of three livres Tournois.

CARAGUATA, a Brasilian name by which some authors have called the common great aloe.

From an incision made in the shoots of this plant, there flows a great quantity of liquor, whereof the Brasilians make wine, vinegar, honey, and sugar.

CARAGUATA is also a sort of thistle which grows in Brasil, and in some other parts of America. The leaves of this plant being steeped in water, and afterward well washed and rubbed, afford a kind of flax very fine and strong, proper for several manufactures. The Americans make fishing nets of it.

CARAITES, a sect among the ancient Jews: whereof

there are still some subsisting in Poland, Russia, Constantinople, China, and other places of the Levant; whose distinguishing tenet and practice it is, to adhere closely to the words and letter of the Scripture, exclusive of allegories, traditions, and the like.

Leo of Modena, a rabbin of Venice, observes, that of all the heresies among that people, before the destruction of the temple, there is none now left but that of the *Caraim*, a name derived from *Mikra*, which signifies the pure text of the Bible; because of their keeping to the Pentateuch, observing it to the letter, and rejecting all its interpretations, paraphrases, and constitutions of the rabbins. Aben Ezra, and some other rabbins, treat the *Caraites*, as Sadducees; but Leo de Juda calls them, more accurately, Sadducees reformed; because they believe the immortality of the soul, paradise, hell, *resurrection*, &c. which the ancient Sadducees denied. He adds, however, that they were doubtless originally real Sadducees, and sprung from among them.

M. Simon, with more probability, supposes them to have risen hence: that the more knowing among the Jews opposing the dreams and reveries of the rabbins, and urging the pure texts of Scripture to refute their groundless traditions, for the name of *Caraim* given them, which signifies as much as the partizans of *Scripture*, it ex. pressed attached to the texts of Scripture. The other Jews give them the odious name *Sadducees*, from their agreement with those sectaries on the head of traditions.

Isaac Vossius, and Stanislaus, rank the *Caraites* among the Sabeans, Magi, Manichees, and Mussulmen, but by mistake: Wolfgang, Fabricius, &c. say, the Sadducees and Essens were called *Caraites*, in opposition to the Pharisees: others take them for the Doctors of the law so often mentioned in the Gospel: but these are still conjectures. Josephus and Philo make no mention of them; which shews them to be more modern than either of those authors. In all probability, this sect was not formed till after the collection of the second part of the Talmud, or the Gemara; perhaps not till after the compiling of the Mischna in the third century.—The *Caraites themselves* pretend to be the remains of the ten tribes led captive by Shalmaneser. Wolfius, from the Memoirs of Mardacheus, a *Caraite*, refers their origin to a massacre among the Jewish doctors, under Alexander Janneus, their king, about one hundred years before Christ: because Simeon, son of Schetach, and the queen's brother, making his escape into Egypt, there forged his pretended traditions; and, at his return to Jerusalem, published his visions; interpolating the law after his own fancy, and supporting his novelties on the notices which God, he said, had communicated by the mouth of Moses, whose depositary he was: he gained many followers; and was opposed by others, who maintained, that all which God had revealed to Moses was written. Hence the Jews became divided into two sects, the *Caraites* and *Traditionaries*: among the first, Juda, son of Tabbai, distinguished himself; among the latter, Hillel. Wolfius reckons not only the Sadducees, but also the Scribes, in the number of *Caraites*. But the address of the Pharisees prevailed against them all; and the number of *Caraites* decreased: Anan, indeed, in the eighth century, retrieved their credit a little; and rabbi Schalomon in the ninth. They succeeded pretty well till the fourteenth; but since that time they have been declining. The *Caraites* are but little known; their works coming only into very few hands, even among the greatest Hebraists. Buxtorf never saw more than one; Selden two; but Mr. Pelg had five, before he grew rich enough to speak of them with assurance. He asserts, that soon after the prophets had ceased, the Jews became divided on the subject of works, and supererogation; some maintained their necessity from tradition; whilst others, keeping close to the written law, set them aside; and it was from those last that *Caraitism* commenced. He adds, that after the return from the Babylonish captivity, the observation of the law being to be re-established, there were several practices found proper for that end; and these, once introduced, were looked upon as essential, and appointed by Moses; which was the original of Pharisaism; as a contrary party, contriving to keep close to the letter, founded *Caraitism*.

The modern *Caraites*, Leo of Modena observes, have their synagogues, and ceremonies; they pretend to be the sole proper Jews, or observers of the laws of Moses; calling the rest by the term *Rabbanim*, or *followers of the Rabbins*: these hate the *Caraites* mortally; refusing to ally, or even to converse with them, and treating them as *mamzerim*, or bastards; because of their rejecting the constitutions of the rabbins relating to marriage, reputations, purifications of women, &c. This aversion is so great, that if a *Caraite* would become a rabbinist, he would never be received by the other Jews.

The *Caraites*, however, do not absolutely reject all kind of traditions; but only such as do not appear well grounded. Selden, who is very express on this point, in his Uxor Hebraica, observes, that besides the mere text, they have certain interpretations, which they call *hereditary*, and which are proper traditions. Their theology only seems to differ from that of the other Jews, in that it is purer, and clearer of superstition: they give no credit to the explication of the Cabbalah, chimerical allegories, nor to any constitutions of the Talmud, but what are conformable to the Scripture, and may be drawn from it by just and necessary consequences.

Peringer observes of the *Caraites* in Lithuania, that they are very different both in aspect, language, and manners, from the rabbinists, wherewith that country abounds. Their manners tongue is the Turkish; and that they use in their schools and synagogues. In stature of many of the learned, who hold that they reject all but the Pentateuch.

Caleb, a *Caraite*, reduces the difference between them and the rabbinists to three points: 1. In that they deny the oral law to come from Moses, and reject the Cabbala. 2. In that they abhor the Talmud. 3. In that they observe the festis, as the rabbinists, &c. much more rigorously than the rabbins do. To this may be added, that they extend the degrees of affinity, wherein marriage is prohibited, almost to infinity.—See on this subject, Belandi Antiq. Hebraicæ, part. ii. cap. 9. & 12. Basnage de Sect. Karaeorum. Basnage's Hist. of the Jews, book ii. chaps. 8, 9.

CARAMANGCE, a dog which comes from China. The Tunquinese value it very much.

CARANDA, in the *Materia Medica*, a name used by some authors for the tamarind-tree.

CARANNA, a hard, brittle, resinous gum, brought from some parts of the West Indies, as Carthagena and New Spain; of an aromatic flavour; and sometimes used in medicine as a cephalic.

The trees from which it runs, are like the palm-tree. When it is fresh, it is white; but as it grows stale, it becomes greyish inclining to green, in which condition it is sent to Europe, where the white is seldom to be met with. It is brought in lumps wrapped up in leaves. To be of the best quality, it must be soft, of a pleasant aromatic smell, and as white as snow. As this gum is very dear, it is seldom sold unadulterated; and other sorts are often substituted in its stead, which have not the same properties. When applied to the head, it has an extraordinary virtue to relieve it from pain; which renders it highly valuable. It produces the same effects in the joints; and is so much esteemed in medicine, that it is become a proverb in pharmacy to say, Whatever the *tacamahaca* has not cured, the *caranna* will.

The Americans make a balm of it, which they pretend to be a sovereign remedy for the cure of wounds, and the hæmorrhoids or piles.

CARANTIA, in the *Materia Medica*, a name given by some authors to the CANNA, or *Indian Reed*, the sweet-pipe.

CARAPACE, the thick, solid, firm flesh, which covers the turtle or tortoise; and to which adhere those fine transparent shells, which are known under the name of tortoise-shell, of which snuff-boxes, and several sorts of inlaid work are made.

CARAPO, in *Ichthyology*, the name of a fish, of which there are two kinds caught in many parts of the lakes of America. The first has a long and thin body, of the shape of a knife-blade, the back being thick, the belly very thin and narrow; the tail is pointed; and the chief fin of the fish is a foot in length, and two fingers broad in the broadest part. The head is flat and pointed, and the lower jaw runs out a little farther than the upper; the mouth is very narrow, and the bottom jaw is furnished with very small and sharp teeth; the upper is toothless; its eyes are very small; and it is covered with little scales. It is of a brown colour, with a faint admixture of red, and the back and head are somewhat blackish; there runs a dusky line all along their sides in their middle, and under this the fish is speckled with black spots of the size of a seed of mustard.

The second kind no way differs from the first, but that it is much narrower in proportion to its length, and has no spots. They are both eatable. Margrave.

CARAPOPEBA, in *Zoology*, the name of a small species of lizard, common in the Brasils, and esteemed a poisonous animal. Its body is of a liver colour, and has several white spots. There are marks of white on the tail,

tail, variegated with some small quantity of yellow; the eyes are remarkably bright and vivid. Ray.

CARARA, a weight at Leghorn, and in other parts of Italy, used in the sale of wool and cod fish, equivalent to sixty pounds of that country.

CARASSIUS, in *Ichthyology*, the name of a genus of barbel-mouthed fishes of the carp or bream kind, of which there are three species. It is a small fresh-water fish, of about three, four, or five inches long, with a flatted body and a rising back; it resembles the bream indeed in shape very nearly, but is somewhat thicker: its colour is a pale yellow, and its belly of a deeper yellow, without any redness. The mouth is small and round; and the eyes small, and sunk in their orbit. See CRUCIAN, and CYPRINUS.

CARATH, in the *Materia Medica*, a name given by the Arabian writers to the SCAMMONY.

CARAT, CARRAT, or CARACT. See CERACT.

CARAVAN, or CARAVANE, in the East, a troop or company of travellers, merchants, and pilgrims, who for their greater security march in a body through the deserts, and other dangerous places, infested with Arabs and robbers.

The word comes from the Arabic *carauan*, or *carran*; and that from the Persian *kerden*, or *karden*, *conducere*, *a leader or duke*. Vide Perizil. Itin. Mund. ed. Hyde. p. 61.

There is a chief, or agi, who commands each *caravan*, and has under him a number of janizaries, or other forces, sufficient for their defence. The *caravans* encamp every night near wells, or rivulets known to the guides; and observe a discipline as regular as in war. They checke use camels for their vehicles, because of their enduring much fatigue, eating little, and passing three or four days without drinking.

The grand signior gives one fourth part of the revenue to Egypt on defray the expence of the *caravan* that goes yearly to Mecca, to visit Mahomet's tomb: the deputies, in this *caravan*, are from forty thousand to seventy thousand; accompanied with soldiers to protect them from the pillage of the Arabs, and followed with eight or nine thousand camels, laden with all necessary provisions for so long a passage across deserts.

Days journeys are distinguished in the East, into journeys of *horse-caravans*, and journeys of *camels*: those of horses are equal to two of camels.

There are four regular *caravans* which go yearly to Mecca; the first from Damascus, composed of the pilgrims from Europe and Asia; the second from Cairo, for the Mahometans of Barbary; the third from Zabith, a place near the mouth of the Red sea, where those of Arabia and India meet; the fourth from Babylon, where the Persians assemble. Most of the inland commerce in the East is carried on by *caravans*. The late czar, Peter the Great, established a trade between Russia and China by means of a *caravan*. M. Bougnon, geographer of the duke of Lorrain, has given a treatise of the *caravans* of merchants in India, wherein he shews of what they are composed; how many sorts there are; the several uses of the different sorts of animals in them; the price given for them; the officers and men appointed to conduct them, and the pay of each; with their manner of marching, halting, fighting, treating, &c.

In the horse *caravans*, to the number of eighty elephants, there are a thousand dromedaries, and at least two thousand horses, exclusive of four thousand travellers. Two men are required to lead each elephant; five to three dromedaries; and seven to twelve camels. Such a number of servants joined with the officers and passengers, the number whereof is not limited, renders the body very formidable; the passengers indeed are not obliged to fight, but in case they refuse, provision will scarce be allowed them afterwards even for their money.

As few of the Arab princes have any other subsistance than what they can get by pillage, they keep continually spies on foot, to give them intelligence of the departure and motion of a *caravan*, which they frequently attack with superior force: in case of refusal, they come to an accommodation; but if the *caravan* be beaten, it is absolutely plundered, and the whole guard made slaves; though more indulgence is shewed to strangers. The taking of a single *caravan* sometimes enriches a prince for ever.

The profits to be made in a *caravan*, during its march, are often incredible: Mr. Bougnon gives instances where, by repeated bargains and exchange, a person has made twenty thousand crowns out of a single gold watch, and thirty *lacs* of *ecus*.

Any decayer is at liberty to form a company, in order to make a *caravan*. He in whose name it is raised, is considered as the *caravan-bachi*, or chief of the *caravan*, unless he appoint some other in his place. If there be several merchants equally concerned, they elect a *caravan-bachi*; unto which they appoint officers to conduct the *caravan*, and decide all controversies which may arise during the journey.

There are five sorts of *caravans*, viz.

CARAVAN, *horse*, composed of elephants, dromedaries, camels, and horses.

CARAVAN, *mule*, in which there are but few elephants.

CARAVAN, *asinary*, that in which there are no elephants.

CARAVAN *of horses*, that in which there are neither camels but dromedaries but only horses.

CARAVANA, *fee*, are companies of merchant vessels, loaden with goods, and convoyed by ships of war.

CARAVAN is also an appellation given to the voyages, or campaign, which the knights of Malta are obliged to make at sea, against the Turks and Corsairs, in order to arrive at the commanderies and dignities of the order. They are thus called, because the knights have frequently joined the *caravan* going from Alexandria to Constantinople.

CARAVANIER, a person who leads the camels and other beasts of burden used in the countries of the East.

CARAVANSERA, a large public building, or inn, defigned to receive and lodge the *caravans*.

The word comes from the Arabic *carauan*, or Persian *karuan* or *caruan*, a *caravan*, and *serai*, *a large house*.

Of these *caravanseras*, or, as Chardin calls them, *caravanseras*, there are a great number throughout the East, erected out of the charity and magnificence of the princes, &c. of the several countries.

Those of Schiras and Cashan, in Persia, are said to have cost sixty thousand crowns each. They are open to people of all religions and countries, without any questions asked or any money required.

The *caravanseras* are usually large square buildings, with a spacious court in the middle thereof. They are encompassed with galleries and niches, under which are a kind of lumber-rooms, or elevation, some feet high, where travellers rest themselves, and make their lodgings as well as they can: their baggage, and the goods that carry them, being fastened to the foot of the banqueze. Over the gate, there is frequently a set of little chambers; which the *caravanseraglier* lets out at a very dear rate to such as have a mind to be alone.

Though the *caravanseras* serve in lieu of inns, yet there is this essential difference between them and our inns, that the traveller finds nothing at all in the *caravanseras*, neither for himself nor his cattle, but must carry all his provisions and necessaries with him. They are chiefly built in dry, barren, defert places; and are generally furnished with water from a great distance, and for a vast expence; there being no *caravanseras* without its well of water. There are several of them in cities; where they serve not only as inns, but as shops, warehouses, and even exchanges.

There are some *caravanseras* where most things may be had for money; and as the profits of these are considerable, the magistrates of cities, to whose jurisdiction they belong, take care to place them well: they have an inspector, who fixes the price of lodging without appeal. These are few cities in the East without their *caravanseras*; especially within the dominions of Turky, Persia, and the Great Mogul. Those of Constantinople, Ispahan, and Agra, the capitals of three empires, are distinguished for their magnificence and commodiousness.

In Turky, none but the grand signior's mother and sister, with the viziers and bashaws, who have been in three battles against Christians, are allowed to build a *caravanseras*.

CARAVANSERASKIER, the director, steward, or intendant of a *caravanseras*.

At Ispahan there are *caravanseras* in manner of halls or exchanges, where goods are laid up, and exposed to view; for which the *caravanseraskier* is accountable, in consideration of a certain fee.

CARAVELL, thus they call a small veffel on the coast of France, which goes to fish for herring on the banks. They are commonly from twenty-five to thirty tons burden. Those which are designed for the same fishery in the British channel, are called by the French *semaques*: their are from twelve to fifteen tons burden.

CARAUNA, in *Ichthyology*, the name of a small Brasilian fish, in many respects approaching to the garden kind. Its colour is a fine bright red, all over spotted with very small black spots.

CARAWAY, *Carum*, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it hath an umbellated flower, compofed of seven small umbels, which are formed on rays to the general umbel; neither of which have any involucrum: the flower hath five heart-shaped petals, and five hairy ftamina; the germen is situated under the flower, which becomes an oblong channelled fruit dividing into two parts, each having an oblong furrowed seed. There are two species.

The common *caraway*, whose seed is used both medicinally and in the kitchen, grows naturally in some of the rich meadows in Lincolnshire and Yorkshire, and is sometimes found in pastures near London. It is also cultivated in some places.

The seed of the *carui*, or *carawai*, is narrow, longish, furrowed on the back, and of a brisk aromatic taste.

It is one of the greater hot seeds, and is esteemed stomachic, and diuretic: it dispels wind and strengthens digestion, &c. The English and Germans make great use of it, particularly in biscuits, comfits, seed-cakes, and other foods and confections.

CARBASA *Carbasa*, a term used by many of the ancient writers to express pieces of cloth made of the *linum recens fusilium*, or asbestos stone, which being found plentifully about Carystium, was thence called by the name of the place. Pausanias calls it *linum Carpasium*, for the same sort of reason; Carpasia, a town in the island of Cyprus, being a place famous for affording large quantities of the stone in its neighbourhood.

CARBENSIS *aqua*, in the *Materia Medica*, the name of a mineral water of Germany, of which Hoffman from Peraderus has given the following account. All about the place of its origin, and along the canals through which it passes, it deposits an earthy and ferruginous matter, which concretes into a stony hardness. When any alcaline liquor, whether fixed or volatile, is added to these waters, they become turbid, and precipitate a whitish earthy matter to the bottom of the vessel; after the evaporation of the water they leave a *sal enixum*, and an alcaline earth: two quarts of them leave two scruples and ten grains of the earth, and twelve grains of the salt. If it be kept for any time in a glass, or earthen vessel, it deposits a sediment of a yellow ochreous earthy matter, and when immediately taken from the spring, it changes to a bluish brown colour, on being mixed with galls. It contains a very large portion of a subtile mineral spirit; for if a long necked vessel be filled half full with it, and the orifice stopped with the thumb, the whole, on a little shaking, sends up a froth to the top; and when the thumb is taken off, the water squirts out to several feet distance. It makes an effervescence on mixing oil of vitriol with it; but this falls but a very little time. From the whole, it seems to contain a large quantity of calcareous earth, and some small portion of ferruginous matter, whence it purges both by stool and urine, though mostly the latter way; the former operation which is pretty constant, is owing to this alcaline earth meeting with an acid in the *prima viæ*, and being by it changed into a bitter purging salt, of the nature of Glauber's.

CARBEQUI, or *ore of copper*, a coin which is current in the province of Georgia in Asia; particularly at Teffis, the capital.

CARBO *equaticus*. See CORMORANT.

CARBONADE, or CARBONADO, in *Cookery*, flesh, fowl, or the like, seasoned, and broiled on the coals.

CARBUNCLE, among the *Ancient Naturalists*, is a sort of stone, whereof Pliny and Theophrastus relate many fabulous wonders.

The name is formed of the Latin *carbunculus*, q. d. *a burning coal*. Pliny, treating of the *carbuncle*, distinguishes twelve sorts of it.

Many of the ancients, and some of the moderns after them, have supposed the *carbuncle* to be taken from the dragon's head: and we read of many cavaliers, who went to combat with dragons, on purpose to gain this invaluable jewel.—Vartoman affures us, that the king of Pegu uſed no other light in the night-time, but that of his *carbuncle*, which caſt a blaze like that of the ſun.

CARBUNCLE, among *Modern Lapidaries*, is a ſtone of the ruby kind, very rare, and of a rich, glowing, bloodred colour.

The diſtinguiſhing character of the *carbuncle* is, that it is a gem of great hardneſs, and of a deep red with an admixture of ſcarlet. It was known among the ancients by the name *anthrax*, which was uſed metaphorically to ſignify that this gem was in ſome lights of a fire colour, the proper ſignification of the word being a piece of lighted charcoal.

The *carbuncle* is uſually found pure and faultleſs, and is of the ſame degree of hardneſs with the ſapphire, being ſecond only to the diamond. It is ever found naturally of an angular figure, ſmaller at one end than at the other, and at that ſmall end tapering to a pointed pyramid, compoſed with the ſame number of planes with the column, which is ſix, and thoſe uſually very unequal. It is found adhering by its baſe to a heavy and hard ferruginous ſtone of the emery kind, and is always more finely coloured towards the point than in the baſe of the column.

Its uſual ſize is near a quarter of an inch in length, and two-thirds of that in diameter to its thickeſt part. It bears the force of fire unaltered, not parting with its colour by it, as does moſt of the gems; nay, it even will not be at all affected by fire, nor become in the leaſt degree paler. It is found only in the Eaſt Indies, ſo far as is yet known, and that but very rarely.

The diſtinctions between the ſeveral red gems are very nice, and their names in ſome degree arbitrary. Many authors have confounded the *carbuncle* with the ruby, and determined with Garcias, that every ruby which exceeded twenty-four carats in weight, was properly a *carbuncle*. This gem, however, is by all trials proved to be evidently the *carbuncle* of the ancients, and eſſentially different from the ruby in wanting the purpliſh tinge into which the colour of that gem goes off, as it is extremely evident in all the deep ones; this going off into a true ſcarlet, and for that reaſon giving the colour of a lighted charcoal in the *fun*, which renders the ruby, garnet, nor any other gem can do which has the blue or purple caſt.

The fineſt *carbuncles* are ſaid to be produced in the iſland of Ceylon, the king of which country is poſſeſſed of a *carbuncle* a palm broad, and three inches thick, of the brightneſs of fire.

Some include GRANATES and HYACINTHS under the claſs of *carbuncles*.

CARBUNCLE, in *Medicine*, is a malignant tumor, ariſing ſometimes on one part, and ſometimes on another; accompanied with a painful heat, mortification, livideſs, and at laſt a blackneſs of the part.

The Greeks call it ANTHRAX; the Latins *carbunculus*, ſometimes alſo *carbo*; and the French *charbon*; all importing *coal*; from the reſemblance of its ſcab to a coal of fire. It is ſometimes peſtilential, and ſometimes not. When it ariſes without puſtules, it is properly called *pruna*; when with, *ignis Perſicus*.

It uſually begins with one or more puſtules, under which is formed a putrid ulcer; ſometimes with a ſcab, without any puſtules: the ulcer being formed under the ſcab. Within the tumor is a kernel, very painful, ſometimes red, and ſometimes livid, or blackiſh.

The *carbuncle* is owing to a ſharp, cauſtic, malignant, ſaline humour, which gnaws and corrupts the part wherein it is diſcharged.

CARBUNCLE is alſo, in *Medicine*, ſometimes uſed for the *furunculus*, or BOIL.

This is more particularly called the *benign carbuncle*, by way of diſtinction from that which is of the *malignant* kind.

CARBUNCLE is alſo frequently uſed to denote a ſmall eruption, which coming on any part of the body, ſoon diſcharges its contents, and afterwards appears in form of a craſſy tubercle, of the ſize of a millet-ſeed, ſurrounded with a red fiery circle.

CARBUNCLE, *peſtilential*. This is an inflammation that ariſes in time of peſtilential contagion, with a veſicle or bliſter, almoſt like thoſe that are cauſed by burning; but this inflammation generally terminates in a mortification, and putrefies the adjacent parts down to the bone, all about becoming as black as a coal.

This kind of inflammation always breaks out very ſpeedily, ſometimes even in an hour or two, attended with the moſt intolerable heat and pain. On opening it, there is always diſcharged a darkiſh limpid or watery ſanies, and the fleſh underneath is of a black colour, the mortification having then already ſeized it, and ſpreading more and more by degrees; but in thoſe who recover, the mortification then ſtops, and the putrefied fleſh ſuppurates, and parts from the ſound.

The ſize and number of theſe inflammations in the ſame patient, are both very various and uncertain; there is no part of the body but what they may infect; and they are generally, if not always, accompanied by buboes.

The immediate cauſe of theſe is a violent inflammation, excited in the blood by a peſtilential venom; and the inflammation, from the nature of the caſe, is ever ſpeedy, and always followed by ſphacelation and corruption of the parts. What is remarkable, is, that the parts and juices do not ſuppurate into matter, as is uſual in other tumors, but whatever is internally corrupted, ſeparates and entirely falls off: for the inflamed parts ſuppurate at the margin of the inflammation, ſo that if the patient does not die ſuddenly, the ſphacelated parts are ſeparated, and naturally thrown off.

Carbuncles are always a worſe ſymptom than buboes in theſe caſes, eſpecially if the eruptions turn directly either livid or black; but if they are red firſt, and then gradually turn to a citron colour, the danger is leſs.

Thoſe *carbuncles* alſo which ariſe in the face, neck, breaſt, or arm-pits, are always accounted the worſt, and uſually kill the patient.

The chief buſineſs of internal medicines, in this caſe, is to keep the patient in a conſtant breathing ſweat; and the buſineſs to be aimed chiefly at in external applications, is to procure, as ſoon as poſſible, the ſeparation

of the sphacelated parts from the sound. Some, therefore, use scarification alone in the cure, and that with very good success; for, by making a great number of incisions in the corrupted parts, they let out the pestilential venom which corrupted the whole. Others on the same occasion use aloes, as a cataplasm, a mixture of two ounces of flour and half an ounce of vinegar, made with water or fermented malt into a proper form, and with an ounce of honey, and an ounce of powder of saffron; these ingredients are to be thoroughly mixed in, and the cataplasm to be applied warm, and renewed frequently, till the whole *carbuncle* separates and falls off from the sound parts; and this is a much better and safer method of exercising the *carbuncle*, than by cutting it out at once, by which operation some have been known to have been killed upon the spot. When the greatest part of the *carbuncle*, however, of its own accord separated from the sound parts, the part where it adheres may always be safely divided with the scalpel; and this, indeed, is absolutely necessary.

If an inflammation and luxuriant flesh grows internally in this case, either of itself, or from the exuberation of the *carbuncle* being made too soon, this must ever be necessarily entirely consumed by the application either of the *Egyptian* ointment, or of the following: take two spoonfuls of honey, the yolks of two eggs, and of burnt alum, gentian, and birthwort-root in powder, each an ounce; make the whole into an ointment.

If the inflammation in digesting the adjacent parts to a gangrene, it will be most proper to use the following application: take salt of wormwood, half an ounce; of the herb fendition, and of cider and chamomile flowers each a handful; and of river-water two pints and a half: when these have been well boiled and strained, mix with the liquor five ounces of camphorated spirit of wine, and two ounces of Venice treacle; and let this be applied hot to the parts, in sheets of double linen rags being well wetted in it, and repeated frequently till the violence of the inflammation abates.

When the mortified flesh of the *carbuncle* has separated itself from the sound part, it is necessary to cleanse the ulcer perfectly with digestive ointments, lest any of the matter remain there, and mix itself again by degrees with the blood; and this detersion of the ulcer is always to be continued till there remain no more symptoms of the pestilential infection in the patient; and after this the wound may be healed like other ulcers. Heister.

CARBUNCLE, *Carbunculus*, also denotes a sort of fossil matter found in Hesseria, formed of a hard earth of the same name, concealed in the rivers of the mountains, by the heat of the subterranean vapours.

Pliny and Varro speak of the *carbunculus*, as a peculiar kind of hot, dry, lean soil.

CARBUNCLY, in *Heraldry*, a charge, or bearing, consisting of eight rails, or spokes, four whereof make a common cross, and the other four a saltier. See *Fess*, *Pile*, *Saltier*, &c.

Some call these rails *lunets*, or *flowrs* because round, and studded with buttons, or pearls, like pilgrims staves; and frequently tipped, or terminated with flours-de-lis. Others blazon them, royal sceptres, placed in saltier, pale and fesse.

CARBUNCULATION, the blasting, or scorching of the new-sprouted buds of trees, or plants, either by excessive heat, or excessive cold.

It happens chiefly in the spring and autumnal seasons, when vegetables being covered with dewy vapours, a sudden cold comes on them, which, congealing those vapours, the nutritious juice of the plant is coagulated, and the texture of its fibres destroyed.

CARCAJOU, in *Zoology*, a species of quadruped in North America; small, but very strong and ravenous: see the description of it by M. Sarasin, in Hist. Acad. Sc. 1713. See GLUTTON.

CARCAPULI, in *Botany*, the Indian yellow orange of Malabar. This is a tall spreading tree; the trunk in most is compass, as two men can encircle with their arms. The leaves stand by pairs on the sprays, at the extremities of which appear yellowish and tetrapetalous flowers, which are void of smell, but of a pontik taste. The calyx consists of four pale concave leaves; and the fruit, which hangs by a pedicle an inch long, is big, round, and distinguished by eight or ten exuberances like ribs: with a small head at the top, fluted in like manner with small ribs. It is first green, then yellow, and when ripe, wrinkle; and has an acid sweetish sort of taste. The seeds are contained in the middle of the pulp; are oblong, flattish, and of a dark azure colour. This fruit, according to Acosta, as to figure and shape, is like a quince with the rind taken off, and equalling in the manner of grossous pats, but not separable, as in the quince; it is covered with a thin, light, and thinny rind. It is dried, and exported from Malabar to other countries.

It is commonly eaten, and the inhabitants commend it much for medicinal uses: but its most eminent for stopping a flux of the belly, of what kind soever, especially that occasioned by excessive vomiting.

CARCAPULI *Lentiginosus*, C. Bauhine confounds this with the preceding, but they differ in flower and fruit, though agreeing in other respects. The fruit bears a round, fulvescently gold-coloured fruit, as big as an apple; the latter produces a round sweet fruit, of the bignets of a cherry: the first is called by the natives simply *carapa*, the other *rana charada*. They both afford gum gutta, but the latter the best. But this gum gutta, says Dr. Syme, ought not be confounded with the common gum gutta, which, as Bontius states us, is collected from a plant which is near akin to the *Ficus Indica*, and is called by the Indians *Lenan Cambodia*, because it grows plentifully in the country of Cambodia.

CARCARIAS *canis*. See SHARK.

CARCASE, the corpse, or body of a dead animal. Thus, we say, the *carcases* of the soldiers lurked, &c. were seen long after wards on the field of battle.

The *carcase* of a fowl, capon, partridge, leveret, rabbit, &c. is what remains thereof, after the four members, or limbs, viz. the legs and wings, have been cut off.

CARCASE, in *Architecture*, is the shell, or ribs of a house; containing the partitions, doors, rafters, &c. made by the carpenter, &c. The *carcase* is otherwise called the FRAMING.

CARCASE, or CARCUSS, in *War*, a kind of bomb, either oblong, and oval, or circular; consisting of a shell, or case, furnished with irons, with holes: but more commonly of a coarse strong canvas, pitched over, and girt with iron hoops; filled with combustible matters, as hand-granadoes, casks of musquets, loaded pistols, and preparations of gunpowder, &c. Its use is to be thrown out of a mortar, to set houses on fire, and do other execution.

It has the name *carcase*, because the circles which join from one ring, or plate, to the other, seem to represent the ribs of a human *carcase*.

The oblong *carcases* are now disused, on account of the uncertainty of their flight: the round ones are composed of pitch, saltpetre, sulphur, and corned powder.

In lieu of the ancient *carcasses*, a new sort has been introduced made of iron bands, or hoops, which include a canvas bag, filled with combustible matter, hardly to be extinguished.

We have also a third sort of *carcasses*, of a late invention, for the sea-service, differing in nothing from a bomb, except in their being filled with a composition like the above mentioned, and having five holes all primed with powder and quick-match, which take fire from the flash of the mortar, and continuating it to the composition, cause it to burn vehemently from these holes.

CARCELES, in *Antiquity*, were the jails, or barriers of the circus, within which the horses were confined, till the signal was given by the magistrate for starting.

The word is Latin, supposed to be formed a *coercendo*, as they served as a restraint to the horses ready to run.

The number of *carceres* was twelve. In the early days of Rome they were made of wood, which Claudius afterwards changed for marble. They were kept shut with bars, fastened by ropes, which, the moment the signal was given, flew open all at once. Some think that only four were used at a time. Dict. in Claud cap. xxi. n. 6.

CARCINIUM *Oniscum*, a new genus of marine animal, discovered by M. Banks and Dr. Solander, in their passage to Madeira, which thrive in the water with colours that exceeded in variety and brightness any thing they had ever seen. The beautiful colouring and splendour of these animals were equal to those of an *iris*; and from their resemblance to that gem, they gave this denomination to the genus. One of them lived several hours in a glass of salt water, swimming about with great agility, and displaying at every motion a change of colours almost infinitely various. See DACTYL.

CARCINOMA, in *Medicine*, a tumour more usually called a CANCER.

The word comes from *καρκινος*, *cancer*, and *νομη*, *depasio*, *to feed upon*.

CARCINOMA is sometimes used to denote a disorder of the *tunica cornea* of the eye, wherein the little veins of the part appear turgid and livid.

CARCINOMATOUS, the same with CANCEROUS.

Scirrhi and strumæ, which are formed of the humours stopped by their viscidity, or coagulated by an acid, as also polypuses, wherein the vellicæ retain their order and distribution, are originally different from *carcinomatous* tumors, which, according to Gendron, arise from an indisposition of the glandulose vesicle. Yet, when the

structure of the vessels is once destroyed, the former degenerate into a hard insensible lump, capable of germination, so that they lose their former nature, and become cancerous. Phil. Trans. N° 260. p. 479.

CARD, in the *Woollen Manufactory*. See CARDING.

The word seems formed from the Latin *cardus (fullonum)* which denotes the fuller's teazle; a kind of thistle whose head is used to smooth and raise the nap of cloth, &c. Skin. Etym. Angl. in voc.

There are divers sorts of these *cards*, as *stock-cards*, *hand-cards*, *wool-cards*, *iron-cards*, &c.

Cards for wool in England, may not be imported, nor the wire taken out of old ones, to be put into new leather and boards, in order for sale, upon forfeiture thereof, or of the value, if not found: but may be amended for the proprietors own use, or for transportation only.

CARDAMOMY. See CARDING.

CARDAMUNDUM, in *Botany*. See CRESSES.

CARDAMINE, *lady's smock*, in *Botany*, a genus of the *tetradynamia siliquosa* class. The characters are these: the flower hath four oblong petals placed in form of a cross; it hath six stamina, four of which are the length of the empalement, the other two, which are opposite, being much longer; it hath a cylindrical germen, which afterwards turns to a long, compressed cylindrical pod, with two cells, opening in two valves which twist spirally, and cast out the seeds when ripe by their elasticity. Linnæus enumerates fifteen, and Miller ten species. Miller's Gard. Dict.

This plant is also known by the names of *cuckow-flower*, and *meadow-cresses*. It is a kind of NASTURTIUM, and is pungent and diuretic; but is not used either in composition, or common prescription. Dr. Baker recommends it to the trial of physicians as an antiscorbutic remedy, in the Medical Transact. vol. ii. p. 449.

CARDAMOMUM, or CARDAMON, medicinal seeds of the aromatic kind, contained in capsulæ or pods, brought from the East Indies; and used in the compositions of Venice treacle and many other medicines. Their pungency and aromatic smell are exalted by an essential oil. Neumann.

This seed is distinguished into three kinds, according to the several sizes of the pods, viz. *major*, *minus*, and *maximum*; or great, lesser, and greatest: but the taste, smell, colour, and form of the *grain*, is the same in all, being of a purple colour, angular, of a sharp biting taste, and a strong penetrating smell.—The last kind is also called *grana of paradise*; but the first excels the rest, both in smell, taste, and virtue: it is this that enters the composition of the theriaca.

The *cardamoms* warm and deterge: they strengthen the nobler parts, assist the mind, and help digestion, and are used in diseases of the breast, stomach, and womb.

CARDANES, in *Natural History*, the name of a small insect resembling a beetle, of a very sweet smell, and very soft to the touch. It is very swift in its motions, and is of a plaichild colour, having two short wings, which do not nearly reach to the tail; it is likewise remarkable for having the tail of the same shape with the head, so that, when it stands still, it looks as if it had two heads, one at each end.

CARDASS, a sort of card, proper for carding flocks of silk, to make coppadine of it. It is also the name which the French give to those flocks of silk.

CARMASSES, is also the name which in the cloth manufactories of Languedoc, they give to a sort of large card, which is used for carding the dyed wool, designed for making cloth of mixed colours.

CARDERS, in the *Woollen Manufactory*, are persons who prepare wool, &c. for spinning, &c. See CARDING and CLOTH.

Carders, spinners, weavers, fullers, shearmen, and dyers, not performing their duty in their occupations, shall yield to the party grieved, double damages, to be committed until payment. One justice to hear and determine complaints. Cowpers, combers, forters, spinners, or weavers, conveying away, embezzling, or detaining any wool or yarn, delivered by the clothier or any other person, shall give the party grieved such satisfaction as two justices, mayor, &c. shall think fit; if not able or willing to make satisfaction, for the first offence to be whipped, or set in the stocks in some market-town, or in any other town where the offence is committed: the second offence to incur the like, or such further punishment by whipping, &c. as justices shall think proper. Conviction by one witness on oath, or confession.

CARDIA, in *Natural History*, a genus of *shell-fish*, the shell of which is formed of two ovals, and resembles the figure of a heart: it casts; the valves are equal and globular. Of this genus are several species; under it are comprehended the cockles, ark-shells, &c. together with the *pectines inæquilii*, or scallops without ears. See HEART-*shell*.

CARDIACA. See MOTHER-*wort*.

CARDIACS, CARDIACA, in a general sense, comprehend all medicines beneficial to the heart; whether internally, or externally applied.

The word comes from καρδια, *cor*, the heart being reputed the immediate seat of their operation.

CARDIACS, in a more particular sense, denote medicines which raise the spirits, and give present strength and chearfulness. Their amount to the same with what are popularly called *cordials*.

Cardiacs are supposed to produce their effect, by putting the blood into a gentle fermentation, whereby the springs, before decayed, are repaired and invigorated; and the tone and elasticity of the fibres of the vessels restored: the consequence of which is a more easy and brisk circulation. See CORDIALS.

CARDIACUS *plexus*, in *Anatomy*, a plexus, or piece of network, formed of a ramification of the *par vagum*, or eighth pair of nerves.

CARDIALGIA, CARDIALGY, in *Medicine*, a violent sensation of heat, or acrimony, attended with a constrictory pain, felt towards the upper or left orifice of the stomach, though seemingly at the heart; sometimes accompanied with palpitations of the heart, fainting, and a propension to vomit: better known by the name of *cardiac passion* or HEART-*burn*.

The word is compounded of καρδια, which denotes either the *heart*, or the left orifice of the stomach, and αλγος *pain*.

It is otherwise called *cardi-gmus*; though some distinguish, reserving the latter to the severer degrees of this disorder, which rise to palpitations and fevers, and *cardialgia* to the slighter accesses of it.

Physicians divide this distemper into the idiopathic and sympathetic; the first, which is also called by some the *convulsiva nervosa*, takes its rise from crudities in the *primæ viæ*, and is often owing to worms; the other usually is owing to a suppression of the menstrual, or hæmorrhoidal discharges. These differ greatly in degree, the symptomatic being much the most violent, as the *ventriculus* and *vasa brevia* are brought into consent with it; but the most violent degree of the *cardialgia* is that which is attended with fainting: in this the whole mechanism is drawn into consent, and is affected with spasmodic contractions. Sometimes also in the idiopathic *cardialgia* there is a great apprehension of suffocation; this arises from the consent of the *diaphragm* and *pericardium*.

CARDIALGIA, *signs of it*. These are a sensation of pressure and tension about the pit of the stomach, a straitness and anxiety of the *præcordia*, and often there comes on a nausea, and sometimes actual vomiting. When there are worms in the case, water comes into the mouth in great quantities, and the mucous matter is left in the bottom of the jaws, as if a piece of something cold lay there. Heat and cold often return successively and suddenly on the person, and the complaint is always worse upon an empty stomach, and mitigates on taking a full meal; whenever the patient can belch also, it gives him considerable relief for the time; and finally, where the commotions of blood in the *vasa brevia* are in fault, there is usually a slight touch of a fever attending it.

CARDIALGIA, *persons subject to the*. These are principally valetudinary people, who have somewhat of the *primæ viæ*; sometimes hypochondriac persons have it to a very great degree, these people being usually troubled with flatulencies; women subject to hysteric complaints also, and such as have suppressions of the menses, often fall into it; and not uncommonly infants, in cases of worms. The cause of the complaint is either flatulency or a foulness of the stomach and intestines, which occasion a reciprocal laxation and stricture of the tone of the stomach and intestines, and other parts which are drawn into consent.

The occasional causes of it coming on, are costiveness and the retention of flatulencies; sudden cooling of the abdomen when the body is hot; coarse foods, and such as are hard of digestion; and the swallowing of the victuals in large quantities without chewing it: the change of a common coarse diet, into a finer, will sometimes occasion it: and sometimes the suppressing of a violent passion of anger, while eating. Tender constitutions are in general most subject to it.

CARDIALGIA, *prognostics in it*. This, in its simple state and first stages, is no very terrible complaint; but its long continuance often brings on habitual faintings, and sometimes there is danger of congestions of the blood, and inflammations. The symptomatic kind is more difficult of cure, as well as more violent than the idiopathic; for this often is but of short duration, whereas the other frequently becomes habitual, and brings on convulsions, especially in cases where hot medicines have been given in it, with intent to strengthen the tone of the stomach. There have

have also been instances where vomits given to hypochondriac persons have brought on delirium, and even absolute madness.

CARDIALGIA, *method of curing the.* In the idiopathic *cardialgia*, the peccant matter is to be prepared and corrected by resolvents, abstergents, and incrusting medicines, such as the *tartarus tartarisatus*, and vitriolated tartar; after this the acrid aromatics are to be given, among which common pepper is one of the very best: with this may be given the acrid roots, as those of pimpernel, arum, and the like; and with all these it will be very proper to drink at certain intervals wine under hot, and aromatised with the spices. Mustard seed is particularly recommended by some on this occasion; and, in many cases, the common absorbents serve in the place of correctors, by rendering the matter soft and pulpy.

After a few days taking these things, if there be no contra-indication to the case, it will be very proper to give a vomit; to which purgative two or three grains of tartar emetic, with some of the tartarised tartar, is a very proper medicine. Where there are worms in the case, after the bitter digestives have been given, such things are to follow as will destroy those animals, as *nitrum vitriolatum*, and the like; after these things, it will be very proper to give the *theriaca* every night in small doses, by way of anodyne; and after all this, the tone of the parts is to be strengthened by chalybeates, with the common bitters.

In cases of the symptomatic *cardialgia*, attended with fainting, the hot medicines prescribed in the last case are wholly to be abstained from; and in their place the temperating nitrous ones are to be taken, with a little cinnabar, and the digestive salts impregnated with a few drops of the essential oils of the spices. Medicines of this kind are always of singular service in cases of flatulence and constriction of the *precordia*, and disorders of a like kind, from whatever cause, and in either sex. In the intermediate days during a course of these, the patient is to take some purgatives of the gentler kind, and afterwards the common chalybeates and bitters for restoring the tone of the parts; and, finally, the best of all preservatives against a return of this complaint, are bleedings at the spring and autumnal seasons. Junker Consp. Med. p. 580. &c.

CARDINAL, a term serving to express the relation, or quality, of prime, principal, or most considerable.

The word is formed of the Latin *cardo, a hinge*; it being on these fundamental points, that all the rest of the same kind are supposed to turn.

Thus, justice, prudence, temperance, and fortitude, are called the four *cardinal virtues*, as being the basis of all the rest.

CARDINAL *flower*, in *Botany*, *Lobelia*, a genus of the *syngenesia monogamia* class. Its characters are these: the empalement of the flower is cut into five linear segments, the two upper being larger than the other. The flower is of one petal, with a long cylindrical tube, a little curved; and is divided at the brim into five segments, two of which compose the upper lip, and are smaller than the three lower which compose the under. It hath five awl-shaped stamina, terminated by oblong summits, which coalesce at the top in form of a cylinder, but open in five parts at their base; it has an acute germen, situated below the flower, supporting a cylindrical style, crowned by a hairy obtuse stigma. The germen afterward becomes an oval capsule, opening at the top, filled with small seeds.

This genus is the *rapuntium* of Tournefort.

CARDINAL *Points*, in *Cosmography*, are the four intersections of the horizon with the meridian, and the prime vertical circle. See POINT.

Of these, two, viz. the intersections of the horizon and meridian, are called *North* and *South*, with regard to the poles they are directed to.

To determine the places of these points, see MERIDIAN *line*.

The other two, viz. the intersections of the horizon, and first vertical, are called *East* and *West*.

The *cardinal points*, therefore, coincide with the four *cardinal* regions of the heavens; and are 90° distant from each other. The intermediate points are called COLLATERAL POINTS.

CARDINAL *Points of the Heavens*, or, *of a Nativity*, are the rising, and setting of the sun, the zenith, and nadir.

CARDINAL *Signs*, in *Astronomy*, are Aries, Libra, Cancer, and Capricorn. See SIGN.

CARDINAL *Winds*, are those that blow from the *cardinal* points.

CARDINAL *Numbers*, in *Grammar*, are the numbers one, two, three, &c. which are indeclinable; in opposition to the ordinal numbers, first, second, third, fourth, &c. See NUMBER.

CARDINAL, in *Ornithology*, a name given in Louisiana to a bird, from the shining red of its plumage and crapehit, &c. It keeps its nest all winter, in which it hores up provision during the summer, to the quantity sometimes of a Paris bushel, which is artfully deposited, and covered first with leaves, and then with small branches, &c. See Melanges D'Hist. Natur. tom. iv. p. 287.

CARDINAL is more particularly used for an ecclesiastic prince, one who has a voice, both active and passive, in the Roman conclave, at the election of a pope.

Some say, the *cardinals* were so called from the Latin *incardinare*, which signifies the adoption in any church made of a priest of a foreign church, driven thence by misfortune; and add, that the use of the word commenced at Rome and Ravenna; the revenues of the churches of which cities being very great, they became the common refuge of the unhappy priests of all other churches.

The *cardinals* compose the pope's council, or senate; in the Vatican is a constitution of pope John, which regulates the rights and titles of the *cardinals*; and which declares, that as the pope represents Moses, so the *cardinals* represent the seventy elders, who, under the pontifical authority, decide private and particular differences.

Cardinals, in their first institution, were only the principal priests, or incumbents of the parishes of Rome. In the primitive church, the chief priest of a parish, who immediately followed the bishop, was called *presbyter cardinalis*; to distinguish him from the other petty priests, who had no church, nor predecessor: the term was first applied to them in the year 1505, when Sylvester, bishop of Rome, in the year 500, ordained priests were alone allowed to baptize, and administer the eucharist. When the *cardinal* priests became bishops, their *cardinals* are became vacant; they being then supposed to be raised to a higher dignity.—Under pope Gregory, *cardinal* priests, and *cardinal* deacons, were only such priests or deacons, as had a church or chapel under their particular care: and this was the original use of the word. Leo IV. in the council of Rome, held in 853, calls them *presbyteros sui cardinis*; and their churches *parochias cardinales*.

The *cardinal* continued on this footing till the eleventh century: but as the grandeur and state of the bishops became then exceedingly augmented, he would have his council of *cardinals* make a better figure than the ancient priests had done. It is true, they still preserved their ancient title; but the thing expressed by it was no more. It was a good while, however, before they had the precedence over bishops, or got the election of the pope into their hands: but when they were once possessed of those privileges, they soon had the red hat and purple; and growing still in authority, they became at length superior to the bishops, by the sole quality of being *cardinals*.

Du-Cange observes, that originally there were three kinds of churches: the first or genuine churches were properly called *parishes*; the second, *oratories*, which were chapels joined to hospitals, and served by *monks*; the third were simple *oratories*, where private masses were said, and were discharged by local and resident chaplains. He adds, that to distinguish the principal, or parish churches from the chapels, and oratories, the name *cardinales* was given them. Accordingly, parish churches gave title to *cardinal* priests, and some chapels also, at length, gave the title of *cardinal deacons*.

Others observe, that the term *cardinal* was given not only to priests, but also to bishops and deacons who were attached to certain churches; to distinguish them from those who only served them *ex postmo*, and by commission. Titular churches, or benefices, were a kind of parishes, i. e. churches assigned each to a *cardinal* priest; with some fixed district depending on it, and a font for administering of baptism, in cases where the bishop himself could not administer it.—These *cardinals* were subordinate to the bishops; and accordingly in councils, particularly that held at Rome in 868, subscribed after them.

It was not, however, only at Rome, that priests bore this name; for we find there were *cardinal* priests in France: thus, the curate of the parish of St. John de Vignes is called in old charters, the *cardinal* priest of that parish.

The title of *cardinal* is also given to some bishops, *quatuor* bishops; e. g. to those of Mentz and Milan; the archbishop of Bourges is also, in ancient writings, called *cardinal*; and the church of Bourges a *cardinal* church. The abbot of Vendome calls himself *cardinalis natus*.

The *cardinals* are divided into three classes, or orders; containing six bishops, fifty priests, and fourteen deacons; making in all, seventy; which constitute what they call the *sacred college*. The *six* first bishops, who are, as it were, the pope's vicars, bear the titles of the bishopricks

bishoprics assigned to them, the rest take such titles as are given them: the number of *curiosi* bishops has been fixed; but that of *suburbani* priests and deacons, and consequently the sacred college itself, is always fluctuating. Till the year 1125, the college only consisted of fifty-two, or fifty-three: the council of Constance reduced them to twenty-four; but Sixtus IV. without any regard to that reduction, raised them again to fifty-three, and after that were again diminished.

According to Onuphrius, it was pope Pius IV. who first enacted, in 1562, that the pope should be chosen only by the senate of *cardinals*; whereas, till that time, the election was by all the clergy of Rome. Some say, the election of the pope rested in the *cardinals*, exclusive of the clergy, in the time of Alexander III. in 1160. Others go higher still, and say, that Nicholas II. having been elected at Sienna, in 1058, by the *cardinals* alone, occasioned the right of election to be taken from the clergy, and people of Rome; only leaving them that of confirming him by their consent; which was at length, however, taken from them. See his decree for this purpose, issued in the Roman council of 1059, in Harduin's Acts Conciliorum, tom. vi. pt. 1. p. 1165. Whence it appears, that the *cardinals* who had the right of suffrage in the election of his successors, were divided by this pontiff into *cardinal bishops* and *cardinal clerics*; meaning by the former the seven bishops who belonged to the city and territory of Rome; and by the latter, the *cardinal presbyters* or title-men of the twenty-eight Roman parishes, or principal churches. To these were added, in process of time, under Alexander III. and other pontiffs, new members, in order to appease the tumults occasioned by the edict of Nicholas II.

The *cardinals* began to wear the red hat at the council of Lyons in 1245. See CORDELIERS. The decree of pope Urban VIII. whereby it is appointed, that the *cardinals* be addressed under the title of *eminence*, is of the year 1630: till then, they were called *illustrissimi*.

See further concerning the origin and rights of *cardinals*, in Onuphrius, Duarenus, Ciaconius, and Aubery has given the General History of *Cardinals*, in five volumes, 4to.

CARDINAL has also been applied to secular officers.

Thus, the prime ministers in the court of the emperor Theodosius, are called *cardinales*. Cassiodorus, lib. vii. Variorum, 3. makes mention of the *cardinal* prince of the city of Rome; and in the list of officers of the duke of Bretagne, in 1274, we meet with one Raoul de Thorel, *cardinal* of Quillart, chancellor and keeper of the vicomte de Rohan; which shews it to have been an inferior quality.

CARDINALITIUS, in *Ornithology*, a name given by some to the *accentor cauda cuneata*, commonly called the Virginian NIGHTINGALE.

CARDING, in the *Manufactories*, a preparation of wool, cotton, hair, or flax, by passing it between the iron points, or teeth, of two instruments, called *cards*, to comb, disentangle, and range the hairs or fibres thereof; and to dispose it for spinning, &c.

Before the wool be *carded*, it is oiled, or greased with oil: whereof, one fourth of the weight of the wool is required, for wool destined for the woof of stuffs; and one eighth for that of the warp. See CLOTH.

CARDIOGMUS, is sometimes used for CARDIALGIA.

CARDIOGMUS, in a more restrained sense, denotes a peculiar species of CARDIALGIA, attended with an anxiety of the *præcordia*, and a painful heaviness, caused by a flatulent distension of the abdomen and stomach, which compresses the *diaphragm*.

CARDIOIDE, in *Geometry*, is thus formed; let the diameter AB (*Tab. Analysis, fig. 38.*) of the circle AMBA, revolve about the point A, and on AB produced let B *a*, MN, AN, &c. be always equal to AB; then will the point *a* describe a curve, which from its figure resembling a heart, is called *cardioide*.

From the construction it appears, that AN=BA+AM, and that NMAN is always double of the diameter AB, and is bisected by the circle in M.

This curve is algebraical, if AB=*a*, *a*E=*x*, EN=*y*, its equation will be,

$$y^4 - 6ay^3 + 12x^2y^2 - 6a^2y + a^2 + 12x^2y - 8a^3 + 3a^2x^2 = 0$$

For the method of drawing tangents, and other properties of this curve, see Phil. Trans. N° 461. sect. 8. See also Mem. Acad. Scienc. 1705, where M. Carré first proposed this curve.

CARDIOSPERMUM, in *Botany*, the name by which Linnæus calls that genus of plants named COLINGUA by Tournefort and other authors. See *Heart-Pea*.

CARDIOTE, in *Natural History*, the name of a stone mentioned by the old authors, and called also *cardiolus*. Pliny tells us, there were three kinds of it; the one black, in which there was the plain figure of a heart delineated in white; another green in that part where the heart was figured; and the third white all over, except that the heart is marked in black. We know of no such stones as these at present, unless they are to be sought for among the agates, the various and accidental counterfeits of the veins to which, representing sometimes a thousand singular figures, among which imagination may easily trace hearts, eyes, and the like. Our modern writers understand by this name a very different stone, more usually called BUCARDITES, from its resembling the heart of an ox.

Pliny describes a stone of this kind, found near Stoken Church, so exactly like the heart of a man, that the very trunks of the descending and ascending parts of the vena cava, with a part of the aorta, were represented in it in their due position. Nat. Hist. Oxf. chap. 5. § 154.

CARDIUM, in *Zoology*, a genus of worms in the Linnæan system, belonging to the order of *testacea*.

CARDO, in *Anatomy*, the second *vertebra* of the neck; so called, because the head turns upon it.

CARDONIUM, among *Ancient Physicians*, denotes wine medicated with herbs.

It is made by pouring must, or new wine on the herbs.

CARDOON, a species of wild ARTICHOKE.

CARLOPATIUM, in *Botany*, a name applied by some authors to the *carlina officinalis*.

CARDS, *Playing* CARDS, are little pieces of fine thin paste-board, whereon are printed divers points and figures; a certain number, or assemblage of which, serve for the performance of divers games: as basset, ombre, picquet, whist, &c. A full pack consists of fifty-two *cards*.

A pack is always wrapped up in a piece of paper, on which are printed the name, fign, dwelling place, &c. of the maker; with the lord of the stamp-office of England, signifying that the stamp-duty has been paid, and that there is a penalty of 10*l.* for every pack sold unlabelled.

Among sharpers, divers sorts of false or fraudulent *cards* have been contrived: as marked *cards*, bread *cards*, counter-band, middle-band, &c.

CARDS, *marked*, are those where the aces, kings, queens, and knaves, are marked on the corners of the backs with spots of different number and order, either with clear water, or water tinged with pale Indian ink, that those in the secret may distinguish them. Aces are marked with single spots on two corners opposite diagonally; kings with two spots at the same corners; knaves with the same number transformed, &c.

CARDS, *bread*, are those which are either longer or broader than the rest; chiefly used at whist and picquet.

The broad *cards* are usually for kings, queens, knaves, and aces; the long for the rest. Their design is to direct the cutting, to enable him in the secret to cut the *cards* disadvantageously to his adversary, and draw the person unacquainted with the fraud, to cut them favourably for the sharper. As the pack is placed either endways or sideways to him that is to cut, the long or broad *cards* naturally lead him to cut to them. Bread *cards* are sometimes made thus by the manufacturer; but in defect of these, sharpers pare all but the breast with a razor or pen-knife.

Corner-bend, denotes four *cards* turned down finely at one corner, to serve as a signal to cut by.

Middle-bend, or *Keep-handridge*, is where the *cards* are bent two different ways, which enables an opening or arch in the middle, to direct likewise the cutting.

The inventor of *cards* is not known, nor even the age when they first appeared; but by the manner they were always made of, viz. leaves of paper, they should seem to be much posterior to the time of Charlemagne. They were probably invented about the year 1390, to divert Charles VI. then king of France, who was fallen into a melancholy disposition. By the four suits or colours, the inventor ought design to represent the four states or classes of men in the kingdom. The *coeurs* or hearts denote the *gens de chœur*, choir-men or ecclesiastics. The nobility or prime military part of the kingdom are represented by the ends or points of leaves of pikes, which, through ignorance of the meaning of the figure, we have called spades. By diamonds are designed the order of citizens, merchants, and tradesmen. The trefoil leaf, or clover grass, corruptly called club, alludes to the husbandmen and peasants. The four kings are David, Alexander, Cæsar, and Charles; representing the four celebrated monarchies of the Jews, Greeks, Romans, and

and Franks under Charlemagne. The queens repreſent Argine (for Regina, queen by deſcent), Ether, Judith, and Pallas; which are tropical of birth, piety, fortitude, and wiſdom. The knaves denoted the ſervants to the knights: others apprehend that the knights themſelves were denoted by theſe *cards*, becauſe Hogier and Lahire, two names of the French *cards*, were famous knights at the time when they were ſuppoſed to be inacted.

The method of making playing *cards* ſeem to have given the firſt hint to the invention of printing, as appears from the firſt ſpecimens of printing at Haerlem, and thoſe in the Bodleian library.

CARDS, *making of*. The cutting of the moulds, or blocks, for theſe *cards*, is preciſely the ſame as that uſed for the firſt books; and a ſheet of wet or moiſt paper is laid on the form or block, which is firſt lightly brathed over with an ink, made of lamp-black mixed with ſtarch and water; and then rubbed off with a round lift, in the hand. The *court-cards* are colour by help of ſeveral patterns, called *ſtencils*, conſiſting of papers cut through with a pen-knife; where the apertures, or inciſions of which, the ſeveral colours as red, &c. are ſeverally applied (for at the firſt printing, the *card* has only a mere outline.) Theſe patterns are pointed with oil coloure, to keep them from wearing out by the bruſhes: being laid on the caſte-board, they ſtrike a bruſh full of colour looſe over the pattern; which leaving the colour within the apertures, forms the face or figure of the *card*.

This, very probably, was the way of the firſt printing at Haerlem; as might have been diſcovered long ago, if it had been conſidered, that the great letters in our old manuſcripts of nine hundred years ago, are apparently done by the illuminers, after this method of *card-making*.

Cards and dice may, upon ſufficient ſecurity, be exported without paying the ſtamp-duty. 10 Ann. c. 19. § 170. 5 Geo. I. c. 10. § 11.

Playing *cards* may not be imported. 10 Ann. c. 19. § 165. See STAMPS.

CARDS, in *Manufacture*. See CARD.

CARDUELIS, in *Ornithology*, the name of a very well known bird, called in Engliſh the GOLD-*finch*, and by the old naturaliſts the *chrysomitris* and *acanthis*: the laſt from its yellow head, and the laſt from its feeding among thiſtles.

CARDUS, in *Botany*, a name given by the Romans to the plants called *cactus* by the Greeks. Theſe words were ſometimes uſed by both as the general names of the thiſtle kind, and in that ſenſe the word *cardus* and *cardinus* are the ſame; but ſome of the Roman authors have uſed this as the Greeks did *cactus*, in a more limited ſenſe, expreſſing by it only the artichoke. This they knew both in its wild ſtate, and in its garden ſtate; the wild plant was very prickly, and the garden one much larger in all its parts, and ſmooth.

Columella is almoſt the only author among the ancients who ſeems to make the *cactus* and *cinara* different plants; but his diſtinction turning only upon the one being prickly, the other not, it comes to no more than that *cactus* was the name of the plant in its wild ſtate, and *cinara* in its garden ſtate.

CARDUUS, in *Natural Hiſtory* and *Botany*, a name common to divers ſpecies of plants, in Engliſh, called THISTLES.

CARDUUS *Benedictus*. *See Bleſſed* THISTLE.

CARDUUS *Pollinarius*, or *Fuller's weed*. See TEASEL.

CAREENING, a term, in the *Sea Language*, uſed for the laying a veſſel on one ſide, to caulk, ſtop up leaks, and refit or trim the other ſide.

The word comes from *carina*, which ſignifies the ſame, formed of the Latin *carina, the keel of a ſhip*.

A ſhip is ſaid to be brought to a *careen*, when the greateſt part of her lading, &c. being taken out, and a pontoon, or another veſſel lower than herſelf, laid by her ſide, ſhe is haled down to it as low as occaſion requires, and there kept, by the weight of ballaſt, ordnance, &c. as well as by ropes, leſt it ſhould ſtrain her maſts too much. This is done with deſign to trim her ſides, or bottom, to caulk her ſeams, or to mend any fault ſhe has under water. Hence, when a ſhip lies on one ſide in ſailing, ſhe is ſaid to *ſail on the careen*.

Ships of war are generally *careened* every three years.

The *half careen* is when they can only *careen* half the ſhip; not being able to reach ſo low as the bottom of the keel.

CAREER, or CARIER, in the *Manege*, a place incloſed with a barrier, wherein they run the rings.

The word is alſo uſed for the race, or courſe of the horſe itſelf, provided it does not exceed two hundred paces.

In the ancient circus, the *career* was the ſpace which the horſe, or quadriga, were to run at full ſpeed, to gain the prize. See CIRCUS.

CAREEN, in *Falconry*, is a flight or tour of the bird, about one hundred and twenty yards.

If it mounts more, it is called a *double-career*; if leſs, a *ſemi-career*.

CARELIA, in *Botany*, a name given by ſome to the *baſtard hemp* AGRIMONY, or AGRIMONY.

CARELOPULI, in *Botany*, a name given by ſome authors to the tree which affords us the gamboge, the *gutta gamba*, and *gambogia* of the ſhops.

CARET, in *Grammar*, a character in this form (^) denoting that there is ſomething inſerted or interlined, which ſhould regularly have come in where the character is placed.

CARETTA, in *Zoology*. See TORTOISE.

CARETTI, in *Botany*, a name by which many authors have called the *acacia germina*, or the tree which produces the maſtich, or bezoar nuts.

CAREX, in *Botany*, a word uſed by Linnæus as the name of a genus of plants, of the *monœcia triandria* claſs; comprehending thoſe called *cyperoides* by Tournefort and others, and the *gramoides* of other authors. The characters of the genus are theſe: it produces male and female flowers, in moſt ſpecies, on the ſame plant; the male flowers are diſpoſed into a long ſpike: the cup is an oblong and imbricated ornament, conſiſting of acute, hollow, and lanceolated ſcales, each containing one flower; there is no corolla: the ſtamina are three erect, ſetaceous filaments, of the length of the cup; the antheræ are oblong, and not peniculous, but erect.

In the female flowers the cup is the ſame as in the male; there are no petals, but there is an inflated oblong nectarium: the germen is three-square, and is placed within the nectarium: the ſtyle is very ſhort; the ſtigmata are ſometimes three, ſometimes but two; they are long, crooked, pointed, and hairy. The nectarium grows larger when the flower is fallen, and contains the ſeed: it is the ſeed in ſingle, of an acute, and ſomewhat oval form, three-cornered, and has one of its angles uſually much ſmaller than the others. The *ſcapoides* of authors uſually have the male and female flowers on the ſame plant. There are thirty-eight ſpecies.

CARGADORS, a name given by the Dutch to a kind of brokers who make it their buſineſs to find freight for ſhips which want loading, and veſſels for merchants or paſſengers who want conveyance to ſuch or ſuch a place.

CARGO, the lading or FREIGHT of a ſhip.

CARGO, *ſimples*, is that which contains ſomething of every ſort neceſſary to furniſh the tradeſmen of the place it is ſent to, with parcels fit to fill their ſhops, and invite their cuſtomers.

Officers and ſailors on board a veſſel are allowed to carry a ſmall *cargo or parcel*, not exceeding a certain bulk or weight, for their own account, without paying any freight.

CARGO is ſometimes alſo uſed for an INVOICE of the goods where with a ſhip is laden.

CARGO alſo denotes a weight uſed in Spain, and Turky, amounting to about three hundred Engliſh pounds.

CARIA, in *Natural Hiſtory*, a name given by authors to a very miſchievous ſpecies of ant, common in ſome parts of the Eaſt Indies. This creature is larger than our ant, and is the common food of a great many other animals, as the ſquirrels, ſerpents, lizards, and a great many birds. In order to defend itſelf from ſo many enemies it enters into large communities, which together erect great hills of earth, of five or ſix feet high. The fields in ſome places are full of theſe, and it is in vain to attempt beating them down, ſince they would be immediately made up again; the creature builds them with firm and tough clay, which it wets as it lies: and the wall or outer caſe is built ſo thick and firm, that ſcarce any rain can hurt it.

There is another ſpecies of the *caria* much ſmaller than this, which builds in the peoples houſes, not in the fields. In the centre of the habitation of this creature there is uſually found a fort of comb, or collection of cells, reſembling a bees-comb. Obſervations for l'Aſie, p. 380.

CARIAMA, in *Ornithology*, the name of a Braſilian bird of the size of the heron, and, like that bird, frequenting watery places. It makes a loud noiſe like the turky, and is a very valuable and well-taſted fowl. Marcgrave's Hiſt. of Brazil. This is a ſpecies of the palamedea. See SCREAMER.

CARIATIDES, or CARIATES, in *Architecture*. See CARYATIDES.

CARIBOU, in *Zoology*, an American animal of the stag kind.

CARICA, in *Botany*. See PAPAW.

CARICA, among *Ancient Naturaliſts*, denotes a kind of fig peculiar to Syria; ſometimes alſo the dried fig. It is alſo uſed in ancient writers to denote the fruit of the palm tree, otherwiſe called *carnata*, which was ſent annually by clients, on New Year's day, as a preſent or acknowledgment to their patrons.

CARICATURA, in *Painting*, a loading, or exaggerating

of the defects of an object represented, with a concealment of the beauties or advantages of it; yet so as ſtill to preſerve a reſemblance. Vide Spectat. N° 537.

The word is Italian, formed of *carico*, *charge*, *burden*, or the like.

CARICOUS, *or* CARYOUS *tumor*, a ſwelling reſembling the figure of a fig; ſuch as are frequently found in the piles.

The word comes from *carica*, a kind of fig; which is from *Caria*, a country where they are frequent, and from whence they are ſometimes brought.

Quincy repreſents the *carinous* tumor as the ſame with what Hippocrates called *carycoides*, which ſeems to be a miſtake; *sycoides*, in Hippocrates, denoting an excrement of a bloody colour, reſembling a kind of condiment or confection, anciently called *caryon*, made of blood, and invented by the Lydians.

CARICUM, in *Pharmacy*, a cathartic medicine, which deterges ſordid ulcers, and eats away proud fleſh. Hippocr. de Ulceribus. It is prepared of black hellebore, ſandarach, *ſquama æris*, waſhed lead, ſulphur, orpiment, and cantharides: theſe being mixed, are made up with oil of cedar into a liquid medicine. Sometimes there is added arum, in decoction or juice, or the powder of it mixed with honey. The dry medicine, or powder, for the ſame purpoſe, is prepared of the ſame ingredients, omitting the oil of cedar, and the honey: it is alſo made of black hellebore, and ſandarach only.

CARIES, in *Medicine*, a ſolution of continuity in a bone, attended with a waſte of its ſubſtance, occaſioned by ſome acrimonious matter corroding it.

The *caries* is a kind of rottenneſs, or putrefaction, peculiar to the hard, or bony parts of the body; anſwering to a gangrene or mortification in the ſoft, or fleſhy part; or, according to others, to an abſceſs, or ulcer.

Caries ariſe either from a conſtant afflux of vicious humours, or from their extreme acrimony; or from a bruiſe, compound fracture, luxation, ulcer, venereal diſorders, corroſive medicines, or from their being ſtripped or laid bare of their fleſh, and long expoſed to the air, &c. This diſorder, if not quickly remedied, ſpreads and communicates itſelf to the neighbouring parts of the bone, and makes the ſame progreſs that ulcers do in the ſofter parts.

There are ſeveral ſpecies of *caries* in the bones. The learned Mr. Monro mentions ſeven which he has ſeen. Theſe he diſtinguiſhes by the appellations of, 1. The dry or gangrenous *caries*. 2. The worm-eaten *caries*, or ulcer of the bones. 3. The carnous *caries*, or ulcer of the bones with hyperſarcoſis. 4. The phagedenic *caries*, with hyperſarcoſis. 5. The ſcrophulous *caries*. 6. The ſcirrho-cancrous *caries*. 7. The ſpreading cancrous *caries*.

He enters into a curious detail of the ſeveral natures of theſe kinds of *caries*, and of the proper management. A ſpeedy and ſafe ſeparation of all the corrupted part is the principal indication to be purſued. See Medic. Eſſ. Edinb. vol. v. art. 24. Abridg. vol. ii. p. 150, ſeq. where he ſhews the analogy between theſe diſeaſes of the bones to thoſe of other parts of the body. This is no ſurpriſing, ſince bones have the ſame general texture, and are only diſtinguiſhed from other parts by a greater ſolidity or firmneſs.

A *caries* differs from a SPINA *ventoſa*, in that the latter begins within the ſubſtance of the bone, and proceeds outward; whereas the former begins on the ſurface, and proceeds inward.

Caries are divided into *idiopathic* and *ſymptomatic*.

CARIES, *idiopathic*, or *ſimple*, is an erоſion of a bone, happening without any other diſeaſe, commonly owing to ſome external cauſe, rarely to an internal one, as the afflux of humours.

CARIES, *ſymptomatic*, that which oftenеſt happens to perſons deeply affected with ſome other diſorder, eſpecially the ſcurvy, or venereal diſeaſe.

Caries may alſo be divided in reſpect of their degree.

Thoſe in the firſt degree diſcover a yellow faintneſs on the ſurface of the bone; in the ſecond a blackneſs; in the third a roughneſs, and inequality of the bone, cauſed by a multitude of foramina or little holes; in the fourth the corruption penetrates deeper through the whole ſubſtance, which it ſeems as it were to diſſolve.

A *caries* is properly a diſorder, in which the bone, from whatever cauſe, is deprived of its periоſteum, and having loſt its natural heat and colour, becomes fatty, yellow, brown, and at length black; this is the firſt and ſlighteſt degree of the diſorder, and is what, according to Celſus, the ancients called *ſcutulum*, and the *nigrities oſſium*. But the greater degree of this diſorder is where the bone is eroded and eaten, and becomes uneven by reaſon of the number of ſmall holes, of which it is full, when it diſcharges a ſtinking ſanies, whoſe acrimony ſoftens, relaxes, and deſtroys the fleſhy parts that grow round it. This is a true *caries*, or ulcer of the bone, and every bone in the body is ſubject to this diſorder; and though this ulcer may appear to be ever ſo ſafely or happily healed, yet it too often happens that after the cicatrix is formed, and has been ſo for ſome time, a new abſceſs will be made, the whole diſorder will return afreſh, and the acrimonious and corrupted matter, which continually oozes out from the carious bone, being inſected within, will produce many very grievous ſymptoms, and deſtroy the neighbouring fleſh again: but the worſt of all *caries*, and this to which the ſcull may indeed be eſteemed peculiarly ſubject, is that which falls upon the ſutures, or thoſe parts of the bones that lie very deep, becauſe in this caſe there is no acceſs for the hands to clean the bone, and there is no remedy but amputation of the limb.

Many methods have been attempted for the cure of a *caries*; the firſt and moſteſt is applied to the ſlighteſt degree of the diſeaſe, and is performed by the application of ſpirituous remedies, ſuch as ſpirit of wine, Hungary-water, or in ſlight inſtances, ſuch as the powder of birth-wort, florentine, iris, myrrh, or aloes. Either of theſe powders is to be ſprinkled on the part, after the ſanies has been carefully wiped away with dry lint, and this continued till the cure is perfected. In a *caries* that penetrates ſomewhat deeper, ſtronger remedies take place, ſuch as powder of cryſtalline, or its eſſence, made in well rectified ſpirit of wine; or oil of cloves, cinnamon, or guaiacum; either of theſe may be touched on with a pencil, or laid upon dry lint, and applied: ſome alſo uſe the corroſive medicines, the phagedenic water, and ſpirit of nitre, or of ſulphur; and, in the place of theſe, a ſolution of quick-ſilver in *aqua fortis* may be uſed with great ſucceſs. When, by theſe means, an exfoliation of the bone has been produced, the buſineſs is then to treat it with balſamics.

A ſecond method of cure for a greater degree of *caries*, is perforating the bone with the trepan, and dreſſing the part afterwards either with balſamics, or with dry lint. By theſe means the exfoliation of the bone is forwarded, and new veſſels puſh themſelves through the *foramenula*, which, joining with the neighbouring fleſh, make a new covering for the bone.

The third method of cure is performed by the rafpatory, or chiſel, taking off the corrupted or vitiated part of the bone, till all beneath appears white or ruddy, and ſolid; and the fourth, which is the moſt ancient, and the moſt ſpeedy, and certain method, is by the actual cautery, burning down the vitiated part of the bone. This method, however, is not neceſſary, except in great degrees of this diſorder; and in performing it great care muſt be taken not to injure the neighbouring ſole parts; for this reaſon, an aſſiſtant ſhould always draw back the lips of the wound both ways, while this is performed; and if the opening be not wide enough, it ſhould be opened and enlarged by ſponge tents before, or widened by the knife, till the bone has fair, and the part muſt be carefully wiped firſt with dry lint, from the ſanies; and if there be any ſungous fleſh, that muſt alſo firſt be removed. One application of the cautery, when the diſorder is conſiderable, will ſeldom prove ſufficient; it uſually requires to be repeated ſeveral times, at proper intervals; and if the *caries* be of ſuch extent that one cautery will not cover it all over, the firſt muſt be applied to the middle, and the ſucceeding towards the edges. This operation is not attended with any great pain, if care be taken not to injure the adjacent ſoft parts; for the bones are, in themſelves, free from any ſenſe of pain. Where the cranium is the ſeat of this diſorder, the cautery is attended with great hazard, as it is alſo in a *caries* of the ribs, or ſternum, from the neighbourhood of parts of the utmoſt conſequence to life. The carpus and tarſus alſo will very badly admit of cauterifing, becauſe of the neighbourhood of the tendons and ligaments, which it is ſcarce poſſible to avoid injuring in the operation. After cauterizing, the part is to be dreſſed with dry lint only, or if the patient complains of great heat in the part, the lint may be dipped in ſpirit of wine before it is applied; afterwards balſamics are to be applied, till the part exfoliates; and then, if the cure be perfect, the vacuity will ſoon be filled with new ſound fleſh. But if the bone remains bare, or the fleſh it is covered with be ſoft and ſpungy, and does not adhere ſufficiently to the ſubjacent bone, or where the bone remains diſcoloured, in either of theſe caſes the cure will not be complete, but the diſorder will break out again, unleſs prevented. In theſe caſes, therefore, the work muſt be all done over again, the ſpungy fleſh removed, and the actual cautery again applied, before the cure is finiſhed. Heiſter.

Anatomiſts, in diſſecting of bodies, frequently find *carious* bones; particularly thoſe of the *jaws*, legs &c. where nothing of that kind was ſuſpected during the

person's life-time; nor any disorder felt therefrom. Mr. Chesselden conjectures, that the cure of a *carious* bone might be directly attempted, without waiting, as our surgeons usually do, for an exfoliation.

CARIGOI, or CARIGUEYA, in *Zoology*, the name by which *some authors* have described a very remarkable American animal, more usually known by the name of the OPOSSUM.

CARILLONS, a species of CHIMES frequent in the Low Countries, particularly at Ghent and Antwerp, and played on a number of bells in a belfrey, forming a complete series or scales of tunes and semitones, like those on the harpsichord and organ. There are pedals communicating with the great bells, upon which the *carillonneur* with his feet plays the base to sprightly airs, performed with the two hands upon the upper species of keys. These keys are projecting sticks, wide enough asunder to be struck with violence and velocity by either of the hands edgeways, without the danger of hitting the neighbouring key. The player is provided with a thick leather covering for the little finger of each hand, to guard against the violence of the stroke. These *carillons* are heard through a large town. Barney.

CARIMPANA, in *Botany*, the name of an Indian palm-tree, described in the *Hortus Malabaricus*, the leaves of which, when full grown, are thirty feet long, and nine feet broad, or more, if carefully extended.

CARINA, a Latin term, properly signifying the KEEL of a ship, or that long piece of timber running along the bottom of the ship, from head to stern; upon which the whole structure is built, or framed.

CARINA is also frequently used for the whole capacity or bulk of a ship; containing the hull, or all the space below the deck.

Hence the word is also sometimes used, by a figure, for the whole ship.

CARINA is also used in the ancient architecture.—The Romans gave the name *carina* to all buildings in form of a ship, as we still give the name *nave* to the middle or principal vault of our Gothic churches; because it has this figure.

CARINA, among *Anatomists*, is used to denote the *fœtus de fa*. As likewise for the fibrous rudiments, or embryo of a chick, appearing in an incubated egg.

The *carina* consists of the entire *vertebræ*, as they appear after ten or twelve days incubation.

It is thus called, because crooked, in form of the keel of a ship. Boranists also, for the like reason use the word *carina*, to express the lower petalum of a PAPILIONACEOUS flower.

CARINA is also used, by some *Chemists*, for the twentieth part of a drop.

CARINÆ were also weepers, or women hired, among the ancient Romans, to weep at FUNERALS: they were thus called from *Caria*, the country whence most of them came.

CARINATED *leaf*, in *Botany*, expresses a leaf whose back resembles the keel of a ship.

CARIOUS, the state of a bone putrefied or rotten. See CARIES.

Horstius gives the history of a *stapes*, taken out of a carious bone. Ephem. Acad. N. C. Dec. 2. ann. 10. Obs. 165. p. 107.

CARIPI, a kind of cavalry in the Turkish army. The *caripi*, to the number of about 1000, are not slaves, nor bred up in seraglios or seminaries, like the rest; but are generally Moors, or renegado Christians, who having followed adventures, and being poor, and having their fortune to seek, by their dexterity and courage have arrived at the rank of horse-guards to the grand signior. They march with the Ulufagi on the left hand, behind him: their pay is twelve aspers per day.

The word *caripi* signifies *poor*, and *stranger*; an appellation said by Chalcondylas to have been given them, because chiefly brought out of Egypt, Africa, &c.

CARISSIMI, in *Antiquity*, a quality, or appellation given by the emperors to presidents, governors of provinces and others.

CARISTIA. See CHARISTIA.

CARITAS.—The *poculum caritatis*, or grace-cup, was an extraordinary allowance of wine, or other liquors, wherein the religious at festival-, drank in commemoration of their founder and benefactors.

CARK, or CARET, a certain quantity, or measure, of wool, equal to a thirtieth part of a SARPLAR.

CARL. See CHURLE.

CARLIN, CARLINE, or CAROLINE, a small *silver* coin, current in Naples and Sicily, equivalent to about four pence English.

CARLINA, or CAROLINA, a plant of the THISTLE kind, said to have been discovered by an angel to Charlemagne, to cure his army of the plague; whence its denomination.

CARLINÆ *radix*, in the *Materia Medica*, the name of a root kept in the shops in some places, and distinguished into two kinds, the white and the black; the white is the root of the common *carline-thistle*, which produces no stalk, the other of the *carlina acaulescens*, called the black chamelion thistle.

The white *carline* root is of the thickness of one's thumb, and is often two feet long; it is known on the outside, and white within, and should be chosen plump, firm, and well dried. It is accounted a very efficacious medicine in pestilential diseases.

The black is a smaller and shorter root than the white, and is much less esteemed in medicine. The plant which produces the white grows very frequent with us on hilly places, and is a very singular plant, producing a number of fine long prickly and jagged leaves, and, in the centre of them, a large purple flower, of the thistle kind, but growing close to the ground; the other is very frequent in France, but is not met with in England.

Carline is esteemed a very powerful sudorific and alexipharmic. Schroder tells us *also*, that it is good against worms, and in dropsies; and that it is a powerful emmenagogue and diuretic.

CARLINES, or CARLINGS, in a ship, two pieces of timber lying fore and aft, along from one beam to another, directly over the keel; serving as a foundation for the whole body of the ship. On these the ledges rest, whereon the planks of the deck and other matters of carpentry, are made fast. The *swoms* have their ends let into the beams called *salter-bolt-ways*. *See Tab. Ship. fig.* 2. *n.* 29. 37. 60. and 92.

CARLINE-*knee* are timbers going athwart the ship, from the sides to the hatchway, serving to sustain the deck on both sides.

CARLOCK, or CHARLOCK, in *Botany*, a species of the RADISH.

CARLOCK, a sort of isinglass, or isinglass imported from Archangel. It is made with the sturgeon's bladder; and is used for clarifying wine, as also in dying. The best comes from Astracan, a city in Muscovy, at the mouth of the river Wolga, where they catch great quantities of sturgeon.

CARLOSTADIANS. See CAROLOSTADIANS.

CARLSBAD *Water*, so called from a small town of that name on the confines of Bohemia, remarkable for its warm mineral springs, of which there is an account in Phil. Trans. vol. 1. part 1. N° 4. anno 1757. See WATER *mineral*.

CARMEL, *Knights of Mount*, are a military order of knights Hospitallers, instituted in 1607, by Henry IV. of France, under the title, habit, and rule of *our Lady of Mount Carmel*, and in consequence of a bull of pope Paul V. in 1608, united to the order of St. Lazarus of Jerusalem, with all its commanderies, priories, and other goods for its endowment.

The founder proposed it to consist of one hundred French gentlemen, who should be obliged, in times of war, to march close to the kings of France, as their guard.

Authors are much divided, whether to call this a new institution, or a reformation of that of St. Lazarus; though it is generally accounted a new institution. See LAZARUS.

CARMELITES, or *White-Friars*, an order of religious, making one of the four tribes of mendicants, or begging friars; and taking both the name and origin from Carmel, a mountain of Syria, formerly inhabited by the prophets Elias and Elisha, and by the children of the prophets; from whom this order pretend to descend in an uninterrupted succession.

The manner in which they make out their antiquity has something in it too ridiculous to be rehearsed. Some among them pretend they are descendants of J. C. Others go farther, and make Pythagoras a *Carmelite*, and the ancient Druids regular branches of their order.

Phocas, a Greek monk, speaks the most reasonably; he says, that in his time, viz. in 1185, Elisha's cave was still extant on the mountain; near which were the remains of a building, which intimated there had been anciently a monastery; that some years before, an old monk, a priest of Calabria, whose name was Bertnold, by revelation, as he pretended, from the prophet Elias, fixed there, and assembled ten brothers. In 1209, Albert, patriarch of Jerusalem, gave the solitaries a rigid rule; which Papebroch has since printed. In 1217 or according to others, 1226, pope Honorius III. approved and confirmed it; though it was afterwards mitigated by Innocent IV. St. Louis brought some of these *Carmelites* with him from the Holy Land into France. Many of the popes gave them the title of *Brothers of the Blessed Virgin*.

The *Carmelites* came into England in the year 1240, and erected a great number of monasteries. Their first houses were at Alnwick in Northumberland, and Aylesford in

Kent,

Kent. In England and Wales they had about forty houſes. This order is eminent for the devotion of the ſcapulary, for its miſſions, and for the great number of ſaints with which it has ſtocked the Romiſh church. In the laſt century, there were four canoniſations in this order, viz. of S. Thereſa, S. Andrew Corſin, S. Mag. de Pazzi, and S. J. de la Croix.

The order of the *Carmelites* is divided into two branches, viz. *Carmelites of the ancient obſervance*, called the *mitigated*, or *mitigate*; and thoſe of the *firſt obſervance*, called *bare-footed Carmelites*.

The *ancient obſervance* has only one general, under whom are forty provinces; and the congregation of Mantua, which has a vicar-general.

Bare-footed CARMELITES are a reform of the ancient *Carmelites*, ſet on foot in 1540, by St. Thereſa; ſo called from their going bare-footed.

She began with the convents of nuns, whom ſhe reſtored to the primitive auſterity of the order, which had been mitigated by Innocent IV. in 1245; and at length carried the ſame reform among the friars. Pius V. approved the deſign and Gregory XIII. confirmed the reform in 1580.

There are two congregations of bare-footed *Carmelites*, which have each their general, and their ſeveral conſtitutions; the one *the congregation of Spain*, divided into ſix provinces; the other called *the congregation of Italy*, comprehending all the reſt, not depending on Spain.

CARMEN, an ancient term among the Latins, uſed, in a general ſenſe, to ſignify a verſe; but in a more peculiar ſenſe, to ſignify a ſpell, charm, form of expiation, execration, &c. couched in a few words, placed in a myſtic order, on which its efficacy depended.

Pezron derives *carmen* from the Celtic *carm*, the ſhout of joy, or the verſes which the ancient bards ſung, to encourage the ſoldiers before the combat; adding, that the Greek χαρμη, ſignifies combat and joy: which is true: but then it does not come from the Celtic *carm*, but from χαιρω, *I rejoice*.

Some fetch the origin of the poetical *carmina*, or verſes, better; and ſay, they took that name from their reſemblance to thoſe ſpells: others, on the contrary, ſay, that the ſpells had their original from the poetical verſes, and took their name from their reſemblance to thoſe: it is at leaſt certain, that many of the ancient charms, wherewith diſeaſes were ſuppoſed to be cured, were metrical verſes, to which in thoſe ages, greater efficacy was aſcribed than to mere words or proſe.

Vigenere, again, derives *carmen* from *Carmenta*, becauſe that prophetreſs couched her predictions in verſes, or ſhort periods: but others ſay, the prophetreſs took the name *Carmenta* from *carmen*, on the ſame account.

CARMEN, was anciently a denomination given to precepts, laws, prayers, imprecations, and all ſolemn formulæ, couched in a few words, placed in a certain order, though written in proſe.

In which ſenſe it was, that the elder Cato wrote a *Carmen de Moribus*, which was not in verſe, but proſe.

CARMEN *ſaliare*, a ſet of ancient verſes compoſed by Numa, ſung by the SALII, accompanied by the clalhing of *Ancilia*, or ſacred buckliers. See ANCYLE.

CARMEN alſo denotes a form of prayer, or words whereby divers among the ancients devoted themſelves. Such was that of the Decii, ſpoken of by Pliny, Hiſt. Nat. lib. xxviii. cap. 2.

CARMENIAN *wool*, a denomination given to a kind of goat's hair, brought from Carmenia, or Caramania, a country of Aſia Minor.

CARMENTALIA, a feaſt among the old Romans, celebrated annually on the 15th of January, in honour of *Carmenta*, or *Carmentis*, a prophetreſs of Arcadia, mother of Evander, with whom ſhe came into Italy, ſixty years before the Trojan war.

The ſolemnity was alſo repeated on the 15th of January, which is marked in the old calendar by *Carmentalia repetita*.

This feaſt was eſtabliſhed on occaſion of a great fecundity among the Roman dames, after a general reconciliation with their huſbands, with whom they had been at variance, in regard of the *uſe of* coaches being prohibited them by an edict of the ſenate.

It was the women who celebrated this feaſt: he who offered the ſacrifices, was called *Suverdes Carmentalis*.

Authors are divided about the origin of the word *Carmenta*: Vigenere ſays, the prophetreſs was ſo called *quaſi carens mente*, out of her ſenſes; by reaſon of the enthuſiaſm ſhe frequently fell into. Others ſay, ſhe took her name from *carmen*, verſe, becauſe her prophecies were couched in verſes: but Vigenere, as before noted, maintains *ce nom* to be derived from *Carmente*.

CARMES, *Eau de*, the Carmelite water, famous in France, and moſt parts of Europe, for its extraordinary cordial virtues. It is ſaid to be extremely reviving, to be good in all ſorts of fits, apoplexies not excepted; and to relieve the gout when it attacks the ſtomach. The Carmelites at Paris, who make conſiderable advantage by vending this water, keep the preparation of it a great ſecret.

CARMINATIVES, in *Medicine*, are remedies, whether ſimple or compounded, uſed in colics, and other flatulent diſtempers, to diſpel the wind.

Numbers appear to be ſtrangers to this term, as it does not appear to carry in it any thing expreſſive of the medicinal efficacy of thoſe ſimples which paſs under the denomination. This term had certainly its riſe when medicine was too much in the hands of thoſe jugglers, who, for want of true knowledge in their profeſſion, brought religion into the party; and what through their ignorance they were not able to do by rational preſcription, they pretended to effect by invocation, and their intereſt with heaven. Which cant being generally, for ſurprize ſake, couched in ſome ſhort verſes, the word *carmen*, which ſignifies a verſe, was uſed alſo to mean an inchantment; which was frequently made uſe of to ſatisfy the people of the operation of a medicine they could not account for. And as thoſe medicines now under this name, are of quick efficacy, and the conſequences thereof in many inſtances ſurpriſing; the moſt violent pains, ſometimes ariſing from pent-up wind, immediately ceaſing upon its diſperſion; ſuch medicines as give relief to this cauſe, are more properly termed *carminatives*, as if they were cured by inchantment.

How they expel wind may be conceived, when we conſider that all the parts of the body are perſpirable. Sanctorius, in his Medicina Statica, determines all we call wind in the bowels to be ſuch perſpirable matter as makes its eſcape through the coats of the ſtomach and inteſtines. Between the ſeveral membranes likewiſe of the muſcular parts, ſuch matter may break out and lodge for ſome time. Now, whatever will gently and tender ſuch collections of vapours thinner, muſt conduce to their utter diſcharge out of the body, and conſequently relieve thoſe uneaſineſſes ariſing from their retention. And as all thoſe things that paſs under the denomination are warm, and conſiſt of very light ſubtil parts, it is eaſy to conceive how a mixture of ſuch particles may agitate and rarefy thoſe flatuſencies, ſo as to facilitate their expulſion, eſpecially conſidering thoſe grateful ſenſations which ſuch medicines give to the fibres, and which cannot but invigorate their tonic undulations ſo much, that by degrees the obſtructed wind is diſlodged, and at laſt quite diſpelled. But if the obſtruction be not great, the rarefaction of the wind upon taking ſuch a medicine, is often ſo ſudden, and likewiſe its diſcharge, that it goes off like the explolion of gunpowder.

All the things under this claſs, being warm and diſcuſſive, are much uſed in the compoſition of cathartics, of the rougher ſort eſpecially; for the irritation occaſioned by theſe, would be ſcarcely tolerable, without the mitigation of ſuch grateful ingredients. Many likewiſe of this ſort, are in the compoſition of diſcuſſive topics.

The four *carminative* flowers are thoſe of chamomile, melilot, motherwort, and dill: beſide angelica, fennel, lovage, anile, caraway, coriander, cummin, &c. which all agree in their *carminative* qualities; and are therefore uſed in compoſitions of that intention.

CARMINE, a bright red or crimſon colour, bordering ſomewhat on purple, uſed by painters in miniature; and ſometimes by painters in oil, though rarely by reaſon of its exceſſive price, and becauſe it will not mix with oil, ſo as to have the due effect in this kind of painting. *Carmine* is the moſt valuable product of the *cochineal inſect*: it is a *feces* or ſediment, ſubſiding to the bottom of the water, wherein are ſteeped COCHINEAL, CREMOR, and ARGOUR: ſome add BORAX, but this gives the *carmine* too much of the orange caſt. For this purpoſe thirty-ſix grains of *cremor* are boiled up three times in two pints and a half of rain or river *water*; then five drams of *cochineal* are put into the water, ſtrained through a linen cloth from the preceding liquor, and boiled up three times; to this eighteen grains of the huſk of *cremor*, and the ſame quantity of *rock* alum, are added, and it is boiled up once: the liquor is ſtrained through a linen cloth, and ſuffered to ſtand for ſeven or eight days; the *feces* dried in the ſun, or a ſtove, will be the *carmine*. However, the *cremor* and *argour*, as well as the *rennet*, are now generally omitted. Kunckel directs firſt to communicate a ſcarlet dye to fine wool, by boiling it in equal proportions of bran water and common water, with a mixture of alum and tartar, for two hours: half a pound of wool will require one pound of alum, and half a pound of pulverized tartar: the wool muſt then be drained, and having boiled four ounces of cochineal with two ounces of tartar, in a mixture of bran water and common water, the wool muſt be put in and boiled for an hour and a half, and it will take the colour. The *car-*

nine may be extracted from the wool by boiling it in a ſtrong ley of pot-aſh, till it has loſt its colour: then paſs the ley through a filtrating bag, and pour a ſolution of two pounds of alum in water into the coloured ley; and the dye will thicken; and, when it is again filtrated, the *carmine* will remain in the filtre; and the operation may be repeated as often as it is found neceſſary. Encyclopedie.

To be good, it muſt be almoſt an impalpable powder. As this colour is prepared by diſſolving cochineal in an alkaline lixivium, and precipitating the ſolution by alum, it conſiſts of the colouring matter of cochineal, adhering to the earth of alum; the beſt comes from France, where the method of preparing it is kept a profound ſecret.

Some make *carmine* with Braſil or Fernambouc wood, and gold leaf, beat in a mortar, and ſteeped in white wine vinegar; the ſcum ariſing from this mixture, upon boiling, when dried, makes a ſort of *carmine*: but this kind is much inferior to the former. See DYING.

CARNABADIUM, in *the Materia Medica* of the ancients, a name given to a drug frequently mentioned by the Greek and Arabian writers. It is properly an Arabian word which the Greeks have adopted, and given a Greek termination to, writing it καρναβάδιον. Guillandini ſuppoſes this to be the ſame with the *durmegi*, or *durvion*, of the ſame authors; but nothing can be more abſurd than ſuch an opinion, as examination of theſe writers themſelves ſhewing that they commonly uſed it for caraway or carui ſeed, and ſometimes for the Æthiopian cummin.

CARNARIUM, a charnel-houſe, or repoſitory for the bones of the dead.

CARNATIONS, in *Gardening*. See DIANTHUS.—Theſe flowers are propagated two ways, the one by ſeed, the other by layers; the firſt of theſe methods is the way to raiſe new flowers, the other is the way to preſerve and multiply thoſe of former years.

For the raiſing of them from ſeed, great care muſt be taken to procure good ſeed.

When they are in the flower the fineſt kinds ſhould be marked, and all the layers that can be, ſhould, during the time of their flowering, be laid down from them: toward the latter end of Auguſt theſe will have taken root, and they are then to be taken off, and planted out into pots, two in each pot. The method of laying them is this. Slip off the leaves from the lower part of the ſhoot intended to be laid, and cut a ſlit in one of the middle joints, and cut off the tops of the leaves, and cut out the ſwelling part of the joint, where the ſlit is made; then raiſe the earth about the place a little, and bend down the flit part of the ſhoot into it, keeping the top upright, and faſten it in its place by a hooked ſtick, ſtuck into the ground over it, and cover it with the earth; then give it a gentle watering, afterwards is neceſſary, and in ſix weeks the layers will have taken ſo much root as to be ready to tranſplant.

They require ſhelter in the winter ſeaſon, and as it is difficult to ſhelter a large number in their pots, which are uſually nine inches over, it may be a better way to plant them out in Auguſt in very ſmall pots, ſheltering a number of theſe during the winter in a frame; and in the middle of February they may be tranſplanted into the pots they are to flower in: theſe in April ſhould be ſet out upon a ſtage of boards, open to the ſouth-eaſt, but defended from the weſt winds, and not too near trees, walls, or buildings, where they are to flower.

CARNATION-*tree*. See *Anona* COLTSFOOT.

Spaniſh CARNATION, in *Botany*. See BARADOES *Flower-fence*.

CARNATION, among *Dyers*, to dye a *carnation*, or red roſe colour, take liquor of wheat-bran a ſufficient quantity, alum three pounds, tartar two ounces; boil them and enter twenty yards of broad cloth; after it has boiled three hours, cool and waſh it: take freſh clear bran-liquor a ſufficient quantity, madder five pounds; boil and finiſh according to art.

The Dow dyers know that the ſolution of jupiter, or delved tin, being put in a kettle to the alum and tartar, in another proceſs, makes the cloth, &c. attract the colour into it, ſo that none of the cochineal is left, but the whole is abſorbed by the cloth.

CARNATION, *Fleſh-colour*, in *Painting*, is underſtood of all the parts of a picture in general, which repreſent fleſh: or thoſe parts of human nature which are naked, and without drapery.

Titian and Correggio, in Italy, and Rubens and Van-Dyke in Flanders, excelled in *carnations*.

It may be here obſerved, that the word *carnation* is not properly uſed for any particular part of the perſon painted, but for the whole nudity of the piece. See COLOURING.

CARNEDDE, in *Britiſh Antiquity*, denote heaps of ſtone ſuppoſed to be druidical remains, and thrown together on occaſion of confirming and commemorating a covenant. Gen. xxxi. 46. They are very common in the iſle of Angleſey: and were alſo uſed as ſepulchral monuments, in the manner of *tumuli*: for Mr. Rowland found a curious urn in one of theſe *carneddi*. Whence it may be inferred that the Britons had the cuſtom of throwing ſtones on the deceaſed. From this cuſtom is derived the Welſh proverb, *Karn arnſhon*, ill betide thee. Rowland's Mona Antiqua Reſtaurata.

CARNEIA, in *Antiquity*, a feſtival in honour of Apollo, ſurnamed Carneus, held in moſt cities of Greece, but eſpecially at Sparta, where it was firſt inſtituted.

The reaſon of the name, as well as the occaſion of the inſtitution, is controverted. It laſted nine days, beginning on the 13th of the month Carneus. The extraordinaries were in imitation of the method of living, and diſcipline uſed in camps.

CARNEL.—The building of ſhips firſt with their timber and beams, and after bringing on their planks, is called *carnel-work*, to diſtinguiſh it from cloſh-work. Veſſels alſo which go with mizzen-ſails inſtead of main-ſails, are by ſome called *carnels*.

CARNELIAN. See CORNELIAN.

CARNEUM *ſpeculum*, in *Anatomy*, a name given by ſome writers to a muſcle of the *abdomen*, called by Veſalius the *pyramidalis cutis abdominis*; and by Falloppius, the *muſculus carnoſus*. It is now generally known by the name of PYRAMIDALIS.

CARNEY, a diſeaſe in horſes, wherein their mouths become ſo furred that they cannot eat.

CARNICULA is uſed by ſome for a caruncle, more particularly for that fleſhy ſubſtance which inveſts the teeth.

CARNID, in *Natural Hiſtory*, a name given by Aretheus to what is called CARNICH by more ancient writers.

CARNIFEX, among the *Romans*, the common executioner. By reaſon of the odiouſneſs of his office, the *carnifex* was expreſly prohibited by the laws from having his dwelling houſe within the city.

In middle age writers *carnifex* alſo denotes a butcher.

Under our Britiſh kings, the *carnifex* was an officer of great dignity; being ranked with the archbiſhop of York, earl Goodwin, and the lord Steward. Flor. Wigorn. ann. 1052: *Rex Hardicanutus Africum Ebor. Archiep. Goodwinum comitem, Ediricum diſpenſatorem, Thrond ſuum carnificem, & alios magnæ dignitatis viros Londinum miſit.* Spelm. Gloſſ. p. 125

CARNIFICATION, the making of, or turning to fleſh. Phyſicians give inſtances of the *carnifications* of BONES, that is, where the bones loſe their natural conſiſtence, and become ſoft and fleſhy. This is a tranſmutation which is the reverſe of OSSIFICATION.

CARNIFORMIS *abſceſſus*, an abceſs with a hardened orifice which generally riſes where the muſcles apply themſelves to the joints.

CARNIVAL, or CARNAVAL, a ſeaſon of mirth and rejoicing, obſerved with great ſolemnity by the Italians, and particularly at Venice.

The word is formed of the Italian *carnavale*; which Du-Cange derives from *carn-a-val*, becauſe the *fleſh* is then put into the *pot*, in order to make amends for the ſeaſon of abſtinence enſuing. Accordingly, in the corrupt Latin, he obſerves, it was called *carnelevamen*, and *carniprivium*; as the Spaniards ſtill denominate it, *carnes tolendas*.

The *carnival* time commences from Twelfth-day, and holds till Lent. Feaſts, balls, operas, concerts of muſic, intrigues, marriages, &c. are chiefly in *carnival* time.

CARNIVOROUS, CARNIVORUS, an epithet applied to thoſe animals which naturally ſeek, and feed on fleſh.

It is a diſpute among naturaliſts, whether or no man be naturally *carnivorous*? Some contend that the fruits of the earth were intended as his ſole food; and that it was neceſſity in ſome places, and luxury in others, that firſt prompted him to feed upon his fellow-animals. Pythagoras and his followers looked on it as a great impiety; and ſtrictly abſtained from all fleſh, from the notion of a metempſychoſis; and their ſucceſſors, the Bramins, continue the ſame to this day.

The conſideration Gaſſendus chiefly inſiſts on, why man ſhould not be *carnivorous*, is the ſtructure and conformation of our teeth; the moſt of them being either inciſores or molitores; not ſuch as *carnivorous* animals are furniſhed with, proper to tear fleſh; except the four *canini*: as if nature had rather prepared us for cutting herbs, roots &c. than for eating meat.

To which may be added, that when we do feed on fleſh, it is not without a preparatory coction, by boiling, roaſting, &c.

And even then, as Dr. Drake obſerves, it is the hardeſt of digeſtion of all other foods, and is prohibited in fevers, and many other diſtempers: and laſtly, that children are rather averſe to all animal foods, till their palates become vitiated by cuſtom; and the breeding of worms in them is generally aſcribed to the too early tasting of fleſh.

To theſe arguments, Dr. Wallis ſubjoins another; which is, that all quadrupeds which feed on herbs or plants, have a long colon, with a cæcum at the upper end of it, or ſomewhat equivalent, which conveys the food, by a long and large progreſs, from the ſtomach downwards, in order to its ſlower paſſage and longer ſtay in the inteſtines; but that in *carnivorous* animals ſuch cæcum is wanting, and inſtead thereof there is a more ſhort and ſlender gut, and quicker paſſage through the inteſtines. Now, in man, the cæcum is very viſible: a ſtrong preſumption, that nature, which is ſtill conſiſtent with herſelf, did not intend him for a *carnivorous* animal. It is true, the cæcum is but ſmall in adults, and ſeems of little or no uſe; but in a foetus, it is much larger in proportion: and it is probable, our cuſtomary change of diet, as we grow up, may occaſion this ſhrinking.

To the arguments uſed by Dr. Wallis and others, to prove that man is not naturally *carnivorous*, Dr. Tyſon anſwers, that if man had been deſigned by nature not to be *carnivorous*, there would doubtleſs have been found ſomewhere in the globe, people who do not feed on fleſh; and as hiſtory ſeems not to furniſh any inſtance hereof, may not we ſay, that what is done univerſally by the whole ſpecies, is natural? For what the Pythagoreans did to abſtaining from fleſh, was on the principle of a tranſmigration: a miſtake in their philoſophy, not a law of nature: and though in ſome countries, men feed more ſparingly on fleſh than in others, this is owing to their own choice, from the diſadvantage they perceive by it. *Beſides*, that *carnivorous* animals are not always without a colon and *cæcum*, nor are all animals *carnivorous* which have thoſe parts: but that the caringeya, or opoſſum, for inſtance, has both a colon and a cæcum, yet feeds on poultry, and other fleſh; whereas the hedge-hog has neither colon nor cæcum, and therefore ought to be *carnivorous*, yet it feeds only on vegetables; and that hogs, which have both, will feed on fleſh greedily enough when they can get it; and that rats and mice, which have large cæca, feed on bacon, as well as bread and cheeſe.

And, from the multitude of *carnivorous* animals which want thoſe parts, and of *non-carnivorous* which have one or both, no ſafe concluſion can be drawn; ſince we might as well argue, that becauſe the ape-kind, dog-kind, goat-kind, and ſheep-kind, which live on herbage, have four ſtomachs, therefore all thoſe which have not four ſtomachs were not deſigned by nature to be graminivorous; whereas the horſe-kind, and hare-kind have but one ſtomach, yet feed on graſs like the former: add, that in many animals which live on the ſame ſort of food, the ſtructure of the ſtomach is found very different; and that in others which live on different foods, ex. gr. on fleſh, on graſs, &c. the ſtomachs are found ſo like, that it is difficult to aſſign any difference between them; and if we cannot make a judgment what food is moſt natural to an animal from the ſtructure of its ſtomach, which is the part moſt concerned in digeſting it, much leſs can we judge from the colon or cæcum, which are parts remote from the ſtomach, and ſeem, rather as a cloaca for the reception of the feces, than of uſe for digeſting or aſſimilating the food.

In fine, ſince man has all manner of teeth, fit for the preparation of all ſorts of food, ſhould it not rather ſeem that nature intended we ſhould live on all? And as the alimentary duct in the human kind, is fitted for digeſting all ſorts of food, may we not rather conclude that nature did not intend to deny us any? Phil. Tranſ. N° 469. 10, 11. Abridg. vol. v. p. 10.

CARNUS, in *Chronology*, the Syracuſian name for the Athenian month METAGITNION; which was the ſecond of their year, and anſwered to the latter part of our July and beginning of Auguſt.

CARNOSUS, *muſculus*, in *Anatomy*, a name given by Fallopius and others to a muſcle, called by Veſalius the beginning of the ſtraight muſcle of the abdomen, and now generally known by the name of PYRAMIDALIS.

CARNOSA *Membrana*, } in *Anatomy*; ſee PANNICULUS
CARNOSUS *Panniculus*. } CARNOSUS, and MEMBRANE.

CARNOSITY is uſed by ſome authors, for a little fleſhy excreſcence, tubercle, or wen, formed in the urethra, the neck of the bladder, or yard, which ſtops the paſſage of the urine.

Carneſities are very difficult of cure: they are not eaſily known, but by introducing a probe into the paſſage, which there meets with reſiſtance. They uſually ariſe from ſome venereal malady ill managed.

CARNOSUM *ſolium*, in *Botany*. See LEA.

CARNUBIA, in the *Materia Medica*, a name by which ſome authors have called the *carob*, or ſweet pipe.

CARO, in *Anatomy*, &c. See FLESH.

CARO *muſculoſa quadrata*, in *Anatomy*, a muſcle ſo calle by Fallopius and Spigelius, but more popularly PALMARIS *brevis*.

CAROB, or ST. JOHN'S *Bread*, *ceratonia*, in *Botany*, a genus of the *polygamia trioecia* claſs. Its characters are theſe: it is male and female on diſtinct trees; the male flowers have no petals, but a fleſhy germen ſituated within the receptacle, which becomes a long, fleſhy, compreſſed pod, divided by tranſverſe partitions, each having one large, roundiſh compreſſed ſeed. We have but one ſpecies, which is a native of the ſouthern parts of Europe, where it grows in the hedges, and produces a great quantity of long, flat, brown-coloured pods, which are thick, mealy, and of a ſweetiſh taſte.

Theſe pods are eaten by the poorer ſorts of inhabitants in a ſcarcity of other food; but they are apt to looſen the belly, and cauſe griping in the bowels. They are directed by the college phyſicians as ingredients in ſome medicinal preparations.

CAROB is alſo a goldſmith's ſmall weight, amounting to the 24th part of a grain. It is alſo called *prime*.

CAROCHA, a name which the Spaniards and Portugueſe give to a kind of mitre made of paper or paſteboard, on which are painted flames of fire, and figures of demons, worn by thoſe who are condemned to death by the tribunal of the INQUISITION. See ACT *of faith*.

CAROENON, *vapetos*, ſometimes alſo called *caranum*, denotes wine boiled down, till a third be evaporated.

CAROLI, among ſome phyſicians, denote venereal puſtules on the penis; called alſo *corſer pudendum*.

CAROLINE, is a ſilver coin of Sweden, with the legend, *A deuspra nobis quis contra*. See COINS.

CAROLINE, is alſo a name given to the four books compoſed by order of Charlemagne, to refute the ſecond council of Nice, with regard to the worſhip of IMAGES. They contain one hundred and twenty heads of acculation againſt that council, drawn up by the biſhops of France, and firſt publiſhed in 1549, by M. du Tillet, biſhop of Meaux, under the title of Elia Phyllus.

CAROLOSTADIANS, or CARLOSTADIANS, an ancient ſect, or branch of Lutheraniſm, who denied the real preſence of Chriſt in the euchariſt.

They were thus denominated from their leader Andrew Carolloſtadius, who having originally been archdeacon of Wittemberg, was converted by Luther, and was the firſt of all the reformed clergy who took a wife; but diſagreeing afterwards with Luther, chiefly in the point of the ſacrament, founded a ſect apart. The *Carloſtadians* are the ſame with what are otherwiſe denominated SACRAMENTARIANS, and agree in moſt things with the ZUINGLIANS.

CAROLUS, an ancient Engliſh broad piece of gold, ſtruck under king Charles I. whoſe image and name it bears. Its value has been eſtimated at twenty-three ſhillings ſterling: though at the time when it was coined it is ſaid to have been only rated at twenty ſhillings.

CAROLUS is uſed for a ſmall copper French coin, mixt with a little proportion of ſilver, firſt ſtruck by Charles VIII. of France, whence it took its name; being, at the time when it ceaſed to be current, valued at ſix *deniers*.

CAROPI, in *Botany*, a name given by the inhabitants of the Philippine iſlands to a plant more uſually known among authors by the name of TUGUS; a plant greatly eſteemed by the natives, and ſuppoſed by Camelli to be the true *amomum* of the Greeks, ſo much valued in thoſe ancient times.

CAROTERI, in *Matters of Commerce*, denotes a certain weight or quantity of divers kinds of goods, ex. gr. of cloves, from four to five hundred weight; of carratts, from five to nine hundred weights; of mace, about three hundred weight; and of nutmegs, from ſix to ſeven and an half hundred weight.

CAROTIC is uſed by ſome writers to denote thoſe who are ſeized with a CARUS.

CAROTIDS, in *Anatomy*, two arteries of the neck, on each ſide, ſerving to convey the blood from the aorta to the brain.—See *Tab. Anat.* [*Angeiol.*] *fig.* 1. n. 5. 5. 13. 13. (*Oſteol.*) *fig.* 5. 1. 1. 2. 3. 3. *lit.* zz. yy. (*Splanch.*) *fig.* 12. *lit.* p.

The *right carotid* ariſes from the ſubclavian, juſt where that ſprings out of the aorta; but the left immediately out of the aorta. They both lie pretty deep, and being defended by the aſpera arteria, paſs free from any compreſſure, and without ſending out almoſt any branches, ſtraight to the cranium. Juſt before their arrival there, they ſend forth the external *carotid*; and paſſing the os petroſum, proceed on with ſome circumvolutions, till laying aſide their muſcular membrane, and giving branches to the dura mater, they paſs along the cranium, defended by the ſides of the ſella-turcica, and dura mater: and ſending

feeding branches to the outer parts of the pia mater, and the nerves, they at last reach the cerebrum; where dividing into infinite ramifications, they are loft in the cortical part; or perhaps proceed even into the medullary part thereof.

Hippocrates and the ancients placed the feat of drowsiness in these arteries, whence they had the name *carotidi*, i. e. *soporiferæ*, from *κάρος*, *Drowsiness*. For the same reason they were also called *lethargicæ* and *apoplecticæ*.

CAROUGE, in *Botany*, a filiquous fruit, sweet and good to eat, when arrived at a proper degree of maturity. The tree which bears it grows in Spain, and in several places of the Mediterranean. The fruit is of great use in fattening beasts of burden, and is often given them instead of barley or oats: it is of some use in medicine, on account of its pectoral virtue, being taken in decoction.

The Spaniards call it *garroba*, or *algarroba*.

CARP, in *Ichthyology*. See CYPRINUS.

The *carp* which was first brought into England by Leonard Mascal, about the year 1514, is the most valuable of all kinds of fish for the stocking of ponds, because of its quick growth and great increase. If the breeding and feeding of this fish were more understood and practised, the advantages would be very great, and fish-ponds become as valuable an article as gardens. The gentleman who has land in his own hands, may, beside furnishing his own table and supplying his friends, raise a great deal of money, and very considerably improve his land at the same time, so as to make it yield more this way than by any other employment whatever. The sale of *carp* makes a part of the revenue of the nobility and gentry in Prussia, Pomerania, Brandenburg, Saxony, Bohemia, Mecklenburg, and Holstein.

For this purpose particular attention should be paid to the soil, water, and situation of the *carp* pond: the best kinds of ponds are those which are surrounded by the finest pastures and cornfields of a rich black mould, having soft springs on the spot, or running water, that is neither too cold, nor impregnated with acid, calcareous, selenitic, or other mineral particles. The water indeed may be softened by exposing it to the air and sun in a reservoir, or by forming an open channel for it at some distance from the pond. They should likewise be sheltered against the easterly and northerly winds, and be fully exposed to the influence of the sun.

It is found by experience most convenient to have three kinds of ponds for *carp*; viz. the spawning pond, the nursery, and the main pond. The first sort of pond must be well cleared of all other kinds of fish, especially those of the rapacious kind, such as the pike, perch, eel, and trout, and also of all the newts or lizards and the water-beetles. It should be supplied with soft water, and be exposed to the sun and air. A pond of one acre requires three or four male *carp*, and six or eight female ones, and in the same proportion for each additional acre. The best *carp* for breeding are those of five, six or seven years old, in good health, with full scales, fine full eyes, and a long body, and without any blemish or wound. The pond should be stocked on a fine calm day, towards the latter end of March or in April. *Carp* spawn in May, June, or July, according to the warmth of the season, and for this purpose they swim to a shady, warm, sheltered place, where they gently rub their bodies against the sandy ground, grass, or osiers, and by this pressure the spawn is forced out. At the spawning season all kinds of fowl should be kept from the ponds. The young fry, hatched from the spawn by the genial influence of the sun, are left in the pond through the whole summer, and even the next winter, if the pond is deep enough to prevent their suffocation under the ice in a severe winter; otherwise the breeders and the fry are put into separate ponds, more convenient for their wintering.

The second kind of ponds are the nurseries: the young fish should be removed into the nursery in March or April, on a fine calm day: a pond of an acre will admit a thousand or twelve hundred of this fry. When they are first put in, they should be well watched and driven from the sides of the pond, lest they become the prey of rapacious birds. In two summers they will grow so much as to weigh four, five, sometimes six pounds, and to be fleshy and well-tasted.

The main ponds are the last sort: *chep* are put into these, that measure a foot, head and tail inclusive. Every square of fifteen feet is sufficient for one *carp*; their growth depends on the room, and the quantity of food allowed them. The best seasons for stocking the main ponds are spring and autumn: *carp* continue to grow for a long time, and to a very considerable size and weight. Mr. Forster mentions one which he had seen in Prussia above a yard long, and of twenty-five pounds weight; and two or three hundred between two and three feet long, and which, he was told, were of between fifty and sixty years standing. Gesner mentions an instance of one that was an hundred years old: these were tame, and came to the shore in order to be fed, and swallowed with ease a piece of white bread of the size of half a halfpenny roll. Ponds should be well supplied with water during the winter, and when they are covered with ice, holes should be opened every day for the admission of fresh air, through want of which *carp* frequently perish. See *Carp*-Fishing.

Carp are sometimes fed, during the colder season, in a cellar: the fish is wrapped up in a quantity of wet moss, spread on a piece of net, and then gathered into a parcel, in such a manner, however, as to allow him room to breathe. The net is then plunged into water, and hung up to the ceiling of a cellar: the dipping moss at first he repeated every three or four hours, but afterward it need only be plunged into the water once in about six or seven hours. Bread soaked in milk is first given him in small quantities; in a short time the fish will bear more and grow fat by this treatment. Many have been kept in this way, breathing nothing but air, for several days successively. Phil. Trans. vol. lxi. pt. i. art. xxxvii. p. 310, &c.

CARP, *golden*. See GOLD-fish.

CARP-*Stone*, *Lapis carpionis*, a kind of gem said to be found in the fauces, by others in the back-bone, of the *carp* fish, about the size of a pea, of a triangular figure, and white colour without, but yellow within. It is supposed to be of use against the stone, and ebullitions of the bile, being taken in powder, or held in the mouth.

CARP-*cloth*, a coarse kind of cloth, made in the northern parts of England.

CARPACK, in the *Egyptian Dress*, a sort of red cap turned up with fur, which some make a custom of wearing in common, though it is properly a part of the dress of the interpreters only, the same cap with muslin tied round it being more properly the common dress.

CARPÆA, from *καρπαία*, a kind of dance or military exercise, in use among the Athenians and Magnesians, performed by two persons; the one acting a labourer, the other a robber.

The labourer, laying by his arms, goes to sowing and ploughing, still looking warily about him, as if afraid of being surprised: the robber at length appears, and the labourer quitting his plough, betakes himself to his arms, and fights in defence of his own. The whole was performed to the sound of flutes and in cadence.

Sometimes the robber was overcome and sometimes the labourer; the victor's reward being the oxen and plough. The design of this exercise was, to teach and accustom the peasants to defend themselves against the attack of ruffians.

CARPASIUM *linum*. See LINUM *Carpasium*.

CARPASUM, or CARBASUM, in the *Materia Medica* of the ancients, the name of a poisonous gum, exudating from a tree, so like myrrh in appearance, that many perished by the error of using it instead of myrrh, or mixed among it. We are, at this time, wholly ignorant of its nature; but that it was a gum exudating from a tree is plain from the account of Dioscorides, who calls it *opocarpasum*, as we do the flowing balm of Gilead, *opobalsamum*. The wood of the tree which produced it, he calls *xylocarpasum*, in the same manner as the other wood is called *xylobalsamum*. This wood was little less poisonous than the *carpasum*, or gum itself.

Galen tells us that the *carpasum* was like myrrh of the very purest and finest kind; and that those people who were most curious of all to have fine myrrh, often met with the *carpasum* among it, and gave death, instead of relief, to the persons they administered it to. We find, by the words of Galen, that this gum was not only like myrrh, but was also brought from the same places, and was often mixed with it. The finest myrrh usually had most of this poison among it, and we may collect from the same account that it was a sweet scented gum, for otherwise no body could have mistaken it for myrrh. Galen de Med. Simpl. lib. xii.

CARPENTER, an artificer whose business is to *cut*, fashion, and join timber and other wood for the purposes of building.

The word is formed from the French *charpentier*, which signifies the same, formed of *charpente*, which denotes timber; or rather from the Latin *carpentarius*, a maker of *carpenta*, or carriages.

CARPENTERS *Work*, in *Architecture*, includes the framing, flooring, roofing; the foundation, carcase, doors, windows, &c.

Company of CARPENTERS. See COMPANY.

CARPENTER's *Joint rule*. See RULE.

CARPENTER, *ship*, a person employed in the decks, in the construction and repairing of vessels.

CARPENTER *of a ship*, is an officer at sea, whose business is to have things in readiness for keeping the vessels in repair; and to attend the stopping of leaks, fitting masts or yards, also caulking, careening, breaming, and the like. He is to watch the timber of the vessel that it does not rot, consult

consult frequently with other officers on the state of the masts, yards, &c. and in time of battle he is to have plugs, tompions, and planks ready, for repairing breaches made by the enemy's cannon.

The *carpenter* has a mate under him, and a crew of gang to command on necessary occasions.

CARPENTRY, the art of cutting, framing, and joining large pieces of wood for the uses of BUILDING.

Carpentry is one of the arts subservient to architecture, and is divided into two branches, *house-carpentry*, and *ship-carpentry*; the first employed in raifing, framing, roofing, flooring, &c. of houfes, &c.

The fecond in the conftruction of veffels for fea; as fhips, barks, barges, boats, &c.

The rules and practices in *carpentry*, as to plaining, fawing, mortefeling, tenanting, fcribing, paring, moulding, &c. are much the fame as thofe in joinery: fo likewife are the tools, or inftruments, and the ftuff is the fame in both; all the difference between the two arts conſiſting in this, that joinery is ufed in the fmaller and more curious works; and *carpentry* in the larger, ſtronger, and coarſer.

Fr. Pyrard aſſures us, that the art of *carpentry* is in its greateſt perfection in the Maldive iſlands: their works there, he obſerves, are ſo artfully managed, that they will hold tight and firm without either nails or pins. He adds, they are ſo curiouſly put together, that no body can take them aſunder but thoſe acquainted with the myſtery.

CARPENTUM, in *Antiquity*, a denomination common to divers ſorts of vehicles, anſwering to coaches as well as waggons, or even carts, among us.

The *carpentum* was originally a kind of car or vehicle wherein the Roman ladies were carried; though in after-times it was alſo uſed in war.

Some derive the word *a carvis*: others from *Carmenta*, mother of Evander, by a converſion of the *n* into *r*: *carpentum* for *carmentum*. Thus Ovid, Faſt. lib. i.

Nam prius Auſonios matres Carpenta vehebant
Hoc quoque ab Evandri dicta parente rear.

CARPERA, in *Ichthyology*, a name given by Cuba, and ſome other writers on fiſhes, to the CARP. See CYPRINUS.

CARPERTARIA, in *Botany*, a name uſed by ſome authors, for the bacharis or wilmercreſs, a wild plant common in hedges in ſpring.

CARPOBALSAMUM, in the *Materia Medica of the Ancients*, a name given to a kind of ſpice, or aromatic drug, often mentioned by Ægineta and others, and made an ingredient in cordial and theriacal medicines. This was a vegetable ſubſtance, being the top-ſhoots of young twigs of an oddiferous thurn, growing in Pamphylia, and ſmelling very like the fineſt cinnamon.

As the ancients uſed both this drug and cubebs, it is certain that had they both been the produce of the ſame tree, they muſt have known it; and this it is plain they did not know, for they have nowhere named any ſuch thing: but on the contrary, they have expreſly ſaid, that the *carpobs* was the fhoots of a tall tree, which produced no fruit. Avicenna gives alſo this account, and adds, that it grew, in his time, on mount Libanus, and that the part gathered for that uſe was certain twigs, very long, cylindric, and but little thicker than a needle, which had a very fragrant ſmell.

CARPESIUM, in the *Materia Medica*, a name given by ſome authors to *cubebs*. See CARPESITA.

CARPET, a ſort of covering, worked either with the needle, or on a loom; to be ſpread on a table, trunk, an eſtrade, a paſſage, or a floor.

Perſian and Turkey *carpets* are thoſe moſt prized; eſpecially the former: *carpets* that had a hair or ſhag on one ſide only, were called by the ancients *ſtatera*; thoſe that had a ſhag on both ſides, were called *amphimalla*. Engliſh *carpets*, eſpecially thoſe of Axminſter, and thoſe manufactured by Mr. Moor, are much valued. Among *Jockeys*, *to ſtarve the carpet*, is to GALLOP very cloſe, or near the ground; a fault foreigners charge on Engliſh horſes. Figuratively, an affair, propoſal, &c. are ſaid to be brought on the *carpet*, or tapis, when they are under conſideration, &c.

CARPET-*knights*, a denomination given to gown-men, and others, of peaceable profeſſions, who, on account of their birth, office, or merits to the public, or the like, are, by the prince, raiſed to the dignity of knighthood. They take the appellation *carpet*, becauſe they uſually receive their honours from the king's hands in the court, kneeling on a *carpet*. By which they are diſtinguiſhed from knights created in the camp, or field of battle, on account of their military proweſs.

Carpet-knights poſſeſs a medium between thoſe called *tract*, or *dunghill-knights*, who only purchaſe, or merit the honour by their wealth; and *knights-bachelors*, who are created for their ſervices in the war.

CARPINUS, in *Botany*. See HORNBEAM.

CARPIONE, in *Ichthyology*, a name given by Salvian to the fiſh called by other writers *carpio lacus Benaci*. It is the ſame with that fiſh called in ſome parts of England the *red* CHARRE. Artedi diſtinguiſhes it from the other ſpecies of SALMON, by calling it the ſmall *ſalmon* with five rows of teeth in the palate.

CARPOBALSAM, or CARPOBALSAMUM, the fruit of the tree which yields the true oriental balm, or baſſam; very much reſembling, both in figure, ſize, and colour, that of turpentine.

The word comes from καρπος, *fruit*, and βαλσαμον, *balſam*. The *carpobalſamum* is an oblong fruit with a ſhort ſtout-ſtalk, a brown wrinkled rind, marked with four ribs; of a grateful taſte and ſmell.

It is ſeldom found in ſhops; ſome ſubſtituting Jamaica pepper, and others cubebs, in its place.

CARPOBOLUS, *Loufperdon*, in *Botany*. See PUFF-*ball*.

CARPOCRATIANS, a branch of the ancient Gnoſtics, ſo called from *Carpocrates*, who in the ſecond century revived, and improved upon the errors of Simon Magus, Menander, Saturnil, and other GNOSTICS.

He owned, with them, one ſole principle, and father of all things, whoſe name, as well as nature, was unknown. The world, he taught, was created by angels, vaſtly inferior to the firſt principle. He oppoſed the divinity of Jeſus Chriſt; making him a mere man, born of Joſeph and Mary, according to the ordinary courſe of nature, though poſſeſſed of uncommon gifts, which fet him above other creatures. He inculcated a community of women; and taught, that the ſoul could not be purified, till it had committed all kinds of abominations, making that a neceſſary condition of ſanctification; that all actions were indifferent in their own nature, and were rendered good or evil by the opinions of men, or the laws of the ſtate.

CARPOS, καρπος, *fruit*. The word in this ſenſe is too well known and underſtood to admit of any explanation; but it is neceſſary to obſerve that the old Greek writers did not keep ſtrictly to the ſenſe of the word, limiting it, as we do, to that part of a plant or a tree which ſucceeds the flower, and in which the ſeeds are contained; but they often uſed it in a larger ſenſe, and expreſſed by it the efculent part of a plant, though it did not ſerve to this purpoſe.

CARPUM *ſuſtentum interior*, in *Anatomy*, a name given by Spigelius to the muſcle called by Albinus, *ulnaris internus*, and by Winſlow, *internus cubitalis*.

CARPUS, in *Anatomy*, the WRIST; or that part between the palm of the hand, and the arm.—See *Tab. Anat. ſ. Oſteol.* fig. 3. n. 9. and 7. n. 15. See WRIST.

The Arabians call it *rafeta*; the Latins ſometimes *carpimus*.

CARR, *carrum*, in the *Middle Age*, denoted any ſort of vehicle, or carriage, either by land or ſea.

CARR, CARRUS, a kind of rolling throne, uſed in TRIUMPHS, and at the ſplendid entries of princes.

The word is from the ancient Gauliſh, or Celtic, *carr*; mentioned by Cæſar, in his Commentaries, under the name *carrus*.

Plutarch relates, that Camillus having entered Rome in triumph mounted on a *carr*, drawn by four white horſes, it was looked on as too haughty an innovation.

CARR is alſo uſed for a kind of light, or open chariot. Pontanus obſerves, that Erichthonius was the firſt that harneſſed horſes, and joined them in a *carr*, or chariot.

The *carr*, on medals, drawn either by horſes, lions, or elephants, uſually ſignifies either a triumph or an apotheoſis: ſometimes a proceſſion of the images of the gods, at a ſolemn ſupplication; and ſometimes of thoſe of ſome illuſtrious families at a funeral.—The *carr* covered, and drawn by mules, only ſignifies a *conſecration*, and the honour done any one of having his image carried at the games of the Circus.

The *carr* uſed by the ladies was called *pilentum*, *carpentum*, and *baſterna*.

CARRAC, or CARRACK, a name given by the Portugueſe to the veſſels they ſend to Braſil and the Eaſt Indies; being very large, round built, and fitted for fight, as well as for burden. Their capacity lies in the depth, which is very extraordinary. They are narrower above than underneath, and have ſometimes ſeven or eight floors; they carry about 2000 tons, and are capable of lodging 2000 men; but of late they are little uſed. Formerly they were alſo in uſe among the knights of Rhodes, as well as among the Geneoeſe, and other Italians.

It is a cuſtom among the Portugueſe, when the *carracs* return from India, not to bring any boat or ſloop for the ſervice of the ſhip, beyond the iſland of St. Helena; at which place they ſink them on purpoſe, in order to take from the crew all hopes or poſſibility of ſaving themſelves in caſe of ſhipwreck.

CARRAGO, in *Antiquity*, a kind of fortification, or defence about a camp, compoſed of carts, waggons, and the

the like vehicles, chained or fastened together; chiefly used by the barbarous nations.

CARRARA *marble*, among our *Artificers*, the name of a species of white marble, which is called *marmor LUNENSE*, and *lignifrum* by the ancients: it is distinguished from the Parian, now called the ſtatuary marble, by being harder and leſs bright.

CARRAT, CARAT, or CARACT. See CARACT.

CARRIAGE, a vehicle for the conveyance of perſons, goods &c from place to place.

CARRIAGE *of a cannon*, is the frame, or timber-work, whereon it is mounted; ſerving to point and direct it for ſhooting; and to convey it from place to place; of which there are three ſorts; viz. thoſe uſed in garriſons, at ſea aboard ſhips, and in the field. The two firſt differ only in ſome iron rings, and alſo that the trucks or wheels of garriſon carriages are made of caſt iron, whereas thoſe of ſhip carriages are of wood. Both have the ſame irons, except the breech-rings, which are peculiar to the latter.

CARRIAGE, *ſlay, of a field-piece*, conſiſts of two wheels, which carry long and ſtrong wooden beams, or cheeks, between which the cannon is as it were framed, moving on its trunnions as on a centre: when it is required to move them, they add a vant-train, compoſed of two ſmaller wheels.

The *carriage* conſiſts of the cheeks, the tranſoms, the bolts and plates, the train, the bands, the keys and locks, the bridge, the bed, the hooks, the trunnion-holes, and the cap-ſquare.

The ordinary proportion is, for the *carriages* to have 1/8 of the length of the gun; the wheels to be half the length of the piece in height four times the diameter, or caliber, gives the depth of the planks at the fore-end; in the middle 3/4.

The *carriages* for mortars are low, with four wheels, each of one piece, exactly like the *ſea-carriages*.

CARRIAGE, *bed*, is a cart made on purpoſe for carrying of mortars, and their beds from one place to another; and likewiſe for carrying guns in the field, which are too heavy to be tranſported on their own carriages.

CARRIAGES, *truck*, are two ſhort planks of wood ſupported on two axle-trees, having four trucks, or wheels, of ſolid wood, about a foot and a half, or two feet diameter, for carrying mortars or guns upon a battery, when their own carriages cannot go, and for removing timber, and other burthens; and are drawn by men.

CARRIAGE, *the, of a ſhip gun*, conſiſts of four wheels, without ſpokes.

The parts of a *ſea-carriage*, are the two cheeks, the axle-trees, bolts, cap-ſquares, commonly called clamps in the *ſea*-ſervice, hooks, forelocks, trucks, and linſpins. The breadth of the wheels is always equal to that of the cheeks; but the height of the cheeks, and diameter of the trucks, depend on the height of the gun-ports above the deck. See on the ſubject of *carriages* relating to the military art, both as to their conſtruction and the dimenſions of their parts, Muller's Treat of Artillery, vol. iv. See GALLOPER, LIMBER, TUMBRIL, &c. See alſo BED, BRECHINGS, &c. and HOWITZ, MORTAR, &c.

CARRIAGE, in *Agriculture*, denotes a ſort of ſurrow, cut for the conveyance of water, to overflow or improve the ground.

Carriages are of two kinds, the main *carriage*, whoſe mouth is of breadth ſufficient to receive the whole ſtream intended; and leſſer *carriage* iſſuing from ſpace to ſpace, out of the former.

CARRIAGE alſo ſignifies the removal of goods, or other things, from one place to another, eſpecially with a cart or cart.

CARRIAGE alſo denotes the money or hire paid to a carrier, or other bearer of goods.

Juſtices of peace have power to aſſeſs the price of *carriage* of goods yearly, at their Eaſter ſeſſions; and if any carrier ſhall take above the rates and prices ſo aſſeſſed, he ſhall forfeit 5*l.* 3 and 4 W. and M. cap. 12.

A common carrier having the charge and *carriage* of goods, is to anſwer for the ſame, or the value, to the owner. Co. Lyt. 78. And where goods are delivered to a carrier, and he is robbed of them, he ſhall be charged, and anſwer for them, becauſe of the hire. 1 Roll. abr. 338.

Where goods are ſtolen from a carrier, he may bring an indictment againſt the felon, as for his own goods, though he has only the poſſeſſory, and not the abſolute property; and the owner may alſo prefer an indictment againſt the felon. Kel. 39. If a carrier is robbed of goods, alſo either he or the owner may bring an action againſt the hundred to make it good.

The *carriage* of letters is called *poſtage*. See POST.

CARRIAGE *by ſea*, is denominated FREIGHT.

CARRIAGE, *bill of, lettre de voiture*, among the French, denotes a paper given to a carrier, expreſſing the quantity and quality of the goods and parcels committed to him, partly to entitle him to receive his hire from the perſon to whom they are directed, and partly that this letter, may ſhew whether all be brought, and whether in due time, and in the condition required.

CARRIAGE is alſo uſed to denote the ſpace of ground, over which the inhabitants of *New France*, and other colonies of North America, who trade with the ſavages, uſually by means of canoes, are obliged to carry their boats and proviſions, &c. on their ſhoulders. This they are forced to when they come to places in lakes or rivers, covered with willows, or otherwiſe rendered impracticable to paſs by water, till they meet with ſome new place, convenient for reimbarking.

CARRIER, he who undertakes to convey perſons, goods, papers, money, or the like, from place to place, on condition of a certain price, either fixed by authority or cuſtom, or left to private agreement. See CARRIAGE.

In Holland *carriers* are called *reuliers*, becauſe they always keep the ſame road, or route; ſetting out, and arriving, at fixed hours.

CARRIER *pigeon*, a ſort of pigeon uſed, when properly trained up, to be ſent with letters from one place to another.

It is larger in ſize than moſt of the other kinds. Its length from the tip of the beak to the end of the tail being often fifteen inches; but its greateſt weight not twenty ounces. Its fleſh is firm and its feathers cloſe; it is long-necked, and of a better ſhape than moſt other pigeons. The upper chap of the bill is half covered from the head with a white or blackiſh tuberous ſarfuraceous fleſh, which projects or hangs over both its ſides, on the upper part neareſt the head, and ends in a point about the middle of the bill. This is called the *wattle*. The eyes are ſurrounded with the ſame ſort of corrugated fleſh for the breadth of a ſhilling, and their iris is red. Their beak is long, ſtraight and thick; their wattle generally broad across the beak, ſhort from the head toward the point, and tilting forward from the head; and the head narrow, long and flat; the neck very long and thin, and the breaſt broad; the feather is chiefly black or dun, though there are blues, whites, and pyed.

It has its name from its remarkable ſagacity in returning to the place where it was bred, though carried to great diſtances; from which property it is made uſe of to carry letters to diſtant places, as a ſpeedy and ſafe method of conveyance.

They are trained to this ſervice in Turky and Perſia, and are carried firſt, while young, ſhort flights of half a mile, and afterwards more, till at length they will return from the fartheſt part of the kingdom. Every baſhaw has a baſket of theſe pigeons, bred at the ſeraglio, which, upon any emergent occaſions, as an inſurrection, or the like, he diſpatches with letters, braced under their wings, to the ſeraglio, only ſending out more than one, for fear of accidents. Lightow aſſures us, that one of theſe birds will carry a letter from Babylon to Aleppo, which is thirty days journey, in forty-eight hours. This is alſo a very ancient practice: Hirtius and Brutus, at the ſiege of Modena, held a correſpondence with one another by means of pigeons. And Ovid tells us, that Taurothenes, by a pigeon ſtained with purple, gave notice to his father of his victory at the Olympic games, ſending it to him at Ægina. Ælian. Var. Hiſt. lib. ix. cap. 2. Pliny, lib. x. cap. 24.

Anacreon tells us, that he conveyed a billet-doux to his beauteful Bathyllis, by a dove. Ode 9. See DRAGOON, and HORSE-man.

CARRIERE. See CAREER.

CARROBALISTA, in the *Ancient Military Art*, denotes a ſpecies of *ballſta*, mounted on wheels, and drawn by horſes; by which it differed from the *manuballſta*, which being leſſer and lighter was thrown by the hand.

CARROCIUM, or CARROCERUM, in *Middle Age Writers*, denotes the BANNER, or chief flag of an army, which was mounted on a kind of chariot, and drawn by oxen.

CARROT, *Daucus*, in *Botany*, a genus of the *pentandria digynia* claſs. Its characters are theſe: it hath an umbelliferous hermaphrodite flower, which hath five heart-ſhaped petals turning inward, and five hairy ſtamina. The germen ſits under the flower, which afterward becomes a roundiſh ſtriated fruit, covered with ſtinging hairs.

Carrots were introduced into this kingdom by the Flemings, in the reign of queen Elizabeth, and firſt ſown about Sandwich in Kent. There are two or three ſorts of this plant cultivated for the uſe of the kitchen; and theſe are ſown at ſeveral different ſeaſons of the year, to afford a ſupply of young roots, in all ſeaſons, for the table.

The season for sowing them, for the earliest crop, is soon after Christmas. They should be sown in an open situation, but near a wall; though if they are sown close under it, they will be drawn up to feed too fast, and give no good roots: about eight inches distant is the properest place.

They delight in a warm sandy soil, which should be light, and well dug to a good depth, that the roots may meet with no obstruction in running down, which makes them grow forked, and shoot out lateral branches, especially when the ground has been too much dunged the same year that the seeds were sown, which will also occasion their being worm-eaten. The hairyness of these seeds makes them apt to flock together in small clusters, and renders it difficult to sow them equally: they should therefore be always sown on a rainy day, when there is no wind stirring to blow them together, and be well rubbed between the hands to separate them thoroughly: when they are sown they should be trod in with the feet, and the ground raked level over them.

When they first come up, they should be hoed out to four inches distance; and a month after this, they must be cleared again; and if they are to be drawn while young, they are now to be left at six inches distance every way: if they are to stand to grow large, they must be separated to ten inches.

The second season for sowing *carrots* is in February. This must be done under a wall or hedge, and on warm banks: but those which are to be in open large quarters, should not be sown till the beginning of March.

In July they may be sown again for an autumnal crop, and finally in the end of August for those which are to stand the winter. These last will be fit for use in March, before any of the spring ones; but they are seldom so tender or well eaten.

In order to preserve *carrots* for use all winter, they are to be dug up in the beginning of November, and laid in a dry place in sand; and those room being planted again in February will ripen seeds in August for succeeding crops: the longest and straightest roots are to be chosen for this purpose.

The cultivation of *carrots* has lately become a considerable branch of agriculture. For this purpose the ground should be ploughed early, before the winter begins, that the frost may mellow the soil, and well dunged. The seed should be sown in March or April, separating it first by putting it through a fine chaff-sieve. Four pounds of seed are sufficient for an acre. In about seven or eight weeks they are fit for hoeing, and in a fortnight after they should be harrowed, which is done without injury to the *carrot* plants. Mr. Billing, an ingenious farmer in Norfolk, obtained from twenty acres and a half of land, of different sorts, and differently prepared, five hundred and ten loads of *carrots*, which, as experience led him to conclude, were equal in use and effect to a thousand loads of turneps, or three hundred loads of hay. Some of them measured two feet long, and from twelve to fourteen inches round.

The season for drawing *carrots* is a little after Michaelmas; and the best method of drawing them is by breaking the ground about six inches deep, with a four-pronged fork; though Mr. Billing has ploughed them up with a narrow-chared wheel-plough, without injury, and the flock was turned into the ground to feed on them, without any farther preparation. Cows, sheep, horses, and hogs, become, by use, fond of *carrots*, and are greatly nourished by them. See Billing's Account of the Cultivation of *Carrots*, 1767. 8vo.

CARROT, *wild*, or *Daucus Sylvestris*. The seeds of this plant are esteemed one of the most powerful diuretics we are acquainted with, of our own growth. They are also esteemed provocatives to venery. They are also given in disorders of the breast and lungs, in pleurisies, in strangaries, and in the stone and gravel. An infusion of them in white wine is excellent in hysteric complaints. Many instances are related, in which tea made of the heads or seeds of the *wild carrot*, has given great relief in these complaints. Ale may be made of it, by adding to nine ounces of the seed, eighteen ounces of raisins of the sun. These must be put into a bag, and hung in a vessel of six gallons of good ale, after fermentation. After eight days it will be fine, and it may be drank in the quantity of three pints a-day.

See remarks on the ale of the *carrot* pool-tree, in the Lond. Med. Observ. &c. vol. iv. p. 178. 191. and Ibid. p. 358.

CARROT, *comb.* See STIGMA.

CARROT, *dead*, or *Southernwood*. See THARSIA.

CARRUCA, PLOUGH, a species of tumbrel. See FENNEL.

CARROUSAL, or CARROWSAL, properly a council, or council of chariots and horses: or a magnificent entertainment, on occasion of some public rejoicing; consisting in a cavalcade of several persons, richly dressed, and equipped after the manner of the ancient cavaliers, divided into squadrons, meeting in some public place, and practising juils, tournaments, and other noble exercises. The word is since become of more general use, and is given to any merry meetings.

The word comes from the Italian *carosello*, a diminutive of *carro*, *charist*. Tertullian ascribes the invention of *carrousels* to Circe; and will have them instituted in honour of the Sun, her father; whence some derive the word from *carrus*, or *currus solis*.

The Moors introduced cyphers, liveries, and other ornaments of their arms, with trappings, &c. for their horses. The Goths added crests, plumes, &c.

CARR-TAKERS, are officers of the king's houshold, who, when the court travels, have charge to provide waggons, carts, &c. to transport the king's furniture and baggage.

CARRUCA, in *Antiquity*, a splendid kind of car, or chariot, mounted on four wheels, richly decorated with gold, *silver*, ivory, &c. in which the emperors, senators, and people of condition were carried.

The word comes from the Latin *Carrus*, or British *carr*, which is still the Irish name for any wheel-carriage.

CARRUCA, or CARUCA, is also used in *Middle Age Writers*, for a PLOUGH.

CARRUCA was also used sometimes for *carrucata*. See CARRUCATA.

CARRUCAGE, *carrugium*, a kind of tax anciently imposed on every plough, for the public service. See CARRUCATE and HIDAGE.

CARRUCAGE, CARUCAGE, or CARRAGE, in *Husbandry*, denotes the ploughing of ground, either ordinary, as for grain, hemp, and flax; or extraordinary, as for wood, dyers weed, rape, and the like.

CARRUCATE, *carrucata*, in our *Ancient Laws* and *History*, denotes a plough-land, or as much arable ground, as can be tilled in one year, with one PLOUGH.

In Domesday inquisition, the arable land is estimated in *carrucates*, the pasture in HIDES, and meadow in ACRES. Skene makes the *carrucate* the same with *hide*, or *hida terræ*; Littleton the same with SOC.

The measure of the *carrucate* appears to have differed in respect of place as well as time. In the reign of Rich. I. it was estimated at 60 acres, and in another charter of the same reign at 100 acres: in the time of Ed. I. at 120 acres: and in the 25th of Ed. III. a *carrucate* of land in Burcester contained 112 acres, and in Middleton 150 acres. Dugd. Mon. tom. ii. p. 107. Kennet, Par. Ant. p. 471. Du-Cange.

By a statute under William III. for charging persons to the repair of the highways, a plough-land is rated at fifty pounds *per annum*, and may contain houses, mills, wood, pasture, &c. Stat. 7 and 8 Will. III.

CARRYING, in *Falconry*, signifies a hawk's flying away with the quarry.

Carrying is one of the ill qualities of a hawk, which she acquires either by a dislike of the falconer, or not being sufficiently broke to the LURE.

CARRYING, among *Huntsmen*. When a hare runs on cotten ground (or even sometimes in a frost), and it sticks to her feet, they say she *carries*.

CARRYING, among *Riding-Masters*. A horse is said to *carry low*, when having naturally an ill-shaped neck, he lowers his head too much. All horses that arm themselves carry low; but a horse may carry low without arming. A French branch, or gigot, is prescribed as a remedy against *carrying low*.

A horse is said to *carry* well, when his neck is raised, or arched, and he holds his head high and firm, without constraint.

CARRYING *wind*, a term used by our dealers in horses to express such a one as frequently tosses his nose as high as his ears, and does not carry handsomely. This is called *carrying wind*; and the difference between *carrying* to the wind, and bearing upon the hand, is this: that the horse who bears upon the hand, shakes the bridle and refists it, while he shakes his head; but the horse that carries in the wind puts up his head without shaking; and sometimes beats upon the hand. The opposite to *carrying* in the wind, is arming and *carrying low*; and even between these two there is a difference in wind.

CART, a vehicle, mounted on two wheels, drawn by horses, used for the carriage of heavy goods.

Mr. Sharp's *rolling cart* is fixed upon two rollers, running a-breast, or parallel with each other, and both placed under the body of the *cart*, working upon pivots like the wheel of a wheel-barrow. The rollers are both cylinders of cast iron, two feet diameter, and fifteen inches broad. An iron spindle passes through the centre of each roller, upon the ends of which rest the four planks that support the body of the *cart*.

The word seems formed from the French *charrette*, which signifies

fignifies the fame; or rather the Latin *carreta*, a diminutive of *carrus*. See CARR.

In London and Weſtminſter *carts* ſhall not carry more than twelve ſacks of meal, ſeven hundred and fifty bricks, one chaldron of coals, &c. on pain of forfeiting one of the horſes. Stat. 6 Geo. I. cap. 6.

By the laws of the city, cart-men are forbid to ride, either on their *carts* or horſes. They are to lead, or drive them on foot, through the ſtreets, on the forfeiture of ten ſhillings. Stat. 1 Geo. I. cap. 57.

Criminals are drawn to execution in a *cart*. Bawds, and other malefactors are whipped at the *cart's* tail.

Scripture makes mention of a ſort of *carts*, or drags, uſed by the Jews to do the office of threſhing. They were ſupported on low thick wheels, bound with iron, which were rolled up and down on the ſheaves, to break them, and force out the corn. Something of the like kind alſo obtained among the Romans, under the denomination of *plauſtra*, of which Virgil makes mention. Georg. I.

Tardaque Eleuſinæ matris volventia plauſtra,
Tribulaque, traheæque——

On which Servius obſerves, that *trahea* denotes a *cart* without wheels, and *tribula* a ſort of *cart* armed on all ſides with teeth, uſed chiefly in Africa, for threſhing corn. The Septuagint and St. Jerome repreſent theſe *carts* as furniſhed with ſaws, inſomuch that their ſurface was beſet with teeth. David having taken Rabbah, the capital of the Ammonites, ordered all the inhabitants to be cruſhed to pieces under ſuch *carts*, moving on wheels ſet with iron teeth; and the king of Damaſcus is ſaid to have treated the Iſraelites in the land of Gilead in the ſame manner. 2 Sam. xii. 31. Amos, i. 3. Calm. Dict. Bibl. tom. i. p. 366.

CART-*loaf*, in our *Saxon Conſtitns*, denotes wood to be employed in making or repairing inſtruments of huſbandry.

CARTE BLANCHE, a French term, ſeldom uſed but in this phraſe, To give, or ſend any one the *carte blanche*; i. e. to ſend him a blank paper, ſigned, for him to fill up with what conditions he pleaſes.

Much like this is the French *blanc ſeing*, a paper without writing, except a ſignature at the bottom, given by contending parties to arbitrators, or common friends, to fill up with the conditions they judge reaſonable, in order to end the quarrel.

CARTEL, originally ſignifies a placart, or manifeſto in writing, poſted in public places to notify its contents.

The word comes from the Italian *cartello*, or Latin *cartellus*, which ſignifies the ſame; formed by diminution of *charta*, *paper*.

CARTEL, a letter of defiance, or a challenge to ſingle combat; much in uſe when thoſe combats were practiſed, for the deciding of difficult, and not otherwiſe to be determined, controverſies at law. See DUEL.

The uſe of *cartels*, or challenges to fight, is very ancient, there being divers inſtances of them in Homer, Virgil, and other Greek and Latin poets. Rymer gives the *cartel* which Edward III. ſent to Philip de Valois, challenging him either to fight him, body to body, or a hundred men againſt a hundred, or army to army, within ten days before the gates of Tournay. Fœd. tom. v.

CARTEL alſo denotes a treaty or agreement between two princes or generals, relating to the exchange of priſoners taken in war.

There are alſo *cartels* ſettled between princes in time of war, for what relates to commerce, that it may be carried on without interruption, notwithſtanding other hoſtilities.

CARTEL is alſo uſed for a ſhip commiſſioned, in time of war, to exchange the priſoners of any two hoſtile powers; or to carry any requeſt or propoſal from one to another. The officer who commands her is ordered to carry only a ſingle gun, for the purpoſe of firing ſignals.

CARTEL alſo denotes a meaſure of capacity for corn, uſed in divers parts of France, being of different values from thirty to fifty pounds.

CARTESIAN *Philoſophy*, or CARTESIANISM, the ſyſtem of philoſophy advanced by Des Cartes, and maintained by his followers, the *Carteſians*.

The *Carteſian* philoſophy is founded on two great principles, the one metaphyſical, the other phyſical. The metaphyſical principle is this, *I think, therefore I am*. This principle has been attacked and defended, with great ſpirit, zeal, and partiality, on both ſides: for, though it be true, that we are as ſure by an inward perception or conſciouſneſs, that we exiſt, as that we think; yet it is true, too, that the concluſion of this reaſoning, *I am*, is drawn from the antecedent *I think*: ſince *to think*, ſuppoſes *to be*, or *exiſt*; and the mind ſees clearly the neceſſary connection between thinking and being.

From our having the idea of a Being infinitely perfect and neceſſarily exiſting, Des Cartes concludes that he actually is, upon whoſe will he makes the certainty of ſelf-evident propoſitions, and of all neceſſary truths to depend. From the knowledge thus eſtabliſhed, he proceeds to deduce a complete knowledge of his effects by neceſſary ſteps; and he rejects all final cauſes from philoſophy. He infers the reality of material objects from the veracity of the Deity.

The phyſical principle of *Carteſianiſm* is this, that *nothing exiſts but ſubſtances*: which appears a dangerous principle to the divines; and is accordingly controverted every day in the ſchools of the catholics; who undertake to prove that there are abſolute accidents.

Subſtances he makes of two kinds; the one a ſubſtance that thinks, the other a ſubſtance extended. Actual thought, therefore, and actual extenſion, are the eſſence of ſubſtance: ſo that the thinking ſubſtance cannot be without ſome actual thought; nor can any thing be retrenched from the extenſion of a thing, without taking away ſo much of its ſubſtance.

The firſt article is oppoſed by Mr. Locke, who endeavours to ſhew, that thinking is not eſſential to the ſoul, or that its eſſence does not conſiſt in thought; but that there are various occaſions wherein it does not think at all. See DREAM. The latter is ſtrongly oppoſed by the Jeſuits, &c. as inconſiſtent with the doctrine of TRANSUBSTANTIATION; but is much better confuted by the modern writers, from the principles of the Newtonian philoſophy.

The eſſence of matter being thus fixed in extenſion, Des Cartes naturally concludes there is no vacuum, nor any poſſibility thereof in nature; but that the world is abſolutely full: for mere ſpace is precluded by this principle; becauſe extenſion being implied in the idea of ſpace, matter is ſo too. If there were any ſuch thing as a vacuum, ſays he, it might be meaſured: the vacuum, therefore, is extended, and of conſequence is matter; every thing extended being matter. See VACUUM.

He defines motion to be the tranſlation of a body from the neighbourhood of bodies that are in contact with it, and conſidered as quieſcent, to the neighbourhood of other bodies; and thus deſtroys the diſtinction between abſolute or real, and relative or apparent motion. He maintains that the ſame quantity of motion is always preſerved in the univerſe; becauſe, God, he ſays, muſt be ſuppoſed to act in the moſt conſtant and immutable manner. And hence he likewiſe deduces his three laws of motion. See MOTION.

Theſe principles of phyſics once ſuppoſed, Des Cartes explains mechanically, and according to the laws of motion, how the world was formed; and whence the preſent appearances of nature do ariſe. He ſuppoſes, that God created matter of an indefinite extenſion: that he divided this matter into little ſquare portions, or maſſes, full of angles; that he impreſſed two motions on this matter; one whereby each party revolved round its centre; another, whereby an aſſemblage or ſyſtem of them, turned round a common centre: whence aroſe as many different vortices, or eddies, as there were different maſſes of matter, thus moving round common centres.

Theſe things thus put into motion, the conſequences according to Des Cartes, in each vortex, will be as follow: the parts of matter could not move and revolve among each other, without having their angles gradually broken; and this continual friction of parts and angles muſt produce three elements: the firſt, an infinitely fine duſt, formed of the angles broken off; the ſecond, the ſpheres remaining, after all the angular irregularities are thus removed; theſe two make the matter of his firſt and ſecond element. And thoſe particles not yet rendered ſmooth and ſpherical, and which ſtill retain ſome of their angles, and irregular parts, make the third element.

Now the firſt, or ſubtileſt element, according to the laws of motion, muſt take up the centre of each ſyſtem, or vortex, by reaſon of the ſmalneſs of its parts, and this is the matter which conſtitutes the ſun, and the fixed ſtars above and the fire below. The ſecond element, compoſed of *ſpheres*, makes the atmoſphere, and all the matter between the earth and the fixed ſtars; in ſuch manner, as that the largeſt ſpheres are always next the circumference of the vortex, and the ſmalleſt next its centre. The third element, or the hooked particles, is the matter that compoſes the earth, all terreſtrial bodies, comets, ſpots in the ſun, &c.

The parts of the ſolar vortex, according to his ſyſtem, increaſe in denſity, but decreaſe in celerity, to a certain diſtance; beyond which he ſuppoſes all the particles to be equal in magnitude, but to increaſe in celerity. He accounts for the gravity of terreſtrial bodies from the centrifugal force of the ether revolving round the earth; and upon the ſame general principles he pretends to explain the phenomena of the magnet, and to account for every other operation in nature.

His ſyſtem, though very artfully concerted, yet carries with it more the air of a romance, than of a juſt philoſophy. Accordingly, both divines and philoſophers exclaim againſt it: the firſt, becauſe it leads to atheiſm, by furniſhing the maintainers of an eternal matter, with means how, from the laws of motion, to account for the production of the world: though it is certain, Des Cartes ſuppoſed a Deity; and ſo muſt all who admit his philoſophy; elſe whence will they derive that motion of matter, which of itſelf is deſtitute of any ſuch principle?

But the philoſophers have much better pleas againſt it; and the elements, ſubtile matter, hooked atoms, vortices, and other machines, are now clearly on the ſame footing with the occult quality of the ancient Peripatetics. Indeed Des Cartes, by introducing geometry into phyſics, and accounting for natural phenomena from the laws of mechanics, did infinite ſervice to philoſophy; and contributed both by his practice and example, to free it from that venerable ruſt, which in a long ſucceſſion of ages it had contracted: accordingly, to him, in ſome meaſure, is owing the preſent ſyſtem of mechanical, and even the Newtonian philoſophy.

Carteſianiſm was nearly prohibited by an arret of the parliament of Paris; and had been ſo, in effect, but for a burleſque addreſs preſented to the firſt preſident.

Rene des Cartes the noble founder of this ſect, was of Bretagne, born in the year 1596. His monument informs us, "That having ſtudied all the learning of the "ſchools, which proved ſhort of his expectation, he be-"took himſelf to the army, in Germany and Hungary; "and there ſpent his vacant winter hours in comparing "the myſteries and phenomens of nature, with the "laws of mathematics; daring to hope, that theſe "might unlock the other. Quitting therefore, all other "purſuits, he retired to a little village near Egmond, "in Holland; where ſpending twenty-five years in con-"tinual reading and meditation, he effected his de-"ſign."

He was a perſon of great genius and penetration, both as to the invention, and orderly ranging and diſpoſing of things. He began a new method of philoſophy, and finiſhed it on his own foundation. His reputation in foreign nations appears on his monument; which conſiſts of four faces, inſcribed with ſo many encomiums. It was erected at Stockholm, where he died, in the year 1650, by Monſieur Chanut, the king of France's reſident in that court. But his bones were afterwards removed to Paris, at the charge of M. d'Abbes, who alſo erected a handſome monument over them, in the church of St. Geneviefve.

See an accurate account and examination of the *Carteſian* ſyſtem, in Maclaurin's view of Sir Iſaac Newton's Philoſophical Diſcoveries, chap. iv.

CARTHAMUS. See *Baſtard* SAFFRON.

CARTHUSIANS, a branch of the BENEDICTINES, an order of religious, inſtituted by St. Bruno, about the year 1084 (ſome ſay in 1080, and others in 1088), remarkable for the auſterity of their rule, which obliges them to a perpetual ſolitude; a total abſtinence from fleſh, even at the peril of their lives; and to feed on bread, water, and ſalt, one day in every week; and abſolute ſilence, except at certain ſtated times.

Their houſes were uſually built in deſarts, their fare coarſe, and their diſcipline ſevere. It is obſerved that the monaſtical piety is ſtill better preſerved in this, than in any of the other orders. M. l'Abbé de la Trappe, however, endeavours to ſhew, that the *Carthuſians* do not live up to the auſterity enjoined by the ancient ſtatutes of Guigues, their firſt general. M. Maſſon, general of the order, anſwers the Abbé; and ſhews that what he calls the ſtatutes, or conſtitutions of Guigues, are, in reality, only cuſtoms compiled by father Guigues; and that they did not become laws till long after. The word is formed from *Carthuſianus*, or *Carthuſienſis*, a denomination given them in Latin, from a village in Dauphiné called *Chartreuſe*, in Latin *Carthuſium*, *Carteſium*, as ſome ſay, where the firſt monaſtery of this kind was erected. Hence the French call the religious of this order *Chartreux*, and their convents *Chartreuſes*; an appellation which alſo appears to have anciently obtained in England; whence the name of that celebrated hoſpital, or rather college, in London, the Charter-houſe; by corruption from *Chartreuſe*.

The *Carthuſian* habit is all white within, their ſcapular being joined in the ſides by two pieces of the ſame ſtuff. They wore a hair ſhirt next their ſkin. Their prior and procurator, who may go abroad upon the neceſſary affairs of the houſe, appear in a black cloak down to the ground, and a black hood over the white one; the hood not round, but tapering to a point.

There are few nuns of this order. There have, however, been ſome female *Carthuſian* convents; but the increaſe of them was prohibited in 1368; and there remain only *five* at this day, *four* in France and one at Bruges in Flanders. They were brought into England by Henry II. about the year 1180, and had only nine houſes; their firſt houſe being at Witham, in Somerſetſhire.

CARTHUSIAN *powder*, *poudre de Chartreux*. See KERMES *mineral*.

CARTILAGE, in *Anatomy*, a ſmooth, ſolid, uniform, flexible, elaſtic part of an animal; ſofter than a bone, but harder than any other part.

Cartilages form to be nearly of the ſame nature with bones, and only to differ as more or leſs hard. There are ſome very hard, and which even become bony with time; as thoſe v.g. which form the ſternum. Others are ſofter, and ſerve to compoſe entire parts; as thoſe of the noſe, ears, &c. where an eaſy gentle motion is required; their natural elaſticity ſerving them inſtead of antagoniſt muſcles.

There are others ſofter ſtill, partaking of the nature of ligaments, and thence called *ligamentous cartilages*.

There are *cartilages* of various figures, acquiring various names from the things they reſemble: one is called *anomalous*, becauſe it reſembles a ring; another *ſcipoides*, from its reſembling the point of a dagger; a third *ſcutiformis*, becauſe made like a buckler; and ſo of the reſt. See each under its proper head.

Cartilages have no cavities for marrow; nor any membranes, or nerves, for ſenſation. Their uſes are to prevent the bones from being damaged or wounded by a continual friction; to join them together by a lynchondroſis; and to contribute, in great meaſure, to the well forming of ſeveral parts; as the noſe, ears, trachea, eyelids, &c.

Cartilages cover the extremities of bones joined together by moveable articulations, increaſe the volume of ſome of them after the manner of epiphyſes, unite others very cloſely together, and have no immediate adhetion or connexion with others. The *cartilages* which belong to the bones, differ from each other in fize, figure, ſituation, and uſe, and may all be ranked under two general heads; thoſe which are cloſely united to bones, and thoſe which are not immediately connected with them. The *cartilages* united to bones are of four kinds; ſome cover both ſides of the moveable articulations, and are very ſmooth and ſlippery; ſome unite the bones to each other, either ſo firmly as to allow no ſenſible motion, as in the ſymphyſis of the *oſſa pubis*, and ſtill more in that by which the epiphyſes are joined to the bones; or in ſuch manner as to allow of different motions, as in thoſe by which the bodies of the *vertebræ* are connected. The firſt eaſily grow hard, but the others appear in ſome degree yielding, and retain their flexibility.

Some increaſe the ſize and extent of bones, as the cartilaginous portions of almoſt all the true ribs: theſe are articulated with bones; others with *cartilages*, as the *ſpatum narium*; others ſerve only for borders, as thoſe of the baſis of the *ſcapula*, and of the *criſta* of the *oſſa ilium*, the *ſuperciſia* of cavities, and thoſe of the ſpinal and tranſverſe proceſſes of the *vertebræ*. Some, in fine, have a ſingular form, as thoſe of the ears, and moſt of thoſe of the noſe; in which laſt, their elaſticity appears moſt ſenſibly. The *cartilages* belonging to the ſecond general claſs, or thoſe not immediately joined to bones, are for the moſt part placed in the moveable joints; and theſe may likewiſe be ſubdivided into ſeveral kinds. Some lie altogether looſe, being neither joined to the articulated bones, nor to the *cartilages* which cover them, but ſlide freely between them in different directions; as thoſe which are placed in the articulation of the *tibia* with the *os femoris*; in that of the lower jaw with the *oſſa temporum*; and in that of the clavicle with the ſternum. Thoſe between the clavicle and acromium, and between the firſt and ſecond *vertebræ* of the neck, are of the ſame kind. Some are partly joined to other *cartilages*, and partly ſlide between the cartilaginous extremities of the articulated bones, as the *cartilage* at the lower extremity of the *radius*. There may alſo be reckoned among the *cartilages*, though not ſo properly, ſeveral of the ſmall ſeſamoide bones, which remain long cartilaginous; and alſo the cartilaginous portions of tendons, which do the ſame office with the ſeſamoide bones. Wiſlow.

It is commonly held, that all bones in their original were only *cartilages*, and arrived at the hardneſs of BONES by a gradual induration.

Hence it is, that in ſome caſes the *cartilages* themſelves have been found oſſified; of which a famous inſtance happened ſome years ago at Milan, where a malefactor was judged innocent, and ſaved, becauſe his *apparatoria* being turned bony, he was not ſuffocated by the hangman's rope.

CARTILAGES, *articulating*. See JOINT *Cartilages*.

CARTILAGINOUS *fiſhes*, thoſe, whoſe ſpine, or back-bone,

bone, is of the consistence of a cartilage, being hollow within, and containing medulla. See ITEM.

Cartilaginous fins, are of two kinds; flat, as the rais or skates; and long and round, as the *eels*, &c.

CARTILAGINOUS *leaf*, among *Botanists*. See LEAF.

CARTON, or, as we pronounce it, CARTOON, in *Painting*, a design, made on thick paper, to be afterwards calqued through, and transferred on the fresh plaster of a wall, to be painted in fresco.

The word, in the original French, signifies *thick paper*, or *pasteboard*.

CARTON is also used for a design coloured, for working in mosaic, tapestry, &c. The *Cartons* formerly preserved at Hampton-court, but now in the queen's palace at Buckingham-house, are designs of Raphael Urbin, intended for a tapestry. See Richardson, in his Essay on Painting; where he spends a great part of a chapter on the colouring of the *Cartons*.

CARTOUCH, a wooden case about three inches thick, got round with musin, and loaded with two, three, or four hundred musquet balls, besides six or eight balls of iron of a pound weight, to be fired out of a small sort of mortar, chiefly for the defence of a pass, or the like. The *cartouch* is also called by the French *gargouse*, *garbe*, *garbe*, or *garbage*.

In cannon of calcomacy, or other posts, which defend the passage of the dock, or the like, *cartouches* have a terrible effect: since, bursting asunder, they spread the shot they are loaden with far and wide. These are divers other forms and compositions of *cartou hes*, and is one made for grape.

CARTOUCH is also used for what is more frequently called a CARTRIDGE.

CARTOUCHE also denotes an ornament in architecture, sculpture, &c. representing a scroll of paper; being usually in form of a tablet, or flat member, with writings; wherein is some inscription, or device, ornament of armory, cypher, or the like.

It is nearly akin to a medallion, from which it only differs in this, that the latter is used under the cornice in the cave of a house, and the former in wainscotting within doors. Some workmen call the *cartouches* DENTILS.

The word is French, formed from the Italian *carteccia*, which signifies the same.

Cartouches are sometimes drawn on paper, as in the titles of maps, &c. and are sometimes made of stone, brick, plaster, wood, &c. for buildings.

CARTOUCHES, in *Heraldry*, a name given to a sort of oval shields, much used by the popes and secular princes in Italy, and others, both clergy and laity, for painting or engraving their arms on. Many suppose this form derogatory to the honour of the person; but though the square shield, with the rounded and pointed bottom, is more in use with us, as also with the French and Germans, yet this is supposed more truly the figure of the Roman shield worn by the soldiery, and therefore more ancient and honourable than either that or the indented shield of the Germans.

CARTRIDGE, in the *Military Art*, the charge or load of a fire-arm, wrapped up in a thick paper, paste-board, or parchment; to be the more readily charged, or conveyed into the piece.

Cartridges are the same with what the French call *cartouche*; from which word Skinner scruples not to derive *cartridge*.

Those of cannon and mortars are usually in cases of pasteboard, or tin, sometimes of wood, half a foot long; taking up the place of the bullet in the piece, to whose caliber the diameter is proportioned. Those of musketers, pistols, and small arms, only contain the charge of powder, with a ball wrapped up in a thick paper.

Flannel *cartridges* are now preferred, because they do not retain the fire, and sure therefore less liable to accidents in loading. A parchment cap is made to cover them, in order to prevent the dust of powder from passing through them, which is taken off before they are put into the piece. Mr. Muller recommends for this purpose to boil the flannel in fize. In quick firing, the shot is fixed to the *cartridge* by means of a wooden bottom, hollowed on one side, so as to receive nearly half the shot, which is fastened to it by two small slips of tin crossing over the shot, and nailed to the bottom; and the *cartridge* is tied to the other end of this bottom. They are fixed likewise in the same manner to the bottoms of the grape-shot, which are used in field-pieces. Syst. of Math. &c. vol. v. p. 291.

CARTRIDGE-*box*, a wooden or iron case, covered with leather, holding a dozen or more musket *cartridges*, borne by the soldier on his belt, hanging a little below the right pocket-hole.

CARVA, in *Botany*, a name given by the Indians to one of the kinds of cinnamon-tree. This is of all others the most esteemed among them, and serves for the most purposes. They extract camphor and a liquid oil from the leaves; they extract oil of cinnamon from the bark; and from the leaves they make another oil, which is called oil of cloves, and sold as such. The fruit yields them an oil resembling that of juniper, and afterwards they extract from them a thick, fat substance, like wax, serving them for the making of unguents and plasters, and also for the making of their candles.

CARVAGE, *carvagium*, the same with CARUCAGE.

Henry III. is said to have taken *carvages*, that is, two marks of silver of every knight's fee, to marry the marriage of his sister Isabella to the emperor.

Carvage could only be imposed on the tenants *in capite*.

CARVAGE also denotes a privilege whereby a man is exempted from the service of *carvage*.

CARUCATARIUS, in *Ancient Law Books*, he that held land by CARUCATE, or by plough tenure.

CARUCATE. See CARUCATA.

CARVER, a cutter of figures or other devices in wood. See CARVING.

Carvers answer to what the Romans called *sculptores*, who were different from *scalptores*, or engravers, as these last wrought in metal.

CARVER is also an officer of the table, whose business is to cut up the meat, and distribute it to the guests.

The word is formed from the Latin *carpere*, which signifies the same. The Romans also called him *carpi*, sometimes *scissor*, *sindonis mundior*, and *structor*.

In the great families at Rome, the *carver* was an officer of some figure. There were masters to teach them the art regularly, by means of figures of animals cut in wood. The Greeks also had their *carvers*, called *tarsiæ*, q. d. *dexterous*, or *dispatchers*. In the primitive times, the master of the feast carved for all his guests. Thus in Homer, when Agamemnon's ambassadors were entertained at Achilles's table, the hero himself carved the meat. Of later times, the same office on solemn occasions was executed by some of the chief men of Sparta. Some derive the custom of distributing to every guest his portion, from those early ages when the Greeks first left off feeding on acorns, and learned the use of corn. The new diet was to great a delicacy, that to prevent the guests from quarrelling about it, it was found necessary to make a fair distribution. Athen. Deipn. lib. i. cap. 10. Potter. Arch. lib. iv. cap. 10.

CARVING, in a general sense, the art or act of cutting or fashioning a hard body by means of some sharp instrument, especially a chissel.

In which sense, *carving* includes statuary and engraving, as well as cutting in wood.

CARVING, in a more particular sense, is the art of engraving or cutting figures in wood.

In this sense, *carving*, according to *Pliny*, is prior both to statuary and painting. See CUTTING *in wood*.

CARVIST, in *Falconry*. See FALCON.

CARUM, in *Botany*. See CARAWAY.

CARUNCULA, CARUNCLE, a term in *Anatomy*, properly signifying a little piece of flesh, being a diminutive of the latin *caro*, *flesh*.

The name *carunculæ* is applied to several parts of the body; as,

CARUNCULÆ *cutaneæ alæ*, a name which some anatomists give the NYMPHÆ.

CARUNCULÆ *lachrymales*, are two little eminences, one in each great canthus, or corner of the EYE; separating the two *puncta lachrymalia*.

Some retain the appellation *lachrymalis* to the *caruncula* in the greater, or inner canthus; calling that in the lesser canthus *innominata*.

Some have given the name *caruncula* to that pendant fleshy part called UVULA, or *columella*.

CARUNCULA is also applied to certain fleshy morsels preternaturally contained in divers parts and humours of the body. We sometimes meet with capillary *carunculæ* excreted with the urine. See TRICHIASIS.

To the head of *caruncinlæ* also belong those fleshy excrescences called *polypusses*. See POLYPUS.

CARUNCULÆ *myrtiformes*, in *Anatomy*, are four little *caruncles*, or fleshy knobs, about the size of myrtle-berries, whence their name; found adjoining to, or rather in the place of the HYMEN, in the parts of generation in women.

Some suppose them to be largest in maids, and to grow less and less by the use of venery; but others, with more probability, make them the consequences of venery in the first copulation; deriving them from the broken membrane of the *hymen*, whose fragments shrunk up they appear to be.

CARUNCULÆ *papillares*, or *mamillares*, are little protuberances in the infide of the *pelvis* of the KIDNEYS, made by the extremities of the tubes which bring the serum from the glands in the exterior parts, to the *pelvis*.

They were firſt diſcovered by Carpus; and thus called, from their reſembling a little teat or pap. They are in form of acorns heads, and are leſs red than the fleſh, as well as harder than the ſame. They are about the bigneſs of a pea, but larger at top than at bottom; ending, as it were, in a point, in the place where they are perforated to let the urine fall into the *penis*.

CARUNCULÆ URETHRÆ. See BOUGIE and *Medicinal* CANDLES.

CARUS, *Kapos*, in *Medicine*, a ſpecies of lethargic diſeaſe, conſiſting in a profound ſleep, with a ſudden deprivation of ſenſation and motion, and an acute fever.

The *carus* differs from *coma* in this, that the patient, in the latter, anſwers when interrogated; but not in the former: from a lethargy it is diſtinguiſhed by the fever which attends it, which the lethargy is free from; and by the return of ſenſation, which the lethargic perſon finds when agitated or pricked: from a proper apoplexy, by the freedom of reſpiration, which is always hurt in an apoplexy: from an epilepſy, in that there is no motion or froth at the mouth in the *carus*: from a ſyncope, by the pulſe, which is high, and the face ruddy; whereas the pulſe is low, and the face cadaverous, in the ſyncope: from an hyſteric ſuffocation, in that the patient hears and remembers things in the latter, not in the former.

CARYATES, in *Antiquity*, a feſtival in honour of Diana, ſurnamed Caryatis, held at Caryum, a city of Laconia. The chief ceremony was a certain dance, ſaid to have been invented by Caſtor and Pollux, and performed by the virgins of the place.

During Xerxes's invaſion, the Lacedæmonians not daring to appear and celebrate the cuſtomary ſolemnity, to prevent incurring the anger of the goddeſs by ſuch an intermiſſion, the neighbouring ſwains are ſaid to have aſſembled and ſung paſtorals, or *bucoliſts*, which is ſaid to have been the origin of bucolic poetry.

CARYATIDES, or CARIATES, in *Architecture*, a kind of order of columns, or pilaſters, under the figure of women, dreſſed in long robes, ſerving to ſupport entablatures. See *Tab. Archit. fig.* 38.

The origin of the *Caryatides* is related by Vitruvius: the Greeks, he obſerves, having taken the city *Carya*, led away their women captives; and to perpetuate their ſervitude, repreſented them in their buildings as charged with burdens, ſuch as thoſe ſupported by columns.

Though this order, as many call it, differs from the general ſimplicity and plainneſs of the ancients, it is, nevertheleſs, introduced in many of their buildings: the temple of Erichtheus, at Athens, affords a beautiful inſtance.

The *Caryatides*, M. le Clere obſerves, are not now repreſented as among the ancients, viz. as ſymbols of ſlavery, with hands tied before and behind; thoſe characters being ſuppoſed to be injurious to the fair ſex. Among us, they are repreſented as images of juſtice, prudence, temperance, &c. Their legs are always to be cloſe to each other, and even acroſs; their arms are laid flat to the body, or to the head, or at leaſt as little ſpread as poſſible; that as they do the office of columns, they muſt have, as near as poſſible, the figure thereof. Sometimes their arms are cut off, for the greater delicacy; as in the hall of the Swiſs guards in the Louvre: but M. le Clere does not approve ſuch mutilations.

When inſulated, they ſhould never have any great weight to ſupport; and their entablature and podeſtal are ordinarily to be Ionic.—When they join to a wall, &c. it is adviſeable to put a conſole over them, which may appear to ſuſtain the weight of their entablature: otherwiſe, as they repreſent women, they do not ſeem ſo proper to ſuſtain great loads.—When they are made in form of angels, the ſame author would have them ſupport the entablature, which in that caſe is to be Corinthian, with their hands.

The ancients made the *Caryatides* frequently to ſupport baſkets, or corbeils of flowers; and theſe they called CANEPHORÆ; or *ciſtiferæ*.

CARYOCATACTES, in *Ornithology*, the name of a bird of the magpye kind, of a browniſh colour, all over beautifully variegated with white triangular ſpots, and very full of white feathers about the anus and origin of the tail. It is common in the mountainous parts of Germany.

CARYOCOSTYNUM, in *Pharmacy*, a kind of purging electary, the two principal ingredients of which, that give the denomination to the whole, are cloves, and coſtus. It works briſkly, and fetches the humours from the moſt remote parts: whence, and by reaſon of its warmth, it is preſcribed againſt rheumatic, arthritic, hydropic, paralytic, &c. diſorders.

CARYOPHYLLATA, *avens*, in *Botany*. See HERB *Bennet*.

CARYOPHYLLEOUS, in *Botany*, a term uſed by Mr. Tournefort to expreſs a ſort of flowers of the pink kind, or reſembling the pink-flowers in ſhape. Theſe are compoſed of ſeveral petals diſpoſed in an orbicular form, and riſe from the bottom of the cup as from a ſort of tube. See *Tab.* IX. *of Botany, Claſs* 8.

CARYOPHYLLON *Pimis*, the fruit of the *roſſa caryophyllata*, or cloveberry-tree, whoſe bark is uſed in medicine.

CARYOPHYLLUS, the CLOVE.

CARYOPHYLLUS *aromaticus*, in *Botany*, the *clove-ſpice*. See CLOVE-*tree*.

CARYOPHYLLUS *marinus*, a name given by Dr. Woodward to a foſſile *mycetites*, or corallioide body found in ſeveral parts of Germany.

CARYOTA, in *Botany*, the name of a genus of plants deſcribed by the author of the Hortus Malabaricus, under the name of *ſchunda-pana*, and belonging to the *polygamia* of Linnæus. The characters are theſe: it produces male and female flowers in the ſame ear; the male flowers have for their cup the whole compound ſpatha: the flower is divided into three parts, and the petals are very ſmall and ſharp-pointed; the germen of the piſtil is roundiſh, the ſtyle is pointed, and the ſtigma ſimple; the fruit is a roundiſh berry, containing only one cell, in which are contained two large and oblong ſeeds, which are cylindric or rounded on one ſide, and flatted on the other.

CARYSTIUM *linum*. See LINUM *caryſtium*.

CARYSTIUM *marmor*. See MARMOR.

CARYUS, in the *Materia Medica*, a name given by Dioſcorides, and ſome other of the ancient Greeks, to the *eryngium*, or ſea-holly, called by us *eryngo*. It was thus named from its having a ſmall head or cluſter of flowers like a walnut. See ERYNGIUM.

CASA, in *Antient* and *Middle Age Writers*, is uſed to denote a cottage or houſe.

CASA *Santa*, denotes the chapel of the Holy Virgin at Loretto.

The *Santa Caſa* is properly the houſe, or rather chamber, in which the bleſſed Virgin is ſaid to have been born, where ſhe was betrothed to her ſpouſe Joſeph, where the angel ſaluted her, the Holy Ghoſt overſhadowed her, and, by conſequence, where the ſon of God was conceived or incarnated.

Of this building the catholics tell many wonderful ſtories, too childiſh to tranſcribe.

The *Santa Caſa*, or holy chamber, conſiſts of one room, forty-four ſpans long, eighteen broad, and twenty-three high. Over the chimney, in a niche, ſtands the image called the great *Madonna*, or Lady, four feet high, made of cedar, and, as they ſay, wrought by St. Luke, who was a carver as well as a phyſician. The mantle or robe ſhe has on is covered with innumerable jewels of ineſtimable value. She has a crown, given her by Lewis XIII. of France, and a little crown for her ſon.

CASCABLE, the knob or button of metal behind the breech of a CANNON, as a ſort of handle whereby to elevate and direct the piece: to which ſome add the fillet and ogee as far as the baſe-ring. See *Tab. Gunnery, fig.* 1.

The neck of the *caſcable* is the part which joins it to the breech-mouldings; its diameter is $\frac{1}{4}$ of a calibre; that of the button ſomething more than a calibre. The length of the *caſcable* is always two calibres and a quarter. They are made of various figures, ſometimes like a bunch of grapes, or like the heads of different kinds of animals. The French diſtinguiſh their calibres by the different forms of their *caſcables*; in England they are made with a button and a few breech-mouldings.

CASCADE, a ſteep fall of water from a higher into a lower place.

The word is French, formed of the Italian *caſcata*, which ſignifies the ſame; of *caſcare, to fall*; and that from the Latin *cadere*.

Caſcades are either natural, as that of Tivoli, &c. or artificial, as thoſe of Verſailles, &c. and either falling with a gentle deſcent, as thoſe of the Sceaux; in form of a buffet, as at Thiaucn; or down ſteps, in form of a cafcade, as at St. Cloud; or from baſon to baſon, &c.

A natural *caſcade*, falling with a great noiſe, is more properly called a CATARACT.

CASCANS, or CASCANES, in *Fortification*, are holes and cavities in form of wells, made in the terreplein, near a rampart; from whence a gallery dug in like manner, under ground, is conveyed, to give air to the enemies mine.

CASCARILLA, a name by which ſome authors have called the Jeſuit's bark: the *quinquina*, or *china-china*, of other writers: but more generally applied to the *thuſſac-rio*. See THUS *Judaicum*.

CASE, ſometimes denotes a veſſel, or receptacle in form of a tomb, commonly decorated with gold and ſilver, wherein the body of a ſaint, or ſome RELICS of it, are preſerved.

In which ſenſe, the word is formed from the French *chaſſe*.

Originally theſe *caſes* were made in the figure of little Gothic churches, purſuant to that ancient Chriſtian maxim, that the ſaints having been the living temple of the Holy Ghoſt, are entitled, after their death, to have their bones incloſed in the figure of the viſible houſe of God.

The *caſe* of St. Genevieve is never brought down without great ceremony, nor except in time of extreme publick dangers or calamities.

CASE, in *Grammar*, is underſtood of the different inflexions or terminations of nouns, ſerving to expreſs the different ſtates or relations they bear to each other, and to the things they repreſent. For the reaſon of the name, ſee DECLENSION.

There is a great diverſity among grammarians, with regard to the nature and number of *caſes*: they generally find ſix *caſes* even in moſt of the modern languages, which they call the *Nominative*, *Genitive*, *Dative*, *Accuſative*, *Vocative*, and *Ablative*: but this ſeems only in compliance with their own ideas, which are formed on the Greek or Latin, and which they tranſfer to other languages.

The truth is, if, by *caſe*, be only meant an occaſional change in the termination of a noun, or name, which ſeems to be the juſt idea of *caſe*; there will, in this ſenſe, be juſt as many *caſes* as there are different terminations of nouns in the ſame number, i. e. in ſome languages more, in others leſs, and in others none at all.

Indeed, the generality of authors either have not any preciſe notion of *caſes* at all, or they wander ſtrangely from that notion: for they always reckon five *caſes* of nouns in the Greek, and ſix in the Latin: though ſeveral of theſe *caſes* be frequently alike, as the genitive and dative ſingular, of the firſt declenſion of the Latin; the dative and ablative plural of the ſecond, &c. the genitive and dative dual of the Greek, &c. So that the termination is not the ſole criterion of the *caſe*.

It ſeems, however, much more agreeable to the principles of grammar, which only conſiders words materially, to make as many different *caſes*, as there are changes in the terminations of a name; which would free the Engliſh, and other modern tongues, from the embarraſſment of *caſes*; moſt of them expreſſing the various relations, not by changes in termination, as the ancients; but by the ſituation of the ſubſtantive, as in the nominative and accuſative caſes, or by the appoſition of articles and prepoſitions. On this footing it is certainly wrong to ſay, *of a father*, is the genitive *caſe* of father; and *to a father*, the dative; for *of* and *to* are no part of the noun *father*: they are no cloſes or terminations, but articles or modificatives, which ſhew the different relation of the word *father*. And the ſame may be ſaid of the *caſes* of nouns in the French, Italian, Spaniſh, Portugueſe tongues, &c. Neverthelefs, the relation of poſſeſſion, which anſwers to the genitive *caſe* is often expreſſed by a different termination of the ſubſtantive: as "God's grace," or, as it was formerly written, "Godis grace," the grace of God. So that the Engliſh ſubſtantives may be conſidered as having two terminations for *caſes*; that of the nominative, and that of the genitive or poſſeſſive *caſe*. In this reſpect it bears ſome reſemblance to the German, which is probably derived from the ſame Teutonic original.

But it is otherwiſe in the Greek name πατηρ, or the Latin *pater*; which are real *caſes* of the words πατερ, and *pater*, and different from thoſe words: and ſomewhat like this may be ſaid of the Hebrew, Arabic, Armenian, Poliſh, and German languages; which in the ſame number admit of changes, in the terminations of words: and yet in theſe languages, *caſes* are different from what they are in the Greek and Latin. The Hebrew nouns, for inſtance, are not properly declined by *caſes*; the relation expreſſed by the genitive *caſe*, it is true, occaſions an alteration in them; but then this alteration, inſtead of being in the noun governed, as in the Latin, in the Hebrew is in that which governs; as רכב שקר, *verbum ſubſtantive* where the change is not in שקר, *falſitas*, but in רכב for רכב, *verbum*.

It muſt be obſerved, however, that though many of the languages have not properly any *caſes* of nouns; yet moſt, if not all of them, have a kind of *caſes* in their pronouns, without which it would be hard to conceive the connexion, or ſyntax, of a diſcourſe; and which, therefore, make a neceſſary part of grammar; thus, in Engliſh, *I* and *we*; and in French, *Je* and *nous*. See the relations expreſſed by each *caſe*, under its proper head, NOMINATIVE, GENITIVE, DATIVE, &c.

CASE, in *Printing*, a large, flat, oblong frame, placed aſlope, divided into ſeveral compartments, or little ſquare cells; in each of which are lodged a number of types, or letters of the ſame kind: whence the compoſitor takes them out, each as he needs it, to compoſe, and make a page, or form.

A frame of *caſes*, in printing, uſually conſiſts of two pair, viz. an upper and lower, Roman and Italic. A ſhallow *caſe* ſhews the letter baſe, as being the leaſt ſhadowed by the ſides of the boxes. A deep *caſe* has the advantage of holding a great number of letters, ſo that the compoſitor need not diſtribute ſo often.

They ſay, *a caſe*, or rather *pair of caſes*, of Greek, of Hebrew, of Pica, &c.

CASE of a ſilk-worm, is a lodge framed within its web, wherein to depoſit its *ova*.

CASE is alſo uſed for a certain numerous quantity of divers things: a *caſe* of piſtols implies a brace; a *caſe* of glaſs, &c. See GLASS.

CASE is alſo uſed for a frame ſurrounding a door, window, or the like. In which ſenſe we ſay a *door-caſe*, *window-caſe*, &c.

CASE, *action upon the*, in *Law*. See ACTION.

CASE, *ſpecial*, in *Law*, relates to a kind of ſpecial verdict in which the jury generally find a verdict for the plaintiff, but ſubject nevertheleſs to the opinion of the judge or the court above, on a *ſpecial caſe* ſtated by the counſel on both ſides with regard to a matter of law.

CASE *ſtated out of Chancery*, reſpects a queſtion of law in the proceſs of any cauſe referred by this court to the opinion of the judges of the court of King's Bench; before whom it is heard, and who certify their opinion to the chancellor in order to a decree.

CASE-HARDENING, a method of preparing iron, ſo as to render its outer ſurface hard, and capable of reſiſting the file, or any edged tool. It is uſed by file-cutters for caſtle files; by gun-ſmiths, to harden the barrels of guns; and by others, on other occaſions.

The proceſs of *caſe-hardening*, which is no other than a ſuperficial converſion of iron into ſteel, depends on the cementation of it with vegetable or animal coals. See HARDENING and STEEL.

CASE-SHOT, are muſquet-balls, ſtones, old pieces of iron, or the like, put up into *caſes*, and ſo ſhot out of great guns.

Caſe-ſhot is chiefly uſed at ſea, to clear the enemies decks when they are full of men.

CASEI *di cavallo*, the name of a peculiar cheeſe, famous in Italy and many other places, and made of the milk of the female buffalo, that ſpecies being as commonly tamed and kept there as the ox and beiſer with us.

CASEMATE, or CASEMENT, in *Architecture*, the ſame with *cavetto*, denotes a hollow MOULDING, which ſome architects make one fifth of a circle, and others one fourth.

CASEMATE, or CAZEMATE, in *Fortification*. See CAZEMATE.

CASEMENT, is uſed in building for a little moveable window uſually within a larger, being made to open or turn on hinges. We ſay, a ſingle *caſement*; a folding *caſement*; a *caſement* with a lock, with a turn-about or turn-buckle; a *caſement* with a cockſpur or pull-back at the hand-hole, whereby with to ſhew it to.

CASEOUS, ſomething that partakes of the nature or qualities of CHEESE.

MILK conſiſts of a *caſeous*, a butyrous, and a ſerous part. Whey, according to ſome naturaliſts, is formed of the *caſeous* parts of the juices of plants, ſeparated by the bees from the ſerous parts, which make the HONEY. Phil. Trans. N° 234. p. 368.

Cataracts are by ſome divided into milky, and *caſeous*, differing only in the degree of hardneſs or conſiſtence.

Konig gives a caſe of a *caſeous* EMPYEMA.

CASERNS, or CAZERNS, in *Fortification*, little rooms, or huts, erected between the ramparts, and the houſes of fortified towns, or even on the ramparts themſelves: to ſerve as lodgings for the ſoldiers of the garriſon, to eaſe the garriſon.

There are uſually two beds in each *caſern*, for ſix ſoldiers to lie, who mount the guard alternately; the third part being always on duty.

CASES *reſerved*, in the *Romiſh Polity*, are conſiderable ſins the abſolution of which *is reſerved* by the ſuperiors to themſelves, or their vicars.

There are ſome *caſes reſerved* by the pope, and others by the biſhops: in convents ſome are *reſerved* by the chapters, &c. None but theſe, or their vicars, can abſolve in ſuch *caſes*, except at the article of death, when all *reſerved caſes* are abſolvable, by the ordinary.

CASH, in *Commerce*, the ſtock or ready money, which a merchant, or other perſon, has *in his preſent* diſpoſal, to negotiate; ſo called from the French term, *caiſſe*, i. e. *cheſt*, or *coffer*, for the keeping of money.

M. Savary ſhews, that the management of the *caſh* of a company, is the moſt conſiderable article; and that wherein its good or ill ſucceſs chiefly depends.

CASH-

CASH-book. See BOOK.

CASHEW-Nut. See ACAJOU and ANACARDIUM.

CASHIER, *the cash-keeper*; he who is charged with the receiving and paying the sums of a society.

In the generality of foundations, the *cashier* is called *treasurer*.

CASHIERS *of the Bank*, are officers who sign the notes that are issued out, examine and mark them when returned for payment, &c.

CASHOO, a medicinal and aromatic drug, which is frequent among perfumers. All that has yet been advanced about the origin and composition of this drug, is entirely fabulous. What follows will sufficiently acquaint physicians, apothecaries, and druggists with what they ought to know of it. *Cashoo* is extracted from a tree which is called *cotes* in the country where it grows, which is a province of Indostan called Behar, the capital of which is Patna. This province, which is crossed by the famous river Ganges, lies a hundred leagues above the kingdom of Bengal. *Cashoo* is properly an extract made by a decoction and maceration of the several parts of this tree, and rendered solid by evaporation. There are two sorts of simple *cashoo*, the rough, and the purified or refined; the latter is a composition of purified *cashoo*, mixed with aromatic drugs, and made into lozenges. This *cashoo* is made for the use of the Indians, who chew it either alone, or mixed with pinang or areca. Rough *cashoo* is a commodity which is brought down the Ganges as far as Bengal; whence it is distributed throughout the Indies, where there is a great consumption of it; and to the Europeans, who send it into Europe. What is sent into Europe, however, is mostly purified: for *cashoo* is not used rough any where.

Cashoo is much valued in medicine: among other effects ascribed to it, is the stopping of a cough, and strengthening the stomach; beside which it sweetens the breath, when being reduced to an impalpable powder, mixed with ambergrise, and mucilages of gum adragant, it is made into pastils. *Cashoo* must be chosen of a tanned red on the outside, of a bright red within, very shining, and not burnt. Kæmpfer observes, that they prepare at Odowara perfumed *cashoo*, of which they make pills, small idols, *flowers*, and other figures, which they put into little boxes for sale. The women are very fond of it, and use a great deal of it, because it fastens the teeth, &c. The thickened juice is carried to Japan, by the Dutch and Chinese; and after it has been prepared at Macao, or at Odowara, they buy it again, and carry it to other places.

CASI, in the *Persian Policy*, one of the two judges under the nadab, who decide all religious matters, grant all divorces, and are present at all public acts; having deputies in all cities of the kingdom.

CASIA, in *Botany*, the name of a genus of plants, of which there are two species: 1. The Montpelier poetic *cassia*, called the berry-bearing shrub *syrian*. See PONT. *cassia*. 2. The tall myrtle-leaved Spanish *cassia*.

CASING, among *Hunters*, denotes the stripping off the skin of a hare, fox, or badger. They say, *flay* a deer, *case* a hare, and all sorts of vermin. This is done by beginning at the snout or nose of the beast, and so turning his skin over his ears down to the body, and the very tail.

CASING *of Timber-work*, is the plastering of a wooden house all over on the outside with mortar, and striking it, yet wet, by a ruler, with the corner of a trowel, or the like instrument, to make it resemble the joints of freestone: by which means, the whole house appears as if built thereof. It is best done on heart-laths, because the mortar is apt to decay the sap-laths in a short time. It is commonly laid on at two thicknesses, the second before the first is dry.

CASINGS, a country word for cow-dung dried, and used as fewel.

CASK, a piece of defensive armour, wherewith to cover the head and neck; otherwise called *helmet*, and *head-piece*. The word is French, *casque*, formed from *casseau*, or *casseret*, a diminutive of *casse*, *a helmet*.

Le Gendre observes, that anciently, in France, the *gens d'armes* all wore *casks*. The king wore a *casque* gilt; the dukes and counts, silvered; gentlemen of extraction wore them of polished steel; and the rest of plain iron.

The *casque* is frequently seen on ancient medals; where we may observe great varieties in the form and fashion thereof; as the Greek fashion, the Roman fashion, &c. F. Joubert makes it the most ancient of all coverings of the head, as well as the most universal: kings, emperors, and even gods themselves, were figured therewith. That which covers the head of Rome, has usually two wings, like those of Mercury: and that of some kings is furnished with horns, like those of Jupiter Ammon; and sometimes barely bulls or rams horns, to express his common force.

CASK, in *Heraldry*, the same with helmet.

CASK is also used as a common name for VESSELS of divers kinds; in contradistinction from the liquor, or other matter contained therein.

Thus a hogshead of spirits, &c. is said to weigh 4 C. 1 and 22 *lb. cask* and liquor; a puncheon, 6 C. 3 and 2 *lb. cask* and liquor. See TUN, &c.

CASK *of Sugar*, is a barrel of that commodity, containing from eight to eleven hundred weight. A *cask* of almonds is about three hundred weight.

No one shall transport any wine *casks*, &c. except for victualling ships, under a certain penalty, by 35 Eliz.

CASKET, in a general sense, a little coffer, or CABINET.

CASKETS, in *Sea-language*, are small ropes made of lines, and fastened to gromets, or little rings upon the yards; their use is to make fast the sail to the yard when it is to be furled.

CASKETS, *bread*, are the longest and highest of these, or those in the midst of the yard, between the ties.

CASLEU, in the *Hebrew Chronology*. See CISLEU.

CASPARGUS, in *Ichthyology*, a name given by Salvian, from Ælian, to the fish commonly called by authors, *sparus*, and by the Italians, *spara*. It is distinguished by Artedi by the name of the plain yellowish SPARUS, with a large annular spot near the tail.

CASQUE, in *Natural History*, a name given to a kind of murex, called the helmet-shell. There are several species of this shell, and they all approach somewhat to a triangular figure, and are smoother than the other murexes; yet they have all a sort of tubercles near the lip.

CASSADA, or CASSAVA, *Jatropha*, in *Botany*, a genus of the *monœcia monadelphia* class. Its characters are these: it hath male and female flowers on the same plant; the male flowers are salver-shaped, of one petal, whose brim is cut into five roundish segments which spread open: they have ten awl-shaped stamina, five alternately shorter than the other; the female flowers which are situated in the same umbel, have five petals spreading open like a rose; in the centre is a roundish germen with three deep furrows, which afterward becomes a roundish capsule with three cells, each containing one seed. There are eight species.

All these plants are natives of the warm parts of America, so are too tender to thrive in the open air in England. The first sort is cultivated in the West Indies for food; where it is propagated by cutting the stalks into lengths of seven or eight inches, which take root when planted.

They plant this shrub in new grounds designed for cacao walks, not only because they are absolutely necessary for a planter as food for his negroes; but also to prevent the growing of weeds, and to shade the young cacao plants as they come up, which would not otherwise be able to bear the excessive heat of the sun: for which reason they delay planting the cacao nuts until the *cassada* shrub be grown high enough to shade them.

They generally take up the *cassava* roots within a year or thereabout after planting: at the foot of every shrub are found several roots, of a fleshy substance, without any sensible fibres. They wash these roots well in water, and having scraped them as we do carrots, they rasp them with large copper rasps. The raspings are afterward put into a bag made of coarse cloth or rushes, and placed under a press, to express all the moisture, which is hurtful to animals, and even poisonous: they then dry the remaining matter over the fire, and when it is sufficiently dressed, they make it into cakes, which being dried either in the *sun*, or by artificial heat, are the *cassada* bread; which is very nourishing, and will keep without moulding, as well as biscuit.

The use of it is apt to contract the throat, if eaten dry, and sometimes brings on a danger of choaking; the best method is to moisten it in broth, or otherwise, before it is eaten, or else to have a bottle of water at hand to wash down every mouthful.

The juice expressed in preparing this root for bread, will kill any animal that drinks it crude: but it may be boiled over the fire till a great part is evaporated, and the remainder, if it be far evaporated, will be sweet, and serve in the place of honey; if less evaporated, and set by to ferment, it will make a very good and wholesome vinegar. The juice of the roucou or ANNOTTO is said to be a counter-poison for it.

The thicker cakes of *cassada* bread are eaten by the poorer sort: the thinner, called *farina*, are eaten by the rich. There is a kind of it which may be eaten raw, and which is now getting into use; instead of the other, which is a speedy poison, if eaten with its juice.

CASSAMUNAIR, or CASSUMUNIAR, in *Medicine*, an aromatic vegetable drug, brought from the East Indies, highly valued as a nervine and stomachic, and reputed a specific

ſpecific in epileptic and convulſive diſeaſes. It is ſuppoſed by ſome to be a ſpecies of galangal, by others of zedoary: its true name is not known, that of *caſſumunar* being apparently feigned to hide it: of late it has been imported by the name of *temptic*.

CASSANDRA, in *Natural Hiſtory*, a name given by ſeveral authors to a very elegant fea-ſhell of the *conchæ perſicæ*, or *nucleus* kind, more uſually known under the name of the LYRA, or harp-ſhell. It is ſuppoſed to be called *caſſandra*, becauſe of its being found on the ſhores of the iſland of Caſſia. There are three ſpecies of it.

CASSAON, in *Ichthyology*, the name of a ſmall fiſh of the ſhark kind, but leſs miſchievous, called CUCUAS by the Braſilians.

CASSATION, in the *Civil Law*, the act of abrogating, or annulling any act or procedure.

The word comes from the Latin *caſſare*, *to quaſh*, or *make void*.

The occaſions of *caſſation* are, 1ſt, when a decree is directly contrary to another decree; and both againſt the ſame party: 2dly, When decrees are directly contrary to the expreſs diction of ſtatutes or cuſtoms: 3dly, When the formalities preſcribed by the laws have not been obſerved.

CASSETTES, or CASSINS, in the *Manufacture of China Ware*, are veſſels made of Stourbridge or other good potter's clay with a third of ſand, in which the China ware is baked. They are generally made of a round form, with a flat bottom. They are either turned or formed in a mould. See PORCELAIN.

CASSIA, *wild ſenna*, in *Medicine* and *Pharmacy*, a purgative fruit, brought from the Eaſt, being the produce of a tree of the ſame name, called in Engliſh the *pudding-pipe-tree*.

This is ſometimes more particularly denominated *caſſia fiſtularis*, *wild ſenna*, or *pipes*, by way of diſtinction from another thing called *caſſia lignea*.

It is a genus of the *decandria monogynia* claſs. Its characters are theſe: the flower hath five roundiſh concave petals, which ſpread open; it hath ten declining ſtamina, of which three of the lower are long, and three upper ſhorter; the ſummits of the three lower are large, arched, hooked, and ſeparated at their points. In the centre is ſituated a long taper germen, which afterward becomes a long pod, divided by tranſverſe partitions, each containing one or two roundiſh ſeeds, faſtened to the margin of the upper valve. Miller enumerates fifteen ſpecies.

There are four kinds of *caſſia*, alike in properties, and nearly in figure; being all in long black pods: but very different, if conſidered with regard to the trees that produce them. Theſe are, the *caſſia* of the Levant, that of Egypt, that of Braſil, and that of the Antilles iſlands.

CASSIA *of the Levant*, is the fruit of a very high tree, whoſe bark is aſh-coloured, its wood very fine, and its grain cloſe; towards the centre, its wood is of an ebony black, towards the circumference yelloviſh; its flowers are yellowiſh, and produce a fruit in form of a long pod, ſoldered and mailive; of a reddiſh colour, bordering on black. When ripe, it is full of a black, ſweetiſh pulp, divided by little woody cells: in this pulp are found little hard grains, in manner of ſtones, ſhaped like hearts, which are the ſeeds of the tree. This *caſſia* muſt be choſen new, in large pods, heavy, and of a fine colour; the bark, when broken, fine and white within, full of a black ſoft pulp of a ſweetiſh taſte.

CASSIA *of Egypt*, is like that of the Levant, except that the tree is higher, and the leaves narrower; the fruit ſmaller, and the bark ſofter.

CASSIA *of Braſil*, is the largeſt of all: ſome of the pods are found four or five inches in circumference. This kind is not very common in the ſhops.

CASSIA *of the Iſlands*, is that now chiefly uſed; though heretofore the popular *caſſia* was the Lenitive. It is ſent from the Antilles, where it is produced in ſuch abundance, that the veſſels, in their home voyages, uſe it as ballaſt; whence it is, that we find it ſo often foul and dirty: the tree that yields it reſembles a peach-tree. Its flowers, which are yellow, grow in cluſters; and, as they decay, leave behind them a fruit or pod an inch thick, and a foot (ſometimes two) long. The fruit, while in its growth, is green; when ripe, it becomes of a dark violet colour. It is choſen in the ſame manner as that of the Levant.

When the pod is entire, and the pulp not yet taken out, it is moſt properly called *caſſia fiſtularis*, or *caſſia in the cane*. For uſe, the pulp is taken out, and driven through a hair ſieve. The apothecaries have little of the better kind, but what is old, and boiled up with ſugar, to make it keep.

Caſſia, when green, as alſo the flowers of the *caſſia*-tree, are candied in the Levant, and the iſlands; and have almoſt the ſame effects of the common *caſſia*, which is the baſis of moſt of the purgative electuaries.

CASSIA, *the tincture of*, is a light infuſion of the pulp with the ſeed.

CASSIA, *the extract of*, is nothing but the pulp ſeparated from the ſhell and the ſeeds; with the addition of a certain quantity of ſugar, to preſerve it from turning ſour. Officinal preparations from *caſſia*, are, the *caſſia extracta cum tel. & ſine ſenna*; and the *confectio ex caſſia*.

CASSIA *Caryophyllata*. See CLOVE-tree.

CASSIA *Lignea*, or XYLOCASSIA, is the bark of a tree much like that which bears the cinnamon; growing promiſcuouſly with it in the iſland of Ceylon, but more properly the cinnamon of Sumatra, Java, and Malabar. Phil. Tranſ. vol. xlviii. p. 381.

The ancients had two kinds of this bark, the *ſuccus expreſſus*, and the other the *xylocaſſia*. But they were only the names of the ſame thing collected in a different manner: however, they are applied by the moderns to different ſubſtances.

The two barks are gathered and dried in the ſame manner; in ſmell and taſte are nearly alike; they are equally ſweet, pungent, and agreeable, and their colour, form, and thickneſs ſcarce differ at all. But the *caſſia* is the fatter, and more mucilaginous; and in chewing diſſolves in the mouth, without leaving anything woody behind; whereas the woody part of cinnamon ſtill remains, though ever ſo well chewed.—Some authors will have the tree which bears cinnamon bear the *caſſia* too; and make the only difference between them to conſiſt in this, that the firſt comes from Ceylon, and the latter from the coaſt of Coromandel. Of this opinion is Mr. White, who maintains that the difference in their produce is merely the effect of culture, and of the different manner of curing the plant. Phil. Tranſ. vol. l. part ii. N° 116. See CINNAMON. The Edinburgh college direct a ſimple water to be kept, ten pints of which are drawn from a pound and a half of *caſſia lignea*.

CASSIA *ſtalks*, in the *Gloſs Trade*, is that iron with a piece of wood placed on it, on which they lay the glaſs after they have taken it off the pipes, and on which they turn the glaſs, to faſten the pontee to it.

CASSIANI, a ſect in *Civil Law*, who adhered to the ſyſtem and interpretations of Caſſius, a celebrated lawyer, in oppoſition to thoſe of Proculus, whoſe adherents were denominated *Proculiani*.

CASSIANISM, from *Caſſian*, a teacher in Gaul to thoſe who were called ſemipelagians towards the cloſe of the fifth century, is ſometimes uſed for SEMIPELAGIANISM.

CASSIDA, in *Botany*. See SKULL-cap.

CASSIDA, in *Zoology*, the name given by Dr. Hill to a genus of BEETLES, called in Engliſh the tortoiſe-beetles, but comprehended by Linnæus under the *order of inſecta*, in the claſs of inſects. See SCARABÆUS.

Under this genus are comprehended all the cryptated beetles, or thoſe covered with a hard cruſt; of which there are a great many ſpecies.

CASSIDARUS, in the *Ancient Armories*, he who had the care and cuſtody of the *caſſides*, or helmets.

Spon gives an ancient inſcription found at Rome, on a tomb erected to a *caſſidarius* of the emperor Domitian.

CASSIDONY, a name given by the Italians and Germans to a ſort of beads made of the yellow and red chalcedony, a very beautiful ſtone, or of an agate ſomething reſembling it in colour. They alſo call the ſtones themſelves by this name; but are by no means determinate in the meaning of the word, not reſtraining it to any one peculiar ſpecies.

CASSIDONY, *Sinachar*, in *Botany*, Tourn. Inſt. R. H. 201. tab. 95. Its characters are theſe: the flower hath an oval permanent empalement, whoſe brim has ſome obſcure indentures; it is of the lip-kind, having a cylindrical tube longer than the empalement, whoſe brim ſpreads open. The upper lip is large, bifid, and open; the under cut into three roundiſh, almoſt equal ſegments. It has four ſtamina within the tube, which are turned aſide, two of them ſhorter than the other terminated by ſmall ſummits; and a quadrifid germen ſupporting a ſlender ſtyle the length of the tube, crowned by an obtuſe indented ſtigma. The germen turns to four almoſt oval ſeeds, which ripen in the empalement. To which the following notes muſt be added: the flowers are ranged in ſeveral ſeries, and the ſpikes terminated by tufts of leaves. There are three ſpecies.

Linnæus has joined this genus to *lavendula* or LAVENDER.

The flowers of the *ſpachos* are much uſed in medicine, in diſeaſes of the head and nerves, eſpecially in ſuch as are ſuppoſed to ariſe from cold cauſes. They alſo promote the evacuation by urine, and by the menſes; and in ſome places are eſteemed one of the greateſt antidotes, and given in large doſes againſt the effect of poiſons, and the bites of venomous animals. Meſue, and the Arabians

in general, speak of it as a purge, and particularly as good in cases where phlegm was to be evacuated; though they say it did this but slowly and weakly. At present, we do not acknowledge any purging quality in it. There is a very fragrant oil drawn from the flowers and tops of this plant, in the same manner as that from lavender; but it is not much in use with us. The flowers are an ingredient in the Venice treacle, mithridate, and some other of the officinal compositions.

It is to be observed that there is another plant, called *ſtœchas*, in the ſhops; and by the writers on the materia medica; this has the epithet *citrina*, for its diſtinction from the *ſtœchas* we have been treating of, which is either called *ſtœchas* without any addition, or *ſtœchas Arabica*. The *citrina ſtœchas* has none of the virtues of this kind, nor is it of the ſame genus of plants, but of the ELICHRYSUM kind.

The ſeveral ſpecies of *ſtœchas* are propagated by ſowing the ſeeds in March, in a bed of dry light earth; when the young plants are about three inches high, they muſt be removed into other beds, and placed at about ſix inches diſtance, watering and ſhading them till they have taken root. They muſt alſo then be kept clear from weeds, and ſheltered from the ſeverity of the winter by mats, or a light covering of pea haulm, or other ſuch matter: and in March, or the beginning of April, they may be removed into the places where they are to remain. The poorer the ſoil is, in which they are planted, the better they will ſtand the winter, and the more fragrant will be their flowers. They may be propagated by cuttings planted in ſpring, but the ſeeds ripening very well with us, the raiſing of them from thoſe is the much better way.

CASSIDONY, *mountain*. See CUDWEED.

CASSILI, in *Natural Hiſtory*, a name given by the inhabitants of the Philippine iſlands to a ſpecies of water-raven, called alſo *colocolo*.

CASSINE, in the *Military Language*, is a farm-houſe, where a number of ſoldiers have poſted themſelves, in order to make a ſtand againſt the approaches of an enemy.

CASSIOBURY, *buſh*, *Caſſine*, in *Botany*, a genus of the *pentandria trigynia* claſs. Its characters are theſe: the flower hath but one petal, which is cut into five obtuſe ſegments; it hath five ſtamina, which ſpread from each other; and a conical germen, which afterward becomes an umbilicated berry with three cells, each containing a ſingle ſeed. There are two ſpecies.

In South Carolina, it is called *caſſina*, or South-ſea thea. The inhabitants of that country do not make ſo great uſe of this tea, as thoſe of Virginia and North Carolina; in the laſt of which the white people have it in as great eſteem as the Indians, and make as conſtant uſe of it.

CASSIOPEA, in *Aſtronomy*, one of the conſtellations of the northern hemiſphere, ſituate next to Cepheus.

In 1572, there appeared a new ſtar in this conſtellation, which at firſt ſurpaſſed in magnitude and brightneſs Jupiter himſelf: but it diminiſhed by degrees, and at laſt diſappeared, at the end of eighteen months. It alarmed all the aſtronomers of that age, many of whom wrote diſſertations on it; among the reſt Tycho Brahe, Kepler, Maurolycus, Lycetus, Gramineus, &c. Beza, the landgrave of Heſſe, Roſa, &c. wrote to prove it a comet, and the ſame which appeared to the Magi, at the birth of Jeſus Chriſt, and that it came to declare his ſecond coming: they were anſwered on this ſubject by Tycho.

The ſtars in the conſtellation *Caſſiopea*, in Ptolemy's Catalogue, are thirteen; in Hevelius's, thirty-ſeven; in Tycho's, forty-ſix; but in the Britannic Catalogue, Mr. Flamſteed makes them fifty-five. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and ſituations of the ſtars.	Bayer's Char.	Signs.	Longit.		Latitude			Magnitude.
			°	′	°	′		
		♈	21	6	45	0	0N	6
			21	29	16	56	26	10	5
			23	5	5	14	38	32	6
			27	42	49	57	10	12	5
North, in the top of the chair back.			26	46	31	52	39	50	5
5.									
		♉	1	9	40	55	7	45	6
South, in the top of the chair back.		♈	26	46	24	51	9	17	6
In the preceding arm of the chair.			25	50	43	49	23	50	6
		♊	3	28	59	53	57	10	6
			6	4	38	55	10	6	6
10.									
In the middle of the chair back, the *lucida ſuperior*.		♉	0	48	6	51	13	50	3.4
			5	19	25	12	2	20	6
			12	9	2	55	2	40	6
A ſmall one againſt the chair.		♋	0	21	23	43	8	50	5
In the bottom of the chair back, over the ſeat.		♌	8	20	29	32	14	40	4
15.									
In the head.			12	47	47	54	59	48	6
In the head, *Schedir*.		♎	0	47	38	14	42	1	4
Preced. of the north. in the rod.		♍	3	30	23	40	35	5	3
South. in the rod.		♐	29	10	4	11	25	50	6
		♑	27	6	18	38	19	0	6
20.									
			25	15	54	49	55	43	6
Middle in the rod.		♒	0	20	10	2	39	17	45	6
			8	2	14	30	59	41	10	6
In the girdle.			5	51	56	47	4	19	5
In the rod, the laſt of the north.		♓	0	41	50	41	16	5	5
25.									
Preced. againſt the navel.			8	2	2	47	23	42	7
Over the ſeat of the chair.		♈	9	39	5	48	47	56	3
Laſt of contiguous ones againſt the navel.			8	19	26	47	32	20	6
In the left arm.			14	55	6	51	39	20	6
			Unknown			Unknown			5
30.									
			19	30	36	54	13	46	6
That under the hind arm.			15	46	12	51	13	50	6
That preced. the knee to the ſouth.			7	28	39	43	5	15	4
			11	13	11	45	4	7	6
35.			Unknown			Unknown			7
			20	39	46	52	49	50	5.6
That againſt the knee.			13	37	1	46	23	20	3
Preced. in north part of the frame.			23	28	44	44	11	20	6
That following the knee.			14	8	5	44	58	55	6
North. in the frame.			27	23	27	55	54	51	6
40.									
			7	26	35	55	24	4	6
Laſt of the middle in ſouth. part of the frame.			25	12	4	53	52	19	6
			22	34	53	51	30	12	6
			16	31	55	5	30	16	6
That in the leg.			20	26	48	47	30	50	3
45.									
			24	51	8	51	38	30	6
		♊	4	49	7	58	6	56	5
			27	38	2	55	12	5	5
			3	28	32	57	21	10	6
			29	15	53	54	22	4	1.5
50.									
			1	51	1	55	56	45	6
			10	15	47	40	3	7	6
			22	36	15	48	0	0	7
			29	0	43	3	24	10	6
			25	21	24	48	53	5	6
55.									

CASSIS, in *Antiquity*, a plated, or metalline helmet, different from the *galea*, which was of leather.

CASSIS *levis*, the *ſmooth helmet-ſhell*, a name given by Rumphius, though very improperly, to the genus of ſhells called *dolia* and *tonnæ clavatæ*. Theſe have no alliance at all with the helmet-ſhells; and what makes the name ſtill worſe, is, that *caſſis* itſelf is not a generical name, though uſually ſo underſtood, all the *caſſides* or helmet-ſhells being only a peculiar kind of MUREX, as the figure of their mouth and their rudiments of ſpines or protuberances evidently ſhew.

CASSITERIA, in *Natural Hiſtory*, the name of a genus of cryſtals. The word is derived from κασσιτερος, *tin*; and expreſſes cryſtals which are influenced in their figures by an admixture of the particles of that metal. See *Tab. of Foſſils, Claſs* 3.

Theſe are all pyramidal, without columns, and compoſed only of four ſides or planes. Of this genus there are only two known ſpecies.

CASSOCK, a kind of ſurtout, or long upper garment, worn over the reſt of the habit: particularly by the clergy, and anciently likewiſe by the laity.

The word comes from the French *caſaque*, a *horſeman's coat*: ſome derive them again, by corruption, from a garment of the Coſſacks: others derive the name *caſſock*, as well as the thing, from the ancient *caracalla*, a ſort of upper garment which hung to the heels.

CASSONADE, in *Commerce*, caſk ſugar, or ſugar put into caſks or cheſts, after the firſt puriſication, but which has not been refined. It is ſold either in powder or in lumps;

lumps; the whiteſt, and that of which the lumps are largeſt, is the beſt. Many imagine it to ſweeten more than loaf-ſugar; but it is certain that it yields a great deal more ſcum.

CASSOWARY, in *Ornithology*, the name of an African bird of the oſtrich kind, but not quite ſo tall, though larger bodied; called alſo by many authors *emeu*, *ame*, or *eme*, and *caſuarius*. It has a crown on the middle of its head; and its head and neck are almoſt naked, having only a few hairs, which are ſet ſtraggling; the ſkin is of a purpliſh blue, but toward the bottom of the neck on the under part, it is a little reddiſh. At the bottom of the neck, there are alſo two fleſhy protuberances which hang over the breaſt; its mouth opens very wide; its legs are very long, and very robuſt; it has three toes on each foot, all placed before; it has the rudiments of wings, but they are very ſhort, and have only five quills each, which are almoſt naked. It has no tail; its body is large, and is thinly covered with brownish feathers, which have more the appearance of briſtles than of real feathers, to a ſlight obſerver. It is very common in Africa, and is caught alſo in many parts of the Eaſt Indies. It feeds on fleſh or vegetables, and is eaſily made tame. See *Tab. of Birds*, N° 20.

CASSUMUNAR, in the *Materia Medica*, a root approaching to the nature of zedoary, though belonging to a different ſpecies of plants.

We have it from the Eaſt Indies; its ſurface is ſomewhat wrinkled, and is marked at certain diſtances with circular rings, which ſurround it, and riſe prominent above the reſt of the ſurface. It is of a very compact nature, hard and heavy; not eaſily cut through with a knife, or powdered in a mortar. When cut, it ſhews a very ſmooth and ſhining ſurface; and when broken, is found to be much yellower within.

It has a fragrant aromatic ſmell; and is a very famous medicine in nervous caſes, being accounted an excellent cardiac and ſudorific. It is alſo given as a ſtomachic and carminative with ſucceſs, and is moſtly preſcribed in powder, boluſes, or infuſions.

CASSYTA, in *Botany*, a genus of the *enneandria monogynia* claſs. The corolla is in the form of a calyx, divided into ſix ſegments; the nectarium is compoſed of three truncated glands encompaſſing the germen; the interior filaments are glandular; and the drupe contains a ſingle ſeed.

There is but one ſpecies.

CAST is particularly uſed to denote a figure, or ſmall ſtatue of BRONZE.

CAST, among *Wax-Chandlers*, denotes a ladleful of melted wax, poured on the wicks of candles made by the ladle.

CAST, among *Founders*, is applied to tubes of wax, fitted in divers parts of a mould of the ſame matter, by means of which, when the wax of the mould is removed, the melted metal is conveyed into all the parts which the wax before poſſeſſed.

CAST, among *Bowlers*. See BOWLING.

CAST alſo denotes a cylindrical piece of braſs, or copper, ſit in two, leſigthwiſe, uſed by the founders in ſand to form a canal or conduit in their moulds, whereby the metal may be conveyed to the different pieces intended to be caſt.

CAST, among *Plumbers*, denote a little brazen funnel, at one end of a mould, for caſting pipes without ſoldering, by means of which the metal melted is poured into the mould.

CAST *of the country*, with *Miners*, the colour of the earth.

CAST, in *Falconry*, denotes a ſet or couple of hawks.

To *caſt* a hawk to the perch, ſignifies to ſet her upon it.

CAST, or CASTE, in ſpeaking of the Eaſtern affairs, denotes a tribe, or number of families, of the ſame rank and profeſſion.

The diviſion of a nation into *caſts* chiefly obtains in the empire of the Great Mogul, kingdom of Bengal, iſland of Ceylan, and the great peninſula of India oppoſite thereto. In each of theſe, there are, according to father Martin, four principal *caſts*; viz. the *caſt* of the *brahmans*, which is the firſt and moſt noble; the *caſt* of the *rajas*, or princes, who pretend to be deſcended from divers royal families; the *caſt* of the *chanirs*, which comprehend all the artificers; and that of the *parias*, the loweſt and moſt contemptible of all: though Henry Lord, it muſt be obſerved, divides the Indians about Surat into four *caſts*, ſomewhat differently from Martin; viz. into BRAHMS, or prieſts; *cattery*, or ſoldiers; *bodder*, which we call banians, or merchants; and *wyſe*, the mechanics or artificers.

Every art and trade is confined to its proper *caſt*, nor is it allowed to be exerciſed by any but thoſe whoſe fathers profeſſed the ſame. So that a taylor's ſon can never riſe to be a painter, nor a painter's ſon fall to be a taylor. Though there are ſome employments which are common to all the *caſts*: e. g. every body may be a ſoldier or a merchant. There are alſo divers *caſts* which are allowed to eat the ground, but not all.

CASTAGNOLE, in *Ichthyology*, a name given by the Italians to the fiſh called by the generality of authors CHROMIS, and reduced by Artedi to the genus of the SPARUS; he diſtinguiſhes it by the name of the ſparus with the ſecond ray of each belly-fin carried out into a great length.

CASTALDUS. } See CASTALDUS.
CASTALDY. }

CASTALOGNE, or CASTELOGNE, a coverlid made of fine wool, on the weaver's loom.

CASTANEA. See CHESTNUT.

CASTARON, a name given by the old Arabian writers to the *ſcirrhus*, or SCIRRHOUS.

CASTANETS, CASTAGNETTES, or CASTANETTAS, a kind of muſical inſtrument, wherewith the Moors, Spaniards, and Bohemians accompany their dances, ſarabands, and guitars. It conſiſts of two little round pieces of wood dried, and hollowed in manner of a ſpoon, the concavities whereof are placed on one another, faſtened to the thumb, and beat from time to time with the middle finger, to direct their motion and cadence. The *caſtanets* may be beat eight or nine times in the ſpace of one meaſure, or ſecond of a minute.

CASTELLAIN, *Caſtellanus*, the lord, owner, or captain of a caſtle; and ſometimes the conſtable of a fortified houſe. Bract. lib. v. tract. 2. c. 16. 3 Edw. I. c. 7. It has likewiſe been taken for him that hath the cuſtody of one of the king's manſion houſes, called by the Lombards *curtes*, in Engliſh *courts*; though they are not caſtles or places of defence. 2 Inſt. 31. And Manwood, in his Foreſt Laws, ſays there is an officer of the foreſt called *caſtellanus*.

CASTELLAN, the name of a dignity or office in Poland. The *caſtellans* are ſenators of the kingdom, but ſenators of the lower claſs; and in diets, ſit on low ſeats behind the palatines, or great ſenators. They are a kind of lieutenants of provinces, and command a part of a palatinate under the PALATINE.

CASTELLANY, the diſtrict or extent of land under the juriſdiction of a lord caſtellan.

The province of Flanders is divided into ſo many *caſtellanies*, each of which bears the name of the capital, as the *caſtellany* of Lille, of Ypres, of Ghent, &c. The court of *caſtellany* was anciently compoſed of the caſtellan, a fiſcal, procurator, notary, regiſter, &c.

In Poland, a *caſtellany* is a petty government under the adminiſtration of a CASTELLAN.

CASTELLARIUS, the keeper, or curator, of a caſtellum. Gruter gives an ancient ſepulchral inſcription in memory of a *caſtellarius*.

CASTELLATION, *Caſtellatio*, in *Middle Age Writers*, the act of building a caſtle, or of fortifying a houſe, and rendering it a CASTLE.

By the ancient Engliſh laws, *caſtellation* was prohibited, without the king's eſpecial licence. *Du-Cange*.

CASTELLORUM *operatio*, caſtle work, or ſervice and labour done by the inferior tenants for the building and upholding of caſtles of defence; toward which ſome gave perſonal aſſiſtance, and others paid their contributions. This was one of the three neceſſary charges, to which all lands among our Saxon anceſtors were expreſsly ſubject.

CASTIGATION, *Caſtigatio*, among the Romans, the puniſhment of an offender by blows, or beating with a wand or ſwitch.

Caſtigation was chiefly a military puniſhment, the power of inflicting which on the ſoldiery was given to the tribunes. Some make it of two kinds, one with a ſtick or cane, called *fuſtigatio*; the other with *rods*, called *flagellatio*: the latter was moſt diſhonourable.

CASTIGATIONS, in a *Literary Senſe*, denote corrections, or emendations of the text of an ancient writer.

CASTIGATORY. See CUDGEL-*ſtick*.

CASTILLAN, a gold coin, current in Spain, valued at fourteen rials and a half.

CASTILLAN *alſo* denotes a weight uſed by the Spaniards in the weighing of gold, containing the hundredth part of a Spaniſh pound. It is alſo uſed at Buenos Ayres, and the mines of Chili and Potoſi.

CASTING is ſometimes uſed for the quitting, laying, or throwing aſide any thing; thus, deer *caſt* their horns, ſnakes their ſkins, lobſters their ſhells, hawks their feathers, &c. annually.

CASTING *of feathers*, is more properly called *moulting* or *mewing*.

A horſe *caſts* his hair or coat, at leaſt once a year, viz. in the ſpring, when he *caſts* his winter coat; and ſometimes at the cloſe of autumn he *caſts* his ſummer coat, in caſe he hath been ill kept.

Horſes ſometimes alſo *caſt* their hoofs, which happens

frequently to couch-horses brought from Holland; which being bred in a moist, marshy country, have their hoofs too flabby, so that coming into a drier soil, and less juicy provender, their hoofs fall off, and others, that are firmer, succeed.

CASTING is also used for overthrowing.

In which sense we say, to *cast* a horse, an ox, or the like.

CASTING is also used for distributing or disposing the parts of a thing to the best advantage.

The *casting* of a building is more properly called COST-PARTITION.

Theatrical writers speak of *casting* a play, i. e. disposing the several parts or characters to proper actors.

CASTING *of candles*, signifies filling the moulds with tallow.

CASTING *a colt or foal*, denotes the abortion of a mare.

CASTING *of drapery*, among *Painters*, a free, easy, negligent way of clothing a figure.

CASTING, in *Falconry*, is any thing given a hawk to purge and cleanse his gorge.

Of these there are two kinds, viz. plumage, i. e. feathers; and coney: the latter whereof is generally in pellets about the bigness of hazel-nuts, made of soft fine cotton and conveyed into her gorge after supper. In the morning she will have cast them out; at which time they are to be observed, and from the colour and condition they are found in, the state of her body is conjectured. If they be *cast* out round, white, and not stinking, nor very moist, it is an indication all is well; if otherwise, particularly if black, greco, slimy, or the like, she is distempered. The *casting* of plumage is observed after the same manner as that of coney.

CASTING *a figure*, among *Astrologers*, the erecting of a celestial theme, and dividing the heavens into houses.

CASTING, in *Founding*, is the running of a melted metal into a mould prepared for that purpose.

CASTING *of guns, silver, or copper*, in plates. See COINING.

CASTING, in *Joinery, &c.* Wood is said to be *cast* or warped, when, either by its drought or moisture, or the drought or moisture of the air, or other accident, it shoots or shrinks; to prejudice to its flatness or straightness.

CASTING *of lead on cloth*, is the using of a frame or mould covered with woollen cloth, and linen over it, to cast the lead into very fine sheets.

CASTING *of lead on sand*, is done by means of a large frame or trough, nearly full of sand, which is made perfectly level, and imprinted with any device from moulds pressed down in the sand: the lead is then turned out of the kettle into a receiver or trough, and poured on the sand, whilst two persons slide a gauge or lath, of such thickness as to leave a space between it and the sand answering to the substance of the lead, along the edges of the frame; the surplus runs into reservoirs by channels made in the sand.

The goldsmiths use the bone of the CUTTLE-*fish*, to mould and cast their lesser works of gold and silver; that bone, when dried, being reducible to a kind of a fine pumice, very susceptible of all impressions.

CASTING *in plaster, or plaister*, is the filling with fine liquid plaister, a mould that had been taken in pieces from off a statue or other piece of sculpture, and run together again. There are two things to be observed with regard to the mould: the first, that it be well soaked with oil before the plaister be run, to prevent its sticking: the second, that each piece wherein it consists, have a pack thread, to draw it off the more easily when the work is dry.

CASTING *of moulds, of letters, bells, figures, &c.* See FOUNDERY.

CASTING, in *Navigation*, denotes the motion of sailing off, so as to bring the direction of the wind on either side of the ship, after it had blown for some time right a-head.

CASTING-*net*, a sort of fishing net, so called because it is to be *cast* or thrown out, which when exactly done, nothing escapes it, but weeds, and every thing within its extent, is brought away.

CASTING *a point of traverse*, among *Seamen*, signifies the pricking down on a chart the point of the compass any place bears from you; or finding what point of the compass the ship bears at any instant, or what way the ship has made.

CASTING *of timber-work*. See CASING.

CASTLE, *Castellum*, in *Ancient Writers*, denotes a town or village surrounded with a ditch and wall, furnished with towers at intervals, and guarded by a body of troops.

The word is originally Latin, *castellum*, a diminutive of *castrum*.

Castellum originally seems to have signified a smaller fort, for a little garrison. Though Suetonius uses the word where the fortification was large enough to contain a cohort.

The *castella*, according to Vegetius, were often like towns, built in the borders of the enemy and sometimes there were constant guards, and sentinels against the enemy.

Hoffley takes them for much the same what were otherwise denominated stations.

CASTLE, or CASTLE-*seed*, is also an appellation given by the country people in the North to the Roman *castella*, as distinguished from the *castra stativa*, which they usually call *chesters*. Hoffley represents this as an useful criterion, whereby to discover, or distinguish, a Roman camp or station.

CASTLE, in a modern *sense*, is a place fortified by nature, or art, either in a city or country, to keep the people in their duty, or to resist an enemy.

A *castle* is a sort of little CITADEL.

CASTLE, in *Sea Language*, denotes an elevation on the deck of a vessel; or a part of the deck, fore and aft, raised above the rest.

Fore-CASTLE, *Castella de prora*, &c. See FORE-*castle*.

Hind-CASTLE, *Castella de puppi*. See POOP.

CASTLE-WARD, or CASTLE-GUARD, *Castelgardum*, or *Wardum Castri*, an imposition laid on such as dwell within a certain compass about any *castle*, towards the maintenance of those who watch and ward the *castle*.

The word is sometimes also used for the circuit itself, inhabited by such as are subject to this service.

CASTLE, *water*, a piece of hydraulic work finished with one or more fronts of building, with seeming windows and the like, containing a reservoir which gives play to cascades, &c.

Or, a *water-castle* may be defined a receptacle of the public water furnished by an AQUEDUCT, or otherwise, in which are inclosed the cocks of several water-pipes with a little bason; contrived to distribute and send it to different parts.

The *castella* of the ancient aqueducts are still visible at Rome, though half ruined. They are lined with a durable kind of cement, which, according to Pliny, surpasses in hardness the stones themselves. It is made of lime slacked in wine, and beaten up with hog's grease, and the juice of figs or pitch.

Modern writers on hydraulics treat of the laws of the efflux of water out of *castella* into pipes, canals, &c.

Signior Poleni has a treatise express on *castles*, or reservoirs, whereby the waters of rivers are derived, the sides of which *castles* are made converging.

CASTOR, in *Zoology*. See BEAVER.

CASTOR-*stin*. See BEAVER, &c.

CASTOR, in *Astronomy*, a moiety of the constellation GEMINI; called also APOLLO.

Its latitude northwards for the year 1700, according to Hevelius, was 10° 4′ 23″; and its longitude, of Cancer, 16° 4′ 14″.

It is also called *Refulgens*, *Apollo*, *Apollinis Auctor*, and *Auctor*.

CASTOR *and Pollux*, in *Meteorology*, a fiery meteor, which at sea appears sometimes sticking to a part of the ship, in form of one, two, or even three or four fire-balls; when one is seen alone, it is more properly called *Helena*; two are denominated *Castor and Pollux*, and sometimes *Tyndaridæ*.

Castor and Pollux are called by the Spaniards, *San Elmo*; by the French, *St. Elme*, *St. Nicholas*, *St. Clare*, *St. Helene*; by the Italians, *Hermi*; by the Dutch, *Vyer Vueren*.

Castor and Pollux are commonly judged to portend a cessation of the storm, and a future calm; being rarely seen till the tempest is nigh spent. *Helena* alone portends ill, and witnesses the severest part of the storm yet behind.

When the meteor sticks to the mast, yards, &c. they conclude, from the air's not having motion enough to dissipate this flame, that a profound calm is at hand; if it flutter about, it indicates a storm.

CASTOR *oil*, in *Pharmacy*. See PALMA *Christi*.

This oil is the product of the RICINUS *Americanus fructu rotundo hispido* of Sir Hans Sloane; or of the PALMA *Christi* of Du Tertre, Frezier, and Labat. It is variously prepared in the West Indies. It is drawn from the fruit in the manner in which we make birch wine; it is prepared by expression, which is the preferable method, as oils of all kinds have their acrimony heightened by the action of fire. At other times the seeds are collected ripe, when moist replete with this unctuous juice, cleansed from the husks, bruised in a mortar, and beat into a paste. They are then boiled with a sufficient quantity of water, when the oil rises to the surface, and is skimmed off whilst any continues to appear.

It seems particularly adapted for the common complaints of infant children, and the cure of bilious disorders; and certainly is by all accounts a very valuable medicine. It was known to Dioscorides and Pliny, who gave it the

name

name of *alcam chimam*; the Arabs call it *alcam de thorve*. Dr. Fraser has given an account of its preparation and virtues, confirmed by a letter of the Rev. Mr. Monod of Guadaloupe to Dr. Mary, in the Lond. Medic. Obser. &c. vol. ii. p. 235.

Dr. Canvane has published a Dissertation on *Castor Oil*, its history and virtues, and strongly recommended it in all bilious, calculous, and nephritic disorders. The dose for adults is from two to three or four spoonfuls, in two spoonfuls of pepper-mint water, or the *tinct. stomachica* of the London Dispensatory. It may be made into a *potio alba* by mixing two or three spoonfuls with a sufficient quantity of the yolk of eggs, to incorporate it thoroughly, and then adding two ounces of simple, and two or three drams of compound pepper-mint water. It may be given to children mixed with honey; and it acts so mildly, that new born infants may take it in about a tea-spoonful for a dose.

There is a paper on the effects of *castor oil* and the Peruvian bark in the hooping-cough, in the Lond. Med. Obf. &c. vol. iii. p. 287.

CASTOREA, in *Botony*, the name given by Plumier to a genus of plants since called by Linnæus DURANTA.

CASTOREUM, or CASTORIUM, in *Pharmacy*, a medicinal matter inclosed in bags or purses, near the anus of the castor or beaver; falsely taken for the testicles of that animal. See BEAVER.

The bags in which the *castoreum* is contained, are about the bigness of a goose egg, and found indifferently in males and females; the liquor inclosed serves to give the castor an appetite, being prefled out of its receptacles, on occasion, by the foot: when taken off, the matter dries and condenses, so that it may be reduced to a powder, by hanging in the chimney it soon becomes of the consistence of wax. It is oily, of a sharp, bitter taste, and a strong disagreeable smell. It is used to fortify the head and nervous parts: it raises the languishing spirits, resists poisons, and provokes the menses in women. It is used in lethargies, apoplexies, vertigos, tremblings, suffocations of women, and on other occasions. Bartholine, and other authors ascribe to it a wonderful property of precipitating things to the bottom of the water.

For the choice of *castoreum*, the best is that of Russia; that of Canada is much inferior; the largest bags, and those that smell strongest, are the most esteemed, especially when heavy, and well fleshed. Care is to be taken, that it has not been adulterated with honey, or other drugs, to increase its weight, which is known by squeezing it: the sophisticated being softish, and yielding a liquid, stinking honey; and the natural hard and heavy, of a brisk smell, and full of filaments.

Castoreum is used in the composition of Venice treacle and mithridate, beside various other hysteric and cephalic medicines. They draw an oil from it, called *oil of castor*; and it is also used abroad while in its liquid state, to make several kinds of unguents.

The Ruffian way of curing *castoreum* is described in the Philosophical Transactions thus: "to prepare the matter of the beaver's stones (the bags it should be), boil "a pepper quantity of water, with half a shovel full of "wood ashes, tie the bags in couples, and put them in "the boiling water for half a quarter of an hour. Lay "birch-bark on the fire, and smoke the bags well over "it for an hour, till they be well dried; hang them up "for a week or more, till perfectly dry and hard; they "may then be packed up for use or exportation."

CASTRAMETATION, the art or act of encamping, i. e. of placing or disposing an army in camp. See CAMP.

The word is more used in speaking of the encampments of the ancients than those of the moderns. It comes from the Latin *castrum*, *camp*, and *metari*, *to measure*, or *lay out*.

CASTRATING *a book*, among *Booksellers*, is the taking out some leaf, sheet, or the like, which renders it imperfect, and unfit for sale. The word is also applied to the taking away particular passages, on account of their obscenity, too great freedom with respect to government, &c.

CASTRATING is also used among *Gardeners*, in speaking of melons and cucumbers; where it signifies the same with PRUNING or PINCHING of other plants.

CASTRATION, in *Chirurgery*, the operation of gelding, i. e. of cutting off the testicles, and putting a male animal out of a capacity of generation.

Castration is much in use in Asia, especially among the Turks, who practise it on their slaves, to prevent any commerce with their women. The Turks often make a general amputation.

Castration also obtains in Italy, where it is used with a view to preserve the voice for singing. See EUNUCH, and CONSERVATORIOS.

The Persians, and other Eastern nations, have divers methods of making eunuchs, different from those which obtain in Europe: we say, of making eunuchs, for it is not always done among them by cutting, or even collision. Cleora and other poisonous herbs do the same office, as is shewn by Paulus Ægineta. Those eunuchified in this manner are called *thlibiæ*. Besides which there is another sort named *thlasiæ*, in whom the genitals are left entire, and only the veins which should feed them are cut; by which means the parts do indeed remain, but so lax and weak, as to be of no use.

Castration was for some time the punishment of ADULTERY.

By the laws of the Visigoths, sodomites underwent the same punishment.

By the civil law, it is made penal in physicians and surgeons to *castrate*, even with consent of the party, who is himself included in the same penalty, and his effects confiscated. The offence of mayhem by *castration* is, according to all our old writers, felony; though committed upon the highest provocation. See a record to this purpose of Henry III. transcribed by sir Edward Coke, 3 Inst. 62, or Blackstone's Com. vol. iv. p. 206.

Castration is sometimes found necessary on medicinal considerations, as in mortifications, and some other diseases of the testicles, especially the *sarcocele* and *varicocele*. Some have also used it in maniac cases.

CASTRATION is also in some fort practised on women. Athenæus mentions, that king Andromenes was the first who *castrated* women. Hesychius and Suidas say Gyges did the same thing. Galen observes, that women cannot be *castrated* without danger of life: and Dalechampius, on the forementioned passage of Athenæus, holds, that it is only to be understood of simple padlocking.

CASTRATION, in respect of brutes, is called GELDING, and SPAYING. See also FISH.

CASTRATION is also used by some physicians for correcting the more violent medicines, especially purgatives. See CORRECTION and CORRECTORS.

CASTRATION also denotes the art of retrenching, or cutting away any part of a thing from its whole.

CASTREL, a kind of HAWK resembling the lanner in shape, but the bobby in size. The *castrel*, called *also kestrel*, is of a slow and cowardly kind; her game is the growse, though she will kill a partridge. See FALCONRY.

CASTRENSIANI, or CASTRENSES, in *Antiquity*, an order of servants in the Greek emperor's household, to whom belonged the care and service of what related to his table and cloathing. They were thus called either on account of their attending the emperor when in camp, or because they observed a sort of camp discipline in the court; or rather because they were considered as soldiers, were paid as such, and had the privileges belonging to the military body. The *castrenfians* were also called *castrenses ministri*, and *miniftriani*.

To this order belonged the bakers, butlers, waiters, fullers, taylers, &c. They had a head, or superior, who was called *comes castrensis*, which was a palatine dignity under the chamberlain.

CASTRENSIS, in *Medicine*, an appellation given to certain contagious and epidemic diseases, especially fevers. See CASTR-*desease*, &c.

CASTRUM *Doloris*, in *Middle Age Writers*, denotes a catafalco, or a lofty tomb of state, erected in honour of some perfon of eminence, usually in the church where his body is interred; and decorated with arms, emblems, lights, and the like.

Ecclesiastical writers speak of a ceremony of consecrating a *castrum doloris*; the edifice was to be made to represent the body of the deceased, and the priest and deacon were to take their posts, and say the prayers after the same manner as if the corpse were actually present.

CASTS may be taken very well from medals on cakes of lead melted with sulphur, which form a blackish mass, considerably more tough than sulphur alone. See an account of the process for making this matter, &c. in Lewis's Commerc. Phil. Techn. p. 354. See *Impressions of* MEDALS.

CASU *Confimili*, in *Law*, a writ of entry, where a tenant by courtesy, or for life, aliens in fee, or in tail, or for another's life: it takes its name hence, that authority being given by stat. Weft. 2. to the clerks in chancery, to make new forms, as often as any new case should arise, not under any of the old forms; they framed this writ to the likeness of the other called *Casu provisio*.

CASU *Provisio*, a writ of entry given by the statute of Gloucester, in case where a tenant in dower aliens in fee, or for term of life, in tail: and lies for him in reversion against the alienee.

CASUAL, something that happens fortuitously, or without any design, or measures taken to bring it to pass.

CASUAL *death*. See DEODAND.

CASUAL *ejector*, in *Law*, a nominal descendant in ejectment,

ment, and who continues such until appearance by or for the tenant in possession. Blackst. Comm. vol. iii. p. 203.

CASUAL *revenues*, are those which arise from forfeitures, confiscations, deaths, attainders, &c.

CASUAL *theology*, a denomination given by some to what is more frequently called casuistry. See CASUISTRY.

Adam Ohander, chancellor of the university of Tubingen, has published a system of *casual theology*, containing the solution of dubious questions, and cases of conscience. Theologia *Casualis*, 6 vol. 4to. Tubing. 1682.

CASUALTY, in the *Tin Mines*, a word used to denote the earth and stony matter which is, by washing in the stamping-mills, &c. separated from the tin-ore, before it is dried and goes to the crazing-mill.

CASUIST, a person who professes to resolve cases of conscience. Escobar has made a collection of the opinions of all the *casuists* before him.

To *casuistry* belong the decision of all difficulties arising about what a man may conscientiously do, or not do; what is sin, or not sin; what things a man is obliged to do in order to discharge his duty, and what he may let alone without breach of it.

M. le Feore, preceptor of Lewis XIII. called the books of the *casuists* the art of quibbling with God; which does not seem far from the truth; by reason of the multitudes of distinctions and subtilties with which they abound.

CAT, in *Zoology*. See FELIS.

The *domestic cat* is diversified with an almost infinite variety of colours and streaks; but the natural colour, in a wild state, is a brown tawny, variegated with streaks of a pale whitish colour. In France the *cats* are all of a bluish lead colour, and in the north of Europe they are all white.

CAT, in *Sea Language*, denotes a ship formed on the Norwegian model, and employed in the coal-trade. It is distinguished by a narrow stern, projecting quarters, a deep waist, and by having an ornamental figure on the prow. These vessels usually carry from four to six hundred tons.

CAT, in a ship. See CAT-*heads*.

CAT, *fish*. See SEA-*cat*.

CAT'S *eye*, among *Naturalists*, a kind of precious stone, of a lucid texture, whose colours are variable, according to the position of the stone to the light.

Cat's eye is by the Latins called *oculus catti*, and sometimes *ophiopalus*, as having white zones or rings like the ONYX; and its colour variable like OPAL, from which last it differs chiefly by its superior hardness.

The *cat's eye* is of a glittering grey, interchanged with a straw-colour, and answers the description given by Pliny of the asterias, between which and our *cat's eye* there appears no other difference than that the ancients took their denomination from the brightness and shining of the stone, whereas the modern name is taken from the figure of it. See ASTERIA.

CAT-*gut*, a denomination given to small strings for fiddles, and other instruments, made of the intestines of sheep or lambs, dried and twisted, either singly, or several together.

These are sometimes coloured red, sometimes blue, but are commonly left whitish or brownish, the natural colour of the gut. They are used also by watch-makers, cutlers, turners, and other artificers. Great quantities are imported into England, and other northern countries, from Lyons and Italy.

CAT-*harpings*, are small ropes running in little blocks from one side of the shrouds to the other, near the deck: their use is to force the shrouds, and make them tight, for the greater security of the masts, and to afford room for drawing the yards in more obliquely, to trim the sails for a side-wind, when they are said to be clofe-hauled.

CAT-*heads*, in a ship, are two strong short beams of timber, which project almost horizontally over the ship's bows, on each side of the bowsprit. One end of the *cat-head* rests on the fore-castle, and is bolted to the beams; the other part projects like a crane, and carries in its extremity two or three small sheaves, about which a rope called the *cat-fall* passes, communicating with the *cat-block*, which also contains three sheaves, and is fitted with a large strong hook, sometimes called *cat-hook*, which catches the ring of the anchor when it is to be drawn up. The machine formed by this combination of pullies is called the *cat*, and serves to pull the anchor up to the *cat head*, without tearing the ship's side with its flukes. The *cat-head* also serves to suspend the anchor clear of the bow, when it is necessary to let it go.

CAT'*s-head* is also a denomination given to a sort of waste stony lumps, not inflammable, found in coal-mines. In these there are frequently impressions of ferns. Phil. Transf. N° 360. p. 970.

CAT-*holes*, in a ship, are over the ports, at right with the capstan as they can be: their use is to heave the ship a-stern upon occasion, by a cable or hawser called stern-fast.

CAT *of mountain*, the name of a beast of prey approaching to the leopard-kind. See CATUS *Pardus*, and CATUS *Cervarius*.

CAT-*mint*. See CATMINT.

CAT'*s-paw*, denotes a slight breath of wind, perceived at a distance in a calm, by the impression made on the surface of the sea, which soon decays.

CAT-*salt*, a name given by our salt-workers to a very beautifully granulated kind of common salt. It is formed out of the bittern or leach brine, which runs from the salt when taken out of the pan. When they draw out the common salt from the boiling pans, they put it into long wooden troughs, with holes bored at the bottom for the brine to drain out; under these troughs are placed vessels to receive this brine, and herein them are placed certain small flicks, to which the *cat-salt* adhere itself in very large and beautiful crystals. This salt contains some portion of the bitter purging salt, and is very sharp and pungent, and is white when powdered, though pellucid in the mass. It is used by some for the table, but the greatest part of what is made of it is used by the makers of hard soap.

CAT-*silver*, a name given to certain fossile substances, usually called also *glimmer*, and in Latin *mica*. They are various species of the *bractteatia*, or foliaceous tales, in small spangles. See MICA.

CATABAPTIST, a person averse from baptism; particularly from that of infants.

The word is compounded of the preposition κατα, which, in composition, signifies *against*, and βαπτω, *I wash*.

CATABASION, in the Greek *Church*, a place under the altar wherein the relics are kept.

The word is formed from κατα*Caino*, *I descend*; because they went down into it.

CATABATHMOS, in *Antiquity*, a steep valley, dividing Egypt from Africa.

The word is formed from κατα*baino*, *to descend*, on account of the hastiness and precipitation of its descent.

CATABIBAZON, in *Astronomy*, the moon's descending node; called also DRAGON'S *tail*.

CATABULENSES, in the *Middle Age*, a sort of ministers or servants of the empire, appointed to conduct the public carriage from one *catabulum*, or stage, to another.

The *catabulenses* appear also to have had the charge of conveying the public corn to and from the mills: whence, in the Theodosian code, they are joined with bakers.

CATABULUM, in the *Middle Age*, a kind of stable or building, wherein beasts, especially of burden and carriage, were kept for the public service.

The ancient Christians were sometimes condemned to serve in the *catabula*, that is, to work at the cleaning of them, attending the beasts, &c.

CATAC, in *Botany*, a name by which some authors call AGRIMONY.

CATACAUSTIC *curves*, in the *Higher Geometry*, the species of CAUSTIC *curves* formed by *reflexion*.

CATACHRESIS, a figure in *Rhetoric*, whereby an improper word is used instead of a proper one.

The word is formed from κατα*chraomai*, *abuter*, *I abuse*; of κατα, *against*, or *contrary to*, and χραομαι, *I use*.

The *catachresis* is, when for want of a word proper to express a thought, we use, or rather abuse, a word that comes somewhat near it: as when we call a person who has killed his mother, master, or prince, *parricide*; which word, in propriety, is only applicable to him who has murdered his father: and the *gregis ipse color*, is also a *catachresis*.

CATACLASIS, from κατα*cnao*, *I distort*, in *Medicine*, denotes a distortion of the eye, wherein the eye-lid is inverted by a convulsion of the muscles that close it; called also *contortion*.

CATACLEIS, in *Anatomy*, a cartilaginous bone, or rather a cartilage in the juncture of the *omoplata*, or shoulder-blade.

CATACLYSMUS, from κατα*cluzo*, *I deluge*, a Greek name for a deluge, or inundation of waters.

CATACOMBS, or CATACUMBS, CATACUMBE, denote grottos, or subterraneous cavities, for the burial of the dead.

Some derive the word from the Greek κατα, and κυμβος, a *hollow cavity*, or the like.

Catacombs are also denominated *crypta*, and *cœmeteria*.

Anciently, the word *catacumbæ* was only understood of the tombs of St. Peter and St. Paul; and M. Claufelius observes, that among the more knowing of the people of Rome, the word *cœmeteria* is never applied to the subterraneous burying places hereafter to be mentioned, but only to a chapel in St. Sebastian, one of the seven ftational churches; where the ancient Roman calendars fay the body of St. Peter was depofited, under the conſulate of Tuſcus and Buſſus, in 258.

CATACOMB is more particularly uſed, in Italy, for a vaſt aſſemblage of ſubterraneous ſepulchres about Rome, chiefly at about three miles from that city in the Via Appia, ſuppoſed to be the ſepulchres of the martyrs; and which are viſited accordingly out of devotion; and reliques are taken thence, and diſperſed throughout the catholic countries, after having been firſt baptized by the pope, under the name of ſome ſaint.

Theſe *catacombs* are ſaid by many to be caves, or cells, wherein the primitive Chriſtians hid, and aſſembled themſelves together; and where they interred ſuch among them as were martyred. Each *catacomb* is three feet broad, and eight or ten high; running in form of an alley, or gallery, and communicating, with others: in many places, they extend within a league of Rome. There is no maſonry or vaulting therein, but each ſupports itſelf: the two ſides, which we may look on as the parietes, or walls, were the place where the dead were depoſited; which were laid lengthwiſe, three or four rows over one another, in the ſame *catacomb*, parallel to the alley. They were commonly cloſed with large thick tyles, and ſometimes pieces of marble, cemented in a manner inimitable by the moderns. Sometimes, though very rarely, the name of ſome of the deceaſed is found on the tyle: frequently, a palm is ſeen, painted or engraven; or the cypher Xp, which is commonly read *pro Chriſto*.

Mr. Monro, in the Philoſophical Tranſactions, ſuppoſes the *catacombs* to have been originally the common ſepulchres of the firſt Romans, and dug in conſequence of theſe two opinions; that ſhades hate the light, and they love to hover about the places where the bodies are laid. The *catacombs* of Rome have made the greateſt noiſe in the world; but there are ſuch belonging to many other cities. Biſhop Burnet deſcribes thoſe of Naples, which he ſays are without the city, and much more noble and ſpacious than thoſe of Rome. The like are alſo ſaid to be in the neighbourhood of all the great towns in that part of Italy; and others have been diſcovered at Syracuſe and Catanea in Sicily, and in the iſland of Malta.

The largeſt, and thoſe commonly the moſt frequented, are the *catacombs* of San Sebaſtiano, thoſe of St Agneſe, and the others in the fields a little off St. Agneſe: as to the *catacombs* in the church-yards of the Vatican, women are only allowed to go into them one day in the year, viz. on Whitſun-Monday, on pain of excommunication. There are men kept conſtantly at work in the *catacombs*. As ſoon as theſe labourers diſcover a grave, with any of the ſuppoſed marks of a ſaint about it, intimation is given to the cardinal Camerlingo, who immediately ſends men of reputation to the place, where finding the palm, the monogram, the coloured glaſs, &c. the remains of the body are taken up with great reſpect, and tranſlated to Rome. After the labourers have examined a gallery, they ſtop up the entry that leads into it; ſo that moſt of them remain thus cloſed: there being only a few left open, to keep up the trade of ſhewing them to ſtrangers. This, they ſay, is done to prevent people's loſing themſelves in theſe ſubterraneous labyrinths, which has often happened: but more probably to deprive the public of the means of knowing whither and how far the *catacombs* are carried. Monro in Phil. Tranſ. N° 265. p. 644.

Laying up the bodies in caves, is certainly the original way of diſpoſing of the dead; and appears to have been propagated by the Phœnicians, throughout the countries to which they ſent colonies: the interring, as we do now, in the open air, or in temples, was firſt introduced by the Chriſtians. When an ancient hero died, or was killed in a foreign expedition, as his body was liable to corruption, and for that reaſon unfit to be tranſported entire, they fell on the expedient of burning, in order to bring home the aſhes, to oblige the mourners to follow; that ſo his country might not be deſtitute of the benefit of his ſurviage. It was thus burning ſeems to have had its original; and by degrees it became common to all who could bear the expences of it, and took place of the ancient burying: thus *catacombs* became diſuſed among the Romans, after they had borrowed the manner of burning from the Greeks; and now, none but ſlaves were laid in the ground.

Places thus prepared, might afford convenient retreats to the primitive Chriſtians; but could never be built by them. When the empire became Chriſtian, they were again diſuſed; till the reading of ſome author, who mentions them, occaſioned them to be again looked into.

—As to the famed cypher Xp, it is obſerved to have been in uſe among the ancients, long before Chriſtianity aroſe. The abbot Bencini ſays, it was compoſed of the Greek letters XP, under which ſomething myſtical was comprehended: but no author gives any account what that myſtery was.

CATACOUSTICS, from κατὰ and ἀκούω, *I hear*, called alſo CATAPHONICS, the ſcience of reflected ſounds: or that part of acouſtics, which conſiders the properties of echoes.

CATADIOPTRICAL, *teleſcope*, the ſame with reflected TELESCOPE.

CATADROMUS, from κατὰ and δρόμος, *I run*, in *Antiquity*, a ſtretched ſloping rope in the theatres, down which the FUNAMBULI walked, to ſhew their ſkill.

Some have taken the word to ſignify the hippodrome, or decurſorium, wherein the Roman knights uſed to exerciſe themſelves in running and fighting on horſeback.

But the moſt natural meaning is that of a rope, faſtened at one end to the top of the theatre, and at the other to the bottom, to walk or run down, which was the higheſt glory of the ancient *ſchœnobates*, or *funambuli*. Elephants were alſo taught to run down the *catadromus*. Suetonius ſpeaks of the exploit of a Roman knight, who paſſed down the *catadromus* mounted on an elephant's back. In Ner. cap. xi. p. 5.

CATADUPA, a CATARACT, or water-fall.

The word comes from κατὰ, *downwards*, and δοῦπος, *to make a noiſe by falling*.

The appellation *catadupa* ſeems to have been peculiarly given to a place in Æthiopia joining on Egypt, where the Nile, which here firſt aſſumes that name, ruſhed down a deep rock into a ſubjacent plain, with a noiſe ſo impetuous, that the inhabitants are ſaid to have loſt all ſenſe of hearing. Plin. Hiſt. Nat. lib. v. cap. 9. Ammian. Marc. lib. xxii. cap. 34, &c. Senec. Nat. Quæſt. lib. iv. cap. 2.

CATADUPI, Καταδουποι, an appellation given by the ancients to the inhabitants about the cataracts of the Nile. See CATARACT.

The *catadupi* are repreſented as all deaf: being made ſo by the continual din of the falling waters.

CATAFALCO, an Italian term, literally ſignifying *ſcaffold*. It is chiefly uſed for a decoration of architecture, ſculpture, and painting; raiſed on a timber ſcaffold, to ſhew a coffin, or tomb, in a funeral ſolemnity.

CATAGMATICS, medicines proper to ſolder, and unite broken bones; by promoting the formation of a callus.

The word comes from κατὰ *againſt*, and ἄγνυμι, *I break*.

The principal *catagmatics*, are the Armenian bole, gum tragacanth, oſteocolla, Cyprus nuts, frankincenſe, aloes, and acacia. See CONSOLIDATION.

CATAGOGION, Καταγωγιον, a heathen feſtival at Thebes, celebrated on the twenty ſecond of January, in which the devotees run about the ſtreets dreſſed in divers antic and unſeemly manners, with huge cudgels in their hands, and carrying with them the images of their gods in which guiſe they ravithed the women they met with, abuſed, and often killed the men, and committed many other diſorders, to which the religion of the day gave a ſanction. Du-Cange.

CATAGRAPHA, Καταγραφὰ, in *Antiquity*, denote oblique figures, or views of men's faces; anſwering to what the *moderns* call PROFILES.

Catagrapha are ſaid to be the invention of Simon Cleonæus, who firſt taught painters to vary the looks of their figures, and ſometimes direct them upwards, ſometimes downwards, and ſometimes ſidewards or backwards. Plin. Hiſt. Nat. lib. xxxv. cap. 8. cum. Not. Hardouin.

CATALECTIC, a term in poetry.—The ancients called *catalectic verſes*, thoſe which wanted either feet or ſyllables; in oppoſition to *acatalectics*, which are complete verſes wanting nothing.

The word comes from κατὰ and λῆγω, *I end*.

CATALEPSIS, CATALEPSY, from καταλαμβάνω, *to ſeize*, in *Medicine*, a kind of apoplexy; or drowſy diſeaſe, wherein the patient is taken ſpeechleſs, ſenſeleſs, and fixed in the ſame poſture wherein the diſeaſe firſt ſeized him; and his eyes open, without ſeeing, or underſtanding.

Catalepſis is the ſame with what is otherwiſe denominated CATOCHE, or *catochus*, and *galetia*, or *rongedia*.

Some alſo make it the ſame with COMA *vigil*; others will have it different; though wherein the diſtinction lies it is not eaſy to aſſign.

This diſeaſe is very rare, nor is it eaſy to aſſign its cauſe. Boerhaave takes the immediate cauſe to be an immobility of the common ſenſory, in the ſituation of the firſt aceſs; whence comes an abſolute ſtagnation of the blood in the brain, and a ceſſation of all the functions of the brain, as well as thoſe depending thereon; the muſcles alone remaining in their firſt tenſion; and reſpiration, and the pulſe, preſerved, though generally weak.

It is uſually preceded by a long intermitting fever, a melancholic dry temperature, a ſuppreſſion of the menſes, or hæmorrhoids, great frights, and intenſe, continued meditation on one object.

Upon diſſection, the arteries and veins of the cerebrum are found very turgid, and the blood cloſe rammed in them: it is ſometimes cured by copious hæmorrhages of

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the nose; sternutatories, vomitives, and vesicatories, are likewise applied to good purpose.

It seldom passes into any other disease; though sometimes into an epilepsy, convulsions, madness, or atrophy; but it commonly ends in death.

In the History of the Royal Academy of Sciences at Paris, we have an account of a woman who had a surprising *catalepsy*, her members keeping all the postures they were put into, as if she had been made of wax. Ann. 1738. See VALERIAN.

CATALOGUE, a list or enumeration of the names of several books, men, or rather things; disposed according to a certain order.

Catalogues of books are digested in different manners, some according to the order of the times when the books were printed, as that of Maittaire; others according to their form and size, as the common booksellers *catalogues*; others according to the alphabetical order of the author's name, as Hyde's *Catalogue* of the Bodleian Library; others according to the alphabetical order of matters or subjects, which are called real or classical *catalogues*, as those of Epernius and Draudius; lastly, others are digested in a mixed method, partaking of several of the former, as M. Seine's *catalogue* of cardinal Sfondrate's library, which is first divided according to the subjects of sciences, and afterwards the books in each are recited alphabetically.

The most applauded of all *catalogues* is that of Thuanus's library, in which are united the advantages of all the rest. It was first drawn up by the two Puteani in the alphabetical order, then digested according to the sciences and subjects, by Hhm. Bullialdus, and published by F. Quetif at Paris in 1679; and reprinted, though incorrectly, at Hamburgh, in 1704. The books are here ranged with justness under their several sciences and subjects, regard being still had to the nation, sect, age, &c. of every writer. Add, that only the best and choicest books in every subject are found here, and the most valuable editions. Yet the *catalogue* of M. le Tellier, archbishop of Rheims' library, made by M. Clement, is not inferior to any published in our age, either on account of the number and choice of the books, or the method of its disposition. One advantage peculiar to this *catalogue*, is the multitude of anonymous and pseudonymous authors detected in it, scarce to be met with elsewhere. Some even prefer it to Thuanus's *catalogue*, as containing a greater variety of classes and books on particular subjects. Bibliotheca Thuana, Par. 1679, 8vo. 2 vols. and Hamb. 1704, fol. and 8vo.

The conditions required in a *catalogue* are, that it indicate at the same time the order of the authors and of the matters, the form of the book, the number of volumes, the chronological order of the editions, the language it is written in, and its place in the library; so as that all these circumstances may appear at once, in the shortest, clearest, and exactest manner possible. In this view, all the *catalogues* yet made will be found to be defective.

An anonymous French writer has laid down a new plan of a *catalogue*, which shall unite all the advantages, and avoid all the inconveniencies of the rest. Let. à l'Abbé***, sur un Nouveau Projet de *Catalogue* de Bibliotheque. Par. 1732.

The Jesuits of Antwerp have given us a *catalogue* of the popes; which makes what they call their *Prophecies*.

CATALOGUS *of the stars*, is a list of the fixed stars, disposed in their several constellations; with the longitudes, latitudes, &c. of each.

The first who undertook to reduce the fixed stars into a *catalogue*, was Hipparchus Rhodius, about one hundred and twenty years before Christ; in which he made use of the observations of Timocharis and Aristyllus, for about one hundred and eighty years before him. Ptolemy retained Hipparchus's *catalogue*, containing 1026 fixed stars; though he himself made abundance of observations, with a view to a new *catalogue*, A. D. 140. About the year of Christ 880, Albategni, a Syrian, brought down the same to his time. Anno 1437, Ulugh Beigh, king of Persia and India, made a new *catalogue* of 1092 fixed stars; since translated out of Persian into Latin, by Dr. Hyde. The third who made a *catalogue* from his own observations, was Tycho Brahe; who determined the place of seven hundred and seventy-seven stars, for the year 1600, which Kepler, from other observations of Tycho, afterwards increased to the number of one thousand, in the Rudolphine tables: adding those of Ptolemy, omitted by Tycho, and of other authors, so that his *catalogue* amounts to above 1160. At the same time, William landgrave of Hesse, with his mathematicians, Christopher Rothmannus and Justus Byrgius, determined the places of four hundred fixed stars, by his own observations, with their places rectified for the year 1593; which Hevelius prefers to those of Tycho's. Riccioius, in his Astronomia Reformata, determined the places of one hundred and one stars, for the year 1700, from his own observations: for the rest he followed Tycho's *catalogue*; altering it where he thought fit. Anno 1667, Dr. Halley, in the island of St. Helena, observed three hundred and fifty southern stars, not visible in our horizon. The same labour was repeated by F. Noel, in 1710, who published a new *catalogue* of the same stars constructed for the year 1687.

Bayer, in his Uranometria, published a *catalogue* of 1160 stars, compiled chiefly from Ptolemy and Tycho, in which every star is marked with some letter of the Greek alphabet; the biggest star in any constellation being denoted by the first letter, the next by the second, &c. and if the number exceeds the Greek alphabet, the remaining stars are marked by letters of the Roman alphabet, which letters are preferred by Flamsteed and by Senex on his globes. The celebrated Hevelius composed a *catalogue* of 1888 stars, 1553 of which were observed by himself: and their places were computed for the year 1660.

The last, and greatest, is the Britannic *catalogue*, compiled from the observations of the accurate Mr. Flamsteed; who for a long series of years devoted himself wholly thereto. As there was nothing wanting either in the observer, or apparatus, we may look on this as a perfect work, so far as it goes. It is a pity the impression had not passed through his own hands: that now extant, was published by authority, but without the author's consent: it contains 2734 stars. There was another published in 1725, pursuant to his testament; containing no less than 3000 stars, with their places rectified for the year 1689: to which is added Mr. Sharp's *catalogue* of the southern stars not visible in our hemisphere, adapted to the year 1726. See vol. iii. of his Historia Cœlestis, in which are printed the *catalogues* of Ptolemy, Ulugh Beigh, Tycho, the Prince of Hesse, and Hevelius; together with an account of each of them in the Prolegomena.

CATALONGAY, in *Botany*, the name given by some authors to the plant which produces the *faba sancti Ignatii*, or St. Ignatius's beans, of the shops.

CATALLIS *capta nomine districtionis*, in *Law*, a writ, which lies where a house is within a borough, for rent issuing out of the same, and warrants the taking of doors or windows by way of distress.

CATALLIS *reddendis*, in *Law*, a writ that lies where goods being delivered to persons to keep till a certain day, are not on demand delivered on that day.

CATALS, *Catalla*, denote goods or CHATTELS.

CATAMARAN, *Catimaran*, in *Sea Language*. See FLOAT.

CATAMENIA, from κατα and μην, *month*, in *Medicine*, women's monthly purgations, called also MENSES.

CATANADROMI, in *Ichthyography*, a term of the same signification with the more common word *anadromi*, the distinctive term of a set of fishes, which at times leave the fresh water for the salt, and afterwards return to the fresh water again. See ANADROMOUS.

CATANANCHE, in *Botany*. See *Cupid's Dart*.

CATAPAN or CATTIAN, a name the later Greeks, about the twelfth century, gave the governor of their dominions in Italy.

Ughellus and others say, *catapan* was the same with *capitaneus*; formed therefrom by metathesis, or transposition; others derive it from κατα, *juxta*, and πας, *omnis*; in which sense, *catapan* was a governor-general, or magistrate, who had the direction of all: others will have it derived from κατα καιτοχαρχα, that is *next after the emperor*. In which sense, *catapan* was a second master, *secundus dominus*. Du-Cange derives it from κατεχων, *captain*; which the Greeks applied to every governor, and even every man of quality.

CATAPASM, a dry medicine, composed of a mixture of powders to be sprinkled on the body.

The word comes from κατα, *in*, and πασσω, *I sprinkle*. There are *catapasms* of divers kinds; some odoriferous, used in the way of perfume; others fortifying, applied to the stomach, heart, or head; and others escharotic, for eating off dead flesh.

CATAPELTA, an instrument of punishment, in use among the ancients. It consisted of a kind of piers, composed of planks, between which the criminal was crushed to death.

CATAPELTÆ, in *Ancient Writers*, sometimes denote arrows, and sometimes engines wherewith either arrows, stones or even huge pieces of timber were cast. Pliny ascribes the invention of the *catapultæ* to the Syrians; Plutarch and Diodorus to the Sicilians.

It is more frequently written CATAPULTA.

CATAPHORA, in a theme of the heavens, an appellation

given to the houses falling from the third, fifth, ninth, and twelfth angles. In which fenſe the word ſtands oppoſed to *anaphora*.

CATAPHORA, a kind of lethargic, or drowſy diſeaſe; the ſame with what is otherwiſe called COMA. See alſo CARUS.

The word is compounded of *κατὰ*, or *κατ᾽*, *downwards*, and *φερω*, *to bear*.

CATAPHRACTA, from *κατὰ*, and *φραττω*, *I fortify*, or *arm*, in the *Ancient Military Art*, a piece of heavy defenſive armour, formed of cloth or leather, fortified with iron ſcales or links, wherewith ſometimes only the breaſt, ſometimes the whole body, and ſometimes the horſe too was covered.

It was in ancient uſe among the Sarmatians, Perſians, and other Barbarians. The Romans alſo adopted it early for their foot; and, according to Vegetius, kept to it till the time of Gratian, when the military diſcipline growing remiſs, and field exerciſes and labour diſcontinued, the Roman foot thought the *cataphractæ*, as well as the helmet, too great a load to bear, and therefore threw both by, chooſing rather to march againſt the enemy bare-breaſted: by which, in the war with the Goths, multitudes were deſtroyed. Tacit. Hiſt. lib. i. cap. 79. Veget. de Re Mil. lib. i. cap. 20.

CATAPHRACTA, among *Surgeons*, denotes a BANDAGE of the thorax; thus denominated from its reſemblance to a Roman breaſt-plate, called *cataphractæ*.

CATAPHRACTÆ *naves*, thoſe armed and covered in fight, ſo that they could not be eaſily damaged by the enemy. They were covered over with boards or planks, on which the ſoldiers were placed to defend them: the rowers ſitting underneath, thus ſcreened from the enemies weapons.

CATAPHRACTUS, denotes a thing defended or covered on all ſides with armour.

CATAPHRACTUS, or CATAPHRACTARIUS, more particularly denotes a horſeman, or even horſe armed with a CATAPHRACTA.

The *cataphracti equites* were a ſort of cuiraſſiers, not only fortified with armour themſelves, but having their horſes guarded with ſolid plates of braſs or other metals uſually lined with ſkins, and wrought into plumes of other forms. Their uſe was to bear down all before them, to break in upon the enemies ranks, and ſpread terror and havock wherever they came, as being themſelves invulnerable and ſecure from danger. But their diſadvantage was their unwieldineſs, by which, if once unhorſed, or on the ground, they were unable to riſe, and thus fell a prey to the enemy.

CATAPHRACTUS *piſces*, in *Zoology*. See PODGE.

CATAPHRYGIANS, a ſect in the ſecond century, ſo called as being of the country of Phrygia.

They were orthodox in every thing, ſetting aſide this, that they took Montanus for a prophet, and Priſcilla and Maximilla for true prophetteſſes, to be conſulted in every thing relating to religion; as ſuppoſing the Holy Spirit had abandoned the church. See MONTANIST.

CATAPLASM, popularly called *poultice*, an external medicine, in form of a pulp; of a ſoft conſiſtence, like an unguent, or cerat; compoſed of various liquors, parts of plants, oils, unguents, &c. according to the variety of intentions.

The word comes from the Greek *καταπλασσω*, *illino*, *I ſmear* or *apply outwardly*.

Its ordinary uſes are, to aſſuage pain, and ſoften, reſolve, diſcuſs, or ſuppurate, matter collected in the external parts of the body.

The common *cataplaſm* for theſe intentions, is compoſed of white bread, milk, yolks of eggs, ſaffron, and oil of roſes.

CATAPLASMA *cymino*, *the cummin-ſeed cataplaſm*, a form of medicine preſcribed in the late London Diſpenſatory, and meant as a ſubſtitute for the London treacle of former Diſpenſatories, which has of late been uſed only externally, and for ſuch purpoſes as it is thought this will better ſerve for. The compoſition is this: take cummin-ſeeds, half a pound; bay-berries and leaves of ſcordium dried, of each three ounces; of cloves, one ounce; honey, three times the weight of the whole: mix all together into a *cataplaſm*.

CATAPLASMA *matarum*, a form of medicine in the late London Pharmacopœia ordered to be made in the following manner: take dried figs, four ounces; yellow baſilicon, one ounce; ſtained galbanum, half an ounce: beat well the figs in a little wine or ſtrong ſtale beer, and then carefully mix in the ointment, firſt melted with the galbanum.

CATAPOTIA, from *καταπινω*, *I ſwallow*, dry medicines, in a form fit to be ſwallowed whole: otherwiſe called *pilæ*.

CATAPULTA, a military machine, uſed among the ancients, for throwing huge ſtones, and ſometimes, large darts and javelins, twelve or fifteen feet long, on the enemy.

The word is originally Greek, from *κατὰ* and *πελτη*, and according to Heſychius, denotes a ſpear or dart. Hence it is ſometimes alſo written *catapeltes*.

The *catapultæ* were alſo denominated *ſcorpiones*, becauſe they threw ſharp wooden weapons; whereas thoſe caſt by the *balliſtæ* were obtuſe, viz. ſtones.

The *catapultæ* conſiſted of two huge timbers, like maſts of ſhips, placed againſt each other, and bent by an engine for the purpoſe; theſe being ſuddenly unbent again by a ſtroke of a hammer, threw the javelins with incredible force. Its ſtructure, and manner of working it, are deſcribed by Vitruvius; and a figure of it is alſo given by Perrault. M. Folard aſſerts, that the *catapultæ* made infinitely more diſorder in the ranks, than our cannon loaded with cartridges. Vide Vitruv. de Archit. lib. x. cap. 15. & cap. 18. Perr. Not. ad eund. p. 335.

The *catapultæ* is ſaid to be the invention of the Syrians. Some authors make it the ſame with the *balliſtæ*; others different.

CATAPUTIA, a medicinal plant, commonly called the *leſſer ſpurge*. It purges with ſuch violence, both upwards and downwards, that few phyſicians now venture to preſcribe it.

CATARACT *of water*, a fall, or precipice, in the channel, or bed of a river; cauſed by rocks, or other obſtacles, ſtopping the courſe of its ſtream; from whence the water falls with a noiſe and impetuoſity.

The word comes from *καταῤῥησσω*, *I tumble down with violence*; compounded of *κατα*, *down*, and *ῥησσω*, *deſcio*, *I throw down*.

Such are the *cataracts* of the Nile, the Danube, Rhine, &c.

In that of Niagara, the perpendicular fall of water is 137 feet: and in that of Piſſill Rhaiadr, in North Wales, the fall of water is near 240 feet from the mountain to the lower pool.

Strabo calls that a *cataract*, which we call a *cascade*: and what we call a *cataract*, the ancients uſually called a *catadupa*. Herminius has an expreſs diſſertation De admirandis mundi *Cataractis* ſupra & ſubterraneis; where he uſes the word in a new ſenſe; ſignifying, by *cataract*, any violent motion of the elements.

CATARACT, from *καταῤῥησσω*, *I confound*, in *Medicine*, a ſuffuſion of ſight, ariſing, according to the opinion of the ancients, from a little film or pellicle, which, ſwimming in the aqueous humour of the eye, and getting before the pupil, intercepts the rays of light.

They ſuppoſed that the *cataract* was formed by a condenſation of the more viſcous parts of the aqueous humour, between the uvea and the cryſtalline: though ſome take it to be a pellicle, detached from the cryſtalline itſelf; which is only an aſſemblage of ſeveral little pellicles laid over one another.

There are two kinds of *cataracts*, the *genuine*, and *ſpurious*: the firſt owing to an humour amaſſed in the eye, coagulated and fixed therein, and deſtroying its uſe: the latter ariſing from fumes or vapours thrown upon the eye by ſome accident; as in a fever, &c. The genuine *cataract* has ſeveral degrees and ſeveral names: at firſt the patient ſees, as it were, clouds, moats, flies, &c. diffuſed over the objects in view: thus far the *cataract* is called *incipiens*: there being nothing yet appearing to the eye of another perſon. As the ſuffuſion increaſes, the pupil begins to appear of a ſea-green colour; ſometimes like the air full of clouds; and then the *cataract* is called *mater* or *mater-ſuffuſa*: when the evil is arrived at its height, and the matter is ſufficiently coagulated, the patient loſes all ſight; the pupil ceaſes to be tranſparent, and becomes white, or brown, or of ſome other colour: this laſt ſtate is what we properly denominate a *cataract*.

But the modern anatomiſts and ſurgeons, ſuch as Heiſter, Briſſeau, and others, have adopted and eſtabliſhed a new ſyſtem, with reſpect to the cauſe and ſeat of this diſorder. Obſerving the beginning and progreſs of a *cataract*, it has been found, that at firſt it lies ſo deep as ſcarcely to be diſtinguiſhed; whereas, if it was a membrane or an inſpiſſation of the aqueous humour, and ſituated in the poſterior chamber of the eye behind the *iris*, it might be eaſily perceived, nor would it appear to lie ſo far within the eye. In the progreſs of the diſorder, and when the patient complains of dimneſs of ſight, a whiteneſs is obſerved very deep on the inſide, without any apparent inſpiſſation of the aqueous humour: a circumſtance which ſeems to prove, that the cryſtalline humour begins to become opake: afterwards the cryſtalline advances towards the hole of the pupil, and the ſight leſſens gradually, till the *cataract* comes near the pupil and cloſes it. No ſuch change of ſituation, it has been obſerved, could take place, were the diſeaſe occaſioned by a membrane produced in the aqueous humour, or by an inſpiſſation of this humour. It has alſo been found in the operation

for the *cataract*, that, after it has been depressed and the needle raised, an opake body, in the form of the crystalline humour, appears through the hole of the pupil, adhering to the end of the needle. To which we may add, that, in an operation of this kind, when the eye was drawn out of the orbit and opened, the crystalline humour was found in the bottom of the globe of the eye at the posterior and inferior part of the pupil, to which place the operator had depressed it: it is likewise added, that after the *cataract* is depressed, the patient cannot see without the assistance of a lens to supply the defect of the crystalline.

A true *cataract* is therefore defined to be an alteration of the crystalline humour, which loses its natural transparence, becomes opake, and at length hinders the rays of light from passing to the bottom of the eye, to make the necessary impression on the retina. It must be remembered, however, that, though the *cataract* is impervious to the rays of light, some of them pass obliquely between the iris and *cataract*, so that the eye is still able to distinguish light and glaring colours. The crystalline, in this disease, is changed into a cream colour, a pearl colour, a yellow colour, or a darkish grey, &c. It has been said that it sometimes becomes greenish, though Mr. Sharpe in a great number of *cataracts*, never met with a single instance of this kind: and on this account, it is called by the Greeks *glaucoma*, which is the same disease with the *cataract*.

In some cases, the *cataract* adheres to the iris; and if there be a complete adhesion of these parts, the eye is incapable of seeing at all; and, therefore, as no judgment can be formed of the state of the retina or of the vitreous humour, Mr. Warner thinks, these are sufficient reasons for forbidding the operation of *couching*: and he observes, with respect to the operation of dividing the iris from the *cataract*, which was invented and recommended by Mr. Cheselden, that he never saw a single instance of success from it, and therefore that it is in no circumstance advisable.

Cataracts arising from very different causes: sometimes they are the consequence of blows, wounds, or punctures; but not often. When they are produced by external causes, little relief can be obtained from manual operation, because other parts of the eye may be injured, and the disease is truly complicated. When the *cataract* arises from an internal cause, it is always the consequence of obstructions in the nutriment and secreting vessels of the crystalline humour; and when this is the only visible defect in the eye, the patient derives great advantages from an operation.

Though it be, generally speaking, true, that the cause of *cataracts* is the opacity of the crystalline humour; yet it is certain, that a real membrane has been sometimes, though rarely, found, covering the pupil, or the socket of the vitreous humour which lies behind the crystalline, or formed by a kind of pus extravasated into the aqueous humour, in consequence of an inflammation of the choroides.

Cataracts have been distinguished, by surgeons and oculists, into various sorts; as into recent and inveterate, incipient and confirmed, mature and immature, simple and complicated, immoveable and shaking, milky and purulent, true and spurious, curable and incurable: but most of these distinctions, as far as they relate to the nature of the disease, have no sufficient foundation in nature, owing their diversity of character more to the imagination of writers, than to any variety of the disease itself.

Celsus, and after him Heister, have recommended the use of medicinal remedies in an incipient *cataract*. In a case of this kind, whatever is capable of attenuating the juices, of unloading the distended vessels, and of driving a portion of their juices to distant parts of the body, appears to be capable of doing considerable service, though it may be little depended on in a confirmed *cataract*. But when the disorder is grown mature and inveterate, recourse must be had to manual operation: in order to the success of which, much depends on the nature of the disease, and the degree of its maturity. If the adhesion of the *cataract* to the uvea partial, and the retina be perfect, there will be a sufficient quantity of the rays of light transmitted obliquely, between the iris and the *cataract*, to the lateral parts of the retina, to enable the patient to distinguish light, and sometimes too such bodies as are white or red. To judge of this, when the operator cannot distinguish it by his sight, let him shut the patient's eye, and rub the lids a little; then suddenly opening it, he will perceive the pupil to contract, if the crystalline humour does not prevent the action by its adhesion. The general criterion of the fitness of *cataracts* for the operation is taken from their colour; the pearl-coloured, and those of the colour of burnished iron, are esteemed proper to endure the needle, and the maturity of the *cataract* may be judged of by its appearing in every part of an equal opacity; by the patient's not distinguishing an object presented to him, when he is placed with his back to the light, provided the disease be not one of those *cataracts*, in which the crystalline remains in the middle of the posterior chamber of the eye. The operator should likewise examine the diseased eye exposed to the light; if he finds the crystalline of an equal opacity, let him close the patient's eye with his thumbs, then rub the upper lid of that eye which has the *cataract*, and, keeping the other eye shut, let him open the lids: if he finds the light, which falls on the pupil, makes the iris contract; and though exposed to the same light, it dilates to the half, or the quarter, of that degree to which it was contracted; he may be assured the *cataract* is ripe.

CATARACTA, *couching of*. This operation is performed by penetrating the globe of the eye with the *couching* needle through the *tunica conjunctiva*, and *albuginea*, at a very small distance beyond the circumference of the *cornea cornea*, and as exactly as possible in a line with the most external part of the circle of the pupil. The needle should be introduced through the coats of the eye, viz. the *tunica conjunctiva*, *albuginea*, *sclerotica*, *choroides*, and *tunica retina*, with the flat surfaces of the instrument directed upwards and downwards, as less violence will be done to the coats of the eye in this way, than if the blade had penetrated the eye in a transverse direction. The instrument should be then cautiously pushed forwards, till it appears behind the pupil, which it will always do, when the eye remains transparent, and the eye-lids are kept open. The operator next endeavours to press the *cataract* gently downwards, and a little outwards, with the flat surface of the instrument; and if the *cataract* should not readily submit, the needle must be carefully moved under it, and gently raised up, by which means the *cataract* may be separated from the *processus ciliares*, and *uvea* below, and at the same time be disengaged from the inferior portion of the *tunica iris*, supposing it to be slightly connected with that membrane. After the *cataract* is thus lifted up, the position of the *couching* needle must be altered, and directed a little above the upper portion of the circle of the pupil; afterwards inclining the instrument downwards, and obliquely outwards. Great care should be taken not to wound the *iris* or the *processus ciliares*. Thus the *cataract* will sometimes be so effectually dislocated from the bed of the vitreous humour, and its nutrient vessels so perfectly destroyed, as to bring on its gradual decay. When the operation is finished, the patient's eye-lids must be shut, and covered with a rag, dipped in a solution of *saccharum saturni*, or the *goulard's extract compos.* in cold rose-water, or the *aqua vitæ simplex* mixed with brandy, which must be very gently bound on with a soft linen roller. The patient should be let bleed, and kept in a dark place during the continuance of the inflammation. He should sit up for some hours after the operation, in order to prevent the ruling of the *cataract*, and live abstemiously, taking only such food as requires little chewing. The *cataract* is sometimes apt to rise again, after it has been depressed, so that it has been necessary to repeat the operation; for the prevention of which, particular care should be taken to destroy as effectually as possible the *uvea*, by moving the blade of the instrument in different directions. Watzer. See *Couching* NEEDLE, and SPECULUM *oculi*.

CATARACTA, *extracting of*. M. Daviel, in 1745, first began this operation to the cure of the *cataract*; and out of a hundred and fifteen different operations, a hundred succeeded. Though it is said that Mr. St. Yves practised it about forty years before. It is thus described by Dr. Hope, who saw M. Daviel perform it. After having placed the patient in a right line in the chair, he places himself over against, and somewhat higher than the patient: an assistant holds the head steady, and another keeps the upper eye-lid open whilst he with his left hand, keeps open the lower eye-lid. Then he takes an instrument like a lancet, of a myrtle-leaf point, a little crooked upwards, and fixed in a handle; and, making the patient look upwards, he pierces the *cornea* transparent at its lower circumference, just where it joins the *sclerotica*, and conveys the point of the instrument between the cornea and *iris* upwards, beyond the pupil. He enlarges this opening on each side by the same instrument; taking out this instrument, he introduces another in the shape of a narrow knife, made round at the point and fixed in a handle; with this he enlarges the opening. When this is removed, he introduces a pair of crooked scissars, with which the opening is enlarged on each side by different snips, always as near as possible to the circumference of the cornea, until he has made the opening round two thirds of the corner. He then takes out the scissars, and with

with a small instrument like an ear-picker raises the cornea, and with a *cataract* needle in his hand, broader and stronger than common, and pointed like a lancet, he cuts the capsula of the crystalline through the pupil: then pressing gently the globe of the eye with his finger from below upwards, the crystalline flips out of the capsula, and drops out of the eye. The aqueous humour is discharged upon the first puncture, and the cornea and iris join together. Great skill and care are necessary, in order to avoid wounding the iris, which would endanger the eye. The whole operation requires about two minutes, and is attended with little or no pain. This operation is in many respects preferable to *couching*; as it may be performed at all times, and in all kinds of *cataracts*, whether they are come to maturity or not, and many accidents are avoided. The principal accident to which this operation is liable, is an excessive evacuation of the vitreous humour at the time of performing it, which may occasion a sinking down of the globe of the eye, a deformity, and an irrecoverable loss of sight. Phil. Trans. vol. xlvii. p. 530; vol. xlviii. p. 322 and Warner's Description of the human Eye, &c. and Diseases, &c. p. 200, &c.

Those who would be farther informed on this subject, may consult Heister, Sharp, Warner, &c.

CATARACTA, in *Ornithology*, the name of a bird of the LARUS or *sea-GULL* kind, very much approaching to the nature of our *gannet*, but smaller, and with shorter and weaker claws. It much resembles the *gannet*. Its back and wings are variegated with brown, yellow, and white; its breast and belly are white, variegated with brown spots; its wings are long, and, when folded, reach to the end of the tail; its legs are grey; its feet webbed, and its claws crooked and small. Aldrovand. de Avibus. See SKUA.

CATARACTES, in *Ornithology*, a name by which some authors have called the large SEA-*gull*, called in Cornwall, where it is very common, the CANNET.

CATARRH, in *Medicine*, an extraordinary distillation, or defluxion of a sharp, serous humour, from the glands, especially about the head and throat, upon the parts subjacent.

The word is formed from *κατα῾ιω, defluo, I flow down*. *Catarrhs* are generally occasioned by a diminution of insensible perspiration on taking cold; the effect whereof is, that the lymph, that should pass by the skin, oozes out upon those glands; and being thus extravasated, occasions irritations, coughs, and all the usual symptoms. See COUGH.

Degory discloses all diseases from *catarrhs*, which he looks upon as the seminary of most disorders of the body.

Catarrhs are of as many species as the parts on which the rheum or matter falls. Hippocrates enumerates eight kinds of defluxions from the head, viz. on the eyes, nose, ears, breast, abdomen, spinal marrow, *vertebræ*, and muscles of the loins, and *os sacrum*. The moderns allow only of three sorts under the name of *catarrhs*; the first, wherein the matter falls on the nose, more properly called CORYZA; the second, on the *fauces*, called *BRANCHUS*; and the third on the *thorax*, or breast, more particularly denominated a *catarrh*. The sum of which is couched in the following distich:

Si fluit ad nares, dicatur rheuma catarrhus,
Ad fauces branchus, ad pectus ipse coryza.

Sauvages distinguishes a *hot* and a *cold catarrh*; the first attended with an unnatural heat and pain, and a phlogosis of the whole body; the excreted lymph being exceeding thin and sharp: in the cold kind, all the symptoms are more remiss.

Catarrhs are cured by softening the serous humours, and augmenting transpiration, by means of diaphoretics, narcotic medicines, and diuretics. Smoaking of tobacco is recommended as excellent to all *catarrhal* affections in obstinate *catarrhs*, recourse is sometimes had to issues and blisters.

Catarrhous disorders, as well as all other feverish indispositions, are to be treated in a very mild and gentle manner. The patient is to be kept moderately warm, either in bed, or by means of a fire; he is to abstain from medicines which are too hot, drastic, and productive of commotions, as also from hot regimen; because by these the acrid matter is put into commotion, and a fervid disposition conveyed to the parts. The diet is to be spare, and the drink tepid and wholesome. In the decline of the disease, however, when the excretions are begun, it has been observed, that good wine, freely drunk, has proved beneficial; as it promotes the circulation of the blood, and maintains an equable perspiration.

When during the disorder the faeces are indurated, and the patient costive, besides water-gruel, decoctions of manna, prunes, and raisins, nothing is more proper than emollient clysters. When the cough is violent and racking, it is to be allayed with recent oil of sweet almonds, mixed with syrup of maidenhair.

Catarrhs do not arise from the head only, but sometimes also from other parts of the body; the lymphatic vessels, wherein the serosities are contained, as well as the glands that separate them, being distributed all over the body.

CATARRH, *suffocative*, in *Medicine*, the name of a disease, which consists in a copious eruption of a serous and mucous humour into the vesicles of the lungs; which alter its origin from a sudden congestion of humours about the breast, and a flaccid and weak state of the breast and lungs.

CATARRH, *fits of a suffocative*. This disease always seizes the patient at once, without any previous notice; his breath becomes extremely difficult, and the fulness of the breast is easily distinguished by a sound of rattling of a frothy matter at the time of drawing in the breath. There is an immediate debility and loss of strength and spirits, at the patient calls it, but there is in reality a spasmodic tension; this is followed by a restlessness, so that the patient cannot suffer his limbs to be a minute in the same posture or place; and there is always a despondency in the mind, and the patient thinks he is certainly going to die. There is usually either no cough at all, or at utmost, only a very slight and insufficient one, and the very strength to cough is wanting. The breast, and even the ribs are sensibly affected by this disease, and the eyes always look red and tumid.

Persons subject to it. Scarce any one is ever seized with this disease, except such as are, according to the common acceptation of the word, troubled with habitual *catarrhs*, or have for many years been subject to defluxions from the head upon the fauces and lungs; and the persons most of all subject to it, are old men of a phlegmatic and plethoric habit, and who are of that kind of temperament which subjects people, at other times, to gutta and apoplexies. Lean persons are scarce ever afflicted with this disorder, unless they have long laboured under a violent cough, or have ulcerous affections of the lungs.

Young people are also very little subject to this disease, excepting only such as are very corpulent and phlegmatic, and already habituated to large defluxions of this kind. Infants also, which are very fat, and have had a sudden suppression of their natural sweats, sometimes fall into this disease, but with them it is not so violent.

Causes of it. The occasional causes of this disease are seen in what has been already observed, but its true origin is to be sought for in the head, not in the breast or lungs; yet, though it is easy to see what may occasion a congestion of such serous humours in the upper parts, it is difficult to say how the lungs become rendered fit to receive it all at once in this dangerous manner. It is accidentally brought on in children, as well by the repulsion of their cutaneous eruptions, as by the stopping their sweats; and in grown people, from the omission of habitual bleedings, from coldness and dampness in the air, from frequent drunkenness, and from an injudicious treatment of cutaneous humours, and particularly from drying up runnings of the eyes. Junker's Consp. Med. p. 509.

Prognostics in it. It is a very terrible disease, and very speedily proves fatal; for the patient, if not relieved, usually dies in twenty-four hours. Sometimes it degenerates into a fever, and the person seems cured by the change; but the remedy in this case proves as bad as the disease; for the fever proves incurable, and becomes a settled hectic, attended with terrible difficulty of breathing, and finally carries off the patient, after making him endure, for some time, a life of terrible pain. Sometimes it goes off into an asthmatic laxity of the breast, attended with a cough, and a continual discharge of large quantities of mucous matter by spitting; and sometimes into an absolutely cachectic laxity of the body and in general, if not carefully treated from the beginning, it either entails some of these disorders upon the patient, or leaves him in so poor and weak a constitution, that he becomes easily liable to all the diseases of this kind from the slightest occasions.

Grown persons are sooner taken off by this disease than young children, with whom it sometimes continues above a week or a fortnight. In old people, the fatal event of the disease is so sudden, that it is often dubious whether it were this disorder, or an apoplexy; and in general it seems probable, that many of the persons said to die of apoplexies, &c. in reality, of the violent attacks of this terrible disease.

Method of cure. In the time of the fit a stimulating clyster must be given, made of a decoction of marjoram, and other warm herbs, with colocynth, and a few grains of euphorbium, in order to abate the infarction of the breast, and give a new course to the matter that might add to it;

and

and when there appears to be a plethora beſides, a vein muſt be immediately opened after the cliſter. After this, if the ſtomach be nauſeating and uneaſy, let a ſcruple of ſalt of vitriol be given as a vomit, with a large quantity of warm water; and if the patient is of a very phlegmatic habit, a few grains of gamboge may be added to this, to carry the humour off downward; or, if the caſe be very preſſing, a draught of a decoction of aſarum, or of tobacco, may be taken, the bad effects of which laſt are taken off by a draught of wine with the ſpices; and all this time there may be frictions and ſinapiſms applied to the lower extremities: and finally, to attenuate and diſcuſs the mucous ſtaſis, gentle alexipharmics and ſudorifics may be given, ſuch as the eſſence of amber, tincture of ſalt of tartar, and tartarized tincture of antimony; and all nitrous medicines are alſo of the greateſt uſe, as they partly mitigate the cauſes, and partly prepare the humours for evacuation; and after all theſe, the *cortex cinchonæ* is of great uſe in diſcuſſing and mitigating the pain.

As ſoon as the fit is over, the corroborating medicines are to be given, and all things that can reſtore the parts to their due tone: of this number are the milder chalybeats, and the like; and with theſe analeptics are to be given, to recruit the fleſh and ſtrength, ſuch as emulſions, and a proper diet; and in ſuch as are uſed to wine, the richeſt wines, in moderate quantities, and the higheſt foods will be of ſervice. If there be perceived a fever after the other ſymptoms are gone off, this muſt be cured by the gentle alexipharmics, and by powders of nitre, and the abſorbents; and if a chronic indiſpoſition ſeems left behind, then the gums, which act as diſcutients, are to be given for ſome time, ſuch as the ammoniacum and ſagapenum, and a warm regimen is to be recommended. And finally, to prevent a return of the diſeaſe, bleeding is very proper in the ſpring and autumn, and purging medicines taken in the intermediate time; the patient muſt alſo avoid all violent paſſions of the mind, and muſt never ſleep in a damp air. We are not to fear bleeding in the time of the fit, becauſe of the patient's complaining of want of ſtrength; for as the danger of ſuffocation is ſudden and imminent, it muſt be ſuddenly removed, and when that is done, the patient's ſtrength will return in good time: the ſame is alſo to be alleged in favour of the violent vomits. In people of a very phlegmatic habit, bleeding is not neceſſary nor proper; but in theſe caſes a vomit is ſafe and right, and uſually gives great relief, eſpecially if the patient has eaten heartily ſome little time before. Juncker. Conſp. Med. p. 513.

CATARRHAL *fever*, a ſecondary or ſymptomatic fever, by means whereof nature endeavours to correct the vitious quality of the lymph, and expel it from the body.

There is alſo a malignant *catarrhal fever*, nearly akin to the *petechial* FEVER.

CATASARCA, from κατὰ, *under*, and σὰρξ, *fleſh*, in the Greek *Church*, denotes the undermoſt alter-cloth, or that next the ALTAR.

Over the *cataſarca* is the ANTIMENSE.

CATASCOPIUM, from κατασκοπεω, *I explore*, in *Antiquity*, an exploratory veſſel, anſwering in ſome meaſure to a brigantine among us. See BRIGANTINE.

We find *cataſcopium* uſed in this ſenſe by Cicero, ad Attic. lib. v. ep. 11.

CATASCOPUS, in *Antiquity*, denotes a SPY.

In *Eccleſiaſtical Writers*, *cataſcopus* is ſaid ſometimes to denote an archdeacon.

CATASTA, from κατηεμι, *I place*, in *Antiquity*, a wooden ſcaffold wherein ſlaves were placed for ſale naked, that thoſe diſpoſed to purchaſe might ſee every limb and part. The word was alſo uſed for an elevation, on which perſons were executed; and for an engine of torture, otherwiſe called EQUULEUS.

The *cataſta* does not appear to have been the ſame with the *equuleus*, but rather a kind of frame or ſcaffold, on which the *equuleus* was mounted, to render the executions more public and viſible. Prudentius calls the *craticula*, or grid-iron, on which ſome of the martyrs were broiled, *ignea cataſta*.

CATASTASIS, in *Poetry*, the third part of the ancient drama; being that wherein the intrigue, or action, ſet on foot in the epitaſis, is ſupported, carried on, and heightened, till it be ripe for the unravelling in the cataſtrophe.

The word comes from κατασταω, *conſtitution*; this being, as it were, the mean, tenor, ſtate, or conſtitution, of the piece.

CATASTROMATA, from κατασρωμα, *I cover*, in *Ancient Military Writers*, a ſort of ſcaffolds or flootings in ſhips of war, whereon the ſoldiers were poſted for their defence in fight.

The *cataſtromata* appear to have been chiefly erected over the head and ſtern of the veſſel, it being in theſe parts that the ſoldiers were moſt commonly poſted.

CATASTROPHE, from κατασρεφω, *I turn*, in *Poetry*, the change or revolution of a dramatic poem: or the turn which unravels the intrigue, and terminates the piece.

The *cataſtrophe* made the fourth and laſt part in the ancient drama; or that immediately ſucceeding the catalaſis.

The *cataſtrophe* is either *ſimple*, or *implex*; whence alſo the fable and action are denominated.

In the firſt there is no change in the ſtate of the principal perſons, nor any diſcovery, or unravelling; the plot being only a mere paſſage out of agitation, to quiet and repoſe. This *cataſtrophe* is rather accommodated to the nature of the epopea, than of tragedy. Indeed we meet with it in ſome of the ancients, but it is rejected by the moderns. In the ſecond, the principal perſon undergoes a change of fortune; ſometimes by means of a diſcovery, and ſometimes without.

The qualifications of this change, or peripetia, are, that it be probable and neceſſary; in order to be probable, it is required to be the natural reſult or effect of the foregoing actions; i. e. it muſt ſpring from the ſubject itſelf, or take its riſe from the incidents; and not to be introduced merely to ſerve a turn. The diſcovery in the *cataſtrophe* muſt have the ſame qualifications as *the cataſtrophe* itſelf, whereof it is a principal part: it muſt be both probable and neceſſary. To be probable, it muſt ſpring out of the ſubject itſelf; not be effected by means of marks, or tokens, rings, bracelets, or by a mere recollection, as is frequently done, both by the antients and moderns. To be neceſſary, it muſt never leave the perſons it concerns in the ſame ſentiments they had before, but always produce either love or hatred. Sometimes the change conſiſts in the diſcovery; ſometimes it follows at a diſtance; and ſometimes reſults immediately from it, which laſt is the moſt beautiful kind; and thus it is in Œdipus.

Mr. Dryden thinks a *cataſtrophe* reſulting from a mere change in the ſentiments and reſolutions of a perſon, without any farther machinery, may be ſo managed as to become exceeding beautiful, nay preferable to any other. It is a diſpute among the critics, whether the *cataſtrophe* ſhould always fall out happily, and favourably on the ſide of virtue, or not? i. e. whether virtue is always to be rewarded, and vice puniſhed, in the *cataſtrophe*? But the reaſons on the negative ſide ſeem the ſtrongeſt. Ariſtotle prefers a ſhocking *cataſtrophe* to a happy one; becauſe the moving of terror and pity, which is the aim of tragedy, is better effected by the former than the latter.

Boſſu divides the *cataſtrophe*, at leaſt with regard to the epopea, into the unravelling, or *denouement*, and the *achevement*, or finiſhing; the laſt of which he makes the reſult of the firſt, and to conſiſt in the hero's paſſage out of a ſtate of trouble and agitation, to reſt and quiet. This period is but a point without extent, or duration; in which it differs from the *firſt*, which comprehends every thing after the knot, or plot laid. He adds, that there are ſeveral unravellings in the piece; becauſe there are ſeveral knots, which beget one another: the finiſhing is the end of the laſt unravelling.

CATCH-FLY, *Silene*, in *Botany*. See CAUTION.

CATCH-LAND, ſuch land, particularly in Norfolk, with reſpect to which it is not certainly known to what pariſh it belongs; ſo that the perſon who firſt gets the tythes there, enjoys it for that year, by right of preoccupation.

CATCH-POLE, or CATCH-POLL, a term now uſed, by way of reproach for a BAILIFF's follower, or aſſiſtant. Anciently, it was a term of credit, applied to thoſe we now call *ſergeants of the mace*, *bailiffs*, or any other that uſe to arreſt men on any action.

CATCH-WORD, among *Printers*, denotes the firſt word of a page, which is put alſo at the bottom of the preceding page, in order to ſhew how the ſheets and ſheets follow each other, and facilitate the folding and binding.

The French ſometimes only put the *catch-words* at the end of each ſheet, or even quire or gathering.

CATCHES, in *Clock-Work*, thoſe parts of a clock that hold by hooking, and *catching* hold.

CATE, in *Botany*, a name given by ſome authors to the LYCIUM *Indicum*, or Indian thorn.

CATECHESIS, from κατηχεω, *I teach firſt principles*, in a general ſenſe, denotes an inſtruction given any perſon in the firſt rudiments of an art or ſcience, but more particularly in the principles of the Chriſtian religion.

Thoſe who give ſuch inſtructions are called CATECHISTS, and thoſe who receive them CATECHUMENS.

CATECHESIS is alſo uſed for a book containing the rudiments of the Chriſtian religion, adopted to the uſe and inſtruction of novices. See CATECHISM.

The *Catecheſes* of St. Cyril, are the principal works of that father.

CATECHETIC,

CATECHETIC, or CATECHETICAL, something that relates to oral instruction in the rudiments of Christianity. In the early ages of the church there were *catechetic* schools, wherein sacred learning and philosophy were taught. These were public auditories, distinct from the church, but probably adjoining thereto. In a novel of the emperor Leo, they are called κατηχουσεις, and represented as a sort of edifices belonging to the church. St Ambrose speaks of these auditories as held in the baptistery. Bingh. Orig Eccles. lib. iii. cap. 10. § 4.

CATECHISM, *Catechismus*, in its primary sense, an instruction or institution in the principles of the Christian religion, delivered *viva voce*, and so as to require frequent repetitions from the disciple or hearer of what had been said.

Anciently the candidates of baptism were only to be instructed in the secrets of their religion by tradition, *viva voce*, without writing; as had also been the usage among the Egyptian priests, and the British and Gaulish druids, who only communicated the mystery of their theology by word of mouth. Shafteb Charact. vol. iii. p. 241. not.

CATECHISM is more frequently used, in modern times, for an elementary book, wherein the principal articles of religion are summarily delivered in the way of question and answer.

CATECHIST, *Catechista*, he that catechises, i. e. instructs novices in the principles of religion.

CATECHIST more particularly denotes a person appointed by the church to instruct those intended for baptism, by word of mouth, in the fundamental articles of the Christian faith.

The *catechists* of churches were ministers usually distinct from the bishops and presbyters, and had their auditories or *catechumen* apart. Their business was to instruct the catechumens, and prepare them for the reception of baptism. But the *catechists* did not constitute any distinct order of the clergy, but were chosen out of any other order.

CATECHU, a medicinal aromatic substance brought from the East Indies; called also *cachou*, and *japan earth*, and, when prepared, ranked in the number of perfumes. It is of a dark purple colour; very austere upon the palate, seeming to melt in the mouth and leaving somewhat of a sweetish taste behind it. It is the juice of a vegetable, not an earth, as its name imports.

Notwithstanding the great use of *catechu*, before that of coffee and tea, and its being still frequently used by many people, especially in France, its nature and origin were long but little known, even among the ablest physicians. Some, from its being called JAPAN *earth*, ranked it among the medicinal earths, and pretend it is found on the tops of mountains, covered with the roots of cedars, serving, as it is said, for their nutrition; and that being washed in the rivers, and dried in the sun, it was formed into a kind of paste, which, brought into Europe, served as the basis of several pastels, or lozenges, called *cachou*. Others, with more probability, rank it among the gums; and maintain it to be formed of the inspissated decoction of a tree in the East Indies, called *cachou*; growing chiefly in the kingdom of Cochinchina. Lastly, others took it to be a factitious compolition of several other drugs; especially of the juice of *areca*, extract of liquorice and calamus aromaticus, and the bark of a tree called by the Indians *catchu*.

Cachou, or *cachu*, is of much esteem in medicine. It is famous for stopping fluxes of all kinds; and among other effects attributed to it, it is supposed to stop a cough, and fortify the stomach: besides its sweetening and perfuming the breath, when taken in an impalpable powder, mixed with gum tragacanth.

CATECHUMEN, a candidate of baptism; or a person who prepares himself for receiving it.

The word is compounded of κατα, and ηχεω, *I sound*.

The catechumens were distinguished from the *fideles*, not only by name, but also by their place in the church: they were disposed, with the penitents, in the portico, or gallery, at the extremity of the church, opposite to the choir. They were not allowed to assist at the celebration of the eucharist, but after sermon, the deacon dismissed them with this formula, proclaimed three times, *Ite, Catechumeni; missa est.*

There were divers orders or degrees of *catechumens*, in those churches and ages where the term of catechising for two or three years was observed: but what the precise number and appellations of these orders were, is not agreed on. See BELIEVERS.

CATECHUMENUM, a name given to an upper gallery in the ancient churches.

The name *catechumenon* was also given to a sort of schoolhouse near the church, where the *catechumens* met to receive the instructions of the catechists.

CATEGOREMA, from κατηγορεω, *I declare*, is defined a noun substantive, so absolute and independent, that it may stand as the head of a class apart.

CATEGOREMA properly denotes the name whereby a CATEGORY, or class of beings is represented.

CATEGORIÆ, in *Literary History*. Aristotle has a book extant under the title of Κατηγοριαι, which Curio, Tomasius, Vives, and others, deny to be written by him, and ascribe to Andronicus; but without much foundation, since that work is cited as Aristotle's by Simplicius, Ammonius, and Lucianus.

CATEGORIARES, a minister in the Greek church, whose business it is to publish or proclaim the feast days. He had also the care of the lights, and to see the church kept clean.

CATEGORICAL, in a general sense, is applied to those things ranged under a CATEGORY.

CATEGORICAL also imports a thing to be ABSOLUTE, and not restrained to conditions.

In which sense it stands opposed to HYPOTHETICAL and CONDITIONAL.

A *categorical* answer denotes an express and pertinent answer, made to any question or objection proposed.

CATEGORUMENUM, denotes the PREDICATE, or that part of a proposition which is affirmed of the subject.

Some unskilfully call this *categorema*.

CATEGORY, in *Logic*, a system or assemblage, of all the beings contained under any *genus*, or kind; ranged in order.

The word *category* was borrowed by the schools from the *forum*, or courts of justice: for as in a trial, the plaintiff, or prosecutor, in accusing the criminal, or prisoner, must charge him expressly, or affirm that he did, this or that, in positive terms: whence the word *category*, viz. from κατηγορεω, *to accuse, or declare a charge of accusation*: so in the doctrine of *categories* every higher may be expressly and absolutely predicated, or affirmed, of every lower.

The school philosophers distribute all beings, all the objects of our thoughts or ideas, into certain genera, or classes, in order to get a more distinct or precise notion thereof; which classes the Greeks call *categories*, and the Latins *predicaments*.

The ancients, after Aristotle, generally make ten *categories*: under the first all substances are comprised; and all accidents under the nine last; viz. quantity, quality, relation, action, passion, time, place, situation, and habit; which are usually expressed, or signified, by the following technical distich:

Arbor, ſus, ſurcus, ardens, refrigerat, oſtia,
Rura, vias, ſtabo, nec tunicatus ero.

But as these ten *categories* of Aristotle, which logicians make such mysteries of, are arbitrary, they are now almost excluded. Accordingly, some philosophers think all nature may be better considered under these seven things, spirit, matter, quantity, substance, figure, motion, and rest: and others make but two *categories*, substance and attribute, or subject and accident. See on the subject, and in vindication of the *Categories* of Aristotle, Harris's Philosophical Arrangements, chap. ii.

CATELLI, in *Ancient Writers*, a kind of dart or javelin, in use among the ancient Gauls and Germans, made of heavy matter, and therefore not fitted to fly far, but doing great execution where it did reach, having withal an apparatus by which the person who threw it might draw it back again. It is spoken of by Virgil, *Æn.* lib. vii. ver. 741.

Tentatos vitæ pelli vibrare catellos.

CATEMIA, a name given by some of the writers of the middle ages to a soft black stone used in the soldering of silver, and some other metals, and more commonly called *borax fapit.* We do not at this time know what stone they mean.

CATENA, in a general sense, a CHAIN.

CATENA, in *Anatomy*, a muscle, otherwise called TIBIALIS *anticus*.

CATENA *patrum*, in *Ecclesiastical Writers*, denotes a sort of commentary on Scripture, composed of separate passages or interpretations of the fathers, reduced to the order of chapters and verses of the book.

The first who used *catenæ* in this sense was Thomas de Aquinas. The reason of the appellation seems to be this: that as a chain consists of several links connected together, so do these commentaries consist of a number of different passages, or the sentiments and expositions of different writers, tacked together so as to form one work. Fabr. Bibl. Græc. tom. vii. fib. v. cap. 17.

CATENARIA, in the *Higher Geometry*, a mechanical curve line, which a chain, or rope, forms itself into, by its own weight, when hung freely between two points of suspension, whether those points be horizontal or not.

The nature of this curve was investigated by Galileo,

who ſuppoſed it to be the ſame with the parabola; but though Jungius detected this miſtake, it was not diſcovered till the year 1691, when M. J. Bernouilli publiſhed it as a problem in the Acta Eruditorum. Dr. D. Gregory, in 1697, publiſhed a method of inveſtigating the properties before diſcovered by Bernouilli and Leibnitz. Phil. Tranſ. abr. vol. i. p. 39, &c. Where he ſhews, that an inverted *catenaria* is the beſt figure for an arch. Bernouilli Opera, vol. i. p. 48, &c. and vol. iii. p. 491, &c. To conceive the general nature or character of this curve, ſuppoſe a line heavy and flexible (See *Tab. Geom. fig.* 25.) the two extremes of which, F and D, are firmly fixed in thoſe points; by its weight it is bent into a certain curve FAD, which is called the *catenaria*.

Let BD and *bd* be parallel to the horizon, AB perpendicular to BD, and D*d* parallel to AB; and the points B, *b* infinitely near to each other. From the laws of mechanics, any three powers in equilibrio, are to one another, as the lines parallel to the lines of their direction (or inclined in any given angle), and terminated by their mutual concourſes: hence if D*a* expreſs the abſolute gravity of the particle D*d* (as it will, if we allow the chain to be every way uniform), then D*e* will expreſs that part of the gravity, that acts perpendicularly upon D*d*; and by the means of which, this particle endeavours to reduce itſelf into a vertical poſition; and as it proceeds from the ponderous line DA, it is, *cæteris paribus*, proportional to the line AB, which is the cauſe of it. Farther, the lincola *d e*, will expreſs the force which acts againſt that conatus of the particle D*d*, by which it endeavours to reſtore itſelf into a poſition perpendicular to the horizon, and hinders it from doing ſo. This force is conſtant, being no other than the reſiſtance of the point A; and may therefore be expreſſed by any given right line *a*. Suppoſing the curve FAD, therefore, as before, whoſe vertex (the loweſt point of the *catena*) is A, axis AB, ordinate B D; fluxion of the axis D*d*=B*b*; fluxion of the ordinate *d b*; the relation of theſe two fluxions is thus, viz. D*d*: B*b*:: DA curve: *a*; which is the fundamental property of the curve and may be thus expreſſed (putting AB=*x*, and BD=*y*, and AD=*z*)

$$\dot{y} = \frac{a\dot{x}}{z}.$$

CATERER. See PURVEYOR.

CATERGI, the name of the public carriers in the Grand Seignior's dominions, who give earneſt to the merchants, and others, as a ſecurity that they will carry their goods, or not ſet out with them.

CATERPILLAR, *Erucæ*, in *Inſectology*. The *caterpillar* ſtate is that through which every butterfly muſt paſs before it arrives at its perfection and beauty, and in the ſame manner all the known winged animals, except only the PUCERON, paſs through a reptile ſtate, none of them, except this, being produced in their winged form. The change from caterpillar to butterfly was long eſteemed a ſort of metamorphoſis, a real change of one animal into another; but this is by no means the caſe. The egg of a butterfly produces a butterfly, with all the lineaments of its parent, only theſe are not diſcloſed at firſt, but, for the greater part of the animal's life, they are covered with a ſort of caſe, or muſcular coat, in which are legs for walking which only ſuit it in this ſtate; but its mouth takes in nouriſhment, which is conveyed to the included animal, and after a proper time, this covering is thrown off, and the butterfly, which all the while might be diſcovered in it by an accurate obſerver, with the help of the microſcope, appears in its proper form. Before it paſſes into this ſtate, however, there requires a time of reſt for the wings to harden, and the ſeveral other parts to acquire their proper firmneſs; this is tranſacted in a time of perfect reſt, when the animal lies in what is called the nymph or chryſalis ſtate, in appearance only a lump of unenlivened matter. There is a ſettled and determinate time for each of theſe changes in every ſpecies; but in the ſeveral different kinds the periods are very different. Some *caterpillars* are produced from the eggs of their parent butterfly in ſpring, as ſoon as the trees, on whoſe leaves they are to feed, begin to bud; after a life of thirteen days, they paſs into their chryſalis ſtate; and, after remaining at reſt three weeks in that, they iſſue forth with wings, with all the beauty of their parents.

As ſoon as they arrive at this their final ſtate, their wings are ſcarce dry before they ſeek to copulate or propagate their ſpecies; this done, the male dies, and the female only lives to depoſit her eggs, and then follows him. This is their whole buſineſs; nature never intending that they ſhould eat in this ſtate, has given them no organs for that purpoſe; ſo that they muſt neceſſarily die of hunger ſoon, could they eſcape their natural death, or the great devourers of them, the birds. Many ſpecies of theſe ſpring butterflies have no farther being, except in the embryo included in the egg, till the ſucceeding ſpring; they lay their eggs very carefully, and in extremely nice order, round about the ſtalk of a perennial plant, or the young branch of a tree, and there they remain through the heats of the ſummer, and colds of the winter, and are never hatched till the ſucceeding ſpring; and though thus expoſed, it is obſervable that the ſevereſt winters do them no harm. Other ſpecies of theſe are ſooner hatched from the egg, and live the remainder of the ſummer on the leaves of the trees. They, after this, paſs the whole winter in the caterpillar-ſtate, uſually hiding themſelves in ſome ſheltered place, covered with webs of their own ſpinning. Theſe remain torpid all the winter, and, at the return of ſpring, leave their webs as the others do their eggs, and feed a few weeks longer, after which they paſs through the chryſalis ſtate to their perfect form. The butterfly of this ſpecies, therefore, enjoys a much longer time of life than the other which remains ſo long in the egg; though the ultimate duration of the animal from its exceluſion from the parent, till its death, is much the ſame; ſo great a part of it being paſſed in the egg-ſtate by the one, and ſo ſmall a part by the other.

Other ſpecies of theſe animals remain the whole winter in the chryſalis ſtate, and are butterflies in ſpring, and, after paſſing the middle of ſummer in the egg, are *caterpillars* in the autumn. The difference of this ſtage of life is remarkable great, in proportion to the whole duration of the animal; in ſome ſpecies it does not exceed a fortnight, and in others continues eleven months.

There is no ſign of ſex in the animal, while in the caterpillar ſtate; the propagation of the ſpecies is the buſineſs of the creature in its ultimate perfection, and, till that, theſe parts are never excluded. One female butterfly, when ſhe has been impregnated by the male, will produce three hundred or four hundred eggs, or even more.

There is no way of knowing the different ſexes of theſe little creatures, by viewing the parts; but the whole figure and manner of the animal makes the difference. The females are always larger than the males; they are alſo more ſlow in their motions; and ſome of them have no wings, or, at the utmoſt, only very ſmall ones. The males, however, have a ſort of beards, more beautiful than the *antennæ*, or horns of the females; the female is much ſtronger, as well as bigger, than the male, and not unfrequently at the approach of danger or diſturbance, flies away with him in the time of copulation.

On diſſecting the female, her *uterus* affords an aſtoniſhing ſight; the number of eggs in the tubes is amazing; but theſe have not all the ſame figure; and in ſome ſpecies, as the ſilk-worm, &c. the eggs are of a beautiful blue; if any yelloviſh ones are ſeen among them, they are judged to be defective. See STIGMATA.

The care of all the butterfly-tribe, to lodge their eggs in ſafety, is ſurpriſing. Thoſe whoſe eggs are to be hatched in a few weeks, and are to live in the *caterpillar* ſtate during part of the remaining ſummer, always lay them on the leaves of ſuch plants as will afford them a proper nouriſhment; but, on the contrary, thoſe whoſe eggs are to remain unhatched till the following ſpring, always lay them on the branches of trees and ſhrubs, and uſually are careful to ſelect ſuch places as are leaſt expoſed to the rigours of the enſuing ſeaſon, and frequently cover them from it in an artful manner. Some make a general coat of hairy matter over them, taking the hairs from their own bodies for that purpoſe; others hide themſelves in hollow places in trees, and in other ſheltered cells, and there live in a ſort of torpid ſtate the whole winter, that they may depoſit their eggs in the ſucceeding ſpring at a time when there will be no ſeverities of weather for them to combat. The day-butterflies only do this, and of thoſe but a very few ſpecies: but the night ones, or *phalenæ*, all without exception, lay their eggs as ſoon as they have been in copulation with the male, and die immediately afterwards.

It is well known that the common and natural food of theſe creatures is the leaves and verdure of vegetables; yet as weak and harmleſs as they ſeem, they will many of them deſtroy their fellows whenever they get an opportunity. Reaumur gives us an inſtance of this in twenty *caterpillars* of the oak, which he kept in a box, with a ſufficient quantity of their natural food, yet their numbers daily decreaſed, till at length there remained only one. This is, however, only the caſe in ſome few ſpecies, the generality of theſe animals being very peaceable, many ſpecies living together in the ſame place, without moleſting one another. Theſe ſpecies, however, though freed from theſe dangers, are expoſed to others of a much more terrible kind; the worms or maggots of ſeveral ſorts of flies are frequently found about them, ſome preying upon their outſide, others lodged

within them, under the skin, but both kinds eating the poor defenceless creature up alive. Those which feed on the outsides are easily discovered, the others are more hid, and frequently the *caterpillar*, which seems very hearty and vigorous, and very fleshy, shall be found, upon opening, to be a mere skin, the internal parts being all eaten away, and all the food that he swallows serving only to feed a vast number of worms, or maggots, which crawl about at liberty within him. These devouring worms are of many different species, some being of the gregarious, some of the solitary kinds, and some spinning webs of their own silk to transform themselves in, others undergoing that change without any such covering. The beautiful *cabbage-caterpillar* is one of those unhappy kinds which frequently are infested with the gregarious kinds, large numbers of which spin themselves webs one after another, and afterwards come out in the shape of the parent-fly, to whose eggs they owed their origin.

These intestine enemies are a sure prevention of the butterfly's appearing at its proper time; and as many of the former naturalists, who knew what butterfly to expect from a peculiar species of *caterpillar* which they preserved, often saw a parcel of flies come out in the place of it, they having no idea that the fly had laid its eggs in the flesh of the poor creature, supposed that this was one of the natural transformations of the creature, and that certain species of *caterpillars* sometimes produced butterflies, sometimes small flies.

These, and many other destroyers, among which the birds are to be reckoned in the principal place, serve a noble purpose in preventing the too great numbers of these mischievous animals. Their usual habitation being the leaves and flowers of plants, they are, in their feeding, much exposed to all those destroyers; yet nature has taken care to preserve a great number, by making many of them so exactly of the colours of the leaves they feed on, that they are not easily distinguished from them, and by giving others a caution of keeping on the under part of the leaves, and being, by that means, out of sight. But some species are much less exposed, and of much more mischief to the plants they feed on, by devouring more essential parts of them. Of these some eat the roots, and others the interior part of the trunk, destroying the vessels that imbibe, and those that distribute the juices. These are different from the common *caterpillars*, in that their skin is much less tough and hard, and these are secure from our observation, and, in general, from their great destroyers the birds. They are not, however, absolutely safe from the common dangers of the other species; for there are a kind of worms that find their food and habitation even in the bodies of these.

The root-*caterpillars*, and those which live within the branches of plants, are much more easily found out. The roots of scorpholastis, and the stalks of lettuces, and some other plants, afford *caterpillars* which feed all of the same species. Those found in the lettuces are extremely plentiful some years, and destroy vast quantities of that plant. These usually have their first habitation in the stalk, near the root.

Nothing more surprises us, in regard to insects, than their industry; and in this the *caterpillars* yield to no kind, not to mention their silk, the spinning of which is one great proof of it. The sheaths and cases which some of these insects build for the passing their transformations under, are, by some, made of the silk, with their own hair, mixed with pieces of bark, leaves, and other parts of trees, with paper, and other materials; and the structure of these is well worthy our attention.

There are others, whose workmanship, in this article, far exceeds these. There is one which builds in wood, and is able to give its case a hardness greater than that of the wood itself in its natural state. This is the strange horned *caterpillar*, of the willow, which is one of those that eat their *nymphæ*. This creature has extremely sharp teeth, and with these it cuts the wood into a number of small fragments; these fragments it afterwards unites together into a case, of what shape it pleases, by means of a peculiar silk, which is no other than a tough and viscous juice, which hardens as it dries, and is a strong and firm cement. The solidity of the case being thus provided for, we are to consider, that the *caterpillar* inclosed in it is to become a butterfly, and the wonder is in what manner a creature of this helpless kind, which has neither legs to dig, or teeth to gnaw with, is to make its way out of so firm and strong a lodgment as this, in which it is hatched. It has been supposed by some, that the butterfly, as soon as hatched, discharged a liquor which softened the viscous matter that holds the case together, and so its several fragments falling to pieces, the way out lies open. This is evidently the truth of the case, though those who supposed it, did it by mere conjecture; for, on a strict examination, this liquor is always to be found in the animal, and is of the most proper kind for such a service. Reaumur judged, from the effects, that this liquor must be of a singular nature, and very different from the generality of animal fluids: and in dissecting this creature in the *caterpillar* state, there will always be found near the mouth, and under the *œsophagus*, a bladder, of the bigness of a small pea, full of a limpid liquor, of a very quick and penetrating smell, and which, upon divers trials, proves to be a very powerful acid; and, among other properties, which it has in common with other acids, it sensibly softens the glue of the case, on a common application.

It is evident that this liquor, besides its use to the *caterpillar*, remains with it in the chrysalis state, and is the very thing that gives it a power of dissolving the structure of the case, and making its way through in a proper manner, at the necessary time. Dr. Boerhaave has adopted the opinion, that there are no true acids in animals, except in the stomach, or intestines: but this familiar instance proves the error of that determination. Phil. Trans. abr. vol. ix. p. 39, &c.

Another very curious and mysterious artifice, is that by which some species of *caterpillars*, when the time of their changing into the chrysalis state is coming on, make themselves lodgments in the leaves of the trees, by rolling them up in such a manner as to make themselves a sort of hollow cylindric case, proportioned to the thickness of their body, well defended against the injuries of the air, and carefully secured for their state of tranquillity.

Besides these *caterpillars*, which in this manner roll up the leaves of plants, there are other species which only bend them once, and others which, by means of thin threads, connect many leaves together to make them a case. All this is a very surprising work, but all much inferior to this method of rolling.

The different species of *caterpillars* have different inclinations, not only in their spinning and their choice of food, but even in their manners and behaviour one to another. Some never part company from the time of their being hatched to their last change, but live and feed together, and undergo together their last change into the chrysalis state. Others separate one from another as soon as able to crawl about, and each hunts its fortune single; and there are others which regularly live to a certain time of their lives in community, and then separate each to shift for itself, and never to meet again in that state. Reaumur, Hist. Insect. vol. ii. *passim*.

Caterpillars are very destructive and pernicious to gardens, particularly those of two species. The one of these is that which afterwards becomes the common white butterfly. This is of a yellowish colour, spotted with black, and infests the leaves of cabbages, cauliflowers, and the Indian cress, of which it eats off all the tender parts, leaving only the fibres entire, so that whole plantations are often seen destroyed by them in autumn, especially such as are near large buildings, or are crowded with trees. There is no remedy against this evil, but the pulling of the creatures off before they are spread from their nests, and watching the butterflies, which are daily, in the hot weather, depositing their eggs on these plants. These, however, feed principally on the outside of the leaves of the plants, and are therefore the easier taken off; but the other kind lives near the center, and therefore is with much more difficulty discovered. This is much larger, and the skin is very tough, and of a brown colour. It is called, by the gardeners, a grub, and is extremely pernicious. The eggs which produce it are usually deposited in the very heart, or center, of the plant, particularly in cabbages; and the creature, when formed, and grown to some size, eats its way through all the leaves, and leaves its dung in great quantity behind it, which spoils the cabbage. This insect also burrows under the surface of the ground, and makes sad havock among young plants, by eating off their tender shanks, and drawing them into the holes. This mischief is chiefly done in the night; but wherever a plant is seen thus destroyed, if the earth be stirred with a finger an inch deep, the creature will be certainly found, and this is the only way of destroying them. Miller.

When these insects attack fruit-trees, the best method of driving them off is to boil together a quantity of the wormwood, and the common tobacco, of each equal parts, in common water; to make the liquor very strong, and sprinkle it on the leaves and young branches every night and morning, during the time when the fruit is ripening.

In Dr. Hawkesworth's Account of the Voyages to the South Seas, vol. iii. p. 520. we have the following account of a kind of small green *caterpillar*, which the

voyagers

voyagers found in great numbers, on the true West Indian mangroves. Their bodies were thick-set with hairs, and they were ranged on the leaves side by side like flies of soldiers, to the number of twenty or thirty together. When they touched them, they found that the hair on their bodies had the quality of a nettle, and gave them a much more acute, though less durable pain.

CATERPILLAR, *Connaught*. See *Connaught* WORM.

CATERPILLARS, *water, Greek aquatics*.—It might seem incredible that there is any such creature as a *caterpillar* whose natural habitation is under water; but experience and observation prove that there are such, and that they feed on the water-plants as regularly as the common kinds do on those at land. These are not named at random, like many of the aquatic animals of the larger kinds, the sea-wolf, and the sea horse, &c. which might as well be called any thing else as wolves and horses, but they are properly what they are called, and do not acquire in the manner of the fish-tribe, but by their migrations, as other *caterpillars*. M. Reaumur, in his observations, met with two species of these, the one upon the potamogiton, or pond-weed, the other upon the lenticules, or duck-meat. These are both very industrious animals; but the first being much the larger, its operations are more easily distinguished.

This, though truly an aquatic animal, swims but badly, and does not at all love to owe itself. The parent-butterfly lays her egg on a leaf of the potamogiton, and, as soon as the young *caterpillar* is hatched, it gnaws out a piece of the leaf of a roundish shape. This it carries to another part of the same leaf, and lays it in such a manner, that there may be a hollow between, in which it may lodge. It then fastens down this piece to the larger leaf with silk of its own spinning, only leaving certain holes at which it can put out its head, and get to gnaw any of the leaves that are near. In this gets out, though the aperture be naturally small, since a little force from its body bends up the upper leaf, and bends down the lower, both being flexible; and when the creature is out, it has a power of down their defends itself from being wetted, and the natural elasticity of the leaves, and of the silk, join the aperture up again, so that no water can get in. The leaves of this kind of plant are also naturally very slippery, and not easily wetted by water. It soon happens, that this habitation becomes too small for the animal, in which case it makes just such another, and after that, at times, several others, each being only made fit for it at the size it is then of. The changes of this creature into the chrysalis and butterfly state, are in the common method. The butterfly gets out of a chrysalis which was placed on the surface of the water, the lightness of the animal easily sustains it on the water till its wings are dried, and it then leaves that element never to return to it again. Mem. Acad. Par. 1736.

CATERPILLARS, *wood, Bruce finds first*, the name of a genus of *caterpillars* which do not live in the manner of others on leaves of trees or plants, or open to our observation, but under the bark, in the trunk and branches, and in the roots of trees, and sometimes in the body of fruits.

These are easily distinguished from those worms and maggots which are found in roots and fruits, and owe their origin to that of another kind; but are subject to be confounded with a sort of animals, called by M. Reaumur, *fausse or bastard caterpillars*, which carry a great resemblance in their figure to the real *caterpillars*, but which have more legs than any of the true ones have, and are finally transformed into four-winged flies, which are not true butterflies.

The butterflies which are the parents of those *caterpillars* which live unmured on trees or trunks, lay their eggs on the surface, and the young *caterpillars*, when hatched, eat their way in.

What appears something surprising, however, in this is, that there usually is only one *caterpillar* in a fruit, which is large enough to afford food to a large number; and if there are sometimes found two creatures within, one is usually a *caterpillar*, the other a worm of some other kind. The whole occasion of which is, that the operation of penetrating into the fruit, is so difficult to the young animal, that it seldom succeeds in it; and though the butterfly deposits many eggs on each fruit, and these all hatch, yet it is only here and there one on a fruit that can find its way into it.

These creatures, when once lodged in their prison, have nothing to do but to eat up the substances which inclose them, leaving the outer hard shell unhurt, which still serves as a case for them: this is a very frequent case in the grains of corn, where the farinaceous substance serves as aliment, and the hard outer skin becomes a firm hollow case afterwards for the animal. The farinaceous substance in this case usually proves enough for the animal in its *caterpillar* state, but if it does not, the creature has recourse to a very singular expedient; it eats again its own excrements, and finds its now stronger stomach able to separate nourishment from that very matter, which had before passed off from its weaker stomach undigested.

Of these species of *caterpillars*, some go out of their prison in order to change into their chrysalis, and thence into their butterfly state; but the greater number remain there, and pass through all their changes within.

These *caterpillars*, like all the other kinds, have certain flesh-eating worms, whose parents are of the fly-kind, for their terrible enemies and destroyers; and it is not unfrequent, on opening one of these spoiled fruits, instead of the expected *caterpillar*, to find a fly just ready to come out; this has been produced from the chrysalis of a worm, which had before found its way into the fruit and eat up the *caterpillar*, which was the original possessor of the place. A. D. S. an. 1730; and Reaumur, Hist. des Inf. tom. ii.

CATERPILLAR-*roters*, a name given by some authors to a species of worms which are bred in the body of a *caterpillar*, and eat its flesh: these are owing to a certain kind of fly which lodges her eggs in this animal, and they, after their proper changes, become flies like their parents.

M. Reaumur has given us, in his History of Insects, some very curious particulars in regard to these little worms. This insect is called the ICHNEUMON of *caterpillars*.

CATERPILLARS, *Scorpion*, in *History*, a genus of the *diadelphia decandria* class. Its characters are these: the emplacement of the flowers is of one leaf, erect, blown up, lightly compressed, ending in five acute points. The flower is of the butterfly-kind: it has a roundish standard, indented at the point, where it is reflexed and spreading: the wings are long, almost oval, having obtuse appendages: the keel is half-moon shaped: the belly is gibbous, pointed, and erect, cut in two parts below. It hath ten stamina, nine joined, and one separate, terminated by small summits; and an oblong taper germen a little reflexed, supporting a rising inflexed style, terminated by a point for a stigma; the germen afterward becomes an oblong, taper, feathery, rough, channelled pod, twisted in many longitudinal coils, in size and appearance of a large *caterpillar*, from whence it had this title, divided within, and on the outside contracted into knotty joints, each cell containing one seed. There are four species.

All these plants are annual, and grow naturally in most of the warm countries in Europe, but have been long cultivated in the English gardens.

CATERPILLAR-*shell*. See TURBO.

CATERVA, in *Ancient Military Writers*, a term used in speaking of the Gallish or Celtiberian armies, denoting a body of 6000 armed men.

The word *caterva*, or *catervarius*, is also frequently used by ancient writers to denote a party or corps of soldiers in disorder or disarray; by which it stands distinguished from COHORS or *cornu*, which were in good order.

CATESBÆA, in *Botany*. See *Lily*-THORN.

CATHARETICS, or CATHARTICS, *medicines*, are such as serve to consume, and eat off, fungous or proud flesh growing in wounds, ulcers, and the like.

The word is formed from καταιρω, sometimes used for *deponere*, or *abstergere*, *I take away*, *I cleanse*, &c. of κατα, and αιρω, *I take away*.

Catharetics are otherwise denominated ESCHAROTICS *medicines*, q. d. *ferberentes*.

Such are red precipitate, burnt alum, ἀλας ὁμ, blue vitriol, &c.

Cathartic only differs in degree from CAUSTIC or septic, which are more violent in their operation.

CATHALOGOS, in the *Materia Medica*, a name by which some call the fruit we know by the name of Saint IGNATIUS's *bean*.

CATHARI, in *Ecclesiastical Writers*, ancient christians, who made profession of greater purity in discipline and sanctity of life than others.

The appellation *Cathari* was chiefly given to the sect of NOVATIANS.

In after-times, however, the name was also applied to several other sects, who pretended to extraordinary purity, and particularly to a fanatical sect, who came from Greece into Italy, and were first discovered in the Milanese about the middle of the eleventh century. They were called in France, and other countries, ALBIGENSES, PATERINI, and PUBLICANS. See PAULICIANS and PURITANS.

CATHARINE, *Knights of St.* CATHARINE *of Mount Sinai*, an ancient military order, erected for the assistance and protection of pilgrims going to pay their devotions to the

body of *St. Catharine*, a virgin of Alexandria, distinguished for her learning, and said to have suffered martyrdom under Maximin.

The body of the martyr having been discovered on mount Sinay caused a great concourse of pilgrims, and travelling being very dangerous, by reason of the Arabs, an order of knighthood was erected in 1063, on the model of that of the Holy Sepulchre, and under the patronage of St. Catharine: the knights of which obliged themselves by oath to guard the body of the saint, keep the roads secure, observe the rules of St. Basil, and obey their grand-master. Their habit was white, and on it were represented the instruments of martyrdom whereby the saint had suffered, viz. a half-wheel armed with spikes, and traversed with a sword stained with blood.

CATHARINE, *Fraternity of St. Catharine at Sienna*, a sort of religious society instituted in that city, in honour of St. *Catharine*, a saint famous for her revelations, and for her marriage with Jesus Christ, whose wedding-ring is still preserved as a valuable relic. This *fraternity* yearly endows a certain number of destitute virgins, and has the privilege of redeeming annually two criminals condemned for murder, and the same number of debtors, by paying their debts.

CATHARINE, *Order of St.* in *Modern History*, belongs to ladies of the first quality in the Russian court. It was instituted in 1714, by *Catharine* wife of Peter the Great, in memory of his signal escape from the Turks in 1711. The emblems of this order are a red cross, supported by a figure of St. *Catharine*, and fastened to a scarlet ribbon edged with silver, on which are inscribed the name of St. *Catharine*, and the motto, *Pro fide et patria*.

CATHARMA, from καθαιρω, *I expiate*, in *Antiquity*, some miserable or flagitious wretch, sacrificed to the gods as an expiation for the plague, or other calamity. Such was the prophet Jonas, cast into the sea; and such does St. Paul with himself to be. See ACCURSED.

CATHARMA, *Kathapma*, from καθαιρω, *to purge*, in *Medicine*, imports the excrements purged from any part of the body; as the stomach, intestines, or bladder.

CATHARMOS, in *Medicine*, of the same derivation, implies purgation by medicines, or the cure of a disorder by superstitious ceremonies or sacrifices. The cure of the king's evil by the royal touch, if such a thing had been effected, might be said to be performed by a *catharmos*.

CATHARTICS, or CATHARTIC *medicines*, are remedies which promote evacuation by stool.

Cathartics are the same with what we otherwise denominate *purgatives*.

Cathartics are of three principal kinds, *mild*, *moderate*, and *violent*: the first purge gently, as cassia, manna, tamarinds, rhubarb, senna, &c. the second pretty briskly, as jalap, scammony, &c. the third severely, as colocynth, hellebore, laurcola, &c. See each under its proper article.

Cathartics are likewise divided by some into chologogues, phlegmagogues, melanagogues, and hydragogues; the first supposed to purge bile, the second pituita, the third melancholy, and the fourth serosities.

For the theory of *cathartics*, and the manner wherein they operate, see PURGATIVES.

A safe, pleasant, gentle, and effectual purgative or *cathartic* may be at any time prepared in the following manner. Take a quart of Dulwich water, or any other water of a like kind, diffolve in this over the fire an ounce of manna, and half an ounce of black tamarinds; strain off the liquor, and let it be taken at several draughts, at an half hour's distance or less, the whole being drank in an hour and half, or two hours.

The purging mineral waters act with more ease, genuineness, and safety, than any of the shop medicines; all that they require is to be either concentrated by boiling away a part, as is done with sea water in this manner; and a general rule for a purge of this kind would perhaps run, to the practice of physic to reject almost all the common rough purges in use.

CATHARTIC *wood*. See EXTRACTUM *catharticum*.

CATHARTIC, *or purgative, amulet*, a denomination given to what we improperly call *Roman salt*.

CATHEDRA, in a general sense, a *chair*.

The word is more particularly used for a professor's chair, and a preacher's pulpit.

CATHEDRA *cardinalitia* used for the bishop's see, or throne, in a church.

CATHEDRA, *ex*, a phrase used in speaking of the solemn decisions or decrees of prelates, chiefly the popes, delivered in their pontifical capacity.

The occasion for the papist maintains, that the pope is infallible when speaking *ex cathedra*, a term of modern theology entirely unknown to the ancients. Even those who will not agree in the explanation of it.

CATHEDRAL, a church wherein is a bishop's see, or seat.

The word comes from the Greek καθεδρα, *chair*, of καθημαι, *sedeo*, *I sit*.

The denomination *cathedral* seems to have taken its rise from the manner of sitting in the ancient churches, or assemblies of primitive Christians: in these, the council, i. e. the elders and priests, was called *presbyterium*; at their head was the bishop, who held the place of chairman, *cathedrali*, or *archiereatica*; and the presbyters, who sat on either side, were also called by the ancient fathers, *assessores episcoporum*. The episcopal authority did not reside in the bishop alone, but in all the presbyters, of whom the bishop was president.

A *cathedral* therefore, originally, was different from what it is now; the Christians, till the time of Constantine, having no liberty to build any temples by their churches, they only meant their assemblies; and by *cathedrals*, nothing more than consistories. Whence appears the vanity of some authors, especially the Spaniards, who pretend their *cathedrals* to have been built in the times of the apostles.

CATHEDRATIC *acts*, *duties ecclesiastical*, denotes a doctor possessed of a chair or professorship in some of the universities of Spain.

They say a *cathedratic duke* of Salamanca, of Alcala, &c.

CATHEDRATICUM, in *Ecclesiastical Writers*, denotes a sum of money, amounting to two shillings, ancently paid annually by the inferior clergy to their bishops, or as often as he visited his diocese, *in honorem cathedræ*, i. e. as an argument of their subjection, and for the honour of the bishop's see or CATHEDRA.

This was otherwise denominated *synodicum*, and in modern writers PROCURATION.

CATHEDRATICUM also denotes a sum which bishops newly ordained gave partly to bishops or patriarchs, by whom they were consecrated, and partly to the clerks and monks who officiated on the occasion.

This was also called *synaxium*, as being given on account of the throne, or chair, they had now obtained, and *synodium*, or SYNODAL.

Bishops consecrated by patriarchs or metropolitans, provided their church was not worth less than thirty pounds of gold, were to pay an hundred folidi by way of *cathedraticum*.

CATHERETIC. See CATHARTIC.

CATHERINE. See CATHARINE.

CATHETER, among *Surgeons*, a hollow probe, or instrument, chiefly of steel, somewhat crooked, to be introduced into the bladder, in order to search for the stone, or to discharge the urine when suppressed. See *Table Surgery*, *fig.* 2, 3, 4.

The word is formed from κατιημι, *immitto*, in regard this instrument is used to be impelled into the bladder.

Heister rejects the common metalline *catheter* used by Galen and his followers, as cruel, and even noxious; and substitutes another in its place made of leather. Others have provided a flexible *catheter* made of slitted silver, and convoluted, in order to give a continual passage to the urine, and to prevent the repetition of the painful operation of pulling the *catheter* for this purpose. Dr. Hales describes a *catheter* of a new structure contrived for the more advantageous injection of lithontriptic into the bladder: its cavity is divided lengthways, by a thin partition into two separate channels, which end in two divarishing branches. By one of these branches the *menstruum* is to be injected into the bladder, in the common, or rather in the hydrostatical way, while it returns mixed with urine by the other. Hales, Haemastat. p. 212. See STAGE, and LITHONTRIPTIC.

Dr. le Cat, surgeon of Rouen, has invented a new *catheter*. See *Table Surgery*, *fig.* 1. A is a crooked cane, which is split lengthways into two pieces; the concave piece A is fixed, and at the same piece with the rest of the instrument, and the convex piece C is moveable, having its hind point joined by a hinge to the end a of the piece A, and its forwarder part pointed at b, with a piece which makes the end of a strong fullet, or wire, that runs through the centre of the piece B, where it is received down. The piece B, the wire, and the piece C are held in the situation which the operator pleases, by the screw E; the end of which bears against the piece B. This is made of two solid plates of silver soldered together, in the middle of which a groove has been made to lodge the wire. The handle D is square; the piece B is almost entirely solid, leaving in its centre but just room enough for the passage of the wire; this part is lodged in the piece D of the *Catheter* is made of silver from the rings inclusive to E, all the rest, together with the wire, ought to be of the hardest gall. See, exhibits the whole mechanism of this *catheter*, by repreſenting it open, and such as it is in the bladder, while the incision is making. See a fuller description and account of its use in the Phil. Trans. vol. xlvii. p. 472.

CATHETERISMUS, a chirurgical operation, whereby either stimulating medicinal is injected into the bladder, or some foreign body prejudicial to the making of urine, as congealed blood, a stone, or the like, is drawn away, by means of a crooked, tubular instrument, called a CATHETER.

CATHETOLITES, in *Natural History*, the name of a genus of fossils of the class of the *lithoides*, but differing from the common kinds in the disposition of the constituent plates. *Trans. Philos. Class* 2.

The word is derived from κάθετος, *perpendicular*, and λίθος, a *stone*, or *plate*, and expresses a set of these bodies whose plates are ranged perpendicularly. All the known *lithoides*, except those of this genus, are composed of a number of parallel plates, or thin flakes, ranged evenly horizontally on one another.

CATHETO-PLATUS, in *Natural History*, a term, with its opposite, which is *parallelopipedus*, very much used by Arcæus, and others who adopt his system, in the description of fishes; they may be very well explained in English, by the two familiar words, *compressed* and *depressed*. The heads of fishes are the principal part characterized by these terms.

CATHETUS, in *Geometry*, a perpendicular, or a line, or radius, falling perpendicularly on another line, or surface.

Thus, the *cathetus of a rectangle triangle*, are the two sides that include the right angle.

CATHETUS *of incidence*, in *Catoptrics*, is a right line drawn from a radious point, perpendicular to the reflecting line, or the plane of the speculum, or mirror.

CATHETUS *of reflexion*, or *of the eye*, a right line drawn from the eye, or from any point of a reflected ray, perpendicular to the plane of reflexion, or of the speculum. See REFLEXION.

CATHETUS, in *Architecture*, is a perpendicular line, supposed to pass through the middle of a cylindrical body, as a column. See *Tab. Architect. fig.* 29. and 30.

Cathetus is sometimes applied to a line in the ionic capital, passing perpendicularly through the eye or centre of the VOLUTE.

This is otherwise called the axis of the *cornua*.

CATHOLIC, from καθὰ and ὅλος, *whole*, denotes a thing that is universal, or general.

Some have said, that Theodosius the Great first introduced the term *catholic* into the church; appointing by an edict, that the title should be applied, by way of preeminence, to those churches which adhered to the council of Nice, in exclusion of the Arians, &c. *Catholicism*, however, soon changed hands; for under the emperor Constantius, Arianism became so predominant, that the Arians were called the *catholics*. But the term was used much more anciently, as by Polycarp and Ignatius. *Ubi fuerit Jesus Christus*, (says the latter) *ibi ab ecclesia* CATHOLICA. The Romish church now affumes the distinguishing appellation of the *catholic* church.

CATHOLIC *kings*, is a title which has been long hereditary to the king of Spain. Mariana pretends, that Reccaredo first received this title after he had destroyed Arianism in his kingdom, and that it is found in the council of Toledo of the year 589. Vafeo ascribes the origin of it to Alphonsus in 738. Some allege that it has been used only since the time of Ferdinand and Isabella. Colombiere says, it was given them on occasion of the expulsion of the Moors. The Bollandists pretend, it had been borne by their predecessors, the Visigoth kings of Spain; and that Alexander VI. only renewed it to Ferdinand and Isabella. Others fay, that Philip de Valois first bore the title; which was given him after his death, by the ecclesiastics, on account of his favouring their interests.

In some epistles of the ancient popes, the title *catholic* is given to the kings of France, and of Jerusalem, as well as to several patriarchs and primates.

CATHOLIC *sermon*, is a little sermon, so contrived, as to be fit for all kinds of operations, which do not require an infenfe fire.

CATHOLICASI, in *Middle Age Writers*, the officials or ministers of the CATHOLICI, or receivers of the taxes of a sovereign overlord; also denominated CASARENSES.

CATHOLICON, in *Pharmacy*, a kind of fort purgative electuary, so called, as being supposed universal, or a purger of all humours.

Different authors give different recipes for it: that called *Catholicon Nicolai* was long in use; it consists of sixteen ingredients, the chief whereof are tamarinds, cassia, senna, and rhubarb. It was called the double *catholicon*, when there was a double portion of senna and rhubarb.

The CATHOLICON *for* CLYSTERS only differs from this, in that it had no rhubarb, and that honey was used in it instead of sugar.

CATHOLICUS, the title of a dignitary, or magistrate, under the Roman emperors, who had part of the administration, and particularly the care and receipt of the revenues and taxes in Roman dioceses.

The *catholicus* was the same with what was denominated by the Latins *procurator*, and *rationalis Caesaris*. Such was the *catholicus* of the diocese of Africa, mentioned by Eusebius, and other ancient writers.

CATHOLICUS, among *Ecclesiastical Writers*, an appellation given to the primates of ARMENIA: as prelates of several churches in Asia, subject to the see of Antioch but whose jurisdiction and dioceses are of such extent that they have assumed the title of *catholici*, q. d. *universal bishops*. See PRIMATE.

CATKIN, among *Botanists*, a cluster of flowers affixed to an axis: in some cases, there are squamæ on the axis which do the office of cups; in others the flowers are naked. This is otherwise called *julus*, and *amentum*.

CATLIN, among *Surgeons*, is a dismembering knife, for cutting off any corrupted part of a body.

CATMINT, *Nepeta*, in *Botany*, a genus of the *didynamia gymnospermia* class. Its characters are these: the empalement of the flower is cylindrical, indented into five acute parts at the top. The flower is of the lip kind, with one petal, having an incurved cylindrical tube, gaping at the top. The upper lip is erect, roundish, and indented at the point. The under lip is large, concave, entire, and fawed on the edge: it hath four awlshaped stamina, situated under the upper lip; two of which are shorter than the other. In the bottom of the tube is situated a quadrifid germen, which afterward turns to four oval seeds, sitting in the empalement. Linnæus enumerates fourteen and Miller twelve species.

The species called *nepeta cataria* by Linnæus, has a strong scent between mint and penny-royal. It is called *catmint*, because cats are very fond of it, especially when it is withered; for then they will roll themselves on it, and tear it to pieces, chewing it with great pleasure. Miller's Gard. Dict.

It consists of warming and attenuating parts, somewhat like penny-royal; and like that is of great service in opening obstructions of the womb, and helping in the green sickness: it also hysteric fits and vapours. It promotes the birth and lochia, and is by some authors commended against barrenness.

CATOCHE, or CATOCHUS, from κάτεχω, *I retain*, in *Medicine*, a kind of waking sleep; or a vehement disposition of the body to sleep, without being able to attain it; the eyes still remaining open, and the breath entire, but the body motionless, and in the same posture wherein the patient was first seized.

The *catoche* is the same with CATALEPSIS. It differs from the COMA and APOPLEXY, in that the eyes are open in the former, and closed in the latter. See COMA.

CATOCHITES, in *Natural History*, the name of a fossil mentioned among the ancients, as having great virtues in medicine, and in the cure of wounds. It is said to have been found in Cerfica; and Pliny records this remarkable property of it, that if the hand were held upon it for some time, it would stick to it in the manner of glue. Hence it appears to have been a bitumen.

CATOCYSTUS, in *Natural History*, a name given to one of the general divisions of the *echinodermata*, or *sea hedgehogs*. These have their aperture for the anus not at the top of the shell, as the *anocysti* have it, but in some part of the base.

For the more accurately distinguishing these into genera, the bases of the shell are to be divided into the *regular* and *irregular*. The *regular* are those which are round or oval; the *irregular*, those which are made with sinuses and angles.

CATODON, in the Artedian system of *Ichthyology*, the name given to a genus of the *pleuronectes*, or cartilaginous fishes, the characters of which are these: the teeth are placed only in the lower jaw; there is no fin upon the back; and the fistulæ is placed either in the nose or the snout.

The species of this genus are only two.

This, in the Linnæan system, is the name of a species belonging to the genus denominated *pleuronectes*, in the order of *apodes*, and class of *amphibia*.

The word *catodon* is derived from κατὰ, *below*, and ὀδὼν, a *tooth*; and expresses that the fish has teeth only in the lower part of the mouth.

CATOMUM, or CATOMUS, from κατὰ and ὄμος, *shoulder*, in *Middle Age Writers*, denotes that part of the body below the neck, and between the shoulders.

CATOPSIS, in *Medicine*, a disorder of the sight; more usually called SCOTOMIA.

CATOPTRICS, the science of reflex vision; or that branch of optics, which delivers the laws of light, reflected from mirrors, or speculæ.

The doctrine and laws of *catoptrics* are laid down under the head of OPTICS.

The word comes from κατοπτρον, *speculum*; of κατὰ, and ὀπτομαι, *video*, *I see*.

CATOPTRICAL *Dial*, a dial which exhibits objects by reflection. *See* REFLECTING *Dial*.

CATOPTRIC *Telescope*, a telescope that exhibits objects by reflexion. *See* REFLECTING TELESCOPE.

CATOPTRIC *Cistula*, a machine, or apparatus, whereby little bodies are represented extremely large; and were once extremely wide, and diffused through a vast space; with other agreeable phenomena: by means of mirrors, disposed after the laws of *catoptrics*, in the concavity of a kind of chest.

Of these there are various kinds, accommodated to the various intentions of the artificer: some multiply the objects; some deform them; some magnify, &c. The structure of one or two of them will suffice to shew how many more may be made.

To make a CATOPTRIC *Cistula to represent several different scenes of objects, when viewed at different foramina, or holes.*

Provide a pasteboard cistula, or chest, of the figure of the multilateral prism ABCDEF (*Tab. Optics, fig.* 193), and divide its cavity by diagonal planes EB, FC, DA, intersecting each other in the centre, into as many triangular locules, or shells, as the chest has sides. Line the diagonal planes with plain mirrors; in the lateral planes make round holes, through which the eye may peep within the locules of the chest. The holes are to be covered with plain glasses, ground within-side, but not polished, to prevent the objects in the locules from appearing too distinctly. To each locule are to be placed the different objects, whose images are to be exhibited; then covering up the top of the chest with a thin transparent membrane, or parchment, to admit the light, the machine is complete.

For, from the laws of reflexion, it follows, that the images of objects, placed within the angles of mirrors, are multiplied, and appear some more minute than others; whence the objects in one locule will appear to take up more room than is contained in the whole chest. By looking, therefore, through one hole only, the objects in one locule will be seen, but those multiplied, and diffused through a space much larger than the whole chest: thus every new hole will afford a new scene. According to the different angles the mirrors make with each other, the representations will be different; if they be at an angle greater than a right one, the images will be monstrous, &c.

The parchment that covers the machine, may be made pellucid, by washing it several times in a very clear ley, then in fair water, and bracing it tight, and exposing it to the air to dry. It is be inclined to throw any colour on the objects, it may be done by colouring the parchment. Zahnius recommends verdigrise ground in vinegar, for green; decoction of Brasil wood, for red, &c. He adds, that it ought to be varnished, to make it more pellucid.

To make a CATOPTRIC *Cistula to represent the objects visible in prodigiously small spaces, and diffused through a vast space.*

Make a porpendicular cistula, or chest, as before, but without dividing the inner cavity into any apartments, or locules (*Tab. Optics, fig.* 196); line the lateral planes CBHI, BILA, ALMI, &c. with plane mirrors, and at the foramina, or apertures, pare off the tin and quicksilver, that the eye may see through: place any objects in the bottom MI, e.g. a bird in a cage, &c.

Here the eye looking through the aperture KL, will see each object placed at bottom, vastly multiplied, and the images removed at equal distances from one another. Hence, were a large multangular room, in a prince's palace, lined with large mirrors, over which were glass pellucid glasses to admit the light; it is evident the effects would be very surprising and magnificent.

CATOPTRITES, in *Natural History*, a name given by some writers to a stone of the marble kind, which, when polished, was capable of serving as a speculum, either flat, and so used to represent the images of things; or concave, and used as our reflecting burning-glasses. The hard black marbles were most frequently used for this purpose; but sometimes the reddish ones, and sometimes one or more of the whites. All these were indifferently called by the name *lapis tiburtinus*, when put to this use.

CATOPTROMANCY, a kind of divination among the ancients; so called, because it consisted in the application of a MIRROR.

The word is formed from *κατοπτρον*, *speculum*, and *μαντεια*, *divinatio*.

Particular *lots*, it seems, were made among the Athenians, where those who were sick, and in danger of death, let down a mirror, or looking-glass, fastened by a thread, into a fountain, before the temple of Ceres; then looking in the glass, if they saw a ghastly disfigured face, they took it as a sure sign of death; on the contrary, if the face appeared fresh and healthy, it was a token of recovery. Sometimes glasses were used without water, and the images of things future, they say, were represented in them.

CATROPILÆ. *See* ACONITUM.

CATTECHROMIE, or CATECHROMIE, in the language of the Cophtes, prickly cinnamon. This is a bark very much resembling cinnamon, but produced by a tree which differs very much in the shape of the leaves, and is full of sharp thorns, which the true cinnamon-tree is not. The bark has nothing either of the taste or smell of cinnamon, though so like it externally. The natives use the rind, leaves, and bark of this tree externally, to obtain tumors. Phil. Trans. N° 490. See CASSIA and CINNAMON.

CATTLE, a collective name, importing all quadrupeds, used either in tilling the ground, or for the food of man. *See* BEAST.

Under *cattle* some include all unreasonable animals whatsoever, or go in herds; as sheep, oxen, horses, hogs, &c. Others define *cattle* to be all tame animals which graze. *Cattle* are sometimes divided into *great*, comprehending oxen, bulls, cows, calves, horses, &c. and *small*, including sheep, lambs, goats, and the like.

CATTLE, *black*, more particularly denote the ox kind. There are also denominated *neat cattle*.

The management of *cattle* makes a considerable branch of what is called HUSBANDRY.

The diseases of *cattle* make the subject of that art, called by the ancients *mulo-medicina*, and *veterinaria*, and by us, *farriery*.

Dr. Mandichelli tells us, that in the plague among the *cattle* in Italy, in 1745, rue, wormwood, garlic, and such other strong-smelling plants, hung about their necks and muzzles, were esteemed preservatives against the infection. Nitrous medicines, gunpowder, sulphur, and the sharper aromatics, did hurt. Bleeding, crude antimony with fennel, and a dose of the most valid fattening herbs, did service. Mem. Ed. Econom. vol. ii. p. 302.

The ancient riches consisted wholly in the number of *cattle*; whence it is supposed to be, that the Romans called money by a name formed from that of cattle, *pecunia* from *pecus*.

The importation of *cattle* into England, whether living or dead, is prohibited on pain of forfeiture; the *cattle* may be exported, or even transported, paying the duties. Factors, and those who sell *cattle* for others, are prohibited to buy any, except horse or calves, within eighty miles of London; and none shall be bought and sold again in the same market, on pain of forfeiture. Stat. 5 and 6 Edw. VI. c. 19. 18 Car. II. c. 1. 22 Car. II. c. 13. *See* DROVER.

Stealing of *cattle*, or killing them with an intent to steal any part of the carcafs, or aiding in such offences, are now made felony without benefit of clergy. Stat. 14 Geo. II. cap. 6. and 15 c. 34.

By *cattle*, in this act, is to be understood any bull, cow, ox, steer, bullock, heifer, calf, sheep, and lamb, and no other *cattle* whatsoever. Stat. 15 and 16 Geo. II. c. 34.

CATTUFFUS, or COSSUFFU, in *Ichthyology*, a name given by Aldrovand, and other of the Greek writers, to the fish called by the Latin authors *mæna* and *TRIGLA aspera*. It is a species of the *mæna*, easily known from all the others by its colours, and called by authors who acknowledge the general name *mæna*, the bluish black *mæna*.

CATTUS, or CATUS, in the *Roman Military Art*, a kind of machine or device for covering or screening the men at work, almost entirely the same with *vineæ*. *See* MANTELETS.

CATULUS, in the *History of Fishes*, the name of a fish, of which authors describe three species; the *mare*, *mannulus*, and *mannetus*. It is a species of the CALLIONYMUS kind, and has a narrow pointed head, and a wide and large mouth, furnished with strong teeth, sharp-edged, and bollowed inwards. The first kind is common in our seas, and often caught on the coasts of Cornwall; and the two others principally in the Mediterranean, though sometimes also in our seas. Aldrov. de Pisc. lib. iii. c. 34.

CATURUS, in *Botany*, a genus of the *syngenesia frustranea* class.

CATUS *sylvestris*, in *Zoology*, the name of a beast of prey, called also by some *felis sylvestris*, and by us the cat of the mountain; and, in the Linnæan system, a species of the cat called FELIS *Lybica*. It is of the size of a middling dog; but in other respects is altogether the common domestic cat in shape, except that the tail is, in proportion to the creature's size, considerably shorter.

It has upright pointed ears, marked with two brown converse bars the colour of the head, and whole upper part of the body, a reddish brown, marked with long

hung narrow spots on the back, and with small spots on the sides: the belly, chin, and throat, are white: the tail barred with black. The length of this animal is two feet and a half; and that of the tail eight inches.

It is left farce against the human species than any of the other beasts of prey, and may even be tamed. It naturally grows very fat, and inhabits America. Hays, Syn. Quad.

The *genius* of hunting differs in few particulars from the preceding: the orders are within the same, and the genera are found. It is farce and innumerable; inhabits the woods in the mountainous parts of India; lays and breeds in trees, and leaps with great agility from one tree to another. See *Viverra*, *Sp.* 5.

CATUS MARINUS, *in Zoology*, a name improperly given to the creature which produces the perfume called civet; it is not being of the cat, but of the wolf or dog kind. See CIVET.

CAUT, CAT, or CATTY, an East India weight, used especially in China. It is equivalent to one pound five ounces and two drams Engliſh.

The *tay* is divided into ten *mace*, and the *mace* into ten hundred *candy*.

The *catty* is also used in Japan, Batavia, and other parts of the Indies, where it weighs more or less, according as it contains a greater or less number of *taels*: the *catty* of Java is equivalent to twenty *taels*; that of Camboya, to twenty-four; the *catty* of Siam is double that of China, and amounts to about 160 French pounds.

The Chineſe alſo give the denomination *catty* to the Stamſe *tahil*.

CATTY is alſo a ſmall weight whereby the lightneſs of the Eaſt weigh their commodities, equivalent to three grains.

CAVY is alſo a meaſure of account, uſed in Java, and ſome of the neighbouring iſlands, amounting to about nineteen ſtivers Dutch money.

In the iſland of Sumatra, *cavy* is alſo uſed to denote a piece of money, valued at ſix ſhillings and eight pence ſterling.

CAVA, in anatomy, the name of a vein, the largeſt in the body, terminating in the right ventricle of the heart; where it opens with a large mouth, to convey to it the blood brought from all the parts of the body, by the branches of the other veins which all terminate in the *cava*. See *Tab. Anatomy*, *Fig.* 1. *lit.* i, 12. *Tab.* 60. *Angiol.* *Fig.* 6. *lit.* a.

At its entrance into the right ventricle, it has three membranous valves, called *tricuſpides*, or *valvulæ*, from their triangular figure; for occaſionally, as to allow the blood's paſſage from the *cava* to the heart, and repreſſing its return.

The *cava* is divided into the *aſcendens* and *deſcendens* parts: the *aſcendens cava*, is that which ariſes from the lower parts; ſo called, becauſe the blood hereby conveyed to the heart, mounts, or aſcends. The *deſcendens cava* comes from the upper parts; and is ſo called, becauſe the blood hereby brought from the head, and other parts, deſcends.

CAVAGIBO, in *Ichthyology*, the name of a fiſh common in the Mediterranean, and brought to the markets in many places. It is ſomething of the coal-fiſh ſhape, but thinner and flatter. Ray.

CAVALCADE, a ſolemn, pompous march, or proceſſion of horſemen, equipages, &c. by way of parade, or ceremony, or to grace a triumph, public entry, or the like.

CAVALCADOUR, or CAVALCADOUR, anciently denoted a riding-maſter, but at preſent is diſuſed in that ſenſe, and only employed to denote a lort of equerries, or others who have the direction of princes ſtables. The French *écuyer tranchant* to the king, the duke of Orleans, &c.

Menage writes it *caballicator*, and derives it from the Spaniſh *caballero*, a horſeman.

CAVALET, in the *Glaſs trade*, a ſtrait iron ring which ſurrounds the ſwingle, or hole in the centre of the table to the tower of the *chair*, and ſo forming grit endleſs.

CAVALIER, or CAVALIERO, or horſeman, or perſon mounted on horſe-back: eſpecially if he be alſo richly and for a military appearance.

Anciently, the word was reſtrained to a knight, or order Knighthood.

The French ſtill uſe CAVALIER in the ſame ſenſe.

CAVALIER, in *Fortification*, a mount, or elevation of earth, either round, or oblong; having a platform on the top, bordered with a parapet, to cover the cannon placed on it, and the whole encompaſſed on the outſide with a ſtrait or ſtraight and ſometimes on the outſide with a ſtrait or ſtraight and ſometimes on the outſide with a ſtrait or ſtraight and ſometimes

Swan's tail; called by the Arabs, *Dhnab Adjaze*, or *Alcaphaze*. See a under CEPHEUS.

CAUDA *Delphini*, a fixed star of the third magnitude, in the tail of the Dolphin. See a under DELPHINUS.

CAUDA *Draconis*, the dragon's tail, in *Hevelius*, the name of the moon's southernmost ascending node.

CAUDA *Equini*, in *Aratus*, a denomination given to the lowest part of the fixed stars, from the tail-feathers of the cock to the end of the tail of the horse. It is that determinated from its form, which is supposed to resemble a horse's tail. Its tabulance is 68 stars, and very remarkable.

CAUDA *Equina* also denotes a medicinal herb, whose leaves are reputed to have a strengthening virtue. This in English, is called the *horse-tail*. The officinal kind is more particularly called by botanists, *asperula arvensis*, in English, the great mare's-horse-tail.

CAUDA *Leonis*, a fixed star of the fifth magnitude in the Lion's tail; called also by the Arabs, *Dhaje Elased*. See β under LEO.

It is called *Ob. Lucida Coxæ*.

CAUDA *Ursæ Majoris*, a fixed star of the third magnitude, in the extreme part of the tail of the Great Bear; called also by the Arabs, *Alcaid* and *Benetnasch*. See η under URSA *Major*.

CAUDA *Ursæ Minoris*, a fixed star of the third magnitude, in the extreme part of the tail of the Lesser Bear; called also the polar star, and by the Arabs, *Alrukabah*. See α under URSA *Minor*.

CAUDEBEC, in *Mercantile Affairs* and *Commerce*, a sort of hats, thus called from the town of Caudebec in Normandy, where they manufacture a great number of them. They are made of lamb's wool, of the finest down of wool-cloth, or of camel's hair.

CAUDISONA *Cyprea*, in *Zoology*, a name by which some call the RATTLE-SHELL.

CAUDIVERBA, in *Zoology*, the name of an animal of the lemur kind, called also *semnopithecus*, but more commonly known among authors by the name COLOBUS.

CAVÆ, a fraternal term, used by ancient writers. Some authors distinguish between CAVÆ and *cognati*, making the first the children of one father's name; CAVÆ were described the primitive institutions whereby mankind themselves to civil societies above ground, they took shelter under it. The primitive manner of burial, was also to separate bodies to sepulchres, which appears to have been the origin of the HYPOGEUM. Phil. Trans. N° 244. p. 344.

Badmington CAVE, in Warfare, consists of a treble or row of uniform bows, wherein pieces of amount are laid to have been found, whereof there are by many supposed to have been relics of ancient warriors.

CAVE is also used for the proper habitations of elephants. Among the Romans, CAVE, were next to be considered to the temples, who were worshipped in CAVE, as other gods in their temples.

The Persians also worshipped their god Mithras in a natural cave, similar to that for the purpose by Zoroaster. Kircher, after Vasillarius, enumerates divers species of cave, as, natural, artificial, mixed, and artificial.

Of natural CAVE, some are peopled at a moderate distance, as the Sybil's at Cumæ; others are postponed, or complained; others are replete with metallick exhalations, and others with waters.

Divers mention is made among the ancients, the names of which occasioned the fable, and gendered a fear of them in mankind, which was interpreted inspiration, prophecy, or divination. Such were the Corycian CAVE in Phrygia, and that of the Cimmerians in Italy. Such also was the Delphic cave at Cumæ in Campania, all the avenues to which were so thronged with oracles, that it is as if nature had placed that place for a mansion of fame. It is there celebrated by Virgil. Homer likewise describes the CAVE of Trophonius among the Lebadeans, in Bœotia, and Pausanias, Strabo, and Suidas, have left us the particulars of the ceremonies observed by those who entered the cave to consult the oracle. Vide Potter Archæol. lib. ii. cap. 20. p. 296, &c.

CAVE, coal, pit, in Mining. See LAVE.

CAVEA, the place in the ancient theatres where the spectators were seated.

The cavea, called by the Greeks κοῖλον, *hollow*, consisted, distinguished from the *pulpitum*, which was the place for the actors.

The cavea was divided by partitions into three equal parts, ending one over another; answering appointed for the gentlemen equites, and senatorian; and the meanest, *pedum*, for the commonalty; and the uppermost, *summa cavea*, for the women.

At the three several CAVE, or tiers, stairs were placed behind the cavea, where the audience might enter for their respective seats.

CAVEA also denoted the middle part in amphitheatres, or other such buildings.

CAVEA is also used for the cage or mew of a wild beast, or other animal designed for shows.

CAVEARE, in *Ichthyology*, a kind of GOBIUS or sea-pike, so named from its having a hollow or cavity in the upper part of the head, which receives the humour of the eye, as in a socket. It is likewise from the Italians called *Cavedano*, and *Cavedine*, whence perhaps the Latin Cuck and *cadanus*, of the same.

CAVEAT, in *Law*, is the name, or form of the Entry, or caution or warning, which any person may enter in the Ecclesiastical Court, to stop the proceedings of the Spiritual Judges, in the granting of Administration, Probate of Wills, or Institution to Benefices.

The Caveat is entered in the Prerogative Court of Canterbury, and in the Court of Arches, and in the Court of Peculiars, and in the Court of the Bishop of London, and in the Court of the Bishop of Winchester, and in the Court of the Bishop of Ely, and in the Court of the Bishop of Durham, and in the Court of the Bishop of Chichester, and in the Court of the Bishop of Lincoln, and in the Court of the Bishop of Worcester, and in the Court of the Bishop of Bath and Wells, and in the Court of the Bishop of Exeter, and in the Court of the Bishop of Salisbury, and in the Court of the Bishop of Norwich, and in the Court of the Bishop of Rochester, and in the Court of the Bishop of Hereford, and in the Court of the Bishop of Gloucester, and in the Court of the Bishop of Oxford, and in the Court of the Bishop of Peterborough, and in the Court of the Bishop of Carlisle, and in the Court of the Bishop of Chester, and in the Court of the Bishop of Landaff, and in the Court of the Bishop of St. David's, and in the Court of the Bishop of Bangor, and in the Court of the Bishop of St. Asaph, and in the Court of the Bishop of Litchfield and Coventry, and in the Court of the Bishop of Lichfield and Coventry

Their internal substance is very soft, downy; and when filled with blood and spirits, it arises and swells to such the tension or erection of the great conduit. See Penis.

CAVERNOUS *Corpus Cavernosum*, a third spongeous body of the penis; so called, because the texture, or primary shape of the *penis* is resolved by it. See Penis.

It is figured contrary to that of the two former cavernous, is larger in its extremities, and built in the middle: it appears plain to the forefkin, and is called its *head*, from its figure. Its external membrane is fine, and doubled lengthwise for a space. The middle part of this vessel is very spongeous, but the passage for the urine is no where to be found, but continues to the upper part, near the body of the *penis*; in some extremely dilating itself, forms the *glans*.

CAVERNOUS *Corpora of the Clitoris*, are those nervous or spongy bodies, like those of the *penis*, they have their origin from the lower part of the *pubis*, on each fide; and uniting together, constitute the body of the CLITORIS, as the other do that of the *penis*.

Infects have two permanent analogous to that of the *penis*; but they have a *glans*, or membranous portion, passing out when they would copulate, and drawing them from: among all whom is remarkable that of the *glans* in the *Scarabæus Nasicornis* of the ten *pubis*, where they are called *pincers*.

CAVERNOUS *Corpus of the Prepuce*. See PREPUCE.

CAVERS, in the *Lancaster Mines*, are they that prophesy and go about the mines to find out first out in the mines.

CAVESON, in the *Manege*, a kind of muzzle, put over a horse's nose, which runs on hooks from his cheeks, and serves in breaking, managing, and training him.

The most usual cavesons are those of *cords*, or *ropes*, *leaf*. The *cords* for making cheap cavesons are usually of hemp, twisted smoothly, or two or three pieces running on one; others are twilled, others are flat, others hollow in the middle, and contained like tapes, called *cavesons*, though these last are now humbler the cavesons.—The rope and leather cavesons serve for passing the horse between two pillars.

The iron caveson fpares a young horse's mouth in the breaking. Here by custom he is accustomed to obey the hand, and bend the neck and shoulder, without injuring his mouth. All iron cavesons are mounted with a head-stall, and a throat-lash, and two straps, or reins, with three rings through the middle ring, one rein is pulled to make a horse work round a pillar, and through the two side rings the other two reins are pulled, which the rider holds in his hand, or fastens to his saddle to keep the horse's head in subjection.

CAVETTO, in *Architecture*, a hollow member or moulding, containing a quadrant of a circle, and having an effect just contrary to that of a *quarter-round*.

It is used as an ornament in cornices.—*See Tab. Archit. fig. 6.*

The word is Italian, and is no more than a diminutive of *cavo*, hollow.

M. Perrault observes, that the ancients confound the *cavetto* with a *scotia*, but improperly; the *cavetto* being in their only half a *scotia*: yet he himself is chargeable with the same oversight.

Where in its natural situation, the ancients frequently call it *gula*, or *gutter*; and when inverted *corona*.

Cassiodorus the same writer is otherwise denominated a *cornucopia*. Mercius Capella how to describe the *cavetto* from the *scotia* and the *tenia*.

CAUHQUOY, in *Natural History*, a name given by the natives of the Caribbee Islands to a liquor which they calcine and afterwards put in large tubs in the ha-cienda, and many other compositions. It is also used in dying. The Indians boil it in water, and dye or stain their cloaths with it, to make them appear different from others: it is a kind of ochre, or clayey iron ore, and is found in great abundance in the hills, and from it sometimes extracted iron.

CAVIA. See CAVEAR.

CAVIA *cutea*, in *Zoology*, the name by which the Brasilians, and from them many writers, call the creature commonly known among us by the name of the GUINEA *pig*.

CAVIDOS, or CANTEL, a Portuguese long measure, used in the manufacture of cloth, linen, and the like, equivalent to two feet eleven lines Paris measure.

CAVIL, *sophism*, is defined by some a fallacious kind of reafon carrying about resemblance of truth, which a person knowingly to fallhood, advances in dispute for the sake of victory.

The art or framing fophisms or fallacies is called by Ramus, *cavillatrix*.

CAVIL, in the *Military Art*, a natural hollow, fit to cover a body of troops, and thereby facilitate their approach to a place.

A *cavil* near a place besieged is of great advantage to the besiegers; as by help thereof they can open trenches, make places of arms, keep guards of horse, and the like, without being exposed to the enemy's fire.

CAVING. See CAVILLING.

CAVITY, among *Anatomists* and *Physicians*, make a fpecies of organical conformation, either natural or accidental.

Cavities of the first kind are of two kinds; the first formed from nutrition, called *cells* and *pores*; the second from other purposes, called *ducts*, *vessels*, *fibres*, *fibrils*, and *pores*. Heath Compendium, § 56.

CAUC, CAUK, or CAWK, is defined by *Mortimer in the Trans.* to denote a coarse fort of spar; being a petrifaction, which though generally found near to lead mines, will also be found in other parts of the country. Phil. Trans. N° 470. p. 226. But N° 79. p. 770. it is worthless to mine, and fusible by fire.

The word is formed probably of the German *kauig*, *fpar*.

It is properly no other than a spary matter, rendered very coarse by being mixed with a large portion of earth: in some places it is found more clear and transparent in others: it approaches in this kind to the nature of crystal, and is called ballard cauk, and bright cauk. Phil. Trans. N° 407.

There is a singular process mentioned by Dr. Lister, which is that of studying antimony by its means. This is done with great readiness and speed by it, and the glass thus made, will produce more effect on other metals, which no other glass will; nor indeed can other preparation of antimony. The method of preparing it is this: take a pound of antimony, fuse it over a very violent fire in crucibles as coarse or two of your ordinary ones; put it into the crucible to the melted antimony; and continue it in fusion; then call it into a warm mortar, but grateful, decanting the clear liquor from the dregs of coal. This powder gives more than fifteen ounces of glass of antimony, like polished steel, and bright as the most refined quicksilver. The coal, in the mean time, is found to be diminished, not increased in its weight, and will serve fine with the antimony, though ever so strong fire be given it. This is a very old method, and this learned author supposes it to be effected by the sulphureous, oily, and mineral juices which are found in the mines. The effect of bodies evidently the same; for the sulphur juice of lead mines vitrifies the whole body of antimony, in the same manner that the coal does in this experiment. Phil. Trans. N° 410.

That there is somewhat very peculiar in the coal, or else from this effect on antimony, which no other thing of this kind is possessed of; for fossil salammoniac, sulphur vivum, galenites, emeralds, alum ore, spar, and many other stones have been tried with antimony in the same manner, but not any of them has the effect.

CAUKING, in *Architecture*, figuifies DOVE-TAILING. See DOVE-TAIL.

CAULKING *Iron*, in *Fishery*, a hooked caulking iron.

CAULKING, in CAULKING *of a Ship*, implies the driving in oakum, or fomewhat of that kind, into the seams, or crannies of the planks, to prevent the ship's leaking. When the planks extend over each the design is, to prevent the water's entering.

Kennet derives the word from the barbarous Latin *Calcatura*, *fewing*.

CAULKING-*irons*, proper iron chisels for the purpose of caulking veffels.

CAUL, in *Anatomy*, a membrane in the abdomen, investing the greatest part of the guts, called from its structure *reticulum*, but most frequently *omentum*.

CAUL is likewise a little membrane found in some children, encompassing the head, when born.

Dr. Clement takes this *caul* to be only a fragment of the membranes of the *funis*, which commonly stick at the head of the child.

CAUL, or CAUL, among *Shoemakers*, a coarse pasteboard lined, found in the fronts of the shoemakers. See TAP.

CAULEDON, from καυλος, a *stem*, in *Surgery*, is applied to FRACTURES which happen transversely, whereby the parts of a broken bone fall asunder, so as not to be distinctly against each other.

CAULIAS, an appellation given to the juice drawn from the stalk of the *fig-tree*, concerning which Pliny that drawn from the root of the same plant, which is called SYKITES.

Schroder renders the stalks the same with our ASPARAGUS.

CAULICOLES, CAULICULI, in *Architecture*, a name those eight little brackets, or stalks in the Corinthian capi-

tal,

tal, which rising out from the last greater, produce caules, or stalks.—See Vol. about p. 2.

The next causes from the same root, the stalk, or body, of the plant.

The subsequent of these stalks are followed by the calices or primary branches of leaves, from which spring successively the flowers.

Some authors have joined the cauliculi with the calices themselves; being with the flowers on the middle, and same with the principal stalks whence they arise.

CAULIFLEROUS, *adj.* applied to trees, as those having stalks, or trunks, which a great many have none at the smallest, &c.

They are sometimes divided into *ramiferous*, and ACAULIFEROUS.

The former are either *perfectly ramiferous*, as ashes; or *imperfectly ramiferous*, as palms.

CAULIFLOWERS, a species of *brassica*, are the produce of a kind of cabbage, and have in late years much improved in England, as appears in the soil, generally say that we raise it to the size of Siberia. They are in season in the months of May, June, and July, but the soil of the gardeners sometimes forces much longer.

The manner of propagating them is this:

Having procured some good seed, you must sow it before the middle of August, upon an old cucumber or melon bed, during September. Give it a quarter of an inch thick under the weather proves very hot and dry, it must be shaded with mats, and be plentifully watered at times. In about a week after the plants will appear above ground, and they must be uncovered by degrees, but not entirely at first, for fear of frost. In about a month after coming, they should be pricked out on another bed at two inches distance, and shaded and watered with fresh mould; but you must also duly and not be wasted a second, that sometimes is done two times, which will make them much shorter, or young in the shade. In this bed they are to remain till the end of October, when they are to be planted out for the winter season; they are then to be planted out in rich beds, and their leaves are to be tied up close to be shaded with straw-mats, two under each glass, and the weather be severe or February to be planted again upon the rich bed as before, but not as a greater distance, and to shade.

When the cauliflowers begin to form, they must be carefully watched, and those of the lowest leaves must be bent down over the flower, to shade it from the sun, which would otherwise turn it yellow. The very heart of the cauliflower, which are tender and finely white, and are very much esteemed by Lovers of the Art, and the flowers grown in their first year, be improved still more.

All the varieties of cauliflowers which must not be suffered to stand to seed for sale. Mill. Gard. Dict.

CAULIS, (among *Botanists*). See Stalk.

CAULOCARPUS, among *Botanists*. See Pericarpium.

CAULOS, among *Botanists*. See Pericarpium.

CAULS, among *Botanists*, the HAIR or fibres of an herbaceous plant, or that part which after flowering dies away, and which the principles and leaves shoot upwards.

CAUSAL, a term given by some authors to the genus of those kinds of diseases which arise from the seven *Causes of Diseases* in order.

CAUSE, in *Natural History*, a name given by some to the genus of the cassia, by the generality of writers, particularly of botanical writers. It is from a Latin word, signifying a rod, and is applied to this genus of plants on account of the long, slender, and rod-like pods. See CASSIA.

CAUSINUS, (Nicholas) in *Ecclesiastical History*, a learned Jesuit, born at Troyes in Champagne, in 1583, and became professor of rhetoric at Paris in 1610, and afterwards preacher to the court of Louis XIII. and confessor to the queen mother. He died at Paris in 1651, aged 68 years. He was a man of great learning, and wrote several books, which were much esteemed in their time, but are now little regarded. His principal works are, 1. "Sacra Parallela, sive Thesaurus Concionatorius," 2 vols. fol. 2. "Polyhistor Symbolicus," 3 vols. fol. 3. "Electa Sacra," 1 vol. fol. 4. "De Symbolica Ægyptiorum Sapientia," 1 vol. fol. 5. "De Eloquentia Sacra et Humana," 1 vol. fol. 6. "Holy Court," 3 vols. fol. 7. "Life of Constantine the Great," 1 vol. fol. 8. "Life of Basil the Great," 1 vol. fol. 9. "Life of Julian the Apostate," 1 vol. fol. 10. "Life of Theodosius the Great," 1 vol. fol. 11. "Life of Valentinian," 1 vol. fol. 12. "Life of Valens," 1 vol. fol. 13. "Life of Gratian," 1 vol. fol. 14. "Life of Theodosius the Younger," 1 vol. fol. 15. "Life of Marcian," 1 vol. fol. 16. "Life of Leo," 1 vol. fol. 17. "Life of Zeno," 1 vol. fol. 18. "Life of Anastasius," 1 vol. fol. 19. "Life of Justin," 1 vol. fol. 20. "Life of Justinian," 1 vol. fol. 21. "Life of Tiberius," 1 vol. fol. 22. "Life of Maurice," 1 vol. fol. 23. "Life of Phocas," 1 vol. fol. 24. "Life of Heraclius," 1 vol. fol. 25. "Life of Constantine Pogonatus," 1 vol. fol. 26. "Life of Leontius," 1 vol. fol. 27. "Life of Tiberius," 1 vol. fol. 28. "Life of Justinian," 1 vol. fol. 29. "Life of Philippicus," 1 vol. fol. 30. "Life of Anastasius," 1 vol. fol. 31. "Life of Theodosius," 1 vol. fol. 32. "Life of Leo," 1 vol. fol. 33. "Life of Constantine Copronymus," 1 vol. fol. 34. "Life of Leo," 1 vol. fol. 35. "Life of Constantine," 1 vol. fol. 36. "Life of Irene," 1 vol. fol. 37. "Life of Nicephorus," 1 vol. fol. 38. "Life of Michael Rhangabe," 1 vol. fol. 39. "Life of Leo," 1 vol. fol. 40. "Life of Michael," 1 vol. fol. 41. "Life of Theophilus," 1 vol. fol. 42. "Life of Michael," 1 vol. fol. 43. "Life of Basil," 1 vol. fol. 44. "Life of Leo," 1 vol. fol. 45. "Life of Alexander," 1 vol. fol. 46. "Life of Constantine," 1 vol. fol. 47. "Life of Romanus," 1 vol. fol. 48. "Life of Constantine," 1 vol. fol. 49. "Life of Romanus," 1 vol. fol. 50. "Life of Basil," 1 vol. fol. 51. "Life of Constantine," 1 vol. fol. 52. "Life of Romanus," 1 vol. fol. 53. "Life of Basil," 1 vol. fol. 54. "Life of Constantine," 1 vol. fol. 55. "Life of Romanus," 1 vol. fol. 56. "Life of Basil," 1 vol. fol. 57. "Life of Constantine," 1 vol. fol. 58. "Life of Romanus," 1 vol. fol. 59. "Life of Basil," 1 vol. fol. 60. "Life of Constantine," 1 vol. fol. 61. "Life of Romanus," 1 vol. fol. 62. "Life of Basil," 1 vol. fol. 63. "Life of Constantine," 1 vol. fol. 64. "Life of Romanus," 1 vol. fol. 65. "Life of Basil," 1 vol. fol. 66. "Life of Constantine," 1 vol. fol. 67. "Life of Romanus," 1 vol. fol. 68. "Life of Basil," 1 vol. fol. 69. "Life of Constantine," 1 vol. fol. 70. "Life of Romanus," 1 vol. fol. 71. "Life of Basil," 1 vol. fol. 72. "Life of Constantine," 1 vol. fol. 73. "Life of Romanus," 1 vol. fol. 74. "Life of Basil," 1 vol. fol. 75. "Life of Constantine," 1 vol. fol. 76. "Life of Romanus," 1 vol. fol. 77. "Life of Basil," 1 vol. fol. 78. "Life of Constantine," 1 vol. fol. 79. "Life of Romanus," 1 vol. fol. 80. "Life of Basil," 1 vol. fol. 81. "Life of Constantine," 1 vol. fol. 82. "Life of Romanus," 1 vol. fol. 83. "Life of Basil," 1 vol. fol. 84. "Life of Constantine," 1 vol. fol. 85. "Life of Romanus," 1 vol. fol. 86. "Life of Basil," 1 vol. fol. 87. "Life of Constantine," 1 vol. fol. 88. "Life of Romanus," 1 vol. fol. 89. "Life of Basil," 1 vol. fol. 90. "Life of Constantine," 1 vol. fol. 91. "Life of Romanus," 1 vol. fol. 92. "Life of Basil," 1 vol. fol. 93. "Life of Constantine," 1 vol. fol. 94. "Life of Romanus," 1 vol. fol. 95. "Life of Basil," 1 vol. fol. 96. "Life of Constantine," 1 vol. fol. 97. "Life of Romanus," 1 vol. fol. 98. "Life of Basil," 1 vol. fol. 99. "Life of Constantine," 1 vol. fol. 100. "Life of Romanus," 1 vol. fol.

CAUSALITY, in *Metaphysics*, the power or virtue of a cause or principle of producing its effect.

Such is the connection between the cause and effect, that the former always precedes the latter in order of time; and the effect always succeeds the cause. Thus, when a stone, or other body, is put in motion by the impulse of another, the motion communicated to the former is the effect of the impulse of the latter, which is the cause of the motion.

CAUSALITY, in *Mechanics*, the faculty or power by which any body acts on another, and produces motion in it, or alters the motion it has already received.

Thus, in the communication of motion by impulse, the causality of the moving body is measured by the quantity of motion it has before the stroke, and the causality of the body struck is measured by the quantity of motion it receives by the stroke. Hence, if the bodies be perfectly hard, the causality of the striking body is measured by the difference between the quantity of motion it has before the stroke, and the quantity of motion it has after the stroke; but if the bodies be perfectly elastic, the causality of the striking body is measured by the sum of the quantities of motion it has before and after the stroke. See Motion, Impulse, Elasticity, &c.

CAUSALITY, in *Mechanics*, the faculty or power by which any body acts on another, and produces motion in it, or alters the motion it has already received.

CAUSE, *Causa*, that which contributes to the existence of something, or which produces some change in something already existing. Thus, the cause of a stone's motion is the force which puts it in motion; the cause of a house is the architect who designed it, and the workmen who built it; the cause of a picture is the painter who drew it, &c.

CAUSE, *Causa*, that which produces or is the principle of any thing, whether substance, mode, or relation. Thus, God is the cause of the universe; a mode is the cause of a mode, &c.

CAUSE, *Causa*, that which produces any effect, and from it is even distinguished as a relation.—In this sense, God is the cause of all things.

CAUSE, *Causa*, in *Physics*, that which moves the power and activity of acting, from a Greek word.

It is certain that philosophers are daringly presumptuous and ridiculous about the nature of their causes: they assume them then at will by their natural figure, and motion; others by a substantial form; many by qualities, or occult qualities; some by matter and form; and others by concurrence, different from all these.

CAUSE, in the *Schools of Physics*, the distinguished last.

CAUSE, *Efficient*, stands for the agents that produce any effects.

CAUSE, *Material*, the subjects whereof the other works, or whereof the thing is formed; that, and that is the matter, or material cause of the same.

CAUSE, *Sine qua non*, the matters which induce a man to act; or the circumstances without which such thing is never done, &c.

CAUSE, *Impulsive*, which is the motive for agent doing, or the reason moved by, which he conducts himself in the matter, or the thing determined to a thing or to do, and determine, or to act every thing else; and the rule which guides, or governs every thing, &c.

CAUSE, *Occasional*, is that which produces a change in the subject, or determines a thing to be, or to act otherwise

CAUSE, *Universal*, is that which by the counsel of his power may produce all effects.

The Catholics esteem all perfect angels true occasional causes.

CAUSES, *Occasional*, are only the instants that the decrees of their effects. See the article.

The Gassendists, Epicureans, &c. are able to act on the body, nor the body on the mind: as from a man to a statue, or between three, four, or more statues. Nor, as to the effects of sin, or instances between them. Nor, as to the effects of a wound in the body, produces a sadness in the soul: a wound in the body, and a sadness in the soul, are only occasional parts of what pass in the union of soul and body, see only occasional parts of what pass in the union of soul and body. Thus, say they, the stroke, or percussion of a sword, is only occasional to the pain that succeeds it; only the occasional cause of the pain produced in the brain thereby: it is God alone that is the true cause. And thus the action of objects on our organs is not the efficient cause of our ideas and perceptions, but merely the occasional cause which determines God to act on the mind, according to the laws of the union of soul and body.

CAUSE, *Sine Materia*, is that which produces a difficulty, is called the most difficult. This operates, either by destroying a connection of the limbs and joints, or by causing some something which is absolutely requisite to the execution of those motions. If a cause pre-existed to have produced the body before the soul produced it, it is called an internal cause: but if it existed out of the body, and by its application to it produced the illness, it is called external.

Internal causes generally injure, first the humours, and then the solid parts: whereas the external cause affects the solids, and by a consequence of that, the humours; and they more generally, which perhaps is from new affluxes produced by pleasure or surprise.

The immediate or proximate cause is that which takes effect upon the immediately conditions the present disease; this is the most expeditious, and sufficient to the formation of the disease, whereas simple is complicated. The presence of this continues and continues the disease; and the absence of it removes the disease, either very little different from the disease itself. The investigation therefore of this is extremely useful and very necessary.

The remote cause is that which changes the body, either in manner, as to interrupt the free reception of a disease upon the occasion of another cause; but it is never also cause sufficient to produce a disease alone: nor would that other cause, the occasion of which is accidental, be of itself sufficient for the production of the disease: but both must remain. The subjects of physic, therefore, is to maintain both together, which in conjunction constitute the proximate or immediate cause.

The causes are inherent in the body, is called predisposing, occasional, and by the Greeks synectic, and consists principally in temperament, habit, and exercise; by the cause which accedes to the former, is evacuations, and by the cause which is between the disease called the procatarctic cause, as the cause or occasion of the disease. It is in manner internal, sometimes external. These four have relation to two states.

First, the regula, or things causing the body; such as drinks, aliments, drink, medicines, poisons; such things as enter by the pores of the skin or clothes; by the several passages of the mouth, lungs, œsophagus, stomach, intestines, and passions of women, whether in a visible or invisible manner; whether by fevers changed, deficient, vitiated, or nutrition. Secondly, the gesta, or things acted, as motion of the whole or any part of the body, affections of the mind, evil habit of the body, evil mind, fevering and watching. Thirdly, things retained or excreted, whether alimentous, excrementitious, or morbid. Fourthly, things applied to the body; as air, exposure, fomentations, cloaths, ointments, unctions, plaster, together with whatever wounds, ruptures, or corrodes.

The division of the non-naturals, as they are called, is different from that of all other writers of reputation.

CAUSES *and Effects*, in Law. In most cases the law bath regard to the cause for bringing of a thing as the principal point on which all other things are found: and therein the first, and not the remote cause is much looked upon, except it be in common and criminal things: and therefore the wreck is not good at law, will not be for abbreviated for that, as in the case, that is the effect. 4. E. if a felon or felon-cause make a will, and publish it, and afterwards die of felony, or not, this will is of no force, on account of the original cause of felony and conviction, &c.

CAUSEWAY, or CAUSEY, a mound or construction of stone, flints, and rubbish, or of earth and gravel, with a ditch on each side, for the convenience of passengers, and for the preservation of the road from being overflowed with water.

CAUSEWAYS, *Roman*, or roads, many already known, continue, and others discovered, and described with stones and rubbish.

CAUSEWAY, *The*, a famous work of the kind which ranges through the county of Northumberland, commonly supposed to be Roman, though Mr. Horsley, and others, are of a different opinion. Horsley, Brit. Rom. lib. iv. cap. 2. in fine.

CAUSEWAY, *Common*, is a denomination given to a passage or floor consisting in the middle of Common or Pasture. See Common.

CAUSIDICUS. See Advocate.

CAUSTICA, in Surgery, a kind of medicine or application called by the Arabians; which was nothing else but cauteries or some instead of cauteries. Mem. Acad. Inscript. tom. i. p. 300.

CAUSTICS, from καυω, I burn, or rather καυστικος, which has the same meaning, are those medicines which by their sharpness and acrimony, burn and corrode the flesh, making incisions of the parts to which they are applied.

Caustics answer to the fame with whatever remedies are called escharotics, and cauteries. They are also called septics, and sometimes corrosives. They are of the weakest kind, such as common spirit of wine, and the strongest, such as the fixed mineral acids, and the strongest of the vegetable acids, as that of vinegar, lemons, &c. and the strongest of the alkalies, such as the fixed vegetable alkali, and the fixed mineral alkali, called by the ancients nitre, and by the latter chemists, nitrum. See the articles Escharotics, Cauteries, and Septics.

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Caustics are also of great use in many cases of wounds, ulcers, and other diseases. They are also used in making issues, and in opening abscesses. They are also used in making issues, and in opening abscesses. They are also used in making issues, and in opening abscesses.

CAUSTICS, *Solar*, are a curve, &c. See Solar Caustics.

CAUTERIES, *Actual*, are a kind of cauteries, or instruments of silver, sometimes of copper, usually made by spatula, and the metal with which it is made, according to the kind, and having the end of it very sharp, with which cold grains and. See Actual.

CAUTERIUM. See Cautery.

CAUTERIUM, *Potential*, is a kind of fluid, by which the tissues of the body is destroyed, and by which the red globules are formed.

CAUTERIUM, *Septic*. See Septic.

CAUTERY,

CAUSTIC, *hypothesis.* See Genus CAUSE.

CAUSTIC, *in surgery.* See Genus CAUSE.

CAUSTICITY, *in Chemistry*, consists chiefly belonging to several combinations of the elements of which earthy parts of living animals that are corroded and destroyed. Those which have this property, are, pure alcaly, and true potassa; and the same may be affirmed of pure alcaly, in its fluid state, or when it has been rendered fluid by moisture or attraction.

CAUSTICUS, *antimonium*, the name given on the Continent to Antimony, when it is to be used in the form of Antimonium.

CAUSTICUS, *lapis*, denotes a burning STONE, or a kind of stone containing iron; although with a superficial view, and when considered in its appearance, it has been thought to be a kind of Marcasite.

CAUSWAY. See CAUSEWAY.

CAUTERY, *Cauterium*, a medicine whereby the fire, fire, or through, or corrupt, some solid part of the body.

The word is originally Greek, καυτηρ, of καιω, to burn.

Cauteries are of two kinds, either, and potential.

Cauteries, either, are those which produce an inflammation, eschar, or sore, or a real hot iron: these are applied to the living body, and extirpations of excrescences, ulcerations of legs, or arms, &c. in order to stop the haemorrhage, and produce a desirable suppuration. They are frequently also applied to extract bones, splinters, and such like hard substances, in order to open a passage for the discharge of the present humours. The instrument, on this occasion, are variously crooked at the extremity, and the wounds, according to the various circumstances wherein they are called CAUSTICS, others perforating, others sawing, &c.—M. Heurnius affirms, as did a late part of the institution of the people at Java, and other parts of the East Indies, whether the Javanese, or the Arabians of those countries, with the same, or the appendant of others, were to, with that there is fewer any disease but they will happily cure it readily.

The actual cautery, or hot iron, is frequently applied to the making of issues, in parts where bleeding is dangerous, as when a little deep hole, which is to be filled with a pea, or any thing to keep it open for the humour to issue through. Paracelsus, a famous chemical writer, prefers the actual cautery, as less dangerous; to which, others prefer that gave no pain, as it seems, he guarantied the secret as a less fatal form a certain remedy.

In some places they scarify with burning iron, in others with pointed or sharp, as where with fire easily obtain the desired effect; others prescribe pieces of linen; others gold, or silver. Severinus recommends a Spanish button of gold for this use: it is usually perforated in many parts of the body.

CAUSTICUM *antimonium*, Fixed. See Genus CAUSE.

CAUSTICUM *argentum vivum*, fixed. See Genus CAUSE.

CAUSTICUM *lunare*. See Genus CAUSE.

CAUSTICUM *potentiale*. See Genus CAUSE.

CAUSTICUM *volatile*. See Genus CAUSE.

CAUSTICUS, *lapis*, a name given by the Germans to the stone called by us LUNAR CAUSTIC.

CAUSTICUS, *sal*, a name given by the Germans to the salt called by us SALT OF TARTAR.

CAUSTICUS, *spiritus*, a name given by the Germans to the liquor called by us SPIRIT OF SALT.

CAUSTICUS, *spiritus*, a name given by the Germans to the liquor called by us SPIRIT OF NITRE.

CAUSTICUS, *spiritus*, a name given by the Germans to the liquor called by us SPIRIT OF VITRIOL

The name comes from a vault, formerly made to separate the platforms of the upper and lower batteries, each of which was called, in Italian, one cannon's shot in the breadth, *colpatura*, though others derive the word from *cedo*, *to yield*, *to give way*; *Cedrarius*, from *cedo*, *to cut*, *to hew*, &c.

The *cannons*, sometimes, muffle at three platforms, one above another, the highest being on the ramparts; but they commonly content themselves to mufflee the lack within the bottom.

The *cannons* is also called the *ear piece*, and *low flank*; as being at the bottom of the wall, near the ditch; sometimes the *second flank*, as being that part of the flanks nearest the curtain; and the centre of the bastion, flank nearest the curtain, and the centre of the bastion. It is commonly covered with an epaulement, or a mufflee body, either round or square, which prevents the shot without from entering within the batteries: whence it was also called *covered flank*.

In some fortifications, because the lanterns of the cremaillers are to serve the soldiers in the manner of the loops of the outer bodies, the vestiges thereof, made by the cleavings of the cannon, remain as intolerable to the men.—Hence, instead of the former covered cannons, have engineers have contrived open ones, only guarded by a garret, &c.

CEMENTATORY, is also used for a mill with several hammers sounding, due to the passage of the bullion, till the mixture is beaten to work, and no grain to be found.

CAZERNS, in *Fortification*. See CASERNS.

CAZIL, or Cassiel, a general title given by the Spaniards to the petty kings or princes, and chiefs of the several countries of America, excepting those of Peru, who are Incas *ordinem*.

The French call those subjects, a denomination which they also give to the chiefs of the Canadian tribes.

The *caxes* in some places are the offices of physicians, and auditors of public accounts, &c. explains.

The dignity of *cazique* among the Caribbees, people of South America, and among the Californians, is not to be acquired by any one descend to children, but must be acquired by valour and merit. One of the prerogatives annexed to it is, that the *cazique* have three wives, while the other people are only allowed one.

Mexico contained a great number of provinces and states, which were governed by lords called *caziques*, dependent on, and tributary to the emperor of Mexico: many of these *caziques* or nobles are said to have been so powerful, that they could cause them bring an army of a hundred thousand men into the field.

CAZIMI, among the Arabian astronomers, denotes the centre or middle of the sun. A planet is said to be in *cazimi*, when it is not distant from the Ecliptic in longitude or latitude above 17', or the aggregate of the semi-diameter of the sun's disk and that of the planet.

This amounts to the same with what is otherwise called *in corde Solis*, or in the sun's heart, which place for dignity and fortunate of a planet, equal to that of being in its own house, exaltation, or other rules, a planet's conjunction with the sun is held detrimental, or a dominion to it as to the Lord, by his favour, power, is supposed to absorb the force of the planet, and even fourth of their beings.

CEANOTHUS, in *Natural History*, a name given by some of the ancients to the three more generally known under the name of *soapwort*. It was the *Lana* with our figure herbaceous on the walk and roots of Constantinus Cæsarius; and, from a opinion of the Greeks, that their flower brought forth young ones, which was founded on their having some more daily produced among them, it became a custom to give this ornament to women in labour, as a thing that would, by a sort of sympathy, hasten the time.

CEANOTHUS, in *Botany*, a genus of the *pentandria monogynia* class. Essential Char. Cal. Hort. Mal. Jersey ess. Its characters are these: the flower hath five petals, equal petals, which spread open, and are less than the empalement. It hath five erect stamina, placed opposite to the petals; and a three-cornered germen, which afterward becomes a dry capsule with three cells, in which are lodged three seed-like. There are three species.

CEBELL, in *Gilders*, an ancient English or Anglo-Saxon tax of four hens or sparrows repented at the will of the master, and having been alienated in the grant and the grantee hens or sparrows to the manor of Sudley.

CECROPIA, in *Botany*, a genus of the *dioecia monandria* class.

CEDAR (*Cedrus*, in *Botany*. For the characters, in LARIX.—Linnæus makes three species of the tree.

The *cedar of Lebanon* is a tree celebrated in antiquity, and what is very remarkable, this tree is not found as a native in any other part of the world, as far as hath come to knowledge.

This tree is of great beauty, and bears the severest extremes of cold well; there is a wonder it is not more cultivated in England. The cones of this tree are brought us from the Levant, and, if preserved entire, will keep their fragrance many years; their cones are to be five inches long, and the scales pickled very thick set to be seven and an half broad, and they are set to be three and an half apart in the same manner as the fir; only they have not the square form of those firmly, the leaves being generally inclined to one side, and much narrower to the upward by being a little thrown straight by to that side. They grow generally, and the ends of their branches standing erect, they make very beautiful close upright bushes, which form like a green tower, and as a plant for the small makes a very elegant appearance; and it is therefore a fine tree for planting on an embankment to adorn a wilderness.

They thrive best of all in a poor soil, and are of very quick growth, as appears by many plants of these trees now in the Chelsea garden at Chelsea, which were planted in the year 1683, and were then not above three feet high; and in the year 1760 measured nine yards and an half in height, at two feet above ground.

Cedar wood is reputed almost incorruptible, and a perpetuity which is never attacked by the worm, which the worms cannot endure. For this reason it was, the ancients made use of cedar tables to write on; especially the stamps of commissions are supposed to that exposition of Persius, *Et vera cedro scripta*, Sat. I. ver. 42.

A book was also drawn from cedar, with which they covered their books and writings, as other nations to preserve them from moths; which is affirmed to be likewise the reason of that which is in the Sibyl's verses, written in purple, were preserved entire in the cedar tree. All are mentioned by Pliny. Hist. Nat. Plant. ver. 7. Plin. Sec. Hist. Nat. in allusion to.

The cedar was also used in building, as Solomon's temple, as well as his palace, were built of this wood. That prince gave king Hiram several cities for the same he furnished him on their occasion. Cortez is said to have erected a palace at Mexico, in which were 300 beams of cedar; most of them 120 feet long, and 25 in circumference, as we are informed by Herrera. Some tell us of a cedar tallied in Cyprus 150 feet long, and 18 in diameter. It was used for the same end in the valley of king Demetrius.

Le Bruyn affirms us, that the cave hewed for him on mount Libanon measured one of them 57 palms, and the other 45 in circumference.

In the temple of Apollo at Dium, there were cedar tables of near 1000 years old; which yet were sufficient to that time to an enemy at Dium, at Segovium in Spain, said to have been brought thither 1000 years before the destruction of Troy.

Cedar is of so dry a nature, that it will not endure to be buried with iron nails, from which it usually decays; for that they commonly fallen it with pieces of the same wood.

Thevenot brought from Babylon and Jerusalem to a specimen that, of so precious a nature, that the wood will last through it.

That produced in New England is a shrub greater, and the leaves are prickly, and shooting their fruit something. They mingle their leaves with it, and use it to all their buildings. This is the sequence of Lycia, which Vitruvius describes as having its leaves resembling those of cypress.

The cedar of Greece and Asia was no other than a smaller kind of juniper, which having prickly leaves, was by some called *oxycedrus*, and the common juniper was at that time called also by the name of cedar. The Lycian cedar of the Greeks was the juniper which has the *oxycedrus* and *oxycedrus*, which were a kind of pitch and an oil likewise from it by boiling, were also prepared from this cedar, but from the *oxycedrus* only, which was a larger sort, and resembled the cypress; and therefore was confounded with that tree, being made by some the said cypress. This *oxycedrus* was prepared from this species; but the wood of cedar, or cedar-oil, was made from the fruit of the *oxycedrus* in private houses of juniper, called cedar by the Greeks, and growing in that wild country.

The *abietina* and the *acuta* mentioned in Scripture, are usually supposed to have been kinds of cedar.

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roundish germen succeeding a single style of the length of the petals, crowned by a single stigma. The germen turns to a roundish fruit with two sutures, opening to discover two cells containing two seeds. We have but one species, which grows naturally in most of the islands in the West Indies.

The wood is very fine, white and durable, and is therefore frequently used for cabins; the fruit and leaves are good pickles for cattle.

CEDAR of Barbadoes, or Barbadoes Cedar, in Botany. This is properly a genus of the monadelphia monogynia class in the Linnæan system. Its characters are: Flakes of male flowers, growing in the axe, some very small, with five short stamens, which adhere at bottom to the germen; in the centre is situated the immature pistil, which afterwards becomes an oval seed-bearing pod or capsule, opening in three parts, and filled with four seeds, separated from the bottom of each cell with five valves, having thicker edges, the valves being thicker and sweller, the inner very thin, which continually surrounds the seeds; these are small, oblong, and appear like red seeds, but the wings adhering to the lesser end of the seed.

As the order of Linnæus is by characters very properly referred to the genus of trees, and all the hardy species which are known in this country under that name are comprised in the following, some botanists have thought proper to make a genus of the plants which were mentioned by Linnæus, and by most of the authors who have treated of them; and as the first species is generally known by the appellation of cedar in the countries where it naturally grows, so the following also have come to those places which agree in their essential characters with it will correct their property accordingly.

The cedar of Lebanon. The first is commonly known upon the mountains of Libya, in the British islands of Jamaica, where they are grown naturally, and in one of the largest sizes in the country. The stumps of these trees are so large, that the inhabitants have them hollowed out, for which purpose they are extremely well adapted, the wood being soft, it can with great facility, and being light, will carry a great weight in the water. It has a fragrant odour, from which the name of cedar has been given to it. It is often used for wainscoting of rooms, and to make quills, because the ants do not so frequently breed in it, as in many other sorts of wood. It bears a bitter taste. The fruit is a conical cone, or whatever is put into the chests, boxes or cabinets, wherein cedar is used, will receive a very agreeable scent, because ipermaceti liquors will not taste part of the resin, and thereby acquire a very bitter taste.

The second sort is the cedar-tree, the wood of which is very well known in England. This grows in a variety in the warmest parts of America, growing plentifully on the islands of Cuba, Jamaica, and Hispaniola; there are also some of them on the Bermuda islands. In Cuba and Jamaica they are trees of a very large size, so as to run into planks of six feet in breadth; and rise to a great height, notwithstanding they are commonly found growing on rocks, where there is scarcely any earth for their nourishment. Linnæus has made a distinct genus of this under the name of SWIETENIA.

The excellency of this wood for all cabinet uses, is now sufficiently known; and it is matter of surprize that the tree should not have been taken notice of by any botanist or traveller as yet here. The only author who has mentioned the tree is Sir Hans Sloane, in his Natural History of Jamaica and the Bermuda islands; although the wood has been very generally brought to England in great quantities.

If any curious persons engaged, they will make considerable presents to England; there are one in Chelsea garden eighty or ten feet high, which have not of a few years growth from seeds.

CEDAR of Barbadoes. See JUNIPER.

CEDAR, white. See CYPRESS.

CEDAR-up, a sort of wooden ware brought from the West Indies. They are made out of the wood of the bastard cedar, and appear of a very close and firm grain; but are not easily to please, that when they have been pared into them, is very soon set on the harness.

CEDILLA, in the Spanish and French languages, denotes a kind of small C, to the bottom of which is affixed a little tail resembling a Z, to denote that it is to be pronounced like Z.

The cedilla is used by those of our readers who are acquainted with the Spanish tongue, in the words *cabeça*, *cabeza*, *cara*, *dize*, &c. in the Spanish, as it sometimes is used at the beginning of a word in the French, as *ça*, *ce*, &c.

CEDRA. See CITRON.

CEDRELA, in Botany, a genus of the *Polygamia monœcia* class and order.

CEDRELAUSON, in Botany, a name given by Plinius to an unknown tree, and likewise applied by many authors to the wood known evidently formed of *cedrus*, the *larix*, and some the *fir tree*; and hence the original author of this name has obtained it, as a large and high ornamental branches and shady leaves, have caused their being introduced in gardens of a middle nature, because they thrive and flourish.

CEDRIA, a resinous liquor arising from the great cedar-tree, or cedar of Lebanon. The word is also written *cedrium*, *cedrion*, and *cedrinum*, as above.

Cedria, when genuine, yields a fuming smell, is transparent, of a much finer consistence, in short in every thing, it differs from pitch or tar so greatly, that cannot any be done. It is guilded of two opposite qualities, viz. to preserve dead bodies, by its strong and continuing impregnation, and burn without damaging the least parts, and to preserve the soft and tender parts of living bodies without applying any fire.

The cedria is properly the true of the cedar. Some call it the gum, others the pitch of the cedar. The Greek name cedrion is also given to the cedrium, or oil of the cedar, which differs little from the cedria, except that it is oil of a more consistence.

Pliny, speaking of the cedar, says, that cedar of a solid or consistence was burned out of it by fire, and called it by the name of cedrium. His words are these: *cedrus ardendo exsudat, et ea quæ ex ea colligitur cedria vocatur, quæ est ad condienda cadavera efficacissima.* Cedar of a solid or consistence was burned out of it by fire, and called it by the name of cedrium. His words are these: *cedrus ardendo exsudat, et ea quæ ex ea colligitur cedria vocatur, quæ est ad condienda cadavera efficacissima.* The cedria is also given to the life of the dead, see (as Pliny Lucas, vol. iii. p. 11.

CEDRINUM of Pliny, under Wine, of which there are several sorts, which qualities are to be strong, diuretic, and gently astringent: but the best. It has also a wine, of remarkably healing.

CECIDUS, in Grammar, a word for of the third negative, similar for Cheddar of Rome. See CADENCE, Rhetoric.

CECILIUS, in Natural History, a name by which some authors have called the *lepi fossilia*, or fossil-scales of the ancients.

CEDRA. See CITRON-tree.

CELANDINE GREEN. See RHODIA and SARRADEVERA.

CELERY, in Agriculture, a kind of the third negative, similar for Cheddar of Rome. See CADENCE, Rhetoric.

CELESTIAL, in Natural History, a name by which some authors have called the *lepi fossilia*, or fossil-scales of the ancients.

CELIA. See CITRON-tree.

CELIANDINE GREEN. See RHODIA and SARRADEVERA.

CELLING, in Architecture, the top of roof, of a lower room; or a covering of plaster, less rude adhering on the bottom of the joists that be the floor of the upper room; or to cover them in an upper room, as joists to the garrets, beams called *ceiling joists*.

The word ceiling answers pretty accurately to the Latin *lacunar*, every thing that *lacus*.

Painted ceilings are much used in England, more than in any other countries, nor are they without their advantages, as they make the room lighter, as good as rules of art; stop the leakage of the roof; soften the noise over head; and, in fashion, make the air cooler.

CEILING, in the Language, denotes the inside planks of ships.

CELLULA, from *cæmen*, *to be laid on*, in Antiquity, denotes those ornamental pieces of furniture or ornaments, relieved or laid up for extraordinary occasions and uses.

In which sense, sacred garments, vessels, and the like, are reputed of the number of a church. Medals, antique figures, figures, manuscripts, jewels, &c. are the ornaments of most of letters.

CEMELLARCHIUM, the repository or place where ornaments are preserved.

CEMELLOPHYLAX, from *cæmen* and *φυλαξ*, *I keep*, the keeper or curator of a collection of *cæmelia*; fashioned and ornamental utensils.

The conclusion, or completion, was an effect in the ancient churches or monasteries, answering to what was otherwise denominated *thesophylax*, and *vasa* explained.

CEMIFERA, in *Architecture*, the name of a sub-caught in the Ionic order, and esteemed a very fine and delicate one, though of no enormous size. It grows to nine or ten feet long, and as the thickness of a man's body; but is rarely seen while young. Its body is oblong, and its head flatted. Its mouth is but small for the size of the fish, and it has no teeth in the jaws; but the whole mouth is lined with small tubercles. Its back and sides are black, and its belly of a fine bright azure. Its fins are all black, except the belly ones, which are white with a tinge of black at their edge. Blagrave.

CELARINE, in *Botany*, *Cochineal*, a genus of the *Polygamia monœcia* class. Its characters are these: the flowers have four largish roundish petals; in the centre is situated a cylindrical germen, attended by a great number of stamens. The germen afterwards becomes a cylindrical pod, with one or two cells, opening with two valves, and filled with many small seeds. There are seven species.

The first is the common celandine, which is used in medicine, and is esteemed aperitive and cleansing, opens-

ing obstructions of the fibres and liver; and is of great use in curing the jaundice and dropsy. This gentleman tells us, the lakes of Annan, and in many places in many parts of England, is a balance concerned in gardening. Miller's Gard. Dict.

However has very lately recommended this plant as a specific in the cure of consumption, by properly undertaking it in conjunction with drinking its juice; and says enough in the result to recommend it at least to a fair trial, which would be easily made in a country where consumptions are so common. Jacobs. in Pharm.

CELANDINE, *Sylv.* See Pilewort.

CELANDINE, *Garden*. See Boccones.

CELANTES, in *Logic*, a disputation given by the Peripatetics to the Gabenial syllogism; otherwise called Camestres.

CELARENT, among *Logicians*, a mode of syllogism, wherein the major and conclusion are universal negative propositions, and the minor a universal affirmative.

E. g.

CE — *Nine nobles were standing beheaded and in mourning.*

LA — *Every noble is a gentleman or woman.*

RENT — *Therefore no man is present.*

CELASTRUS, in *Botany*. See Staff-tree.

CELE, in a general sense, denotes any tumour, but more particularly that proceeding from a rupture. See Hernia.

CELEBATE, or Celebacy, the state of a person who lives out of marriage.

Scaliger derives the word from the Greek κοιτη, *bed*, and κατα, *against*, *i. e.* one who lies not. It is formed from *cœlebs*, or *cœlebes*, *i. e.* *living single*.

The ancient Romans held an estate unprofitable to discourage celebacy. Nothing was more usual than for the censors to propose rewards to all bachelors. Thompson Hall mentions an ancient constitution, whereby all old persons in full age were obliged to marry. But the chief tax of this kind, of which we have any certainty, is mentioned under Augustus, called *Lex Julia de maritandis ordinibus*. It was afterwards confirmed by *Papia Poppæa*, and more usually *Julia Papia*, because of some new sanctions and amendments made in it under the consuls Papius and Poppæus. By this law, divers prerogatives were given to persons who had many children. Penalties imposed on those who lived a single life, so that they should be incapable of receiving legacies, except from their nearest relations, and not exceeding a certain proportion, &c.

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foods will be ripe, at which time it should be eat up, in a dry time, and spread upon cloths in the sun to dry; then beat out the seeds, and preserve it for the use.

The qualities in every species with those of the CELLERY and PARSLEY, which see.

CELERY, *seseli*, *Apium graveolens*, was found in considerable quantities by Sir Hans Sloane, on the coast of Yorkshire, and Dr. Scheuzer, on the coast of Yorkshire and Lincolnshire. It is like the garden celery in the colour and disposition of the leaves, but the leaves are of a deeper green. The taste is between that of anise and parsley. It is a very useful ingredient in the soup for leanness, because of its nutritious quality. Hawkesworth's Voyages, vol. ii. p. 90, &c.

CELESTINS, an order of religious, called also the *congregation of St. Pamfilo*, derived from the Benedictines, established by pope Celestin V. three miles from Sulmona, in 1264, by count de Morone in Naples, and established in 1264, by pope Urban IV. and confirmed by Gregory X. in 1274. They were introduced into France by Philip the Fair, who requested a colony from the general of their order, by his ambassador at Naples, in 1300. They came first into Paris in France and Italy—It is a kind of *cordeliers* with regard to *franciscans*. *Calmet*.

CELESTES, or CELESTS, from *celer*, a *swift horse*, in *Antiquity*, denoted light or battle-chariots, by way of contradistinction from those used in harnessed together, called *biguæ*, *triguæ*, &c.

The first denomination is ascribed to the carriers, or riders on horseback; and hence some distinguish the name of Romulus's guards.

CELEUSMA, or CELEUSIS, in *Antiquity*, the shout or cry of the boatmen, whereby they animated each other to some work or rowing.

The word is formed from κελευω, *to call*, *to give the signal*.

CELEUSMA was also a kind of song or formula, rehearsed or played by the masters, or others, to direct the strokes and movements of the mariners, as well as to encourage them to labour. See CELEUSTES.

Aquinus, without much foundation, extends the *celeusma* to the military shouts in land armies.

When Christianity got footing, hymns and psalms were sung in vessels, by way of *celeusma*, in which the words *ameyned* and *halleluiah* were frequently repeated.

CELEUSTES, in *ancient Navigation*, the boatswain or officer appointed to give the oarers the signal, when they were to pull, and when to stop. See CELEUSMA.

He was also denominated *epopeus*, and by the Romans *portitor*; sometimes simply *hortator*.

CELIAC *affect*. See CŒLIAC.

CELIBATE. See CŒLIBATE.

CELIOSCOPIA, the description of the spots which appear on the face of the sun and planets.

The word is formed from κοιλος, *hollow*, *deep*, and σκοπεω, *I observe*.

Signor Bianchini has published a *celioscopia*, or description of the spots of the sun.

CELIMIA, in the *Materia Medica*, a name given by the modern Greeks to the cadmiæ, or *lapis* CALAMINARIS.

The Arabians called this substance *calmia*, and sometimes *calmia* and *celimia* were but a very small change from *calamina* and *calmia* was but a very small change from this.

CELL, *Cella*, in *Roman Affairs*, denotes a place or apartments chiefly under ground, and vaulted; in which were stored up large jars of necessaries, as wine, honey, wheat, and the like, according to which it was peculiarly denominated *cella vinaria*, *cella olearia*, *cella mellaria*, &c.

The word is formed from *celare*, *to conceal*. See CELLA.

CELLA was also used for the lodge, or habitation of a common workman or peasant, as being under ground; hence also denominated *penita*.

Ingenium cellâ vetet ire relictâ.
Et colligo ramum. Juv. Sat. xi. ver. 121.

On which place an ancient scholiast remarks, that the names of the workmen were written on the doors of their *cellæ*, by which we learn the meaning of *inscripta cella*, in Martial, lib. xii. ep. 56.

CELLA was also applied to the bed-chambers of domestics, and servants; probably as being low and narrow.

Cicero, inveighing against the luxury of Antony, says, the beds in the very *cellæ* of his servants were spread with pompous purple coverlets.

CELLA is also applied to the members or apartments of BAVIA.

Of these there were three principal, called *frigidaria*, *tepidaria*, and *calidaria*. To which may be added a fourth, called *cella olei*, and sometimes *unctuaria*.

CELLA was also applied to the upper, or middle and most retired part of the temples, wherein the images of the gods, to whom the edifices were consecrated, were placed. See TEMPLE.

In this sense, we meet with *cella Jovis*, *cella Cereris*, &c. Pub. Victor calls them *sedes*; and Pliny by a more comprehensive name, *ædes*. Hills Nat. lib. xxxv. cap. 12.

The Roman Capitol, we are told by Dionysius, had three such *cellæ*, or chapels; the middlemost of which was consecrated to Jupiter, that on the right hand to Minerva, and that on the left to Juno.

CELLA is also used for a locker or frame-work for containing, or rather for a place to contain, any thing. Such was that called *cella penaria*, erected by Otho, surnamed the Rich, marquis of Misnia, in the middle of the twelfth century, the most splendid cellary in that country.

CELLAR, *Cellarium*, in *domestic Affairs*, denotes the same with CELLA, viz. a conservatory of eatables, or drinkables.

Cellar differs from VAULT, as the latter is supposed to be over, the former being frequently little below the surface of the ground.

In which case, it differs only in name from *pantry*, as the former was only a store-house for several days, the latter for a long time. Thus it is, the HAGTENBERGERS, a sort of anabaptist Cynics, are said by M. Arnaud to carry their cellar about with them. Hilario, in Matth. cap. 5.

CELLARIUM also denoted an allowance of bread, wine, oil, or other provision, furnished out of the *cella*, or store of the granary of the provinces, and his officers, &c. In which sense, the word answers to much the same with *annona*.

CELLARS, in *Modern Building*, are the lowest rooms in a house, the ceilings of which usually lie level with the surface of the ground on which the house is built.

Cellars and other places vaulted under ground, were called by the Greeks *hypogæa*; the Italians still call them *sotterranei*.

As to the situation of *cellars*, Sir Henry Wotton says they ought, unless the whole house be cellared, to be situated on the north side of the house, as requiring a cool frost all day.

CELLARER, or CELLERER, *Cellarius*, or *Cellerarius*, an officer in monasteries, to whom belong the care and procurement of provisions for the convent.

The denomination is said to be borrowed from the Roman law, where *cellarius* denotes an examiner of accounts and expences. Upon which account Cassiodorus, *lib. iii. var. ep. 28.* calls the *cellarius* a *public witness*.

The *cellarius* was one of the four *dispensators*, or great officers of monasteries, under the superior, viz. the *prior*, the *sub-prior*, and the *almoner*, or *hospitaller*. In the richer houses there were particular lands let apart for the maintenance of his office, called in ancient writings, *cellarium*.

The *cellarius* was a great man in the convent. His whole office in ancient times had a respect to that article he was to find for his lord's own table, and that in groceries; and his appointment consisted in a certain proportion thereof, usually first or a thirteenth part of the whole; together with a liberal gown. The office of *cellarer* thus may differ in name from that of butler and manciple; excepting that the *cellarer* has the service of his lord's table through the whole extent of his jurisdiction.

CELLARER was also an officer in convents, to whom belonged the care of the temporals, and particularly the distributing of bread, wine, and money to convent, on account of their attendance at the choir. In some places he was called *cellarer*, in others *butler*, and in others *caterer*.

CELLEPORA, in *Botany*, the name of a genus of marine plants, or rather animals; and a kind of worms in the Linnæan system. They are of the genus of the *alcyonia*, and have oblong excepting hollows in several parts. See CORAL.

CELLITES, CELLITES, an order of religious, founded at Antwerp in the beginning of the fourteenth century, whose patron was Alexius, a Roman, and confessor. In Italy they are called *fatebenefratelli*, but in Germany, and the Low Countries, where they have monasteries, *Cellites*, i. e. persons inhabiting cells. See LOTHARDS.

CELLS, *Cellæ*, *Cellulæ*, are little houses, apartments, or chambers; particularly those wherein the ancient monks, penitents, and hermits, lived in retirement.

Some derive the word from the Hebrew קלה, i. e. *a garret, or place where any thing is placed*.

The same name is still retained in divers monasteries.

The dormitory is frequently divided into many *cells*, or lodges.

The Carthusians have each a separate house, which serves them as a *cell*.

The hall wherein the Roman conclave is held, is divided, by partitions into divers *cells*, for the several cardinals to lodge in.

CELLS, in *Anatomy*, are little *bags*, or *bladders*, where fluids or other matters are lodged; called also *loculi*, *cellulæ*, &c.

CELLS are also the little divisions, or apartments, in honey combs, where the honey, young bees, &c. are stuffed: these cells are always regular hexagons.

CELLS of *plants*, in *Botany*, are those partitions or hollow spaces in the husks or pods of plants, wherein the seed is lodged.

CELLULAR *Membrane*, in *anatomy*, the small, or little *cells*, wherein the fat or tendon of good habit is contained. See ADIPOSE, and ADIPOUS.

These are so connected with the skin itself, except in the forehead, the eyelids, penis, and *scrotum*. In emaciated bodies, these *cells*, being unfurnished of their fat, appear like a kind of flaccid, membranous membrane.

The *cellular membrane* is reticulate and *simple*. The false name of the reticular part is merely a network of denser fibres and small membranes, whence it derives its fallacious and boastful title, as it is found under the skin of the penis and scrotum; on other parts, as under the skin of the uterus and under the *tunica* of the testes, it is loaded with oil, and into pustules in its inflamed. The former part is dispersed through the whole body, except in the substance of the bones, brain, and membranes of the eye, covering the fibres of the body, the muscles, tendons, ligaments, and nerves, and tying them to one another; and it is every where intermixed with the substance of the skin. About the joints, the *cellular membrane* is chiefly considered, for the ease of easily moving, under the skin in general it is simple, between which flexures and the surface of the muscular mass it is loose, and chiefly reticulated. In the former, the part only of this membrane is adipose, which is upon the outside of the body: as we grow up, the fat is more equally dispersed through the body, and its greater quantity in proportion about the viscera. Dr. Hunter is of opinion, that the fat in the body is lodged in a glandular apparatus superadded to the reticular membrane, consisting of vesicles or bags for this purpose, and of vessels fitted for secretion. See Med. Obs. vol. i. p. 26, &c.

CELLULA, in the COLON, a sort of spaces wherein the EXCREMENTS continue some time before they are voided.

CELLULANUS, a more inhabitant, or resident in a cell, or CELLA.

He is also denominated *cellicolus* and *Trantilla*, by which are imported the relation of fellow-monks, or those who live in the same cell or convent.

CELLULAR, or CELLULOUS, an appellation given by Ruysch, to the second coat of the intellines, in which fat is often found. Hist. Comp. Anat. p. 104.

We also take notice of a *cellular* coat in the ANTHERÆ, wherein fat is contained.

Heister thinks that a *cellular* coat may also be added to the three coats in the human BLADDER, by reason fat is often found between the outermost and muscular coat, where it is formed, collected, and preserved in little adipose cells.

CELOSIA, AMARANTH, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: the flowers have five erect, sharp-pointed petals, which are permanent, stiff, and shaped like a scale or cup. It hath a small nectarium joined to the bottom of the germen, to which adhere also the stamina, which are terminated by tuntings. Besides the *compliment* aforesaid becomes a globular capsule with one cell opening horizontally, containing roundish seeds. There are three species.

Linnæus has separated the plants of this genus from the amarantha, which have been generally joined with them, because these have male and female flowers on the same plant, whereas these have only hermaphrodite flowers.

CELSIA, in *Botany*, a genus of the *didynamia angiospermia* class. Linnæus gave it this name in honour of Dr. Celsius, professor at Upsal. We have no English name for this plant. Its characters are these: the flower is of one leaf, with a very short tube, spread open above, and cut into five unequal parts, the two upper being small, and the under largest. It hath four hairy stamina, which incline towards the upper segment of the petal. In the centre is situated a roundish germen, which afterward becomes a roundish capsule compressed at the sides, sitting upon the compliment, and having two cells, which are filled with small angular seeds. We know but one species of this plant, which is a native of Arcturia.

CELTES, in *Roman History*, under this name must be understood, not only the Gallic philosophers, but all those which anciently flourished in other parts of Europe. The history of the Celtic philosophy affords nothing certain; nor is the obscurity in which it is involved to be wondered at, considering the remoteness of the times. We discover nothing either in our own affairs, or from the testimony of Latin authors, by which to refute any doubts concerning this people: all monuments of circumstance being destroyed, and their doctrine not being committed to writing; as it was their custom to transmit them by tradition.

The names of their hymns, however, are reported to be preserved among those northern nations which have been subject to the revolutions which have at other times overrun the southern parts of Europe. Extracts from these *Edda*, a course of poetry for the instruction of the Iceland youth, and last to contain the Celtic mythology, have been lately published: though from whence obtained, does not appear. See DANUBE.

CELTIS, in *Botany*. See NETTLE-*tree*.

CEMENT, or CEMENTE. See CEMENTE.

CEMENTATION, in CHEMISTRY. See CHEMISTRY and CHEMICAL.

CEMETERY, *cœmeterium*, a cœmitory, or sacred place set apart for the burial of the dead.

Churches wherein the ancient *cœmeteria*, *cœmeteries*, from κοιμαω, I *sleep*, originally were comprehended, are only the field *dormitory*, or place where the dead were disposed; but all the lands which encompassed the parish churches, and were contiguous to the real churches. —Perhaps it might be added, that all the lands of dominion were comprised under *cœmeteries*. This will best account for the confiscation of the *cœmeteria*, ordered on Valerian.

In the early ages, the Christians held their assemblies in the *cœmeteria*, as we learn from Eusebius and Tertullian; the latter of whom calls those *cœmeteria* where they met to pray, *areæ*. Valerian seems to have confiscated the *cœmeteria*, and places destined for divine worship, which were restored again to the Christians by Gallien. In the rescripts of that emperor, which is preserved by Eusebius, *cœmeteria* and places of worship are used as synonymous terms. In being here the martyrs were buried, the Christians chose those places to have churches in, when leave was given them by Constantine to build. And hence some derive that rule which still obtains in the church of Rome, never to consecrate an altar, without putting under it the relics of some saint. See RELICS.

The heathen writers frequently upbraid the primitive Christians for their meetings in *cœmeteria*; as if they served other purposes besides those of religion. The council of Elvira prohibits the keeping of tapers lighted in *cœmeteria*, during the day-time; and by another canon, the women from pulling the night watching in *cœmeteria*.

The practice of consecrating *cœmeteria* is of later antiquity: the bishop walked round in procession, with the crosier, or pastoral staff, in his hand, the holy water pot being carried before, out of which aspersions were made.

CENCHRAMIDEA, in *Botany*, a name given by Pitcairn to a genus of plants afterwards called, by Linnæus and Ruyschius, CELTIS.

CENCHRAMUS, in *Ornithology*, a name by which some writers have called the ERMINEA, called in English, the ERMINE.

CENCHRIS, in *Ornithology*, the same given by many writers to the kestrel, or windhover, a species of hawk of the long-winged kind called the TINNUNCULUS, and by some in English, the *stannel*.

CENCHRIS, is also the name of a species of *lacerta*, so called because of the small spots, which resemble millet seeds. It grows to two feet or more in length, and is considerably thick and large, and generally green as the rat. It has a greenish yellow colour, and is yellowish, inward the belly. It is found in the islands of the Archipelago, particularly in Lemnos and Samos Bay.

CENCHRUS, in *Botany*, the name given by Tournefort to a genus of plants, of the *polygamia monœcia* class, of the Linnæan *pentandria*, the characters of which are these: the cup consists of a number of bristles, collected into a sort of head, these are jagged and cultivated, and each of them contains three calyxes: the compound flowers are bivalve glumes of a hollowed and pointed figure, each containing two flowers, and are shorter than those flowers; the flowers are some male, and others of the hermaphrodite kind; each flower is bivalve, the

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valves being pointed, hollow, and without seeds, and the inner one smaller than the outer. The flowers are cases to each flower, and are long pointed filaments, each containing a tegumentary spear. The pistillum has hermaphrodite flowers in formed of a roundish germen, a slender style of the same length with the stamens, and two oblong hairy stigmata. The fruit is succeeded by a single oblong seed-vessel, which is of a roundish figure. There are six species.

CENEGILI, in the Scots antiquities, an expedient usually put by one who had killed a man, to the kindred of the deceased. The assith is compounded of the lawful composition, ransome, and price, paied.

CENEONTLATOTL, in Ornithology, the name of an American bird described by Nieremberg, and called by that author, *ave convolvulus*. It is famous for the different modulations of its voice, and excels even the nightingale in melody.

CENNING, *Cenning, or Kenning*, in our *Ancient Records*, denotes a note given by the buyer to him of whom he had bought, that the thing purchased was claimed by another, that he might be put to make it good, or warrant his bargain.

The word is formed of the Saxon *cennan*, *cuthcen ahcennan*, *to make known*. Du-Cange.

CENORITE, or CONORITE. See CONORITE.

CENOTAPH, an empty tomb, or a monument without a body under it, erected only by way of honour to the deceased.

The word is compounded of *κενος*, *empty*, and *ταφος*, *tomb*.

It stands distinguished from *sepulchre*, in which a corpse is actually deposited.

Cenotaphs are honorary tombs, erected either to persons buried in another place, or to those who have received no BURIAL, and whose relics cannot be found, as being killed in battle, lost at sea, or the like. Among the ancients, the same privileges and religious regard were allowed to these tombs as to *sepulchres*, as to real tombs. Carl. Scotia has a treatise express on the cenotaphs of the Celtæ, Cimbri, and Lucani, which are still seen at Kilmorenan in Argyle-shire.

CENOTOZOUS, in *Geography*, the name of an American island described by Nieremberg, and called *insula cervina*, because it abounded in very timorous deer, which fled at the sight of a human creature. It is a very beautiful variegated land, and lies as well in the valley as hilly climates, but is principally feed among the mountains. It has a very remarkable way of milking its kind when it is thin, without hurting its body; it rubs five days with round salt. There is another species of it a little differing in the disposition of the colours, which some call bonasi.

CENSAL, in the Mohammedan parts, denotes a regular or established broker, authorized to negociate between merchant and merchant.

CENSER, in *Antiquity*, a kind of vessel wherein incense was burnt to the gods.

Censer is chiefly used in speaking of the Jewish worship. Among the Greeks and Romans, it is more frequently called *thuribulum*, *acerra*, and *arula*.

The Jewish *censer* was a small pan of chasing-dish, covered with a dome, and suspended by a chain. Josephus tells us, that Solomon made twenty-thousand gold censers for the temple of Jerusalem, to other purposes in, and fifty-thousand others to carry fire in.

CENSER, the same with ARA.

CENSIO, in *Antiquity*, the act or office of the CENSOR. See CENSUS.

Censio included both the rating or valuing a man's estate, and the imposing taxes and penalties.

CENSIO *militaris*, a punishment inflicted on a Roman soldier for some offence or baseness of slavery, whereby his *hasta* or spear was taken from him, and consequently his wages, and hopes of preferment stopped.

CENSITUS, a person entered, or entered into the CENSUS *publicus*. See CENSUS.

In an ancient monument found at Aosta, containing the actions of the emperor Octavius, we read,

Qui censa civium Romanorum
Centies tum capita quadraginta
Censum meum fecerunt.

CENSITUS is also used in the *Civil Law* for a female servant of inferior, who pays capitation to the land for the lands of him, and is entered as such in the book of census. In which sense, the word answers to the term *capite census*, or *capitis censitus*. See CAPITE *Censi*.

CENSOR, in *Antiquity*, one of the prime magistrates in ancient Rome, whose business was to survey and rate the people, and to inspect and correct their manners.

The word is derived from *censeo*, because he assessed and valued every man's estate, regulating their names, and placing them in a proper century, that the Romans might know what own strength; though others say, the *censor* were so called on account of their other office; viz. as being conservators, or overseers of manners and policy.

There were two *censors* first created in the year of Rome 311, upon the senate's observing, that the consuls were too much taken up with matters of war, to be at all leisure for looking near enough into private affairs. To remedy this mischief, these new magistrates were authorized to call every person, and their goods and estates before them, and to punish such as they found guilty of any misdemeanor. At first they were taken out of the senate; but after the plebeians had got the consulates open to them, they soon arrived at the *censorship*. M. Rutilius was the first who, having been twice consul and dictator, in the year 400 demanded the office of *censor*. The custom was to elect two, the one of a patrician family, the other a plebeian; and upon the death of either, the other was discharged from his office, and two new ones elected; but not till the next lustrum. In the year 424, a law was made, appointing one of the *censors* to be always elected out of the plebeians, which held for some till the year 622, when both *censors* were chosen from among the people; after which time, it was settled between the senate and people.

This office was so considerable, that some applied to it till they had passed all the rest; for as it was looked on as furnishing the Cretans should be admitted *senators*, without having been either consuls or prætors.—The term of this office was at first established to five years; but that institution only lasted nine; Mamercus Æmilius, in the year 220, made a law, restraining the *censors* to a year and a half; which was afterwards observed very strictly.

The authority of the *censors* was, to register and value the effects, &c. of the Roman citizens; and to impose taxes in proportion to what each person possessed. Certain subjects then functions to the numbering of the people, the correction and reformation of manners, the examining the merits of each citizen, the proportioning of taxes, the superintendence of tributes, the exclusion from the senate, and the care of the public places. They had also a right, some say, to expel from the senate such of their members as they judged unworthy of the dignity, as well as to bring and collect the knights who failed in their duty, by taking from them the public horse, *equus publicus*.

There are many examples of censors expelled by the *censors*, generally for good reasons, yet sometimes through mere peevishness, envy, or revenge; but in such cases, there was always the liberty of an appeal to the final judgment of the people. Neither the confession power, properly speaking, was one that of taking or remaking persons, but of enrolling only those whom the people had made, and of inspecting their manners, and condemning upon their viewers over which they had a special jurisdiction delegated by the people. Their rule of enrolling seems to have been proposed as an axiom of the Roman policy, enjoining, *that the senate should be pure from all blemish, and the manners of senators of the only source of the city*; or we find it laid down by Cicero in his Book of Laws, which were drawn, as he tells us, from the plan of the Roman constitution.

Besides the task of enrolling the citizens, and inspecting their manners, it was a part likewise of the *censorian* jurisdiction to let out to farm all the lands, revenues, and customs of the republic; and to contract with architects for the charge of building and repairing all the public works and edifices, both in Rome and the colonies of Italy. Now on this branch of their office it is certain that they acted merely on the authority of the people, and were prohibited by law to let to any of the revenues, except in the manner under the superintendence and inspection, and in the very presence of the people.

In the general census and review of the city, held by them every five years, though every Roman citizen was particularly concerned and obliged to give in his property tribe by tribe, or from man to man, in their proper names, as Cicero tells us, did not exclude any man's right to a free citizenship, but required only that he had passed his census at that review; because the proper power of determining that right resided always in the people. Cicer. pro Dom. c. 13. Liv. l. 52. Middleton of Rom. Sen. p. 30, 31, 32, &c.

The office continued to the time of the emperors, who assumed the authority of it to themselves, but without the name, calling themselves instead of *censors*, *censors perpetui*, though Vespasian and his sons took a pride to be called *censors*, and put this among their other titles on their coins. Decius attempted to restore the dignity to a particular magistrate. After this we hear no more of it till Constantine's time, who made his brother *censor*; the last who seems to have enjoyed the office.

The

The republic of Venice has at this day a *censor* of the manners of their people whose office lasts 12 months.

CENSORS *of books* are a body of doctors, or other officers, established in divers countries, to examine and give their judgment of all books, before they go to the press; and to see they contain nothing contrary to the faith, and good manners. In England we had formerly an officer of this kind, under the title of *licenser of the press*; but since the Revolution the press has been open.

At Paris, the *faculty of theology* claim the privilege of *censure*, as granted to them by the pope; and it is certain *fact*, as granted to them by the pope; and it is certain *fact*, as granted to them by the pope; and it is certain fact, as granted to them by the pope; and it is certain fact, as granted to them by the pope; and it is certain fact

Name and Situation of the Star.	Mag.	Longitude.	Latitude.	Declination.
		☉ ° ′	° ′	° ′
Sombalus	4	26 6	40 33	40 0
Pectoral of the three in right Hand	3	26 48	38 46	38 40
Middle	3	27 44	42 54	42 40
Left	3	28 41	47 2	46 40
In the right arm	2	29 48	51 18	51 0
Elbow	2	29 48	51 18	51 0
In the right elbow	4	28 23	53 11	52 40
In the right hand	3	29 54	56 41	56 40
In the extremity of the first } fore finger }	3	1 ♎ 8	60 13	60 0
	3	1 ♎ 14	62 20	62 0
	3	1 ♎ 20	64 27	64 0
	3	1 ♎ 26	66 34	66 0
In the breast bone	3	1 ♎ 32	68 41	68 0
In the middle back	3	2 ♎ 52	68 11	68 40
Second of the two in the loins	2	28 12	56 50	57 0
Third	3	27 32	54 28	54 40
Northern in the right thigh	3	25 43	52 46	53 0
Southern	3	25 25	52 15	52 40
	3	25 7	51 44	52 0
	3	24 49	51 13	51 20
	3	24 31	50 42	50 40
In the belly	3	22 43	47 0	47 0
Northern of three called Cephei	3	21 56	45 42	45 40
Southern one of the same }	3	21 32	45 0	45 0
	3	21 8	44 18	44 20
Before the cloak	3	1 ♎ 54	60 0	60 0
Following ditto	3	2 ♎ 18	60 54	61 0
In right knee	3	3 ♎ 36	63 31	63 40
In the knee	3	3 ♎ 48	63 44	64 0
Between the left and the first } small of the tail }	3	28 33	43 16	43 40

CENTAURY, *the*, a genus belonging to the SYNGENESIA class of plants. The characters are these: it hath a compounded flower, which is composed of many hermaphrodite florets, and chalmydate, or tuft, of female florets, which are longer and thicker than the hermaphrodite; the seeds are solitary and naked. The genera is divided under the 3d, which afterwards becomes a single seed, that up at the compounded: the female florets have a slender tube, which expands above, where it is enlarged, and has five sharp pointed parts: there are barren. Miller specifies seventy sorts of it.

The roots and leaves of the plant are esteemed vulnerary and astringent: they are given in infusion, in decoction, and powder, in all cases of profuse evacuations of every kind. The common sorts are very fond of common soil in France, and increase by feeders, and the seeds: the tender annual plants are apt to be destroyed by the spring frosts, and so often destroy many of the tenderest plants. He prescribes the root in powder.

CENTAURY, *the lesser*, or CHAMÆDRYS *minor*, is a little annual plant, with leaves growing by pairs, and a flower consisting of a purple tuft, cut into five segments, and a calyx cut in like manner. — It leaves an odour of a rose water, and very ferruginous to the mouth, rather in the composition of that kind, or for a decoction or infusion, which is well made in wine. It is diuretic and astringent: good humours in good against scurvy, and by some also is extolled as an alexipharmic, or cordial. The three subnexes of the leaves is inodorous, or no smell or taste. The green colour exhibits in the infusion and being extolled to spirit or water, but not to water. See CHAMÆDRYS, of which the plant is a species.

CENTAURY, *the lesser*, a genus of the *monogynia* order of plants, having naked and tender flowers. It resembles in the outward form the genus of *gentiana*, and like it the flowers are funnel-shaped, and the limb of the corolla (that is composed of two leaves, each of which is divided into five parts, and a quadrangular capsule, containing small seeds, and have four petals.

CENTURIO, or CENTURION, in the *Roman* affairs, was an officer who had the command of a hundred men, and was frequently called *centurio*.

CENTURIATUS, in the *Roman* affairs, was an officer who had the superintendance of a hundred men.

CENTURIATUS was also used for a person worth a hundred thousand sesterces, otherwise called CENSUS.

CENTURIATUS *Mensis*. See MENSIS.

CENTUM, or CENTRE, in a general sense, denotes a point equally remote from the extremes of a line, figure or body; as the middle of a line, or place, of which a figure is divided into two equal parts.

The word is used, which primarily denotes a point, more common than each sense, however, is true.

CENTRE *of a figure*, is a point in the middle of the space of the figure, whereon the lines drawn from it, and which is contained in the angle of the three parts of the figure. Or it is the point within which the several angles of interest each other.

CENTRE *of a section*, the middle of a section: where is usually two large square figure, for large, and equally and large.

CENTRE *of a circle* is a point in the middle of a circle, or whence lines, from which all lines drawn to the circumference are equal.

CENTRE *of gravity*, that point of the body is divisible to the action of a force, or a single weight by two determinate lines the extremes of which is proportionate to divide the whole by two lines drawn from the extreme to a point in the circumference.

CENTRE *of a sun-dial* is the point in the middle of the plane, or where the gnomon stands.

The point, in the circle, is within the figure; not, as the rectilineal, without.

CENTRE *of gravity*, in *Mechanics*, a term first used by *Archimedes*. For a definition to this we observe it a stick be laid on a supporting power, and drawn by a thread fastened to it, so that the thread always makes the same angle with the stick; if a weight made to the stick will be found to rest on one of the points, which will be immoveable; which point is called the centre of gravity. For the greater part, the thread may be considered fastened to one end of the stick.

The great advantage of the centre of the ball, and the manner wherein it operates: for, imagine the ball moved or rolled, it is certain, that the resistance of the parts of the ball to be in motion, always towards the stick against the point on which the thread is fastened, as in a circle: in the present instance, the ball should not be perfect the greatness of a circle; other wise, the stick would no longer keep the line they would; but in a particular manner, in such manner, as that the end of the stick, and the parts round it, would follow larger orders or circles than the rest, and have a greater velocity. The resistance therefore of the ball, which tends to impress a circular motion upon the stick, round the point to which the thread is fastened, will be greater in this than in the perfect

CENTER *of an ellipſis*, is that point where the two diameters, the tranſverſe and the conjugate, interſect each other.

CENTER *of the equant*, in the *Old Aſtronomy*, a point in the line of the epheſian; being ſuch a diſtance from the *center* of the excentric, towards the aphelion, as the ſun is from the *center* of the excentric towards the perihelion.

CENTER *of gravitation, or attraction*, in *Phyſics*, is that point to which a revolving planet, or comet, is impelled, or attracted, by the force or impetus of gravity.

CENTER, in *Mechanics*, denotes a wooden mould by which to turn an arch.

CENTER *of gravity*, in *Mechanics*, is a point within a body, through which if a plane paſs, the ſegments on each ſide will counterbalance, i. e. neither of them can move the other.

Hence, if the diſtrict of the *center* of gravity be preſerved, if the body be ſuſpended by its *center* of gravity, it will continue at reſt in *equilibrio*, in any poſition.

The whole gravity of a body may be conceived united in its *center*; and therefore, in demonſtrations, it is uſual to conſider the body as conſiſting in that point.

Through the *center* of gravity paſſes a right line, called the *diameter of gravity*: the interſection, therefore, of two ſuch diameters conſtitutes the *center*.

The plane wherein the *center* of gravity is placed, is called *the plane of gravity*: ſo that the common interſection of two ſuch planes determines the diameter of gravity.

In homogeneal bodies, which may be divided lengthwiſe into ſimilar and equal parts, the *center* of gravity is the ſame with the *center* of magnitude. If, therefore, a line be biſected, the point of ſection will be the *center* of gravity.

Common CENTER *of gravity of two bodies*, is a point ſo ſituated, in the right line joining the centers of the two bodies, as that, if the point be ſuſpended, the two bodies will counterbalance, and reſt in any ſituation.—Thus, the point of ſuſpenſion in a common balance, or in a Roman ſteel-yard, where the two weights equiponderate, is the *common center of gravity* of the two weights.

When any number of bodies move in right lines with uniform motions, their common *center of gravity* moves likewiſe in a right line with an uniform motion; and the ſum of their motions eſtimated in any given direction, is preciſely the ſame as if all the bodies, in one maſs, were carried on with the direction and motion of their common *center of gravity*. Nor is the *center of gravity* of any number of bodies affected by their collitions or actions on each other.

Laws of the CENTER *of gravity*.—1. *If the centers of gravity of two bodies* A *and* B (Vide Mechan. Def. 13. N°2.) *be joined by the right line* AB; *the diſtances* BC *and* CA *of the common center of gravity* C *from the particular centers of gravity* B *and* A, *are reciprocally as the weights* B *and* A. See this demonſtrated under BALANCE.

Hence, if the gravities of the bodies A and B be equal, the common *center of gravity* C will be in the middle of the right line AB. Again, ſince A : B :: BC : AC; it follows that A × AC = B × BC; whence it appears, that the powers of equiponderating bodies are to be eſtimated by the product of the maſs, multiplied into the diſtance from the *center of gravity*; which product is uſually called the *momentum* of the weights.

Farther, ſince A : B :: BC : AC, A + B : A :: BC + AC : BC. Therefore the common *center of gravity* C, of two bodies, will be found, if the product of one weight A, into the diſtance of the ſeparate *centers of gravity* AB, be divided by the ſum of the weights A and B. Suppoſe, e. g. A = 12, B = 4, AB = 24; therefore BC = 24 × 12 ÷ 16 = 18. If the weight A be given, and the diſtance of the particular *centers of gravity* AB, together with the common *center of gravity* C; the weight of B will be found = to A × AC ÷ BC; that is, dividing the momentum of the given weight, by the diſtance of the weight required from the common *center of gravity*. Suppoſe, A = 12, BC = 18, AC = 8; then B = 6 × 12 ÷ 18 = 8.

2. *To determine the common center of gravity of ſeveral given bodies, a, b, c, d* (*Fig.* 13.) in the right line AB. Find the common *center of gravity* of the two bodies *a* and *b*, which ſuppoſe in F; conceive a weight *c* + *d*, applied in F; and in the line FE, find the common *center* of the weight *c* + *d* and *c*, which ſuppoſe in G. Laſtly, in BG, ſuppoſe a weight *a* + *b* + *c* applied, equal to the two *a* + *b* and *c*, and find the common *center of gravity* between this and the weight *d*, which ſuppoſe in H; this H will be the common *center of gravity* of the bodies *a*, *b*, *c*, *d*. And in the ſame manner might the common *center* of gravity of any greater number of bodies be found.

3. *Two weights* D *and* E (*Fig.* 14.) *being ſuſpended without mutual motion, to find the center of gravity in* C, *to determine which of them preponderates, and how much.* Multiply each into its diſtance from the *center* of ſuſpenſion; that ſide on which the product is greateſt, will preponderate; and the difference between the two will be the quantity wherewith it preponderates.

Hence, the momenta of the weights D and E, ſuſpended without the *center* of gravity, are in a ratio compounded of the weights D and E, and the diſtance from the point of ſuſpenſion. Hence alſo the momentum of a weight ſuſpended in the very point C, will have an effect at all in reſpect of the weights D, E.

4. *To determine the preponderation where ſeveral bodies a, b, c, d* (*Fig.* 15.) *are ſuſpended without the common center of gravity in* C, *to preponderate towards the right*; *to determine the point* V, *from which the ſum of all the weights being ſuſpended, the preponderation ſhall continue the ſame as before mentioned.*

Find the momentum wherewith the weights *a* and *b* preponderate towards the right; then the momentum of the ſum of the weights to be ſuſpended in F is to be equal to it, the momentum now found will be the product of CF into the ſum of the weights; this, therefore, being divided by the ſum of the weights, the quotient will be the diſtance CF, at which the ſum of the weights is to be ſuſpended, that the preponderation may continue the ſame as before.

5. *To find the center of gravity in a parallelogram and parallelopipedon.* Draw the diagonals AD and EG (*Fig.* 16.) likewiſe CB and HF; theſe each diagonal, AD and CB, divides the parallelogram ACHD into two equal parts, each paſſes through the *center* of gravity; conſequently, the point of interſection I muſt be the *center* of gravity of the parallelogram. In like manner, ſince both the plane CBFH, and ADGE, divides the parallelopipedon into two equal parts, each paſſes through its *center* of gravity; ſo that the common interſection IK is the diameter of gravity, the middle whereof is the *center*.

After the ſame manner may the *center* of gravity be found in priſms and cylinders; it being the middle point of the right line that joins the *center* of gravity of their oppoſite baſes.

6. In regular polygons, the *center* of gravity is the ſame with the *center* of the circumſcribed parallelogram.

7. *To find the center of gravity of a cone, and a pyramid.* The *center* of gravity of a cone is in the axis AC (*Fig.* 17.) If the AP = *p*, ρ AC = *a*, CD = *r*, the periphery of the baſe = *p*, and PN = *y*, we ſhall have, by the well-known property of circles, $r : y :: a - p : \frac{ay - py}{r}$ = the periphery of the circle, whoſe diameter is MN, which being multiplied by $\frac{1}{2}$ will give $\frac{ay - py}{2r}$ = the area of the ſame circle. But, by ſimilar triangles, $r : a :: y : \frac{ay}{r}$, therefore $x = \frac{p \cdot p}{r}$, and $x^2 = \frac{p^2 \cdot p^2}{r^2}$; conſequently the area of the circle, whoſe radius is PN, becomes equal to $\frac{py - p^2}{2r}$, and therefore $\frac{py^2 - p^2y}{2r}$ will be the fluxion of the maſs, or of the content of the cone at the term MN, and $\frac{py^2 - p^2y}{2r}$ will be the fluxion of the momentum, whoſe fluent is $\frac{py^3}{6r} - \frac{p^2y^2}{4r}$, which being divided by $\frac{py^2}{2r} - \frac{p^2y}{2r}$, the fluent of $\frac{py^2 - p^2y}{2r}$, the fluxion of the maſs, will give $\frac{1}{3}y - \frac{1}{2}AP$, for the diſtance of the *center* of gravity of the portion AMN from the vertex A; and when AP becomes equal to AC, *a* will be equal to *y*; and therefore the *center* of gravity of the whole cone is at leaſt from the vertex A of AC. And in the ſame manner is found the diſtance of the *center* of gravity from the vertex of the pyramid ABAC.

8. *To determine the center of gravity in an iſoſceles triangle* BAC (*Fig.* 18.) Draw the right line AD, biſecting the baſe BC in D, which will be alſo perpendicular to it; ſince Δ BAD = Δ DAC, each may be divided into the ſame number of little weights, applied in the ſame manner on each ſide to the common axis AD; ſo that the *center* of gravity of the Δ BAC, will be in AD. To determine the preciſe point in it; let AD = *a*, BC = *b*, AP = *x*, MN = *y*; then will AP : MN :: AD : BC; or, $a : y :: x : \frac{xy}{a}$.

Hence,

Hence, $y = \frac{x^n}{a^{n-1}}$. Consequently $y \propto x$, which translated, the fluxion of the area at the term MN divided by x, expressing the fluxion of the area AMN, will be equal to $\frac{bx^n}{a^{n-1}} \div x = \frac{bx^{n-1}}{a^{n-1}}$, the fluent of which quantity will be $\frac{bx^n}{na^{n-1}} = \frac{A}{n}$, or the area BC, when $x = AD$, $\frac{1}{n}$ AD; and therefore the distance of the center of gravity of the A from the vertex, will be found $\frac{1}{n}x$.

In the very same manner the center of gravity of any other plane triangle will appear to lie at $\frac{1}{3}$ of the altitude from the vertex.

10. *For the center of gravity in a parabola (fig. 10).* Let $AE = x$, $BE = y$, $AB = a$, $PN = z$. Then will xy be the fluxion of the whole area; but from the nature of the parabola, and the parameter being a conftant quantity, $ax = z^2$, whence $x = \frac{z^2}{a}$, and $xy = \frac{z^3}{a} = y$; fubftituting $\frac{z^3}{a}$ inftead of xy in the above expreffion, we fhall have $\frac{z^3}{a}z$ for the fluxion of the area, whofe fluent $\frac{4z^4}{3a^2}$ will be the area itfelf. Then multiplying $\frac{z^3}{a}z$ by x, we fhall have $\frac{z^3}{a}x$ or $\frac{z^3}{a}\frac{z^2}{a}$ for the fluxion of the momentum, whofe fluent $\frac{z^5}{5a^2}$ will be the momentum itfelf. Divide this by the whole weight, and the quotient $\frac{4z^5}{5a^2} \div \frac{4z^4}{3a^2} = \frac{3}{5}z$, will be the diftance of the center of gravity of the fpace NAE from the vertex A; and where AP becomes equal to AE, or $z = x$, or $\frac{3}{5}$ AE, will be the diftance of the center of gravity of the whole parabolic fpace from the vertex A. Now $y^m = x^n$, being a general equation for all kinds of parabolas, we fhall have $y = x^{\frac{n}{m}}$ and therefore $\dot{x}^{\frac{n}{m}}$ will be the fluxion of the whole area, and $x^{\frac{n}{m}}\dot{x}$, the fluxion of the momentum: the fluent of this laft expreffion, viz. $\frac{x^{\frac{n}{m}+2}}{\frac{n}{m}+2}$, being divided by the fluent of $x^{\frac{n}{m}}$, viz. $\frac{x^{\frac{n}{m}+1}}{\frac{n}{m}+1}$, will give $\frac{\frac{n}{m}+1}{\frac{n}{m}+2}x$, for the diftance of the center of gravity of the fpace ZAX from the vertex A; and $\frac{m+1}{m+2}x$ will be the diftance of the center of gravity of the whole parabolic fpace from A. When $m = 1$, as in the common parabola, this expreffion will be $\frac{2}{3}x$. If $m = 2$, as in the cubical parabola, then the expreffion will be $\frac{3}{4}x$, where $x = a$ in a fquadratic parabola, we fhall have $\frac{3}{4}a$ for the diftance; and in a fefquiad parabola, where $m = 3$, the expreffion will give $\frac{4}{5}x$ for the required diftance. If $m = \frac{1}{2}$, which is the property of the cocuars or fupplemental fpace, then the rule becomes a theorem to the vertical point, and $\frac{1}{3}x$ will be the diftance required. In the cafe of parabola AST, as may be eafily found, by reafoning on fimilar principles, the center of gravity is at the diftance AL, equal to $\frac{1}{3}$ AQ. In the cubical parabola, $\frac{1}{4}$ AQ. In a fefquiad parabola, $\frac{1}{5}$ AQ.

11. *The center of gravity of the arch of a circle,* as EHF, (fee fig. N° 4.) is fomewhere in the radius AH that bifects it in H. Let D L be a diameter parallel to the chord of the arch EF, be conceived as the axis of fuſpenſion, and be equal to r; let EF $= z$, AHF $= a$, the perpendicular BC $= y$, the arch CH $= x$, and A E $= v$. When the point C arrives at H, y becomes equal to r, and x and z in their evanefcent ſtate are equally therefore $r \propto x \propto z$; and conſequently $y \propto x$, which is the fluxion of the momentum, is equal to $x \propto x$ and $r \propto x$, will be the momentum itſelf. Divide this by x the whole area, and $\frac{r \propto x}{x} = r$ will be the diſtance of the center of gravity of the arch from the point of ſuſpenſion A. But when the point C arrives at E, $x = \frac{a}{2}$ will be equal to $\frac{ar}{2}$, and therefore the required diſtance will be to the radius as the chord of the arch to the arch itſelf; and if the arch be the circumference, as the diameter to the circumference. In the ſame manner, as CACH ($fig. 10, N° 2.$) the center of gravity of the ſector ACGH. On the center A, with a radius at pleaſure, deſcribe the arches NN, and draw the chords NN and CC. Let AC $= x$, the chord CC $= z$, CAC $= a$, and AN $= r$. The momentum of an arch, with reſpect to the axis of ſuſpenſion, being equal to the chord of that arch multiplied by the radius, the momenta of different arches are in the compound ratio of the chords and radii, or in the reſpective of the radii; therefore we ſhall have $r \propto x$, as the momentum of the arch CH: Conſequently, as the momentum of the arch NPN $= \frac{z \propto x}{r}$, which, multiplied by x, gives $\frac{z \propto x^2}{r}$ equal to the fluxion of the ſector NANP, whoſe fluent $\frac{zx^3}{3r}$ will be the momentum of the ſame ſector. Divide this by xz, the value of the area and $\frac{x^2}{3r}$ will be the diſtance of the *center* of gravity of the ſector NANP; but when x becomes equal to r, $\frac{zx^3}{3r}$ will be $\frac{zr^2}{3r} = \frac{1}{3}r$ for the diſtance of the center of gravity of the ſector CACH, from the point of ſuſpenſion A: therefore this diſtance is $\frac{1}{3}$ of the radius, as the chord of the arch to the arch itſelf. And if the ſector be a ſemicircle, it will be in the ſame manner $\frac{4}{3\pi}r$ from the diameter.

If the ſector be a ſemicircle, it will be in the ſame manner to the ſemicircumference. To find the point of any ſurface or ſolid by means of the *center of gravity*, ſee CENTRE *of gravity*.

For the centre of gravity of ſegments, ſpaces, or ſolids, ſphæres, ſpheroids, conoids, &c. as being rules more ſtrongly and in the ſame time more conciſely, we refer to Wolfius, Hauſbeeius, Simpſon, and others.

12. *To determine the centre of gravity in any body mechanically.* Lay the given body ($fig. 10$) on an extended cord, or on the edge of a triangular prism FG, hanging in the ſame due way, till the parts on either ſides are in equilibrio; the plane which ſides it K he, paſſes through the centre of gravity. Balance it again on the ſame, only changing its poſition; then will the plane or the line MN, paſs through the centre of gravity: and by the interſection of the two lines MN and KE, determines the point O in the ſurface of the body required.

The ſame is likewiſe to be by ſuſpending the body on a horizontal axis in as near the ſame as poſſible, whereon it is falling) in two poſitions, lengthwiſe and breadthwiſe; the common interſection of the two lines correſponding to the edge, will be in centre of gravity. Or it may be done by placing the body on the point of a fine. N° 5. till it will be in equilibrio. It was by this method, Borelli found the centre of gravity in a human body, to be between the ſacrum and pubis; ſo that the whole gravity of the body is there collected, where nature has placed the principal inſtrument of the will, the Creator, in placing the inſtrument with in that place, which to all others is the moſt commodious for copulation.

CENTRE *of an hyperbola*, is a point in the middle of the tranſverſe or tranſverſe axis, through which all the ordinates are biſected.

CENTRE *of magnitude*, is that point which is equally diſtant from all the external parts of a body.

CENTRE *of mean*, is a point round which one or more heavy bodies, that have one common centre of gravity, revolve. $fig. 31$. If the weights P and Q, *The Mechanics, fig. 31.* revolve about the point N, by the wheel P, becauſe Q attends, N is ſaid to be the *centre of mean*.

It is demonſtrated in mechanics, that the diſtance PN, of the centre of gravity, of any particular weight, from the common centre of gravity, of the ſame of number N, is perpendicular to the line of direction PF.

CENTRE *of oſcillation*, is that point, in the axis or line of ſuſpenſion of a vibrating body, into which, if the whole was contracted, the angular velocity, and the time of vibration, would remain unaltered. Hence, in a compound pendulum, its diſtance from the point of ſuſpenſion is equal to the length of a ſimple pendulum, whoſe oſcillations are iſochronal with thoſe of the compound one.

Laws of the CENTRE *of oſcillation.* 1. *If ſeveral weights D, F, H, I, (The Mechanics, fig. 32.) moſt gravely ſuſpended in an inflexible right line A B, oſcillate together round the point of ſuſpenſion A; and the perpendiculars drawn from them to the axis of ſuſpenſion A I, and the perpendicular drawn from the centre of oſcillation of the whole A O, be reſpectively the centres of oſcillation of each of the weights ſeparately, and alſo the centre of gravity of the whole; and the diſtance of the centre of oſcillation O from the point of ſuſpenſion A, be found by multiplying the ſeveral weights into the ſquares of the diſtances, and dividing the aggregate by the ſum of the moments of their weights.* See Simpſon's Fluxions, vol. 1. p. 212. &c.

2. *The diſtance of the centre of oſcillation in a right line A B (fig. 33.)* Let A B $= a$, A D $= x$, then will $x \propto x$ be the fluxion of the momentum, which being multiplied by $\frac{x}{a}$, becauſe the velocity of every point is proportional to its diſtance from the *centre* of motion A, will give $x^2 \propto$ for the fluxion of the force, whoſe fluent $\frac{x^3}{3a}$, being divided by $\frac{x^2}{2a}$, the fluent of $x \propto$, will give $\frac{2}{3}x$ for the diſtance of the *centre* of oſcillation in the part A D from the point of ſuſpenſion A. If then for x be ſubſtituted a, the

the distance of the *centre* of oscillation in the right line AB=$\frac{2}{3}a$. In this manner is found the *centre* of oscillation of a wire, oscillating about one of its extremities.

3. *To determine the centre of oscillation of the rectangle* RHIS (*fig. 19.*) *perfectly similar and equal to the plane* RI, *and oscillating about its axis* HI. Let RI=SH=a, AP=x; then will $a\,x$ be the fluxion of the mass, or whole weight. This, multiplied by x the velocity, will give $a\,x\,\dot{x}$ for the fluxion of the momentum; and multiplying this quantity again by x, the acquired velocity, we shall have $a\,x^2\,\dot{x}$ for the fluxion of the force; whose fluent $\frac{a\,x^3}{3}$, being divided by $\frac{a\,x^2\,\dot{x}}{2}$, the fluxion of $a\,x\,\dot{x}$, will give $\frac{2}{3}x$, which indefinitely expresses the distance of the *centre* of oscillation, from the axis of oscillation in the segment RCD: if then for x be substituted the altitude of the whole rectangle RSIH, we shall have the distance of the *centre* of oscillation from the same=$\frac{2}{3}a$.

For the centre of oscillation in an isosceles triangle SAH, *oscillating about its axis* HI, parallel to its base GH; its distance from the vertex A is found=$\frac{2}{3}$ of AP the altitude of the triangle.

Or in a right triangle SAH oscillating about its base SH, its distance from the vertex A is found=$\frac{2}{3}$ AS the altitude of the triangle.

For the centre of oscillation in an isosceles triangle SAH, *suspended by an inflexible thread* void of gravity, AH, and oscillating about its axis parallel to its base SH; its distance from the vertex is found=$\frac{3}{4}$ the altitude of the triangle.

For the centres of oscillation of parabolic and curves of the 3d kind, oscillating about their axes, parallel to their bases, they are found as follows.

Let AE=x, AP=y, and PN=a, (*fig. 19.*) then will vertically, $\dot{x}=\frac{\dot{y}}{a}$, and therefore $a=\frac{\dot{y}}{\dot{x}}$ will denote the fluxion of the whole mass. This being multiplied by x^n will give $\frac{\dot{y}}{\dot{x}}x^n$ for the fluxion of the force, whose fluent $\frac{y}{n+1}x^{n+1}$, being divided by $\frac{\dot{y}}{\dot{x}}x^{n+1}$, the fluxion of $x^{n+1}=\frac{n+1}{n+2}x$, for the distance of the *centre* of oscillation of the space ZAP from the vertex A; and when n becomes equal to x, $\frac{n+1}{n+2}x$ will become the distance of the *centre* of oscillation of the whole parabolic space SAH, from the point of suspension A, in the axis of motion RA.

In the Apollonian parabola, $n=\frac{1}{2}$, therefore the distance of the *centre* from the vertex=$\frac{3}{5}$ AE.

In a cubical parabola, $n=\frac{2}{3}$, and the distance of the *centre* of oscillation from the axis=$\frac{5}{7}$ AE.

In a biquadratic parabola $n=\frac{3}{4}$, and therefore the distance of the *centre* from the axis=$\frac{7}{9}$ AE.

For the method of determining the distance of the *centre* of oscillation from the axis, suppose it to be the axis about which the parabola revolves, see Hodgson's Fluxions, p. 231, &c.

In solid and plane figures inclosed laterally, i. e. about the axis of oscillation, perpendicular to the plane of the figure, the investigation of the *centre* of oscillation is somewhat difficult; because all the parts of the weight, on account of their unequal distances from the point of suspension, do not move with the same velocity; as is shown by Huygens, in his Horol. Oscill. He found, in this case, the distance of the *centre* of oscillation from the axis in a circle, to be $\frac{5}{6}$ of the diameter; in a rectangle, suspended by one of its angles, $\frac{2}{3}$ of the diagonal; in a parabola, suspended by its vertex, $\frac{6}{7}$ of its axis; and of the parabeloid, suspended from a point in the middle of the base, $\frac{5}{6}$ of the axis, and $\frac{5}{7}$ the parameter; in the ellipse of a circle, $\frac{5}{6}$ of a right line which is to the radius as the arch to the subtended; in a cone, $\frac{3}{4}$ of the axis, and $\frac{3}{5}$ of the third proportional to the axis, and a semidiameter of the base; in a sphere (as is usually the case in pendulums) $\frac{5}{7}$ of a third proportional to two quantities compoled of the semidiameter and length of the thread, and the semidiameter itself; in a cylinder, $\frac{5}{6}$ of the thread, and $\frac{5}{7}$ a right line, which is to the semidiameter of the base, as that is to the thread.

CENTRE *of percussion*, in a moving body, is that point wherein the resistance is the greatest, wherein the whole percussent force of the body is supposed to be collected; or about which the impetus of the parts is balanced on every side: so that it may be stops, by an immoveable obstacle, at this point, and will on it, without acting on the *centre* of suspension.

Laws of the CENTRE *of percussion*.—1. *The centre of percussion is the same with the centre of oscillation*, where the percussent body revolves round a fixed point; and is determined in the same manner, viz. by considering the impetus of the parts, as so many weights applied to an inflexible right line, void of gravity; i. e. by dividing the sum of the products of the rectes of the parts, multiplied by their distances from the point of suspension, by the sum of the forces. What, therefore, has been above shewn of the *centre of oscillation*, will hold of the *centre of percussion*, where the percussent body moves round a fixed point.

2. *The centre of percussion is the same with the centre of gravity*, if all the parts of the percussent body be carried with a parallel motion, or with the same celerity; for the momenta are the products of the weights into the velocities. Wherefore, to multiply equiponderating bodies by the same velocity, is the same thing as to take equimultiples; but the equimultiples of equiponderating bodies, themselves equiponderate; therefore, equivalent momenta are disposed about the *centre* of gravity consequently the *centre* of percussion in this case coincides with that of gravity, and what is shewn of the one, will hold of the other.

CENTRE *of a parallelogram*, or *polygon*, the point wherein its diagonals intersect.

CENTRE *of a sphere* is a point from which all the lines drawn to the surface, are equal.

The centre of the gravities, by whose revolutions the sphere is generated, is also that of the sphere.

Hermes Trismegistus defines God as an infinite sphere, whose *centre* is every where, and circumference no where.

CENTRE-*wheel of a watch*. See WATCH-*work*.

CENTRE *of a squadron*, or *of a fleet*, in the middle of a line, which is always the station of the admiral, or commander in chief, and ought to be proportionably the strongest, because it receives from the two and rear.

CENTERING *of an optic glass*, the grinding it so as that the thickest part it exactly in the middle.

One of the greatest difficulties in grinding large optic glasses is, that in figures of little excess, the least difference will put the centre two or three inches out of the middle. Dr. Hook notes, that though it were better the thickest part of a long object glass were exactly in the middle; yet it may be a very good one when it is so much or two out of it. Phil. Trans. N° 4. p. 57. Id. ibid. p. 62. seq.

Mr. Cassini the younger has a discourse expressly on the *necessity of well centering the object glass* of a large telescope, that is, of grinding them so, that the centre may fall exactly in the axis of the telescope. Mem. Acad. Scien. 1710. p. 295. seq. See OPTICS-*glasses*.

CENTESIMA *usura*, that wherein the interest in an hundred months becomes equal to the principal; i. e. where the money is laid out at one per cent. per month. This is what in our style would be called 12 per cent. for the Romans reckoned their interest not by the year, but by the month.

CENTESIMATION, *Centesimatio*, the punishing every hundredth man.

Mutinies sometimes decimated, and sometimes centesimated the soldiers. The latter term seems to have been introduced by himself to the honour of his clemency, as being contented to centesimate those who deserved decimation, or vice-mation.

CENTGRAVIUS, in *Middle Age Writers*, the same with CENTENARIUS.

CENTILOQUIUM, from *centum*, *a hundred*, and *loqui*, *I speak*, denotes a collection of a hundred sentences, opinions, or sayings.

CENTINODIUM, an officinal plant, popularly called *knot-grass*, by the botanists *polygonum*; reputed an astringent and vulnerary.

CENTITES. See BOETITES.

CENTNER, or *Centuple Hundred*, in *Metallurgy and Assaying*, is a weight divisible, first into a *hundred*, and hence into a greater number of other smaller parts; for though the word is the same, both with the assayers and manufacturers, yet it is to be understood as expressing a very different quantity in their different acceptation of it. The weights of the metallurgists are easily understood, as being of the common proportion, but those of the assayers are a thousand times smaller than theirs, as the portions of metals or ores examined by the assayers are usually very small.

The metallurgists, who extract metals out of their ores, also a weight distant into a *hundred* equal parts, each part a pound; the whole they call a *centner* or *hundred weight*: the pound is divided into *thirty-two parts*, or *forty ounces*; and the half ounces into *two quarters* of ounces, and these each into two drams.

The

Their figures and denominations of the most largely are eafily underſtood; but the same words though they are ufually uſed to diſtinguiſh the ſeveral ſpecies of figures, with three angles or more, yet in different quantities; for as the meaſure of the triangle contains a hundred parts, the meaſure of the figure is really no more than one part, to which the other parts are proportioned.

As the ſeveral triangles are divided into ſides or contents degrees of multitude, and are fo very different from all the other triangles; the ſeveral ſpecies whereof are diſtinguiſhed, in the following manner, according to their ſides, or the number of parts of which the ſides of the triangle conſiſt, according to the diviſion of the ſides, which is very different, or ſometimes more by one part than them. They ſay that the triangle is right, being compoſed of the ſides, which ſtand at right angles to each other. Thus having the three ſides, the firſt of which is 3, the ſecond 4, and the third 5, they put the ſquare of the firſt ſide, and ſecond ſide, that is, 9 and 16, together, which make 25, and then extract the ſquare root of 25, which is 5, and ſo find the ſquare of the third ſide, which is 25. Then having the three ſides, the firſt of which is 3, the ſecond 4, and the third 5, they put the ſquare of the firſt ſide, and ſecond ſide, that is, 9 and 16, together, which make 25, and then extract the ſquare root of 25, which is 5, and ſo find the ſquare of the third ſide, which is 25. Then having the three ſides, the firſt of which is 3, the ſecond 4, and the third 5, they put the ſquare of the firſt ſide, and ſecond ſide, that is, 9 and 16, together, which make 25, and then extract the ſquare root of 25, which is 5, and ſo find the ſquare of the third ſide, which is 25.

CENTO, in Poetry, a work wholly compoſed of verſes or paſſages taken from other authors; they ſometimes alſo change the ſenſe, to render it as to compoſe a new work, and make a new meaning.

The word is Latin, cento, which primarily ſignifies a thick piece of patches, and this from

Antonius has laid down the rules to be obſerved in compoſing cento. The pieces, he ſays, may be taken either from the ſame poet, or from ſeveral; and the verſes may be either entire, or divided into two; but muſt be connected with another half taken elſewhere; and two verſes are never to be taken together, but ſome ſmall part muſt be left out between. Agreeably to theſe rules the firſt cento we meet with is that of Proba Falconia, compoſed out of the works of Virgil; the like is done by Alex. Ros. in Chriſtiados, and by Stephen de Pleteris, Canon Regular of St. Victor at Paris.

CENTURIATE, in the civil law, a diviſion of the people, which before was to make ſenators, or other perſons in dignity and charge, whereby to carry the matter under which the Romans made their approaches, as well as the manner and multitude uſed to order the place, and preſerve their being ſet on fire by the enemy. In the Theodoſian code we have a title, *De centonibus & compoſitis*. And in ancient inſcriptions, the centonarii are mentioned with the quæſtors, *fiſcorum* or tribunes, &c. who made but one company, under the denomination of *negotiatores & centonarii*.

CENTRAL, ſomething relating to centre, or centres.

Thus we ſay, *central motion*, *world*, *ſyſtem*, *forces*, *central rule*, &c.

Central *powers*, or *virtues*, or powers, whereby a moving body either tends towards the centre of motion, or recedes from it.

Central forces are divided into two kinds, with regard to their different relations to the centre, viz. the *centripetal* and the *centrifugal*.

The doctrine of centres, or *centripetal* and *centrifugal forces*, has been much cultivated by mathematicians, as being of extenſive uſe in the theory of gravity and other phyſico-mathematical diſcoveries.

In this doctrine it is ſuppoſed, that a body is not moved merely ſtrait forwards, or by impreſſion made always in the direction of its motion, but that it is alſo drawn from that direction to ſome point or centre, or is impelled towards it, by ſome cauſe or power, which acts continually, and diverts the body from the ſtrait courſe, which it would otherwiſe purſue, and make it deſcribe a curve line, or cauſe it to revolve in a curve, or ſome part of it. Such is the force with which the moon is retained in her orbit, and prevented from flying off in a ſtrait line, by the power of gravity, or attraction, or whatever cauſe it be, which acts upon her, and draws her towards the earth, as a centre.

Now any force by which a body is drawn or impelled towards a point, conſidered as a centre, to which it tends, or is urged, or in any way ſolicited, or has a propenſity of any kind whatever, is called a centripetal force. And in like manner, any force by which a body is driven or impelled, or has a tendency from a centre, is called a centrifugal force. And theſe forces are ſometimes called by the general name of *central forces*, becauſe they have reference to a centre, in the manner as now explained.

Now the centripetal force, by which a body is drawn from a ſtrait courſe, and retained in a curve line, is ſuppoſed to proceed equally from the whole ſphere of ſome greater circle, or ſolid, which may be conſidered either by the preſſure of the ambient body againſt the ſurface of that ſphere or ſolid, or by the mutual attraction of the ſeveral parts of that ſphere or ſolid, or by the mutual attraction of the matter in the ſphere, or by the like cauſes. In the firſt caſe, or by the preſſure of the ambient body againſt the ſurface of the ſphere or ſolid, the centripetal force is called *impreſſed*; in the ſecond caſe, or by the mutual attraction of the parts of the ſphere or ſolid, it is called *attractive*; and in the third caſe, or by the attraction of the matter in the ſphere, or by the like cauſes, it is called *abſolute*. And the body which is retained in its curve orbit by the force of any of theſe kinds, is ſaid to be urged, or attracted, or impelled, or in any way ſolicited towards the centre of the ſphere or ſolid from which the force proceeds.

And as the centripetal force is the cauſe by which bodies are produced, in all other circumſtances, according to the principles of motion; ſo the centrifugal force, or the force of every kind that is oppoſite to the centripetal force, is produced in the reſiſting body by the reſiſtance of the fluid, or by the vis inertiæ of the ſolid body, or by ſome other cauſe, in the ſame manner as the centripetal force is produced in the body which is attracted or impelled towards the centre. For the centripetal and centrifugal forces are to each other as the meaſures of the reſiſtances which the ſame bodies meet with in deſcribing the ſame curve lines, with the ſame velocities, by the ſame laws and methods of reſiſtance, whether they ariſe from the viſcoſity, or from the friction, or from the vis inertiæ of the parts of the fluid, or from any other cauſe whatever, in proportion to the denſities of the reſiſting fluids, and the ſolidities of the reſiſting bodies, and the ſquares of the velocities, conjunctly. For the reſiſtance which ariſes from the viſcoſity of the parts of the fluid, is proportional to the velocity with which they ſeparate from each other, in order to make way for the body that paſſes through the fluid. The reſiſtance which ariſes from the friction of the parts of the fluid, is proportional to the velocity with which they ſlide over each other, before they begin to run off from the ſurface of the body that paſſes through the fluid. And the reſiſtance which ariſes from the vis inertiæ of the parts of the fluid, is proportional to the denſity of the fluid, by the hypotheſis. And the ſum of theſe reſiſtances, or the whole reſiſtance with which the body is retarded in its motion, is proportional to all theſe three together. Now the centripetal force, by which the body is drawn from the rectilineal courſe, and retained in its curve orbit, is equal to the ſum of all the reſiſtances, or to the whole reſiſtance with which the body is retarded in its motion. For the centripetal force is employed to overcome all the reſiſtances that are made to the body in its curve orbit, and to retain the body in its orbit, by counteracting all the cauſes that would make it deviate from that orbit. Therefore the centripetal force is equal to all the reſiſtances that are made to the body in its curve orbit, and conſequently is proportional to the ſum of the reſiſtances, or to the whole reſiſtance with which the body is retarded in its motion.

Hence it follows, that the centripetal force is proportional to the ſum of the reſiſtances, or to the whole reſiſtance with which the body is retarded in its motion. For the centripetal force is employed to overcome all the reſiſtances that are made to the body in its curve orbit, and to retain the body in its orbit, by counteracting all the cauſes that would make it deviate from that orbit. Therefore the centripetal force is equal to all the reſiſtances that are made to the body in its curve orbit, and conſequently is proportional to the ſum of the reſiſtances, or to the whole reſiſtance with which the body is retarded in its motion.

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CENTRIPETAL force is that power wherein a centripetal body is impelled to the right line AG (Plate XV. Mechanics, fig. 3.) by the primitive motion and the centripetal force, and is continually drawn off from the right line DE, suppose to the curve line AB, whose concavity faces the centre C, and is always in the curve.

CENTRIPETUM, in Gardening, a name of the order of arrangement, the characters of which are taken from the centre of the flower, and the disposition of the parts round it.

CENTROBARIC method, from κεντρον and βαρος, a centre and weight, is a method of investigating the centres of gravity of figures, or solids, by considering it as formed of matter, and finding out how the parts of it balance each other.

This doctrine is comprised in the following theorems, which are demonstrated.

Theorem I. If any *number of points* be considered as gravitating in the centre of gravity of the whole system, and the sum of the products of each of the gravitating points into the square of its distance from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the system will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem II. If the weight of the whole gravitating system be collected in the centre of gravity of the whole system produced by its motion, and the sum of the products of the weights of the gravitating points into the squares of their distances from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the system will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem III. If any *plane figure* be considered as gravitating in the centre of gravity of the figure, and the sum of the products of each of the gravitating points into the square of its distance from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the figure will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem IV. If the weight of the plane figure be collected in the centre of gravity of the figure produced by its motion, and the sum of the products of the weights of the gravitating points into the squares of their distances from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the figure will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem V. If any *solid figure* be considered as gravitating in the centre of gravity of the solid, and the sum of the products of each of the gravitating points into the square of its distance from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the solid will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem VI. If the weight of the solid gravitating system be collected in the centre of gravity of the whole system produced by its motion, and the sum of the products of the weights of the gravitating points into the squares of their distances from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the solid will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem VII. If any *plane figure* be considered as gravitating in the centre of gravity of the figure, and the sum of the products of each of the gravitating points into the square of its distance from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the figure will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem VIII. If the weight of the plane figure be collected in the centre of gravity of the figure produced by its motion, and the sum of the products of the weights of the gravitating points into the squares of their distances from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the figure will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem IX. If any *solid figure* be considered as gravitating in the centre of gravity of the solid, and the sum of the products of each of the gravitating points into the square of its distance from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the solid will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

Theorem X. If the weight of the solid gravitating system be collected in the centre of gravity of the whole system produced by its motion, and the sum of the products of the weights of the gravitating points into the squares of their distances from any given plane be equal to the sum of the products of the same gravitating points into the squares of their distances from another given plane, the centre of gravity of the solid will be in a plane parallel to the two former, and at a distance from them which is to the distance between the two former planes, as the sum of the gravitating points is to the sum of the products of the gravitating points into their distances from the first plane.

CENTRIPETUM, in Gardening, a name of the order of arrangement, the characters of which are taken from the centre of the flower, and the disposition of the parts round it.

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AO=½AD; the sense of gravity will be in O. The solidity of the cone, therefore, will be to that of the cylinder of the same base and height, as the centre of gravity of the triangle CAD was to the centre of gravity described by the right line AO, that is, as PO (or ½AD) to ½PO (or ½AD + ½AD), and OO = ⅓CO. Therefore, OP = ⅓PD = ½AD, and OO = ⅓CO.

If a cone be cut by a plane parallel to the base, the centre of gravity of the frustum will be in the right line which joins the centres of gravity of the two bases. This will be demonstrated by the following lemma.

Let ABCD be a trapezium, whose sides AB, CD are parallel to each other, and let EF be drawn parallel to them, bisecting the other two sides. Then, if the trapezium be conceived to be made up of an infinite number of right lines parallel to AB, CD, the centre of gravity of the trapezium will be in the right line EF. For, if it be not in EF, let it be in the right line GH, and let GK be drawn parallel to EF. Then, because the right lines parallel to AB, CD are bisected in EF, the trapezium ABCD will be equal to the trapezium AEFD, and the centre of gravity of the former will be in GH, and that of the latter in EF. Therefore, the centre of gravity of the whole will be in the middle between GH and EF, which is impossible, unless GH and EF coincide. In the same manner it may be demonstrated, that the centre of gravity of the trapezium cannot be in any other right line but EF.

Let ABCD be a frustum of a cone, and EF a right line joining the centres of gravity of the two bases. Then, if the frustum be conceived to be made up of an infinite number of circles parallel to the bases, the centre of gravity of the frustum will be in the right line EF. For, if it be not in EF, let it be in the right line GH, and let GK be drawn parallel to EF. Then, because the circles parallel to the bases are bisected in EF, the frustum ABCD will be equal to the frustum AEFD, and the centre of gravity of the former will be in GH, and that of the latter in EF. Therefore, the centre of gravity of the whole will be in the middle between GH and EF, which is impossible, unless GH and EF coincide. In the same manner it may be demonstrated, that the centre of gravity of the frustum cannot be in any other right line but EF.

CENTRIPETAL, in *Philosophy*, the name by which the celebrated Sir Isaac Newton distinguished that power by which the bodies move towards the centre of motion, being under the influence of that power, instead of the centrifugal power, formed of the same, and therefore of the same nature as gravity, which tends to the circumference.

The forces of attraction are very numerous, but may be reduced to the following divisions:

1. The centripetal is distributed into the centripetal proper, and the centripetal absolute.

2. The centripetal absolute is called by Kepler, GRAVITY and TENDENCY.

3. The last kind is called by Kepler FACULTY.

4. The last kind, called by Kepler, VIRTUE, by Hooke, and others, ATTRACTION, may be reduced to many genera, according to the different laws observed by the different causes of attraction. But besides the known central powers, we meet with several others, tending, of a very singular kind, to certain points, which we call EXCENTRIC and ECCENTRIC powers.

CENTRUM, in *Geometry*, *Mechanics*, &c. See CENTER.

CENTRUM *gravitatis*, or *gravitas*, is the place where the whole gravity tends to, or by which it is sustained.

CENTRUM *harmonicum*, in the *science of objects*, that is, centre of the voice in an echo.

CENTRUM *harmonicum*, in *Acoustics*, a phrase, or rather, wherein the ratio of the sounds of the corresponding notes.

This centre is generally towards the right line, or the ear, and sometimes towards the right line, or the ear, and sometimes towards the right line, or the ear, and sometimes

increasing their vibrations, by which the nervous fluid circulates more freely.

Cephalic are different, according to the diseases or causes, which may happen to obstruct the circulation of the humours of the brain. If the cause is of a cold and mucous kind, the *cephalic* to be prescribed, must be of a heating, flimulating, fragrant, and aromatic quality: if, on the contrary, the disorder arises from an excess of heat in the body, the *cephalic* to be exhibited must be of a cooling and refrigerating nature.

Cephalics are either *external*, when for inducing they are exhibited by the mouth, in order to produce their effects by the general circulation of the fluids; or by way of clysters, which chiefly produce the most happy consequences, by making a revulsion from the superior and more noble parts: or they are such as are *external*, to which class belong certain proper liquors for washing the head, medicated caps, and other remedies commonly called topics, the materials of which are alfo used against disorders of other parts of the body.

With respect to *cephalic* topics in general, we muft obferve, that the head is lefs capable of bearing much than any application; because the former, by diffending or relaxing the veffels, procure congeftions of humours, which more hurtful to the brain. Nor do moft vegetables applied to the head ever anfwer any valuable purpofe, except in thofe cafes alone where the diforder arifes from an excefs of heat and dryneſs; or from an inflammatory difpofition in the head.

CEPHALIC *Vein*, in *Anatomy*, is a vein of the arm between the fkin and the mufcles, divided into two branches, *external* and *internal*. The external goes down to the wrift, where joining the *bafilic*, and turning up to the back of the hand, the internal branch, together with a fprig of the *bafilic*, unites the *mufculus*. — See *Vein*, *Anatomy*, *Index*, fig. 6, 6, 6, 6.

It is thus called, becauſe the ancients uſed to open it in diſorders of the head; from a miſtaken notion, that it had a nearer concern with the head than any other of the veins.

CEPHALIDES, a denomination given by fome writers, who diſtinguiſh vintages in plants from their figurations, to thoſe which have any reſemblance to a human head; ſuch are the *cynoſbaton*, pliny, and the like.

CEPHALOMANTIA, from κεφαλη, and μαντεια, *divination*, an ancient ſpecies of divination, or method of foretelling futurity, by a dead man's ſkull.

CEPHALONOMANTIA, a method of divination, or revealing *ſecrets*, by means of an aſs's head broiled on the coals.

The word is compounded of κεφαλη, *head*, ονος, *aſs*, and μαντεια, *divination*.

After naming a few powers, the names of ſeveral perſons ſuſpected of a theft, or the like, were repeated over: he at whoſe name the aſs's jaws made any motion, or the teeth began to chatter, was held for convicted.

CEPHALOPHARYNGEI, in *Anatomy*, two muſcles of the *pharynx*, called the *ſtaphylini*.

They have their origin in the articulation of the head with the firſt *vertebra*, and are inſerted into the upper part of the *pharynx*: they ſerve to draw it upwards and backwards.

CEPHALOPONIA, from κεφαλη and πονος, *pain*, a denomination given by ſome to the *cephalalgia*, or HEADACHE.

CEPHALUS, in *Ichthyology*, a name given by Ariſtotle, Ælian, Appian, and others, to the *mugil* or *mullet*, called alſo by ſome *capito*.

CEPHATUS, is alſo a name given by ſome naturaliſts to the *ſargus*, called alſo *grex*, and *gerres*; a fiſh very little, if at all, differing from our *ſmelt*.

CEPHEUS, in *Aſtronomy*, a conſtellation of the northern hemiſphere, whoſe ſtars, in Ptolemy's Catalogue, are thirteen; in Tycho's eleven; in Hevelius's, forty-eight; in the Britannic Catalogue, thirty-five. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow:

Names and ſituations of the ſtars.	Conſt. Num.	Mag.	Longitud.		Latitude.		Nebulous.
			°	′	°	′	
In the preced. foot		6	0	42	25	28	2
In the preced. ſide		5	0	57	40	25	10
In the head of the preced. arm		4	0	12	58	40	28
			14	55	35	24	30
In the preced. ſhoulder		4	1	30	55	58	59
			14	18	38	03	19
			10	20	38	18	2
In the girdle, againſt the preceding arm		3	1	47	33	01	9
			9	10	42	10	8
			10	5	8	01	29

10.

Names and ſituations of the ſtars.	Conſt. Num.	Mag.	Longitud.		Latitude.		Nebulous.
			°	′	°	′	
			5	4	15	49	30
			9	15	6	9	2
			Uncertain.		Uncertain.		
That preced. the ſtars in Cepheus's neck			7	42	28	56	53
			10	32	21	02	34
In the breaſt			8	19	56	09	24
			9	19	14	50	0
			Uncertain.		Uncertain.		
			11	23	16	18	20
			10	29	12	04	58
20.							
Middle of 3 in the ſtars			9	39	47	01	8
North and ſouth of the ſame			11	40	20	12	34
South to the ſame			8	46	36	19	39
			9	40	33	06	25
			9	10	31	44	03
25.							
That following the ſame			11	5	33	31	17
			12	12	54	05	58
			Uncertain.		Uncertain.		
			11	40	20	12	34
			9	26	57	16	23
			9	21	53	40	22
30.							
Preced. in the following arm			10	18	24	20	0
In the following leg			9	28	53	30	18
Latter in the hind arm			8	41	51	01	23
In the hind foot			9	35	38	35	04
35.							

CEPI *Corpus*, in *Law*, a return made by the ſheriff, upon a capias, or other proceſs to the like purpoſe ſignifying, that he hath taken the body of the party.

CEPION, in *Antiquity*, the name of a particular air, invented by a diſciple of Terpander, and deſigned to be played on the CITHARA.

CEPIONITES, in *Natural Hiſtory*, a name given by Pliny and other ancient writers, to a ſpecies of ſtone, reſembling to approach to the nature of the SAPPHIRE. Pliny tells us, that there were many kinds of it, ſome more poliſhed than others, and ſome colourleſs; others variegated with green, and the other colours of the ſapphire and againſt theſe all uſed in the ornamenting of houſes; and the moſt beautiful ſorted, when well poliſhed, to make ſpeculums of.

CEPITES, in *Natural Hiſtory*, a name uſed by the ancients to expreſs a gem which gave the repreſentation of the ſexual diſtinct of plants and flowers in the beds of a garden, with naked nymphs, ſurrounding the walks between. The common text of Pliny is unintelligible, where he gives the deſcription of this ſtone; but Salmaſius has reſtored it from ſome old copies, ſo as to make it ſenſe and expreſſive of this meaning. The ſtone was probably no other than a peculiar kind of that again which the ancients called *dendrites*, and we the MOCCA *ſtone*.

CEPOLA, in *Ichthyology*, a genus of the *thoracici* in the claſs of fiſhes; the characters of which are, that the head is roundiſh and compreſſed, the mouth flat, the teeth crooked, the branchioſtege membrane conſiſts of ſix ſmall bones, the body uniform and naked, and the abdomen ſcarce as long as the head.

CEPOLAPTES, in *Natural Hiſtory*, a name given by ſome to the ſtone properly called CEPITES, a kind of MOCCA *ſtone*.

CEPPHUS, in *Ornithology*, the name of a kind of the *larus* or gull kind; but, except in its feet and beak, very much reſembling the common duck. It is a moderately large bird, but is ſo much feathered, that it appears much more ſo than it really is. It is of a variegated colour, of a mixture of white, brown, and yellow; but the long wing and tail-feathers are black: its legs are greenith; but the membrane which connects the toes is brown. See PHIL. Tranſ. vol. lii. part I. N° 24.

CEPULA, a name by which Geſner and ſome other authors have called the common *tunny*. It is derived from the Italian *cepa*, the common name of the ſame fiſh in the markets of Rome. It is a ſpecies of the CEPOLA.

CEPUS, in *Zoology*, a name given by ſome to thoſe monkeys of the ſmaller kind, which have more or leſs green among their other colours.

CERACHATES, in the *Natural Hiſtory of the Ancients*, the name of a ſpecies of agate of a plain yellow colour, and very much reſembling yellow wax. We have it from the Eaſt-Indies, as alſo from New Spain and ſome other parts of America; and our jewellers ſometimes work it into toys of ſmall value.

CERAMBYX, in *Zoology*. *See* CAPRICORN BEETLE.

CERAMIUM, in ancient ARCHITECTURE, anſwering to what we now call AMPHORA and CADUS.

CERASTES, the *horned viper*, in *Zoology*, the name of a species of serpent, which has on its head two prominences, that look like horns, but are more solid bodies, and form their resemblance to horns, best given in that name: these are often so large as to appear like the stumps of horns; it is of the number of viviparous serpents, and is remarkable among the tribe for its long sojourning in the womb.

It is found in Lybia and Arabia, particularly about the town of Siout.

CERASTES was also a name given by the ancient Greek to a fig when it first budded, or showed of its fruit.

CERASTIUM, in *botany*. See MOUSE-ear.

CERASUS, in *Botany*. See CHERRY-tree.

CER-TE. See CERATUM.

CERATIAS, among *chemical Naturalists*, denotes a horned comet.

The word is formed from κερας, a horn. Such is supposed to have appeared when XERXES passed his army into Greece.

CERATION. *Ceratio*, in *Chemistry*, the operation of waxing.

CERATITES a name given by many authors to the fossil thunder stone usually called by authors CORNU AMMONIS, and found in great plenty in the environs of Hart's hold in Germany.

CERATONIA, or CERATONIA *siliqua*, a name given by the *Italians* and *Germans* to a small weight.

The ceratonia is properly the name of a tree called the *carob*, or *algaroba*, the fruit pipe-like: this tree bears a long pod, in which are contained several seeds among the pulp: these seeds are also called *ceratonia* and *siliqua* by the Arabians, and being dried, they were used as a weight in proportion the doses of medicines. Thus the small weight, which took its origin from them, was called *ceratonia*; as that small weight, which took its origin from a grain of barley, was called *granum*.

CERATONIA was also a small Silver coin, the third part of an *obolus*, and the same with what the Romans called *siliqua*.

CERATOCARPUS, in *Botany*, a name given by Buxbaum to a new genus of plants, belonging to the class of monœcia monandria in the Linnæan system, the character of which are, that the flowers are hooded and gaping, the flowers apetalous, and having no cup, but standing upon the embryo fruit; the fruit, when ripe, is of extraordinary figure, resembling that of a shepherd's purse, but crowning one into fours, and composed of two valves. Each valve is formed into a cone, or horn, and that of a very singular figure; it is long and slender, and not flat, but semicircular, and each of its circumvolutions is inherent in the contour of another, which are both together in their appropriate circumscription by a membranous rib round the whole circumference of the fruit, and the seeds are solitary, and are lodged in the cells of the valves, and are somewhat kidney-shaped. Act. Petrop. vol. 1. p. 211.

The author intends it to comprise, *horned fruit*, from the fruit-vessels running out into two horns; he observes, that the description of the circumflex of Theophrastus exactly agrees with the plant in many points; but differs in others; in which that author's character must be understood to be mistaken himself, or not correctly by us to him.

CERATOLOSIUS, in *Anatomy*, a pair of muscles of the tongue, thus described by Sir Edward Sharpey: "the tongue has a broad muscle on each side, the superior or part of the *subcutaneus*, partially adherent to the *mylo-hyoideus*, at the root of the tongue. This muscle is pointed, arises above the root of the muscle *hyoideus*, and ends in the middle of the tongue. Each of these muscles, if only one of them act, draws the tongue to one side."

The name is formed from κερας, *horn*, and λοσιος, *angular*, from having some resemblance to a horn.

CERATODES, in *Anatomy*, the CORNEA TUNICA. See CORNEA.

CERATOIDES is also a denomination given to the *os frontis*, or *sinciput*. See HYOIDES.

CERATOMALAGMA, a cerate or ointment.

CERATONIA, in *Botany*. See CAROB.

CERATOPHYLLUS, in *Botany*, the name by which Linnæus calls a genus of plants, of the *monœcia polyandria* class: called by authors *ceratophyllum*, and *hippuroides*.

The characters are, that the flowers are a-sexual; some, others female, or the true plants; in the male flowers the cup is divided into many segments, which are pointed, and equal to the flowers: these are no petals: the stamina are slender filaments, double in number to the segments of the cup, being usually fifteen or twenty, and are scarce conspicuous: the anthers are oblong, erect, and longer than the cup. In the female flowers the cup and corolla are the same as in the male: the germen is an oval, compressed, and of an oval figure: there is no style, but two stigmas, is shaped and obtuse: the fruit is an oval nut, of a pointed figure, and turning the true is an oval nut, of a pointed figure, and turning the fruit is an oval nut, of a pointed figure, and turning the fruit is an oval nut, of a pointed figure, and turning the fruit

four days, which are commonly called HERCULEI or the Herculean days.

CERATIUM, among Conchs, the same with CERAS.

The name is given to the genus by some in allusion to its horny texture, since it really is not a shell, properly speaking, but a horny substance, like the Cornua Ammonis, and Cornu Copiæ of authors.

CERATOIDES, in Natural History, a genus of fossils, or stones, of the crystalline order of the siliceous class, consisting of those which are of a horny texture, and other properties of the substance called cornu.

CERATON, in Antiquity, a name which the ancient poets, &c. give to a vase with three heads and handles. Most of these vases were sacrificial, and used at the feasts of Bacchus. Some have supposed this name to be the same with CERNOS, which was a vase with three heads and handles, but this is a mistake. Cernos were of a different form, and used for other purposes. See CERNOS.

CERATOPHYLLUM, in Botany, the name of a genus of plants, called *Hornwort*. See HORNWORT.

CERATOPHYLLUM, in Natural History, the name of a species of coralloides, called *Horn-Coral*. See CORAL.

CERATOPHYLLUS

which foreigners and their ambassadors are to observe at their interviews, that none of them may either receive more or less marks of respect than they are entitled to. Some stiffness with these occasions when the ceremony is to take place viz. when princes meet in person; when they write to each other, and when they send ambassadors.

There are politick rulers among foreigners about the *ceremonials* these contravening to be neglected, and some to be regarded, to others. Numerous schemes have been proposed for fixing the place and rank of each prince; but they have not been accepted of by any, except some German princes, as they are called in Germany. See PRECEDENCY.

CEREMONIAL, is more particularly used for the ritual and injunctions given to the Jews, relating to the worship of God among the ceremonies.

Of which Jesus is answerable to teach the fulfilling what he which Jesus is answerable to teach the fulfilling what he which Jesus is answerable to teach the fulfilling what he

CEROMA, originally denoted a mixture of oil and wax, with which the ancient wrestlers rubbed themselves, not only to make their limbs more limber, and less capable of being laid hold of, but more pliable, and fit for exercise.

The name *aroma* is sometimes applied by ancient physicians to a cerasine composition.

The champions ready to engage in the palestra, having stripped themselves naked, were first anointed with oil; then thrown over with dust, to which was lastly added water. Hence the last ingredient, this composition was denominated *ceroma*, from *κηρος*, wax.

CEROMANTIA, an ancient method of DIVINATION, by means of wax melted over a vessel of water, and let cool. In these afterwards observing the figure, fineness, diffusion, and composition of the drops.

CEROPEGIA, in *Botany*, a genus of the *pentandria monogynia* class. The flower consists of a single petal; it has two small erect nectary glandule heads, and the limb of the corolla is cremnated.

CEROSTROTUM, in *Roman Writers*, denotes a sort of pictute composed of pieces of bone, answering to what among us is called MOSAIC work.

Some write the word *cerostrota*, and suppose it primarily to denote a kind of pavement composed of pieces of wood, inlaid and joined with flips of horn, variously coloured and figured.

Salmasius will have *ceroftrota* to denote a method of painting, or enamelling with wax, otherwise called CEROCAUSTUM.

CERPASUS, in *Natural History*, a name given by Dioscorides to a poisonous drug of the Abyssines; probably the same with the *zerpa* of the Greeks.

CERRUS, in *Botany*, a name given by many authors to the *ægilops*, or bitter oak; or oak that has large acorns, and a prickly cup.

CERRUTI, in *Ethnology*, a name given by some of the old writers, Pliny, Martial, and others, to the fish called in the generality of writers *scarus*, by some *aurata*, and by all the ancient Greek writers, according to the Attician dyalect, and is distinguished from the other fishes of that genus by having a black spot in the middle of each side, and the pectoral and tail fins red.

CERTHIA, in *Ornithology*. See CERTHIA.

CERTIFICANDO, *de recognoscendo certificando*, is a writ commanding the mayor of the staple to certify to the lord chancellor a statute staple taken before him, when the party himself denies it, and refuseth to bring in the same. Reg. Orig. 152. There is the like writ to certify a statute merchant; and to divers other cases. Fo. 148. 151. 152.

CERTIFICATE, a testimony given in writing, to affirm and verify the truth of any thing in a court of justice, or the like. See TESTIMONIAL.

CERTIORARI, or *Writ of Error*, issues to the court of a plantation, after an action is tried, and judgment given, upon the merits, where the party over whom the mesne process shall complain that the mesne process issued against his body or goods, or the like, or that the cause is not proper to be tried in such court. There are two exceptions to this rule: there are two exceptions. One case is where the plaintiff is an infant. 2 Salk. 553. 1 Ld. Raym. 582. Carth. 471. 1 Salk. 144. 1 Ld. Raym. 396. 12 Mod. 251. 1 Str. 528. 2 Str. 1148. 1 Ld. Raym. 396. 1 Salk. 144. 2 Salk. 553

mitted, and also co-united by several successors of transmission.

See also an ingenious argument, deduced from the doctrine of chances, and applied to enforce the practice of virtue, in the Conclusion to Dr. Price's Review of the principal Questions in Morals.

CERT-MONEY, *Hundredum*, a common fine, paid yearly by the resians of several manors to the lords thereof; sometimes to the hundred, *pro certo leta*, for the certain keeping of the leet.—This, in ancient records, is called *certum letæ*.

CERVICAL, *Cervix*. See *Head's* Hook.

CERVICAL *Nerves*, are seven pair of nerves, so called, as having their origin in the *cervix*, or neck.—See *Tab. Anat. Offteol. fig. 6. lit. dd.*

They are thus called from *cervix*, neck.

The first pair arises between the first and second *vertebræ* of the neck; and, contrary to the rest, comes out before and behind: whereas the other six pair come out laterally from the interstices of the *muscles*, through particular perforations: this first pair goes to the muscles of the head and ear. The second pair, according to Dr. Willis, constitutes the main branch towards the formation of the diaphragmatic nerves; which, according to Vieussens, spring only from the fourth and fifth pair. The three last pair, joining with the two first of the *intercostal nerves*, make the brachial nerves. All the *cervical nerves* send innumerable branches to the muscles, and other parts of the head, neck, and shoulders.

CERVICAL *Veins*, among *Anatomists*, denote the external veins, &c. which pass through the *vertebræ* and muscles of the neck, up to the skull. See SCHELVIAN and VERTEBRAL *vein*.

CERVICALES *Descendentes*, a pair of muscles, antagonists to the *splenii colli*, coming from the third, fourth, fifth, and sixth vertebræ of the neck.

Bidloo and others reckon three, though improperly, a production and part of the *rare muscles*.

CERVICARIA, in *Botany*, a term used by some authors to denote the *plantago* of the shops, or lesser *Asbestos* of Theophrastus.

CERVICARIA is also a name given by some to the *trachelium*.

CERVICEM *flectentium primus*, in *Anatomy*, a name given by Spigelius, and some others, to a muscle of the neck called by Cowper, Winslow, and Albinus, by a much shorter name, the *longus colli*.

CERVICIS *tertius*, in *Anatomy*, a name given by Fallopius and others, to a muscle called by Albinus *transversalis cervicis*; and by Winslow, *transversalis magnus*.

CERVIX, in *Anatomy*, properly denotes the hind part of the neck; as contradistinguished from the fore part, which is called *jugulum*, or the throat.

CERVIX *of the* SCAPULA, denotes the head of the shoulder-blade, or that upper process which first receives the head of the *humerus*.

CERVIX *of the Uterus*, the neck of the uterus, or that oblong canal, or passage between the internal and external orifices, which receives, and includes the penis like a sheath; whence it is also called VAGINA.

The *cervix uteri*, in maids, is very narrow, except in the time of the *menses*; from when, caused to admit a genital spirit to insue: except it is called *gustum veneream*, which is kept locked up with a kind of glutinous matter, issuing from the glands about it.

CERUMEN, a tough, viscous, bitter, excrementitious humour, separated from the blood by proper glands placed in the meatus *auditorius*, or outer passage of the EAR.

This is also called *cerumen auricum*, in English, EAR-WAX. See an account of experiments on *cerumen*, to discover the best method of dissolving it, with the cause of deafness. Lond. Medic. Observ. &c. vol. iv. p. 198.

It is by some ranked in the class of medicines; especially that species of it obtained from the human ears, and which is used both internally and externally.

CERUSSE, CERUSE, a white calx of LEAD, used in painting, and cosmetics; made by calcining that metal, in the vapour of vinegar.

Ceruse is made of thin lamiæ, or plates of lead, made up into rolls, and so placed as to receive and imbibe the fumes of vinegar, contained in a vessel set over a moderate fire.

The lamiæ are thus converted into a white rust; which is gathered together, and ground up with water, and formed into little cakes. Cleaver shews how to make a sort of *ceruse* of tin and urine.

Ceruse makes a beautiful white colour, and is much used by the painters, both in oil and water colours. It makes the principal ingredient in the paste used by the ladies for the complexion. Taken inwardly, it is a dangerous poison; it soon shews its malignity, spoiling the breath and teeth, and hastening wrinkles, and all the symptoms of old age. Even the external use of it as a paint or enamel, for it is said that it has been so used, is attended with very disagreeable, and, in the end, with fatal consequences. Its effects in nervous disorders are terrible; witness the case of Mr. Butler at Moscow. See a curious account of it, in the Phil. Trans. vol. 1. part 1. N° 2. and vol. iv. N° 2. an. 1760.

Cerussa is the only white hitherto found fit for painting in; the discovery of some other white for this purpose is desirable, not only from the faults of *cerussa* as a paint, but also from its injuring the health of its manufacturers, and producing a dreadful disease, which has cost all its preparations frequently occasion, called the COLIC *of painters*, or the COLIC *of Poitou*.

Cerussa, like the other preparations of lead, is drying, sedative, and astringent: as such it is employed, both externally; it is an ingredient in many cosmetics, plasters, and other pharmaceutical preparations designed for external application.

The best *cerussa* is that of Venice; but that is very rarely used, its either English or Dutch, both of which have more chalk in them than VENICE, and the latter, however is the better of the two.

The manner of preparing *cerussa* in quantities at Venice, is described by M. Phil. Vendelin. The plates for this purpose are large, and about the thickness of a knife's back, and rolled up, but so as that the surfaces may not touch. Each roll is put in a separate pot; wherein it is raised by a little bit from the bottom, that it may not touch the vinegar, which is then put into the pot, to effect the conversion. The pots are then covered with a plate of lead as close as may be, and over this with a board; after which they are let down into a bed of horse-dung, big enough to contain four hundred pots. After three weeks continuance the pots are taken up, the plates unrolled, laid on a board, and beaten with knives: till all the flakes come off; which, when they proved good, are hard, thick, and weighty; when otherwise, porous and light, and sometimes black or burned. If the dung proves not well ordered (sometimes also there will be no flakes, or *cerussa* at all. From the beating table it is carried to the mill, ground with water between two stones to an almost impalpable fineness: lastly, it is moulded into small parcels, and exposed to the sun to dry, and harden for use. Vervaux, in Phil. Transf. N° 138. p. 935, &c.

The Chinese make an use of this preparation of lead, which it is safest to see the advantages of, than to comprehend the manner in which they are brought about. The China vessels, when they have been baked and fitted as to the matter, and even covered with their varnish, will yet receive into their very substance, the colours which those people mix up with an addition of *cerussa*, and, as some of the old assayers say, of copperas and salt-petre; but though these latter ingredients had used to be added, the *cerussa* alone supplies their place at this time, as well in very many others. It would be worth while to try an admixture of *cerussa* with the colours used in painting on glass; there, after a second baking, might perhaps be found to incorporate itself in the same manner that it does in China ware, and recover the long secret of fixing in the strongest colours, without hurting the transparence.

CERUSSE *of antimony*. See ANTIMONY.

CERVULA, or CERVULUS, in *Roman Superstitions*, a kind of sport, celebrated by Pagans, and after their example by the Christians, on New-Year's Day; when they ran about in masquerade, dressed in imitation of deers, and other beasts. We find divers councils against the observance of this ceremony. Even bishops were censured, and fasting prescribed, for that day, ad *celebrandum gentilium conjectationem*. Du-Cange.

CERVUS. See STAG.

CERVUS *volans*, in *Natural History*, among the writers to the fly-fly, or flag horned beetle, a very large species of beetle with horns shaped, and somewhat like those of a stag. It is of a blackish colour, and its horns are usually of the same colour; though in some of a purplish cast, and in some few they have been found of the colour of red coral. They are an inch and half or more in length, when full grown.

This is the kind of flag-beetle usually found in Essex, and some other countries; but besides this we have another species, which is produced of a beautiful green, found in the old wood. This species is not a fourth black than the former, and its horns tend out only in front.

CERVUS, in *Natural History*, a name by which Pliny, and other old authors, have called the shell-fishes of the buccinum genus distinguished under the names of MURICES, PURPURÆ, and MURICES. Hist. Nat. Lassi. p. 282.

CERYX, in *Antiquity*. The *ceryces* were a sort of public

ministers, appointed to proclaim, or publish things related in assemblies.

The *heryx* among the Greeks answered to the TRIBUNE among the Romans.

Our *criers* have only a small part of their office and authority.

There were two kinds of *criers*, *civil* and *sacred*.

CRIERS, *civil*, those appointed to call assemblies, and make silence therein; also to go on messages, and do the office of our beadles, &c.

CRIERS, *sacred*, were a sort of priests, whose office was to proclaim silence in the public games, and sacrifices, publish the names of the conquerors, proclaim feasts, and the like.

The priesthood of the *heryces* was annexed to a particular family, the descendants of Ceryx, son of Eumolpius. To them it also belonged to lead solemn victims to slaughter.

Before the ceremonies began, they called silence in the assembly, by the formula, *Εὐφημεῖτε πάντες λαοὶ*, addressing to the *sacred heryces* of the Romans. When the *heryces* was over, they dismissed the people with the formula, *Ἄπιτε λαοὶ· Ἐξέστι οἴκαδε*.

CESAR. See CÆSAR.

CESARE, or *Esse*, a mode of syllogisms in the second figure, wherein the major propositions and conclusion are universal negatives, and the minor an universal affirmative. Such as,

CE *No man who lets go his country deserves praise.*
SA *Every captain must needs do so.*
RE *Therefore no man who lets go his country is virtuous.*

CESARIAN *letters*. See CÆSARIAN *letters*.

CESIS, in *Botany*, a name by which some authors express the common *lotus siliquosa*, *vulgaris*, *sativa*, or bird's-foot.

CESITTORE *pears*, in *Botany*, those which produce many stems from one root.

CESSAMPELUS, in *Botany*, a name given to a botanical species of *convolvulus*. See CONVOLVULUS.

CESSATION, the act of intermitting, discontinuing, or interrupting the course of any thing, work, action, or the like.

CESSATION *of arms*, or armistice, or occasional TRUCE. When the commander of a place finds things reduced to an extremity, so that he must either surrender, or sacrifice the garrison and inhabitants to the mercy of the enemy, he plants a white flag on the breach, or beats the chamade, on which a *cessation* of arms, and hostilities, takes place, to give opportunity for CAPITULATION.

CESSATION, *Ecclesiastical*, in the *Romish Church*, is a penalty inflicted for any notorious injury to the church; by putting a stop to all divine offices, and the solemn function of the sacraments, and by depriving Christians of their churchyard.

CESSAVIT, a writ which lies in divers cases upon the general ground, that he against whom it is brought, has for two years ceased or neglected to perform such services or pay such rent, as he is obliged so by his tenure, that no goods upon his lands or tenements fallen and chargeable can be distrained.

CESSER *bills*, are various; as, *replevin de catallis*, *de averiis*, *de homagio & fidelitate*, *de rationabili parte bonorum*, *de consuetudinibus & servitiis*, *replevin per vadium*.

CESSION, in *Civil Law*, an act whereby a person surrenders up, and transfers to another person, a right which he claims to himself.

Cession is a general term; the species whereof are, a *forisfacture*, *renunciation*, *transfer*, and *surrender*; which see.

CESSION is particularly used in the *Court Law*, for a voluntary and legal surrender of a person's effects to his creditors, to avoid imprisonment.

This practice still obtains in France, and other countries; and is done by virtue of letters patent granted in favour of the poor and honest. The *cession* originally carried with it a mark of infamy, and obliged the person to wear a green cap, or bonnet; at Lyons, an orange one: to neglect this, was to forfeit the privileges of the *cession*. This was originally intended to signify, that the cessionary was become poor through his own folly.

The Italian lawyers describe the ceremony of *cession* to consist in striking the bare breech three times against a stone, called *lapis vituperii*, in the presence of the judge. Formerly it consisted in giving up the girdle and keys in court; the ancients using to carry at their girdles the chief utensils where with they got their living; as the forrenger his escritoire, the merchant his bag, &c.

The form of *cession* among the ancient Romans and Gauls was as follows. The *cessionary* gathered up dust in his left hand, from the four corners of the house; and, shaking on the threshold, holding the door post in his right hand, threw the dust back over his shoulders; then slipping off his shoes, and untying his girdle and linen, he jumped with a pole over a hedge; thereby forsaking the world know, that he had nothing left, and that when he jumped, all he was worth was to the sky with him.

The judicial *cession* is that which is made by a merchant or trader, who is actually kept in prison by his creditors, and who being absolutely incapable to satisfy them, performs a cession of justice for peace to make offer. This judicial *cession* is certainly compulsive on the part of the creditors; since the debtor is commonly starved the benefit of a *cession*, by an order from the judge, notwithstanding the opposition made by the creditors to prevent it; which renders this *cession* more infamous than that which is voluntary.

CESSION, in the *Ecclesiastical Law*, is one manner of resigning or voiding an ecclesiastical benefice.

Cession is an implicit kind of resignation, understood where a person does some act, or takes on himself some charge, which is inconsistent with his holding the benefice he was before possessed of.

By the statute, if a clerk have one benefice of 8*l*. per annum value in the king's books, and take another, of what value soever, with cure of souls, and without dispensation, the former living is void; and this kind of voidance of a living is called *cession*.

What is called *cession* in the benefice, is called *renunciation* in relation to a bishoprick; for if the bishoprick be made a bishop, he renounces it and so he said to *cession*.

CESSIONARY, a PARSERIUS. Sometimes it denotes an ASSIGNEE.

CESSOR, in *Law*, one dilatory, and delinquent in his duty, or service; and who thereby incurs the danger of the law, and is liable to have the writ *cessavit* brought against him.

Where tithes, the tenant refuses, or neglects to do his duty, or service, to which he is bound.

CESTRATION, a work enamelled, or painted with a cestrum. The word is also written CESTRUCTION and *cestructum*.

CESTREUS, or *Sestreus*, the name of a fish of the mullet kind, but having a much smaller and narrower head and its sides variegated with much thinner longitudinal lines. It is eaten in many places, but is accounted much inferior to the mullet. See MULLET.

CESTRON, in *Antiquity*, the instrument wherewith they painted, or enamelled, in lines, or rows.

CESTROPHENDONA, in the *ancient Military Art*, a compound kind of dart, or missive weapon, headed with feathers like an arrow, and cast by a large thong, also called by the Macedonians, as their men under Perdicas, with the Romans.

The word is compounded of *κεστρὸς*, a sort of dart called by the Lesbians *κεστρεὺς*, and *φένδονη*, *funda*, a sling. Liv. lib. xl. p. 676.

CESTRUM, in *Botany*. See *Cestrum Jasmine*.

CESTUS, in the *Materia Medica* of the *ancients*, a name given to a plant of us mentioned, but very ill explained by us by the generality of writers.

CESTUI, a French term, literally signifying *he*, or *him*, frequently used in our law writings.

CESTUI *que Dieu*, he to whom land is given, &c. committed to another for his benefit.

CESTUI *que use*, one for whose use or benefit lands or tenements are granted.

CESTUI *que vie*, he to whose use another man is infeoffed in lands or tenements.

CESTUS, among *ancient Poets*, a sling embroidered girdle worn by Venus, endowed with a beauty of charming, and enchanting love.

The word is also written *cestus*, and *zostus*: it comes from *ζωννυμι*, *I gird*, or other thing embroidered, or wrought with a needle; derived, according to Servius, from *κεστος*, *pungere*; whence also *cestrum*, a term used at first for any instrument in working the girdle, &c. but now restrained to that between persons near akin. See DIET.

CESTUS, in *Antiquity*. See CESTUS.

CÉSURE, or CESURA, in *Poetry*. See CÆSURA.

CETACEOUS, in *Natural History*, a term applied to all large sea-fishes, and beasts, which bear a resemblance to the WHALE.

The word is formed of *κητος*, *a whale*.

Cetacean, in a stricter sense, denotes only those large fish which are viviparous, or breed their young within their own bodies; and have no gills, but lungs, with which they breath like quadrupeds; having but one pair of fins, and giving suck to their young. Hought. Collect. N° 531. tom. iii. p. 272, & seq.

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These scarce differ in any thing from *quadrupeds*, except the want of feet. They have no *diaphragm*; but are enabled by the air they receive into the lungs in respiration, to render their bodies equiponderant to water. *Cetacea*, in the ordinary use, is extended to all larger fish, called by the Latins *belua marina*, or sea beasts.

In which view, *cetaceous* fishes are divided into *greater*, including the whole kind, properly so called; and *lesser*, to which belong the porpus, shark, dog-fish, &c.

These latter are more properly called *cartilaginous* fishes.

The sea-fox is ranked by authors in the richest *cartilaginous* fishes, one that, called also SEA-WOLF; whose specific difference consists in this, that they have two livers, five gills, or *branchiæ*, on each side, and rays hanging from the fins, which in the males are under the belly on each side the navel.

Of the *cetaceous* kind, properly so called, there are divers species; some without teeth, or tube to call up water; others with teeth and a water-tube; and others with a large long horn.

The horn usually called the *unicorn's horn*, is found to be the tooth of a *cetaceous* fish in the icy sea, called *narwal*.

CETERACH, in *Botany*, an officinal, agglutinant plant; the same with what is otherwise denominated *asplenium* and *scolopendrium*.

This plant stands recommended as an excellent diuretic and promoter of the *menses*. The whole plant is to be used, and should be gathered in the month of September. It is given by some in jaundices, in quartan agues, and in obstructions of the spleen; but is much neglected in the present practice. In some parts of Essex, where it is common on the walls of their churches, and on the combs in the chalk-pits, the common people tell us wonders of its effects in the stone.

CETERIS *paribus*. See CATERIS *paribus*.

CETRA, in *Antiquity*, a small leathern shield, used by the ancient Spaniards, Moors, and even Britons.

The African *cetræ* are said by Pliny to have been impenetrable, and made of elephants skins.

The *cetra* was much the same with the PELTA. Whence Livy calls the Macedonians *pelligeri, cetrati*.

CETUS, in *Astronomy*, the *Whale*; a large constellation of the southern hemisphere, under Pisces, and next the stars of Aquarius.

The stars in the constellation *Cetus*, in Ptolemy's Catalogue, are twenty-two; in Tycho's twenty-one; in Hevelius's, forty-five; in the Britannic Catalogue, ninety-seven. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow.

Names and Situations of the stars.	Mag.	Longit.	Latitude	Variation
		♈ ° ′	° ′	″
Of those in triangle prec. the tail, by Ptolemy ranked among the asterisms of Aquarius.	Mag.	♓ 28 37	9 24	6
	4	29 25	37 16	6
	4	22 20	40 10	6
	4	26 29	45 3	6
	4	26 44	35 3	6
5.			9 54	6
Nau. fou.	6	21 57	22 15	6
	6	21 14	22 18	6
North. in the extrem. of the tail.	5	29 55	0 10	6
	5	25 56	22 23	6
	5	♉ 1 25	50 1	6
15.			42	6
		2 5	16 3	6
		6	59 2	6
		2	37 0	6
		2 18	22 0	6
		3	47 28	6
		3	56 51	6
Bright. and south. of the tail		8	19 20	6
25.			45 10	6
		♓ 28	13 7	6
N. of the pore, in the ☐ in the rear of the tail	N.	♈ 1	33 34	6
		0	54 8	6
S. of the preceding side of the ☐		2	57 0	6
		3	25 18	6
			17 50	6
30.			40	6
		4	40 46	6
S. of the following side		4	2 32	6
		4	37 58	6
		0	20 24	6
		11	56 19	6
45.			48 29	6
		10	0 38	6
		6	48 0	6
		6	58 40	6
		12	3 10	6
			49 16	6
		7	23 58	6
50.			15 39	6
Prec. in the poster. part of the body		7	25 28	6
		7	20 16	6

Names and Situations of the stars.	Mag.	Longit.	Latitude	Variation
		♈ ° ′	° ′	″
		10 53	0 40	6
		11 22	3 9	6
		13 21	15 4 30	6
35.				
		0 48	3 53	6
		0 45	4 42	6
		12 53	5 6	6
		12 53	5 56	6
		13 34	10 9	6
40.				
		16 35	15 14	6
		13 56	15 3	6
		14 35	20 8	6
		11 15	0 13	6
Sushi. in the poster. part of the body		17 53	12 18	6
45.				
		9 30	16 21	6
		13 36	16 16	6
		10 54	17 20	6
		7 31	14 38	6
		7 47	15 37	6
		7 37	17 41	6
		12 45	13 58	6
50.				
Mid. of the middle of the body		21 10	18 4	6
Centr. to the north. in the body		13 36	16 16	6
		17 0	18 10	6
North. in the middle of the body		15	0 18	6
		17 30	18 41	6
55.				
South. in the middle of the body		13 53	19 3	6
		15 8	19 47	6
		13 3	19 13	6
Another, and more south		14 4	18 3	6
		12 22	14 17	6
60.				
		14 21	12 10	6
		14 50	8 14	6
		25 28	10 14	6
		20 15	5 54	6
Preced. in the crest		19 42	3 6	6
65.				
		25 45	20 14	6
		27 30	17 18	6
		28 50	22 3	6
		28 30	24 14	6
70.				
Prec. south. in the ☐ of the breast		28 37	3 46	6
Subleq. of two in the crest		25 22	0 25	6
		♈ 15	7 55	6
		16	15 37	6
		16	2 39	6
75.				
South. prec. in the ☐ of the breast		♈ 15	45 2	6
		19	15 31	6
Against the eye brow		23	3 3	6
		0	55 37	6
		19	34 34	6
80.				
Prec. in the mouth against the Chest		8	5 32	6
N. of those following in the square of the breast		♈ 29	0 15	6
		8	7 28	6
85.				
In the middle of the mouth		7	5 7	6
That against the forehead		7	8 54	6
		8	20 52	6
South. of those that follow in the square of the breast		♈ 10	24 32	6
90.				
That against the nostrils		8	10 45	6
Bright star of the jaw			9 50	6
			12 5	6
			11 0	6
		12	50 33	6
95.				
Inform. following the bright star of the jaw		18	57 38	6
		♈ 14	30 2	6

In the mandible of *Cetus* is a variable star, which appears and disappears periodically, passing through the several degrees of magnitude, both increasing and diminishing, in about 333 days. Hevel. in Phil. Transf. N° 69. p. 2028. Maraldi, in Mem. Acad. Scienc. an. 1704. p. 172, &c.

CETOS, in *Ichthyology*. See WHALE.

CEVADILLA, in *Botany*, a name used by some authors for the *sabadilla cauliflora Indica*, or Indian caustic barley.

CEURAWATH, the name of a particular sect of Banians in the East Indies, who hold the metempsychosis such so much superstition, that they will not kill the least insect: their priests carry a piece of linen over their mouth, that no flies may enter. All the other sects of Banians have an aversion for this; and continually exhort their auditors to shun all discourse and conversation with them. See BANIANS.

CHA, in *Commerce*, a silk stuff very thin and light, made in China, which most commonly serves the inhabitants for a summer cloth; it is somewhat like our taffaties or lutestrings.

CHAA, in *Botany*, a name given by some authors to the SENSITIVE.

CHABNAM, or KOARA, in *Commerce*, a kind of muslin or cotton linen, very clear and fine: it comes from the East Indies, particularly from Bengal.

CHACE. See CHASE.

CHACING. See CHASING.

CHACK, in the *Manege*, is often in the same sense as *bearing the hand*; it is applied to a horse when his head is not steady, but he tosses up his nose, and flashes with a shaking to avoid the subjection of the bridle.

Horses have this fault frequently. We say, they bear upon the hand; and mention the best bits, nor the best hand, can cure the shaft horse. Coarse, or Cranian horses, are also subject to rest upon the hand, which proceeds from this, that their bars are too sharp and edged, be edged, so that they cannot bear the pressure of a bit, though ever so gentle. If a horse had not too sensible, or too tender a mouth, he would not bear upon the hand: for in order to rest and secure his head, you need only to put under his nose-band a small flat band of iron, bent arch-wise, which answers to a martingale. This will hinder him to bear upon the hand, but will not break him of the habit; for as soon as the martingale is taken off, he will fall into the same vice again.

CHACONE, or CHACONA, a kind of dance, in manner of a passacaille, borrowed from the Spaniards, and by them from the Moors. The last always consists of four notes, with three crotchets to a bar, which proceed in continued descendants wherein they make divers excursions and quavers, with the same burden.

The word is formed of the Spanish *chacona*, which may probably be derived from the Italian *ciacola*, a *song*, tune, intimating that this might have been a royal dance; but, as others pretend, from the Italian *ciacco*, a blunt man, the ignorant.

CHADCHOD, in *Natural Philosophy*, a term sometimes applied among the several meteorological notes which were brought to Pyra. The old interpreters are very well knowing the meaning of this word, continued to us by their translation. Sir Isaac acknowledges that he could not observe the significations of it. The Chaldee interpreter, it seems, renders it carbuncle; the Arabic, ruby, carbuncle; and the Septuagint, emerald; by the Ezek. chap. xxviii. ver. 13. Calmet. Dict. publ. by Rees.

CHALL, nonsense. See CHARA circus.

CHALLOUYLLAM, in *Botany*. See CHARAIL.

CHÆRUS, in *Entomology*, a name given by Strabo, and some other of the Greek writers, to the fly we now call the CHRYSIS. Rondeletius and Salvian were the first who properly examined this fly. See GOLD-FLY.

CHÆTIA, in *Botany*, the name of a species of mitella of the *cistoides* kind, without any visible limbs.

The *cistoides* resembles a hair, or a piece of fine thread; its surface is smooth, its body rounded, and very slender. It is called in English the hair-worm. Hill's Hist. Anim. p. 14.

CHÆTODON, in *Ichthyology*, the name of a genus of the *acanthopterygious* or thorny fishes; the characters of which are these: the branchiostege membrane on each side contains five or six small bones; the body is compressed, broad, thin, and short; the back has but one fin, which reaches all along it: the tail is large, and there are in all six fins besides it: the mouth is small: the lips may be opened and extended, but naturally they cover a part of the teeth: the teeth in the jaws are oblong, contiguous to each other, and slender: the holes we ought to see the eyes are not covered with the skin of the head. There are several species.

The name is derived from *χαιτη*, a *hair*, and *οδους*, a *tooth*; and expresses that the teeth may be divided into fine and fine-pointed, resembling bristles.

CHAFE, or CHAFING *of a rope*, in the *Language*, is that of a rope that is galled or fretted, or when the rope runs against any object.

The easy or *chafing* to the handy signifies that it is fretted or begins to be worn out there.

CHAFE-*Wax*, or CHANCERY-*Wax*, an officer in CHANCERY, whose business is to fit the wax for the sealing of writs, patents, and other instruments there drawn.

CHAFF, in *Husbandry*, the husks of the corn, separated by threshing or winnowing it. It signifies also the straw of corn; and Arabic gum itself for the use of cattle.

CHAFFER, in *Zoology*, a species of beetle. See SCARABÆUS.

CHAFFERCONNERS, in *Commerce*, petted linens manufactured in the Great Mogul's dominions. They are imported by the way of Surat; and are of the number of those linens prohibited in France.

CHAFFERS, in our *Statutes*, from to Lately wares or merchandize. 3 Edw. IV. c. 4.

The original French of the statute is *chaffers*.

CHAFFERY, or CHAFFEY, in the *Iron-Works*, the name of one of the two principal forges. The other is called the *finery*. Where the iron has been wrought at the finery, that work is called the finery of Osmond, made commonly out of the iron as it comes from the mine, but sometimes out of iron made with the Spanish, or the Swedish iron. The Spanish iron is the best for the making the white iron, and the Swedish for the making the black iron. See the articles FINERY and IRON.

CHAFFRON, in *Heraldry*, a species of the CRESCENT, with a Gargoinean head; the wings black, figured with white.

CHAFRELL, or CHAFRE, in *Carpentry*. See CHAMFERING.

CHAIN, *Catena*, a series of several rings, or links, united into one piece.

There are chains of divers matter, size, form, and for divers uses.—Poets, divines, and moralists are wont with much rhetoric to represent the ties by which they chain their slaves, and captives.

The arms of the kingdom of Navarre are *Chains in a field gules*. The occasion thereof is related to be the kings of Spain besieged against the Moors, who having gained a considerable victory against them in Spain, in the unfortunate battle of Tolofa, the magnanimous king of Navarre with fell to the king of Arragon's to bring the first that breach and filled the chains thereof.

CHAIN, *Catena*, is one of the ornaments or badges of the dignity of a lord mayor of London, and remains to the present, after his being installed of that magistracy, as a mark that he has passed the mayor.

Something like this, Chelonis observes, obtained among the ancient Greeks: the principal ornaments of their people in power and authority was a gold chain, which they wore on all occasions; and even in battle, to distinguish them from the common soldiers. Hist. de Daupk. lib. iii. p. 190.

CHAIN *also* denotes a kind of fishing, or rather snare, serving to take waterfowl, sweet-coats, and other valuable sort of game. The invention of this piece of curious work was owing to the English; whence, in foreign countries, it is denominated the *English snare*. It was some time before foreigners could be brought to imitate them, and at last were not even necessary than to make of Paris have obtained secrets. These chains were at first made of cords of divers colours, some of silk-grass, the thickness and size of each kind must be very exact.

For the fabric, or making of this CHAINEL, a part of the wire is folded into little links of as oval form as the largest diamond about three lines the shortest part. These, after they have been exactly fastened, are again folded into two; and then behind together, of which one, by means of several other little threads of the same make, fastened, which part from one end to the other, except the very at a little, and the ends which, are transferred, the wood. There are at last four threaded little links in a transverse line parallel, which are, by the person, bound to equal, and united to firmly together, that the are is decreased, and takes the whole to consist of one entire piece.

CHAIN is also a kind of measure in France, applied to forest-wood, thirteen of corn in eliminating the rythes, bars, and barrios. These measures are divided severally, according to the use for which they are intended.

CHAIN-*pump*. See PUMP, and *Sea*-PUMP.

CHAIN-*Shot*, or *Bar*, two bullets, or balls, half-bullets, linked together by a chain. These are so heated to shoot down masts, or sails, or to cut the rigging of a ship.

CHAIN, in *Seamanship*, is a MEASURE, consisting of a certain number of links of iron wire, usually a hundred; serving to take the dimensions of bulks, &c.

This is what Merlenne calls to be the *arpentation* of the seamen.

The links are of several dimensions, as the length respectively of their wires: that commonly used is measuring about one foot and a half, that is, an length four poles or perches, or fifty-six feet, or a hundred links; each link being seven inches.

Whence also is easy to reduce any number of thole links to feet, or any number of feet to links.

This chain is entirely adapted to English measures; and

its chief convenience is in finding readily the number contained in a given field. Where the proportions of square feet and acres differ, the chain is somewhat: Advantages as Gunter's chain and ought to be varied. Thus in Scotland, the chain ought to be of 24 feet or 24 Dutch ells, if we regard the rod to the difference between the Scotch and English foot; but if regard be had to this difference, the Scotch chain ought to consist of 24 English feet, or 24 feet 4 inches, and 240 an Scotch acre to 272 English acres. The chain being divided into a hundred links, each of these will be 8 inches. See FOOT and ACRE.

That ordinarily used for large distances is in length a hundred feet; each link one foot.

For small pieces, as gardens, &c. is sometimes used a small chain of one pole, or fifteen feet and a half length; each link one inch.

Some is fain of chains of ropes; but these are liable to several irregularities; both from the different degrees of moisture and of the force which stretches them. Schwenterus, in his Practical Geometry, tells us, he has observed a rope fifteen feet long, reduced to fifteen in an hour's time, by the ropes falling off a hook: To obviate these inconveniencies, Wolfius directs, that the three strands whereof the rope consists be twisted contrary ways, and the rope dipped in boiling hot oil; and when dry, drawn through melted wax. A rope thus prepared will not grow or lose any thing in length, even though kept under water all day.

Use of the CHAIN *in surveying.* — The manner of applying the chain in measuring grounds is too popular to need description. In entering down the dimensions taken by the chain, the odd links and fractions are separated by a dot; the figures being integers, and the latter decimals: thus a line forty three *chains* fifty-five links long, is written 43.55. If the links be most of ten, as rather is prefixed, thus 10 *chains*, 8 links, are written 10.08.

To find the area of a field, &c. the sides or diameter of are given in CHAINS *and links.* — Multiply the links by one another, according to the rules referred to under AREA; and from the product cut off two figures towards the right, which is nothing more than dividing by 10000, the number of square links in an acre: those remaining on the left will be acres. Lastly, Multiply the figures cut off by four, the number of roods in an acre; and cutting off two again from the product to the right, those remaining on the left will be roods. Lastly, Multiply the figures cut off by forty, the number of the square perches in an acre; and cutting off five, as before, on the right, those remaining on the left are square perches.

To draw an angle DAE *(Tab. Surveying, fig. 1.) by the* CHAIN. Measure a small distance from the vertex A along each line, as *a*, *a* and *e* then measure the distance *de*: to lay this down, draw A E as pleases, and from your scale lay off the distance measured on it. See SCALE.

Then taking in your compasses the length measured on the other side, set the centre A as a centre, describe an arch *de*; and on the point *a* as a centre, with the measured distance of *ae*, describe another arch *ab*. Through the point where this intersects the former arch, draw a line A D. So is the angle plotted; and its quantity, if required, may be measured on a line of chords. See GUNTER.

To take the plan or plot of any place. — As ABCDE *(fig. 2.) by the* CHAIN. Draw a rough sketch of the place by the eye; and measuring the several lines AB, BC, CD, DE, enter down the lengths on the respective lines; then if the plan is to be taken within-side of the place, instead of measuring triangles, as before, measure the diagonals A D, E B. Thus all the figure be reduced into three triangles, whose sides are all known, as in the former case; and may be laid down on paper, according to the method above.

If the plan be to be taken without-side the place, the angles must be taken: thus, with the angle BCD, produce the lines BC and CD to any certain equal distance, as *c*, *c* to *d* and *b*, five *chains*, and measure the distance of *d b*. Thus have you an isosceles triangle C *d b*, wherein the angle at C is = B C D in opposite one is had: thus is also quantity of BCD found, and the angle laid down as before.

By the CHAIN *to find the distance between two objects inaccessible in respect of each other.* — Fixon some place, as C *(fig. 3.)*, whence the common distance to each object A and B, is accessible in a right line; measure the distance CA, which suppose forty *chains*; and continue the line to D, viz. forty more; measure also BC, which suppose thirty *chains*; and produce the line to E, viz. thirty more. Thus will be formed the triangle CDE, equal and similar to the triangle ABC; consequently the distance DE, being measured, will give the inaccessible distance required.

By the CHAIN *to find the distance of an inaccessible object, N. by the breadth of a river.* — On one side place a pole, four or five feet high, perpendicularly, fixing a fix-peg, with a small piece of wire, or the like, two or three inches long, put through the same. This is to be slipped up or down, till, looking along it, you find it point full on the other side of the river; then turning the pole with the wire in the fame direction, observe the point on the dry land, to which it points when looked along as before: measure the distance from the pole to this last point; it is the same with that of the firft required.

CHAINA, *catena*, in *Ecclesiastical History*, denote collections of such theological opinions and scriptural interpretations, as had been received by the ancient doctors of the church. See CATENA.

CHAINE, *langue de*, a kind of punishment inflicted on malefactors. By 31 & 32 Geo. II. c. 37. the judge shall direct such to be executed on the next day but one, unless he see any intervening; and their bodies to be delivered to the surgeons to be dissected and anatomized: and he may direct them afterwards to be hung in chains. During the interval between sentence and execution, the prisoner shall be kept alone, and allowed only wholesome food and water. The judge, however, hath power to respite the execution, and relax the other restraints of the act. Blackft. Com. book iv. p. 20.

CHAINS, in *Shipbuilding*, are those irons by which the shrouds of the masts are made fast to the *chain-wales*. See CHAIN-WALES, and

CHAIN-WALES, in a ship, are the broad timbers which are made projecting horizontally from her sides, to which, with *chains*, the shrouds are fastened, and by them spread out, the better to secure the masts.

CHAIR, *Cathedra*, was anciently used for the pulpit, or stage from whence the priest spoke to the people.

It is still applied to the place whence professors and regents in universities deliver their lectures, and teach the sciences to their pupils: thus, we say, the professor's *chair*, the doctor's *chair*, &c.

CHAIR, *curule*, was an ivory seat placed on a car, wherein were seated the prime magistrates of Rome, and those to whom the honour of a triumph had been granted.

CHAISE, *fedan*, a vehicle supported by poles, wherein persons are carried, borne by two men. There are two hundred *chairs* allowed by act of parliament; and no person is obliged to pay for a hackney-chair, more than the rate allowed by the act for a hackney-coach drawn two third parts of the said distance. 9 Ann. c. 23. § 8. Their number is since increased by 10 Ann. c. 19. and 19 Geo. I. c. 12. to four hundred. See *Hackney-Coaches*.

CHAIR is also applied by the Romanists to certain feasts, held anciently in commemoration of the translation of the see, or seat of the vicarage of Christ, by St. Peter.

The *perforated chair*, wherein the new-elected pope is placed, F. Mabillon observes, is to be seen at Rome; but the origin thereof he does not attribute, as is commonly done, to the adventure of pope Joan; but says there is a mystery in it; and it is intended, forsooth, to explain to the pope those words of Scripture, that *God draws the poor from out of the duft and mire*.

CHAIRMAN, the PRESIDENT, or speaker of an assembly, company, &c.

We say, the *chairman* of a committee, &c.

CHAISE, a sort of light open chariot, or calash.

Aurelius Victor relates, that Trajan first introduced the use of post-*chaises*: but the invention is generally ascribed to Augustus; and was probably only improved by Trajan, and succeeding emperors. Gell. in Cod. Theodos. tom. iv. p. 366, &c.

CHALAZA, in *Botany* and the *Materia Medica*, is a name given by some writers to the fal gem.

CHALAZA, among *Naturalists*, a white knotty kind of string at each end of an EGG, formed of a plexus of the fibres of the membrane whereby the yolk and white are connected together.

Its use, according to Harvey, is to be as it were the poles of the microcosm, and the connexion of all the membranes twisted and knit together; whereby the liquors are not only conserved, each in its place, but also in its due position to the reft.

D'Acquet adds, that they also serve to keep one and the same part of the yolk uppermost, let the egg be turned which way it will; which is done by the following mechanism: the *chalazæ* are specifically heavier than the whites wherein they swim; and being braced to the membrane

membrane of the yolk, a little out of the axis, they make one side of the yolk to be heavier than the other. The yolk being thus by the chalazæ made buoyant, and kept swimming in the middle of the white, as in its most heavy side kept with the same side always uppermost, which uppermost side he imagines to be that wherein the cicatricula lies.

CHALAZIAS, in *Natural History*, the name of a small stone, described by Pliny and other ancient writers, and said to have been of the size and colour of a common hailstone, and of the hardness of the diamond. It was probably an other than the small pebble-crystals of the Indies, which are at this time frequent on the shores of rivers there, from the bigness of a large pea's head to that of a pea; and as they lie in great clusters together, without any other stones among them, they make a sort of coarse sand, which much resembles a cluster of hailstones.

CHALAZITES, in *Natural History*, a name given by some to the *chalazias*.

CHALCANTHUM, in *Natural History*, a name used by many authors to signify the substance called by others CHALCITIS.

Chalcanthum has been used as the generical name of a set of fossils, the characters of which are, that they are compounded of metallic salts, of a coarse and irregular structure, considerably hard, and naturally impure and opake; in which they differ from the native vitriols, which are fine, of a regular structure, and naturally pure and pellucid.

CHALCANTHUM, in *Medicine*, the same with VITRIOL.

Some have also used *chalcanthum* corruptly for COLCOTHAR, or VITRIOL *rubified*.

CHALCESTHUM *calcinum*, in the *Materia Medica*, a name given by some of the old Greek writers to the *melanteria*, a yellowish turbinate mineral, which turned black on being melted with common water.

CHALCIAS, in *Botany*, a genus of the *decandria monogynia* class, the calyx of which is separated into five segments, and the corolla bell-shaped, with unguiculated petals.

CHALCEDONIUS, the name of a medicine described by Galen, and directed by him to be infused into the ears, in inveterate disorders of that part.

CHALCEDONY. See CALCEDONY.

CHALCEDONY, in the *Glass Trade*. See GLASS-*chalcedony*.

CHALCEMBOLON, in *Antiquity*, a ship, the *rostrum* of which was of brass.

The word is compounded of χαλκος, *brass*, and εμβολον, *rostrum*.

CHALCHUS, in *Ichthyology*, a name given by the ancient Greeks to the fish which we call the DORYS. It seems to have obtained both these names from its colour; the one from the word *chalcus*, *brass*; and the other from *doris*, *gilded*.

CHALCIDIC, CHALCIDICUM, or CHALCEDONICUM, in the *Ancient Architecture*, a large magnificent hall belonging to a tribunal, or court of justice.

Festus says, it took its name from the city Chalcis; but he does not give the reason. Philander will have it to be the court, or tribunal, where affairs of money and coinage were regulated; so called from χαλκος, *brass*, and δικη, *justice*. Others say, the money was struck in it; and derive the word from χαλκος, and κοπτω, *beat*.

In Vitruvius, it is used for the academy of a MAGNIFICA in other of the ancient writers, for a hall, or apartment, where the heathens imagined their gods to eat.

CHALCIDICA *tuccia*, in *Zoology*, a sort of serpent, so called from its resemblance in colour to the calcedony.

Its bite is succeeded by a pallescid tumor, which has a kind of shining blackness at the margins. Drunk in wine, it cures its own bite, according to Paulus Ægineta. It is also called *cybe*.

CHALCIDICUM, in *Antiquity*, sometimes denoted a dining-room. See CHALCIDIC.

CHALCIS, in *Ichthyology*, a name by which some have called the pilchard; called by others *harengus*, and *spratus sardinus*. See PILCHARD.

CHALCIS was also the name given by Aristotle, Ælian, Aspion, and the other Greek writers, to the common herring. See CLUPEA.

CHALCITARIUM, in the *Materia Medica of the Ancients*, a name given by the Greeks of the middle ages to the *colcothar*, or *chalcanthum*. Some have applied it to the CHALCITIS alone, but others make it express the vitriols in general. It is derived from the Arabian word *zacadar*.

CHALCITIS, a kind of vitriolic mineral, reddish like copper, friable, and having yellow shining veins within. It has the taste of the blue vitriol of copper, and dissolves very readily in aqueous liquors. There are two other minerals, called *sory* and *fory*, very much like the *chalcitis*. In effect, the ancients confounded them together; and not only the *sory* and *fory*, but also the MELANTERIA, or rather, they imagined a successive transmutation of the four minerals, which they called *chalcitis*, then *melanteria*, then *sory*, then *misy*, and lastly *fory*, where it fixed. The generality have esteemed it one of the last fossils of the sections, though no name but *misy* stands in the prescription for the various decoctions. This is however, as appears on opening it, the only one of the fossils of the ancients being yet evident, and in the Turkish dominions commonly known, and in frequent use as a medicine. The Turks calinat it in a losing fire, and afterwards give it internally as a powerful astringent; and, it is said, with great success.

There is no doubt but that this is the very substance described by the ancient Greeks, under the name *chalcitis*, the description of Dioscorides perfectly agreeing with, and very well expressing it. The antiseptic nature of the more slightly corrosive medicines, and consequently the external use of it in collyriums, and in lenitives, as an astringent, and in the herpes. But the ancients seem not to have known the use of it internally to exalt us in those times; though among the Romans it was well known also in external preparations, and made an ingredient in the famous *theriaca Andromachi*.

The moderns make three different mixtures; though the chief difference between these is supposed to lie in the different quality or goodness of their substance.

Some say, the MISY is formed on the *chalcitis*, as verdegrise on copper, being properly its rust; and that *melanteria* is formed in the same manner on the MISY.

This is certain, they are all found in copper mines; but the modern druggists know little or any of them.

The *chalcitis* is brought from Germany; it is very sanative and escharotic. Its chief use is in the composition of Venice treacle: to this of it is frequently substituted chalcanthum purified, or colcothar.

Chalcitis and *melanteria* were of the same signification, they expressed a metallic mineral, which Vitruvius tells us was yellow. It was of kinds of what he calls *sandyx*, or *sandaracha*, and very resembling all the various minerals in general: the other *sandyx* was of two sorts, the one pale, which was white; the other dusky, which was green and the rest, which was red.

CHALCOGRAPHY, the ART of ENGRAVING on copper and brass.

CHALCOLIBANON, a word mentioned in the Apocalypse of St John, and very much misunderstood by the interpreters, who generally render it *brass*; but the word will bear no such significations. When the name of a metal is prefixed to some other word, it only denotes the thing mentioned after the metal to be of the colour of that metal. This word is formed of χαλκος, *brass*, and λιβανος, *frankincense*. We have many parallel compounds, and all underlined in the same way, the name of the metal only expressing the thing to be of its colour; thus *chrysanthe* are apples of the colour of gold, &c. This, therefore, can only signify frankincense of the colour of brass, that is, yellow.

CHALCOMUIA, the *brass fly*, in *Natural History*, the name of a fly, whose wings are of the colour of polished brass. It is of the carnivorous kind, feeding on other flies, beetles, and on the bodies of serpents, when dead; whence it has been also called by some *pabulatrix*; others have called it *aurata*.

CHALCOPHTHONGUS, in *Natural History*, a word used by Pliny, and other writers, as the name of a peculiar species of marble, which was very hard, and of a deep black colour, and when struck upon, sounded like brass.

CHALCOSMARAGDUS, in *Natural History*, a name given by the ancients to what they called a species of the emerald, found about the copper mines of the island of Cyprus, and of a dusky appearance, and veined with yellow.

The ancients were very indiscriminate in the characters of the gems, and one or other of them have called almost every green thing in the world emerald. This was probably but a dusky green spar, or spatial tinged with copper, and such as we daily find about our own copper mines.

CHALCUS, among the *ancient Greek Physicians*, a weight of about two grains, the same as *acrinus* or *oxalion*.

CHALDEE, or CHALDAIC *Language*, that spoken by the Chaldæans, or people of Chaldea.

The Chaldee is a dialect of the Hebrew.

CHALDEE *Paraphrase*, in the Rabbinical style, is called TARGUM.

There are three *Chaldee* paraphrases in Walton's Polyglott; viz. that of Onkelos, that of Jonathan son of Uzziel, and that of Jerusalem.

CHALDRON, CHALDER, or CHAUDRON *of coals*, a very English measure, consisting of thirty-six bushels heaped up according to the sealed bushel kept at Guildhall, London.

The

The *chalders* should weigh two thousand pounds.—On Ship-board, twenty-one *chalders* of coals are allowed to the *lasts*. See COAL.

CHALEH, in the botanical writings of the ancient Arabs, the name of a tree often occurring, and seldom explained.

The best account we have of the *chaleh* or *sidr*, is in the writings of Prosper Alpinus on the Egyptian plants, who tells us, that it is a kind of willow, growing in Egypt and in Mesopotamia.

CHALICE, the cup, or vessel, used in administring the wine in the eucharist; and, by the Romanists, in the mass.

CHALICE, or *Cole-Stock*. See SHRUB.

CHALINOS, in *Anatomy*, the bit, or that part of a bridle which is put into the mouth of a horse. But it was, among the ancient physicians, also used to express that part of the cheeks, which, on each side, is contiguous to the angles of the mouth.

CHALIZA, in the *Jewish Customs*, the ceremony whereby a woman who is left a widow, pulls off her brother-in-law's shoes, who should espouse her, and by this means is allowed to be at liberty to marry whom she pleases.

The word signifies *extraction* or *rescue*.

CHALK, the white kind of substance usually reckoned a stone, but of a friable kind, which cannot therefore be polished as marble, &c. It is found also in powder, and has all the properties which characterise calcareous earths; but, by these observers, that, when examined by the hydrostatical balance, it is found to want much of the weight and consistence of a real stone: for that he thinks it more justly ranked among the earths.

This he observes to be the case, not only in *chalk*, but in various other bodies taken for granted to be stones; some wherein are nearer to earth than stones; others nothing but earth, sulphur, and salt, &c.

CHALK, *chalkes or marles*, called *Creta*, from the island of *Crete*, now Candia, where the best was formerly found, is of two sorts; the first, a hard, dry, strong *chalk*, used for making LIME: the other, a soft, unctuous *chalk*, used as manure lands.

The use of *chalk*, pulverised or made by way of levigature, is a very fine improvement for some sorts of land, especially the first time it is laid on: It changes the very nature of the soil, and makes it rich for a time; but it soon exhausts itself, and requires dunging to keep it in heart afterwards. A second dashing will prove of very little benefit to those lands which have been ever so well with the first, unless they have lain a long time to recover themselves after it. It is from hence that the farmers have their rule saying, that *chalk* makes a rich tenant, but a poor landlord.

The best method therefore in using *chalk*, is to mix one load of it with two loads of dung or mud; this will make it not only more sweet, but a lasting advantage to the ground. Or it is the best improvement for sour and cold lands, and is observed always to do much good to those lands that lie farthest off from any natural beds of it; the ground near *chalk*-beds partaking of their nature, though there is no *chalk* distinguished to them by the eye. The common method of *chalking* lands, is to lay twelve or fourteen load of *chalk* upon every acre, and this will sometimes make the land bring very rich crops for fourteen or fifteen years together.

It is best to *carry the chalk* upon a dry year or two before it is plowed up; by this means it will sweeten the surface of the earth, and will not work so much downwards, as it will if plowed up at first. It makes corn yield well; and when laid upon grass ground, it makes the grass sweet and rich; and the cattle that feed upon it grow fat soon. The cows also that feed in these pastures, are observed to give better milk than ordinary.

Chalk is found in large strata, chiefly in the South-east part of Britain: So that if a straight line was drawn on a map from Dorchester to the mouth of Norfolk, it would nearly include the *chalky* strata of this island; for no considerable quantity is dug beyond that line.

They have a very easy way of digging *chalk* in Kent. It lies on the sides of hills, and the workman undermines it as far as he thinks proper; then digging a trench at the top, at far distant from the edge as the undermining goes at bottom, they fill this with *water*, and that soaks through to the room of one night, and the whole falls down at once.

In other parts of the kingdom, *chalk* generally lies deeper, and they are often forced to dig for it in considerable depths, and draw it up in buckets; yet in these places, it lies cheap enough at the mouth of the pit to be worth buying, even to carry a great way, for manure. See SOIL.

Chalk raises an effervescence with acid liquors, and is therefore deservedly looked upon as an alcaline or absorbent earth. It is used with success to allay the too great acidity of the juices of the stomach, particularly in the disease commonly called the heart-burn; as also in vomits arising from a sharp phlegm, hæmorrhages, and is said to kill worms. In a word, the property of all alcaline earths is not only to absorb acidity, but readily by the acrimony of the humors, and vigorously to promote the violent motion of the blood, by dreaming the bile and sulphur thereof, in their fixed parts. Powdered *chalk* is given with milk, to prevent its growing acid on the stomach; and externally it is commended for drying wounds, ulcers, and fissures in the nipples. It is likewise used by ingenious bakers, and in the manufacture of glass, and other mechanical operations.

There are various kinds of *chalk*, usually distinguished by their different colours.

CHALK, *red*, and *yellow*. See MELIA.

CHALK, *black*, a light earthy substance, of a fine black colour, compact and laminated texture, and smooth surface. It is easily reduced into an impalpable fine powder, without having its colour in the least altered: with a reddish cast in the fire, and very friable; and it is neither diffolved, nor loses its colour, in acids. It seems to be of the dary bituminous kind. This substance is used for drawing black lines on paper, and in various ways very convenient for painters both in oil and water colours. This useful earth is said to come from Italy and Germany; but many parts of England and Wales furnish substances, nearly, if not entirely, of the same quality, and equally serviceable both for marking, and as a black paint. Such is the chalky substance called CRAYON. See Lewis's Commercium Phil. Techn. p. 328.

Wallerius says, that in Swedish mine-workings, a black earth is found as diffusible in water as indian ink.

CHALK, *brown*. See TRIPOLI.

French CHALK. See MOROCTHUS.

CHALK, *fungous*. See AGARIC *mineral*, and LAC *lunæ*.

CHALK, *red*, an earth much used by painters and artificers, and common in the colour-shops of London and elsewhere. It is properly an indurated clayey ochre, and is dug in Germany, Italy, Spain, and France, but in the greatest quantity in Flanders. Its characters, by which it is distinguished from other red earths, are these: it is of a fine, even, and firm texture; very heavy, and very hard; of a pale red on the outside; but when broken, of a deep dusky chocolate colour within. It adheres firmly to the tongue, is perfectly insipid to the taste, and makes no effervescence with acids. It makes excellent crayons, but does not mix with oil. It is used in Germany medicinally, in hæmorrhages, dysenteries, and other cases.

CHALK, *silver*, the English name of a kind of earth not properly a *chalk*. See ARGENTARIA *Creta*.

CHALK, *yellow*. See TRIPOLI.

CHALK-*stones*, in *Medicine*, a term used for the concretions of calcareous matter in the hands and feet of people violently afflicted with the gout. Leeuwenhoek has been at the pains of examining these by the microscope. He divides them into three parts. The first part he supposed of various small particles of matter, looking like grains of white sand: this is harder and closer, and also whiter than the rest. When examined with large magnifiers, these are found to be composed of oblong particles, laid orderly and evenly together: through the middle small stones are opake, their component parts of these are pellucid, and resemble plates of horn in their first, only that they are somewhat pointed at both ends. These are so extremely thin, that Mr. Leeuwenhoek computes that a thousand of them placed together would not amount to the size of one hair of an horse's tail. The white stones in the harder part of the chalk are not composed of these particles, but there are confusedly thrown among them some darker parts of other substances, and here and there some globules of blood, and small remains of other parts.

The second kind of *chalky* matter is less hard and less white than the former, and is composed of fragments of irregular parts of their oblong figures which compose the first or hardest kind; and these are mixed among tough and clear matter, interspersed with the small and broken globules of blood discoverable in the former, but in much greater quantity.

And the third kind appeared to the naked eye, and when examined with glasses, is found to be more tough and clammy white matter, in which a great number of globules of blood are interspersed; these give it the red appearance it has. Phil. Trans. N° 288. p. 1066. See an account of a great quantity of *chalk* matter voided by a gouty person with his urine; and observations on the *chalk* of the joints of some gouty people, in the Mem. of the A. D. S. an. 1747. p. 56. and in the Coll. Acad. P. Ext. tom. 11. p. 80.

CHALKING, in our *Old Laws*, seems to be some duty laid on merchandize; what it was particularly we do not find:

fands: but in the rolls of parliament it is faid, the mentenance of the ſtaple require to be eaſed of divers new impoſitions, as *chalidge*, moniage, wharfage, &c.

CHALLENGE, a carol, or antiphon for a feaſt, or other commemoration.

The word *challenge* was originally tranſlated antiphon.

Challenge to fight, either by word or letter, or bearing ſuch *challenge*, are puniſhable, by fine and imprisonment; and if they arife from a duel, the offender ſhall forfeit all his goods to the crown, and be imprisoned two years. 2 Ann. cap. 14.

CHALLENGE, in *Law*, is an exception made to jurors who are returned to paſs on a trial.

Challenge to the array is taken inſide to the array, or to the poll: in the array, as when the whole number is excepted againſt, as partially impannelled. If the ſheriff be of affinity to either of the parties; or if any one or more of the jurors are returned at the nomination of either party, or for any other partiality, the array ſhall be quaſhed. To the poll, as when particulars are excepted againſt, as not indifferent.

Thoſe may be *challenged*, i. e. *Propter honoris reſpectum*, as when a lord of parliament is impannelled. 2. *Propter affectum*, as in the caſe of an alien born, which is defect of birth; or of a ſlave or bondman, which is defect of liberty; or in caſe of inſufficient eſtate. This latter exception has undergone ſeveral alterations by different ſtatutes: but by 4 and 5 W. and M. cap. 24. the qualification is 10 l. *per annum* in England, and 6 l. in Wales, either of freehold or copyhold lands; and by 3 Geo. II cap. 25. the holder of a leaſe for life, or for the term of one hundred years abſolute, of the clear yearly value of 10 l. *per annum*, is qualified to ſerve on juries. 3. *Propter affectum*, or on ſuſpicion of partiality: and this kind of *challenge* is *propter* or *to the favour*, in the former caſe the cauſe of ſuſpicion is obvious; and in the latter, when only ſome probable circumſtances of ſuſpicion are pleaded, which are to be determined by triors. 4. *Propter delictum*, or on account of ſome crime, which diſqualifies the juror, by affecting the credit, or conſtitution of freedom, felony, perjury, or conſpiracy; judgment of the pillory; bleeding or whipping; outlawry or excommunication; attaint of falſe verdict, or forgery, &c.

Challenge to the jurors, is alſo divided into *challenge principal*, and *challenge per cauſe*; i. e. upon cauſe or reaſon alleged.

Challenge principal, otherwiſe called *challenge peremptory*, is what the law allows without cauſe alleged; or further examination: thus, a priſoner at the bar, arraigned on felony, may peremptorily *challenge* twenty, one after another, alleging no cauſe but his own diſlike, and they muſt be ſet aſide, and new ones choſen in their room. 22 Hen. VIII. cap. 14. and 1 and 2 Ph. and Mar. cap. 10. In caſe of high treaſon, no *challenge peremptory* was formerly allowed; but by ſtat. 7 W. III. liberty is given *peremptorily* to *challenge* thirty-five.

Yet there ſeems to be a difference between *challenge principal* and *challenge peremptory*; the latter being only in matters criminal, and without any cauſe alleged; the former moſtly in civil caſes, and with alleging ſome ſuch cauſe, as being found trie, the law allows: v. g. if either party alleage, that one of the jurors is the ſon, brother, couſin, or tenant, of the other, the exception is good. Alſo in the plea of the death of a man, or in any action real or perſonal, where the debt or damages amount to forty ſhillings, it is a good *challenge* to a juror, that he cannot diſpend forty ſhillings *per annum* of freehold.

Challenge upon reaſon to cauſe, is when the party does alledge ſome ſuch exception as is ſufficient upon acknowledgement of the truth of it: v. g. if the ſon of the juror have married the daughter of the other party, or the like.

CHALLENGE, in *Hunting*. When hounds, at firſt finding the beaſt of their game, preſently open, and cry, the huntſman ſay *they challenge*.

CHALYBEATE, in *Medicine*, ſomething that partakes of the nature of ſteel, or iron; or that is impregnated with particles of thoſe metals. See MINERAL *waters*, and WINE.

Chalybeats act chiefly as abſorbents, and deobſtruents. Itm. M. Lemery obſerves, it a mixture of an oily ſubſtance with a metallic matter; but the oil is predominant in the mixture; and between the parts mixed are large pores. Hence iron becomes eaſily diſſolvable; and its oil eaſily diſengages itſelf: but when once decompounded, i. e. when once the oil is ſeparated from the pure, fern. ous, or metallic part, no diſſolvent has any effect on the ſame *mortuum*.

Hence appears the abſurdity of that common practice, of calcining iron to ſuch a degree, as to convert it into what the chemiſts call a *crocus*, or ſaffron. This operation muſt of neceſſity take away all, or moſt of the oily ſubſtance; and leave nothing but the indiſſoluble *terra mortua*. Thus all here ſeparated ſhould properly have been ſeparated by the heat of the ſtomach or ſerum, according to Mr. Lemery. It would have carried into the blood a more ſubtile balſamy juice: he obſerves alſo, that iron acts as an abſorbent, from the largeneſs of the pores, and the eaſe with which all kinds of ſalts, even groſſeſt ones, inſinuate themſelves into them: even ſea-water and urine are abſorbed ſtrongly. Farther, it is not all, that pervade acids enter iron; but in entering they alſo expel and expreſs the balſamy juice, which is alſo put in motion, and diſpoſed to be evacuated by the mineral heat. Thus is the doubly advantageous, both by the oil it ſtrengthens the blood withal, and by the ſalts it frees it from. The aſſent of the particles of a *chalybeat*, by their affinity, together with the motion they give the blood by their ſubtilneſs, make it not only preferable to moſt other medicaments, but alſo proper in other caſes eſpecially, where there is a viſcidity of the juices: the blood decompounded, and where the circulation is languid; as in moſt hectic and hypochondriac caſes.

CHAM, or KHAN, the title given to the ſovereign princes of Tartary.

The word in the Perſian, ſignifies *mighty lord*; in the Sclavonic, *emperor*. Spelman, in his Diſſertation on the Danith term of majeſty, *konig*, *king*, thinks the Tartarian *cham* may be well derived from it; whilſt, that in the North they ſay *kan*, *konne*, *konge*, *konnie*, &c. The term *cham* is alſo applied, among the Perſians, to the great lords of the court, and the governors of provinces.

CHAMA, in *Natural hiſtory*, the name of a large genus of bivalve ſhells, the characters of which are theſe: they are ufually ſmooth, though in ſome places a little rugoſe, and have in ſome few a number of ſpines. The valves of the ſhell are equal, ſolid, and convex, and the mouth gaping, not cloſing tail, and even in all parts, as in the order of fiſhes.

The fiſh contained in this genus of ſhells, have all a hot taſte like that of pepper, and inflame the mouth to a troubleſome manner. The Greeks have ſcarce called them ſhells and *ſcarpes*, and in ſome parts of the Levant nation they are called *angeons* and *gromboles*.

The ancients uſed the ſeveral ſpecies of this ſhell to engrave figures on; and as they chiefly wrought upon the ſeveral parts of the engraved figure the colours of the ſeveral coats of the ſhell, by cutting deeper or leſs deep into it. Thus they could give the ſkin of a man its natural white, and his garments a blue or a yellow, according to the nature of the ſpecies of ſhell they worked on. We find ſeveral of theſe antique works, and it is thought by ſome, that this was the firſt invention of that ſort of engraved gem, which we call *cameo*. The ſpecies of the *chama* are very numerous. *Vide* *Shells*, N°. 1.

CHAMADE, in *War*, a certain beat of a drum, or ſound of a trumpet, which is given the enemy as a ſignal, to inform them of ſome propoſition to be made to the commander, either to capitulate or have leave to bury their dead, make a truce, or the like.

Menage derives the word from the Italian *chiamata*, of *chiamare*, to cry.

CHAMÆSALANUS, in *Botany*, a name given by many of the Greek authors to the apios, from its having ſometimes tubers among its roots, buried under the ground. Some have explained the latter word as a name of the bulbocaſtanum, or earth-nut, but it is wrong to confound two roots of ſuch very different characters together; and it does not appear that the Greek authors of moſt ever uſed it in any other ſenſe but as the name of the apios.

The name pituloſpatha has indeed been given by ſome to the bulbocaſtanum roots, but it was a name founded on ignorance, and likely to produce great errors.

CHAMÆBOTOS, in the *Materia Medica*, the name given by ſome to the common dwarf-elder, or wallwort.

CHAMÆCERASUS, in *Botany*, the Heſperocyris. CHAMÆCERASUS is alſo uſed by Dioſcorides and ſome of the old naturaliſts, for the *alkekengi*, or what we call in the winter-cherry. It had this name from its fruit greatly reſembling a cherry, and the plant not growing up to a tree, but riſing only a little way from the ground. Care muſt be taken in reading the botanical writers, to diſtinguiſh when this plant is meant by the name *chamæceraſus*, and when the firſt.

CHAMÆCLEMA, in *Botany*, a name by which ſome authors have called the GROUND-ivy.

CHAMÆCRISTA, in *Botany*. See CASSIA.

CHAMÆDAPHNE, in *Botany*, a name by which Pliny, and ſome other authors, call the ſame *peraſtera*, or periwinkle, and others the ſpurge-laurel.

It is alſo uſed by Columna, and ſome other authors, for the

the bread-leaved *rupest*, commonly called the Alexandrian bay, LAURUS *Alexandrina*. See BUTCHER'S BROOM.

CHAMÆDAPHNE is also the name given by Buxbaum to a new genus of plants, not observed by former botanists, and found frequently in hilly places, in the northern parts of the world. The flowers consist of one leaf each, and are of the globose campaniform kind; the fruit is dry, and divided into five cells, and contains very numerous, and very small seeds, of a roundish shape; and the whole very small plant, in its manner of growth, much resembles our Sophani, in its manner of growth, much resembles our Solomon's seal. One thing very singular is observed in this plant, which is, that it retains its leaves all the winter, but throws them in the middle of summer. In the latter end of May and beginning of June, the flowers are seen to wither, and at this time there arise a number of new shoots from the axe of the lower leaves: these all rise up to bear leaves, and by the middle of July are well covered with them. In the mean time the old leaves fall off, and the stalks of the former year are left naked, except that they have the fruit on them. The new shoots have, besides leaves, the buds of the next year's flowers; and these so perfect, that on opening them the minute parts of the stamina may be perceived. In August and September, when the cold comes on, the leaves become blackish, and the whole plant seems to be decaying; but in the succeeding spring, as soon as the sun has appeared bright for a few days, the leaves re-assume their former green, the whole plant seems to revive, and is soon seen covered with flowers, and exhibiting a beautiful appearance. The stalks of the former year die down to the origin of these new ones; so that though the plant annually grows several inches in height, yet it is never the taller for its great age, as much dying of the height of a former year as is added anew from the succeeding one. Act. Petrop. vol. i. p. 243.

Buxbaum, who first discovered this plant, called it *chamædaphne*, the dwarf bay, from its low stature, and its resemblance to the common bay-tree in the shape of its leaves, which are oval and pointed. See ANDROMEDA.

CHAMÆDROPE, in *Botany*, a name given by some of the ancient writers to the common GERMANDER.

CHAMÆDRYS. See GERMANDER.

CHAMÆLEA, in *Botany*. See WITHY-wind.

CHAMÆLEON, in *Zoology*. See CAMELEON.

CHAMÆLEON, in *Astronomy*. See CAMELEON.

CHAMÆLEON-*thistle*, in *Botany*, the name of a kind of thistle of which there are two kinds described by Dioscorides, and others of the ancient Greeks, and called the white and the black *chamæleon* thistles. The white *chamæleon* is an innocent plant, its root esculent, and a gum which exsudates from it in the hot countries, not only innocent, but agreeable, the women using it to perfume their breath, and chewing it in their mouths as we do mastic.

It may seem strange to some to find this plant thus mentioned as a safe, esculent, and useful one; whereas Pliny and many other writers have declared it to be a poison. The later authors are to be excused in this, in having followed Pliny. The error of this author, who has misled the others, may be easily discovered by tracing his accounts up to the Greeks, from whom he borrowed the greater part of what we find in him, and whom he often, as in this case, has copied carelessly, and translated badly.

CHAMÆMORUS, in *Botany*, the name of a genus of plants, the characters of which are these: the flower consists of five leaves; and the fruit is composed of many seeds, in form of the mulberry.

There is only one species of this plant known, which grows on the tops of the highest hills in the north part of England, but cannot be cultivated in a garden by any art.

CHAMÆNERIUM, in *Botany*. See WILLOW *Herb*.

CHAMÆPITYS, in *Botany*, *Ground-pine*, a species of GERMANDER.

CHAMÆRIPHES, in *Botany*, a name given by Pontederus to a genus of plants called by Linnæus CHAMÆROPS.

CHAMÆRODODENDROS, *Dwarf Rose-bay*, a species of the KALMIA; according to Miller, and of the RHODODENDRON in the Linnæan system.

CHAMÆROPS. See *Dwarf-Palm*.

CHAMANIM, in the *Jewish Antiquities*, is the Hebrew name for that which the Greeks call *pyræia*, or *pyrethria*; and St. Jerom in Leviticus has translated *simulacra*, in Isaiah, *idola*. Lev. ch. xxvii. ver. 30. Isaiah, ch. xxvii. ver. 9.

These *chamanim* were, according to rabbi Solomon, idols exposed to the sun upon the tops of houses. Abenezra says, they were portable chapels or temples, made in form of chariots, in honour of the sun.

What the Greeks call *pyræia*, were temples consecrated to the sun and fire, wherein a perpetual fire was kept up. They were built upon eminences, and were large enclosures without covering, where the sun was worshipped. Herodotus and Strabo speak of them; and the Guebres or worshippers of fire in Persia and the Indies have still these *pyræia*. Strabo says, that in his time there were many of these temples to be seen in Cappadocia, consecrated to the goddess Anaitis, and the god Hermanus. Anaitis is, in all probability, the moon, and Hermanus the sun. Herod. lib. i. p. 87. Strab. lib. xv.

The word *chamanim* is derived from *chamar*, which signifies to warm. Calmet.

CHAMARIM, a word mentioned in several places of the Hebrew Bible, and generally translated *the priests of the idols*, or *priests clothed in black*, because *chamar* signifies *black*, or *obscure*.

Camar, in Arabic, signifies the *moon*. He is the same deity. Grotius thinks the Roman priests called *camilli*, came from the Hebrew *chamarim*. They, among the heathens, who sacrificed to the infernal gods, were destined to black.

CHAMÆXYLON, in *Botany*, a name by which some authors have called the *graphalium*, or CUDWEED.

CHAMBER, in *Building*, a member of a lodging, or piece of an apartment, ordinarily intended for sleeping in, and called by the Latins *cubiculum*.

The word comes from the Latin *camera*; and that, according to Nicod, from the Greek καμαρα, *camara*, or *carus*: the term *chamber* being originally confined to places arched over.

A complete apartment is to consist of a hall, antechamber, chamber, and cabinet.

As to the proportions of *chambers*, their length should be to the breadth as 1 to 1, or some small matter less, but ought never to exceed that proportion; and as for the height, it should be three fourths of the breadth. The height of the *chambers* of the second story, should be a twelfth part less than the height of those below them, if the height of the first story be fifteen feet, that of the second will be fourteen feet eight inches. As to the height of the third story, it should be only three fourths of the second.

In building bed-*chambers*, regard should be had as well to the situation of the bed, as to that of the chimney. For which reason, the chimney ought not to be placed just in the middle, but distant from it about two feet, or two and an half, in order to make room for the bed, which prevents this inequality from being discerned. See Bed-*Chamber*.

CHAMBER, *privy*.—*Gentlemen of the Privy*-CHAMBER are servants of the king, who are to wait and attend on him and the queen at court, and in their diversions, progresses, &c.

Six of these are appointed by the lord-chamberlain, together with a peer, and a matter of the ceremonies, to attend all ambassadors from crowned heads in their public entries. Their number is fifty.

Their institution is owing to king Henry VII. As a singular mark of favour, they are empowered to execute the king's verbal command, and without producing any written order; their person and character being deemed sufficient authority.

CHAMBER *of peers*, is used for the place where certain assemblies are held; also for the assemblies themselves.

Of these there are various kinds; some established for the administration of justice; others for matters of commerce, &c. Of the first kind among us was the

Star-CHAMBER. See COURT *of Star-Chamber*.

CHAMBER, *Imperial*, is a court of jurisdiction held anciently at Spires, but since transferred to Wetzlar; in which are determined the differences arising among the princes and cities of the empire.

It was at first ambulatory: in 1473, it was fixed at Augsburg, then removed to Frankfort, and thence to Worms; in 1527, afterwards it was removed to Nuremberg and Ratisbon; again to Worms and Nuremberg; and from this last to Ellingen; thence, in 1527, to Spires, where Charles V. rendered it sedentary, in 1530.

At its first institution it consisted of sixteen assessors; but the Reformation ensuing, occasioned the number to be increased: by the treaty of Osnabrug, in 1648, there were appointed fifty assessors; whereof twenty-four were to be protestants, and twenty-six catholics; besides five presidents, two of them protestants, the rest catholics.

As the princes and circles of the empire are not always ready in filling up the vacancies in this *chamber*, the number of the assessors is now reduced to fifteen.

This *chamber* has a right of judging by appeal, and is the last resort of all civil affairs of the states and subjects of the empire, in the same manner as the aulic council residing at Vienna. Processes are here almost endless, on account

account of the infinite number of ceremonies and formalities wherewith they are embarrassed.

The *imperial chamber* is frequently afraid to pronounce Sentence, for fear of exposing its awards to some disgrace, the princes sometimes not permitting such to be executed as displease them.

CHAMBER *of accounts*, is a sovereign court in France, where accounts are rendered of all the king's revenues; inventories and avowals thereof registered; oaths of fidelity taken, and other things relating to the finances transacted. The French have also

CHAMBERS, *ecclesiastical*, which judge, by appeal, of differences arising on the raising of tythes: of these *archiepiscopal chambers* there are nine; viz. at Paris, Bourdeaux, Rouen, Lyons, Tours, Thoulouse, Bourges, Pau, and Aix: they usually consist of the archbishop of the place, as president; other archbishops and bishops, a deputy of each of the dioceses, and three counsellors of parliament. The *chamber* chooses as many counsellors out of the clergy as it thinks proper; as also a promoter.

CHAMBER, *apostolical*, at Rome, is that wherein affairs relating to the revenues and domains of the church and the pope are transacted.

CHAMBER *of audience*, *or grand* CHAMBER, a jurisdiction in each parliament of France.

At the first institution of their parliament, there were two *chambers*, and two kinds of counsellors; the one the *grand chamber* for audiences, the counsellors wherein were called *peers*, who only judged; the other the *chamber of inquests*, the counsellors whereof were called *rapporteurs*; who only reported processes by writing.

CHAMBER, *directum*, is a court instituted in Old Spain, for the regulation of divers affairs relating to their commerce to the Spanish West Indies.

CHAMBER *of the edict*, or *Mi-party*, was a court established by virtue of the edicts of pacification, in favour of those of the reformed religion; wherein the number of judges of either religion were the same; and to which recourse was had in all affairs wherein any of the protestants were concerned. This *chamber* is now suppressed.

CHAMBER *of London*. See CHAMBERLAIN.

CHAMBER *of assurance*, in France, denotes a society of merchants and others, established by a decree of the council of state in 1668, for conducting the business of insuring: but in Holland, it signifies a court of justice, where causes relating to insurances are tried.

CHAMBER *of booksellers*, in Paris, denotes a society consisting of a syndic and assistants, elected by four delegates from the printers, and twelve from the booksellers, whose business is to superintend and regulate the trade of printing, and selling books, prints, &c. In the visitation of books, performed by at least three persons of the society, all libels against the honour of God, and the welfare of the state, and all books printed in violation of their regulations and privileges, are suppressed.

CHAMBERS *of commerce*, are assemblies of merchants and dealers, where they treat about matters relating to commerce. Of these there are several, established in most of the chief cities of France, by virtue of an arret of the 30th of August, 1701. Indeed there were some before this general establishment, particularly one at Marseilles, and another at Dunkirk.

CHAMBERS *of the king*, *regiæ cameræ*, in our old records, are used for the havens or ports of the kingdom.

CHAMBER, *in Mining*, is used for the place where the powder of a mine is lodged.

The *chamber of a mine* is a cavity of five or six cubic feet, generally made of a cubical form.

CHAMBER *of a mortar*, or *cannon*, is a cell, or cavity, at the bottom of the barrel, or chace, where the charge of powder is lodged.

The different form of the *chamber* is found by experiment to have an influence on the range of the piece. A cubical *chamber* carries the ball to a less distance than a circular one; and that less than a cylindrical one.

Mr. Robins, apprehending that the charge of powder is instantaneously fired, conceived, that no particular form of *chamber* can be of any advantage; and this seems to be a just conclusion from his theory. But professor Euler has advanced many strong objections to this theory; and he observes in the result, that the same quantity of powder will fire sooner in a globular space, than in a space of any other form: and accordingly recommends to make the cavity behind the ball as nearly globular as possible. See the True Principles of Gunnery investigated and explained, &c. 1777. p. 93.

Though *chambers* are now disused, Mr. Muller observes, that in large cannons they are an improvement not to be neglected; because pieces, having *chambers*, require a less charge than they would otherwise do; and he recommends a *chamber* in all pieces of twenty-four pound ball and upwards, whose diameter should be two thirds the diameter of the bore, and length equal to that diameter: See *Tak. Gunnery, fig.* 1. And he adds, that though this *chamber* contains but one-ninth part of the shot's weight of powder, yet the effect is sometimes nearly equal to that of a fourth part, which is sufficient in large pieces. Muller's Treat. of Artillery, p. 90.

CHAMBERS, *iron*, in a FIRE *ship*, are ten inches long, and 3 5 in diameter. They are bored to against a piece of wood fixed across the ports, and six into another a little higher. When loaded, they are almost filled with corned powder, and have a wooden tompion well driven into their muzzles. They are primed with a quick-match thrust through their vents into the powder, with a part of it hanging out. When the ship is fired, they blow open the ports; and the port-lids either fall downward, or are carried away, and thus give vent to the fire out of the sides of the ship.

CHAMBERDEKINS, in our *Old Statutes*, a denomination for certain Irish beggars, which by statute 1 Hen. V. cap. 7. and 8. were to leave England within a certain time. They were called in the statute *chamberdekens*, and said to be clerks mendicants. Blount says they are called *chamber-deacons* in the parliament-roll.

CHAMBERLAIN, an officer who has the management or direction of a chamber.

The word *chamberlain*, according to Ragueau, originally signified a gentleman who was to sleep in the king's bed-chamber, at his bed's feet, in the absence of the queen. There are almost as many kinds of *chamberlains* as chambers: the principal are as follow.

Lord great CHAMBERLAIN *of England*, an officer of great antiquity and honour; being ranked the fifth great officer of the crown: a considerable part of his function is at the coronation of a king; when he dresses him, carries the *coif*, sword, and gloves, to be used on that occasion; the gold sword and bolthond to be offered by the king; and the robe royal and crown: he also undresses him, and waits on him at dinner; having for his fee the king's bed, and all the furniture of his chamber, the night-apparel, and the silver bason wherein the king washes, with the towels.

To him likewise belongs the provision of every thing in the house of lords, in the time of parliament; to which end he has an apartment near the lords house. He has the government of the palace of Westminster, and issues out warrants for preparing, fitting out, and furnishing Westminster-hall, against coronations, trials of peers, &c.

He disposes of the sword of state, to be carried by whom he pleases; and when he goes to parliament, is on the right hand of the sword, the lord marshal being on the left. On all solemn occasions, the keys of Westminster-hall, of the Court of Wards, and Court of Requests, are delivered to him.

To him belong livery and lodging in the king's court; and he has certain fees from every bishop at his doing homage to the king, and from every peer at his creation. Under his command are, the gentleman-usher of the black rod, the yeoman-usher, and door-keepers.

This honour was long held by the earls of Oxford; viz. from the time of Henry I. by an estate-tail, or inheritance; but in later conventions by the marquis Lindsey, afterward duke of Ancaster, by an estate or inheritance from a daughter and heir general.

Lord CHAMBERLAIN *of the household*, an officer who has the oversight and direction of all officers belonging to the king's chamber, except the precinct of the BED-*chamber*; which is absolutely under the groom of the stole.

He has the oversight and direction of the officers of the wardrobe, of the removing wardrobes, beds, tents, revels, music, comedians, hunting, messengers, trumpeters, drummers, handicrafts, and other tradesmen retained in the king's service: as also of all sergeants at arms, physicians, apothecaries, surgeons, barbers, the king's chaplains, &c. and administers the oath to all officers above stairs. There is also a *Lord Chamberlain of her majesty's* household.

There are also CHAMBERLAINS *of the king's courts, of the Exchequer, of North Wales, of the city of London, &c.* In these cases, this officer is commonly the receiver of all rents and revenues belonging to the place whereof he is *chamberlain*.

When there is no prince of Wales, and earl of Chester, the *Chamberlain* of Chester hath the receipt and return of all writs coming thither out of any of the king's courts. In the Exchequer, there are two *chamberlains*, who keep a controulment of the pells of receipts, and exitus, and have certain keys of the treasury and records: they also keep the keys of that treasury where the leagues of the king's predecessors, and divers ancient books, as Doomsday Book, and the Black-Book of the Exchequer, remain.

The CHAMBERLAIN *of London* keeps the city-money, which is laid up in the chamber of London, an apartment in Guildhall; he also presides over the affairs of orphans and apprentices; and takes care of the city, &c.

His office lasts but for a year, being chosen annually on Midsummer-day; but the custom usually obtains to re-chuse the same person; unless he has been chargeable with any misdemeanour in his office.

CHAMBERLAIN, *Vice.* See VICE-*Chamberlain.*

CHAMBRANLE, in *Architecture* and *Joinery*, the border, frame or ornament of stone, or wood, surrounding the three sides of doors, windows, and chimneys.

The *chambrasle* is different in the different orders; when it is plain, and without mouldings, it is called *simple*, and properly *head*, *case*, or *frame*.

The *chambrasle* consists of three parts: the two sides, called *ejambages*; and the top, called the *traverse*, or *jambe-parisom*.

The *chambrasle* of an ordinary door is frequently called *door-case*; of a window, *window-frame*.

CHAMELEIA, in *Natural History*, a word used by some authors as a name for a peculiar species of CHAMA, but by others as a name for all those *chamæ* that have smooth surfaces, which are a very great number.

CHAMELLOT, in *Commerce*. See CAMELET.

CHAMFER, or CHAMFERET, in *Architecture*, an ornament consisting of half a flute; being a kind of small furrow, or gutter, on a column; called also *strie*, and *flere*.

CHAMFERING, or CHAMBERAINING, is used for cutting the edge, or any thing slopes, or bevel.

CHAMOIS, in *Zoology*, is used by some, particularly the French, for the creature from whose skin the *chamois* leather is made. See *Tour of Hyperboreans*, N° 8.

It is known among naturalists by the name of RUPICAPRA.

It is very common in the mountains of Helvetia, and in many other places. In the figure of its body it seems to approach very much to the fine kind; its belly, forehead, inner part of its ears and throat, are white; it has a yellow streak on each side near the eyes, and the tail of the body is a deep brown; its tail also is of the same colour, and that equally on all sides, not white on that part next the body, as is the case in the deer.

The male and female both have horns, which are a hand's breadth and an half long, rough towards the bottom, and have what knotty a new knot growing every year; they are nearly straight, but at the top bent into the shape of a hook, black, and not smooth, but longitudinally striated with slender streaks, and their inner cavity is filled up with a solid bone proceeding from the skull.

This creature has two remarkable holes always open behind its eyes: these some have imagined, served for perfuming; and Appian, who had the *perfora chamoise* for whatever he chose to say, seems to have led them into this; but there is no sort of probability of truth in it, since the skull is seen transparent under these holes, and there is no perforation through it, nor any such difference from them. The vulgar have also some remarkable opinions founded on the structure of the horns of this creature; the one, that to expelling them to rub his back, he often gets them to lie within the skin that he cannot get them out again; and the other, that he hangs by the horns to the rocks.

CHAMOMILE, *Anthemis*, in *Botany*, a genus of the *syngenesia polygamia superflua* class. Its characters are these: it is a plant with a compounded flower, the border or rays of the flowers being composed of many female flowers, which are cut or notched at the end like tongues on one side. The middle or disk of the flower is composed of many hermaphrodite flowers, which are funnel-shaped, cut, and cut into five parts at the top. The germen is situated at the bottom, which afterwards becomes an oblong naked seed. There are fifteen species.

The first sort is the common *chamomile*, which grows in plowed upon commons, and other waste lands: it is a trailing perennial plant, which puts out shoots from the branches as they lie on the ground. The flowers of this sort are reckoned for medicinal uses; but the market people generally sell the double flowers, which are much larger, but not so strong as the single.

The second sort is a common annual weed, which grows among corn: it flowers in May, so is called *May-weed*; though some have applied that title improperly to the *ratæ seriole*, which rarely flowers till late in June; this is the third sort.

Another sort is the SPANISH of Spain, the roots of which are used for the toothach; being extremely warm, when they are applied to the part affected, they draw out the cold rheums, and are often serviceable.

The common *chamomile* is digestive, laxative, and emollient; it mitigates pain, and promotes the menses and urine; the flowers dried are said to answer these purposes better than any other part of the plant: for all others, the flowers are used. These are given in infusion, as a gentle emetic, very large quantities of the infusion being drank warm. They are also used in emollient decoctions, and are a general ingredient in clysters. It is very remarkable of the flowers of this plant, that, like those of the common yarrow, they yield by distillation a fine lavender oil.

CHAMOS, or CHEMOSH, the idol or god of the Moabites.

The name of *Chemos* comes from a root, which, in Arabic, signifies *to hate*; *Ashtar* for which reason many believe *Chemos* to be the same with the *Priapus* of the ancients: which conjecture the name of *Peor* in Hebrew particulars may be favourable to. See CHEMOS, *Dissertation on Baal Peor and Chemos*, prefixed to his Comment on the book of Numbers.

CHAMPADA, in *Natural History*, the name of a tree common in the woods of Malabar, and bearing a fruit much valued by the natives. It is a large tree very full of branches, and these are very knotty, and, when cut, shrew forth a thick and acrid juice, like that of the *tithymal*. The fruit grows on the trunk and other branches of the tree: the first appearance toward this is a large button-like bud; this, by degrees, opens into a flower consisting of a great number of leaves; among which, when open, are seen the rudiments of the fruit, like a spear very small at first, but it soon grows to a very considerable bigness, being, when ripe, twelve or fourteen inches long, and as much in circumference; its shape much like a melon. The rind is green, and is when divided into small pentagons, in the centre of each of which is a small black spot. The pedicle is thick and woody, and entering into the substance of the fruit, it divides itself into several branched fibres, which run through the whole substance of it, and meet in a point at the end. Within this large fruit there are contained a large number of kernels, of the size of our common walnuts, all hanging together in bunches, in as to resemble a cluster of grapes; these are contained in a narrow cover, being ground firmly upon one another while the fruit is whole, but as soon as this is cut or burst open, they dry further asunder, and hang on the little fibrous grapes that are placed at a distance on the branch, as none of our strong kinds are. The people of Malabar are very fond of this fruit; they lick the pulpy matter which surrounds the kernels, and which is of a sweet and delicious taste, but of a disagreeable rank smell. The Indians are very fond of this fruit, as well for its pleasure as for its use, for it is very heating, and, when taken in large quantities, will destroy people of a cold and phlegmatic constitution. The kernels are much of the nature of chestnuts, but of a less agreeable taste; they are eaten by way of food, rather than as a delicacy, and the common way of using them is boiled in water. *Mem. Acad. Science. Par.* 1699. p. 140.

CHAMPAGNE, in *Horseman*, a name given by some, and some other writers, to the low flattering from the common trot, and called also TROT, and by Latin writers, from its resemblance to the ends of the figure of that sort of fur which is called *vair*, by *hermine*.

CHAMPAIN. See CAMPAGNE and CHAMPAIGN.

A fine CHAMPAIN, in *Heraldry*, one mark of adhesion, in the coat of arms of him who adds a quarter of wit after he has taken quarter.

CHAMPART, in our *Old Law*, a duty, or tribute, by which the tenant was to pay part of the fruits of the ground to the lord. It is also written *campart*, and in the middle-age Latin is called *campipars*, *campartum*.

CHAMPARTORS, or CHAMPARTORS, are those who move goods, or lands, or chattels from one to be moved, either by their own procurement or others; and for them at their proper cost, to have passed the land, or other matter in variance against whom he a writ of *champerty*.

CHAMPARTY, or CHAMPERTY, in *Law*, a maintenance of any man in his suit, upon condition of having part of the thing in question, or a sum of money to be rewarded.

The word comes from the French *champ*, *field*, and *parti*, *divided*; the field, or thing contested for, being supposed to be divided between the champertor, or champertors, and the person to whom he or they incite by a suit.

This seems to have been an ancient grievance; for notwithstanding several statutes against it, and a course of writ accommodated to them, in the time of Edward I. yet in that of Edward III. it was provided, that whereas orders given for lowest deputy was only to be had for the King's Bench, which then followed the court; for the future it should not be countenanced by the justices of the common pleas, and judges of assize.

CHAMPION, properly signifies a person who undertakes a

COMBAT, in the place or quarrel of another: though the word is also sometimes used for him who fights in his own cause.

Hollman defines *champion, certator pro alio causa in duello, a corpus dictus, qui stricto ense decertandum denunciat*: hence also the word *champ-fight*.

Du Cange observes, that *champion*, in the full sense of the word, were persons who fought in lists or duels who, being obliged by custom to accept the duel, had not a just excuse for declining it, as being too old, or infirm, being ecclesiastics or the like. He adds, that the *champions* were usually retained or hired for sums of money, and were held infamous.

There were also some rascals, who, by the laws and homage sworn to their lord, were obliged to fight for them in case of need.

Some authors hold, that any person was allowed the benefit of a champion, excepting parricides, and those accused of very heinous offences.

The custom of ending differences by combat, was derived from the North; whence it passed into Germany, and with the Saxons into England, and insensibly through the rest of Europe. See DUEL.

Whoever was desirous of vindication to maintain the pre and the con, it was always required there should be a secret of the judge to authorize the combat. When the judge had pronounced sentence, the accused threw a gage, or pledge, commonly a glove, or gauntlet; which being taken up by the accuser, they were both taken into safe custody till the day of battle appointed by the judge.

If either of them fled after this, he was declared infamous, and deemed to have committed the crime in question. Nor were the accuser and accused now allowed to make up the matter, or accord, but without the consent of the judges; which was never granted, without making the best satisfaction for the right of inheritance to the estate of the vanquished.

Before the *champions* took the field, their heads were shaved, and they made oath, that "they believed the "person who retained them was in the right; and that "they would defend his cause to the utmost of their "power." The weapons they used in a combat were a sword and buckler: some lay, in England, only a club and buckler; when on horseback, they were armed at all points. In a civil combat, on a writ of right, the only weapons allowed them were staves, or thaves, of an ell long, and a horn-covered leather target. Their weapons were blessed in the field by the priest, with great ceremony; and each took an oath he had no charm upon him.

In the civil combat, a piece of ground was marked out of forty feet square, enclosed with lists, and in one side a court erected for the judges of the court of common pleas, who attended in their robes. The court was as it were fencing; and proclamation being made, the champions were introduced by two knights, and were placed in a full moment, with red and sable, saint-legged from the knee downwards, bare-headed, and with bare arms to the shoulders.

The solemn music began at the sound of a trumpet they were to go to blows after the number of blows or strokes agreed on by the counsel of both parties, and the champions were enclosed. If it lasted till night, or ended with equal advantage on either side, the accused was to have right.

The punishment of the vanquished was that which the crime amounted, whereof he was accused: if it were a capital crime, the vanquished was dragged, led out of the field, and immediately executed, together with the party whose cause he maintained. If the conquered champion fought in the cause of a woman, she was burnt.

In civil combat, the combatants were bound to fight till the stars appeared in the evening; and if the champion of the tenant was able to defend himself till the stars appeared, the tenant prevailed in his cause: or if victory declared itself for either party, by the death of the other, which seldom happened, or by his craving *corcesus*, and pronouncing the word CRAVEN, judgment was finally given in his favour. Blackst. Com. book iii. p. 339, &c.

CHAMPION *of the king*, is an officer, whose business is, at the coronation of the king of England, to ride into Westminster-hall armed cap-a-pee, when the king is at dinner, and throw down his gauntlet by way of challenge; pronouncing by a herald, "That if any man shall deny, "or gainsay the king's title to the crown, he is there "ready to defend it in single combat." Which done, the king drinks to him, sending him a gilt cup with a cover, full of wine, which the champion drinks, and has the cup for his fee.

This office, ever since the coronation of Richard II. has been continued in the family of Dymocke, who held the manor of Scrivelby in Lincolnshire, hereditary from the family of the Marmions, who held it before, by grand serjeantry, on condition that the lord thereof should be the king's champion.

CHAMPION, or rather CHAMPAIGN, a's lands not inclosed; as large fields, downs, or places without woods or hedges.

CHANCE, a term we apply to events, to denote that they happen without any necessary, or forthknown cause; or is so used to denote the non-pertinency of an event, when nothing is known either to produce or hinder it.

Chance is, to ascribe those things to *chance*, which are not naturally produced by the natural effects of any proper cause, which we can discern; but our ignorance and precipitancy lead us to attribute effects to *chance*, which have necessary and determined causes.

When we say a thing happens by *chance*, we really mean no more, than that its cause is unknown to us, as long as many concurring causes, any *chance* itself can be made of any thing. From this consideration, Dr. Bentley takes occasion to expose the folly of that old story, *that would that man by chance*.

The case of the painter, who, unable to express the foam at the mouth of a horse he had painted, threw his sponge in despair at the picture, and, by *chance*, did that which he could not before do by design, is an eminent instance of the force of *chance*: yet it is obvious, all we have mean by *chance*, is, that the painter was not aware of the effect; or that he did not throw the sponge with such a view; not but that he actually did every thing necessary to produce the effect; insomuch that, considering the direction wherein he threw the sponge, together with its form, specific gravity, the colours wherewith it was smeared, and the distance of the hand from the piece, it was impossible, on the present system of things, that the effect should not follow.

Chance is frequently personified, and erected into a chimerical being, whom we conceive as acting arbitrarily, and producing all the effects, whole real causes do not appear to us: to which senfe, the word coincides with the Τυχη and *Fortuna*, of the ancients.

CHANCE is confounded with *Fate* and *Destiny*; and the word is also used for the manner of deciding things, the conduct or direction of which is left at large, and not reducible to any determinate rules or measures: or where there is no ground for preference; as in cards, dice, lotteries, &c.

CHANCE, *for the laws of, or the proportion of*, see the article GAMING. See also EXPECTATION and PROBABILITY.

The ancient *Sors*, or *chance*, M. Pluche observes, was instituted by God himself; and in the Old Testament we find several standing laws, and express commands, which prelcribed to us on certain occasions to use the scripture *lots*, the *Sors*, or *chance*, *fell* to the Maidens when it was in question who should fill Jesse's place in the sacrifice.

Hence also arose the *sacra sortium*, or method of determining things among the ancient Christians, by opening one of the sacred books, and pitching on the first verse they cast their eye on, as a sure prognostic of what was to befall them. The *sortes Homeri*, *Virgilianæ*, *Prænestinæ*, &c. used by the heathens, were with the same view, and in the same manner. See SORTES.

St. Augustine seems to approve of this method of determining things future; and owns that he had practised it himself; grounded on this supposition, that God presides over *chance*, and on Proverbs xvi. ver. 33.

Many among the modern divines, have chose to be considered in a particular manner by Providence, and esteem it an extraordinary way which God uses to declare his will, and a kind of immediate revelation.

CHANCE-*Medley*, in *Law*, the accidental killing of a man, not altogether without the killer's fault, though without any evil intent.

Bracton calls it, *Homicidium per infortunium*: West calls it *homicidium casuale*; and says, it is when the killer's ignorance or negligence is joined with the *chance*; as supposing a man leaping down by the highway, and a boy falling *chance* to kill a passenger; the party here offends in not having given warning, whereby the slain might have been induced to take more heed; or when a workman, in throwing down rubbish from a house, after warning to take care, kills a person; or a School-master in correcting his scholar, a master his servant, or an officer in whipping a criminal, in a reasonable manner, happens to occasion his death, it is *chance-medley* and misdemeanor. 3 Inst. 56. Hab. 331. But if a man throws stones in a highway where persons usually pass, or shoot an arrow, &c. in a market-place, among a great number of people; or if a workman call down rubbish from a house in cities and towns, where people are continually passing; or a

school-master, master, &c. correct his scholar, servant, &c. in a degree exceeding the bounds of moderation, it is manslaughter; and if with an improper instrument of correction, as with a sword or iron bar, or by kicking, stamping, &c. in a cruel manner, it is murder.

CHANCEL, is properly that part of the choir of a church, between the altar and communion-table, and the balustrade, or rail that incloses it, where the minister is placed at the celebration of the communion.

The word comes from the Latin *cancelli*, which in the lower Latin is used in the same sense, *from cancellus, lattice, or grate-bar*, wherewith the chancels were anciently encompassed, as they now are with rails.

The right of a seat and a sepulchre in the *chancel*, is one of the privileges of the founders of a church. The repairs of the *chancel* belong by usage, in most parishes, to the rector or vicar, or both.

CHANCELLOR, an officer, supposed originally to have been a notary, or scribe, under the emperors, and named *cancellarius*, because he sat behind a lattice, called in Latin *cancellus*, to avoid being crowded by the people.

Nande says, it was the emperor himself who sat and rendered justice within the lattice; the *chancellor* attending at the door thereof whence he took his rule.

Others say, he had it from this, that all letters, addresses, petitions, &c. to the king, being first examined by him, were *cancelled*, where faults: others, because all patents, commissions, and warrants, coming from the king, were examined and cancelled by him. Others, because he *cancelled* and annulled the sentences of other courts.

Du-Cange, from Jeannes de Janua, fetches the original of the word *chancellor* from Palestine, where the houses being flat, and made in form of a terrace, with parapets or pallisadoes, called *cancelli*, those who mounted their houses to exhaust any harangue, were called *cancellarii*; whence the name passed to those who pleaded at the bar, which he calls *cancelli fori*, and at length to the judge who presided; and lastly to the king's secretaries.

This officer is now in great authority in all countries: the person who bears it with us, or the

Lord High CHANCELLOR *of England*, is the first lay person of the realm, next after the king, and princes of the blood, in all civil affairs. He is the chief administrator of justice next the sovereign, being the judge of the court of chancery; and to him belongs the appointment of all the justices of peace in the kingdom.

All other justices are tied to the strict laws; but the *chancellor* has the king's absolute power to moderate the rigour of the written law, to govern his judgement by the law of nature and conscience, and to order all things *secundum equum & bonum*. Accordingly, Stamford says, the *chancellor* has two powers, the one absolute, the other ordinary; meaning, that though by his ordinary power he must observe the same form of procedure as other judges, yet in his absolute power he is not limited by any written law, but by conscience and equity.

The offices of *lord-chancellor* and lord-keeper are by the statute 5 Eliz. made the same thing; till that time they were different, and frequently subsisted at the same time in different persons; sometimes the *lord-chancellor* had a *vice-chancellor*, who was keeper of the seal.

The keeper was created *per traditionem magni sigilli*, but the *lord-chancellor* by patent, though now that he has the keeper's office, he is created in like manner by giving him the seal. The *chancellor* is a privy-counsellor by his office, and likewise speaker of the house of lords. See PARLIAMENT.

Though he be sole judge of the court of chancery, yet in matters of much difficulty he sometimes consults the other judges; so that this office may be discharged by one who is *no* profelled lawyer, as anciently it commonly was, by an ecclesiastic, who presided over the king's chapel, and became keeper of the king's conscience, visitor of the king's right of all hospitals and colleges of royal foundation, patron of all the king's livings under the value of 20*l.* *per ann.* in the king's books, guardian of all infants, idiots, and lunatics; and superintendant of all charitable institutions. He has twelve assistants, or counsellors, anciently called *clerici*, as them being in holy orders, now *Masters in Chancery*, the first whereof is the *Master of the Rolls*. See MASTER *of the Rolls*, MASTERS *in Chancery*, &c.

CHANCELLOR *of a cathedral*. His office is thus described in the Monasticon; viz. to hear the lessons and lectures read in the church, either by himself, or his vicar; to correct and set right the reader when he reads amiss; to inspect schools, to hear causes, apply the seal, write and dispatch the letters of the chapter, keep the books, take care there be frequent preachings, both in the church and out of it, and assign the office of preaching to whom he pleases.

CHANCELLOR *of a diocese*, is a judge of the bishop's court held in the cathedral of each diocese.

He was anciently called *vicedominus*, and *archipresbyter*, the church-lawyer. See *Bishop's* COURT.

CHANCELLOR *of the duchy of Lancaster*, is an officer, the head of that court, whose business is to judge and determine all controversies between the king and his tenants of the duchy-land; and otherwise to direct all the king's affairs relating to that court. See *Duchy* COURT.

CHANCELLOR *of the Exchequer*, is an officer, supposed by some to have been created for moderating extremities in the exchequer.

He sometimes sits in that court and the exchequer-chamber, and, with the rest of the court, orders things to the king's best benefit. He is always in commission with the lord treasurer for letting lands belonging to the crown by diffolutions of abbeys, and otherwise: he has power, with others, to compound for forfeitures on penal statutes, bonds, and recognizances entered into by the king. He has great authority in managing the royal revenue, and in matters of fish-royal.

The court of equity in the exchequer-chamber, is held before the lord-treasurer, *chancellor*, and barons, as that of common law before the barons only.

CHANCELLOR *of the order of the* GARTER, and other military orders, is an officer who seals the commissions and mandates of the chapter, and assembly of the knights, keeps the register of their deliberations, and delivers acts thereof under the seal of the order.

CHANCELLOR *of an university*, is he who seals the dispatches or letters of degrees, provision, &c. given in the university.

The *chancellor* of Oxford is their chief magistrate, elected by the students themselves: his office is *durante vita*, to govern the university, preserve and defend its rights and privileges, convoke assemblies, and do justice among the members under his jurisdiction.

Under the *chancellor* is the *vice-chancellor*, who is chosen annually, being nominated by the *chancellor*, and elected by the university in convocation. His business is to supply the *chancellor's* absence.

At his entrance upon his office, he chooses *four pro-vice-chancellors*, out of the heads of colleges, to one of whom he deputes his power in his absence.

The *chancellor of Cambridge*, is in most respects the same with that of Oxford; only he does not hold his office *durante vita*, but may be elected every three years.

He has under him a commissary, who holds a court of record of civil causes; for all persons of the university under the degree of master of arts.

The *vice-chancellor* of Cambridge is chosen annually by the senate, out of two persons nominated by the heads of the several colleges and halls.

CHANCERON, in *Natural History*, a name given by the French writers to the small caterpillar that eats the corn, and does vast mischief in other public granaries. The butterfly which produces this creature has white wings with black spots in them. The caterpillar, when full hatched, is one of the smallest that we are acquainted with. It joins a great number of fine threads, as soon as hatched from the egg, and in many of these it fastens itself to every thing that lies near it.

Toward the latter end of summer these caterpillars leave the corn and mount up the walls of the granary, where they search for a proper place of rest, and, when they have pitched upon such a one, they eat their way into it, and burying themselves in a hole, they cover their whole body with a web of silk of their own spinning, and there change into a sort of brownish red chrysalides. These remain the whole winter without life or motion; but in the months of April and May the butterflies are hatched out of them, and the males and females couple together, immediately after which the female lays her eggs, and the foundation is laid for a new progeny, who, during the remainder of the summer, are to destroy and spoil the corn, under the form of caterpillars. The female throws out a lots of tube from her tail, by means of which she opens a way into the grain, and lodges her eggs, which in fifteen or sixteen days is hatched into the caterpillar fit soon as hatched, it begins to eat, and consuming greedily, it soon marks the place where it lies, by a quantity of the husks which it leaves there. Derhamm. Trait. Phys.

CHANCERY. See COURT *of Chancery*.

CHANCRE, in *Medicine*, a malignant ulcer, which grows and eats the flesh, usually occasioned by some venereal disorder.

Chancres are reputed among the first symptoms that appear in the venereal disease; and Antonius Musa Brassavolus observes, that the pustles on the prepuce, glans, or body, are occasioned by the impurity of humours which are stirred in the time of coition, and the malignant quality of the venereal taint contained in the virus, or that flows from the adverse party. This being premised, it is certain the *chancre* on the *foreskin* and prepuce

prepuce differ very much from those on the glans, and other parts.

CHANDELIER, or CHANDELIERE, in *Fortification*, a wooden frame, made of two pieces, fixed cross-ways on two other pieces, at about four feet asunder, and on their intersections are erected two vertical pieces of five feet high, each supported by three buttresses; the interval of these two pieces is filled up with fascines, or faggots, to cover the workmen instead of a parapet. See *Tab. Fortif. fig. 25.*

Chandeliers are sometimes also made to prevent the enemy from seeing what passes within.

The difference between *chandeliers* and blinds consists in this, that the former serve to cover the pioneers before, and the latter also cover them over head.

CHANDELIER signifies also a candlestick, lamp, &c.

CHANE, in *Ichthyology*, a name given by Aristotle, Athenæus, and the other Greek writers, to the fish called by other authors *scarus chalcis*, and *chrysophrys*. It is truly a species of the *labrus*, and is distinguished by Artedi by the name of the *labrus* with the lower jaw longer than the upper, and with black transverse lines on the sides.

CHANFRIN, in the *Manege*, is the fore-part of a horse's head, extending from under the ears, along the interval between the eye-brows, down to his nose.

CHANGE, in *Commerce*. See EXCHANGE.

CHANGE, in the *Manege*. To *change* a horse, or *change hand*, is to turn or bear the horse's head from one hand to the other, from the right to the left, or from the left to the right. You should never *change* your horse without pulling him forward upon the turn; and after the turn, push him on straight, in order to a stop.

CHANGE *of species*, in *Husbandry*. See SPECIES.

CHANGER, or CHAUNGER, an officer belonging to the king's MINT, who changes money for gold, or silver bullion.

CHANGER, *money*, is a BANKER, who deals in the exchange, receipt, and payment of moneys.

CHANGES, in *Arithmetic*, &c. the permutations or variations of any number of quantities; with regard to their position, order, &c.

To find all the possible changes of any number of quantities, or how oft their order may be varied.

Suppose two quantities *a* and *b*. Since they may be either wrote *ab* or *ba*, it is evident, their changes are $1=2\times1$.

Suppose three quantities *a, b, c*; their *changes* will be as in the margin; as is evident by combining *c* first with *ab*, then with *ba*; and hence the number of *changes* arises $3\times2\times1=6$. If the quantities be 4, each may be combined four ways with each order of the other three; whence the number of *changes* arise $6\times4=3\times2\times1=24$. Wherefore, if the number of quantities be supposed *n*, the number of *changes* will be $n\times n-1\times n-2\times n-3$, &c. to $n=1$. If the same quantity occur twice, the *changes* of two will be found *ab*, of three *aab, aba, baa*; of four *aabb, abab, baba, abba, baab, bbaa*. And thus the number of *changes* in the first case will be $1=(1\times1)\div2\times1$; in the second, $3=(3\times2\times1)\div2\times1$; in the third, $12=(4\times3\times2\times1)\div2\times1$.

abc	*cab*
acb	*bac*
bca	*cba*

If a fifth letter be added, in each series of four quantities, it will beget five *changes*, whence the number of all the *changes* will be $60=(5\times4\times3\times2\times1)\div2\times1$. Hence if the number of quantities be *n*, the number of *changes* will be $n\times n-1\times n-2\times n-3\times n-4$, &c. $\div2\times1$. From these special formulæ may be collected a general one; viz. if *n* be the number of quantities, and *m* the number which flows from the same quantity occurs; we shall have $n\times n-1\times n-2\times n-3\times n-4\times n-5\times n-6\times n-7$, &c. $\div1\times m-1\times m-2\times m-3$, &c.; the series being to be continued, till the continual subtraction of unity from *n* and *m* leave 0. After the same manner we may proceed further, till putting *n* for the number of quantities, and *l, m, r*, &c. for the number that the same flows oft any of them is repeated, we obtain an universal form $n\times n-1\times n-2\times n-3\times n-4\times n-5$, &c. $\div1\times l-1\times l-2\times l-3\times l-4$, &c. $\times1\times m-1\times m-2\times m-3$, &c. $\times1\times r-1\times r-2\times r-3$, &c.

Suppose, for instance, $n=6$, $l=3$, $r=2$. The number of *changes* will be $(6\times5\times4\times3\times2\times1)\div3\times1\times2\times3\times2\times1)=6\times5\times4)\div2\times1=1\times5\times2=60$.

Hence, suppose thirteen persons at a table, if it be required how oft they may *change* places? we shall find the number $13\times12\times11\times10\times9\times8\times7\times6\times5\times4\times3\times2\times1=6227020800$. See ALTERNATION.

In this manner may all the possible ANAGRAMS of any word be found in all languages, and that without any study. Suppose *e. g.* it were required to find the anagrams of the word *Roma*, the number of *changes* will be $4\times3\times2\times1=24$. Thus,

Roma	*oram*
roam	*omar*
raom	*omra*
rmoa	*oarm*
rmao	*oamr*
ramo	*orma*
raom	*oram*

The ANAGRAMS therefore of the word *Roma*, furnishing any word of known signification in the Latin tongue, are seven, viz. *Roma, roam, raom, mora, mar, arma, amor*. Wallis's Algebra, p. 115.

Whether this new method of anagrammatizing be like to prove of much service to that art, is left to the poets.

CHANGES *of capella*. See *Transformation of Lizards*.

CHANNA, in *Ichthyology*, the name of a fish caught in great plenty in the Mediterranean, and brought to market in Italy, and elsewhere, among the sea-perch, which it greatly resembles.

There is no observation, that in all the 6th of this kind which have been examined by naturalists, there have been found none but females. This is asserted as Aristotle. Whether it be fact, would require many observations to determine; if it should be proved so, the whole seems to end in this, that the *channa* is no distinct species, but only the female of some other fish.

There is another fish, not unlike this, called *channadella*, or rather *channadella*, which at Marseilles is known by the name of *channe*.

CHANNADELLA, in *Ichthyology*, a name given by Belloneus, and others, to a species of the *labrus*, called also *turbettus*, and *bejaune pisois*. See CHANE.

CHANNEL, in *Anatomy*, *Chirurgery*, &c. See CANAL.

CHANNEL, or *bed of a* RIVER. See RIVER.

CHANNEL is also applied to divers arms of the sea, where the waters run within the land, or to certain narrow seas, confined between two adjacent continents, or between an island and continent.

In this sense we say, St. George's *Channel*, the British *Channel*, the *Channel* of the Black Sea, of Constantinople, &c.

CHANNEL, in *Building*. See GUTTER.

CHANNEL *of the volute*, in the Ionic capital, is the face of its circumvolution, inclosed by a fillet. See VOLUTE.

CHANNEL *of the larmier*, is the hollow fillet of a cornice, which makes the *pendant mouldings*. See LARMIER.

CHANNEL, in the *Manege*, is used for that concavity in the middle of the lower-jaw of a horse, where the tongue lies. This hollow being bounded on each side by the bars, terminates in the grinders or maxillary teeth. The barbles grow in this *channel*.

CHANNELLINGS. See FLUTINGS.

CHANT, CANTUS, is used for the vocal music of churches.

In church-history we meet with divers kinds of *chant*, or *song*: the first is the AMBROSIAN *chant*, established by St. Ambrose.

The second the *Gregorian chant*, introduced by pope Gregory the Great, who established schools of *chanters*, and corrected the church-song.

This is still retained in the church under the name of *plain song*; at first it was called the *Roman song*.

The *plain*, or *Gregorian chant*, is where the choir and people sing in unison, or altogether in the same manner. See CHORAL SERVICE.

CHANT *Royal*. See COMEDY.

CHANTLATE, in *Building*, a piece of wood fastened near the ends of the rafters, and projecting beyond the wall, to support two or three rows of tiles, to placed to prevent the rain-water, from trickling down the sides of the wall.

CHANTOR, in the *Jewish Antiquities*. In the temple of Jerusalem there was a great number of Levites, who were employed in singing the praises of God, and in playing upon instruments before his altar. In the reign of David there were four thousand singing men, with their heads and presidents.

The *chanters* and Levites who were employed in singing, playing upon instruments, and other functions of the Temple, had no habits distinct from the rest of the people. Nevertheless, in the ceremony of removing the ark to the Temple of Jerusalem built by Solomon, the *chanters* appeared clothed in robes of BYSSUS, or fine linen. Josephus remarks, that in king Agrippa's time they obtained the favour from that prince of wearing a linen robe in the Temple, like the priests. Agrippa believed it would be for the honour of his reign, to signalize it by so considerable a change as this. The other Levites, employed in different exercises under the command of the priests in the temple, procured likewise commissions to learn to sing, to the end that they might enjoy the same privileges with their brethren.

CHANTOR, or CHAUNTOR, a person who sings in the choir of a cathedral.

All great chapters have *chanters* and chaplains to aid and assist the canons, and officiate in their absence.

St. Gregory first instituted the office of *chanters*, enrolling them into a body, called *schola cantorum*; though Anastasius seems to attribute that title to pope Hilary, who lived a hundred years before Gregory.

But the word grows obsolete in this sense, and instead thereof we use the word *chanter*, or singing-man.

CHANTOR is used, by way of excellence, for the precentor, or master of the choir; which is one of the dignities of the chapter.

The *chantor* bears the cope and the staff at solemn festivities, and gives time to the rest at the beginning of psalms and anthems. At St. David's in Wales, where they were no cean, he is next in dignity to the bishop.

The ancients called the *chantor*, *primicerius cantorum*.

The office formerly belonged to the direction of the deacons, and other inferior ministers.

CHANTRY, or CHAUNTRY. See CHAONTRY.

CHAOLOGY, the history or definition of the CHAOS.

Orpheus, in his *Cosmogony*, first hath the different alterations, secretions, and mixtures forms, which matter went through till it became habitable: this amounts to the same with what we otherwise call *symmetry*, or the creation of the world.

Dr. Burnet likewise gives us a *Chaology*, in his Theory of the Earth. He represents the *chaos*, as it was at first, entire, undivided, and universally rude and deformed; or the *rude lump*: then shews how it came divided into its respective regions; how the homogeneous matter gathered itself apart from all of a contrary principle; and lastly, how it hardened, and became a solid habitable globe.

CHAOMANTIA, among the *Ecclesiastical Chemists*, is the art of making presages from observations on the air.

CHAOS, among the *Natural Philosophers*, was described a dark, turbulent kind of atmosphere; or a disorderly system or mixture, of all sorts of particles together, without any form or regularity; out of which the world was formed.

Chaos is every-where represented as the first principle, or cause, or seed of nature, and the world. All the ancient sophists, sages, naturalists, philosophers, theologues, and poets, hold that *chaos* was the eldest and first principle, or *apxwv* or *αρχη*.

The Babylonians, Phœnicians, Egyptians, Persians, &c. all refer the origin of the world to a rude, mixed confused mass of matter. The Greeks, Orpheus, Hesiod, Alexander, Aristophanes, Eutipides, and the writers of the Cyclic Poems, all speak of the first *chaos*: the Ionic and Platonic philosophers build the world out of it. The Stoics hold that as the world was first made of a *chaos*, so shall it at last be reduced to a *chaos*; and that its periods and revolutions in the mean time are only transitions from one *chaos* to another. Lastly, the Latins, as Ennius, Varro, Ovid, Lucretius, Statius, &c. are all of the same opinion. Nor is there any sect or nation whatever, that does not derive their *beginnings, the structure of the world*, from a *chaos*.

The opinion first arose among the Barbarians, whence it passed to the Greeks, and from the Greeks to the Romans, and other nations.

Dr. Burnet observes, that besides Aristotle, and a few other Pseudo-Pythagoreans, nobody ever allowed, that one world was always, from eternity, of the same matter, form, and structure, as at present; but that it had been the standing opinion of the wise men of all ages, that what we now call the terrestrial globe, was originally an unformed, indigested mass of heterogeneous matter, called *chaos*; and no more than the rudiments and materials of the present world.

It does not appear who first broached the notion of a *chaos*. Moses, the oldest of all writers, derives the origin of the world from a confusion of matter, dark, void, and without form, which he calls *tohu bohu*; which is precisely the same as the Greek and Barbarian philosophers. Moller goes no further than the *chaos*; nor tells us whence it took its origin, or whence it received its form and where Moses stops, there presently, do all the rest.

Dr. Burnet endeavours to shew, that as the ancient philosophers, &c. who wrote of the *cosmogony*, acknowledged a *chaos* for the principle of the world: so the divines, or writers of the theogony, derive the origin or generation of their called gods from the same principle.

His design to prove the ancient *chaos*, the origin of our earth, to resemble the atmosphere of a comet; which, though new, yet all things considered, is not the most improbable assertion. He endeavours to make it out by many arguments, drawn from the agreement which appears to be between them.

So that, according to him, every planet is a COMET, formed into a regular and lasting constitution, and placed at a proper distance from the sun, revolving in a newly circular orbit; and a comet is a planet either beginning to be destroyed, or newly made; that is, a chaos, or planet unformed, or in its primæval state, and placed, as yet, in an orbit very eccentrick.

CHAOS, in the phrase of Paracelsus, *limbeta the star*. It has also some other significations among the alchemists.

CHAOUSES, an order of men in the service of the grand signior. These and the *mutferrites* were originally the guards of the sultans in Egypt, and their leaders were his two vizirs, that always accompanied him. They are always go out with the bashaw.

The body of the *chaouses* seems originally to have been the guard one of whom the sultan used to send perhaps to execute his orders.

CHAP, in *Ornithology*, denotes either of the mandibles of a bird's BEAK; which are distinguished by the epithets *upper and lower*.

CHAPE. See CUTTE PLATE.

CHAPEAU, in a general sense. See HAT.

CHAPEAU is sometimes also used to denote the cap or coronet, armed with crown, borne by dukes; and of late frequently met with above an helmet instead of a wreath, under gentlemen's or noblemen's crests. *Vol. III. Heraldry, pl. 67.*

The crest is borne on the *chapeau*; and by the *chapeau* the crest and cest are separated: it being a rule, that no crest must touch the shield immediately.

CHAPEL, or CHAPPEL, a kind of little church, served by an incumbent, properly under the denomination of a *chapelain*. The word *chapel*, according to some, comes from *cancellus, little rails*, or *cancelli*, set up by masters in fairs to shelter them from the weather: Papias teaches it both from the Greek and Latin, *parva capsula, seu scrinium, seu tabernaculum*: whose letter it from the *cappa*, a cope, which served to cover the body: others, a peculiar consecration, because these places were anciently covered with gentilism. Pithou derives it from *capsa*, St. Martin's cope, which the kings of France carried to war with them as the standard, and preserved very carefully in particular tents, thence called *chapels*.

There are two kinds of *chapels*, the one consecrated, and built as churches; the other secular, being of the nature of oratories.

The first are built apart, and at a distance from the parish-churches being neither parishes, cathedrals, nor priories, but subsisting of themselves.

These are called by the canonists *sub ave*, and by others *chapels of ease*, as being erected at a distance from the mother-church, where the parish is large and wide, for the ease and convenience of some of the parishioners who reside far off.

These are served by some inferior pastor, provided either by the rector of the parish, or by those for whose ease and benefit they are intended, by prayers or preaching merely. Some of these are also parochial, having the parochial rights of christening and burying, and differing from a church only in the want of a rectory, and endowment.

The second kind are frequently built in, or adjoining to a church, as a part thereof; having only a desk, &c. to read prayers in; and, in the Romish churches, an altar, &c. to celebrate mass on; but without any baptistery, or font. These are canonists call *sub tecto*. They are generally erected by some considerable person, for the use of their own families *or distant parishioners separate the conventicle*. The twenty-first canon of the council of Agde, held in 506, allows private persons the use of *chapels*; but with prohibition to all clerks to officiate in them without leave from the bishop.

CHAPELS, *free*, are those *chapels of ease* which have a settled revenue for perpetual maintenance of a pastor, &c. by charitable donations of lands, or rents bestowed on them; so as not to be any charge either to the rector, or the parishioners; and they are thus called, because they are *free* from all ordinary jurisdiction.

There are several collegiate churches in France, which they call *sainte chapelle, holy chapels*; as those of Paris, Dijon, Bourges, Bourbon, &c. These are so denominated from being repositories of certain relics.

Hence all those places where relics were preserved came to be called *chapels*; and the persons who had the care of them *chaplains*.

CHAPEL is also a name given to a prisoner's workhouse; because, by some authors, pleading was first actually performed in *chapels*, or churches; or, according to others, because Caxton, an early printer, exercised the art in one of the *chapels* in Westminster Abbey.

In this sense they say, the orders, or laws of the *chapel*, the secrets of the *chapel*, &c.

CHAPEL-

CHAPEL, *knights of the*, was an order of knights instituted by king Henry VIII. in his testament, to the number of thirteen; though these have been increased to the number of twenty-six; they are called also *poor knights*.

These are not knights of the order of the Garter; but are, as it were, their assistants or deputies, serving to discharge all their offices in the funeral services of the kings of England.

They are subject to the office of the canons of Windsor, and live on pensions which the order assigns them.

They bear the blue or red cloke, with the arms of St. George on the left shoulder; but the cloke is only cloth, and they wear no feet of garter: which distinguishes them sufficiently from the knights of the Garter.

CHAPLET, in the *Manege*, a couple of stirrup-leathers, mounted each of them with a stirrup, and joining at top in a fort of leather buckle, called the head of the *chaplet*, by which they are made fast to the pummel of the saddle, after being adjusted to the rider's length and bore. They are used both to avoid the trouble of taking up or letting down the stirrups every time that a gentleman mounts on a different horse and saddle, and to supply what is wanting in the academy saddles, which have no stirrups to them.

CHAPELING a *ship*, is the act of turning her round to a light breeze of wind, when she is close hauled, to that she will lie the same way she did before. This is commonly occasioned by the negligence of the steersman, or by a sudden change of the wind.

CHAPELRY, *Capellania*, is used for a certain precinct belonging to a chapel, having the same relation to it that a parish has to a church.

CHAPERON, CHAPERONNE, or CHAPERON, properly signifies a sort of hood, or covering of the head, anciently worn both by men and women, the nobles and the populace, and afterwards appropriated to the doctors, and licentiates in colleges, &c.

Hence the name passed to certain little shields, and other fanciful devices, placed on the foreheads of the horses that drew the hearses in pompous funerals, and which are still called *chaperons*, or *shafferons*; because such devices were originally fastened on the *chaperonne*, or hood, worn by those horses, with their other coverings of state.

CHAPERON *of a bit mouth*, in the *Manege*, is only used for beach-mouths, and all others that are not cannon-mouths, figuring the end of the bit that joins to the branch just by the banquet. In beach-mouths the *chaperon* is round, but in others it is oval: and the same part that in beach and other mouths is called *chaperon*, is in cannon-mouths called *frontean*.

CHAPITERS, in *Architecture*, the crowns or upper parts of a pillar. See CAPITAL.

CHAPITERS *with mouldings*, are those which have no ornaments, as the Tuscan and Doric.

CHAPITERS *with sculptures*, are those which are adorned with leaves and carved works, the finest of which is of the Corinthian order.

CHAPITERS, in *Law*, were anciently a summary of such matters as were to be inquired of, or presented before justices in eyre, justices of assize, or of the peace, in their sessions.

Chapiters are now taken for articles delivered by the mouth of the justice, in his charge to the inquest: though it appears from Bracton and Briton, they were formerly written exhortations given by the justices for the good observation of the laws, and the king's peace; first read in open court, then delivered in writing to the grand inquest; which the grand jury, or inquest, were likewise to answer to upon their oaths, either affirmatively, or negatively.

CHAPLAIN properly signifies a person provided with a CHAPEL; or who discharges the duty thereof.

CHAPLAIN is also used for an ecclesiastical person, in the house of a prince or person of quality, who officiates in their chapels, &c.

With us there are forty-eight *chaplains* to the king, who wait four each month, preach in the chapel, read the service to the family, and to the king in his private oratory, and lay grace in the absence of the clerk of the closet. While in waiting they have a table, and attendance, but no salary.

An archbishop may retain eight *chaplains*; a duke or a bishop, six; a marquis or earl, five; a viscount, four; a baron, knight of the Garter, or lord chancellor, three; a duchess, marchioness, countess, baroness, the treasurer and comptroller of the king's house, the king's secretary, dean of the chapel, almoner and master of the rolls, two each; the chief justice of the king's bench, one: all of whom may purchase a licence or dispensation, and take two benefices with cure of souls. Stat. 22 Hen. VIII. c. 13.

Every judge of the king's bench and common pleas, the chancellor and chief baron of the exchequer, the king's attorney and solicitor-general, may each of them have one, entitled to one benefice with cure, and non-residents. Stat. 25 Hen. VIII. c. 16.

And also the groom of the stole, treasurer of the king's chamber, and chancellor of the duchy of Lancaster, may retain each one *chaplain*. Stat. 33 Hen. VIII. c. 28.

A *chaplain* muſt be retained by letters teſtimonial under hand and ſeal, or he is not a *chaplain* within the ſtatute: and a *chaplain* thus qualified may hold his ſtrings, though diſmiſſed from attendance, during life; nor can a nobleman, though he may retain other chaplains in his family, qualify any of them to hold pluralities whilſt the firſt are living. 4 Rep. 60.

The firſt *chaplains* are ſaid to have been thoſe inſtituted by the ancient kings of France, for preſerving the *chape*, or *cope*, with the other relics of St. Martin, which the kings kept in their palace; and carried out with them to the war. The firſt *chaplain* is ſaid to have been Cadoc Mariner, *chaplain* to St. Louis.

CHAPLAIN *in the order of* MALTA, is uſed for the ſecond rank, or claſs, in that order; otherwiſe called *aſpa*.

The knights make the firſt claſs, and the *chaplains* the ſecond.

CHAPLAINS *of the pope*, are the auditors, or judges of cauſes in the ſacred palace; ſo called, becauſe the pope anciently gave audience in his chapel, for the decition of cauſes ſent from the ſeveral parts of Chriſtendom.

He hither ſummoned as aſſeſſors the moſt learned lawyers of his time; and they hence acquired the appellation of *capellani, chaplains*.

It is from the decrees formerly given by theſe, that the body of decretals is compoſed: their number pope Sixtus IV. reduced to twelve.

Some ſay the ſhrines of relics were covered with a kind of *tent*, *cope*, or *capella*, i. e. *little cope*; and that hence the prieſts who had the care of them, were called *chaplains*. In time theſe relics were repoſited in a little church, either contiguous to a larger, or ſeparate from it; and the ſame name, *capella*, which was given to the cover, was alſo given to the place where it was lodged: and hence the prieſt who ſuperintended it came to be called *chaplain*.

CHAPLET, CHAPELET, or a ſtring of beads, uſed in the Romiſh church, to keep account of the number of Paternoſters and Ave-Mary's, to be rehearſed in honour of God and the holy Virgin.

Chaplets are otherwiſe called *Paternoſters*. A ROSARY is a *chaplet* of fifteen decads of Ave-Mary's.

Menage derives the word from *chapeau*, *hat*; becauſe of the reſemblance the thing bears to a hatband, or *couſe* of roſes, *chapeau de roſes*. The modern Latins call it *capellina*; the Italians more frequently *corona*.

Leiroy and P. Viret aſcribe the firſt invention of the *chaplet* to Peter the Hermit, well known in the hiſtory of the croiſades.

There is a *chaplet* of our Saviour, conſiſting of thirty-three beads, in honour of his thirty-three years living on earth, inſtituted by father Michael, the Camaldulenſe.

The Orientals have a kind of *roſaries*, which they call *chains*, and which they uſe in their prayers, rehearſing one of the perfections of God on each link or bead. The great mogul is ſaid to have eighteen of theſe chains, all of precious ſtones, ſome diamonds, others rubies, pearls, &c.

The Turks have likewiſe *chaplets*, which they bear in the hand, or hang at the girdle: but father Dandini obſerves, that they differ from thoſe uſed by the Romaniſts, in that they are all of the ſame bigneſs, and have not that diſtinction into decads; though they conſiſt of ſix decads or ſixty beads. He adds, that the muſſulmen have preſently run over the *chaplet*, the prayers being extremely ſhort, as containing only theſe words, *Praiſe to God*; or theſe, *Glory to God*, for each bead.

Beſides the common *chaplet*, they have likewiſe a larger one, conſiſting of one hundred beads, where there is ſome diſtinction, as being divided by little threads into three parts, one of which they repeat thirty times *Subhan Allah*, i. e. *God is worthy to be praiſed*; on another, *Bilkem Allah*, *Glory be to God*; and on the third, *Allo akbar*, *God is great*. Theſe three thirty times making only ninety, to complete the number one hundred, they add other prayers for the beginning of the *chaplet*.

He adds, that the Mahometan *chaplet* appears to have had its riſe from the *wan heracath*, or *hundred benedictions*; which the Jews are obliged to repeat daily, and which we find in their prayer-books. The Jews and Mahometans having this in common, that they ſeldom do any thing without pronouncing ſome laud, or benediction.

CHAPLET, or CHAPELET, in *Architecture*, a little moulding, cut, or carved into round beads, pearls, olives, or the like.—See *Tab. Archit. fig.* 12.

A *chapel*, in effect, is little else but a BAGUETTE enriched with sculpture.

CHAPOTENSIS, in *Writers of the Middle Age*, a kind of coin. We do not find any certain account of its value.

Du-Cange inclines to think it the same as the CHARTIS.

CHAPPAR, a courier of the king of Persia, who carries dispatches from court to the provinces, and from the provinces to the court.

The word, in the original Persian, signifies *courier*.

The posts, M. Tavernier tells us, are not established and regulated in Persia as among us: when the court sends out a *chappar*, the sophi's master of the horse furnishes him with a single horse, how long soever his journey be, and a man to run after him: when his horse is weary, he takes that of the first horseman he meets with, who gives not over the least refusal, and sends his own horse by the man who follows him.

As for the master of the new horse he has taken, he must run, or at least send after the *chappar*, to retake him, when the *chappar* dismounts some other horseman to change him.

CHAPPE, in *Heraldry*, the partition of an escutcheon, by lines drawn from the centre of the upper edge to the three angles below: as represented in *Tab. Herald. fig.* 14. which may be also two *chapps*, or and vert.

The sections of the sides are to be of a different colour from the rest. Blakeerne calls it, *A chief party per fesse water, or shaller*, or both.

CHAPPEL, or CHAPEL. See CHAPEL.

CHAPTER, *Capitulum*, a community of ecclesiastics belonging to a cathedral, or collegiate church.

The chief, or head of the *chapter*, is the dean; the body consists of canons, or prebendaries, &c.

The *chapter* has now no longer any share in the administration of the diocese, during the life of the bishop; but succeeds to the whole episcopal jurisdiction during the vacancy of the *see*.

The origin of *chapters* is derived from hence, that anciently the bishops had their clergy residing with them in their cathedrals, to assist them in the performance of sacred offices, and in the government of the church; and even after parochial settlements were made, there was still a body of clerks who continued with the bishop, and were indeed his family, maintained out of his *income*.

After the monastic life grew into request, many bishops chose monks rather than secular for their attendants.

These bodies, either monastic or secular, then had the same privilege of chusing the bishop, and being his council, which the whole clergy of the diocese had before; but, by degrees, their dependence on the bishop grew less and less; and then they had distinct parcels of the bishop's estate assigned them for their maintenance; till at last the bishop had little more left than the power of calling them.

On the other hand these capitular bodies by degrees also lost their privileges; particularly that of chusing the bishop, for which the kings of England had a long struggle with the pope: but at last Henry VIII. got this power settled in the crown; and now the deans and *chapters* have only the shadow of it.

The same prince likewise expelled the monks from the cathedrals, and placed secular canons in their room; those he thus regulated, are called *deans and chapters of the new foundation*; such are Canterbury, Winchester, Worcester, Ely, Carlisle, Durham, Rochester, and Norwich: such also are the *chapters* of the four new sees, of Peterborough, Oxford, Gloucester, and Bristol.

CHAPTER is also applied to the assemblies held by religious and military orders, for deliberating on their affairs, and regulating their discipline.

Papias says they are so called, *quod capitula ibi leguntur*.

The establishment of general *chapters* of religious orders is owing to the Cistercians, who held the first in 1116, and were soon followed by the other orders.

CHAPTER is also used for a division of a book; contrived for keeping the matters treated therein more separate, clear and distinct.

The ancients were unacquainted with the division of books into *chapters* and sections. Papias says, the name *chapter*, *caput*, arose hence, *quia ſit alterius ſententiæ caput, ex quo caput totum ſumatur*. St. Augustine compares *chapters* to inns, inasmuch as these refresh the reader, at the to the traveller.

The division of the BIBLE into *chapters* is attributed by some to Stephen Langton, archbishop of Canterbury, in the reigns of king John and Henry III. But it was really done by Cardinal Hugo, who flourished about the year 1240, the author of the first scripture CONCORDANCE, with a view of rendering this work as useful as its to the Scripture. The *chapters* were again subdivided not into verses, but by the letters A, B, C, D, E, F, G, placed in the margin, at an equal distance from each other, according to the length of the *chapters*. In some, all the seven letters were used; in others fewer, as the length of the *chapters* required. In 1445, Rabbi Nathan, a famous rabbi among the Western Jews, framed a concordance to the Hebrew Bible, in the manner of Hugo's above mentioned; and introduced the division of the Hebrew Bible into *chapters*: he also improved on his plan, by using the ancient division into verses, and by numbering them, fixing the numerical letters in the margin at every fifth verse. Athias, in his edition of the Bible, 1661 and 1667, introduced the Indian figures, and placed them at every verse. Variables published a Latin Bible, in which the same kind of division was adopted; though some say this division and distinction by numbers was first used in R. Stephens's Latin Bible, published at Paris 1557. R. Stephens made the same division of the *chapters* of the New Testament into verses, for the sake of a Concordance to the Greek Testament, which was printed by his son H. Stephens.

CHAPTERS, *the three*, is a phrase famous in *Ecclesiastical History*, signifying a volume published by Theodoret, an adherent of Nestorius, against St. Cyril; consisting of a letter of Ibas, priest of Nedessa, to Maris, a bishop of Persia; of extracts from the works of Diodorus of Tarsus, and Theodore of Mopsuestia, wherein the same doctrines were taught, that were contended for by Nestorius; and of two pieces of Theodoret, the one against the council of Ephesus, the other against the anathemas of St. Cyril.

These make the famous three *chapters*; which were first condemned by an edict of Justinian, A.D. 544, and since by various councils, and many popes.

CHAPTREL. See JURRY.

CHAR, in *Ichthyology*. See CHARRE.

CHAR of *land*, denotes the quantity of thirty pigs.

CHARA, in *Botany*, the name given by Linnæus to a genus of plants, of the *monœcia monandria* class; resembling the horse-tails in general appearance, and called by some HIPPURIS. The characters of the genus are: the base of the cup is very small, and consists of two leaves. Vaillant describes a monopetalous flower in this cup; but others say there is no flower or corolla at all. There is no appearance of stamina, but the single anthera or apex is of a globose figure, and is affixed to the cup: the germen of the pistil is of an oval figure: there is no style, but the stigmata are three in number, and are very broad: the seed is single, and of an oblong oval figure.

CHARA, in *Agronomy*, the name of one of the CANES *venatici*.

CHARABE, or CARABE, is sometimes used for AMBER; as also for the juice of the poplar-tree.

CHARACTER, in a general sense, signifies a mark, or figure drawn on paper, metal, stone, or other matter, with a pen, graver, chisel, or other instrument, to signify or denote any thing.

The word is χαρακτηρ; formed from the verb χαρασσω, *incidere, to engrave, impress*, &c.

The various kinds of *characters* may be reduced to three heads, viz. *literal characters*, *numeral characters*, and *abbreviations*.

CHARACTER, *literal*, is a letter of the alphabet, serving to indicate some articulate sound, expressive of some idea, or conception of the mind.

These may be divided, with regard to their nature and use, into *nominal*, *real*, and *emblematical*.

CHARACTERS, *nominal*, are those we properly call *letters*; which serves to express the names of things.

CHARACTERS, *real*, are those, that instead of names, express things and ideas.

CHARACTERS, *emblematical*, or *symbolical*, have this in common with real ones, that they express the things themselves; but they also have this further, that they in some measure personate them, and exhibit their form: such are the hieroglyphics of the ancient Egyptians.

CHARACTERS, *literal*, may again be divided, with regard to their invention and ule, into *particular* and *general*.

CHARACTERS, *particular*, are those peculiar to this or that nation; or that have been so: such are the Roman, Italic, Greek, Hebrew, Arabic, Gothic, Chinese, &c. *characters*.

CHARACTERS, *universal*, are also *real characters*, and make what some authors call a *philosophical language*.

The diversity of *characters* used by the several nations to express the same idea, is found the chief obstacle to the advancement of learning: to remove this, several authors have taken occasion to propose plans of *characters* that should be universal, and which each people should read in their own language. The *character* here is to be

real

real, not nominal; to express things, and notions; not, as the common ones do, letters, or sounds: yet, to be mute, like letters, and arbitrary; not emblematical, like hieroglyphics.

Thus, every one should retain their own language, yet every one understand that of each other, without learning it; only by seeing a real or universal *character*, which should signify the same thing to all people, by what sounds soever each expressed it in his particular idiom. For instance, by seeing the *character* destined to signify *a drink*, an Englishman should read *to drink*; a Frenchman, *boire*; Latin, *bibere*; a Greek, πινειν; a Jew, שתה; a German, *trincken*; and so of the rest: in the same manner as seeing a horse, each people expresses it after their own manner; but all mean the same animal. This real *character* is no chimera; the Chinese and Japanese have already something like it. They have a common *character* which each of those nations understand alike in their several languages; though they pronounce it with such different sounds, that they do not understand a little of one another in speaking.

The first, and most considerable attempts for a real *character*, or philosophical language, in Europe, are those of bishop Wilkins, and Delgarme: but these, with how much art soever they were contrived, have yet proved ineffectual.

M. Leibnitz had some thoughts the same way: he thinks those great men did not hit the right method; and adds, it was probable, indeed, that, by this means, people, who do not understand one another, might easily have a commerce together; but that they have not hit on true, *real characters*.

According to him, the *characters* should resemble those used in algebra: which, in effect, are very simple, yet very expressive; without any thing superfluous or equivocal; and contain all the varieties required.

The real *character* of bishop Wilkins has its just applause: Dr. Hook recommends it on his own knowledge and experience, as a most excellent scheme; and to engage the world to the study thereof, published some fine inventions of his own therein.

M. Leibnitz tells us, he had under consideration *an alphabet of human thoughts*; in order to a new philosophical language, on his own scheme; but his death prevented this from being brought to maturity.

M. Lodwick, in the Philosophical Transactions, gives us a plan of an *universal alphabet*, or *character* of another kind; this was to contain an enumeration of all such single tonnis, or letters, as are used in any language; by means whereof people should be enabled to pronounce truly and readily any language; to describe the pronunciation of any language that should be pronounced in their hearing; so, as others accustomed to this language, though they had never heard the language pronounced, should at first be able truly to pronounce it: and lastly, this *character* to serve as a standard to perpetuate the sounds of any language. Abridgm. vol. iii. p. 373.

In the Journal Litteraire, an. 1720, we have a very ingenious project for an universal *character*: the author, after obviating the objections that might be made against the feasibleness of such schemes in the general, proposes his own: his *characters* are to be the common Arabic, or numeral figures. The combinations of these nine are sufficient to express distinctly an incredible quantity of numbers, much more than we shall need terms to signify our actions, goods, evils, duties, passions, &c. Thus is all the trouble of framing and learning any new *characters* at once saved; the Arabic figures having already all the universality required.

The advantages are immense: for, 1. We have here a stable, faithful interpreter; never to be corrupted or changed, as the popular languages continually are. 2. Whereas the difficulty of pronouncing a foreign language, is such as usually gives the learner the greatest trouble, and there are even some sounds which foreigners never attain to; in the *character* here proposed, this difficulty has no place: every nation is to pronounce them according to the particular pronunciation that already obtains among them. All the difficulty is, the accustoming the pen and the eye to affix certain notions to *characters* that do not, at first sight, exhibit them. But this trouble is no more than we find in the study of any language whatever.

The inflexions of words are here to be expressed by the common letters: for instance, the same *character* shall express a *boy*, or a *colt*, a *horse*, or a *mare*, an *old horse*, or an *old mare*, as accompanied with this or that distinctive letter, which shall shew the sex, youth, maturity, or old age: a letter is also to express the bigness or size of things, thus, v. g. a man with this *o* that letter, to signify a *great man*, or a *little man*, &c.

The use of these letters belongs to the grammar, which once well understood, would abridge the vocabulary exceedingly. An advantage of this grammar is, that it would only have one declension, and one conjugation: those numerous anomalies of grammarians are exercising troublesome, and arise hence, that the common languages are governed by the populace, who never reason on what is best: but in the *character* here proposed, men of sense introducing it, would have a new ground, wherein to build regularly.

The difficulty is not in inventing the most simple, easy, and commodious *character*, but in engaging the several nations to use it; there being nothing they agree less in, than the understanding and pursuing their common interest.

CHARACTERS, *literal*, again, may be divided, with respect to the nations among whom they have been invented, and used, into *Greek characters*, *Roman characters*, *Hebrew characters*, &c.

The *character* now ordinarily used throughout Europe, is the *Latin Character* of the ancients.

The Latin *character* was formed from the Greek, and that from the Phœnician, which Cadmus brought into Greece.

The Phœnician *character* was the same with that of the ancient Hebrew, which subsisted to the time of the Babylonish captivity; after which they used that of the Assyrians, which is the square Hebrew, now in use; the ancient being only found on some Hebrew medals, commonly called *Samaritan medals*.

Pollellus, and others, shew, that beside the Phœnician, the Chaldee, Syriac, and Arabic *characters*, were likewise formed from the ancient Hebrew.

The French were the first who, with the Latin of St. Gregory, admitted the Latin *characters*. And in a provincial synod, held in 1091, at Leon in Spain, the use of the Gothic *characters* invented by Ulphilas, was abolished, and the Latin ones established.

Medallists observe, that the Greek *character*, consisting only of majuscule letters, has preserved its uniformity on all medals, as low as the times of Gallienus; there being no alteration found in the turn of the *character*, notwithstanding the many considerable ones both in the use and pronunciation. From the time of Gallienus, it appears to have been weaker and rounder; from the time of Constantine to Michael, the space of five hundred years, we find only Latin *characters*; and after Michael, the Greek *characters* recommence; but from that time they began to alter with the language, which was then a mixture of GREEK and LATIN.

The LATIN medals preserve both their *character* and language, as low as the translation of the seat of the empire to Constantinople. Towards the time of Decius, the *character* began to alter, and to lose of its roundness and beauty: some time after it recovered itself, and subsisted tolerably till the time of Justin; when it fell into the last barbarity mentioned, under Michael; though it afterwards grew worse, and degenerated into the Gothic: so that the rounder and better formed the *character* is on a medal, the greater preference it has to antiquity.

CHARACTERS, *numeral*, are those used to express numbers. *Numeral Characters* are either *letters*, or *figures*, otherwise called *digits*.—The kinds now chiefly in use, are, the Common, and the Roman: to which may be added the GREEK, and another called the FRENCH *character*; as also the letters of other alphabets which have been made use of to express numbers.

COMMON *character* is that ordinarily called the *Arabic*, as supposed to have been invented by the Arab astronomers: though the Arabs themselves call it the *Indian character*; as if they had borrowed it from the people of India.

The *Arabic characters* are ten, viz. 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; the last is called *cipher*.

The *Arabic character* is used almost throughout Europe, and that on almost all occasions; in commerce, in measuring, in astronomical calculations, &c.

Roman character consists of the majuscule letters of the Roman alphabet; whence probably its name: or perhaps, from its being used by the ancient Romans on their coins, and in the inscriptions of their public monuments, engraved in honour of their gods, and great men; on their sepulchres, &c.

The numeral letters that compose the Roman *character* are in number seven, viz. I, V, X, L, C, D, M.

The I denotes one, V five, X ten, L fifty, C a hundred, D five hundred, and M a thousand.

The I, repeated twice, makes two, II; three, three, III; four is expressed thus, IV, I before V or X taking as much from the number expressed by each of those letters.

To express six, an I is added to a V, VI; for seven, two, VII;

VII; and for eight, three, VIII: nine is expressed by an I before X, IX; agreeable to the preceding remark.

The like remark may be made of the X before L or C, except that the diminution is by tens, not units: thus, XL signifies forty, and XC ninety; an L followed with an X, sixty, LX, &c. The C before D or M, diminishes each by a hundred.

Besides the letter D, which expresses five hundred, that number may also be expressed by an I before a C inverted, thus, Ɔ; and thus, in lieu of the M, which signifies a thousand, is sometimes used an I between two C's, the one direct, the other inverted: agreeable to this, six hundred may be expressed IↃ; and seven hundred, IↃC, &c.

The addition of C and Ↄ before, or after, raises CIↃ by ten times that, CCIↃↃ, 10000; CCCIↃↃↃ, 100,000, &c. This is the common way of notation, formerly used by the Romans; who also expressed any number of thousands by a line drawn over any numeral less than a thousand; e.g. V, 5000; LX, 60,000: so likewise M is 1,000,000; MM is 2,000,000, &c.

Besides which (1.) certain liberties or variations have been admitted, at least by some modern writers; e.g. IIX, 8; IIIX, 9. (II.) And certain *characters* have been used, which seem to have been derived from the letters: e.g. M, by which they express (Mille) 1000, was formed from CXↃ, or CIↃ; half of which, viz. IC, stood for 500. (III.) And the easier writing of these *characters*, I. Ↄ seems to have been altered into D: 2. ↃↃ into A, or V: 3. CIↃ into ⋔ or Λ: whence Ψ, 1000; Ψ Ψ, 200, V. V.

In Roman inscriptions, we meet with the *characters* ⊂ and Ↄ, used to express a thousand. The usual note of a thousand, is either I between two CCↃ (direct and reversed) thus, CIↃ; or else X, thus, CXↃ. The former figure, when closed at top, exactly resembles an ancient M, thus, Ⓜ; and the latter, when thus up, the figure of 8, inclined thus ∞.

We also find, in some inscriptions, the *character* ⊕, which is X between two CↃ's but closed on all sides. But the learned Dr. Taylor seems to suspect the accuracy of the copy of the inscription from whence this *character* is taken. See *Phil. Trans.* N° 482. 5. 2.

As to the origin and use of the *character* X, so often met with on the coins, utensils, and manuscripts of the ancients; see X.

CHARACTERS, *Hebrew*. See HEBREW.

Greek numerals. The Greeks had three ways of expressing numbers. (I.) The most simple was, for every single letter, according to its place in the alphabet, to denote a number from α 1 to ϡ 9; in which manner the books of Homer's Iliad are distinguished. (II.) Another way was by dividing the alphabet into, (1.) 8 Units: α 1, β 2, &c. (2.) 8 Tens: ι 10, κ 20, &c. (3.) 8 Hundreds: ρ 100, σ 200, &c. N. B. Thousands they expressed by a point, or accent under a letter, e.g. α 1000, β 2000, &c. (III.) A third way was by six capital letters, thus Γ (as for ΠΕΝΤΕ) 5, Δ (Δεκα) 10, Η (Ηεκατον) 100, Χ (Χιλιοι) 1000, Μ (Μυρια) 10000: and when the letter Π included any of these, except I, it thewed the included letter to be five times its own value, as, [Π] 50, [Η] 500, [Χ] 5000, [Μ] 50000.

N. B. 6,909,960 are expressed by *character* ϡ.

Hebrew numerals. The Hebrew alphabet was divided into 9 Units: א 1, ב 2, &c.—9 Tens: י 10, כ 20, &c.—9 Hundreds: ק 100, ר 200, &c. ך 500, ם 600, ן 700, ף 800, ץ 900.—Thousands, (1.) were sometimes expressed by the units prefixed, to hundreds, as, אתרלה, 1531, &c. and even to tens, as, אצ, 1090, &c. (2.) But generally by the word אלפים, 1000: אלפים, 2000: אלפים, with the other numerals prefixed, to signify the number of thousands: e.g. גאלפים, 3000, &c.

CHARACTER, *French*, so called, because invented, and chiefly used by the French, is more usually denoted, *shorthand*, or *stenography*.

It consists of 80 figures; partly taken from the letters of the usual current hand, and partly invented by the contrivers: the six *characters* are *j*, *k*, *n*, *l*, *c*, *y*. The *j* stood next standing for one, the *k* for five, the *n* for ten, the *l* for fifty, the *c* for a hundred, and the last *character* for a thousand.

This *character* is only an imitation of the Roman *characters* and its use in most respects the same, particularly in what relates to the combination of certain letters which placed before or after others, diminish or increase their value. Indeed it has these things peculiar in it, that when several things occur successively, only the last is expressed. 2dly, That ninety, and the following numbers to one hundred, are expressed, thus, *fifty-ten*, ninety; *fifty-ten ninety-one*; *fifty-ten* 99. &c.

It is principally used in the chambers of accounts, in the accounts given in by treasurers, receivers, farmers, and other persons concerned in management of the revenue.

CHARACTERS, in *Printing*, denote the letters or types, by the various arrangement whereof, are compoled forms; whence impreſſions are taken, by means of a preſs, on paper.

For the method of caſting theſe CHARACTERS, *ſee Letter* FOUNDERY.

CHARACTER is alſo uſed in ſeveral of the arts, for a ſymbol, contrived for a more conciſe, immediate, and artful conveyance of the knowledge of things.

In this ſenſe of the word, Paulus Diaconus refers the invention of *characters* to Eunius; who, he ſays, contrived the firſt eleven hundred. To theſe were many more added by Tyro, Cicero's freedman, and by Philargyrius, Famulus, and Aquila, freedmen of Maecenas. Laſtly, L. Annaeus Senera made a collection of them, reduced them into order, and increaſed their number to five thouſand. Tyro's notes may be ſeen at the end of Gruter's inſcriptions.

Valerius Probus, a grammarian, in the time of Nero, laboured to good purpoſe in explaining the notes of the ancients. P. Diaconus wrote an ample treatiſe of the explication of the *characters* in law, under the reign of the emperor Conrad II. and Goldaſtus another for thoſe of medals.

Characters, or ſymbols, are more chiefly affected in the ſeveral parts of mathematics; particularly in algebra, geometry, trigonometry, and aſtronomy: as alſo in medicine, chemiſtry, muſic, &c. The principal of each kind we ſhall here ſubjoin.

CHARACTERS *uſed in Arithmetic and Algebra*.

a, *b*, *c*, and *d*, the firſt letters of the alphabet, are the ſigns or *characters* that denote given quantities; and *u*, *x*, *y*, &c. the laſt letters, are the *characters* of quantities ſought. Some for the former, are conſonants, or large letters, and vowels, or ſmall ones, for the latter.

Note, Equal quantities are denoted by the ſame *character*.

m, *n*, *r*, *s*, *t*, &c. are *characters* of indeterminate exponents, both of ratios and powers; thus a^m, s^n, x^r, denote indeterminate powers of different kinds: *m*, *n*, *r*, different multiples, or ſubmultiples of the quantities *a*, *s*, *x*, according as *m*, *n*, *r*, are either whole numbers or fractions.

+ Is the ſign of real exiſtence, and is called the *affirmative*, or *poſitive ſign*; importing the quantities to which it is prefixed, to have a real and poſitive nature.

It is alſo the ſign of addition, and is read *plus*, or *more*; thus 9 + 3, is read 9 *plus* 3; or 9 *more* 3: that is, the ſum 9 and 3, equal to 12.

— Before a ſingle quantity, is the ſign of *negative* or *negative* exiſtence: ſhewing the quantity to which it is prefixed to be leſs than nothing.

Between quantities, it is alſo the ſign of ſubtraction, and is read *minus*, or *leſs*; thus 14 — 2, is read 14 *minus*, or abating 2; that is, the remainder of 14, after 2 has been ſubtracted, viz. 12.

= Is the ſign of *equality*: thus, 9 + 3 = 14 — 2 ſignifies 9 *plus* 3, to be *equal* to 14 *minus* 2.

This *character* was firſt introduced by Harriot: Des Cartes in lieu of it uſes ∞. Before Harriot there was no ſign of equality at all.

Wolfius, and ſome other authors, uſe the ſame *character*, ∺ for the identity of ratios; or to denote the terms to be in a geometrical proportion; which moſt authors expreſs thus ::.

× Is the ſign of *multiplication*, denoting the quantities on either ſide to be multiplied into one another: thus 4 × 6, is read 4 multiplied by 6; or the factum, or product of 4 and 6 = 24; or the rectangle between 4 and 6.

Ordinarily, however, in algebra, the ſign is omitted, and the two quantities put together: thus *b d* expreſſes the product of the two numbers denoted by *b* and *d*, which ſuppoſe 2 and 3, the product wherein is 6, ſignified by *b d*.

Wolfius, and others, make the ſign of multiplication a dot (.) between the two factors: thus 6.2 ſignifies the product of 6 and 2 = 12.

Where one or both the factors are compounded of ſeveral letters, they are diſtinguiſhed by a line drawn over them: thus, the factum of *a* + *b* — *c* into *d*, is wrote $\overline{a+b-c}\,d$.

Guido Grandi, and after him Leibnitz, Wolfius, and others, to avoid the perplexity of lines, in lieu thereof, diſtinguiſh the compound factors, by including them in a parentheſis, thus $(a+b-c)\,d$.

— In

$\div$ is the *character* of *division*: thus $a \div b$ denotes the quantity a to be divided by b.

Indeed, ordinarily, in algebra, the quotient is expressed fraction-wise; thus, $\frac{a}{b}$ denotes the quotient of a divided by b.

Wollius, &c. make the sign of division (:) thus $8 : 4$ denotes the quotient of 8 divided by 4 $= 2$.

If either the divisor or dividend, or both, be compound of several letters, *v. gr.* $a+b$, divided by x; instead of writing the quotient fraction-wise, thus $\frac{a+b}{x}$; Wollius, &c. include the compound quantities in a parenthesis, thus, $(a+b) : x$, or $(a+b) : (a+b)$ &c.

$\times$ Is the *character* of *broadwise*, or of producing the square of any quantity, by multiplying it by itself.

$\surd$ The *character* of *radicism*, or of extracting the roots out of the several powers; the reverse of $\times$.

$\neq$ Is the sign of *inequity*, or of the excess of one quantity beyond another: some use this $>$, or this $\neg$.

$\angle$ Is the sign of *inequity*. These two *characters* were first introduced by Harriot, and have since been used by Wallis and Lamy. Other authors use others: some this $\supset$.

$\propto$ The sign of SIMILITUDE commended in the Miscellanea Leibnitiana, and used by Leibnitz, Wollius, and others; though the generality of authors use $::$.

The latter character is used by other authors for the difference between two quantities, while it is yet unknown which is the greater.

$\surd$ Is a character of *radicality*, and shews that the root of the quantity to which it is prefixed, is extracted, or to be extracted: thus, $\surd 25$, or $\surd 25$, denotes the square root of 25, viz. 5; and $\sqrt[3]{25}$ the cube root of 25. See ROOT.

This *character* sometimes affects several quantities distinguished by a line drawn over them, thus, $\surd a+b$, denotes the square root of the sum of a and b.

Wallis, and some few herself, includes the roots compounded of several quantities in a parenthesis, adding its index: thus, $(a+b+c)^{\frac{1}{2}}$ denotes the square of $a+b+c$, continually written $a+b+c^{\frac{1}{2}}$.

$\sim$ Is the *character* of arithmetical proportion disjunct: thus, $2 \sim 3 \sim 4 \sim 5$, intimates 3 to be exceeded by 1, as much as 4 by 3; 2 to 3 by 4 to 5.

This is the *character* of identity of ratio, and geometrical proportion disjunct; thus $2 : 4 :: 30 : 15$, expresses the ratio of 2 to 4, to be the same with that of 30 to 15; or that the four terms are in geometrical proportion, viz. 2 to 4, so 30 to 15.

Wollius, in lieu hereof, uses the *character* of equality $=$, which he prefers to the former, as being more scientifical and expressive.

$\propto$ The *character* of geometrical proportion continued, implying the ratio to be carried on without interruption: thus $2, 4, 8, 16, 32, \propto$ are in the same uninterrupted proportion.

When one or more terms in an equation are wanting, their places are usually marked with one or more asterisms: as, $\left.\begin{matrix} x^3+fx^2+gx \\ -px-lx \\ +q \end{matrix}\right\} = 0 \; x^3+fx^2-px=-gx+lx-q$.

Character of Infinity. See SERIES.

CHARACTERS *used in Astronomy.*

☽ *Character* of Saturn.	♊ *Character* of Gemini.
♃ Jupiter.	♋ Cancer.
♂ Mars.	♌ Leo.
♀ Venus.	♍ Virgo.
☿ Mercury.	♎ Libra.
☉ The Sun.	♏ Scorpio.
☽ The Moon.	♐ Sagittarius.
⊕ The Earth, or ♁	♑ Capricornus.
♈ Aries.	♒ Aquarius.
♉ Taurus.	♓ Pisces.

CHARACTERS *of the Aspects, Nodes, &c.*

☌ Conjunction.	△ Trine.
☍ Semisextile.	⚺ Sesquiquadrate.
⚺ Semisquare.	⚻ Quincunx.
⚹ Sextile.	☍ Opposition.
□ Quadrate.	☊ Scorpion's head.
⚻ Tridecile.	☋ Scorpion's tail.

CHARACTERS *of Time.*

A. M. (*ante meridiem*) or M. morning.

☉ or M. noon.

P. M. (*post meridiem*) or A. afternoon.

CHARACTERS *used in Chemistry, Medicine, and Pharmacy.*

Authors are very redundant, and even tactiful, in pharmaceutical *characters*; but the most usual are exhibited in the *Table of* CHEMICAL, *&c. Characters.*

CHARACTERS *in Commerce.*

D^o *Ditto*, the same.	℔ Pound weight.
N^o *Numero*, or number.	C. or ℔ Hundred weight, of 112 pound.
pa. Folio, or page.	4to Quarto.
Rx Rotlo, } folio.	8vo Octavo.
fo Folio, }	*per*, or *by*. At ℔ *ann.* by the year. ℔ *cent.* in the hundred, &c.
l. or £. *sterling*, Pound Sterling.	*Rx* Rixdollar.
s. Shillings.	Dr Ducat.
d. Pence, or Deniers.	P. S. Postscript.

CHARACTERS *in Grammar and Trigonometry.*

|| Is the *character* of parallelism; implying two lines or planes to be equidistant from one another. See PARALLEL.

△ *Character* of a triangle. See TRIANGLE.

□ A square. = Equality or sides.

▭ A rectangle. ∠ An angle.

⊙ A circle. ∟ A right angle.

∠ Equality of angles. ⊥ A perpendicular.

° A degree; thus, 75° implies 75 degrees.

′ A minute, or prime; thus, 50′ implies 50 minutes.

″, ‴, ⁗, &c. the characters of seconds, thirds, fourths, &c. of a degree: thus, 5″, 6‴, 18⁗, 20‴″, denote 5 seconds, 6 thirds, 18 fourths, and 20 fifths.

Note, The same *characters* are sometimes used, where the progression is by tens, as it is here by fifties.

CHARACTERS *in Grammar, Rhetoric, Poetry, &c.*

, *Character* of a Comma.	´ *Emphasis*, or accent.
; *Semicolon.*	˘ *Breve.*
: *Colon.*	¨ *Diæresis.*
. *Period.*	*Caret*, and *Circumflex.*
! *Exclamation.*	" *Quotation.*
? *Interrogation.*	† and * *References.*
() *Parenthesis.*	§ *Section*, or *Division.*
- *Hyphen.*	¶ *Paragraph.*
Apostrophe.	

LL. D. *Doctor of Laws*, or *of the Civil and Canon Law.*

SS. T. D. *Sacræ Sanctæ Theologiæ Doctor*, or D. D. i. e. *Doctor in Divinity.*

M. D. *Doctor in Physic.*

V. D. M. *Verbi Dei Minister*, *Minister of the Word of God.*

A. M. *Artium Magister*, *Master of Arts.*

A. B. *Artium Baccalaureus*, *Bachelor of Arts.*

F. R. S. *Fellow of the Royal Society.*

F. A. S. *Fellow of the Antiquarian Society.*

CHARACTERS *used in the Arithmetic of Infinites.*

The *character* of an infinitesimal, or fluxion; thus, $\dot{x}$, $\ddot{x}$, &c. express the fluxions or differentials of the variable quantities x and y; two, three, or more dots, denote second, third or higher fluxions.

This method of denoting the fluxions, we owe to Sir Isaac Newton, the inventor of fluxions: it is adhered to by the English; but foreigners, generally, follow M. Leibnitz, and in lieu of a dot prefix the letter d to the variable quantity; on pretence of avoiding the confusion arising from the multiplication of dots, in the differencing of differentials.

d The *character* of a differential of a variable quantity; thus, dx is the differential of x; dy the differential of y. The *character* was first introduced by M. Leibnitz, and is followed by all but the English. See CALCULUS *Differentialis.*

CHARACTERS *among the Ancient Lawyers, and in Ancient Inscriptions.*

A. Antiquitus.	*Bono antiquitus.*
B. Dicebat.	*Scto. Senatusconsulto.*
E. Extra.	*P. P. Pater Patriæ.*
S P Q R. Senatus Populusque Romanus.	*C. Civis.*
	CC. Consules.
D. Av. Bonis auspiciis, or *T. Tabulæ, &c.*	

CHARACTERS *used in Music.*

Characters of the Musical notes, with their proportions.

𝅝 *A Large*	8.	
𝅜 *A long*	4.	
𝅗𝅥 *A Breve*	2.	
𝅝 *Semibreve*	1.	
♩ *A Minim*	½.	
♪ *A Crotchet*	¼.	
𝅘𝅥𝅯 *A Quaver*	⅛.	
𝅘𝅥𝅰 or 𝅘𝅥𝅰 *A Semiquaver*	1/16.	
𝅘𝅥𝅱 or 𝅘𝅥𝅱 *A Demisemiquaver*	1/32.	

♯ *Character* of a *sharp note*. This *character* at the beginning of a line or space, denotes all the notes in that line, or space, to be taken a semitone higher than in the natural series. And the same affects all their octaves, above and below, though not marked.

When the *character* is prefixed to any particular note, it shews that note alone to be a semitone higher than it would be without such a *character*.

♭ *Character* of a *flat note*. This *character*, at the beginning of a line, or space, shews, that all the notes in that line, or space, are to be taken a semitone lower than in the natural series; affecting, in like manner, all the octaves, both above and below. When prefixed to any note, it shews that note alone to be a semitone lower than it would otherwise be.

♮ *Character* of a *natural note*. Where, in a line or series of artificial notes, marked at the beginning for either sharps or flats, the natural note happens to be required, it is denoted by this *character*.

𝄞 *Character of a treble clef.*

𝄡 *Moon clef.*

𝄢 *Bass clef.*

For *characters* in PRINTING, see CORRECTION.

CHARACTERS *of Time*.

2, or $\frac{2}{2}$, or $\frac{4}{4}$, *characters* of *common*, or *duple time*; signifying the measure of two crotchets to be equal to two notes; whereof four make a semibreve.

C ₵ ⊕ *Characters* that distinguish the movements in *common time*; the first implying slow; the second, brisk; third, very quick.

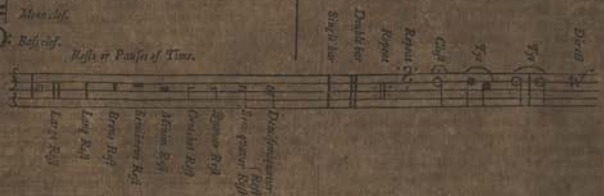
$\frac{3}{2}$, $\frac{3}{4}$, or $\frac{3}{8}$, $\frac{3}{16}$, *characters* of the *simple triple time*; whose measure is equal either to three semibreves, or to three minims, &c.

$\frac{6}{4}$, or $\frac{6}{8}$, or $\frac{6}{16}$, *characters* of *mixed triple time*; where the measure is equal to six crotchets, or six quavers, &c.

$\frac{9}{4}$, or $\frac{9}{8}$, or $\frac{9}{16}$, $\frac{9}{32}$, *characters* of *compound triple time*.

$\frac{12}{4}$, or $\frac{12}{8}$, or $\frac{12}{16}$, or $\frac{12}{32}$, or $\frac{12}{64}$, *characters* of the fourth species of *triple time*; called, *the measure of twelve times*.

Rests or Pauses of Time.



CHARACTERS *on Tomb Stones*.

S. V. *Sisti, Viator; Stay, Traveller.*

M. S. *Memoriæ Sacrum; Sacred to memory.*

D. M. *Dis Manibus.*

IHS *Jesus.*

XP. A *character* found on ancient monuments; about the meaning of which authors are not agreed. See CATACOMB.

CHARACTER is also used for a certain manner, air, or assemblage of qualities, resulting from several particular marks, which distinguish a thing from any other, so as it may be known thereby.

Thus, we say, the *character* of Achilles; generosity and greatness of mind was the *character* of the Romans; Cicero had a *character* of politeness, which is wanting in Demosthenes; every passion has its peculiar *character*.

The writers of *characters* are, Theophrastus, whose fragments are still extant; Du Moulin, in his Exemplar Morum; Paschal, in his Characteres Virtutum & Vitiorum; M. de la Chambre, in his Characters of the Passions; and De la Bruyere, in his Characters and Manners of the Age.

CHARACTER, in *Poetry*, especially the epopea and drama, is the result of the manners, or that which each person has peculiar and singular in his manners, whereby he is distinguished from others.

The poetical *character*, Bossu observes, is not properly any virtue or quality in particular; but is a composition of several, mixed and combined in various degrees, according to the occasions of the fable, and the unity of the action. All the simple qualities that enter this compound, must not have the same rank, nor be equal to each other; since, in that case, one prevailing on one occasion, and another on another, the *character* will appear changeable; and the poem, as well as the hero, will seem animated with several souls.

There must, therefore, be one to reign over all the rest; and this must be found in some degree in every part: just as the same hero in several paintings, should have the same lines and features, how different soever his posture and passions may be.

This first quality, in Homer's Achilles, is wrath; in Ulysses, dissimulation; and in Virgil's Æneas, mildness; each of which may, by way of eminence, be called the *character* of those heroes.

These are never to go alone, but always are to be accompanied with others, to give them the greater lustre; either by hiding their defects, as in Achilles, whose anger is palliated by great courage; or by making them centre in some fond virtue, as in Ulysses, whose dissimulation makes a part of his prudence; and in Æneas, whose mildness is chiefly employed in a submission to the will of the gods.

These secondary qualities of courage, prudence, and submission, make the goodness of the *character* of these heroes, and even of the poems.

Bossu adds, that the quality of courage must always have a share in the *character* of a hero, to serve as a support to the rest: the heroic *character*, therefore, he makes a compound of three kinds of qualities. Those of the first kind are necessary and essential to the fable; those of the second are the supplements, or the embellishments of the first; and courage, which sustains the other two, makes the third.

The first, which is the chief, is to be some universal quality, to have place on all occasions, and to distinguish the hero wherever it is found.

For the unity of *character*, we have Horace's express command, *Sit quodvis simplex duntaxat & unum*. Bossu adds, that the *character* is not less the soul of the hero, and the whole action, than the fable is of the poem; and of consequence the unity must be as exact in the one as the other; which accordingly we find observed both by Homer and Virgil.

The unity of *character* is somewhat different from that of the manners: in the latter, the unity and equality consist in not giving contrary sentiments to the same person; which is not sufficient for the unity of *character*; but to this must be added, that the same spirit must always appear on all occasions, whether contrary, or otherwise: thus, Æneas shewing great goodness in the first part of the poem, and much valour in the second, but without discovering any of his former piety, and gentleness; there had been no offence against the evenness of the manners, but much against the unity of the *character*.

So that besides the qualities which have their particular place on different occasions, there must be one to have place throughout, and to reign over all the others. Without this there is no *character*: as would be the case should a poet give his hero the piety of Æneas, and the courage of Achilles, without considering the severity of the one, and the mildness of the other.

A hero, it is true, may be made as brave as Achilles, as mild or pious as Æneas, and, if the writer thinks proper, as prudent as Ulysses: but it would be a mere chimera to imagine a hero with the particular courage of Achilles, the piety of Æneas, and the prudence of Ulysses at the same time.

The unity of *character* is not only to be kept in the hero, and the several other persons of the poem; but also in that of the poem itself: that is, all the *characters*, how opposite soever, must centre, and re-unite in that of the hero; and be so swayed by it, as that this alone may seem to govern throughout the whole. Thus Homer makes wrath prevail throughout the whole Iliad, and

artifice and dissimulation throughout the Odyssey, the hero's *character* is preserved every where, but in full sway, and is favoured by the similitude of the *characters* of some of the other persons. Virgil had a great difficulty to grapple with to preserve his unity; because of the direct opposition between the humours of his hero, and those of some other of his persons, as Turnus, Mezentius, Dido, &c. He therefore takes care not to carry those opposite *characters* to their full length, but moderates and restrains them: and as that moderation could not flow naturally from the persons themselves, it is produced either by some passion, as in Dido; or some dependence, as in Turnus and Mezentius. To this artifice he adds episodes, accommodated to the general *character*, by which he interrupts the particular actions, which require an opposite *character*.

Claudian's conduct in this respect, is unjustifiable; from the horrible *characters* of Pluto, and the Furies, with all the terrors of hell, he passes to the gaiety and pleasures of the Graces, gilded palaces, flowery fields, &c. He has as many different prevailing *characters* to his three books, as Homer and Virgil in their sixty.

CHARACTER is also used among *Divines*, especially those of the Romish church, for an indelible mark, or impression, which certain sacraments are supposed to leave behind them in those who receive them.

The sacraments that leave this *character* are incapable of being repeated. The *character* is generally supposed to be something physical.

The sacraments of baptism, confirmation, and ordination, in particular, leave such indelible *character*.

CHARACTERS *of fishes*, *characteres piscium*, are those marks by which each particular fish is distinguished from those other species of the same genus to which it belongs, and by which it is to be referred to its genus. These *characters* are the essential foundation of all the natural divisions in this part of history, and by means of these alone the young student is led on the real knowledge of the bodies under consideration, whether according to the works of other authors, or some new system of his own. The naturalists of former ages did not pay a sufficient regard to these marks, and consequently could not but ignore the natural divisions of bodies, but had recourse to the artificial distinctions taken from accidents or variable properties in them, and the general external appearance usually gave rules to them; hence the uncertainty and confusion of the divisions of the old authors, and wicked and irregularity of those of the moderns. *See* GENERICAL *name*.

CHARACTERS *of plants*. *See* GENUS, &c.

CHARACTERISTIC, in the general, is that which *characterises* a thing or person, i. e. constitutes its *character*, whereby it is distinguished from all others.

CHARACTERISTIC is peculiarly used in *Grammar*, for the principal letter of a word; which is preserved in most of its tenses and moods, its derivatives and compounds.

The *characteristic* frequently shews its etymology; and ought constantly to be retained in its orthography: such is the letter *r* in *curro*, *fert*, &c.

The *characteristics* are of great use in the Greek grammar, especially in the formation of the tenses; as being the same in the same tenses of all verbs of the same conjugation, excepting in the present tense, which has several *characteristics* and the future, the aorists primus, the præterperfect, and the pluſquam perfect tense of the fourth conjugation, which have two *characteristics*.

CHARACTERISTIC *of a* LOGARITHM, is its INDEX or exponent.

CHARACTERISTIC *triangle of a curve*. *See* CURVE.

CHARADRIUS, in *Ornithology*, a name by which Gesner and Aldrovandus have called the OEDICNEMUS, a bird very improperly called in English the *stone-curlew*. *Aldrov. lib. xii. cap. 15.*

CHARADRIUS, in the Linnæan system of *Ornithology*, is a distinct genus of birds, of the order of the GRALLÆ: the distinguishing *character* of which is, that the feet have each three toes; the point of the bill is cylindrical and obtuse; and the nostrils linear. There are twelve species. *See Tab. of Birds*, N° 55.

CHARAG, the tribute which Christians and Jews pay to the grand signior.

It consists of ten, twelve, or fifteen francs per cent. according to the estate of the party. Men begin to pay it at nine or at fifteen years old; women are dispensed with, as also priests, rabbins, and religious.

CHARAIMS, a sect of the Jews in Egypt. They live by themselves, and have a separate synagogue; and as the other Jews are remarkable for their eyes, to these are for their large noses, which run through all the families of this sect. These are the ancient Karaites. They strictly observe the five books of Moses, according to the letter, and receive no written traditions. It is said that the other Jews would join the *Charaims*, but their not having observed the exact rules of the law with regard to divorces, these think they live in adultery.

CHARANTIA, in *botany*, a name by which some authors have called the male balsam. *Gers. Emac. Ind.*

CHARAX, in *ichthyology*, a name given by Artedi, Appian, and many other of the Greek writers, to the fish called by the later writers the CHRYSOPHRYS.

It is properly a species of the SPARUS, distinguished by the name of the cyprinus with incurve rays in the back fin, and with the *linea lateralis* straight.

CHARBON, in the *Manege*, signifies that little black spot or mark that remains after a large spot, in the cavity of the corner teeth of a horse. About the fourth or eighth year, when the cavity fills, the tooth being smooth and equal, it is find to be rafted.

CHARCOAL, a sort of artificial coal, or fuel, consisting of wood half burnt; chiefly used where a clear strong fire, without smoke, is required; the humidity of the wood being here mostly dissipated and exhaled in the fire, wherein it was prepared.

The microscope discovers a surprising number of pores in *charcoal*: they are disposed in rows, and traverse it lengthwise; so that there is no piece of *charcoal*, how long soever, but may be easily blown through. If a piece be broken pretty short, it may be seen through with a microscope. In a range the eighteenth part of an inch long Dr. Hook reckoned one hundred and fifty pores; whence he concludes, that in a *charcoal* of an inch diameter, there are no less than five millions three hundred twenty-four thousand pores.

It is to this prodigious number of pores, that the blackness of *charcoal* is owing: for the rays of light, striking on the *charcoal*, are received and absorbed in its pores, instead of being reflected; whence the body must necessarily appear black, blackness in a body being no more than a want of reflection.

Dr. Priestley conjectures, that this is owing to the oil of the wood, made empyreumatic, and burnt to a certain degree; and that it is connected with the phlogiston, united to the earth of the plant, when the vessels are strengthened by an intense heat. The same ingenious philosopher has discovered that *charcoal* is an excellent conductor of electricity; and that the degree of its conducting power depends on the degree of heat with which it is prepared, and he ascribes this power to the phlogiston united with it in the process, estimating that the strength of the conducting power may depend more on the perfect union between the inflammable principle and its base, which results from the degree of heat only, than on the quantity of phlogiston thus united to the earth. He adds, that as *charcoal*, when separated from the external air, will bear a greater degree of heat, without being dissipated into vapour, than silver or gold, it may be possible to make this substance a better conductor of electricity than the most perfect metals. Wood in the process of being reduced to *charcoal* is diminished both in weight and bulk; nevertheless wood and *charcoal*, expanded by a certain degree of heat, but the latter in the greatest proportion; and a greater degree of heat makes them contract.

The noxiousness of air infected with the fumes of burning *charcoal* is well known; the cause of this has been sufficiently explained by Dr. Priestley, &c. who accounts for it by the diminution of the air, in consequence of being overcharged with phlogiston, and the deposition of fixed air. *See* AIR, *fixed*. Priestley's Electricity, vol. ii. p. 103. Exper. and Obs. on Air, vol. i. p. 139. and vol. ii. p. 241. or Phil. Trans. vol. lx. art. 19. p. 812.

Mathematical instrument-makers, engravers, &c. find *charcoal* of great use to polish their brass and copper-plates, after they have been rubbed clean with powdered pumice-stone. Mr. Boyle says, that the most suitable burn it a second time, and quench it in a convenient fluid. Plates of horn are polishable the same way, and a gloss may be afterwards given with tripoly.

Charcoal and sand-stones are the two most durable and useful blocks of the painter, and the varnish maker. Those of the former kind are used both as pigments and pencils; and *charcoal* crayons prepared from the willow are preferred on account of their softness. *See* concerning them Lewis's Commercium Phil. Techn. p. 276.

Charcoal tinges glass in fusion yellow, reddish, &c. and by baking stains it yellow. *See* ibid. p. 278. See also the observations on the differences of different *charcoals*, &c. and of the manner of distinguishing between the vegetable and animal, ibid. p. 330, & 101.

Charcoal

Charcoal was anciently uſed to diſtinguiſh the bounds of eſtates and inheritances; as being ſuppoſed incorruptible, when let very deep within the ground. In effect, it preſerves itſelf ſo long, that there are many pieces found entire in the ancient tombs of the northern nations.

M. Duhamel ſays, there is ſometimes found *charcoal* made of corn, probably as old as the days of Ceſar; he adds, that it has kept ſo well, that the wheat may be ſtill diſtinguiſhed from the rye; which he looks on as a proof of its incorruptibility.

CHARCOAL, *method of making*.—The firſt is that made of oak, cut into lengths of about three feet. The ground whereon the operation is to be performed, is barked of all the turf, and other combuſtible matters; and is in form *circular*, a ſtake being driven in the centre. This area is filled up with wood, eight feet high, placed alternatively lengthwiſe, and perpendicularly; then coped a-top in the form of a ſugar-loaf, and all inequalities filled up with ſmall wood, till it be very ſteep; the whole is then to be covered over moderately thick with turf, and other rubbiſh.

A moveable funnel being then ſet up againſt the wind, the ſtake is pulled up, and fire let to the pile, by pouring into the cavity ſome *charcoal*, and other coal fully kindled; the vent, or funnel a-top, is then covered with turf, and vent-holes are made through the ſtuff that covers the pile, ten or three feet apart quite round, a foot from the top. The next day a new range of holes is made, a foot and a half below the firſt, and thus on to the bottom; obſerving, that as the pile cools, and ſinks to the centre, it muſt be continually fed with ſhort wood, that no part remain unfired; and that if any part chars faſter than other, the vent holes there are to be ſtopped up. A parcel is thus burnt in five or ſix days: as it cools, the ſmoke grows thinner and thinner. The heap requires two or three days to cool; which is promoted by ſtopping the vents, and ſtripping off the covering by degrees, about a yard at a time; at firſt only taking off the conſiſt part, and leaving the reſt, that the pile may neither cool too faſt, nor undergo the reduction of the whole into aſhes. Laſtly, the coals are taken out from round the bottom, by which means the whole maſs, coals and rubbiſh, ſinks down, and extinguiſhes the fire at once.

Charcoal, for powder-mills, is uſually made of elder-wood; the proceſs is the ſame; but is finiſhed in two days.

CHARDS, in *Gardening*.—The *chards* of artichokes are the leaves of good artichoke-plants, tied and wrapped up all over but the top, in ſtraw, during the autumn and winter; this makes them grow whiter, and loſe ſome of their bitterneſs.

CHARDY *of beets* are white beets, covered with dry dung during the winter ſeaſon, when they produce large tops with a ſlowny cotton ſhoot; which is the true *chard*, to be uſed in pottages, intermeſſes, &c.

CHARGE, in *Electricity*, in a thick ſenſe, denotes the accumulation of the electric matter on one ſurface of an electric, as a pane of glaſs, Leyden phial, &c. whilſt an equal quantity paſſes off from the oppoſite ſurface: or, more generally, electrics are ſaid to be *charged*, when the equilibrium of the electric matter on the oppoſite ſurfaces is deſtroyed, by communicating one kind of electricity to one ſide, and the contrary kind to the oppoſite ſide: ſince the equilibrium be reſtored till a communication be made by means of conducting ſubſtances between the two oppoſite ſurfaces. And when this is done, the electric is ſaid to be diſcharged. The *charge* properly refers to one ſide, in conſiderdiſtinction from the other; ſince the whole quantity in the electric is the ſame before and after the operation of *charging*; and the operation cannot ſucceed, unleſs what is gained on one ſide be loſt by the other, by means of conducters applied to it, and communicating either with the earth, or with a ſufficient number of non electrics. In order to facilitate the communication of the electricity to an electric plate, &c. the oppoſite ſurfaces are coated with ſome conducting ſubſtance, uſually with tin foil, within ſome diſtance from the edges; in conſequence of which the electricity communicated to one part of the coating is readily diffuſed through all parts of the ſurface of the electric in contact with it: and a *diſcharge* is eaſily made by forming a communication with any conductor from one coating to the other. If the oppoſite coatings approach too near each other, the electric matter forces a paſſage from one ſurface to the other before the *charge* is complete. And ſome kinds of glaſs have the property of conducting the electricity over the ſurface, ſo that they are altogether unfit for the operation of *charging* and *diſcharging*. If indeed the *charge* is too high, and the glaſs plate or phial too thin, the attraction between the two oppoſite electricities forces a paſſage through the glaſs and makes a ſpontaneous *diſcharge*, and the glaſs becomes unfit for farther uſe. See CONDUCTOR, ELECTRICS, LEYDEN *Phial*, &c.

CHARGE, in *Gunnery*, the load of a piece; or the quantity of powder and ball, or ſhot, wherewith it is to be prepared for execution.

The rules for *charging* large pieces in war, are, that the piece be firſt cleaned or ſcowered, within ſide; that the proper quantity of gunpowder be then driven in, and rammed down; care, however, being taken, that the powder be not bruiſed in ramming, for that weakens its effect; that a little quantity of paper, hay, or the like, be rammed over it, and that then the ball of ſhot be introduced.

If the ball be red-hot, a tampion, or trencher of green wood, is to be driven in before it.

The weight of gun-powder neceſſary for a *charge*, is commonly in a ſubduple proportion to that of the ball. See CANNON.

In the Britiſh navy, the allowance for thirty-two-pounders is but ſeven-twentieths of the weight of the baller. But a late author is of opinion, that if the powder in all ſhip-cannon whatever was reduced to one-third weight of the ball, or even leſs, it would be a conſiderable advantage, not only by ſaving ammunition, but by keeping the guns cooler and quieter, and at the ſame time more effectually injuring the veſſels of the enemy. With the ſparing allowance of powder, the guns are bored, and their tackle and furniture ſtrained, and the only to render the bullet leſs efficacious. For a bullet which is but juſt paſs through a piece of timber, and loſes almoſt all its motion thereby, has much leſs force of penetrating and fracturing it, than it is puſhed through with a much greater velocity. See Robins's Tracts, vol. i. p. 290, 291.

Profeſſor Euler obſerves, in his inveſtigation of this ſubject, that in every caſe there is a certain *charge* which will communicate the greateſt velocity to the ball; ſo that by increaſing or diminiſhing it, the motion of the ball will be diminiſhed: and he concludes, by a fluxionary calculus, that an iron ball will go moſt even-ſwiftly a pounder with the greateſt velocity when the piece is charged ſo that the powder expands to ſeven times its baſis. Since this is about $\frac{1}{3}$ of the weight of the ball and the common *charge* half its weight, one-ſixth, or greateſt *charge*, will be thrice the common charge. He has alſo computed the following table, repreſenting the *charges* for the greateſt velocity:

Length of a ſingle inch in inches.	Length of the *charge* in inches.	Weight of the powder for the greateſt *charge* in pounds.
2	0.82	16
4	1.56	31
6	2.28	45
8	2.98	60
10	3.35	67
12	3.68	73
14	4.30	86
16	4.77	95
18	5.20	104
20	5.59	112
22	5.96	119
24	6.32	126
26	6.66	133
28	6.99	140
30	7.31	146
32	7.61	152
34	7.90	158
36	8.18	163
38	8.44	169
40	8.80	174
42	8.93	179
44	9.18	184
46	9.43	188
48	9.66	193
50	9.89	198
52	10.11	202
54	10.32	206
56	10.53	210
58	10.73	214
60	10.90	218

From the calculations by which this table is formed, Euler concludes, that the *charges* aſſigned by Mr. Robins for the greateſt velocity are much too great. See Euler's Principles of Gunnery inveſtigated and explained, 8vo. 1777. p. 129, 206.

Mr. Robins obſerves, that the *charge* is not to be determined by the greateſt velocity that may be produced; but that it ſhould be ſuch a quantity of powder as will produce the leaſt velocity neceſſary for the purpoſe in view; and if the velocities be equal, he obſerves, he ſhould ever be loaded with more than a quarter of the utmoſt $\frac{1}{3}$ of the weight of his bullet in powder; howſhould

the *charge* of any battering piece exceed ¼ of the weight of its bullet. Tracta, &c. vol. i. p. 266, &c.

CHARGE, in *Heraldry*, is applied to any figure or thing, borne or represented in an escutcheon, or coat of arms; whether it be animal, vegetable, or other matter.

Too many *charges* are not deemed so honourable as fewer. *Charges* peculiar to the art and usage of armory, as the cross, chief, pale, fesse, &c. are called *proper charges*; and frequently ordinaries.

Bloom restrains the term *charges* to these additions, or rewards of honours, frequently placed on escutcheons as cantons, quarters, gimels, flaspers, &c.

CHARGE, in *Law*, denotes the instructions given to the grand jury, with respect to the articles of their inquiry, by the judge who presides at the assizes.

CHARGE, in *Law*, also signifies a thing done that bindeth him who doth it; or that which is his to the performance of it; and DISCHARGE is the removal of that *charge*. Land may be *charged* to various ways; as, by grant of rent out of it, by statutes, judgments, conditions, warranties, &c.

CHARGE, in the *Manege*, a sort of unguent made of oil, honey, grease, turpentine, and sometimes of lees of wine, and other matters, applied externally to a horse, &c. for the cure of strains, bruises, and swellings.

CHARGE, or rather OVERCHARGE, in *Painting*, is an exaggerated representation of any person; wherein the likeness is preserved, but at the same time ridiculed.

Few painters have the genius necessary to succeed in these *charges*: the method is, to select and heighten something already amiss in the face, whether by way of defect, or redundancy: thus, v. g. if nature have given a man a nose a little larger than ordinary, the painter falls in with her, and makes the nose extravagantly long; or if the nose be naturally too short, in the painting it will be a mere stump; and thus of the other parts.

CHARGE *of lead*, is thirty-six pigs. See LEAD, PIG, &c.

CHARGE, in *Sea Language*, is sometimes used for burden: thus a *ship of charge* is such as draws much water, or forms deep in the sea; though sometimes an unwieldy ship, that will not wear nor steer, is called a ship of *charge*.

CHARGED, in *Heraldry*, A shield, carrying on it some figure or impress, is said to be *charged* therewith.

So, also, when one bearing, or *charge*, has another figure added upon it, it is properly said to be *charged*.

CHARGER *of a gun*, is that part of the chase of a gun where the powder and ball are contained.

CHARIENTISMUS, in *Rhetoric*, a figure wherein a taunting expression is softened by a jest.

CHAR. See CHARR.

CHARIOT. See COACH.

The curious may see various representations of *chariots*, and accounts of improvements on *chariots*, and of different constructions, Mag. tom. ii. p. 39. tom. iii. p. 33. p. 41. p. 197. and p. 31. And in the Mem. of the A. D. S. an. 1701. Hist. 161. and an. 1719. Hist 81.

The ancients made use of *chariots* in war. These were of different kinds; but the most terrible were those armed with pikes and scythes, thus; the beam to which the horses were fastened was armed with pikes, having iron points to them which projected forward; the yokes of the horses had likewise two long points of three cubits; to the axle-tree also were fixed iron spits, armed at their extremities with scythes; between the spokes of the wheels were placed javelins, and the very felloes of the wheels were furnished with scythes, which tore every thing they met with to pieces.

The axle-tree was longer than usual, and the wheels stronger, that they might be able to resist the shock of the motion, and the *chariot* be less subject to overturn. The driver's seat was a kind of little tower, made of very solid wood, and raised breast-high. The charioteer was armed all over, and covered with iron. Sometimes several men, well armed, were put in those *chariots*, who fought with darts and arrows. Diodor. Sicul. lib. xvii. Q. Curt. lib. iv. Xenoph. Cyropæd. lib. vi. See a Dissertation on the Ancient *Chariot* by Mr. Fownall, in Bezenger's Art of Horsemanship, vol. i. p. 271, &c.

CHARIOTS, in *Mythology*, were sometimes consecrated to the sun: and the Scripture observes, that Josiah burnt those which had been offered to the sun by the kings his predecessors. This superstitious custom was an imitation of the heathens, and principally of the Persians, who had horses and *chariots* consecrated in honour of the sun. Herodotus, Xenophon, and Quintus Curtius, speak of white *chariots*, crowned, which were consecrated to the sun, among the Persians; and in their ceremonies were drawn with white horses, consecrated to the same luminary.

CHARISIA, in *Pagan Theology*, a wake or night festival instituted in honour of the Graces. It continued the whole night, most of which time was spent in dancing; after which, cakes made of yellow flour, mixed with honey, and other sweet-meats, were distributed among the assistants. The word is also used to signify the sweet-meats distributed on such occasions.

CHARISIUS, in *Pagan Theology*, a surname given to Jupiter.

The word is derived from χαρις, *favour*; he being the god by whose influence men obtain the favour and affection of one another. On which account the Greeks used at their meals, to make a libation of a cup to JUPITER *Charisius*.

CHARISTIA, a family-feast celebrated among the Romans, on the eleventh of the calends of March; i. e. on the nineteenth of February, in honour of the goddess *Concord*.

The word comes from χαρις, *grace, favour*; q. d. day of reconciliation, or of restoring into favour. It was also called *dies charorum cognitionis*. Vigenere, on Livy, calls it *the day of good cheer*.

The *charistia* were instituted to re-establish peace and amity, in families embroiled, or at variance among themselves. It consisted in a great entertainment made in each family, to which no strangers were admitted, but only relations and kindred. The joy and freedom inspired by the repast, were looked upon as a proper means to re-unite divided minds; to which the good offices of so many friends would greatly contribute.

CHARISTICARY, *Commendatary*, or *Donatary*, a person to whom is given the enjoyment of the revenues of a monastery, hospital, or benefice.

The *charisticaries*, among the Greeks, were a kind of donataries, or commendatories, who enjoyed all the revenues of hospitals and monasteries, without giving an account thereof to any person.—The original of this abuse is referred to the iconoclasts, particularly Constantine Copronymus, the avowed enemy of the monks, whose monasteries he gave away to strangers.

In after-times, the emperors and patriarchs gave many to people of quality, not by way of gift to reap any temporal advantage from them; but to repair, beautify, and patronize them. At length avarice crept in, and those in good condition were given, especially such as were rich; and at last they were all given away, rich and poor, those of men and of women; and that to laymen, and married men.

M. Courtier, in his Ecclesiæ Græcæ Monumenta, gives us the forms of these donations: they were granted for life, and sometimes for two lives. See ABBOT.

CHARITABLE *Uses*, in *Law*. See COMMISSION and MORTMAIN.

CHARITATIVE, in the *Canon Law*. *A charitative aid*, or *subsidy*, is a moderate allowance, which a council grants a bishop upon any urgent occasion; e. g. when his revenues will not bear his expences to a council, &c.

CHARITY, one of the three grand theological virtues; consisting in the love of God and our neighbour.

Charity is the habit or disposition of loving God with all our heart, and our neighbour as ourselves. It has two material objects, therefore, as the schools expresse it; viz. God and our neighbour.

CHARITY is also used for the effect of a moral virtue, which consists in supplying the necessities of others, whether with money, counsel, assistance, or the like.

CHARITY, *brief*. See BRIEF.

CHARITY, *feasts of*. See AGAPÆ.

CHARITY-*schools*, are schools erected and maintained in various parishes, by the voluntary contributions of the inhabitants for teaching poor children to read, write, and other necessary parts of education.

In most *charity-schools* the children are likewise clothed, and put out to trades, services, &c. on the same charitable foundation.

Charity-schools have spread throughout most of the considerable towns of England and Wales.

In London we had likewise a CHARITABLE *Corporation* for the relief of the industrious poor, erected under queen Anne; for enabling indigent manufacturers and traders to take up money at common and legal interest; there being a sum of 30,000*l.* raised for that end.

CHARITY, *order of*. There are several religious orders which bear this title: one instituted by St. John de Dieu, for the assistance of the sick; this institute was approved of in 1520, by Leo X. and confirmed by Paul V. in 1617. The religious of this order apply themselves wholly to the service of the diseased.

CHARITY *of the Holy Virgin*, an religious order established in the diocese of Chalons, by Guy lord Joinville, &c. towards the close of the thirteenth century, approved under the rule of St. Augustine, by the popes Boniface VIII. and Clement VI.

In each parish of Paris, there is a society of women, who

who apply themselves to find out and relieve the wants of the poor of the parish; and on this account called, *Domus & in Christi*, and *Servi & in Christi*.

CHARKING, or CHARRING, the burning of wood to make CHARCOAL.

CHARKS, pit-coal charked, or charred. See COAL.

CHARLATAN, or CHARLETAN, an EMPIRIC, or quack, who retails his medicines on a public stage, and draws the people about him with his buffooneries, feats of activity, &c.

The word, according to Calepine, comes from the Italian *ceretano*, of *Cereton*, a town near Spoletto in Italy, where these impostors are said to have first risen. Menage derives it from *ciurlatore*, and that from *circulatorius*, of *circulator*, a quack.

CHARLES'S WAIN, in *Astronomy*, seven stars in the constellation Ursa Majoi.

CHARLOCK, in *Husbandry*; (for the botanical characters, see MUSTARD;) a very troublesome weed among corn, being more frequent than almost any other. There are two principal kinds of it; the one with a yellow flower, the other with a white. Some fields are particularly subject to be over-run with it, especially those which have been manured with cow-dung alone, that being a manure very favourable to the growth of it. The farmers in some places are so sensible of this, that they always mix horse-dung with their cow-dung, when they use it for arable land.

When barley, as is often the case, is infested with this weed to such a degree as to endanger the crop, it is a very good method to mow down the *charlock* in May, when it is in flower, cutting so low as just to take off the tops of the leaves of the barley with it: by this means the barley will get up above the weed: and people have got four quarters of grain from an acre of such land, as would have yielded them scarce any thing without this expedient. Where any land is particularly subject to this weed, the best method is to sow it with grass-seed, and make a pasture of it; for then this plant will not be troublesome, as it does not grow where there is a coat of grass upon the ground.

CHARM, a magic power, or spell, by which, with the assistance of the devil, sorcerers and witches are supposed to do wondrous things, far surpassing the powers of nature. See MAGIC.

The word comes from the latin, *carmen*, *verse*.

Physicians, figurators, &c. are all kinds of *charms*.

CHARNEL, a portico, or gallery, anciently near the church-yard, where were disposed the bones of the dead, when the flesh was consumed.

The *charnels*, or *charnel-houses*, are now usually contiguous to the church.

CHARNUB, in the *Materia Medica*, a name given by some of the ancient writers to the *siliqua dulcis*, or carob-tree. The Arabian physicians mention two kinds of this; the Syrian, and Nabuthean: the first they call *affarmon*, and the other *alnatrun*. Avicenna tells us, that the first of these was a purge, and was given with success in pains of the bowels; and that other an astringent, given in profusion of the menses.

CHARONIUS, *Charonian*, is used as an epithet for caves, some of which are found in Italy, and in other parts of the world, where the air is so loaded with a poisonous vapour, that animals cannot live in them, even a few moments.

CHARON, in *Mythology*. See STYX.

CHARR, in *Ichthyology*, a name given to a fish of the trutaceous kind, of which there are two species, distinguished by the *red charre*, and the *gilt charre*; the former of which is called by some of the ichthyographists, SALMA *minor*, and by Linnæus *salmo alpinus*; and the latter, the CARPIO *lacus Benaci*.

CHARR, *red*, is a large fish, longer and slenderer in its general shape than the trout, caught in the lakes of Wales, Westmoreland, and of the mountainous parts of Europe: and is esteemed a very fine fish; but its flesh does not boil so red as that of the trout.

The *red charr* is called by the Welch *torgoch*; a compound of *tor*, *the lower part of the belly*, and *goch*, *red*: *Arctic*, *redbelly*. In one respect, the *charr* seems nearly allied to the eel and tench, being very slimy; and the curing and potting them well, depend on dressing them properly of this mucilaginous quality. See an account of the Welch *charrs*, in Phil. Trans. vol. xlix. part 1. N° 32. p. 214.

The Westmoreland *charrs*, called *red charrs*, spawn about Michaelmas; and at this time will take a bait, and at no other. They are supposed to be in the highest perfection about May, and in the summer, though rarely caught after April. The *charrs* of Wales are rather smaller, and of a paler colour than those of Westmoreland.

CHARR, *gilt*, or *barren*, is one which had not spawned the preceding season, and on that account reckoned to be in greatest perfection.

CHARR, *gilt*, is something like the trout in figure: but it is broader, and its belly is prominent, especially when the fish is large: the usual size is about a foot in length, which it rarely exceeds. This is very common in some of the lakes of Italy, but is not peculiar to that kingdom, as has by some been imagined, being frequent in some foreign, and in some of the northern lakes; and there is no doubt, but that the fish there caught, and called the *gilt charr*, and the CARPIO *lacus Benaci*, are entirely the same fish. It is a very finely flavoured fish, and much valued at the tables of the great.

This species spawns from the beginning of January to the end of March: and they are taken in greatest plenty from the end of September to the end of November.

CHART, or *Sea-CHART*, a hydrographical map, or a projection of some part of the sea, *in plano*: for the use of navigation.

The invention of *sea-charts*, Fournier refers to Henry, son of John king of Portugal. They differ very considerably from geographical, or land maps, which are of no use in navigation. Nor are *sea-charts* all of the same kind; some being what we call *plain charts*, others *reduced*, or *Mercator's charts*, and others *globular charts*.

CHARTS, *plain*, are those wherein the meridians and parallels are exhibited by right lines, parallel to each other.

These Ptolemy, in his Geography, rejects for the following faults, though their inventor judged them of good use: and experience has confirmed his judgment, especially in those voyages. Their defects are, 1. That these in reality all the meridians meet in the poles, it is absurd to represent them, especially in large *charts*, by parallel right lines. 2. That *plain charts* exhibit the degrees of the several parallels, equal to those of the equator; and of consequence the distances of places lying east and west, much larger than they should be. And, 3. In a *plain chart*, while the same rhumb is kept, the vessel appears to fail in a great circle which is yet falle.

But notwithstanding these defects in the *plain chart*, yet the easiness of its application has so reconciled it to the mariners, that it is used almost alone; to exclusion of the more accurate ones.

Construction of a plain CHART.—1. Draw a right line, as AB (*Sea Navigation*, *fig.* 9.), and divide it into as many equal parts, as there are degrees of latitude in the portion of the sea to be represented. 2. Add another right angles BC, divided into as many parts, and those equal to one another, and to the former, as there are degrees of longitude in the portion of the sea to be represented. 3. Complete the parallelogram ABCD, and resolve the area into little squares; then right lines, parallel to AB and CD, will be meridians; and those parallel to AD and BC parallels. 4. The coasts, islands, bays, sands, rocks, &c. infert from a table of longitudes and latitudes, in the same manner as is laid down under MAP.

Hence, 1. The latitude and longitude of a ship being given, her place is easily exhibited in the *chart*. 2. The places F and G, to and from which the ship sails, being given in a map, the right line FG, drawn from the one to the other, makes, with the meridian AB, an angle AFG, equal to the inclination of the rhumb: and since the parts F 1, 12, 2 G, intercepted between equidistant parallels, are equal; and the inclination of the right line FG, to all the meridians or right lines parallel to AB, is the same; the right line FG truly represents the rhumb. After the same manner it may be shewn, that this *chart* exhibits *latus meridionum*, or miles of longitude, truly. It follows, that *plain charts* may be used to very good purpose in directing a ship; provided care be taken these escape no error in the distances of the places F and G.

Confutation of a fcale to correct the errors of diſtance in a plain CHART.—1. Upon the right line AB (*fig.* 10.), from the map transfer five degrees, and divide them into 300 equal parts, or geographical miles. 2. On this describe a ſmall circle ACD, to be divided into 60 equal parts; if then it be deſired to know how many miles make five degrees in the parallel BH; in the compaſſes take the interval BH, and tranſfer it on to the diameter AB; the number of miles required will here be ſhewn. It follows, that if a ſhip ſail on an eaſterly or weſterly rhumb, out of the equator; the miles anſwering to the degrees of longitude will be found as in the preceding article. If it ſail on any collateral rhumb, ſtill the ſailing is ſuppoſed to be an eaſtern or weſtern rhumb, in an intermediate parallel, between the parallel of the place whence the ſhip proceeds, and parallel of the place at which ſhe arrives.

It is true, this reduction, by an arithmetically mean parallel, is not accurate; yet it is frequently uſed in practice, as being accommodated to the apprehenſions of the generality of mariners. In effect, it does not err conſiderably, if the whole courſe be divided into

parts

parts, whereof each does not exceed one degree; whence it appears advisable, not to take the diameter of the semicircle AB above one degree, and to divide it at most into geographical miles.

For the application of the plain CHART *in sailing*, see *Plain* SAILING.

CHART, *reduced*, or CHART of *Reduction*, is that wherein the meridians are represented by right lines converging towards the poles; and the parallels by right lines parallel to one another, but unequal. These, therefore, it appears by their construction, muſt correct the errors of the *plain charts*.

But since the parallels ſhould cut the meridians at right angles; theſe charts are defective, inaſmuch as they exhibit the parallels inclined to the meridians.

Hence, another kind of *reduced charts* has been invented, wherein the meridians are parallel, but the degrees thereof unequal; theſe are called *Mercator's charts*.

CHART, *Mercator's*, is that wherein the meridians and parallels are represented by parallel right lines; but the degrees of the meridians are unequal; ſtill increaſing, as they approach the pole, in the ſame proportion as thoſe of the parallels decreaſe: by means whereof the ſame proportion is preſerved between them, as on the globe.

This *chart* has its name from that of the author who firſt propoſed it for uſe, about the year 1556, and made the firſt *chart* of this projection, in 1569, Gerardus Mercator: but neither was the thought originally his own, as having been hinted (according to Wright) by Cortes, about the year 1545; and even by Ptolemy near two thouſand years ago; nor is the perfection of it owing to him, our countryman Mr. Wright being the firſt who demonſtrated it, about the year 1590, and ſhewed a ready way of conſtructing it, by enlarging the meridian line by the continual addition of ſecants. See his Correction of Errors in Navigation, publiſhed in 1599. The claims, aſcribed by Wright to Cortes and Ptolemy, are examined and refuted in the elaborate Diſſertation on the Riſe, &c. of Navigation, prefixed to Robertſon's Elements of Navigation, p. 20, &c.

For a further account of Mr. Wright's method, and the conſtruction of a table of meridional parts, ſee MERIDIONAL *parts*.

Conſtruction of Mercator's CHART.—1. Draw a right line, and divide it into equal parts, repreſenting degrees of longitude either in the equator, or in the parallel wherein the *chart* is to terminate. From the ſeveral points of diviſion erect perpendiculars to repreſent meridians; ſo as right lines may cut them all under the ſame angle, and therefore repreſent rhumbs; thus far as in the *plain chart*. That the degrees of the meridians may have their juſt proportion to thoſe of the parallels, the former are to be increaſed; in regard the latter continue the ſame, becauſe of the parallelism of the meridians.

With the interval therefore of one degree in the equator CD (*Tab. Navig. fig.* 11), deſcribe the quadrant CDE. and in D erect a perpendicular DG; make the arch DL equal to the parallel of latitude, and through L draw CG: this CG will be the enlarged degree of the meridian, to be tranſferred to the meridian of the *chart*: the reſt as in *plain charts*.

In practice: ſuppoſe it is required to draw a *Mercator's chart* from the fortieth degree of north latitude, to the ſixtieth, and from the ſixth degree of longitude to the eighteenth. Firſt draw a right line repreſenting the fortieth parallel of the equator; which diride into twelve parts, for the twelve degrees of longitude the *chart* is to contain. Then take a line of equal parts, on a ſcale whereof a hundred parts are equal to each of theſe degrees of longitude; and at each extreme of the line raiſe two perpendiculars, to repreſent two parallel meridians to be divided by the continual addition of ſecants, which are proved to increaſe in the ſame proportion, as the degrees of longitude ſhould decreaſe.

Thus, for the diſtance from forty degrees of latitude, take 1313 equal parts, from the ſcale which is the ſecant of forty degrees thirty minutes. For the diſtance from forty-one degrees to forty-two degrees, take 1338 equal parts, from the ſcale, which is the ſecant of forty-one degrees thirty minutes; and ſo on to the laſt degree of your *chart*, which will be 154 equal parts, viz. the ſecant of forty-nine degrees thirty minutes, and will give the diſtance from forty-nine degrees of latitude to ſixty degrees. By this means the degrees of latitude will be augmented, in the ſame proportion as the degrees of longitude on the globe decreaſe.

The meridians being divided, add the card, or compaſs; chooſing ſome convenient place near the middle thereof: from this draw a line parallel to the divided meridians, which will be the north rhumb; and from this the other thirty-one points of the compaſs are to be ſet off.

Laſtly, Lay down the towns, ports, iſlands, coaſts, &c. from a table of longitudes and latitudes; and the *chart* is complete. In *Mercator's chart*, the ſcale changes as the latitude is changed: if then, v. g. a ſhip ſails between the fortieth and fiftieth parallels of latitude, the degrees of the meridians between thoſe two parallels are to be the ſcale for meaſuring the ſhip's way: whence it follows, that though the degrees of longitude be equal in extent on the *chart*, yet they muſt contain unequal numbers of miles, or leagues; and that they will decreaſe as they approach nearer the pole, becauſe meaſured by a magnitude continually increaſing. This *chart* is demonſtratively true, though to appearance falſe: it is found by experience very accurate, and withal very eaſy of application. In effect, it has all the qualifications required to render it of ſervice in navigation; yet do the generality of mariners decline the uſe of it, and rather chooſe to keep the old erroneous *plain chart*.

For the uſe of Mercator's CHART *in ſailing*, ſee *Mercator's* SAILING.

CHART, *gheſtlin*, is a projection ſo called, from the conformity it bears to the globe itſelf: this has been, ſince the others, propoſed to the world by Meſſrs. Senex, Willſon, and Harris; wherein the meridians are inclined: the parallels equidiſtant, and curvilinear; and the rhumbs real ſpirals, as on the ſurface of the globe.

We might be allowed to expect ſomething from this, as it came out under the protection of his majeſty's patent, and with the recommendation of ſeveral able navigators, and among others, that of Dr. Halley; and as it has now ſtood the teſt of a pretty ſevere inquiſition. We ſhall only add, that the projection is perfectly agreeable to nature, and therefore eaſily conceivable; and that it has been found to anſwer very exactly, even in very large diſtances; where its failure, if it hath any, muſt needs be moſt conſpicuous.

CHARTS *compoſed by rhumbs and diſtances*, are thoſe wherein there are no meridians or parallels: but all is effected by the rhumbs, and the ſcale of miles.

Theſe are chiefly uſed by the French, and eſpecially in the Mediterranean.

They are patched up, without any great art, from the obſervations of the mariners: any regular account, therefore, how to make them, would be needleſs. They are only uſed in ſhort voyages.

See a Diſſertation on *Charts*, by Dr. Murdoch, in the Phil. Tranſ. vol. I. art. 73. with remarks upon it by Mr. Mountaine, art. 74.

CHARTA primarily ſignifies a ſort of PAPER made of the plant *papyrus*, or *biblus*.

CHARTA *emporetica*, in *Pharmacy*, *&c.* a kind of PAPER made very ſoft and porous, and uſed for ſtraining.

CHARTA is alſo uſed in *Ancient Cuſtoms* for a CHARTER, or deed in writing.

CHARTA *de Foreſta*. See CHARTER *of the foreſt*.

CHARTA *Magna*, the Great *Charter*, is an ancient inſtrument, containing ſeveral privileges, and liberties, granted to the church and ſtate, by Edward the Confeſſor, together with others relating to the feudal laws of William the Conqueror, granted by Henry I. all confirmed by the ſucceeding princes about thirty times. See MAGNA *Charta*.

CHARTA *pardonationis ſe defendendo*, is the form of a pardon for a perſon's killing another man in his own defence.

CHARTA *pardonationis utlagariæ*, is the form of a pardon of a man who is outlawed.

CHARTA *ſimplex*, is a ſingle DEED, or deed-poll.

CHARTARIUS, the ſame with CHARTOPHYLAX.

CHARTEL. See CARTEL, CHAMPION, COMBAT, DUEL, *&c.*

CHARTER, *Charta*, an inſtrument, or written evidence of a thing under the ſeal of a prince, lord, church, chapter, or community.

The word *charter* comes from the Latin *charta*, anciently uſed for a public or authentic act; from *papyrus*, *liber papyr*, or *pellebard*, whereon public acts were uſed to be written.

Bracton ſays, donations are ſometimes made in *charters*, in *perpetuum rei memoriam*. He adds, that of *charters*, ſome are *equal*, others of *private perſons*.

Of *equal*, ſome are private, ſome common, ſome univerſal.

Of *private charters*, ſome are *de puro feoffamento*, others *de conditionali feoffamento*, others of recognition, pure or conditional, others of confirmation, &c.

CHARTERS *of community*, were certain privileges firſt obtained by violence, or purchaſe, and afterwards freely beſtowed by emperors, kings, and barons; whereby the inhabitants of towns and cities were enfranchiſed, all marks of ſervitude aboliſhed, and theſe cities, &c. were formed into corporations and bodies politic, to be governed by a council and magiſtrates of their own nomination. The firſt perſon who conferred theſe privileges, was Lewis the Groſs, in France, about the beginning of the twelfth century; and his example was ſoon very generally followed. See CITY.

CHARTER *of the Forest*, is that wherein the laws of the forest are comprised and established.

CHARTER, *Great*, *Magna charta*. See MAGNA *charta*.

CHARTERS *of the king*, are those whereby a king makes a grant to a person, or community; v. gr. *a charter of exemption*, that a person should not be impanelled on a jury, &c. See LETTERS *patent*.

CHARTER *of pardon*, is that whereby a person is forgiven a felony, or other offence against the king's crown and dignity. See PARDON.

CHARTER *governments in America*, are in the nature of civil corporations, with the power of making bye-laws for their own interior regulation, not contrary to the laws of England; and with such rites and authorities as are specially given them in their several *charters* of incorporation. The form of government is borrowed from that of England. They have a governor, named by the king (or in some proprietary colonies by the proprietor), who is his representative or deputy. They have courts of justice of their own, from whose decision an appeal (as some say in the nature of a reference by way of arbitration) lies to the king in council here in England. Their general assemblies, which are their house of commons, together with their council of state, being their upper house, with the concurrence of the king, or his representative the governor, make laws suited to their own emergencies. But it is particularly declared, by stat. 7 and 8 W. III. c. 22. that all laws, bye-laws, usages, and customs, which shall be in practice in any of the plantations, repugnant to any law, made or to be made in this kingdom, relative to the said plantations, shall be utterly void and of none effect. These are called *charter governments*, by way of distinction from the *provincial establishments*, the constitutions of which depend on the respective commissions issued by the crown to the governors, and the instructions attending them; under the authority of which, provincial assemblies are constituted, with the power of making local ordinances, not repugnant to the laws of England; and also from *proprietary governments*, granted out by the crown to individuals, in the nature of feudatory principalities, with all the inferior regalities, and subordinate powers of legislation, which formerly belonged to the owners of counties palatine. See further Blackstone's Comm. vol. i. p. 108.

CHARTER-HOUSE. See CHARTREUX.

CHARTER-LAND, in *Law*, is such as a man holds by *charter*, that is, by evidence in writing; otherwise called FREEHOLD.

This the Saxons called BOCK-LAND; which Lambard renders, *terra ex scripto*.

It was held on more easy conditions than the folk-land, or *terra non scripta*, held without writing: the former being *hereditaria libera & immunis*; whereas the latter *censum tenuissimum annuum, atque officiorum quodam servitutæ erat obligatus*.

CHARTERER is in some places, as Cheshire, used for a FREEHOLDER.

CHARTERPARTY, in *Commerce*, denotes the instrument of freightage, or articles of agreement for the hire of a vessel.

The *charterparty* is to be in writing; and is to be signed both by the proprietor, or the master of the ship, and the merchant who freights it.

The *charterparty* is to contain the name and the burden of the vessel; those of the master and the freighter; the price, or rate of freight; the time of loading, and unloading; and the other conditions agreed on.

It is properly a deed, or policy, whereby the master, or proprietor of the vessel, engages to furnish immediately a tight found vessel, well equipped, caulked and stopped, provided with anchors, sails, cordage, and all other furniture to make the voyage required, as equipage, hands, victuals, and other munitions; in consideration of a certain sum to be paid by the merchant for the freight. Lastly, the ship with all its furniture, and the cargo, are respectively subjected to the conditions of the *charterparty*.

The *charterparty* differs from a *bill of lading*, in that the first is for the entire freight, or lading, and that both for going and returning; whereas the latter is only for a part of the freight, and at most only for the voyage one way.

The common law construes *charterparties*, as near as may be, according to the intention of them, and not according to the literal sense of trackers, or those that merchantize by sea; but they must be regularly pleaded.

The president Boyer says, the word comes from hence, that *per medium charta incidebatur, & sic fiebat charta partita*; because in the time when notaries were less common, there was only one instrument made for both parties: this they cut in two, and gave each his portion, and joined them together at their return, to know if each had done his part. This he observes to have been practised in his time; agreeable to the method of the Romans, who, in their stipulations, used to break a straw, each party retaining a moiety thereof as a mark.

CHARTIS *reddendis*, a writ which lies against him that has charters of feoffment intrusted to his keeping, and refuseth to deliver them to the owner.

CHARTOPHYLACIUM, a place where records were kept.

CHARTOPHYLAX, an officer in the church of Constantinople, intrusted with the custody of the archives.

The word is formed from χαρτης, and φυλαττω, *custodio*; and signifies *charter-keeper*.

Codin calls the *grand chartophylax* the judge of all causes, and the right arm of the patriarch. He adds, that he was the depository or keeper of all the *charters* relating to the ecclesiastical rights; and that he presided over matrimonial causes, and was judge of all the clergy. He drew up all sentences and decisions of the patriarch, who signed and sealed them: he presided in the grand council of the patriarch: he took cognizance of all matters and causes ecclesiastical and civil, whether among the clergy, the monks, or the people.

He took place of all the bishops, though himself only a deacon; and, on occasion, discharged the functions of the priests: he had twelve notaries under him.

The *chartophylax* was much the same at Constantinople with the *chartulary* at Rome.

There were, in reality, two officers who bore this title; the one for the court, the other for the patriarch; the first was called also *registrator*, and the latter *scrinarius*: though the two are usually confounded together. Leunclavius, and others, confound *chartophylax* with *chartulary*.

CHARTREUSE, a celebrated monastery of Carthusians; so called from the name of a steep rocky place, in a frightful defart, five leagues from Grenoble in France; where St. Bruno retired from the world, and first instituted the order of Carthusians.

The name has since passed to all houses of Carthusians; and that near Grenoble, is now distinguished by the name of the *Great Chartreuse*.

That of London, corruptly called *Charter-house*, is now converted into a college, called also from its founder *Sutton's Hospital*; first endowed with 4000*l. per ann.* since improved to 6000*l.*

It is to consist of decayed gentlemen, soldiers, and merchants; eighty of whom have a plentiful maintenance of diet, lodging, cloaths, physic, &c. living together in a collegiate manner: and of scholars, or youths, forty-four of whom are taught, and supplied with necessaries; and such of them as are fit for the university sent thither, with an exhibition of 20*l. per ann.* for eight years; the rest are put to trades.

For the superintendency of this hospital there are sixteen governors, generally of the prime quality; vacancies being supplied by the election of the remaining governors.

The ordinary officers are, a master, preacher, register, treasurer, schoolmaster, &c.

CHARTREUX, religious of the order of St. Bruno, called also CARTHUSIANS.

CHARTULARY, *Chartularius*, a title given to an ancient officer in the Latin church, who had the care of charters and papers relating to public affairs.

The *chartulary* presided in ecclesiastical judgments, in lieu of the pope.

In the Greek church, the *chartulary* was called *chartophylax*; but his office was there much more considerable; and some even distinguish the *chartulary* from the CHARTOPHYLAX in the Greek church.

CHARVIL, in *Botany*. See CHERVIL.

CHARYBDIS, in *Geography*, originally the name of a rock in the Streights of Messina, between Italy and Sicily; much celebrated in the writings of the ancient poets.

CHARYBDIS also a word used by Dr. Plott to express certain openings which he supposes in the bottom of the sea, by which its waters are received and conveyed by a subterranean circulation to the origin of fountains and springs. The *fauces insidiosæ*, or *maelstrom* on the coast of Norway, is supposed to be owing to some such subterranean hidrought; and it is advanced also, that the Mediterranean sea could not be emptied of the vast quantities of water which it receives, but must overflow the land of Egypt, unless swallowed by some such *charybdis*, which is either in some part of the bason of that sea; or near the mouth of it; in which case, it may be the occasion of that strong under-current, described by all those who have treated of this sea. An immense *charybdis*, placed near the Streight's mouth, may be hid under the immensity of waters there; but as it would absorb the deep waters continually, and that in large

quantities, it would neceſſarily cauſe ſuch an under-current there. See VAPOUR.

CHASCUSA, or CASCUSA, in the *Botanical Writings of the Ancients*, a name given by the Greeks to the *anterrhinum* of the Latin writers. It has been ſuppoſed by ſome, that the *chaſcuſa*, or *caſcuſa*, was the ſame with the *phyteuma* of Dioſcorides; but that author tells us the *phyteuma* was prickly, and had leaves like the *ſtruthium*, which was a kind of thiſtle uſed in the dying of wool; whereas Pliny tells us, that the *chaſcuſa*, or *antirrhinum*, has leaves like thoſe of flax, that is, ſmooth, narrow, and oblong.

CHASE, or CHACE, in *Law*, is uſed for a driving of cattle to or from any place; as to a diſtreſs, a fortlet, &c.

CHASE, or CHACE, is alſo a place of retreat for deer and wild beaſts; of a middle kind, between a foreſt and a park; being uſually leſs than a foreſt, and not poſſeſſed of ſo many privileges; but wanting, v. gr. courts of attachment, ſwainmote, and juſtice-ſeat.

Yet it is of a larger extent, and ſtocked both with a greater diverſity of wild beaſts, or game, and more keepers, than a park. Crompton obſerves, that a foreſt cannot be in the hands of a ſubject, but it forthwith loſes its name, and becomes a *chaſe*: in regard, all thoſe courts loſe their nature when they come into the hands of a ſubject; and that none but the king can make a lord chief juſtice in eyre of the foreſt.

By the common law, no perſon is at liberty to take or kill any beaſts of *chaſe*, but ſuch as hath an ancient *chaſe* or park; unleſs they be alſo beaſts of prey.

Yet the ſame author adds, that a foreſt may be granted by the king to a ſubject, in ſo ample a manner, as that there may be courts equivalent to a court of attachment, ſwainmote, and juſtice-ſeat.

CHASE, *wild-geeſe*, a term uſed to expreſs a ſort of racing on horſeback, uſed formerly, which reſembled the flying of wild-geeſe, thoſe birds generally going in a train one after another, not in confuſed flocks as other fowls do. In this ſort of race the two horſes after running twelve ſcore yards had liberty, which horſe ſoever could get the leading, to ride what ground the jockey pleaſed, the hindmoſt horſe being bound to follow him within a certain diſtance agreed on by articles, or elſe to be whipped in by the tryers and judges who rode by; and which ever horſe could diſtance the other, won the race. This ſort of racing was not long in common uſe, for it was found inhuman and deſtructive to good horſes, when two ſuch horſes were matched together. For in this caſe neither was able to diſtance the other, until they were both ready to ſink under their riders, and often two very good horſes were both ſpoiled, and the wagers forced to be drawn at laſt. The miſchief of this ſort of racing ſoon introduced the method now in uſe of running only a certain quantity of ground, and determining the plate or wager, by the coming in firſt at the poſt.

CHASE, in *Sea-language*, ſignifies a veſſel purſued by another, apprehended or known to be an enemy. Hence, to *chaſe* is to purſue a ſhip; which is called alſo *giving chaſe*.

In *chaſing* at ſea, theſe rules are generally obſerved: if the *chaſed* be ſound any thing to the windward, the *chaſer* is to bring all his tacks aboard, and to ſhape his courſe to meet her at the neareſt angle. If the chaſed be to the leeward, then the *chaſer* may come in with her, except ſhe bear upright before the wind, and ſo outſail her; or that ſhe bring herſelf cloſe by the wind, and the *chaſer* prove the more leeward ſhip, and ſo loſe her that way. If the *chaſe* be found right a-head, and in the *chaſer* be put to a ſtern-*chaſe*, then the beſt ſailor ſhall carry it, if there be ſea-room and day-light. Being come up cloſe with the *chaſe*, endeavour to croſs her fore-foot; and by that means you will both hinder her way, and avoid the fury of her ordnance (except thoſe in her *chaſe*), and uſe your own if required, to more advantage; and that as well your *chaſe*-pieces, at your firſt getting up within reach, as your breaſt-hole and quarter-pieces, as you paſs thwart her hawſe, and ſcour her deck from ſtem to ſtern. If ſhe make away from you, ply your guns, as many as poſſible, at her ſails, yards, maſts, and general tackling; and, being near, ſpare not your caſe-ſhot, or croſs-bar-ſhot, to make the greater damage.

CHASE, *ſtern*, is when the chaſer follows the chaſed aſtern, directly upon the ſame point of the compaſs.

To lie with a ſhip's fore-foot in a chaſe, is to ſail, and meet with her by the neareſt diſtance, and ſo to croſs her in her way, or to come acroſs her fore-foot.

A ſhip is ſaid to have a *good chaſe*, when ſhe is ſo built forward on, or a-ſtern, that ſhe can carry many guns to ſhoot forwards, or backwards; according to which ſhe is ſaid to have a *good forward*, or *good ſtern-chaſe*.

CHASE-*guns*, are ſuch whoſe ports are either in the head, called *bow-chaſes* (and then they are uſed in chaſing of others); or in the ſtern, called *ſtern-chaſes*, which are only uſeful when they are purſued or chaſed by any other ſhip.

CHASE *of a gun*, is that part of the bore, which begins at the ſame circle where the ſecond reinforce ends, and terminates at the extremity of the muzzle: or it is the part denoted by F B, *fig.* 1. *Tab. Gunnery.* If the length of a gun be divided into ſeven equal parts, the *chaſe* is four of theſe parts, wanting the diameter of the bore. Some have called the whole length of the bore the *chaſe*. See CANNON.

CHASE-*girdle*, is the part under F I in the ſame figure; and the CHASE-*aſtragal* and *fillet* is repreſented at *a*.

CHASING, a method of working, or enriching gold, ſilver, &c. properly called ENCHASING.

CHASLEU. See CHALEU.

CHASM, Χασμα. See GROTTO and HIATUS.

CHASME, or CHASMOS, among the *Ancient Phyſicians*, denotes oſcitation, or gaping. Hippocrates informs us, that long reſpiration is a cure for continual oscitation.

CHASTE-*tree*. See AGNUS *caſtus*, and VITEX.

CHASTISEMENTS, or CORRECTIONS, in the *Manege*, are the ſevere and rigorous effects of the aids; for when the aids are given with ſeverity, they become puniſhments.

CHASTITY. The Roman law juſtifies homicide in defence of the *chaſtity* either of one's ſelf or relations; and according to Selden (De Leg. Heb. lib. iv. cap. 3.) the law in the Jewiſh republic had the ſame latitude. The Engliſh law alſo juſtifies a woman in killing one who attempts to ravith her. Bac. Elem. 34. 1 Hawk. P. c. 72. And the father or huſband may juſtify killing a man, who attempts a rape upon his wife or daughter: and the forcible attempt of a more deteſtable crime may be equally reſiſted by the death of the unnatural aggreſſor. Blackſt. Com. vol. iv. p. 181.

CHATE, in *Botany*, a name given by ſome authors to a ſpecies of wild CUCUMBER; called by others *cucumis Ægyptius rotundo-ſolius*, the round leaved cucumber of Egypt.

CHATELET, anciently ſignified a little CASTLE, or fortreſs, wherein the *caſtellain*, or governor, lodged.

The word is a diminutive of *chateau*, formed from *caſtellum*, a diminutive of *caſtrum*; or from *caſtellatum*, a diminutive of *caſtellum*, *caſtle*.

At preſent, the term is uſed for certain courts of juſtice eſtabliſhed in ſeveral cities in France: the *grand chatelet* in Paris, v. gr. is the place where the preſidial, or ordinary court of juſtice of the prevot of Paris is kept; conſiſting of a preſidial, a civil chamber, criminal chamber, and a chamber of policy. The term ſignifies the ſame at Montpelier, Orleans, &c.

The *little chatelet* at Paris is an ancient fort, now ſerving as a priſon.

CHAT-PARD, in *Natural Hiſtory*, a creature of the LEOPARD kind. See PARDUS.

The French academicians, who diſſected this creature with great care, found a deſect of ſpermatic veſſels, and other parts abſolutely neceſſary to generation; and this not proceeding from caſtration, but from ſome other cauſe.

CHATTELS, *Catalli*, *Catalla*, a Norman term, under which were anciently comprehended all moveable goods; thoſe immobeable being termed *fief*, or, as we now ſay, *fee*.

Speiman defines *chattels* to be *bona quatenuscunque mobilia & immobilia; proprie tamen ea bona intelligi, quæ in animalibus conſiſtunt, à quorum capitibus res ipſæ, adhuc capita, chori capitalia, dicta ſunt.*

CHATTELS, in the modern ſenſe of the word, are all ſorts of goods, moveable or immoveable, except ſuch as are in the nature of freeholds, or paſſed thereof.

Chattels are either *perſonal*, or *real*.

CHATTELS *perſonal*, are ſuch as do either belong immediately to the perſon of a man, as his horſe, ſword, &c. or ſuch things as being injuriouſly with-held from him, a man has no way to recover but by PERSONAL action: or, ſtrictly ſpeaking, they are things *moveable*, which the owner may carry with him from one place to another; ſuch are animals, houſhold furniture, money, jewels, corn, garments, and every thing that is capable of being removed.

Chattels perſonal are, immediately upon the death of the teſtator, in the actual poſſeſſion of the executors; whereas *chattels real* are not in his poſſeſſion till he hath made an entry, or recovered them. An owner of *chattels* is ſaid to be *poſſeſſed* of them; but a perſon is ſaid to be *ſeiſed* of a freehold.

CHATTELS *real*, are either ſuch as do not appertain immediately to the perſon, but to ſome other thing, by way of dependence; as charters of land, apples upon a

tree, &c. or such as necessarily issue out of some immoveable thing to a person, as a lease, or rent for years. They are called *chattels*, because their duration is limited to a certain time; and *real*, because they are interests annexed to, and issuing out of *real* estates.

CHATTERER, in *Ornithology*. See AMPELIS and GARRULUS.

CHATUS, in *Middle Age Writers*, a kind of gold coin.

CHATUS was also called, by some French writers, *mailles cuchat*.

Du-Cange makes it a question, whether the *chatus* was the same coin as the *chaptonsis*, and supposes that the latter might be formed from *chati Pictavensis*, in French, *chat de Poitou*.

CHAVARICHITS, a sect of Mahometans, who deny that God ever sent a prophet that was infallible; and who had a commission to give a law to mankind: they pretend likewise that if such an office should ever become necessary, it would not be confined to a single family, but that every man of probity and virtue would be capable of that honour.

CHAUD-*Medley*, in *Law*, and according to its proper etymology, denotes an affray that happens in the *heat* of blood, or passion. See CHANCE-*Medley*.

CHAULIODONTA, from χαυω, *I put forth*, and οδους, *tooth*; among *Ancient Naturalists*, is applied to those animals, the teeth of which grow to a great length out of their mouths; as the boar, and the elephant.

CHAUMPERT. See CHAMPART.

CHAUNTOR, CHAUNTER. See CHANTOR.

CHAUNTRY, or CHANTRY, was anciently a church, or chapel endowed with lands, or other yearly revenue, for the maintenance of one or more priests, daily saying or singing mass for the souls of the donors, and such others as they appointed. These *chauntries* were dissolved by 1 Ed. VI. *cap.* 14.

Hence, *chauntry-rents*, are rents paid to the crown by the tenants, or purchasers of *chauntry-lands*.

CHAUFFE-WAX. See CHAFFE-WAX.

CHAURUS, or CHORUS, among the Romans, the north west wind, or that which blow between the wind called *favonius* and the north.

CHAUSSE *Trappes*. See CALTROP, and CROW'S-FEET.

CHAUSSE *trop-haut*, in the *Manege*. A white-footed horse is said to be such, when the white marks run too high upon the legs.

CHAYQUARONA, in *Ichthyology*, a name given by the Portuguese to a fish of the TURDUS kind, caught on the Brasilian shores, and more frequently called by authors by its Brasilian name, PIRAMBU.

CHAZINZARIANS, or CHAYZINZARIANS, a sect in Armenia in the seventh century.

They are also called *Sauarlotræ*, which, in Greek, signifies the same as *Chazinzarians* in Armenian, viz. *adorers of the cross*; they being charged with paying adoration to the cross alone.

In other respects they were Nestorians; and admitted two persons in Jesus Christ. Nicephorus, lib. xviii. cap. 54. ascribes other singularities to them, particularly their holding an annual feast, in memory of the dog of their false prophet Sergius; which they called *Artzikortzer*.

CHEATS, in *Law*, are deceitful practises in defrauding, or endeavouring to defraud another of his known right by some artful and dishonest device, as by playing with false dice, by fraudulently obtaining the execution of deeds and trusts, by suppressing wills, by raising money under false pretences, &c. Any deceitful practice, whether in trade or otherwise, is punishable with fine, imprisonment and pillory. And by the statutes 33 Hen. VIII. cap. 1. and 30 Geo. II. cap. 24. if any man defraud another of any valuable chattels by any false token, counterfeit letter, or false pretences, or pawns or disposes of another's goods without the consent of the owner, he shall suffer such punishment by imprisonment, fines, pillory, transportation, whipping, or other corporal pains, as the court shall direct. And by 9 Anne, cap. 14. if any person cheats at play, and at one time wins more than 10*l.* or any valuable thing, he may be indicted thereupon, and shall forfeit five times the value, shall be deemed infamous, and suffer such corporal punishment, as in case of wilful perjury. Blackst. Com. vol. iv. p. 138, and 172.

CHECAYA, in *Turkish Affairs*, is the second officer in the janizaries, and synonymous with lieutenant, or the second in any office.

CHECK-*roll*, a roll, or book, containing the names of such as are attendants, and in pay to the king, or other great persons; as their household servants.

It is otherwise called the *clerque-roll*. See ROLL.

CHECK, *clerk of the*, in the king's household, has the check and controulment of the yeomen of the guard, and all the ushers belonging to the royal family; allowing their absence or defects in attendance, or diminishing their wages for same, &c.—He also, by himself, or deputy takes the view of those that are to watchin the court and has the setting of the watch. 33 Hen. VIII. c. 12.

CHECK, *clerk of the*, in the kings dock-yards, is also the name of an officer, who keeps a muster or register of all the men employed aboard his majesty's ships and vessels and of the artificers and others in the service of the navy, in the port to which he belongs.

CHECK, in *Falconry*, is where a hawk forsakes her proper game, to follow rooks, pies, or other birds that cross her in her flight.

CHECKER. See EXCHEQUER.

CHECKER-*work*, in *Brick-making*. See BRICK.

CHEQUY, in *Heraldry*, is where the shield, or a part thereof, as a bordure, &c. is chequered, or divided into chequers, or squares. See *Tab. Heraldry. fig.* 14.

Where there is but one row of squares, it is not properly called *chequy*, but *counterchequy*.

Chequy, according to Columbiere, is one of the most noble and ancient figures in all armory; and ought never to be given, but to persons who have distinguished themselves in war: for it represents a chess-board, which itself is a representation of a field of battle. The pawns and men placed on both sides, represent the soldiers of the two armies; which move, attack, advance, or retire, according to the will of the two gamesters, who are the generals.

Chequy is always composed of metal, and colour. Some authors, however, would have it ranked among the furs of furs.

When the whole escutcheon is chequered, it should ordinarily contain six ranges: there is no need of blazoning to express them; only it must be observed, to begin to blazon by the first square in chief on the dexter side. So that if that be *ar*, and the next *gules*, the house, or family, is said to bear *chequy*, *ar*, and *gules*.

When the whole shield is not chequered, but only the chief, a bend, cross, or the like, the number of ranges should be expressed.

CHEEK, in *Anatomy*, that part of the face situated below the eyes on either side.

Wounds of the *cheeks*, if small, may be cured by means of the dry future; but, if very large, will require the bloody one, to bring their lips together: they are then easily healed with vulnerary balsams. But if it happen that one of Steno's salivary ducts is wounded in its passage across the *cheek* from the parotid gland, the continual discharge of saliva into the wound will prevent the cure, till the duct is perforated in the internal part of the *cheek* to make a passage for the saliva into the mouth. This method is proposed by Cheselden in his anatomy.

CHEEKS, a general name among *Mechanics*, for almost all those pieces of their machines and instruments, that are double, and perfectly alike.

The *cheeks of a printing-press*, are its two principal pieces: they are placed perpendicular, and parallel to each other; serving to sustain the three formers, viz. the head, shelves, and winter, and to bear the spindle, and other parts of the machine.

The *cheeks of a turner's lathe*, are two long pieces of wood between which are placed the *poppets*, which are either pointed, or otherwise, serving to support the work, and the mandrills of the workman. These two pieces are placed parallel to the horizon, separated from one another by the thickness of the tail of the poppets, and joined with unions to two other pieces of wood, placed perpendicularly, called the *legs of the lathe*.

Cheeks of the glazier's vice, are two pieces of iron joined parallel at top and bottom; in which are the axis, or spindles, little wheel, cuthions, &c. whereof the machine is composed.

CHEEKS *of a mortar*, or BRACKETS, in *Artillery*, are made of strong planks of wood, bound with thick plates of iron, and are fixed to the bed by four bolts; they rise on each side of the mortar, and serve to keep her at what elevation is given her, by the help of strong bolts of iron which go through both *cheeks*, both under and behind the mortar, between which are driven coins of wood; these bolts are called the bracket-bolts, and the bolts which are put one in each end of the bed, are the traverse-bolts, because with hand-spikes the mortar is by these traversed to the right or left.

CHEEKS, in *Ship-building*, are two pieces of timber, fitted on each side of the mast, at the top, serving to strengthen the masts there. The uppermost bail or piece of timber in the beak of a ship, is called the *cheek*. The knees which fasten the beak-head to the bow of the ship, are called

called *cheeks*; and the sides of any block, or the sides of a ship's carriage of a gun, are called *cheeks*.

CHEEKS, *upper and lower*, are those pieces of timber on each side of the TRAIL-*board*.

CHEESE, a kind of food; being a preparation of milk curdled by means of rennet, and afterwards dried, and hardened.

Cheese is nothing but milk purged of its serum, or whey; and sometimes too of the cream, or butyrous part of the milk.

Cheese, when new, is found to load the stomach, by reason of its moisture and viscidity; and when too old, it heats and inflames it by its salts. The physicians advise it to be eat in small quantities: hence that Latin verse,

Caseus ille bonus, quem dat avara manus.

Dr. Quincy says, it cannot be too old: it is certain, the more it abounds with salts, the more will it contribute to digestion, and the clearing of the stomach of other food. Indeed some condemn all use of *cheese*; sheltering themselves under that ancient maxim, *Caseus est mensam, quia concoquit omnia si quem.*

The Laplanders make a sort of *cheese* of the milk of their rein-deer, which is not only of great service to them as food, but on many other occasions. Scheffer's Hist. of Lapl.

CHEESE *Rennet*, in *Botany*. See LADY'S *Bedstraw*.

CHEEVANCE. See CHEVISANCE.

CHEF. See CHIEF.

CHEF *d'œuvre*. See MASTERPIECE.

CHEGGIO, in *Botany*, a name given to a sort of lasciferent plant, common in Cambaya. It is reported by authors, and by the people of the country, that those knobs and beards of this plant which grow facing the north, are a very noble medicine in the cure of apoplexies and other nervous disorders, but that those knots and beards of the same plant which look southward are poisonous. Redi proved some of this famous plant, and gave it several fair trials, but found the history of its nature and effects wholly false.

CHEILOCACE, among *Physicians*, literary signifies the *lipsoi*. It is a swelling of the lips, to which the inhabitants of northern countries, especially children, are said to be very subject; particularly those in England and Ireland, if we may credit Cattelius.

CHEIRANTHUS, in *Botany*. See STOCK *Gilly-flower*.

CHEKAO, in *Natural History*, the name of an earth found in many parts of the East Indies, and sometimes used by the Chinese in their porcelain manufactures. It is a hard and stony earth, and the manner of using it is this: they first calcine it in an open furnace, and then beat it to a fine powder. This powder they mix with large quantities of water, and stirring the whole together, they let the coarser part subside, and pouring off the rest, yet thick as cream, they leave it to settle, and use the matter at the bottom, which is found in form of soft paste, and will retain that humidity a long time. This supplies the place of the earth called *bucchu*, in the making that elegant sort of china-ware which is all white, and has flowers which seem formed by a mere vapour within its surface. The manner of their using it is this: they first make the vessel of the common matter of the manufacture; when this is almost dry, they paint upon it the flowers, or whatever other figures they please, with a pencil dipt in this preparation of the *chekao*; when this is thoroughly dry, they cover the whole vessel with the varnish, in the common way, and bake it as usual. The consequence is, that the whole is white; but the body of the vessel, the figures, and the varnish, being three different substances, each has its own particular white; and the flowers, being painted in the finest white of all, are distinctly seen through the varnish upon the vessel, and seem as if traced by a fine vapour only. The *bucchu* does this as well as the *chekao*, and has beside this the quality of serving for the making the porcelain ware, either alone, or in the place of the *kaolin*: the *chekao* has not this property, nor any other substance beside this *bucchu* which appears to be the same with our steatites or soap-rock.

CHELA, in *Medicine*, has several significations. It imports a forked probe, mentioned by Hippocrates, lib. ii. De Morbis, used in extracting a polypus of the nose. But in Rufus Ephesius, cap. 4. *chelæ* implies the extremities of the *ossa*, which touch each other when the eyes are shut. But the most frequent signification of *chelæ* is claws, particularly those of the crab.

Chelæ farther signifies fissures in the heels, feet, or pudends.

CHELANDIUM, in *Middle Age Writers*, is used for a kind of vessel or ship. It is also called *chelandrium*, *chelonarus*, *chelonarius*, *solandrio*, and *solandria*, and, by the Byzantine writers, χελανδιον. It is mentioned by Dimar as a vessel of great length, carrying oars, and a hundred and fifty seamen. It seems to have resembled an Italian galley.

CHELANDURUS, in *Middle Age Writers*, a small kind of CHELANDIUM.

CHELAZIUM, a name used by some authors for a moveable tubercle in the eye-lid, commonly called in English a *stythe* or *sye*.

CHELIDON, in *Ichthyology*, the name given by many of the old Greek writers to a kind of flying-fish, called by some authors *milvus* and *hirundo*, and by some *aspidus*, or the HAWK-*fish*. It is properly a species of *trigla*, and is distinguished by Artedi by the name of the *trigla* with the head a little awakened, and with a singular fin near the pectoral fins. This method of reducing the fish to their true *genera*, and distinguishing them by their proper specific names is the only method of truly knowing them. The arbitrary names of *milvus* and *hirundo* carry to little idea of the peculiar fish with them, that they may be as well applied to one species as another, and accordingly we find two or three different species of the *trigla* called *milvus*, &c. by different authors.

CHELIDONIA, among the Romans, a name given to the wind more properly called FAVONIUS.

It was only called *chelidonia* for a fortnight in the middle of February, because at that time the swallow makes its first appearance.

CHELIDONIUM, in *Botany*. See CELANDINE.

CHELIDONIUS, in *Botany*, a name given by some writers to the ANEMONE. The reason seems to have been its flowering about the time of the swallows coming from their winter retreats.

CHELIDONIUS, in *Ichthyology*, the name of a fly called the swallow-fly, by reason of its swift flight. It is in most parts of a brown colour, and has black prominent shoulders, a black head, and short black *antennæ*. The wings are silvery, and edged with black. It often sits a long time together on the leaves of plants; but is very quick-sighted, and when any person comes near it, it is gone in a moment, and usually takes such long flights, that it is not easily caught after a-rds.

CHELIDONIUS, in *Natural History*, a stone pretended to be found in the stomachs of young swallows; much esteemed by some for the falling sickness.

The word is formed from χελιδων, a *swallow*. See SWALLOW-*stone*.

CHELON, in *Ichthyology*, the name of a fish of the mullet kind, and much resembling the common mullet in its general shape, but its eyes are more prominent, and its head smaller. It has also its side-lines, which run from the head to the tail, very evenly ranged, and placed at equal distances, and its lips are remarkably thick and prominent. It is of the size of the common MULLET.

CHELONE, in *Botany*, a genus of the *didynamia angiospermia* class. Its characters are these: the flower is of the ringent kind, having a short cylindrical tube, which is swelled at the chaps, where it is ribbed, convex above, and plain below; the mouth almost shut. It hath four stamina, the two side ones being a little longer than the other. It hath an oval germen, which afterward becomes an oval capsule, having two cells which are filled with flat, roundish seeds, having a border. There are three species, which grow naturally in North America.

CHELONITES, a stone said to be found in the Indian tortoises, and to have the faculty of resisting poison.

The word is formed from χελωνη, a *tortoise*.

Some confound the *chelonites* with the *bufonites*, or toad-stones.

CHELSEA *College*. See HOSPITAL.

CHELYDRUS, in *Natural History*, a species of serpent, the same with the CHERSYDRUS.

CHELYS, among the *Ancients*, a musical instrument of the pulsative kind, said to be invented by Mercury, and formed of a shell found in the river Nile, at the time of low water.

CHELYSMA, in *Antiquity*, a thick piece of wood which the Greeks fixed to the keels of their ships, to save them from being worn or broken. It was also called *cunæus*.

CHEMA, according to Blancard, is the name of a certain measure sometimes mentioned by the Greek physicians, and which he thinks contained two small spoonfuls.

The determined weight of this quantity cannot be accurately ascertained, in consequence of the different specific gravities of different substances: just as, at present, the word *spoonful* is used in a vague and undetermined sense, especially with respect to substances, of which it is a matter of indifference whether a little more or a little less be used.

CHEME, among the Romans, was a liquid measure, containing the fifth part of a CYATHUS.

CHEMICAL *glasses*, how to cement when cracked, see CEMENT.

CHEMIN,

CHEMIN *des rondes*, in *Fortification*. See WAY *of the rounds*.

CHEMISE, in *Fortification*, a wall wherewith a baſtion, or ditch, is lined, for its greater ſupport and ſtrength.

CHEMISE, *fire*, is a piece of linen cloth, ſteeped in a compoſition of oil of peril, camphor, and other combuſtible matters; uſed at ſea, to ſet fire to an enemy's veſſel.

CHEMISTRY. See CHYMISTRY.

CHEMOSIS, in *Medicine*, a diſeaſe of the eye, proceeding from an inflammation, when the white of the eye ſwells above the black, and overtops it to ſuch a degree, that there appears a ſort of χασμα, *chaſm*, or gap between them, whence it takes its name. Galen calls it a red and carneous inflammation of the *cornea tunica*.

Dr. Burghart, in a *chemiſt* where the *cornea* was already burſt, dilated the opening, and extracted the cryſtalline *lens*, which had come forward before the *iris*. The *lens* was ſo changed and ſuppurated, that it reſembled a piece of white amber: after extracting it, the pain of the eye became milder.

CHENCE, in *Old Cuſtoms*, ſeems to be much the ſame as AMAERE.

CHENILLES, *fauſſe, baſtard caterpillars*. See FAUSSE.

CHENISCUS, from χην, a *goſe*; among the *Ancients*, an ornament in the form of little geeſe, uſed on the prows and ſterns of the ſhips.

CHENOCORPUS, *Goſe-dung*, in *Medicine*, is accounted very autumnous and reſolvent, and therefore preſcribed with ſucceſs in the jaundice. The greeniſh dung is eſteemed the beſt. It is gathered in the meadows in ſpring time, and being dried with a moderate heat, and pulveriſed, is given from half a dram to a full dram at a doſe. It is recommended alſo in the ſcurvy, and other diſeaſes.

CHENOPODIUM, *in Botany*. See GOOSE-*foot*.

CHENSERS, in our *Statutes*, is uſed for ſuch as pay tribute or *cenſe*, quit-rent, or chief-rent.

CHEQ, or CHERIF, the prince, or high prieſt of Mecca; ſovereign pontiff of the Muſſulmans; and owned as ſuch by all the ſects into which they are divided.

The grand ſignior, Sophies, mogols, khans of Tartary, &c. ſend him yearly preſents; eſpecially tapeſtry, to cover Mahomet's tomb, and tents for himſelf: for the *cheq* has a tent near the moſque of Mecca, wherein he lives during the ſeventeen days of devotion in pilgrimage to Mecca. The tapeſtry and tent are changed each year, and pieces thereof are ſent to the princes who ſurniſh new ones.

His revenue is very conſiderable, conſiſting of preſents made by the Mahometan princes, and pilgrims, to the moſque of Mecca and Medina.

The *cheq* ſubſiſts all the pilgrims during the ſeventeen days of devotion; on which account he is every year furniſhed with a very conſiderable ſum of money from the grand ſignior: the better to obtain this, he makes him believe, that there are conſtantly, during this time, ſeventy thouſand pilgrims; and that, ſhould the number fall ſhort, the angels, in form of men, would make it up.

CHERAMIS, in *Antiquity*, a medical meaſure. According to Erotian in Hippocrates, it was the hollow of a ſhell-fiſh called *myax*, and took that name from χηραινω, which ſignifies a *hollow place*. It frequently occurs in Hippocrates, and ſeems not much different from the *chous*, which in Galen's Exegeſis is expounded by it. Cornarius alſo explains *cheramis* by the meaſure of a CHOUS; and Calvus on another paſſage expounds it by a *pint*.

CHEREF, a title aſſumed by the emperors of Morocco. See CALIPHATE.

CHEREM, among the Jews, is uſed to ſignify a ſpecies of ANNIHILATION.

The Hebrew word *cherem* ſignifies properly to *deſtroy*, *exterminate*, *devote*, *anathematize*.

CHEREM is ſometimes likewiſe taken for that which is conſecrated, vowed, or offered to the Lord, ſo that it may no longer be employed in the common or profane uſes. There are ſome who aſſert, that perſons thus devoted were put to death; whereof, they ſay, Jephtha's daughter is a memorable example. Judg. xi. 29, &c.

CHEREM is alſo uſed for a kind of excommunication in uſe among the Jews. See NIDDUI.

CHERLERIA, in *Botany*, a name given by Haller and Linnæus to a genus of plants of the *monandria trygynia* claſs, the characters of which are theſe: the perianthium is compoſed of five equal lanceolated leaves: there are no petals: but there ſtand within the cup five very ſmall, roundiſh, and emarginated *nectaria*, diſpoſed in a circular order. The ſtamina are ten ſubulated filaments, five of which are affixed to the *nectaria*; the *anthera* are ſimple: the germen of the piſtil is of an oval figure: the ſtyles are three, and ſtand open: the ſtigmata are ſimple. The fruit is an oval capſule, compoſed of three valves, and divided into three cells. The ſeeds are numerous, convex on one ſide, and angular on the other.

The *nectaria* of this genus ſhew, that they are of kin to the *ſedum* or houſeleeks; but in the fruit it differs altogether from the *ſedums*, and rather approaches to the nature of the *lychnis*; it would therefore be very improper to confound it with either of thoſe *genera*.

CHERMES, in *Zoology*, a genus of four-winged inſects, the characters of which are theſe: its *roſtrum*, or trunk, is ſituated under its breaſt; the abdomen is mucronated, or pointed, at the hinder extremity; and the legs are formed for leaping.

Theſe inſects, which in Engliſh are called bugs, take particular denominations from the trees or plants on which they feed: as the *fir*-BUG, the *ſpruce*-BUG, the *maple*-BUG, the *willow*-BUG, the *nettle*-BUG, &c.

CHERMITES, or CHERNITES, in the *Natural Hiſtory of the Ancients*, a name given by many to a ſpecies of very bright and white marble or alabaſter, which ſeems to have been the ſame with that called afterwards LYCHNITES *marmor*.

CHERNIBS, in *Antiquity*, a veſſel wherein people uſed to waſh their hands before they went to attend religious ſervice.

The word is derived from χειρ, the *hand*, and νιπτω, *to waſh*.

CHERRY-*Tree*, *Ceraſus*, in *Botany*, the name of a genus of trees, according to ſome writers, but a ſpecies of the PRUNUS in the Linnæan ſyſtem. For the botanical characters, ſee PLUM-*Tree*.

This tree is called *ceraſus*, according to Servius, from the name of a city in Pontus, which Lucullus deſtroyed; and the fruit of it was brought by him to Rome, in the year of the city 680, and into Britain about a hundred and twenty years afterwards, or A. D. 55. Soon after it was ſpread through moſt parts of Europe. The ſpecies of the *cherry-tree* enumerated by Miller are five, viz. 1. the common or Kentiſh *cherry*, from which many modern botaniſts ſuppoſe that moſt of the varieties cultivated in the Engliſh gardens are derived; ſuch as the early May *cherry*, the May-duke *cherry*, the arch-duke *cherry*, the Flemiſh-*cherry*, the red-heart, the white-heart, the black-heart, the amber-heart, the ox-heart, the lukeward, the carnation, the Herefordſhire-heart, the morello, the bleeding-heart, and the yellow Spaniſh *cherry*, beſides two ſorts with double flowers, which are propagated for ornament. 2. The *cherry-tree* with ſpear-ſhaped ſawed leaves, or the greater wild *cherry-tree* with a ſweetiſh fruit, whoſe juice yields a black colour. This is a black *cherry*, ſuppoſed to be a native of England. This tree grows to a large ſize, produces beautiful flowers, affords good food for birds, and the wood of it is uſeful for turners. The French plant them for avenues to their houſes, where other trees will not thrive, and cultivate them for the manufacture of hoops. The varieties raiſed by ſeeds from this tree are the black corniſh, which is a good bearer, and yields excellent fruit, and the ſmall wild *cherry*. 3. The *cherry-tree* with oval ſpear-ſhaped leaves, and flowers growing in cluſters, commonly called the cluſter *cherry*. 4. The *cherry-tree* with flowers growing in round branches, and oval-leaves, called the *Mahaleb*, or perfumed *cherry*. The wood of this ſort is eſteemed by the French for cabinet-making, on account of its agreeable colour. 5. The *cherry-tree* with ſmooth, ſpear-ſhaped, entire leaves, of a bluiſh green on their under-ſides, and ſpreading branches, called the dwarf *Canada cherry*.

The ſeveral ſorts of *cherry-trees* are propagated by binding or grafting the ſeveral kinds into ſtocks of the black or wild red *cherries*, which are ſtrong ſtooters, and of a longer duration than any of the garden kinds. The ſtones of theſe two kinds are ſown in a bed of light ſandy earth in autumn, and the young ſtocks produced from them are to remain where they riſe till the ſecond autumn after their ſowing, when in October they ſhould be planted out into a rich earth, at three feet diſtance from row to row, and at about ten inches diſtance in the rows. The ſecond year after the planting out, they will be fit to bud, if they are intended for dwarfs; but if they are intended for ſtandards, they will not be tall enough till the fourth year; for they ſhould be budded or grafted near ſix feet from the ground. The grafting is uſually performed in ſummer, and the bead of the ſtock is to be cut off in the beginning of the March following, about ſix inches above the bud; and if the bud has ſhot well, and there is any fear of its being diſplaced by winds, it muſt be gently tied up to the part of the ſtock left above it. The autumn afterwards, theſe trees will be fit to remove, and be ſet where they are to remain; or they may be left two years. Many, when they plant theſe trees in their places, lop off a great part of their

heads,

heads, but this is an injury that often kills them; and when they escape, they seldom get well over it for four or five years. If the trees are intended for walls, it is advisable to plant dwarfs between the standards, that these may cover the lower part of the wall, while the others spread over the upper part; and when the dwarfs rise to fill the whole wall, the standards should be taken entirely away. When these trees are taken up from the nursery, the dead fibres of the roots must be carefully taken off, and the upper part of the shock which is above the bud must be cut off close down to the back part of it, the bud must be placed directly from the wall.

Cherry-tree thrives best on a dry loamy loam, and in a gravelly soil are very subject to blights, and seldom stand long good. They should be placed at fourteen or fifteen yards, with a standard tree between each two. In pruning these trees, their shoots should never be shortened, for they usually produce their fruit from their extreme part. All the forward fine shoots are to be espaliered, and the others trained horizontally; and where there is a vacancy in the wall, the branches must be shortened, will throw up a shoot or two to fill it.

CHERRY, *Barbadoes*, *Malpighia*, in *Botany*, a genus of the *decandria trigynia* class. Its characters are these; the flower hath five kidney-shaped petals, which are concave, and spread open; and ten awl-shaped stamina, with two oblong glands adhering to the emplacement. It has a small roundish germen, supporting three slender styles. The germen turns to a large, furrowed, globular berry, with one cell, including three rough, angular, stony seeds. There are eight species, natives of the West Indies, where the fruit is eaten by the natives.

CHERRY, *Carolina*, *Corna*, in *Botany*, a genus of the *tetrandria monogynia* class. Its characters are these; it hath many flowers, which are included in one common four-leaved cuticular involucrum; the flowers have four plain petals, and four short stamina, which are longer than the petals. The round germen is placed below the emplacement becomes an oval or roundish berry, inclosing a nut with two cells, having an oblong kernel. There are six species. Miller's Gard. Dict.

The fruit of this tree is cooling, drying, and astringent; therefore the inhabitants, both of Indies of Guiana, and is good in fevers, especially if accompanied with a flux of the belly. The only officinal preparation of this fruit is the *rob de cornis*.

CHERRY, *Dwarf*, and CHERRY *of the Alps*, *Loniceras*. See *Dwarf* HONEY-SUCKLE.

CHERRY, *Winter*, *Physalis*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these; the flower hath a swelling permanent emplacement, which is five-cornered, and cut at the top into five acute points. The flower hath one wheel-shaped petal, with a short tube, and a large brim, which is five-cornered, and plaited. It has five small awl-shaped stamina, which join together, and a roundish germen supporting a slender style, crowned by an obtuse stigma. The germen afterwards turns to an almost globular berry, with two cells included in the large inflated emplacement, filled with compressed kidney-shaped seeds. There are fifteen species.

This plant is easily propagated, either by seed, or by parting the roots. Its only beauty is in the autumn, when the fruit is ripe, at which time their red bladders, opening and shedding the *cherry*-shaped fruit, make a pretty appearance.

The leaves are cooling, and of the nature of common nightshade. The berries are a singular good diuretic, and useful against the gravel and stone; being boiled in milk, and sweetened with sugar, they cure the heat of urine, making bloody water, and ulcers in the kidneys and bladder. They relieve the jaundice, by opening obstructions of the liver and gall-bladder; and the dropsy, by carrying off the water through the urinary passages.

The only officinal preparation is the *tincture alkekengi*.

CHERRY-*brandy*, a debile spirit of brandy, with the addition of *cherries*.

The *cherries* commonly used therein, are of the black kinds with these a bottle being half filled, is filled up with brandy, or spirits. The whole is to be shaken up now-and-then; and in a month's time it becomes fit for use.

To sweeten it, and improve the flavour, some chemists to put in sugar, with a quantity of raisins.

CHERRY *wine* is made by adding two pounds of sugar to every two gallons of the juice of *cherries*. The liquor is afterwards put into a vessel to ferment, and after standing about two months in the cask, is bottled off with a little sugar for use.

CHERSA, called also *scuda*, in some medical writers, signifies a root reduced to a farinaceous powder. This way of preparation some condemn, as exhausting the virtues of the drug, and rendering it good for nothing; others defend it.

CHERSÆA, *earthy*, from χερσος, *earth*; an epithet of the three species of ASPS, mentioned by Galen and Dioscorides.

CHERSETUM, *in Old Customs*, is used for *chersefist*. See CHERSEFIST.

CHERSONESUS, in *Geography*, a peninsula, or a continent almost encompassed round with the sea, only joining to the main land by a narrow neck or isthmus. The word is Greek, χερσονησος, of χερσος, *land*, and νησος, *island*, which signifies the same.

This term is used by the moderns, in compliance to the ancients, who called all their peninsulas by this name: accordingly, such places as were hereby distinguished among them, retain the name among us, as the *Chersonese* of Peloponnesus, of Thrace, Khersonesus Cimbrica, Aurea, &c.

CHERSYDRUS, χερσυδρος, an amphibious serpent so called, because it lives first in watery places, whence it is called *hydrus*; after which it lives in habitations, and lives on dry ground, and thence has its compound appellation *chersydrus*.

CHERT, or CHERR, *in Natural History*, a name given by some of our miners to a peculiar stone found in flints, but not the hardness and smoothness of flint. It is called *ashs* in some places *ashern*, and by some authors *asmus*.

Dr. Merret, who has examined the mines of Derbyshire, found great quantities of this stone, and in some places varying from its common colours and manner of appearance: in some places, instead of the thin flints which this usually forms, he found it in beds of three or four yards thick, and sometimes much more. Such thick strata of it he also found in the peak of Derbyshire. He observed, that they were always found among strata of lime-stone; and that sometimes the inner part was form regular flints, but lay in large loose nodules. In many places the core was black, and in others of a dark, greenish colour; the workmen hence call them *black cherts*, and green *cherts*. Phil. Trans. N° 297.

Cherts are used as grinding stones for calcined flints, and other hard substances; but are of too smooth and close a texture for grinding corn.

CHERUB, or CHERUBIM, a celestial spirit, which, in the HIERARCHY, is placed next to *seraphim* to the seraphim. The word is formed of the Hebrew כרוב, *cherub*; the plural whereof is *cherubim*.

The figure of the *cherubim* was not always uniform, since they are differently described in the shapes of men, eagles, oxen, lions, and in a composition of all these figures put together. Nodes likewise, calls those symbolical or hieroglyphical representations, which were represented in embroideries upon the veils of the tabernacle, *cherubim* of curious work. Such were the symbolical figures which the Egyptians placed at the gates of their temples, and the images of the generality of their gods, which were commonly nothing but statues compounded of men and animals.

CHERUBIM was also the name of an ancient military order in Sweden, otherwise called the *order of Seraphs*. It was instituted by Magnus IV. in 1334, and abolished by Charles IX. It took its denomination from the golden figures of *cherubim*, wherewith the collar of the order was enriched.

CHERVIL, *Chærophyllum*, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these; it is a plant with umbellated flowers; the principal umbel is spreading, and compofed of several small ones called rays; the flowers have five heart-shaped inflexed petals, and five stamina. The germen is situated below the flower, supporting two reflexed styles, which afterward becomes an oblong pointed fruit, dividing in two parts, each having one seed, which is convex on one side, and plain on the other. There are five species.

The first sort grows naturally on the sides of highways, and the borders of the fields in most parts of England, so is never cultivated in gardens. It is frequently called cow-parsley, but for what reason does not appear, because few animals care to eat it, except the ass: it having in a less degree something of the quality of hemlock. It is a weed which should be rooted out of all pastures early in the spring, for it is one of the most early plants

in shooting; and by the beginning of April, the leaves are near two feet high.

The fourth sort is the common garden *chervil*, and flowers in May and June. Its leaves and seeds are used in medicine; the seed contains the principal virtue of the plant, and is esteemed a great medicine in jaundices and dropsies. It is very certain that it is a powerful diuretic, and therefore recommended in the gravel and stone; and likewise is prooper of the menses. It opens and attenuates gross blood, and generally disposes the person to sleep. It is used also externally in fomentation in colicky pains and retention of urine.

The leaves of the plant are what the good women call *sweet fern*, from which they distil a water, and esteem it a very great remedy for colics.

This will thrive on any soil, and in any situation.

CHESS, an ingenious game, performed with little round pieces of wood, on a board divided into sixty-four squares, where skill and address are indispensibly requisite, that chance has no place; and a person never loses but by his own fault.

Sarazin has a peculiar treatise on the different opinions of the origin of the name *échecs*, whence the French *echecs*, and our *chess*, or *Trumpe*. Menage is also very full *de hac lanæ lite*. Leonclavius takes it to come from the Persian famous Turkish robbers. P. Simonini from the German *schach*, *theft*; and that from *calcular*. He takes *check* to be the same with *hasta*, or *assaltus* of the Romans, but mistakenly. This opinion is commented by Vossius and Salmasius, who derive it from *sachen*, *to subject*, or *overcome*. Some derive it from the Hebrew שחק *shaque*, *play*, whence *sachaq*, *subject*; of שחה, *sahe*, *overcome*; and others again from שחק *shak*, *play*, and שח *sach*, whence *chess* and *checkmate*. Salmasius says, a Carthaginian Parliament-man, one Schachmenides, invented the game of *chess*, and gave it his own name, which it still bears in their country. Bisset derives it from *schaeg*, or Lycian Moabitish word for *king*, *dux*, and *prince*. Bochart says, that *schach* is originally Persian, and that Schachmen, or that language, signifies the *king is slain*.

But the learned Hyde has shewn from undoubted authorities, that this game was first invented in India, and passed from thence to Persia before the year of Christ 570, and from Persia to Arabia. He adds, that the antiquity of this game is traced much higher, one to the middle of the second century, in an Indian chronicle, the authenticity of which is doubtful. And he shews, that *Ashi*, i. e. *ten*, was a term much in use among the orientals, whilst engaged in this play, and that they used it to caution the king against any danger; and hence the Europeans and others have denominated the game *jeu d'echecs* and *schaakspel*, and in English *chess*, from this circumstance. He also derives the word *mat* from the Persic word, *ispatar*, *it is lost*; says that it was used in play, when any of the men was fixed in its place, or taken captive. See Historia Shahiludii apud Syntagma Dissertationum, &c. Hyde, edition 2. Doctors Sharpe, vol. iii. p. 251.

Damianus, in Leonclavius's Eunuch, observes, that Pyrrhus, the most knowing and expert prince of his age, ranging a battle, made use of the pieces at *chess* to form his designs; and to shew the secrets thereof to others. Vopiscus, in his life of Probus, informs us, that one of the Roman emperors had the title Augustus given him, because of his gaining ten games at *chess* successively.

Tamerlane is also recorded as a very expert gameller at *chess*.

Chess is doubtless a most ancient and universal game; the common opinion is, that it was invented by Palamedes at the siege of Troy. Others attribute the invention to Diomedes, who lived in the time of Alexander; the romance of the Rose ascribes it to one Ariadus; but the truth is, the game is so very ancient, there is no tracing its author.

In China, it makes a considerable part of the education of their females, and seems to take the place of dancing among us. In Spain, whole cities challenge each other at *chess*, and it has been much in use in most parts of Europe.

John of Salisbury relates, that in a battle between the French and English in 1117, an English knight seizing the bridle of Louis le Gros, and crying to his comrades, *the king is taken*, that prince struck him to the ground with his fauchion, crying, *No, sir knight, you were to say, I put you check!* *Dic sic non capitur rex, sed, Rex mihi cedit, vel vincit.* The reason is, that when the king is reduced to such a pass, that there is no way for him to escape, the game ends, without capturing the royal piece by further advance.

Lydgate, a monk of St. Edmund's Bury, calls it the game royal. It was anciently of such repute in Ireland, that some of their best estates depended upon it; and it was a condition whereby two noble families enjoy their lands, that the one engages the other every year in this game: and the Italians have been so much addicted to it, that a father, who has died before the conclusion of a game at *chess*, has bound his son to finish it; and the same custom is said to obtain among the Germans. See Hyde, ubi supra, sect. 3. page 8.

Cardinal Cajetan, and other casuists, rank *chess* in the number of prohibited games, as requiring too much application; and Montaigne blames it as too serious for a game.

In this game each player has eight gradated pieces, viz. a king, a queen, two bishops, two knights, and two rooks, and also eight pawns, which are commonly called *pieces*, q. d. *minor*, and reside in different stations, and of various materials, chiefly of wood in these. Their pieces are distinguished by being painted in white and black colours.

As to their disposition on the board, the white king is to be placed on the fourth black house from the corner of the board, in the left and lowermost rank; and the black king is to be placed on the fourth white house on the opposite, or adverse's side of the board. The queens are placed next to the kings, on houses of their own colour. Next to the king and queen, on each hand, place the two bishops, next to them, the two knights, and last of all, on the corners of the board, the two rooks. As to the pawns, they are placed, without distinction, on the second rank of the board, one before each of the dignified pieces.

Having thus disposed the men, the order is commonly begun by the pawns, which at each throw are moved in their own file, one house at a time, except the first move, when they may advance two houses, but they never move backwards: the manner of their taking the adverse's men is figurative, in the next house forward where having captivated the enemy, they move forward to it. The rook goes forward or retrograde through the whole file, and back again. The knight hops backward and forward to the next house, two one, of a different colour, with a riding march, or gallop, and thus kills his enemies that fall in his way, or guards his friends that may be exposed on that side. The bishop is always in the same colour of the field which he was placed in at first, forward or backward, about in diagonal lines, as far as he pleases. The queen's walk is more universal, as she takes all the steps of the five mentioned pieces, excepting that of the knight; and as to the king's motion, it is one house at a time, and that in any direction. As to the value of the different pieces, next to the king is the queen, after her the rooks, then the bishops, and last of all the knights. The difference of the worth of powers is not so great as that all noblemen, however, the king's bishop's pawn is the best, and therefore particular care is taken of him. It ought also to be observed, that, whereas any man may be taken, when he hops into the house of any of the adversary's pieces, it is otherwise with the king, for when a check is given to him, he is obliged with the word *check* (*echec*) to remove himself to another, out of which he must move, and if he cannot move without exposing himself to a similar inconvenience, it is *check-mate*, and the game is lost.

CHESS-*trees*, in *Ship-Building*, are two small pieces of timber with a hole in them, placed on each side of the ship, and placed as far before the main-mast as the length of the main-beam; their use is to confine the clue of the main-sail, and for this purpose a rope goes through, that usually extends the clue of the sail to the yard-arm.

CHEST, in *Medicine*, that part of the body which contains the heart and lungs. See Breast and Thorax.

CHEST, in *Commerce*, a kind of measure, containing an uncertain quantity of several commodities.

A *chest of sugar*, e. g. contains from ten to fifteen hundred weight; a *chest of soap*, from 400 to 800 lbs.; of *Castile soap*, from two and a half to three hundred weight; *of indigo*, from one and a half to two hundred weight; five *chests* to the hundred.

CHEST *at Chatham* was established in 1588, for the benefit of maimed and superannuated English mariners, out of which pensions are paid to such for their lives. This fund was at first raised by a voluntary monthly contribution of the mariners out of their pay, and afterwards made perpetual by queen Elizabeth.

CHESTNUT, *Castanea*, from *Castana*, a city in Thessaly, where this tree anciently grew in great plenty; in *Botany*, is ranged by Linnæus in the class of *monoecia polyandria*, and places it in the genus of *fagus* or BEECH. Its characters are these: it hath male and female flowers on the same tree, sometimes in separate stillaments, at other times near each other. The male flowers form a sort of catkin, have no petals, but instead about five or twelve

bristly

thrifty manner. The female flowers grow one leaf, divided into four parts, having no petals, but a germen fixed to the embolmentum, which becomes a roundish fruit armed with soft spines, including one or more nuts. There are three species.

The *chestnut tree* is a tree which deserves our care as much as any of the trees which are propagated in this country, either for its ufe or beauty; being one of the best trees of timber, and affording a good fhade. It will grow to a great fize, and fpread its branches finely, on every fide, where it has room. The leaves are large, of a bright green, nor are they fo liable to be eaten by inſects as thoſe of the oak. There is no better food for deer, and many other animals, than the nuts, which moſt of them prefer to acorns; yet they ſhould not be planted near habitations, becauſe when they are in flower they emit a diſagreeable odour, very offenſive to moſt people. Some remains of old decayed *chestnuts* in Enfield chaſe plainly prove that this tree is not ſo great a ſtranger to this climate as many people believe. Dr. Ducarel maintains, in his Anglo-Norman Antiquities, that they are indigenous, or native trees of this iſland: for this purpoſe he alledges, that many of our old buildings in London, and other places, contain a great quantity of this timber; that ſeveral trees were familiarly known to the Saxons, and that they are very common ſtill in ſeveral parts of England, particularly in the ſouth-eaſt part of Kent; and that remains of them are ſeen in the foreſt of Dean and elſewhere. The Hon. Mr. Daines Barrington has controverted this opinion. See on this ſubject, Phil. Tranſ. vol. lxx. N° 5. and vol. lxi. N° 17, 18, 19, and 20.

Chestnut trees may be cultivated in England, to afford good profit with any of the large timber trees; the wood being of equal value with the beſt oak, and for many purpoſes far exceeding it. It is particularly good for timber in all cases of ſtrain, having a property, when under the moſt violent preſſure, of unbending its bulk conſiderably, without ſnapping or ſwelling, as other timbers are apt to do; and is poſſeſſed of the large cells or pores which, in a leſſer degree, are the cauſe of the toughneſs of the aſh, and many other purpoſes. In genuine ſituations for timber, the trees may remain timber wherever they ſtand. It is alſo a very valuable tree for coppice wood under proper circumſtances, being long-lived, and a moſt excellent ſhoot. The trees are propagated by planting the nuts in February, in beds of freſh mellow earth. The beſt nuts for planting are thoſe that are brought from France or Spain, which are commonly ſold in winter for eating; becauſe they are not ſo liable to be killed, which is frequently done by forcing them, to prevent their ſprouting in the ſhell. The nuts ſhould be ſown ſoon in the ſpring, about ſix inches aſunder, and the ſeedlings may remain two years in the ſeed-bed, the ſtronger they are tranſplanted, the better they will ſucceed.

See an ingenious and effectual method of preſerving *chestnut*, delivered by Mr. Ellis. Phil. Tranſ. vol. li. part 1. p. 213. an. 1759.

CHESTNUT, *horſe*, *Hippocaſtanum*, MOCELLA, *in Botany*. Its characters are theſe: the embalmentum of the flower is ſlightly cut into five ſegments, the flower is compoſed of five unequal petals, folded at their border, and waved; and it has ſeven ſtamina. The embalmentum becomes a thick, roundiſh, echinated capſule, opening into three cells, in one or two of which are lodged globular ſeeds. We have but one ſpecies.

The *horſe chestnut* was brought from the northern parts of Aſia about the year 1550, and ſent to Vienna about the year 1588.

As this tree is quick in its growth, ſo in a few years it will arrive to a ſize large enough to afford a good ſhade in ſummer, as alſo to produce plenty of flowers. Trees raiſed from nuts, have in twelve or fourteen years become large enough to ſhade two or three chairs under the ſpread of the branches; and have been covered with flowers in the ſeaſon. But the wood is of little value. In Turkey the nuts of this tree are ground, and mixed with the proviſion of their horſes, eſpecially thoſe which are troubled with coughs, or are broken winded: in both which diſorders they are ſaid to be counted very good.

M. Bauman, a gentleman of Anjou, gave them, mixed with other food, to his cows; and they increaſed the quantity of milk, without injuring its quality: and he aſſureth us, that if they were blanched and roaſted, or otherwiſe prepared, they might be given to hogs and poultry. Memoirs of the Royal Society of Agriculture at Turin, vol. i. p. 121.

Dr. Jac. Cunichelli aſſures, that after a great many trials he has found the bark of *hippocaſtanum* to have the ſame effect as the PERUVIAN *bark*.

The *horſe chestnut* is employed for the purpoſe of bleaching yarn in France and Switzerland; and it is recommended in the Memoirs of the Society of Berne, vol. ii. part 2, as capable of exceſſive uſe in whitening not only flax and hemp, but alſo ſilk and wool. It contains an aſtringent ſaponaceous juice, which is obtained by grating the nuts, and grinding or raſping them. They are then mixed with hot rain or running water, in the proportion of twenty nuts to ten or twelve quarts of water. Woollen cuts and ſtockings were boiled in this water, and took the dye extremely well; and ſucceſsful trials were made of it in fulling ſtuffs and cloths. Linen waſhed in this water takes a pleaſing fine blue colour: and the ſtatement of hemp ſteeped in it for ſome days, were eaſily ſeparated. The author of the memoir above referred to, imagines, that if the meal of the *chestnut* could be made into cakes or balls, it would anſwer the purpoſes of ſoap in waſhing and fulling. This ſediment, after infuſion, lies in bitter paſte, and becomes good food for horſes when mixed with bran. The Edinburgh College have admitted the *horſe chestnut* into the pharmacopœia, upon the recommendation of Dr. Grainger, who ſays that the eye or inner grains of the powder ſnuffed up the noſtrils in the evening, operate next morning as an excellent ſternutatory, and thereby gave very little pain to obſtinate inflammations of the eyes.

CHESTNUT, *Xanthe ſhrubby horſe*, *Pavia*, in *Botany*. This genus is joined to *æſculus* in the Linnæan diſtribution. Its characters are theſe: the flower has a ſmall empalement of one leaf, indented in five parts at the edge: it has five roundiſh petals, erect and placed by their baſes, and narrow at their baſe, which are inſerted in the empalement. It hath eight ſtamina, which are reflexed, as long as the petals; terminated by oblong antheræ, and a roundiſh germen ſtanding upon an awl-ſhaped ſtyle, crowned by an acuminated ſtigma. The germen afterward becomes an oval, pear-ſhaped, leathery capſule, with three cells, in which is ſometimes one, and at others two, almoſt globular ſeeds.

This plant grows naturally in Carolina, and the Braſils; from the firſt, the ſeeds were brought to England, where the plants have been of late years much cultivated in the gardens. The tree may be propagated by layings, ingrafting it upon the common *horſe chestnut*, which is the uſual method practiſed by the nurſerymen; but the trees, thus raiſed, produce but a good appearance longer for the ſtock of the common *horſe chestnut* will be more than twice the ſize of the other, and frequently put out ſhoots below the graft; and ſometimes the grain are blown out of the ſtocks, after the trees grow to a conſiderable ſize. Theſe ſtocks render the trees hardy, and of large growth.

CHESTNUT, *Indian red*. See MEDIA.

CHEST-ROPE, in a ſhip, is the ſame with the gueſs or gilt rope, and is added to the baſs rope, when the beaſt is towed at the ſtern of the ſhip, to keep her from *theering*, *i. e.* from ſwinging to and fro.

CHEVAGE, or CHIEVAGE, according to Bracton, ſignifies attribute by the head; or a kind of poll-money, anciently paid by ſuch as held lands in villainage, or otherwiſe, to their lords, in acknowledgment.

The word is formed of the French, *chef*, head.

The word ſeems alſo to have been uſed for a ſum of money given to a man of power, for his patronage and protection, as to a chief, head, or leader.

In the laſt ſenſe, Coke obſerves, there is ſtill a kind of *chevage* ſubſiſting in Wales, called *wardſ*; paid to the prince of Wales for the marriage of his daughters anciently by all, now only by ſome. Lambard writes it *chevage*. The Jews allowed to live in England, long paid *chevage* or poll-money, *viz.* three-pence per head: it was paid in Kaine.

CHEVAL *de friſe*, in *Fortification*, a large piece of timber, either round or cut into ſeveral faces, pierced, and traverſed with wooden ſpokes, armed or pointed with iron like a ſpear or ſword-blade. See *Plate Fortification*.

The term of French origin, ſignifies a *friſeland horſe*, as having been firſt invented in that country. It is alſo called a *turnpike*, or *tarnpike*.

Its uſe is to defend a paſſage, ſtop a breach, or make a retrenchment to ſtop the cavalry.

It is ſometimes alſo mounted on wheels, with artificial fires, as muſkets in an affault.

Errard obſerves, that the prince of Orange uſed to incloſe his camp with *chevaux de friſe*, placing them over one another.

On a medal of Licinius, is found a kind of *cheval de friſe*, made with ſpikes interpoſed; ſerving to expreſs a fortified camp.

CHEVALER, in the *Manege*. A horſe is ſaid to *chevale*, when, in paſſaging upon a walk, or a trot, his fat fore-leg croſſes or overlaps the other fore-leg every ſecond time or motion.

CHEVALIER, a French term, ordinarily ſignifying a *knight*.

The word is formed of the French, *cheval*, *horſe*, and that of the Latin *caballus*.

It

It is *used*, in *Heraldry*, to signify any *cavalier*, or horseman armed at all points; by the Romans called *cataphractus equus*, now out of use, and only to be seen in coat armour.

CHEVAN. See CHEUN.

CHEVANTIA, in our *Old Law Writers*, is used for a loan, or advance of money upon credit.

CHEVAUX *de frise*. See CHEVAL *de frise*.

CHEVELLE, a term used by the *French Heralds* to express a head where the hair is of a different colour from the rest of the head.

CHEVILS, or KEVELS, *in Ship-building*. See KEVELS.

CHEVIN, a name used in some parts of England for the CHUB. See CAPITO, and FISHING.

CHEVISANCE, in the *Law of England*, is said to be an agreement, or composition, or bargain between a creditor and debtor; but it seems chiefly to denote an indirect gain, in point of usury, &c. In our statutes it is often mentioned, and most commonly used for an unlawful bargain or contract. See the statutes against usury, anno 12 Anne.

The word is said to be derived from the law French *chevir, to come to the end, or finish any thing*; in the same sense as the modern French use *achever*.

CHEVRETTE, in *Artillery*, an engine to raise guns or mortars in their carriages: it is made of two pieces of wood of about four feet long, standing upright upon a third, which is square: they are about a foot asunder, and pierced with holes exactly opposite to one another, having a bolt of iron, which being put through these holes, higher or lower as occasion requires, with a hand-spike, which takes in pole over this bolt, to raise any thing to force.

CHEVRON, or CHEVERON, in *Heraldry*, one of the honourable ordinaries of a shield; representing two rafters of a house joined together, without any division.

It descends from the chief toward the extremities of the coat, in form of a pair of compasses half open. This, he bears gules, a *chevron* argent. See *Tab. Heraldry*, *fig.* 10.

The *chevron* is the symbol of protection, say some; or of constancy, according to others: some say it represents the knight's spurs; others, the head attire of priestesses; others, a piece of the bit, or the barriers or fence of a park.

When it is alone, it should take up the fifth part of the field, according to Leigh; and according to others, a third part: when it is accompanied with any other bearings, its breadth must be adjusted thereby.

It is borne divers ways; sometimes in chief, sometimes in bale, sometimes enarched, sometimes reverted, &c. The *chevron* is sometimes charged with another *chevron*, one third of its own height.

Two *chevrons* are allowed in the same field and no more: when they exceed that number, they are called *chevronels*, or *chevronels*. There are *chevrons* of several pieces. A *chevron* is said to be *abased*, when its point does not approach the head of the chief, nor reach farther than the middle of the coat: *maimed*, when it does not touch the extremes of the coat: *clouen*, when the upper point is taken off, so that the pieces only touch at one of the angles: *broken*, when one branch is separated into two pieces: *couched*, when the point is turned towards one side of the escutcheon: *divided*, when the branches are of several metals, or when metal is opposed to colour: and *inverted*, when the point is towards the point of the coat, and its branches towards the chief.

A coat is said to be *chevronned*, when it is filled with an equal number of *chevrons*, of colour and metal.

Counter-chevroned, is when it is so divided, as that colour is opposed to metal, and *vice versâ*.

Per CHEVRON, or *Party per* CHEVRON, is when the field is divided by only two single lines, rising from the two base points, and meeting in a point above, as the *chevron* does.

CHEVRONEL, a diminutive of *chevron*; and, as such, only containing half a *chevron*.

CHEVRONNE, or CHEVRONNY, signifies the parting of the shield, several times *chevronwise*: Gibbon says, *chevronwise of six*.

CHEWING-*balls*, a sort of balls contrived for horses to chew, not to swallow at once; not intended as food, but as incentives to appetite; and on other medicinal occasions very useful to the creature. The receipt now most esteemed for these balls is this: take liver of antimony, and of all spirits, of each one pound; wood of the baytree and juniper wood, of each half a pound; pellitory of Spain, two ounces: let all these be powdered together; then add as much fine grape-sugar as is necessary to make the whole into a paste. This is to be formed into balls of about an ounce and a half weight, which are to be dried in the air. These are the *chewing-balls*, and are to be used, one at a time, in the following manner. The ball is to be wrapped up in a linen rag, and a thread is to be fastened to this, in such a manner that it may be tied to the bit of the bridle; and kept in the mouth: when the bridle is taken off, the horse will immediately eat; and when one ball is consumed, another is to be tied up, and put in its place, till the intent is answered.

CHIA *terra*. See TERRA *chia*.

CHIAN *marble*. See MARBLE.

CHIAOUS, an officer in the grand signior's court, doing the business of an usher.

The word, in the original Turkish, signifies *envy*.

He bears arms offensive and defensive, and has the care of prisoners of distinction. His badge is a staff covered with silver; and he is armed with a scimiter, bow, and arrows.

The emperor usually chooses one of this rank to send as ambassador to other princes.

The *chiaous* are under the direction of the *capidgi-bachi*, an officer who assists at the divan, and introduces those who have business there.

CHIARO *scuro*, or *obscuro*, among *Painters*. See CLAIR-*obscure*.

CHIASMUS, in *Ancient Greek Medical Writers*, is the concourse or meeting of any two things under the form and figure of a croſs, or the letter X, which it is named. The adverbs *across*, and *crosswise*, signify the same thing: thus the optic nerves are laid to meet *crosswise*, so as to cross each other.

CHIASTON, the name of a bandage in *Chirurgery*, so called from its resembling a cross, or the letter X.

CHIASTOS, in *Rhetoric*, the same with what is otherwise called HISTERON.

CHIAUSI, among the *Turks*, officers employed in executing the vizirs, bashaws, and other great men's orders for doing which the grand signior sends them wrapped up in a black cloth, on the reception of which they immediately perform their office.

CHICANE, or CHICANERY, in *Law*, an abuse of judiciary proceeding, tending to delay the cause, and deceive or impose on the judge, or the parties.

Some derive the word from *cicinia*, *the fun of a common-mother*; whence the Spaniards form their *cicio*, *cicla*, *fimbre*; *thinking* being convenient about trifles.

The French call solicitors, attorneys, &c. *gens de chicane*.

CHICANE is also applied, in the schools, to vain sophisms, distinctions, and subtilties, which immortalize disputers, and obscure the truth: as the arcana of courts does justice.

CHICH *pea*. See *Chick*-PEA.

CHICHLING *vetch*. See VETCH.

CHICKEN, in *Ornithology*, the young of the gallinaceous order of birds, and especially of the common hen.

Chickens require no meat for two days after they are hatched; and they are first fed with bread crumbled very fine, or steeped in milk, and the crumbs of white bread and barley acquire strength, with curds, cheese-parings, &c. Grits or groats, chopped with their food will prevent them from the rot; and other additions of the kind, as one should be taken to furnish them with a proper supply of clean water. In order to have fat capon'd *chickens*, they should be cooped up when the hen hatches them, and fed with wheat-meal mixed with milk, and made into a paste: this diet will fatten them in about a fortnight. See COCK, FOWL, and HATCHING.

CHICKEN-*pox*. See POX.

CHICKWEED, *Alsine*, in *Botany*, the name of a very large genus of plants; for the characters of which, see ALSINE.

The *alsine* is a medicinal plant, called also *morsus gallinæ*, *pellitory sauvage*, on account of its being much covered by poultry.

The word is *saxon*, formed of *weoxan*, a weed, or grass, on account of this plant's delighting chiefly to grow in shady places.

Alsine is also called *myosoton*, q.d. *mouse-ear*, on account of the resemblance its leaves bear to the ears of that animal.

It is held a cooler, calmer, thickener, &c. in most respects resembling pellitory of the wall; though now little used in medicine.

Some commend its distilled waters against fevors of the blood, and consumptions of the body, arising from heat, &c. The herb bruised in linseed oil, and externally applied to the belly, is said to relieve the iliac pain.

CHICKEN-WEED, *African*. See MOLLUGO.

CHICKWEED, *berry-bearing*, *Canadense*, in *Botany*, a genus of the *decandria trigynia* class. Its characters are these: the flower has five petals, with nails as long as the empalement, but spread open at the top, and two stamina, five of which are alternately inserted in the tail of the petals,

petals, in the centre is situated an oblong germen supporting three styles. The empalement becomes a pointed close capsule with three cells, opening at top into five parts, and filled with many roundish seeds. According to Miller, there are thirteen species; but according to Tournefort, only one. Linnæus enumerates fifteen species.

CHICKWEED, *great*, *Stellaria*, in *Botany*, a genus of the *decandria trigynia* class; having a five-leaved patent calyx, five bipartite petals, and a single-celled polyspermous capsule. There are eight species.

CHICKWEED, *mountain*, *Alsine virgin*, in *Botany*. See MOUSE-*ear*.

CHICKWEED, *mouse-ear*, *Cerastium*. See MOUSE-*ear*.

CHICKWEED, *yellow*, *Alsine*, in *Botany*, a genus of the *decandria trigynia* class: the characters of which are, that the calyx consists of five patent leaves; the corolla, of five entire petals; and the fruit is a capsule containing one cell with several seeds. There are twenty species.

CHICKWEED, *water*. See MONTIA.

CHICORACEOUS, in *Botany*. M. Vaillant divides plants with compound flowers into three classes or families; the *semiflosculosa*, the *scyphiferous*, and the *discoideous*.

CHICUATLI, in *Ornithology*, the Indian name of a bird described by Nieremberg, and by him called *nothus canoris*. Its beak is long, black, and slender; its head is marked with undulated streaks of yellow near the eyes. Its breast and belly are of a whitish colour, and it has some black feathers intermixed with white ones on the throat: its back is variegated with black, yellow, and grey. It is found principally among the mountains; where it generally runs about the ground; it is easily bred in cages, and feeds on any thing that is offered it. It is most frequent in the hotter climates, and is usually fat and nourishing.

CHIEF, a term denoting head, or a principal thing or person. The word is formed of the French *chef*, *head*.

We say the *chief* of a party; the *chief* of a family, &c. Agamemnon was the *chief* of the Greeks who besieged Troy. The Romans sometimes refused triumphs to their victorious generals, because the conduct of the *chief* was not answerable to his success. The abbeys that are *chiefs* of their order are all regular; and it is there the general chapters are held.

CHIEF *baron*. See BARONS and COURT *of exchequer*.

CHIEF, in *Heraldry*, is the upper part of the escutcheon, reaching quite across, from side to side.

The arms of France are, three golden flowers de lys, in a field azure, two in *chief*, and one in point.

CHIEF is more particularly used for one of the honourable ordinaries, placed athwart the top of the coat, and containing one third part of its height. *Tab. I. Heraldry fig.* 41.

When the escutcheon is cut in three, or is reticed, the *chief* stands out prominent beyond the rest; and is supposed to represent the diadem of the ancient kings and princes; or the cusque of the knights.

It is frequently without any ornament; sometimes it is charged with other bearings; sometimes it is of a colour of metal different from that of the coat.

The line that bounds it at the bottom is sometimes straight, sometimes indented, engrailed, embattled, lozenged, &c. Thus, say they, the field is gules, a *chief* argent, &c. Again, he bears, gules, a *chief*, crenelle, or embattled, argent.

Sometimes one *chief* is borne on another; expressed by a line drawn along the upper part of the *chief*: when the line is along the under part, it is called a *fillet*. The first is an addition of honour, the second a diminution.

The *chief* is said to be *abased*, when it is detached from the upper edge of the coat, by the colour of the field which is over it, and which retrenches from it one third of its height. We also say, a *chief* is *chevroned*, *paled*, or *bended*, when it has a chevron, pale, or bend, contiguous to it, and of the same colour with itself. A *chief* is said to be *supported*, when the two thirds at top are of the colour of the field, and that at bottom of a different colour.

In CHIEF. By this is understood any thing borne in the *chief* part, or top of the escutcheon.

CHIEF *justice*, in *Law*. See JUSTICE.

CHIEF *justiciary of England*. See JUSTICIARY.

CHIEF *lord*, denotes the feudal lord, or LORD of an HONOUR, on whom others depend.

CHIEF, *holding in*. See CAPITE, and TENURE.

CHIEF *pledge*, in the time of HEADBOROUGH.

CHIEF *point*. See POINT.

CHIEF *rents*, *Redditus capitales*, in *Law*, denote the rents of freeholders of manors. See QUIT-*rents*.

CHIEFTAIN, the chief leader, or general of an army; or the like.

CHIEPA, in *Ichthyology*, a name used by some authors for the fish more usually known by the name of the *alausa*, and called in English the SHAD, or the mother of herrings. See ALOSA.

CHIFFIR, or CHIFFE, according to Libavius, in the preparation of the philosophers stone, is called *lapis animalis*; as the mineral is called *lapis minerale*. Johnson says, that *the lapis minerale* is by some interpreted *gold*, but that he rather takes it to be any sulphur of the mineraline kind.

CHIFUNG, among the Chinese, the name of an herb found about Canton, by which the fishers pretend to know how many storms will happen every year. This they compute from the number of knots or joints, and from the distances of the knots from the root, they determine what month the storms will fall in.

CHILBLAIN, *Pernio*, in *Medicine*, a tumor affecting the feet and hands; accompanied with an inflammation, pain, and sometimes an ulcer, or solution of continuity: in which case it takes the denomination of *chaps*, on the hands; and *ulcers* on the heels.

Chilblains is compounded of *chill* and *blain*; q. d. a blain, or sore, contracted by cold.

Chilblains are occasioned by excessive cold stopping the motion of the blood in the capillary arteries and superficial veins.

The tumor from white, generally inclines to blueness. For the prevention of *chilblains*, the skin should be rendered firmer by frequent washing and bathing in cold water; the vicious quality of the temperaments or humours which contributes to this disorder, should be corrected by the milder preparations of antimony, and moderate purges. For the cure of *chilblains*, it is usual to wash them with warm brine, spirit &c. but *persoleum*, or warm Hungary water, with spirit of wine camphorated, used with a sponge, are much better. For chaps and ulcers, nothing exceeds the *unguentum diapalmæ rubrum*, or *diapompholigos* mixed with a little camphor; and used, for the dressings, with *emplastrum de minio*, or *ustulatio spodios*, let down with oil of roses.

When these tumors tend to suppuration, it is proper to treat them like other recent abscesses: the best method is still to cleanse the wound with some digestive ointment, then to dress it with balsam of Peru, or other similar application; and, lastly, to apply some of the lead or litharge plasters. Oil of myrrh *per deliquium* is also found of great service in these cases; as is also the applying a compress, dipped in a mixture of equal parts of lime-water, and camphorated spirit of wine over the other remedies.

In people who have been used to be afflicted with *chilblains* at the return of a certain season, it will be found a great preservative against those troublesome tumors, to anoint the parts where they are expected to appear, both before and during the access of the severe cold, with oil of turpentine or petroleum; and, when the disorder first begins to shew itself, it is a very good method to wrap round the affected part a piece of a hog's bladder, well wetted with one or other of those oils: and care must be taken to keep off the cold.

CHILD, a term of relation to parent.

We say, NATURAL *child*, LEGITIMATE *child*, PUTATIVE *child*, BASTARD *child*, ADOPTIVE *child*, POSTHUMOUS *child*, &c.

Dr. Derham computes, that marriages, one with another, produce four *children*, not only in England, but in other parts also. See MARRIAGE.

It is well known that *children*, for some time after they are born, see but very imperfectly; and the best, after taking a great deal of pains to investigate the cause of it, found it to be owing in part to the thickness of their CORNEA, and the small quantity of their aqueous humour. Not that the mere thickness of the cornea could have this effect; but because the thickness is owing to its not being well stretched, and consequently having wrinkles and inequalities on its surface, which occasion an irregular refraction of the light. On the same account also the *cornea* has not a sufficient degree of convexity, to bring the PENCILS of rays to a focus soon enough. All these defects, he shews, are remedied by the encrease of the aqueous humour. See Dr. Priestley's History of Vision, &c. 4to. p. 187.

Dr. Harris has an express treatise Of the Acute Diseases of Children, De Morbis Acutis Infantum. He takes them all to arise from the humours in the *primæ viæ* growing sour, and degenerating into acidities, which is continued from their food, beliches and dejections. Hence, all that is required to cure them, is to combat this acidity; which is to be effected two ways, by supplying it to be evacuated, and by actual evacuation by absorbents, and other gentle purgatives.

To dispel the peccant acid for evacuation, no subsidies or cordials are to be used, those remedies being the vitriolated tartar, magnesia, crabs-eyes and claws, oyster-shells, cuttle-fish bones, egg-shells, chalk, coral, pearls, bezoar, burnt ivory, scrapings of the unicorn's horn, Armenian bole, *terra sigillata*, and *lapis lazuli*; the Gossampine, and the confection of hyacinth: but of all these, he prefers old shells that have lain long on the edge of the sea, exposed to the sun, which is better than any chemical furnace.

Bartholine, Paré, Liceetus, and many other writers, give

an account of a *petrified child*, which has seemed wholly incredible to some people. The *child*, however, which they describe, is still in being, and is kept as a great rarity in the king of Denmark's museum at Copenhagen. The woman who went big with this, lived at Sens in Champaign in the year 1582; it was cut out of her belly, and was universally supposed to have lain there about twenty years. That it is a real human *foetus*, and not artificial, is evident to the eye of any observer: and the upper part of it when examined, is found to be of a substance resembling the gypsum or stone of which they make the plaister of Paris: the lower part is much harder: the thighs and buttocks being perfect stone, of a reddish colour, and as hard as common quarry stone: the grain and surface of this part appear exactly like that of the calculi, or stones taken out of human bladders; and the whole substance examined were so neatly, and felt ever so carefully, appears to be absolute stone. It was carried from Sens to Paris, and there purchased by a goldsmith of Venice; and Frederick the Third, king of Denmark, purchased it at Venice of this man for a very large sum, and added it to his collection of rarities. Phil. Trans. N° 285, p. 2400. See INFANTS.

Children, besides the honour and reverence which they owe to their parents, ought likewise to contribute to their support, when they need assistance. The Athenian laws obliged all *children* to provide for their *father*, when reduced to poverty; with an exception to spurious *children*, to those whose chastity had been defiled by consent of the father, and to those who had not been put into any way of gaining a livelihood. Our laws agree with those of Athens in the first particular; but in the other cases, a *child* is compellable by *stat.* 43 Eliz. c. 2. if able, to provide for a wicked and unnatural progenitor. Blackst. Comm. vol. i. p. 453. See PARENT, &c.

CHILD-*bed*. } See DELIVERY.
CHILD-*birth*. }

CHILDREN, *exposing of*. See EXPOSING.

CHILDREN, *naming of*. See NAME.

CHILDREN, *overlying of*. This is a misfortune which frequently happens; to prevent which, the Florentines have contrived an instrument called ARCUTIO.

CHILD-*wite*, a power to take a fine of a bond-woman unlawfully gotten with *child*; that is, without consent of her lord.

Every reputed father of a *base* child, got within the manor of Writtel in Essex, pays to the lord, for a fine, 3*s.* 4*d.* where, it seems, *child-wite* extends to free, as well as bond-women.—*Quicunque fecerit* child-wite, *archiepiscopus aut vicus, aut similiter emendationis partem habebit, quicunque ejus de* child-wite. Du Cange.

CHILDREN, *charity*. See CHARITY-*school*, and HOSPITAL.

CHILDERMASS *Day*, called also *Innocents-Day*, an anniversary feast of the church, held on the 28th of December, in memory of the *children* of Bethlehem, massacred by order of Herod.

CHILIAD, an assemblage of several things ranged by thousand.

The word is formed of χιλιας, *mille*, *a thousand*.

CHILIAGON, in *Geometry*, a regular plane figure of 1000 sides and angles. We can easily demonstrate, that the sum of all its angles is equal to 1996 right ones: for the internal angles of every plane figure are equal to twice as many right angles as the figure hath sides, except those four, which are about the centre of the figure, from whence it may be resolved into as many triangles as it has sides. The author of L'Art de Penser, p. 44. 45. brings this instance to shew the diffinction between imagining and conceiving. See NOTION.

CHILIARCHA, or CHILIARCHUS, an officer in the armies of the ancients, who had the command of a thousand men. The word comes from χιλιοι, *a thousand*, and αρχω, *command*.

CHILIARTA, in *Church-History*, the fame with MILLENARII.

CHILIASTS. See MILLENARII.

CHILMINAR, CHELMINAR, or TCHELMINAR, the noblest and most beatiful piece of architecture remaining of all antiquity: being the ruins of the famous palace of Perfepolis, to which Alexander the Great, being drunk, fet fire, at the perfuafion of the courtezan Thais.

Authors and travellers are exceedingly minute in their defcriptions of the *Chilminar*; particularly Gracias de Silva Figueroa, Pietro de la Valle, Chardin, and Le Brun. A general idea thereof may be conceived as follows:

There appear the remains of near fourfcore columns; the fragments whereof are at leaft fix feet high: but there are only nineteen that can be called entire: with a twentieth all alone, 150 paces from the reft.

A rock of black hard marble ferves for the foundation of the edifice. The afcent to the firft plan of the building is by fourfcore and fifteen fteps, cut in the rock. The gate of the palace is twenty feet wide; on one fide is the figure of an elephant, and on the other of a rhinoceros, each thirty feet high, and of a fhining marble; near thefe animals are two columns; and not far off the figure of a Pegafus.

After this gate is paffed, there are found a great number of columns of white marble; the remains whereof fhew the magnificence of the work: the fmalleft of thefe columns is fifteen cubits high, the largeft eighteen; each has forty flutings, three inches broad; whence the height of the whole may be guefſed at, with the other proportions. Near the gate is an inſcription on a fquare piece of marble, fmooth as glafs, containing about *twelve lines*: the characters are of a very extraordinary figure, refembling *triangles* and *pyramids*.

Thefe noble ruins are now the fhelter of beafts, and birds of prey. Befides the inſcription above mentioned, there are others in Arabic, Perfian, and Greek. Dr. Hyde obſerves, that the inſcriptions are very rude and inartful; and that fome, if not all of them, are in praiſe of Alexander the Great; and therefore are later than that conqueror.

M. Le Brun took his voyage to the Eaſt Indies, merely for the ſake of viewing the *Chilminar*.

CHILON, among the *Greek Phyſiologers*, one who has great *lips*, called by the Latins *labeo*. Thus alſo among the ſpecies of ſiſhes, under the claſs of *cepiformes*, ſome are called *chilones*, that is, *labeones*.

CHILTENHAM *water*, contains a neutral purgative ſalt, ſomewhat reſembling Glauber's *ſal mirabile*. It contains no alcaline or acid ſalt, no iron, copperas, or ſulphur. Theſe waters are thought uſeful in lax conſtitutions, where the humours are alcaleſcent, but hurtful when acefcent. See Phil. Tranſ. N° 461. ſect. 21. and the remarks. See WATER.

CHIMALATH, in *Botany*, a name given by ſome authors to the great *ſtramonia ſolis*, or ſun-flower.

CHIMERA, or CHIMERA, a fabulous monſter, which the poets feign to have the head or breaſt of a lion, the belly of a goat, and the tail of a dragon; and to have been killed by Bellerophon, mounted on the horſe Pegaſus.

The foundation of the fable is this: that anciently in Lycia, there was a volcano, or burning mountain, of this name; the top whereof, which was deſert, only inhabited by lions: the middle, having good paſtures, was frequented by goats; and the foot, being marſhy, by ſerpents. Thus Ovid:

——medio in partibus hircus,
Pectus & ora leæ, caudam ſerpentis habebat.

Bellerophon being the firſt who cauſed this mountain to be inhabited, it was feigned he ſlew *Chimera*. Pliny ſays, the fire thereof would burn in water, and could be extinguiſhed with nothing but earth, or dung.

CHIMERA is uſed in *Writers of the Middle Age*, for a kind of veſſel or ſhip. It ſeems to have been leſs than the chelandium.

CHIMES *of a clock*, a kind of periodical muſic, produced at certain hours of the day, by a particular apparatus added to a clock; ſuch as a *chime*-barrel, bells and hammers, &c.

To calculate numbers for the *chimes*, and to fit and divide the *chime*-barrel, it muſt be obſerved, that the barrel muſt be as long in turning round, as you are in ſinging the tune it is to play.

As for the *chime*-barrel, it may be made up of certain bars which run athwart it, with a convenient number of holes punched in them, to put in the pins that are to draw each hammer: by this means, the tune may be changed, without changing the barrel. In this caſe, the pins, or nuts, which draw the hammers, muſt hang down from the bar, ſome more, ſome leſs; and ſome muſt ſtand upright in the bar: the reaſon whereof is, to play the time of the tune rightly. For the diſtance of each of theſe bars may be a ſemibreve; but the uſual way is, to have the pins, which draw the hammers, fixed on the barrel.

For the placing of theſe pins, you may proceed by the way of changes on bells; viz. 1, 2, 3, 4, &c. or rather, make uſe of the muſical notes: where it muſt be obſerved, what is the compaſs of the tune, or how many notes, or bells, there are from the higheſt to the loweſt; and accordingly, the barrel muſt be divided from end to end.

Thus, in the following example, each of the tunes is eight notes in compaſs; and, accordingly, the barrel is divided into eight parts: theſe diviſions are ſtruck round the barrel; oppoſite to which are the hammer-tails.

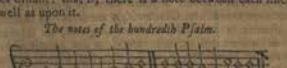
We ſpeak here as if there were only one hammer to each bell, that it may be more clearly apprehended; but when two notes of the ſame ſound come together in a tune, there muſt be two hammers to the bell to ſtrike it; ſo that if in all the tunes you intend to *chime* of eight notes compaſs, there ſhould happen to be ſuch double notes,

holes on *every* bell; instead of eight, you must have fixteen hammers; and, accordingly, you muſt divide the barrel, and ſtrike fixteen ſtrokes round it, oppoſite to each hammer-tail: then you are to divide it round about, into as many diviſions as there are muſical bars, ſemibreves, minims, &c. in the tune.

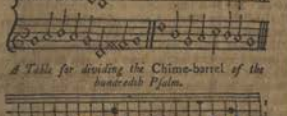
Thus, the hundredth pſalm tune has twenty ſemibreves, and each diviſion of it is a ſemibreve: the firſt note of it, alſo, is a ſemibreve; and therefore on the *chime*-barrel there muſt be a whole diviſion, from five to five; as you may underſtand plainly, if you conceive the ſurface of a *chime*-barrel to be repreſented by the following tables; as if the cylindrical ſuperficies of the barrel were ſtretched out at length, or extended on a plane: and then ſuch a table, ſo divided, if it were to be wrapped round the barrel, would ſhew the places where all the pins are to ſtand in the barrel: for the dots running about the table, are the places of the pins that play the tune.

Indeed, if the *chimes* are to be complete, you ought to have a ſet of bells to the gamut notes; ſo as that each bell, having the true ſound of *ſol, la, mi, fa*, you may play any tune with its flats and ſharps: nay, you may, by this means, play both the baſs and treble with one barrel: and by ſetting the names of your bells at the head of any tune, that tune may eaſily be tranſferred to the *chime*-barrel, without any ſkill in muſic. But it muſt be obſerved, that each line in the muſic is three notes diſtant: that is, there is a note between each line, as well as upon it.

The notes of the hundredth Pſalm.



A Table for dividing the Chime-barrel *of the hundredth Pſalm.*



CHIMIN, or **CHEMIN**, in *Law*, a road, or way. *See* HIGHWAY and ROAD.

CHIMINAGE, a toll for wayfarage, or paſſage through a foreſt. The ſcotiſts call it *pedagium*.

CHIMNEY, in *Architecture*, a part of a houſe, or lodging, wherein the fire is made.

The word *chimney* comes from the French *cheminée*; and that from the Latin *caminata, a chamber wherein is a chimney: caminata*, again, comes from *caminus*; and that from the Greek καμινος, *a chimney*: cf. καω, κρ, *I burn*.

The parts of a *chimney* are, the jambs, or ſides; the back, or hood; the mantle-tree, reſting on the jambs: the tube, or funnel, which conveys away the ſmoke; the *chimney*-piece, or moulding, on the fore-ſide of the jambs over the mantle-tree; and the hearth, or fire-place.

Palladio ſettles the proportions of a chamber-*chimney* thus: breadth on the inſide, five and a half, ſix, or ſeven feet: height to the mantle-tree, four, or four and a half: depth, two, or two and a half feet.

According to Weliius, the breadth of the aperture, at bottom, ſhould be to the height, as three to two; to the depth, as four to two. In ſmall apartments, the breadth is three feet; in larger, five; in bed-chambers, four; in ſmall banqueting-rooms, five and a half; in large, ſix: but the height is never to exceed two and a half; leſt, there being too much room for the air and wind, the ſmoke be driven down into the room. Nor muſt the height be too little; leſt the ſmoke miſs its way, and be checked at firſt ſetting out. The ſame author adviſes, to have an aperture, through which the external air may, on occaſion, be let into the flame, to drive up the ſmoke; which the internal air would otherwiſe be unable to do.

The mouth of the tube, or that part joined to the *chimney*-back, Felibien owns to be a little narrower than the reſt; that the ſmoke coming to be repelled downwards, meeting with this obſtacle, may be prevented from getting into the room.

Some make the funnel twiſted, to prevent the ſmoke's deſcending too eaſily; but the better expedient is, to make the funnel narrower at bottom than at top; the fire impelling it upward more eaſily when contracted at bottom; and in mounting, it finds more ſpace to diſengage itſelf, and therefore has leſs occaſion to return into the chamber.

To prevent ſmoking CHIMNEYS, M. Locar adviſes two holes, or two pipes, one over the billet, to be left in each ſide of the *chimney*; one ſloping upwards, the other downwards: through one of theſe, he ſays, the ſmoke will paſs in any poſition.

De l'Orme orders a braſs ball full of water, with one ſmall aperture, to be hung up in the *chimney*, at a height a little above the greateſt flame: here, as the water grows hot, it will rarefy, and drive through the aperture in a vapory ſteam, which will drive up the ſmoke that would otherwiſe linger in the funnel.

Others place a kind of moveable vane, or weathercock, on the top of the *chimneys* ſo that what way ſoever the wind comes, the aperture of the *chimney* will be ſcreened, and the ſmoke have free egreſs: but, in truth, the beſt prevention of a ſmoking *chimney* ſeems to lie in the proper ſituation of the doors of the room, and the air falling back of the back, and convenient gathering of the wings and breaſt of the *chimney*. The following general regulations relate to the conſtruction of *chimneys*. No *chimney* is to be built on the timbers of the floors, but on brick or ſtone, or on ſtone corbels or iron brackets, or iron bores ſupported by brick, or ſtone foundations. No breaſt of any *chimney* is to be turned over on wood, but to be ſupported by an iron bar, or brick or ſtone arch. All *chimneys* muſt have brick trimmers before them at leaſt eighteen inches broad, with flabs or foot-paces on them of the ſame breadth, and ſix inches longer at each end, than the opening of the *chimney* when finiſhed. No timber ſhall be laid in any wall nearer than nine inches to any *chimney*, or than five inches to any flue, or than eighteen inches to the ſurface of the hearth. The outſide of *chimneys* and flues in PARTY-walls next to vacant ground muſt be lime-whited, or otherwiſe diſtinguiſhed, as ſoon as any building is erected againſt the ſame.

Chimneys are uſually ſuppoſed a modern invention; the ancients only making uſe of ſtoves: but Octavio Ferrari endeavours to prove *chimneys* in uſe among the ancients. To this end, he cites the authority of Virgil:

Et jam ſumma procul villarum culmina fumant.

And that of Appian, who ſays, "That of thoſe perſons "proſcribed by the triumvirate, ſome hid themſelves in "wells, *cloacæ*, and common-ſewers; ſome in the tops of "houſes, and *chimneys*:" for ſo we underſtand κατυπερθε καπνοδοκης. *ſumaria ſub tecta poſita*. Alſo, that Ariſtophanes in one of his comedies, introduces his old man, Polycrion, that up in a chamber; whence he endeavours to make his eſcape by the *chimney*. However, the few inſtances remaining among the ancients, together with the obſcurity of the rules of Vitruvius on this head, make us rather conclude the uſe of ſtoves, whereof the ancients had entire apartments, induced them to neglect this part of building, which the coldneſs of our climates obliges us to have a principal regard to.

In the year 1709, there appeared a French book, entitled La Mechanique du Feu, or the art of augmenting the effects, and diminiſhing the expence, of fire, by M. Gauger; ſince publiſhed in Engliſh, by D. Defaguiers: wherein the author examines what diſpoſition of *chimneys* is moſt proper to augment the heat; and proves geometrically, that the diſpoſition of parallel jambs, with the back inclined as in the common *chimney*, is leſs fitted for reflecting heat into the room, than parabolical jambs, with the bottom of the tablet horizontal.

He gives ſeven leveral conſtructions of his new *chimneys*, in which there are hollow cavities made by iron plates in the back, jambs, and hearth, through which plates the heat paſſing, warms the air in thoſe cavities, which is continually coming into the room freſh and warm; and the manner of executing them.

M. Gauger, however, does not appear to be the firſt inventor of the *chimney* he deſcribes; the deſcription of a like *chimney* being found in a German book, printed at Leipſick in 1699. See FIRE-PLACES and STOVES.

CHIMNEY-*jambs*, are the ſides of a *chimney*, uſually ſtanding out perpendicularly, ſometimes circularly, from the back; on the extremities whereof the mantle-tree reſts.

CHIMNEY-*money*, or *hearth-money*, a tax impoſed by ſtatute 13 and 14 Car. II. c. 10. expreſſing, that every fire-hearth, and ſtove of every dwelling, or other houſe, within England and Wales, except ſuch as pay not to church and poor, ſhall be chargeable with two ſhillings *per ann.* payable at Michaelmas and Lady-day, to the king and his heirs. But this tax was declared to be an oppreſſion and badge of ſlavery, and accordingly abolliſhed by ſtat. 1 W. and M. c. 10. and the window-tax eſtabliſhed in its room. See FUAGE and WINDOW-TAX.

CHIMNEY-*piece*, in *Building*, a compoſition of certain mouldings, of wood or ſtone, ſtanding on the fore-ſide of the jambs, and coming over the mantle-tree.

CHIMPANZEE, in *Natural Hiſtory*, the name of an Angolan animal, very much approaching to the human figure; but of a fierce diſpoſition, and remarkably miſchievous. In the year 1738, we had one of theſe crea-

tures brought over into England, by the captain of a ship in the Guinea trade; it was of the female sex, and was two feet four inches high: it naturally walked erect, and was hairy on some part of the body and limbs, and of a strong muscular make. It would eat very coarse food, and was very fond of tea, which it drank out of a cup with milk and sugar, as we do; it slept in the manner of the human species, and in its voice made some imitation of the human speech, when people speak very hastily, but without any articulate sounds. The males of this species are very bold, and will fight a man, though they see him armed. It is said that they often set upon, and ravish the negro women, when they meet them in the woods. The creature we saw here was but about twenty months old, and very tame; the parent had it in her arms in the country, and did not part with it till she was killed with a spear by one of the Moors: she was five feet high. Act. Eruditor. Germ. ann. 1739. See Orang-outang.

CHINA, China-ware, a fine sort of earthen ware, properly called porcelain.

China, gilding on. See Gilding on China.

China, paste. See Paste.

China, broken, a cement for. See Cement.

China-China, a name sometimes given to the quinquina, or Peruvian bark. See Cortex Peruvianus, and Quinquina.

China-root, a medicinal root, brought from the East Indies; and lately also from Peru, and New Spain.

It is of a ruddy brown colour, bordering on black, without-side; and white, or reddish, within. It grows chiefly in fenny places, usually covered with the sea; which, upon its withdrawing, leaves great quantities thereof on the shore. The best is that which is firm, ruddy, and fresh.

It is supposed to be the root of a rough sort of smilax, called lampatam in China, where it grows plentifully; and being exported thence, is called China.

It is esteemed a sweetner of the blood; and used as such in decoction, in venereal and scorbutic cases.

It has indeed been a generally received opinion for a considerable time past, that China-root is of service in the gout, sciatica, oedematous tumors, struma, imbecility of the stomach, hemicranias, and in ulcers of the veins and bladder; but to be of little effect in the lues: or if it be perhaps of any use, yet to be far inferior in virtue to guaiacum.

CHIN-COUGH, a disease which children are chiefly subject to. It consists in a violent and immoderate coughing, to a danger of suffocation.

In the chin-cough, Dr. Huxham uses the common evacuations, and proposes to correct the ferror of the blood, and to strengthen the nerves and stomach by mercurials, the cortex, and proper stomachics.

Dr. Burton declares against bleeding, vomiting, and purging in the chin-cough, except in very urgent cases; the medicine which he says has had great success, is a scruple of fine powder of cantharides, and as much camphor, mixed with three drams of the extract of Jesuits bark. Of this mixture he gives eight or nine grains to children every third or fourth hour, in a spoonful of some simple water, or some julep, in which a little balsam of capivi had been dissolved. He says this method is not proper in such chin-coughs as proceed from thin sharp rheum; but, he believes, that in the chin-cough from a tough viscid phlegm, it will scarce ever fail, at least it has not failed yet. Med. Ess. Edinb.

As this disease arises from obstructed perspiration, and a relaxation of the solids, its cure must depend on cleansing and strengthening the stomach, bracing the solids, and, at the same time, promoting perspiration and the different secretions. The diet, therefore, should be light, and easy of digestion: the drink should be hyssop or penny-royal tea, sweetened with honey or sugar-candy; or small wine whey. One of the most effectual remedies is change of air. When the disease is violent, and there is any danger of an inflammation of the lungs, or suffocation, repeated bleeding may be proper. Small doses of ipecacuanha should be administered in this disorder. The preparations of rhubarb should also be used, in order to keep the body open. Oily and balsamic medicines, though often exhibited, should be avoided. Millepedes, bruised and infused in small white wine, have been much recommended. Two ounces of these should be allowed to a pint of wine, and a table-spoonful taken three or four times a day. Opiates, as a little of the syrup of poppies, or five, six, or seven drops of laudanum, may be occasionally repeated, to allay the violence of the cough. The feet should be occasionally bathed in luke-warm water, and a Burgundy pitch plaster kept between the shoulders. If the disease continues, unattended with a fever, the bark and other bitters are proper medicines. Buchan's Domestic Medicine, ed. 5. p. 303, &c.

CHINE, in the *Manege*, is used for the back-bone, or the ridge of the back of a horse. The French call it *échine*; and the ancient Italian masters *espine*.

CHINESE *Chronology*. See Chronology.

Chinese *Stones*. See Kang.

Chinese or Chinese *Tongue*, the language of the people of China. P. le Comte observes, that the *Chinese* has no analogy to any other language in the world. It only consists of 330 words, which are all monosyllables; at least, they are pronounced so short, that there is no distinguishing above one syllable, or sound, in them. Yet they have four accents, which, by an inflexion of voice, multiply almost every word into four, and give also a harmony and pointed cadence to the most ordinary phrases. Their characters are divided into six sorts: the first exhibiting the shape or image of sensible things; the second indicating the object by some visible addition to the shape or symbol; the third associating two characters to express an object, which neither would denote separately; the fourth expressing the sound, in order to supply the defect of the figure, as *ya* adjoined to the figure of a bird, to represent a duck, &c.; the fifth being a metaphorical application of their characters, whereby their language acquires a force and vivacity of colouring peculiar to itself, but at the same time rendering it extremely obscure; the sixth extending the primitive sense of a character, so that the same character may denote a verb or adverb, an adjective or substantive. From these sources their various characters are derived, and increased from 300 to 80,000.

Some learned men have imagined, particularly Mr. Torbeville Needham, F. R. S. that the *Chinese* characters are the same in many respects as the Egyptian hieroglyphics; and that the sense of the latter may be discovered by the comparative and appropriated signification of the former. But it has been urged, that there is not the least trace now remaining of any communion, since the confusion of tongues, between the *Chinese* and Egyptians: nor can there be discerned any connection between the two modes of writing at this day. Nevertheless, it has been maintained, that the *Chinese* language is one of the most ancient; and perhaps the only one that has been spoken without interruption; and yet remains as a living language, to which it is apprehended the small number and shortness of its words have greatly contributed. The *Chinese* characters have been represented as images for sensible things, and symbols for mental objects, which are tied to no sound, and may be read in every tongue; and this seems to have been the case in the most remote antiquity, when their characters, words are now abbreviated and disfigured, might have been more simple and natural. See farther on this subject, Phil Transf. vol. lix. N° 66. p. 409, &c. See also Writing.

CHINNOR, an instrument of music among the Hebrews, consisting of thirty-two chords. Kircher has given a figure of it; for which, see Tab. *Music. fig.* 1.

CHINSE, in *Sea Language*, is used for thrusting oakum into a seam or chink, with the point of a knife or chisel.

CHIO *pear*, a name given to a small species of pear, called also by some the bastard musk pear, from its resembling the little musk pear in its sweet flavour. Its fruit is yellow streaked with red; it is of a roundish shape, and does not hang in clusters, but single on the tree.

CHIOCOCCA, in *Botany*, a genus of the *pentandria monogynia* class, having a funnel-shaped flower, and a single-celled berry containing two seeds.

CHIONANTHUS, in *Botany*. See Snow-drop tree.

CHIPPING, a phrase used by the potters and china-men to express that common accident both of our own stone and earthen ware, and the porcelain of China, the flying off of small pieces, or breaking at the edges. Our earthen wares are particularly subject to this, and are always spelled by it before any other flaw appears in them. Our stone wares escape it better than these, but less than the porcelain of China, which is less subject to it than any other manufacture in the world. The method by which the Chinese defend their wares from this accident, is this: they carefully burn some small bamboot canes to a sort of charcoal, which is very light, and very black: this they reduce to a fine powder, and then mix it into a thin paste, with some of the varnish which they use for their ware: they next take the vessels when dried, and not yet baked, to the wheel, and turning them softly round, they, with a pencil dipt in this paste, cover the whole circumference with a thin coat of it: after this, the vessel is again dried; and the border made with this paste appears of a pale greyish colour when it is thoroughly dried. They work on it afterwards in the common way, covering both this edge and the rest of the vessel with the common varnish. When the whole is baked on, the colour given by the ashes disappears, and the edges are as white as any other part; only when the baking has not been sufficient, or the edges have not been

been covered with the fecond tarniſhing, we ſometimes find a duſky edge, as in ſome of the ordinary thick tea-cups. It may be a great advantage to our Engliſh manufactures to attempt ſomething of this kind. The willow is known to make a very light and black charcoal; but the elder, though a thing ſeldom uſed, greatly exceeds it. The young green ſhoots of this ſhrub, which are almoſt all pith, make the lighteſt and the blackeſt of all charcoal; this readily mixes with any liquid, and might be eaſily uſed in the ſame way that the Chineſe uſe the charcoal of the bamboo cane, which is a light hollow vegetable, more reſembling the elder ſhoots than any other Engliſh plant. It is no wonder that the fixed ſalt and oil contained in this charcoal ſhould be able to penetrate the yet raw edges of the ware, and to give them in the ſubſequent baking a ſomewhat different degree of vitrification from the other parts of the veſſel, which, though if given to the whole, it might take off from the true ſemivitrified ſtate of that ware; yet at the edges is not to be regarded, and only ſerves to defend them from common accidents, and keep them entire.

The Chineſe uſe two cautions in this application: the firſt in the preparation; the ſecond in the laying it on. They prepare the bamboo canes for burning into charcoal, by peeling off the rind. This might eaſily be done with our elder ſhoots, which are ſo ſucculent, that the bark ſtrips off with a touch. The Chineſe ſay, that if this is not done with their bamboo, the edges touched with the paſte will burſt in the baking: this does not ſeem indeed very probable; but the charcoal will certainly be lighter made from the peeled ſticks, and this is a known advantage. The other caution is, never to touch the veſſel with hands that have any greaſy or fatty ſubſtance about them; for if this is done, they always find the veſſel crack in that place. Obſ. ſur les Cout. de l'Aſie.

CHIPPINGAVEL, or CHEAPINGAVEL, in our *Old Writers*, toll paid for buying and ſelling.

CHIRAGRA, in *Medicine*, the gout in the hands.

The word comes from χειρ, *manus*, *hand*, and αγρα, *captura*, *ſeizing*.

The *chiragra* has its ſeat in the *carpus*, or extreme part of the hand, or the ligaments and junctures of the fingers.

CHIRAMAXIUM, in *Antiquity*, a kind of chariot or conveyance, which was drawn by men inſtead of horſes.

The word is derived from χειρ, *the hand*, and αμαξα, *a chariot*.

CHIRCHSED. See CHURCH-SCOT.

CHIRITES, in *Natural Hiſtory*, a name given by authors to a ſtone reſembling the human hand. The accounts we have of it ſay, that it is of a white colour, and of the nature of gypſum, or plaſter-ſtone; and that it repreſents the palm of the hand, with the fingers, and their nails on the other ſide. This ſeems to have been a name given to ſome ſingle ſpecimen in a cabinet of ſome collector; for it is certainly no diſtinct ſpecies of foſſil, but a mere *luſus naturæ*, in the configuration of ſome accidental piece of gypſum.

CHIROGRAPH, *Chirographum*, was anciently a deed which, requiring a counterpart, was engroſſed twice on the ſame piece of parchment, counterwiſe; leaving a ſpace between, wherein was wrote CHIROGRAPH; through the middle whereof the parchment was cut, ſometimes ſtrait, ſometimes indentedly: and a moiety given to each of the parties.

The word is compounded of χειρ, *hand*, and γραφω, *ſcribo*, *I write*: q. d. *hand-writing*.

This was afterwards called *dividenda*, and *chartæ diviſæ*; and was the ſame with what we now call CHARTER-PARTY.

The firſt uſe of theſe *chirographs* with us, was in the time of king Henry III.

According to ſome, a deed was properly a *chirograph*, when it was ſubſcribed by the hand-writing of the vendor, or creditor, and delivered to the buyer, or debtor. Theſe authors make the *chirograph* differ from a *ſyngraph*, in this; that in the latter, the word *ſyngraph* was wrote in the middle, and cut through, in the manner juſt obſerved of *chirograph*. Thoſe authors, therefore, make the *ſyngraph* and the *chirograph* a different thing.

CHIROGRAPH was alſo anciently uſed for a fine: the manner of ingroſſing the fines, and cutting the parchment in two pieces, is ſtill retained in the office called the *Chirographer's Office*.

CHIROGRAPHER *of fines*, an officer in the common pleas, who ingroſſes fines, acknowledged in that court, into a perpetual record (after they have been examined and paſſed by other officers); and writes and delivers the indentures thereof to the party.

He makes two indentures; one for the buyer, the other for the ſeller; and a third indented piece, containing the effect of the fine, and called the *foot of the fine*; and delivers it to the *cuſtos brevium*.

The ſame officer alſo, or his deputy, proclaims all fines in court every term, and endorſes the proclamations on the back ſide of the foot; keeping, withal, the writ of covenant, and the note of the fine.

CHIROMANCY, the art of divining the fate, temperament, and diſpoſition of a perſon, by the lines and lineaments of the hand: this is otherwiſe called *palmiſtry*.

The word comes from χειρ, *hand*, and μαντεια, *divination*.

We have a great number of authors on this vain and trifling art: as Artemidorus, Fludd, and Johannes de Indagine. Taiſnerus, and M. de la Chambre, are eſteemed the beſt.

CHIRONIA, in *Botany*, a name by which ſome have called the black beyony. In the Linnæan ſyſtem it is a genus of the *pentandria monogynia* claſs: the characters are; the flower hath a permanent empalement of one leaf, cut into five oblong ſegments: it hath one petal, with a roundiſh tube divided above into five equal parts, which ſpread open: it hath five ſhort broad ſtamina, terminated by large oblong ſummits, which, when the flowers drop, are ſpirally twiſted: it hath an oval germen, ſupporting a declining ſtyle, which becomes an oval capſule with two cells, filled with ſmall ſeeds. There are eight ſpecies.

CHIRONIUM, in *Medicine*, is ſometimes uſed to ſignify a great ulcer, and of difficult cure.

CHIRONOMI, on the *Grecian Stage*, were thoſe actors who performed without uſing words, by the motions of the hand.

CHIRONOMIA, in *Antiquity*, the art of repreſenting, by the motions of the hand, and other geſtures of the body, any paſt tranſaction, whether of true or fabulous hiſtory. This made a part of a liberal education among the ancients: it had the approbation of Socrates, and was ranked by Plato among the political virtues.

CHIROTHECA. See GLOVE.

CHIROTHESIA, the impoſition of hands in conferring any prieſtly orders.

The word comes from χειρ, *manus*, and τιθημι, *pono*, which ſignifies the laying hands upon another.

CHIROTONIA, the ſtretching forth, or holding up of hands, in electing any magiſtrate, &c.

The word comes from χειρ, *manus*, and τεινω, *tendo*, *the action of ſtretching out the hands*; and becauſe the ancients gave their ſuffrages by ſtretching out the hands, they gave the name *chirotonia* to the election of magiſtrates.

This cuſtom was firſt eſtabliſhed in Greece; as appears from an oration of Demoſthenes againſt Neæra, and that of Æſchines againſt Cteſiphon: thence it paſſed to the Romans. From prophane authors it paſſed to eccleſiaſtical ones; and was uſed by them not only in ſpeaking of elections, but alſo of ordinations. See IMPOSITION and ORDINATION.

For the difference between *chirothoſia*, and *chirotonia*, ſee Harrington's Prer. of popular Government.

CHIRURGERY, popularly called *Surgery*, the third branch of medicine, conſiſting in operations performed by the hand, for the cure of wounds, and other diſorders.

The word *chirurgery* is formed from χειρ, *manus*, *hand*; and εργον, *opus*, *operation*.

Chirurgery is divided into *ſpeculative* and *practical*; one whereof does that in effect, which the other teaches to do.

All the operations of *chirurgery* are reduced under four kinds: the firſt whereof rejoins what has been ſeparated, and is called *ſynthoſis*.

The ſecond divides, with diſcernment, thoſe parts whoſe union is prejudicial to health; and is called *diæreſis*.

The third extracts, with art, foreign bodies; called *exæreſis*.

And the fourth, called *proſthoſis*, adds and applies what is wanting.

The principal things that come under the conſideration of *chirurgery* are, tumors, ulcers, wounds, diſlocations and fractures.

Chirurgery has the advantage of medicine, in the ſolidity of its foundation, the certainty of its operations, and the ſenſibility of its effects; inſomuch that thoſe who deny medicine to be of any ſignificancy, yet allow the uſefulneſs of *chirurgery*.

Chirurgery is very ancient; and even much more ſo than medicine, whereof it now makes a branch. It was, in effect, the ſole medicine of the firſt ages; they betaking themſelves to the cure of external diſorders, before they came to examine or diſcover what related to the cure of internal ones.

Apis, king of Egypt, is ſaid to be the firſt inventor of *chirurgery*; after him, Æſculapius compoſed a treatiſe of wounds and ulcers: he was ſucceeded by the philoſophers

of the following ages, in whose hands *chirurgery* wholly lay: such were Pythagoras, Empedocles, Parmenides, Democritus, Chiron, Peon, Cleombrotus, who cured king Antiochus, &c.

Pliny tells us, upon the authority of Cassius Hemina, that Archagathus was the first of the profession that settled at Rome; that the Romans were wonderfully pleased with this *Vulnerarius*, as they called him, at his first coming, and showed him some extraordinary marks of their esteem, but that they were disgusted at him afterwards, and nick-named him *Carnifex*, for his cruelty in cutting off limbs. Some pretend, that he was even stoned by them to death in the Campus Martius; but if he really came to such an unlucky end, it is strange Pliny should take no notice of it. Plin. Hist. Nat. lib. xxix. cap. 1.

Chirurgery was cultivated with much more earnestness by Hippocrates, than by any of the preceding physicians: it is said to have been perfected in Egypt by Philoxenus, who wrote several volumes on that subject. Among the Greeks, Gorgias, Softrates, Heron, the two Apollonii, Ammonius of Alexandria; and at Rome, Trypho, the father, Eucipillus, and Meges, made it flourish, each in their time.

The more modern authors, who have contributed most to the perfection of *chirurgery*, are Paræus, Fab. ab Aquapendente, Harvey, Wharton, Glisson, Du Laurence, Diemerbroeck, Vieussens, Barbette, Dionis, Charriere, Heister, &c.

Scultetus has published a description of all the instruments used in *chirurgery*, under the title of Armamentarium Chirurgicum; and our countryman, Mr. Wiseman, serjeant-*chirurgeon* to king Charles II. a folio volume of *chirurgical* treatises, containing practical observations, both in respect to the internals and externals, of a number of cases in each branch of the art, from his own experience, under the title of Several chirurgical Treatises. This work has been made use of ever since, by many of our *English chirurgeons*: and has been the foundation of various *chirurgical* treatises since its publication, anno 1676.

In England there are two distinct companies now occupying the science or faculty of *surgery*; the one company called *barbers*, the other *surgeons*; which latter were not till very lately incorporated. The two were united to sue and be sued, by the name of masters or governors and commonalty of the mystery of Barbers and Surgeons of London, 32 Hen. VIII. cap. 42.

No person using any barbery, or shaving, in London, was to occupy any surgery, letting of blood, or other matter, drawing of teeth only excepted. And no person using the mystery or craft of *surgery* was to occupy or exercise the feal or craft of barbery, or shaving; neither by himself, nor any other for his use. 32 Hen. VIII. cap. 42. See COMPANY.

By the same statute, *surgeons* were obliged to have signs at their doors.

The French *chirurgeons* being refused to be admitted into the universities, notwithstanding that their art makes a branch of medicine, one of the four faculties, on pretence of its bordering a little on butchery, or cruelty, associated themselves into a brotherhood, under the protection of St. Cosmus, and St. Damian; on which account, according to the laws of their institution, they are obliged to dress and look to wounds *gratis*, the first Monday of each month.

They distinguish between a *chirurgeon of the long robe*, and a *barber chirurgeon*: the first has studied physic, and is allowed to wear a gown.

The skill of the other, besides what relates to the management of the beard, is supposed to be confined to the more simple and easy operations in *chirurgery*; as bleeding, toothdrawing, &c. They were formerly distinguished by badges: those of the long gown bore a case of instruments; and the barber's bason.

CHISSEL, an instrument much used in sculpture, masonry, joinery, carpentry, &c.

There are *chissels* of different kinds; though their chief difference lies in their different size and strength, as being all made of steel well sharpened and tempered; but they have different names, according to the different uses to which they are applied.

The *chissels* used in carpentry and joinery are, 1. The *former*, which is used first of all before the *paring-chissel*, and just after the work is scribed. 2. The *paring-chissel*, which has a fine smooth edge, and is used to pare off, or smooth the irregularities which the *former* makes. This is not struck with a mallet, as the *former* is, but is prefled with the shoulder of the workman. 3. *Slen-former*: this is used for cleansing acute angles with the point, or corner of its narrow edge. 4. The *mortise-chissel*, which is narrow, but very thick and strong, to endure hard blows; and it is cut to a very broad bafil: its use is, to cut deep square holes in the wood, for mortises. 5. The *gouge*, which is a *chissel* with a round edge; one side whereof serves to prepare the way for an augre, and the other to cut such wood as is to be rounded, hollowed, &c. 6. *Socket-chissels*, which are chiefly used by carpenters, &c. have their shank made with a hollow socket at top, to receive a strong wooden sprig, fitted into it with a shoulder. These *chissels* are distinguished, according to the breadth of the blade, into half inch *chissels*, three quarters of an inch *chissels*, &c. 7. *Ripping chissel*, which is a socket *chissel* of an inch broad; having a blunt edge, with no bafil to it; its use is to rip, or tear two pieces of wood asunder, by forcing in the blunt edge between them.

CHISELY *land*, in *Agriculture*, a term appropriated to that sort of land which breaks, when it is turned up by the plough, into pieces like the chips made by the stone-cutter's chissel in the hewing of stones. It is of a middle nature, between the sandy land that falls off from the plough-share, like bran or saw-dust, and the clayey, that is raised in large glebes.

It is of several colours, grey, brown, reddish, and blackish, and usually contains a large quantity of sand, and no small number of pebbles.

CHIT is the name of an instrument used in cleaving laths.

CHITSEE, in *Botany*, the name of a Chinese tree, called also SETSE.

CHITTING, in *Gardening*. A seed is said to *chit*, when it first shoots its small roots into the earth.

CHI-TUA, in the *Materia Medica*, a name used by some authors for a kind of *lignum aloes*, which is reddish, and of a very fine scent.

CHIVAGE. See CHEVAGE.

CHIVALRY, in *Antiquity*, an institution which succeeded the CRUSADES, and which, though founded in caprice, and productive of extravagance, had a very considerable influence in refining the manners of the European nations, during the twelfth, thirteenth, fourteenth, and fifteenth centuries. The objects of this institution were, to check the insolence of overgrown oppressors, to succour the distressed, to rescue the helpless from captivity, to protect or to avenge women, orphans, and ecclesiastics, who could not bear arms in their own defence, to redress wrongs, and to remove grievances. Valour, gallantry, and religion, were blended in this institution; men were trained to knighthood by long previous discipline; they were admitted into the order by solemnities no less devout than pompous; every person of noble birth courted the honour: it was deemed a distinction superior to royalty, and monarchs were found to receive it from the hands of private gentlemen. These various circumstances contributed to render a whimsical institution of substantial benefit to mankind. See Robertson's Hist. of Charles V. vol. i. p. 82. &c. ed. 2. 8vo.

Dr. Hurd, in his Letters on *Chivalry* and Romance, traces the origin of this institution immediately to the feudal constitution; and he supposes that the spirit of *chivalry* had considerably prevailed before the rise of the CRUSADES.

CHIVALRY, or CHEVALRY, in *Law*, a tenure of land by knight-service; whereby the tenant was anciently bound to perform service in war, to the king, or to the mesne lord of whom he held, by that tenure.

By a statute of 12 Car. II. cap. 24. all tenures by *chivalry, in capite*, &c. are abolished. See COURT and GUARDIAN.

CHIUDENDO, in *Italian Music*, *to conclude*; as *chiudendo col ritornello, col Tutta*, signifies to end with a RITORNELLO, or some paffage which has been before sung in some parts of the piece.

CHIVEN, in *Zoology*, a name given by many to the MUSCICAPA, or *fly-catcher*, a small bird little bigger than the wren.

CHIVES, or CHIVES, in *Botany*, the small knobs growing on the ends of the fine threads, or ftamina of flowers: by Ray, and others, called also *apices*. See ANTHERÆ.

Dr. Grew calls the *ftamina*, or threads themselves, on which the *apices* are fixed, the *chives*.

CHIVES, in *Botany*, a very small species of the ONION kind, called by this name.

CHIUM *Marmor*. See MARBLE.

CHIUM *vinum*, *Chian wine*, or wine of the growth of the island of Chios, now Scio, is commended by Dioscorides, as affording a good nourishment, fit to drink, less disposed to intoxicate, endued with the virtue of restraining defluxions, and a proper ingredient in opthalmic medicines. Hence Scribonius Largus directs the dry ingredients in *collyria* for the eyes, to be made up with *Chian* wine.

CHIUN, or CHEVAN, in *Hebrew Antiquity*. We meet with this word in the prophet Amos, cited in the acts of the Apostles. St. Luke reads the paffage thus: *Ye took*

took up the tabernacle of Moloch, and the ſtar of your god Remphan, figures which ye made to worſhip them. The import of the Hebrew is as follows: *Ye have born the tabernacle of your kings, and the pedeſtal* (the chiun) *of your images, the ſtar of your gods, which ye made to your ſelves.*

The Septuagint in all probability read *Rephaan* or *Renan*, inſtead of *Chiun* or *Chevun*, and took the pedeſtal for a god.

Some ſay that the Septuagint, which was a tranſlation made in Egypt, changed the word *Chiun* into that of *Remphan*, becauſe they had the ſame ſignification. Mr. Baſnage, in his book entitled Jewiſh Antiquities, after having diſcourſed a good deal upon *Chiun* or *Remphan*, concludes that Moloch was the ſun, and *Chiun*, *Chevun*, or *Remphan*, the moon.

CHIUREA, in *Natural Hiſtory*, a name given by Cardan, Oviedo, and ſome others, to the OPOSSUM.

CHLÆNA, in *Antiquity*, a kind of thick, ſhaggy, upper garment: its uſe was very ancient; for we find Homer makes his heroes firſt put off their *chlænæ*, and afterwards their tunics, or coats.

CHLAMYDULA, in *Antiquity*, a ſmall upper garment worn by children. See CHLAMYS.

CHLAMYS, in *Antiquity*, a military habit, worn by the ancients over the *tunica*.

Chlamys was the ſame, in time of war, that the *toga* was in time of peace; each belonged to the patricians. It did not cover the whole body, but chiefly the hind-part; though it alſo came over the ſhoulders, and was faſtened with a buckle on the breaſt. There were four or five kinds of *chlamys*; that of children, that of women, and that of men; which laſt was divided into that of the people, and that of the emperor.

CHLASMA, in *Medicine*, a warm fomentation of the moiſt kind; as pyria is of the dry kind.

CHLOEIA, in *Antiquity*, a feſtival celebrated at Athens, in honour of Ceres, to whom, under the name Χλοη, i. e. *Groſs*, they ſacrificed a ram.

CHLORA, in *Botany*, a genus of the *octandria monogynia* claſs: the calyx is compoſed of eight leaves; the corolla has a ſingle petal, and is divided into eight ſections; and the capſule conſiſts of a ſingle cell, with two valves, containing many ſeeds.

CHLOREUS, in *Ornithology*, a name by which Turner, and ſome others, have called the common YELLOW-*hammer*, or *emberiza auto*.

CHLOREUS, in *Ornithology*, is alſo a name by which ſeveral authors, and particularly many of the earlieſt writers, have called the GALBULA, a very elegant and beautiful bird of the thruſh kind, almoſt all over yellow.

CHLORIS, in *Ornithology*, the name of the bird commonly called in Engliſh the greenfinch, a well-known bird of the ſize of a common ſparrow, and remarkable for its green colour, whence it has its name, and for the largeneſs of its beak, in which it approaches to the *coccothrauſtes*; it builds in our hedges, and feeds on the ſeeds of vegetables.

CHLORITES, in *Natural Hiſtory*, a name given by the ancients to a green ſtone ſeeming to have been a jaſper, but ſo pellucid as to approach to the nature of the coarſer emeralds.

CHLOROSIS, in *Medicine*, a feminine diſeaſe, vulgarly called the *green-ſickneſs*, *white jaundice*, &c.

The word *chlorоſis* ſignifies *greenneſs*, *verdure*; formed from χλοη, *groſs*.

Its uſual ſubjects are, girls, maids, and widows: or even wives whoſe huſbands are deficient, &c. It gives a pale, yellow, or greeniſh tincture to the complexion, with a circle of violet under the eyes. The patient is melancholy and uneaſy; has frequently a low wandering fever, with an unequal pulſe, vomiting, heavineſs, liſtleſſneſs, drowſineſs, difficulty of breathing, longing for abſurd foods, &c.

It comes on, commonly, antecedent to, or about the time of the eruption of the menſes. Though the ſtoppage of the menſes is not always the cauſe of this diſtemper: for they ſometimes, though but ſeldom, flow regularly, in the progreſs thereof. According to Etmuller, the ſuppreſſion of the *menſes* is rather the effect than the cauſe of this diſeaſe.

The cure is chiefly to be attempted by chalybeats and bitters. In the colder conſtitutions, decoctions of guaiacum are found of uſe.

CHNUS, in Hippocrate, is fine ſoft wool, to which he compares an aqueous ſpleen, on account of its ſoftneſs.

CHOANA, in *Ancient Anatomiſts*, a cavity in the brain like a funnel, called alſo *pelvis*.

CHOASPITES, a name given by the ancients to a ſpecies of the *chryſoprаſus*, a gem of a mixed colour between yellow and green. It was called *choaſpites* from the name of a river in which it was frequently found.

CHOCK, in *Sea Language*, a wedge uſed to confine a caſk, or other heavy body, to prevent it from fetching away when the ſhip is in motion.

CHOCOLATE, a kind of cake, or confection, prepared of certain drugs; the *baſis*, or principal whereof, is the *cacao-nut*.

The name *chocolate* is alſo given to a drink prepared from this cake, of a duſky colour, ſoft, and oily; uſually drunk hot, and eſteemed not only an excellent food, as being very nouriſhing, but alſo a good medicine; at leaſt a diet, for keeping up the warmth of the ſtomach, and aſſiſting digeſtion.

The Spaniards were the firſt who brought *chocolate* into uſe in Europe; and that, perhaps, as much out of intereſt, to have the better market for their cacao-nuts, vanilla, and other drugs which their Weſt Indies furniſh, and which enter the compoſition of *chocolate*, as out of regard to thoſe extraordinary virtues which their authors ſo amply enumerate in it. The qualities above mentioned are all that the generality of phyſicians, and others, allow it.

For the ſtatutes relating to the manufacture and trade of *chocolate* in Great Britain, ſee 10 Geo. I. cap. 10. § 1. 2. 18. 19. 22. 24. 11 Geo. I. cap. 10. § 13. 23. 25. 11 Geo. I. cap. 30. § 14. 15.

CHOCOLATE, *original manner of making*. The method firſt uſed by the Spaniards was very ſimple, and the ſame with that in uſe among the Indians: they only uſed cacao-nut, maize, and raw ſugar, as expreſſed from the canes, with a little achiott, or rocou, to give it a colour: of theſe four drugs, ground between two ſtones, and mixed together in a certain proportion, they made a kind of bread, which ſerved them equally for ſolid food and for drink; eating it dry when hungry, and ſteeping it in hot water when thirſty.

This drink the Mexicans called *chocolate*, from *chocoa*, *ſound*; and *alle*, or *atte*, *water*; q. d. *water that makes a noiſe*: from the noiſe which the inſtrument, uſed to mix and prepare the liquor, made in the water.

But the Spaniards, and other nations, afterwards added a great number of other ingredients to the compoſition of *chocolate*; all of which, however, vanilla alone excepted, ſpoil rather than mend it.

CHOCOLATE, *method of making, now in uſe among the Spaniards of Mexico*. The fruit being gathered from the cacao tree, is dried in the ſun, and the kernel taken out, and roaſted at the fire, in an iron pan pierced full of holes; then pounded in a mortar; then ground on a marble ſtone, with a grinder of the ſame matter, till it be brought into the conſiſtence of a paſte; mixing with it more or leſs ſugar, as it is to be more or leſs ſweet. In proportion as the paſte advances, they add ſome long pepper, a little achiott, and, laſtly, vanilla: ſome add, cinnamon, cloves, and aniſe; and thoſe who love perfumes, muſk and ambergris.

There is alſo a kind of Mexican *chocolate*, in the compoſition whereof there enter almonds and filberts; but it is rather to ſpare the cacao than to render the *chocolate* better: and, accordingly, this is looked on as ſophiſticated *chocolate*.

CHOCOLATE, *the, made in Spain*, differs ſomewhat from that made in Mexico; for, beſides the drugs uſed in this laſt, they had two or three kinds of flowers, pods of campeche, and generally almonds and hazel nuts. The uſual proportion, at Madrid, is to an hundred kernels of cacao, to add two grains of *chile*, or Mexican pepper; or, in lieu thereof, Indian pepper; a handful of aniſe: as many flowers, called by the natives *vinanetlhoit*, or little ears; ſix white roſes in powder; a little machuſta; a pod of campeche; two drachms of cinnamon; a dozen almonds, and as many hazel nuts; with achiott enough to give it a reddiſh tincture; the ſugar and vanilla are mixed at diſcretion; as alſo the muſk and ambergris. They frequently work their paſte with orange water, which they think gives it a greater conſiſtence and firmneſs.

The paſte is uſually made up into cakes, ſometimes into large rolls; and ſometimes the cakes are made up of pure *chocolate*, without any admixture; thoſe who uſe it being to add what quantity they pleaſe of ſugar, cinnamon, and vanilla, when in the water.

Among us, in England, the *chocolate* is chiefly made thus ſimple and unmixed, though (perhaps not unadviſedly) of the kernel of the cacao; excepting that ſometimes ſugar, and ſometimes vanilla, is added: any other ingredients being ſcarce known among us.

The neweſt *chocolate* is eſteemed the beſt; the drug never keeping well above two years, but uſually degenerating much before that time.

It is to be kept in brown paper, put up in a box; and that in another, in a dry place.

Mr. Henly, an ingenious electrician, has lately diſcovered that *chocolate*, freſh from the mill, as it cools in the

tin pans into which it is received, becomes ſtrongly electrical; and that it retains this property for ſome time after it has been turned out of the pans, but ſoon loſes it by handling. The power may be once or twice renewed by melting it again in an iron ladle, and pouring it into the tin pans as at firſt; but when it becomes dry and powdery, the power is not capable of being revived by ſimple melting: but if a ſmall quantity of olive-oil be added, and well mixed with the *chocolate* in the ladle, its electricity will be completely reſtored by cooling it in the tin pan as before. From this experiment he conjectures that there is a great affinity between phlogiſton and the electric fluid, if indeed they be not the ſame thing. Phil. Tranſ. vol. lxvii. part 1. p. 94, &c.

The manners of preparing the maſs into a liquor, with the proportions, are various: ordinarily, the *chocolate* is boiled in water, ſometimes in milk; and ſometimes, by good œconomiſts, in water-gruel: when boiled, it is miſſed, or agitated with a wooden machine for the purpoſe, and boiled again, till it be of the proper conſiſtence for drinking; then ſugared, if the maſs were pure; then miſſed afreſh, and poured off.

Note, the beſt *chocolate* is that which diſſolves entirely in the water; leaving no grounds or ſediment at the bottom of the pot.

The Spaniards eſteem it the laſt miſfortune that can befall a man, to be reduced to want *chocolate*: they are never known to leave it, excepting for ſome other liquor that will intoxicate.

CHOCOLATE-*tree*. See CACAO.

CHOENICIS, in the *Ancient Surgery*, the trepan, ſo called by Galen and Ægineta, and mentioned by Celſus, where he calls it *modiolus*.

CHOENIX, an Attic dry meaſure, containing three *cotylæ*, or one ſextarius and an half, which is two pounds and a quarter. Its mark was χ with a ν over it.

The *chœnix* likewiſe contained the forty-eighth part of a medimnus, and was otherwiſe called HEMEROTROPHIS.

CHOERINÆ, in *Antiquity*, a kind of ſea-ſhells, with which the ancient Greeks uſed to give their ſuffrage, or vote.

CHOEROGRYLLUS. See *Hedge-Hog*.

CHOES, in *Antiquity*, an Athenian feſtival in honour of Bacchus, celebrated in the month Anthellerion.

CHOIR, that part of a church, cathedral, &c. where the clergy, choriſters, or ſingers, are placed.

The word, according to Iſidore, is derived *à ceramis circumſtantium*; becauſe, anciently, the choriſters were diſpoſed round the altar to ſing; which is ſtill the manner of building altars among the Greeks.

The *choir* with us is diſtinguiſhed from the chancel, or ſanctuary, where the communion is celebrated: as alſo from the nave, or body of the church, where the people are placed.

The patron is ſaid to be obliged to repair the *choir* of a church; and the pariſhioners the nave.

The *choir* was not ſeparated from the nave, till the time of Conſtantine: from that time the *choir* was railed in with a baluſtrade, with curtains drawn over, not to be opened till after the conſecration.

In the twelfth century they began to incloſe the *choir* with walls; but the ancient baluſtrades have been ſince reſtored: out of a view to the beauty of the architecture.

The chanter is maſter of the *choir*.

In numeries, the *choir* is a large hall adjoining to the body of the church, ſeparated by a grate, where the religious ſing the office.

CHOIR *muſic*, muſic ſung in a chorus, as in churches. It is ſometimes uſed for *muſica picna*, *canto formo*, or what we call *plain chant*, or *ſong*.

CHOIROS, in *Ichthyology*, a name given by Ariſtotle and others of the old Greek writers to the *cernua* or *acarina* of the Latins, called by us the RUFFE. This fiſh has been called by a great variety of names, but it is properly a ſpecies of pearch, or PERCA, and is diſtinguiſhed from the others of that genus by Artedi under the name of the pearch with only one fin on the back, and with a cancellous head.

CHOLAGOGUE, a medicine which purges the bile downward.

The word comes from χολη, *bile*, and αγω, *to lead*, or *draw*.

Of theſe ſome are ſimple, others compound; and both the one and the other are diſtinguiſhed into three kinds, with regard to their activity; the *benign*, the *moderate*, and the *violent*.

Of the firſt kind are, MANNA, CASSIA, roſes, tamarinds, *oleum ricini*, &c.

Of the ſecond are SENA, RHUBARB, ALOES, &c.

Of the third, JALAP, SCAMMONY, &c.

CHOLEDOCHUS, in *Anatomy*, a term applied to a canal, or duct, called alſo *ductus communis*; formed of the union of the *porus biliarius* and *ductus cyſticus*.

The word comes from χολη, *choler*; and δεχομαι, *I receive*, or *contain*.

The *choledochus ductus*, paſſing obliquely to the lower end of the *duodenum*, ſerves to convey the BILE from the LIVER to the inteſtines. Some have imagined, that it conveyed the bile from the liver to the GALL-*bladder*: but it being obſerved, that it is the *duodenum*, not the gall-bladder, that ſwells, upon blowing through this duct, it is evident, the bile contained therein is conveyed no where elſe but to the *duodenum*.

CHOLER. See BILE.

CHOLERA MORBUS, a ſudden overflowing or eruption of the BILE, or bilious matters, both upwards and downwards.

It is ſuppoſed to have its riſe from the great abundance of bilious humours; which, being very acrimonious, vellicate the membranes of the ſtomach and inteſtines; and, by that means, occaſion unuſual and violent contractions.

It is very dangerous; whence the French anciently called it *trouſſe-galand*.

It has its name, either from the great quantity of *choler* it evacuates; or becauſe the matter is inceſſantly expelled at the inteſtines, which they anciently called *choledes*.

Dr. Sydenham obſerves, it generally attacks people about the latter end of ſummer; and proceeds, not unfrequently, from ſurfeits: that the cure depends upon large quantities of chicken-broth, drank ſo as to excite vomiting plentifully; and that the broth is alſo to be injected clyſterwiſe: after which, he ſays, the cure is to be completed by laudanum, given at proper intervals, and in proper doſes.

The remedy in the Indies for the *cholera morbus*, or *mandechin*, is, to keep the patient from drinking; and to burn the ſoles of his feet.

The free uſe of the columbo root has been found an excellent remedy in this diſeaſe.

CHOLOBAPHIS, in *Natural Hiſtory*, a name given by ſome of the ancient Greeks to a peculiar kind of emerald which was inferior to many others, and was of a colour tending to yellow.

It is plain that the Romans called all the green cryſtals found in copper-mines by the name of emeralds; for they expreſs in their deſcriptions all the defects we find in theſe cryſtals, ſuch as their having hairs, or ſubſtances like hairs, within, as alſo falts, and the like.

CHOLOMA, or CHOLOSIS, ſignifies, according to Galen, any diſtortion of a member, or depravation of it with reſpect to motion. It is taken alſo, in a particular ſenſe, for halting or lameneſs of a leg, ariſing from luxation.

CHOMER. See CORUS.

CHONDRILLA, in *Botany*. See GUM-*ſucory*.

CHONDROGLOSSUM, in *Anatomy*, a very ſmall muſcle of the tongue, mentioned by Veſtheyen, and ſeveral other authors, exceedingly ſhort and narrow; ariſing from the cartilaginous proceſſes of the *os hyoides*, and meeting in the middle of the baſis of the tongue, where it is inſerted, forming an arch under it.

This pair of muſcles is not found in all ſubjects; whence ſome have queſtioned its exiſtence.

CHONDROPTERYGII, in *Natural Hiſtory*, a name given by Artedi and Linnæus to one of the great claſſes or families of the fiſhes: the characters of which are, that the rays of the fins are not bony, but cartilaginous.

The bones of the body of theſe fiſhes are alſo cartilaginous, and the mouth in moſt of the ſpecies is placed in the lower part of the body.

The word is derived from χονδρος, a *cartilage*, and πτερυξ, a *wing* or *fin*. Of this order are the *ſcate*, *ſturgeon*, *lamprey*, &c.

CHONDROS, in *Ancient Medical Writers*, the ſame as ALICA.

It ſignifies alſo ſome grumous concretion, as of maſtich, or frankincenſe.

It is, beſides, the Greek word for a cartilage.

CHONDROSYNDESMUS, in *Ancient Medical Writers*, ſignifies a cartilaginous ligament.

The word is derived from χονδρος, a *cartilage*, and συνδεσμος, a *ligament*.

CHOP-CHURCH, or CHURCH-CHOPPER, a name, or rather a nick-name, given to parſons, who make a practice of exchanging benefices.

Chop-church occurs in an ancient ſtatute as a lawful trade, or occupation; and ſome of the judges ſay, it was a good addition. Brook holds, that it was no occupation, but only a thing permiſſible by law.

CHOPIN, or CHOPINE, a French and Scotch liquid meaſure, containing half the PINT.

CHORAGIUM, in *Antiquity*, was uſed to denote the funeral of a young unmarried woman.

Some think it ſhould be writ *eraguium*, from ὑγρὸς, *puella*, and ἀγω, *duco*. But Piriſcus chooſes rather to derive it from *chorus*; becauſe a chorus or company of virgins always attended ſuch funerals.

CHORAGIUM ſignified alſo the tiring or dreſſing-room belonging to the ſtage; and ſometimes was taken for the dreſs itſelf.

CHORAGUS, in *Antiquity*, he who had the ſuperintendence of the chorus, whoſe buſineſs it was to take care they obſerved the rules of the muſic, and performed their parts with decorum.

CHORAGI were likewiſe certain Athenian citizens choſen annually, who were obliged to be at the expence of players, ſingers, dancers, and muſicians, as often as there was occaſion, at the celebration of their public feſtivals.

CHORAIC *meaſe*, a ſort of muſic proper for dancing, by the variety of its different motions.

CHORAL, ſignifies any perſon that, by virtue of any of the orders of the clergy, was in ancient times admitted to ſit and ſerve God in the choir.

Dugdale, in his Hiſtory of St. Paul's Church, ſays, that there were with the chorus formerly ſix vicars *choral* belonging to that church.

CHORAL *Service*. See SERVICE and SINGING.

CHORD, or CORD, primarily denotes a ſlender rope, or cordage.

The word is formed of *chorda*, and that from χορδὴ, a *gut*; whereof ſtrings may be made.

CHORD, CHORDA, in *Anatomy*, a little nerve extended over the *membrana tympani*, or drum of the ear. See TYMPANUM.

Anatomiſts are not agreed about the uſe of the *chorda tympani*: ſome ſay, it ſerves to vary and modify the ſound of the tympanum, in the ſame manner as the ſtrings, or braces, ſtretched over the war-drum: others will have it to be no more than a branch of the fifth pair.

CHORD, CHORDA, in *Geometry*, a right line connecting the two extremes of an arch.

Or, it is a right line, terminated at each extreme in the circumference of a circle, without paſſing through the centre; and dividing the circle into two unequal parts, called *ſegments*. Such is the line AB, *Tab. Geometry, fig.* 6.

CHORD *of the complement of an arch* is the *chord* that ſubtends the reſt of the arch; or ſo much as makes up the arch a ſemicircle.

The *chord* is perpendicular to a line drawn from the centre of the circle to the middle of the arch, as CE; and has the ſame diſpoſition thereto, as the *cord*, or ſtring of a bow, has to the arrow; which occaſioned the ancient geometricians to call this line the *chord* of the arch, and the other the *ſagitta*, or *arrow*; the former of which names is ſtill continued, though the latter is diſuſed. What the ancients called *ſagitta*, is now termed the *verſed ſine*.

Half the *chord* of the double arch BD, is what we now call the *right ſine*; and the exceſs of the radius beyond the *chord* DE, *the verſed ſine*.

The *chord* of an angle, and the *chord* of its complement to a whole circle, are the ſame thing: the chord of fifty degrees is alſo the *chord* of 310.

It is demonſtrated, in geometry, that the radius CE, biſecting the *chord* BA in D, does alſo biſect the arch in E, and is perpendicular to the *chord* AB, and *vice verſa*: and again, if the right line NE biſect the *chord* AB, and be perpendicular thereto; that it paſſes through the centre, and does biſect both the arch AEB, and the circle ANB.

Hence we derive ſeveral uſeful corollaries: as, 1. To divide a given arch AB into two equal parts; draw a perpendicular to the middle point D of the *chord* AB; this biſects the given arch AB.

2. To deſcribe a circle, that ſhall paſs through any three points, A, B, C, *fig.* 7. From A and C deſcribe arches interſecting in D and E; and alſo others, G and H, from C and B: draw the right lines DE and GH; the point of interſection I, is the centre of the circle to be deſcribed through A, B, and C.

Demonſtration. For the points A, B, and C, are in the periphery of ſome circle; and therefore the lines AC and CB are *chords*: but ED is perpendicular to AC, and GH to BC; ED biſects AC, and GH biſects BC; wherefore each paſſes through the centre. Now as DE and GH only interſect in I, it will be the centre of a circle, paſſing through the given points, A, C, and B.

Hence, aſſuming three points in the periphery, or arch, of any circle, the centre may be found, and the given arch completed: hence, alſo, if three points of one periphery do agree or coincide with three points of another; the whole peripheries agree, and therefore the circles are equal.

And hence, laſtly, every triangle may be inſcribed in a circle.

The chord *of an arch* AB (*fig.* 6.) *and the radius* CE, *being given; to find the* chord *of the half-arch* AE. From the ſquare of the radius CE, ſubtract the ſquare of half the given *chord* AD, the remainder is the ſquare of DC; from which, extract the ſquare root, and then DC ſubtracted from the radius EC, leaves DE. Add the ſquares of AD, and EO; the ſum is the ſquare of AE: whence, the root being extracted, we have the *chord* of the half-arch AE.

CHORDS, *line of*, is one of the lines of the ſector and plain ſcale. See its deſcription and uſe under SECTOR and PLAIN SCALE. See alſo SINE.

CHORDS, or CORDS, in *Muſic*, denote the ſtrings, or lines, by whoſe vibrations the ſenſation of ſound is excited; and by whoſe diviſions the ſeveral degrees of tune are determined. They are called *cords*, or *chords*, from the Greek χορδὴ, a name which the phyſicians give to the inteſtines; in regard the ſtrings of muſical inſtruments are ordinarily made of gut: though others are made of braſs or iron wire; as thoſe of ſpinets, harpſichords, &c.

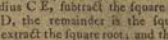
Chords of gold wire, in harpſichords, yield a ſound almoſt twice as ſtrong as thoſe of braſs: *chords*, or ſtrings, of ſteel, yield a feebler ſound than thoſe of braſs; as being both leſs heavy, and leſs ductile.

Mr. Perrault obſerves, that of late they have inverted a way of changing the *chords*, to render the ſound ſtronger, without altering the tone.

The ſixth *chord* of baſs-viols, and the tenth of large theorbos, conſiſt of fifty threads, or guts: there are ſome of them a hundred feet long twiſted and poliſhed with equiſetum, or horſe-tail.

CHORDS, *for the diviſion of, ſo as to conſtitute any given interval*, the rules are as follow: 1. *To aſſign ſuch part of a* chord AB, *as ſhall conſtitute any concord*, v. g. a fifth, or any other interval, with the whole.

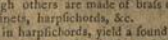
Divide AB into as many parts, as the greateſt number of the interval has units; v. g. the fifth being 2 : 3, the line is divided into 3. Of thoſe take as many of the leſſer number, v. g. 2 = AC; then is AC the part ſought: that is, two lines, whoſe length are to each other as AB to AC, make a fifth.



Hence, if it be required to find ſeveral different ſections of the line AB, v. g. ſuch as ſhall be 5ve, fifth, and 3d: reduce the given ratios 1 : 2, 2 : 3, and 4 : 5, to one fundamental; the ſeries becomes 30 : 24, 20, 15. The fundamental is 30; and the ſections ſought are 24, the third; 20 the fifth; and 15, the octave.

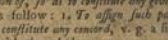
2. *To find ſeveral ſections of a line* AB, *that from the laſt, gradually to the whole, ſhall contain a given ſeries of intervals in any given order*; viz. ſo that the leaſt to the next greater contains a third; that to the next greater, a fifth; and that to the whole, an octave.

Reduce the three ratios 4 : 5, 2 : 3, 1 : 2, to one ſeries; hence we have 8 : 10 : 15 : 30 divide the line into the number of parts of the greateſt extreme of the ſeries; viz. 30. we have the ſections ſought at the points of diviſion, anſwering to the ſeveral numbers of the ſeries, viz. at the points C, D, and E; ſo that AC to AD is a third, AD to AE a fifth, and AE to AB octave.



3. *To divide a line* AB *into two parts, to contain betwixt them any interval*, v. g. a fourth.

Add together the numbers containing the ratio of the interval, v. g. 3 : 4; and the line divided into as many parts as the ſum contains, v. g. 7; taken to any of the ſeven numbers, v. g. 4, or C, gives the thing ſought.



4. *For the harmonical diviſion of* CHORDS. *To find two ſections of a line, which with the whole ſhall be in harmonical proportion, with regard to their quantity.*

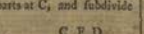
Take any three numbers in harmonical proportion, as 3, 4, 6; and divide the whole line into as many parts as the greateſt of theſe three numbers, v. g. 6; and at the points of diviſion anſwering to the other two numbers, v. g. 3 and 4, you have the ſections ſought.

5. *To find two ſections of a line, which together with the whole ſhall be harmonical, with reſpect to quality, or tune.*

Take any three numbers concords with each other, v. g. 2, 3, and 8, and divide the line by the greateſt; the points of diviſion anſwering to the other two, give the ſections ſought.

6. *To divide a* CHORD AB, *in the moſt ſimple manner, ſo as to exhibit all the original concords*

Divide the line into two equal parts at C, and subdivide the part CB into equal parts at D; and again, the part CD into two equal parts at E. Here AC to AB is an



octave; AC to AD a fifth; AD to AB a fourth; AC to AE a third *g*; AE to AD a third *l*; AE to EB a fixth *g*; and AE to AB a fixth *l*. Malcolm's Treat. of Muſic, ch. 6. ſect. 1, 2, 3.

To find the number of vibrations made by a muſical *chord* or ſtring, in a given time, its weight, length, and tenſion being given. Let N repreſent the weight of the *chord*; L its length; P the tenſion, or weight equivalent to it, by which the *chord* is extended; and D the length of a given pendulum; *p* the circumference of a circle, the diameter of which is 1: then will the number of vibrations made by the given *chord*, while the pendulum vibrates once, be expreſſed by $p\sqrt{\frac{DP}{LN}}$. If we take L for the number of inches and decimals contained in the length of the *chord*, and the proportion of the tenſion to the weight of the *chord* as *n* to 1, then will the number of vibrations of the *chord* in one ſecond be $\frac{355}{113}\sqrt{\frac{39.2n}{L}}$. Where $\frac{355}{113}$ denotes the proportion of the circumference to the diameter of the circle; and 39.2 the length of a pendulum vibrating ſeconds, in inches and decimals of an inch, Engliſh meaſure. This laſt expreſſion coincides with Mr. Euler's rule, only we here expreſs in Engliſh what he gives in Rhinland meaſure. To illuſtrate this rule by an example: ſuppoſe the length of the *chord* to be 18.7 inches, its weight 65 grains, and the tenſion or weight extending this *chord* to be 8lb. troy, or 46080 grains. Then $L=18.7$, and $n=\frac{46080}{6.2}=7432$. The number of vibrations therefore by the rule will be $\frac{355}{113}\sqrt{\frac{39.2\times7432}{18.7}}=392$. Taylor's Method. Increm. Prop. 23. Tentam. Nov. Theor. Muſ. p. 6, 7. See alſo Mac Laurin's Fluxions, ſect. 919.

By logarithms the rule may be thus expreſſed, $\frac{L+W}{2}+C=V$. Where L is the logarithm of the ratio of a pendulum, vibrating ſeconds, to the length of the given ſtring; W the logarithm of the ratio of the tenſion to the weight of the ſtring; C the logarithm of the ratio of the circumference of a circle to its diameter, or 0.4971500; and laſtly, V=logarithm of the required number of vibrations in one ſecond. *In every chord*, the number of vibrations in a given time will be as $\sqrt{\frac{n}{a}}$, that is, the ſquare root of the extending weight divided by the weight of the *chord*, and its length. If therefore *chords* be of the ſame length, their vibrations in a given time will be as the ſquare roots of the extending weights, divided by the weights of the *chords*. If *chords* be equal in length and weight, their vibrations will be as the ſquare roots of their lengths, multiplied by their weight: that is, reciprocally as the lengths of the *chords*, becauſe the weight of the *chords* will in this caſe be proportional to their lengths. Euler, ibid. p. 7. See alſo Smith's Harmonics, prop. 23 and 24.

Mr. Euler informs us, that he found the *chord*, making 392 vibrations in a ſecond, to be at uniſon with the key called *a* in inſtruments, that is, an octave and ſixth major above the loweſt C in our harpſichords or violoncellos. Conſequently the note C, being to *a* as 3 to 10, will make 118 vibrations in one ſecond. And the higheſt C, or c''', as Mr. Euler calls it, being four octaves above the loweſt c, will vibrate 1888 times in one ſecond of time. Mr. Euler ſuppoſes the limits of the human ear to be, with reſpect to gravity, two octaves lower than C; and with reſpect to acuteneſs, two octaves higher than c'''. See INTERVAL and VIBRATION.

CHORD is ſometimes alſo uſed for accord. Thus we ſay the common *chords* to ſuch a baſs note, meaning its third, fifth, and octave.

CHORD is alſo uſed in *Muſic*, for the note or ſtring to be touched, or ſounded; in which ſenſe it is applicable to all the intervals of muſic.

CHORDAPSUS, in *Medicine*, a diſeaſe of the inteſtines, otherwiſe called *volvulus*, the *iliac paſſion*, and *miſerere mei*: though others make it a diſtinct ſpecies of the *miſerere*.

The word comes from χορδη, *gut*; and απτω, *necto*, *I bind*, or *tye*.

Galen defines it, a tumidity, or inflation of the ſmall inteſtines, which makes them appear filled, and ſtretched like a *chord*. Arcligenes makes it a kind of *miſerere*; conſiſting in a tumor in a certain place of the ſmall inteſtines, which ſinks in, and gives way to the hand, when preſſed: he adds, that it is exceeding dangerous, and ordinarily kills in three or four hours, unleſs it comes to ſuppuration; which, however, does not remove all the danger.

It is probable, however, that the *chordapſus* is, in reality, nothing elſe but the *miſerere* not well underſtood. Celſus informs us, that in his time they were eſteemed the ſame thing.

CHORDEE, in *Medicine*, an inflammation and contraction of the *frænum*, and under part of the *penis*; ſo as to render erection painful.

It happens in *gonorrhœas*, and is generally proportional to the degree of the *virus* received; ſo that in violent *gonorrhœas*, it is uſually a very troubleſome ſymptom.

It proceeds from the acrimony of the matter which runs from the *urethra*, irritating the under-part of the *penis*; by which it is, as it were, tied or held forcibly downwards in erection, eſpecially its *frænum*. Dr. Rutherford of Edinburgh, in his Clinical Lectures, attributes it to the inflammation and ſwelling of the *corpus cavernoſum urethræ*. When the acrimony is conſiderable, it ſometimes gives riſe to unnatural erections, or the ſymptom called a *priapiſm*.

If the *chordee* be violent, or does not decreaſe proportionally to the other ſymptoms in *gonorrhœas*, an emetic of turbith mineral is uſually given with ſucceſs; it cauſing a revulſion from the part.

Though women have no glans or *frænum* to be affected with the ſharp running, yet the ſphincter of the *vagina*, *clitoris*, and lips themſelves, are inflamed after the ſame manner; and therefore the method of their cure muſt be the ſame; which is by ſuch medicines as allay the preſſing inflammation, and ſecure the parts againſt their being corroded by the ſharpneſs of the corruption.

CHOREA *ſancti Viti*, in *Medicine*. See VITUS's *Dance*.

CHOREPISCOPUS, an officer in the ancient church, about whoſe function the learned are extremely divided. The word comes from χωρος, a *region*, or *little country*, and επισκοπος, a *biſhop*, or *overſeer*.

The *chorepiſcopi* were ſuffragan or local biſhops, holding a middle rank between biſhops and preſbyters, and delegated to exerciſe epiſcopal juriſdiction within certain diſtricts, when the boundaries of particular churches, over which ſeparate biſhops preſided, were conſiderably enlarged.

It is not certain when this office was firſt introduced: ſome trace it to the cloſe of the firſt century; others tell us, that *chorepiſcopi* were not known in the Eaſt till the beginning of the fourth century; and in the Weſt, about the year 430. They ceaſed, both in the Eaſt and Weſt, in the tenth century.

CHOREPISCOPUS is alſo the name of a dignity ſtill ſubſiſting in ſome cathedrals, particularly in Germany; ſignifying the ſame with *chori epiſcopus*, or biſhop of the choir.

The word, in this ſenſe, does not come from χωρος, *place*, but χορος, *choir*, &c.

In the church of Cologne, &c. the firſt chantor is called *chorepiſcopus*.

CHOREUS, a foot in the ancient poetry, more commonly called *trochæus*, or TROCHEE.

CHORIAMBUS, in the *Latin Poetry*, a foot compounded of a *chorius*, or *trochæus*, and an *iambus*.

It conſiſts of four ſyllables; of which the firſt and laſt are long, and the two middle ones ſhort: as *ſilicum*.

CHORION, the exterior membrane which inveſts the *fœtus* in the womb.

The word comes from the Greek χωριον, *capere*, *to contain*.

It is very thick and ſtrong; on the inſide, where it joins another membrane, called *amnion*, very ſmooth; but rough and uneven without-ſide; interſperſed with a great number of veſſels, and faſtened to the *matrix*, or womb, by means of the *placenta*, which adheres very cloſely to it.

This membrane is found in all animals.

The *chorion*, with the *amnion* and *placenta*, make what we call the FECUNDINE, or after-birth.

CHORIST, or CHORISTER, a chantor or ſinger in the choir.

CHORIZANTES, the name of a ſect in Germany, ann. 1374, ſaid to be demoniacs that aſſembled in ſtreets and churches.

We may ſuppoſe their enemies called them demoniacs. Du Cange does not mention any of their tenets.

CHORO *ſervente*, in the *Italian Muſic*, a *chorus*, in which are employed the beſt voices and inſtruments to ſing the recitatives, play the ritornellos, &c. It is otherwiſe called the little *chorus*, or *choro recitante*.

CHORO *ſpezzato*, in the *Italian Muſic*, a compoſition of two, three, or more choruſes. It is often met with inſtead of *tutti* or *da capella*, which mean the grand chorus. *A doi, a tre, a quatre choris*, is for two, three, or four choruſes. When after the name of a part we find *primo*,

prima, 1st *chora*, we muſt underſtand that it is to be played in the firſt chorus; if 2^d^, II^da^, or *ſecunda chora*, the part muſt be ſung or played in the ſecond chorus. And conſequently it ſhews, that the compoſition is for eight voices or different parts.

CHOROBATES, a kind of water-level, uſed among the ancients; compoſed of a double ſquare, in form of a T, deſcribed by Vitruvius.

The word comes from *χωροβατεω*, *to over-run a country*.

CHOROGRAPHY, the art of making a MAP, or deſcription of ſome country or province.

The word comes from *χωρος*, *region*, and *γραφω*, *I deſcribe*. *Chorography* is diſtinguiſhed from GEOGRAPHY, as the deſcription of a particular country is from that of the whole earth. And from *topography*, as the deſcription of the ſame country is from that of a ſingle place, town, or diſtrict in it.

CHOROIDES, or CHOROEIDES, in *Anatomy*, a term applied to ſeveral parts of the body; bearing ſome reſemblance to the chorion.

The word is formed from *χοριον*, *chorion*, and *ειδος*, *likeneſs*.

CHOROIDES is particularly uſed for the inner membrane which immediately inveſts the brain; ſo called as being intermingled with a great number of blood-veſſels, like the *chorion*; but more uſually denominated the *pia mater*, or MENINX *tenuis*.

Plexus, or *Lacis* CHOROIDES, is a knot of veins and arteries in the anterior ventricle of the brain, woven out of the branches of the carotid.

CHOROIDES is alſo applied to the inner, and poſterior tunic of the eye, immediately under the ſclerotica.

It is ſoft, thin, and black; and its inner, or concave ſurface, is very ſmooth and poliſhed. It has its name from its being interſperſed with veſſels. Its anterior part is called the *uvea*; or rather the *iris*, as the internal ſurface is called the *Ruyſchian* coat.

Next under the *choroides* is the *retina*. Ruyſch, indeed, ſays, he has found another tunic between the *choroides* and *retina*; and denominates it from himſelf, *tunica Ruyſchiana*. He adds, that it grows ſo firmly to the *choroides*, that it is over-looked in the common diſſections.

But Verheyen, though he found the *choroides* of a bird diviſible into two membranes, could never ſeparate thoſe of the human eyes; and therefore he thinks there needed not any new name. The *choroides* is, for the moſt part, black in men; though it appears often, as M. Pecquet has obſerved, in very different ſhades; in lions, camels, bears, ſheep, cattle, dogs, cats, and moſt fiſhes, it is of a ſhining colour, like the brilliance of ſilver, or the luſtre of oriental pearl; and makes what naturaliſts call the *tapis*, or colour of the eye.

M. Mariotte maintains, that viſion is performed rather in the *choroides* than the *retina*; in which he agrees with Bar. Torinus, and is ſeconded by M. Mery; but moſt other authors are of a different ſentiment.

He was led to this hypotheſis by obſerving, that part of the *retina*, at the inſertion of the optic nerve, is inſenſible to the impreſſion of light, and that in this part the *choroides* is wanting.

He was confirmed in opinion, that the *retina* could not be the ſeat of viſion, becauſe of its tranſparency; though M. Pecquet obſerves in reply, that it is very imperfectly tranſparent, only reſembling oiled paper. He urges likewiſe the greater ſenſibility of the *choroides* than that of the *retina*, as is evident by the alternate contraction and dilatation of the *iris*, which is a continuation of the *choroides*, in light and ſhade.

It has been replied, that ſome creatures, ſuch as the porcupine and ſea-calf, have the optic nerves inſerted into the axis of their eyes. This fact, according to Dr. Porterfield, overturns Mariotte's hypotheſis of the *choroides* being the principal and immediate organ of ſight.

Mr. Le Cat ſtrenuouſly defends Mariotte's opinion, that the *choroid* coat, which is the production of the *pia mater*, and not the *retina*, is the immediate organ of viſion.

The *retina*, according to him, is to the *choroid* what the *epidermis* is to the ſkin; receiving the impreſſion of light, and preparing it for its proper organ. Mr. Michell has likewiſe urged ſome farther conſiderations in favour of the *choroides*, as the proper ſeat of viſion, deduced from its greater ſenſibility, and from the variety of its colours in different animals, according to their ſituation and neceſſity. He adds, that the *choroides* is in no caſe tranſparent, and has no reflecting ſurface beyond it, and that it is better formed as an organ of diſtinct viſion than the *retina*. M. de la Hire has advanced another hypotheſis; alleging, that the *choroides* receives the impreſſions of images, in order to tranſmit them to the *retina*. Againſt which hypotheſis, Mr. Michell objects, that the impulſions which are thus *ſecondarily* communicated to the nerves muſt be fainter, and that it is more natural to ſuppoſe, that the impreſſion firſt made upon the *choroides* ſhould be conveyed to the brain by its own proper nerves. Prieſtley's Hiſtory of Viſion, chap. ii. p. 189, &c. See VISION.

It had been long obſerved that the *choroides* in men is black; but no obſervation had been made on the change it ſuffers by age, before M. Petit, who perceived that it appears quite brown under the *retina* in children, and grows conſiderably brighter as they advance in age.

CHORUS, in *Dramatic Poetry*, one, or more perſons, preſent on the ſtage during the repreſentation, and ſuppoſed to be by-ſtanders thereto, without any particular ſhare or intereſt in the action.

Tragedy, in its origin, M. Dacier obſerves, was no more than a ſingle *chorus*, who trod the ſtage alone, and without any other actors; ſinging dithyrambics, or hymns, in honour of Bacchus. Theſpis, to relieve the *chorus*, added an actor, who rehearſed the adventures of ſome of their heroes. Æſchylus, finding a ſingle perſon too dry an entertainment, added a ſecond; and at the ſame time greatly reduced the ſinging of the *chorus*, to make more room for the recitation.

Every thing introduced between the four ſongs of the *chorus*, they called by the term *epiſode*; and thoſe four ſongs made the four intervals, or acts of the piece.

But when once tragedy began to be formed, thoſe recitatives, or epiſodes, which at firſt were only intended as acceſſory parts, to give the *chorus* a breathing time, became now the principal parts of the performance: and whereas, before, they were taken from various ſubjects, they were now all drawn from one and the ſame.

The *chorus*, by degrees, became inſerted and incorporated into the action, to which at firſt it was only intended as an addition or ornament. Sometimes the *chorus* was to ſpeak, and then their chief, whom they called *Coryphæus*, ſpoke in behalf of all the reſt: the ſinging was performed by the whole company; ſo that when the *Coryphæus* ſtruck into a ſong, the *chorus* immediately joined him.

Beſides the four ſongs, which made the diviſion of the piece, and which were managed by the *chorus*, the *chorus* ſometimes alſo joined the actors in the courſe of the repreſentation, with their plaints and lamentations; on occaſion of any unhappy accidents that befel them.

But the proper function of the *chorus*, when tragedy was formed, and that for which it ſeemed chiefly retained, was to ſhew the intervals of the acts: while the actors were behind the ſcenes, the *chorus* engaged the ſpectators; their ſongs uſually turned on what was juſt exhibited; and were not to contain any thing but what was ſuited to the ſubject, and had a natural connexion with it; ſo that the *chorus* concurred with the actors for adorning the action.

It is a fault obſerved in Euripides's tragedies, that his *choruſes* are detached from the action, and not taken from the ſame ſubject. There were ſome other poets, who, to ſave the *pains* of compoſing *choruſes*, and adapting them to the piece, contented themſelves with inſerted ſongs, which had no relation at all to the action. Theſe foreign *choruſes* were the leſs pardonable, as the *chorus* was eſteemed to act a part in the piece: and to repreſent the ſpectators, who were looked on as intereſted therein; inſomuch that the *chorus* was not always to be mute, even in the courſe of the acts. In the modern tragedies, the *chorus* is laid aſide, and the muſic ſupplies its place.

That which occaſioned the ſuppreſſion of the *chorus*, was its being incompatible with certain complots, and ſecret deliberations of the actors. For it is in no-wiſe probable, that ſuch machinations ſhould be carried on in the eyes of perſons intereſted in the action. As the *chorus*, therefore, never went off the ſtage, there ſeemed a neceſſity of laying it aſide, to give the greater probability to thoſe kinds of intrigues, which require ſecrecy.

M. Dacier obſerves, there was a *chorus*, or gree, alſo in the ancient comedy; but this too is ſuppreſſed in the new: chiefly becauſe it was made uſe of to reprove vices, by attacking particular perſons.

The *chorus* in comedy was at firſt no more than a ſingle perſon, who ſpoke in the ancient compoſures for the ſtage; the poets, by degrees, added to him another; then two, afterwards three, and at laſt more: ſo that the moſt ancient comedies had nothing but the *chorus*, and were only ſo many lectures of virtue.

CHORUS, *to give the*, among the Greeks, was to purchaſe a dramatic piece of the poet, and defray the expences of its repreſentation.

The perſon who did this was called *choragus*. At Athens, the office of *choragus* was impoſed on the *archon*; and at Rome on the *ædiles*.

CHORUS is likewiſe uſed in muſic, where, at certain periods of a ſong, the whole company are to join the ſinger in repeating certain couplets, verſes, or clauſes.

CHOSE, *thing*. This word, in *Law*, is uſed in various circumſtances, and with various epithets; as,

CHOSE *in action*, is not any thing corporeal, but only a right, v. g. an annuity, obligation, covenant, &c.

Chose in action, may alſo be called *chose in ſuſpenſe*, as having no real exiſtence, and not being properly in poſſeſſion: being a thing, as it is expreſſed, rather *in potentia* than in *eſſe*.

No *chose in action* could, by the ancient common law, be transferred or aſſigned; but this is now allowed; and the form of doing it is in the nature of a declaration of truſt, and an agreement to permit the aſſignee to make uſe of the name of the aſſignor, in order to recover the poſſeſſion: and when a debt or bond is aſſigned over, it muſt ſtill be ſued in the original creditor's name.

CHOSE *local*, is ſomething annexed to a place, v. g. a mill.

CHOSE *tranſitory*, ſomething moveable, and which may be tranſported from place to place.

CHOUAN, in the *Materia Medica*, the name of a ſmall ſeed, called by ſome alſo carmine ſeed. It is a very light and chaffy ſeed, in a great meaſure reſembling worm ſeed, of an acid taſte, and a yellowiſh green colour, but is larger than worm-ſeed. It is brought into Europe from Turky, and many parts of the Eaſt, and the choice ſhou'd be made of ſuch as is largeſt, cleaneſt, of the greeneſt colour, and leaſt marked with ſpecks or holes. It is not uſed in medicine, but is of ſome value among the people who make CARMINE for the painters. It is called *ſantonium viride*, or the green worm-ſeed, in our catalogues of the *Materia Medica*, but is unknown in the ſhops. Lemery.

CHOUGH, *Cornix*, in *Zoology*. See CORACIAS.

CHOUS, in the *Eaſtern Military Orders*, the title of the meſſengers of the divan of janiſaries. There are ſeveral degrees of honour in this poſt. When a perſon is firſt advanced to it, he is called a *cachuch*, or little *chous*; after this he is advanced to be the *alley chous*, that is, the meſſenger of the ceremonies; and from this, having paſſed through the office of *peſchna*, or procurator of the effects of the body, he is advanced to be the *bas chous*.

CHOUX, in *Natural Hiſtory*, a name given by the French to a ſpecies of ſhell-fiſh of the *cordiform* or *bucardium* kind. Fabius Columna has elegantly deſcribed it, and Liſter has given a figure of it twice over, in two different parts of his book. There is another ſpecies leſs elegant, and wanting the hollowed ribs. See CORDIFORMIS.

CHOWDER-*Beer*, a provincial phraſe of Devonſhire, denoting a cheap and eaſy prepared drink, highly commended for preventing the ſcurvy in long voyages, or for the cure of it where it may have been contracted. It is prepared in the following manner: take twelve gallons of water, in which put three pounds and a half of black ſpruce; boil it for three hours, and having taken out the fir or ſpruce, mix with the liquor ſeven pounds of meaſſes, and juſt boil it up; ſtrain it through a ſieve, and, when milk warm, put to it about four ſpoonfuls of yeaſt to work it. In two or three days ſtop the bung of the caſk, and in five or ſix days, when fine, bottle it for drinking. Two gallons of meaſſes are ſufficient for an hogſhead of liquor; but if meaſſes cannot be procured, treacle or courſe ſugar will anſwer the purpoſe.

CHRABRATE, in *Natural Hiſtory*, a name given by the writers of the middle ages to a pellucid ſtone, ſaid to have great virtues againſt diſorders of the liver and ſpleen, and many other imaginary qualities. It appears by their deſcriptions to have been no other than the common pebble cryſtal.

CHREMPS, in *Ichthyology*, a name given by the eldeſt Greek writers to the fiſh ſince called *chromis*. It is a ſpecies of the *ſpari*, and is diſtinguiſhed by Artedi by the name of the *ſparus* with the ſecond ray of the belly-fins very long.

CHRENECRUDA, a term occurring in *Writers of the Middle Age*, and expreſſing a cuſtom of thoſe times, but its ſignification is doubtful. It is mentioned in Lege Saxica, 71. 61. which ſays, he who kills a man, and hath not wherewithal to ſatisfy the law, or pay the fine, makes oath that he has delivered up every thing he was poſſeſſed of; the truth of which muſt be confirmed by the oaths of twelve other perſons. Then he invites his next relations by the father's ſide to pay off the remainder of the fine, having firſt made over to them all his effects by the following ceremony. He goes into his houſe, and taking in his hand a ſmall quantity of duſt from each of the four corners, he returns to the door, and with his face inward throws the duſt with his left hand over his ſhoulders upon his neareſt of kin. Which done, he ſtrips to his ſhirt, and coming out with a pole in his hand jumps over the hedge. His relations, whether one or ſeveral, are upon this obliged to pay off the compoſition for the murder. And if theſe (or any one of them) are not able to pay, *iterum ſuper illum* chrenecruda *tot pauperior eſt, ſolvat, & ille totum legem componat.* Whence it appears, that *chrenecruda ſuſtare*, is the ſame with throwing the duſt, gathered from the four corners of the houſe. Goldaſtus and Spelman tranſlate it *viridem herbam, green-graſſe*, from the German *gruen kraut*, or from the Dutch *groen, green*, and *gruid, graſſe*. Wendelinus is of a contrary opinion, who thinks that by this word *denotari purificationis approbationem*, from *chrein, purs, choiſſe, clean*, and *kewren, to prove*; ſo that it muſt refer to the oaths of the twelve jurors. Be this as it will, king Childebert reformed this law by a decree, chap. 15. both becauſe it favoured of pagan ceremonies, and becauſe ſeveral perſons were thereby obliged to make over all their effects: *De chrenecruda lex quam paganorum tempore obſervabant, deinceps nunquam valeat, quia per ipſam accidit multorum pereſſus.*

CHRISM, from χρίω, *I anoint*, oil conſecrated by the biſhop, and uſed in the Romiſh and Greek churches, in the adminiſtration of baptiſm, confirmation, ordination, and extreme unction, which is prepared on Holy Thurſday with much ceremony. In Spain, it was anciently the cuſtom for the biſhop to take one third of a ſol for the *chriſm* diſtributed to each church, on account of the balſam that entered its compoſition.

Du-Cange obſerves, there are two kinds of *chriſm*; the one prepared of oil of balſam, uſed in baptiſm, confirmation, and ordination; the other of oil alone, conſecrated by the biſhop, uſed anciently for the catechumens, and ſtill in extreme unction.

The Maronites, before their reconciliation with Rome, beſides oil of balſam, uſed muſk, ſaffron, cinnamon, roſes, white frankincenſe, and ſeveral other drugs mentioned by Rynaldus, in 1441, with the doſes of each. The Jeſuit Dandini, who went to mount Libanus in quality of the pope's nuncio, ordained, in a ſynod held there in 1596, that *chriſme* for the future, ſhould be made only of two ingredients, oil and balſam; the one repreſenting the human nature of Jeſus Chriſt, the other his divine nature.

The action of impoſing the *chriſm*, is called *chriſmation*: this the generality of the Romiſh divines hold to be the next matter of the ſacrament of confirmation.

The *chriſmation* in baptiſm is performed by the prieſt; that in confirmation by the biſhop; that in ordination, &c. is more uſually ſtiled *unction*.

CHRISM *pence*, CHRISMATIS *denarii*, or CHRISMALES *denarii*, a tribute anciently paid to the biſhop by the pariſh-clergy, for their *chriſm*, conſecrated at Eaſter for the enſuing year: this was afterwards condemned as ſimoniacal.

CHRISOM, CHRISMALE, was anciently the face-cloth, or piece of linen laid over the child's head when it was baptized.

Whence, in our bills of mortality, children who die in the month, are called *chriſoms*.—The time between the child's birth and baptiſm, was alſo called *chriſomus*.

CHRIST, an appellation ſynonymous with MESSIAH, uſually added to Jeſus: and, together therewith, denominating the Saviour of the world.

The word χριστὸς ſignifies *anointed*, from χρίω, *inungo, I anoint*.

Sometimes the word *Chriſt* is uſed ſingly, by way of *antonomaſia*, to denote a perſon ſent from God, as an anointed prophet, king, or prieſt.

CHRIST, *Order of*, a military order, founded in 1318, by Dionyſius I. king of Portugal, to animate his nobles againſt the Moors.

Pope John XXII. confirmed it in 1320, and appointed the knights the rule of St. Benner. Alexander VI. permitted them to marry. The order became afterwards inſenſibly reunited to the crown of Portugal; and the king took upon him the adminiſtration of it.

The arms of the order are, gules, a patriarchal croſs, charged with another croſs *argent*. They had their reſidence, at firſt, at Caſtromarin; afterwards they removed to the city of Thomar, as being nearer to the Moors of Andaluſia and Eſtramadura.

CHRIST is alſo the name of a military order in Livonia, inſtituted in 1205, by Albert biſhop of Riga. The end of their inſtitution was to defend the new Chriſtians who were ſucceſſively converted in Livonia, but were perſecuted by the heathens.

They wore on their cloaks a ſword with a croſs over it; whence they were alſo denominated *Brothers of the Sword*.

CHRIST-*thorn*, in *Botany, Paliurus*. See *Chriſt*-THORN.

CHRISTENING. See BAPTISM.

CHRISTIAN, ſomething that relates to CHRIST.

The king of France bears the title, or ſurname, of the *moſt Chriſtian king*. The French antiquaries trace the origin of the appellation up to Gregory the Great; who, writing a letter to Charles Martel, occaſionally gave him that title, which his ſucceſſors have ſince retained.

Lambecius,

Lambecius, in the third tome of his Catalogue of the emperor's library, holds, that the quality of *moſt Chriſtian* was not aſcribed to the ancient French kings, Louis le Debonair, &c. as kings of France, but as emperors of Germany: but the French hiſtorians endeavour to refute this plea.

CHRISTIAN *Church*. See CHURCH.

CHRISTIAN *Court*. See COURT *Chriſtian*.

CHRISTIAN *Name*, that given at baptiſm. See NAME.

CHRISTIAN *Religion*, or CHRISTIANITY, that inſtituted by Jeſus Chriſt, comprehending doctrines of faith, and rules of practice; all of which are contained in the New Teſtament, and are deſigned to recover mankind from ignorance and vice, from guilt and death, to true knowlege and virtue, to the divine favour and everlaſting life.

Its aptitude to this end, its conformity to reaſon, and to the ſtate of man, the ſublimity and excellence of its doctrines, the equally venerable and lovely character of its author, the purity of its precepts, its benign tendency and ſalutary effects, concur, with the external evidence of PROPHECY and MIRACLES, to eſtabliſh its divine origin and truth.

CHRISTIAN is peculiarly and abſolutely uſed for a perſon who believes in Chriſt, and is baptized in his name.

The name *Chriſtian* was firſt given at Antioch, in the year 42, to ſuch as believed in Chriſt, as we read in the Acts: till that time they were called *diſciples*.

CHRISTIANS *of St. John*, a corrupt ſect of *Chriſtians*, very numerous in Baſſora, and the neighbouring towns.

They formerly inhabited along the river Jordan, where St. John baptized; and it was thence they had their name. But after the Mahometans became maſters of Paleſtine, they retired into Meſopotamia and Chaldea.

They hold an anniverſary feaſt of five days; during which, they all go to their biſhops, who baptize them with the baptiſm of St. John; their baptiſm is always performed in rivers, and that only on Sundays.

They have no notion of the third perſon in the Trinity; nor have they any canonical books, but ſeveral which are full of charms, &c. Their biſhopricks deſcend by inheritance, as our eſtates do; though they have the ceremony of an election. There is no ſatisfactory account of the origin or principles of this ſect. See SABBANS.

CHRISTIANS *of St. Thomas*, or *San Tooma*, a ſect of ancient *Chriſtians* found in the Eaſt Indies, when the Europeans touched at the port of Calicut; who pretend to be deſcended from thoſe St. Thomas converted in the Eaſt Indies; whence the name.

The natives *call* them, by way of contempt, *Nazarenes*; their more honourable appellation is *Mappuleymar*. See THOMANITES.

Some learned men in Europe ſay, it was not St. Thomas the apoſtle that converted that country, but another St. Thomas: others ſay, it was a Neſtorian merchant, called Thomas. It is certain they are Neſtorians, and have been ſo a long time; inſomuch that *Chriſtians of St. Thomas* now paſſes for the name of a ſect.

They have a patriarch, who reſides at Moſul. The pope has made ſeveral attempts to reduce them under his obedience, but to no purpoſe.

CHRISTMAS, the feaſt of the nativity of Jeſus Chriſt.

It appears from St. Chryſoſtom, that in the primitive times, *Chriſtmas* and Epiphany were celebrated at one and the ſame feaſt: that father obſerves, it was but of a little while that *Chriſtmas* had been celebrated at Antioch on the twenty-fifth of December, as a diſtinct feaſt; and that the uſe thereof came from the Weſt. The Armenians made but one feaſt of them, as low as the twelfth century.

It is commonly maintained, that pope Teleſphorus was the firſt who ordered the feaſt of the Nativity to be held on the twenty-fifth of December. John, archbiſhop of Nice, in an epiſtle upon this ſubject, relates that at the inſtance of St. Cyril of Jeruſalem, pope Julius procured a ſtrict enquiry to be made into the day of our Saviour's nativity, which being found to be on the twenty-fifth of December, they began thenceforth to celebrate the feaſt on that day. However, the preciſe day, or even the month, in which our Saviour was born, is extremely uncertain. Some, as Clemens Alexandrinus informs us, aſſixed it to the twenty-fifth of the month Pachon, correſponding to the ſixteenth of May. But there are ſome circumſtances which ſhould rather lead us to conclude, that he was born in autumn; as this was, in every reſpect, the moſt proper ſeaſon of the year for a general aſſeſſment, which took place at the birth of Chriſt, and which required perſonal attendance; and as there were ſhepherds watching their flocks by night at the time when Chriſt was born; and therefore it is probable, that the æra of the Nativity was either in September or October, A. U. 748 or 749. See EPOCHA.

CHRISTMAS *Roſe*. See HELLEBORE.

CHRISTOGENON, from Χριστος, *Chriſt*, and γινομαι, *I am born*; in the *Greek Church*, a faſt of forty days, immediately preceding the ſuppoſed time of Chriſt's nativity.

CHRISTOLYTI, a ſect mentioned by Damaſcenus; ſo called, becauſe they maintained that Chriſt deſcended into hell, body and ſoul; and that he left both there; aſcending to heaven with his divinity alone.

The words come from Χριστος, *Chriſt*, and λυω, *I diſſolve*.

CHRISTOMACHI, Χριστομαχοι, in *Church Hiſtory*, a denomination given to all ſorts of heretics who deny the divinity of our Saviour, or hold heterodox opinions concerning his incarnation.

The word comes from the Greek Χριστος, *Chriſt*, and μαχομαι, *I fight*, or *oppoſe*.

CHRISTOPHORIANA, called by ſome *aſtræa*. See HERB *Chriſtopher*.

CHRISTOPHORUS *piſcis*, a name by which ſome have called the *faber*, or as we call it the *dore*, or *jaune* DORÉE, the gilded fiſh.

CHROÆ, in the *Medicine of the Ancients*. See COLOURS, GENUS, and SPECIES.

CHROASTACES, in *Natural Hiſtory*, a genus of pellucid gems, comprehending all thoſe of variable colours, as viewed in different lights: of which kind are the opal and the ASTERIA, or the *cati oculus*.

CHROMA, in the *Botanical Writings of the Ancients*, a word uſed to expreſs a famous root brought from Syria into Greece, and uſed by the women of that country to paint their cheeks red. It was alſo called *rhizium* and *fucus*, and by the Latins *radicula*.

CHROMA, in *Rhetoric*, a colour, or fair pretence.

The word is Greek, and literally denotes *colour*.

CHROMA, in the *Italian Muſic*. The Italians take this term from the Greeks, but uſe it to ſignify a note or character of time, by us called a quaver, and when the word ſemi is added thereto, it means our ſemiquaver. Eight of the former are contained in a bar, and ſixteen of the latter in common time.

CHROMA is alſo a graceful way of ſinging, or playing with quavers and trilloes.

CHROMA alſo ſometimes ſignifies the ſame as the chromatic DIESIS or ſemitone minor.

CHROMA is alſo uſed to ſignify the *genus chromaticum*. In this ſenſe we find it uſed by Ariſtoxenus, and in Ptolemy's Harmonics.

CHROMATIC, in the *Ancient Muſic*, the ſecond of the three *genera*, or kinds, in which the conſonant intervals were ſubdivided into their concinnous parts.

The other two kinds were, the *enharmonic*, and the *diatonic*. The chromatic conſiſted of ſemitones, and minor thirds: it had its name, either becauſe the Greeks marked it with the character of colour, which they call χρωμα; or, as P. Parran ſuggeſts, becauſe the *chromatic* kind is a medium between the other two, as colour is between black and white; or elſe becauſe the *chromatic* kind varies and embelliſhes the diatonic kind, by its ſemitones; which have the ſame effect in MUSIC, with variety of colours in painting. M. Rouſſeau ſays, that this ſpecies of muſic was written in coloured notes. Ariſtoxenus divides the *chromatic genus* into three ſpecies: the *molle*, *hemiolium*, and *tonicum*: Ptolemy, into *molle* or *antiquum*, and *intenſum*.

Theſe ſpecies were alſo called *chroiai*, or colours of the *genera*: the *molle* expreſſes a progreſſion by ſmall intervals, the *intenſum* by greater.

The *chromatic* and enharmonic kinds only contain the ſmalleſt of the diatonic degrees; ſo that they have the ſame proportion to the diatonic, as fractions have to integers.

Boethius, and after him Zarlin, attribute the invention of the *chromatic* genus to Timotheus a Mileſian, in the time of Alexander the Great. The Spartans baniſhed it their city, on account of its ſoftneſs. The character of this genus, according to Ariſtides Quintilianus, were ſweetneſs and pathos.

Mr. Malcolm obſerves, that we are at a loſs what uſe the ancients could make of theſe diviſions and ſubdiviſions into *genera* and *ſpecies*. All acknowleged the diatonic to be the true melody; the others ſeem only humorous irregularities, calculated to pleaſe the fancy by their novelty and oddneſs; and were beſides ſo very difficult, that few, if any, are ſaid to have ever practiſed them accurately.

The moderns have been much perplexed to underſtand the different ſpecies of the *chromatic* muſic in uſe among the ancient Greeks. Moſt of our muſicians have no other notion of the *chromatic* than of a melody proceeding by ſemitones, major and minor. This is what Broſſard ſays of it. But this is not ſufficient to convey a true notion of the *chromatic*. Dr. Pepuſch has given us a clearer light in this affair: his doctrine is as follows.

The ancients diſtinguiſhed three ſorts of *chromatic*, which were denoted by the names, *molle*, *ſeſquialterum*, and *tenuiorum*.

The *chromaticum molle* was a diviſion of the diateſſaron, or fourth, into three intervals, which were two ſubſequent ſemitones minor, and the interval, which is the complement of theſe two to the fourth; and this interval will be found equal to a third minor added to an enharmonic dieſis. This ſpecies is not to be met with among the moderns.

The *chromaticum ſeſquialterum*, or *hemiolium*, was a diviſion of the fourth into a ſemitone major, a ſemitone minor, and a third minor. This is mentioned by Ptolemy as the *chromatic* of Didymus. It occurs in modern compoſitions.

The *chromaticum tonicum*, or *tenicum*, was a diviſion of the fourth into a ſemitone major ſucceded by another ſemitone major, and the complement of theſe two to the fourth, which is the interval commonly called a ſuperfluous tone. This often occurs in modern muſic. Diſſert. de Muſique, p. 19. Phil. Tranſ. N° 481. p. 272. Wallis, Append. Ptolem. Harm. p. 264.

CHROMATIC is alſo applied by ſome to he ſcience of colours; and in painting, it is uſed to ſignify the colouring.

CHROMIS, in *Ichthyology*, the name of a little fiſh caught frequently in the Mediterranean, which ſeldom exceeds three inches in length, is moderately thick, and of a duſky brown colour.

Artedi, who very accurately examined this fiſh, does not allow it a diſtinct generical name, but makes it only a ſpecies of his *genus* of the *ſpari*, calling it the SPARUS with the ſecond ray of each belly-fin carried to a great length.

CHROMIS is alſo the name by which Bellonius, and ſome others, have called a large fiſh caught in the Mediterranean, more uſually known by the name of UMBRA, and brought to market in Italy while young and ſmall.

CHRONIC, CHRONICAL, in *Medicine*, is applied to a ſlow DISEASE, which laſts a long time: at leaſt upwards of forty days: ſuch are the gout, dropſy, aſthma, &c.

The word comes from χρονος, *time*.

Chronic diſeaſes ſtand in oppoſition to acute diſeaſes, which are ſpeedy, and haſten to a criſis; as fevers, ſmall-pox, &c.

Chronic diſeaſes are uſually owing either to ſome natural deſect in the conſtitution, or to an irregular manner of living; and moſt of the *chronical* diſeaſes, ſays Dr. Cheyne, the infirmities of old age, and the ſhort periods of the lives of Engliſhmen, are owing to repletion: this is evident hence, that evacuation, of one kind or another, is nine parts in ten of their remedy.

The ſources of *chronical* diſtempers, ſays the ſame author, are, 1. Viſcidity in the juices, or the over-largeneſs of their conſtituent particles; which, not being ſufficiently broken by the concoctive powers, ſtop and retard the circulation. Or, 2. Too great abundance of ſharp acrimonious ſalts; whereby the juices themſelves are rendered ſo corroſive, as to burſt or wear out the ſolids. Or, 3. A relaxation, or want of due force or ſpringineſs of the ſolids themſelves.

An exceſs in the quantity of our meats and drinks begets the firſt; the bad condition of the ſame food the ſecond; and both together, with want of due exerciſe, the third.

The cauſes of all *chronical* diſorders, according to Dr. Cadogan, in his Eſſay on the Gout, &c. are indolence, intemperance, or vexation. And Dr. Fothergill obſerves, that in the cure of all *chronic* complaints, however diſtant their ſeat may be from the ſtomach, thoſe will have the greateſt ſucceſs, who attentively conſider the preſent ſtate of this organ; who remove every obſtruction to its performing the office of digeſtion with eaſe, conſtancy, and expedition. Lond. Med. Obſ. vol. i. p. 314.

CHRONICLE, CHRONICON, denotes a hiſtory digeſted in order of time; though the term is ſeldom uſed but in ſpeaking of our old Engliſh hiſtories, as Huliniſhed's *Chronicle*, Stow's *Chronicle*, &c. See ANNALS.

CHRONICLES, in the *Canon of Scripture*, are two ſacred books called by the Greeks *Paralipomena*, Παραλειπομενα, becauſe they contain many ſupplemental relations omitted in the other hiſtorical books. They are an abridgment of ſacred hiſtory, to the return of the Jews from the Babyloniſh captivity. The firſt book traces the genealogies of the Iſraelites from Adam, relates the death of Saul and gives a brief account of David's reign. The ſecond traces the progreſs of the kingdom of Judah, its various revolutions, its period under Zedekiah, and the reſtoration of the Jews by Cyrus.

CHRONOGRAM, a kind of compoſition, whoſe numeral letters, joined together, make up ſome date, or epocha. See ANAGRAM.

The word is compounded of χρονος, *time*, and γραμμα, *letter*.

CHRONOLOGICAL, belonging to CHRONOLOGY. *Chronological characters*, are characters by which *times* are diſtinguiſhed. Of theſe ſome are *natural* or *aſtronomical*; others are *artificial*, or *hiſtorical*. *Natural chronological characters* are ſuch as depend on the motion of the ſtars, as eclipſes, ſolſtices, equinoxes, the different aſpects of planets, &c. *Artificial chronological characters*, are thoſe which men have eſtabliſhed, as the ſolar CYCLE, the lunar CYCLE, &c. *Hiſtorical chronological characters* are thoſe which are ſuppoſed by the teſtimonies of hiſtorians, when they fix the dates of certain events to certain periods. We ſay alſo *chronological* tables, abridgments, machines, &c. M. Barbeu du Bourg invented a curious *chronological* machine, of which there is a particular account communicated by himſelf, in the Encyclopedie, tom. iii. p. 400. 1°.

CHRONOLOGY, the art of meaſuring and diſtinguiſhing time; or the doctrine of epochas, &c.

The word is compounded of χρονος, *time*, and λογος, *diſcourſe*.

Sturmius divides *chronology* into five diſtinct branches: viz. *metaphyſical*, *phyſical*, *political*, *hiſtorical*, and *eccleſiaſtical*; according to the various relations, or habitudes, wherein TIME is conſidered; viz. as in itſelf; as connected and ſubjected to the affections, ſtates, and alterations of natural things; as accommodated to civil uſes, as matched with events that paſs in the world; and particularly, as it relates to the celebration of Eaſter.

There is more difficulty in *chronology* than every one is aware of; it requires not only the knowlege of aſtronomy and geography, and conſequently that of arithmetic, geometry, and trigonometry, both plain and ſpherical, but alſo a laboured application to the ancient monuments. Its uſe is very great: it is called one of the eyes of hiſtory; and ſerves many good purpoſes in theology.

CHRONOLOGY, *Chineſe*. No nation has boaſted more of its antiquity than the Chineſe: but though we allow them to trace their origin as far back as the deluge, they have few, if any, authentic records of their hiſtory for ſo long a period as five hundred years before the Chriſtian æra. This, however, may probably be owing to the general deſtruction of ancient remains by the tyrant Thu-chihoang, in the year 213, or, as ſome ſay, 238, before the Chriſtian æra. We learn from a *chronological* table of the Chineſe hiſtory, for which we are obliged to an illuſtrious Tartar, who was viceroy of Canton in the year 1724, and a Latin tranſlation of which was publiſhed at Rome in 1730, that the moſt remote epocha of the Chineſe *chronology* does not ſurpaſs the firſt year of a prince called Gaei-lie-wang, who began his reign four hundred and twenty-four years before the vulgar æra. This opinion is confirmed by the teſtimony of two of the moſt approved hiſtorians of China, who admit nothing into their hiſtories previous to this period. The Chineſe in their computation make uſe of a cycle of ſixty years, called *kiatſe*, from the denomination given to the firſt year of it, which ſerves as the baſis of their whole *chronology*. Every year of this cycle is marked with two letters, which diſtinguiſh it from the others; and all the years of the emperors for above two thouſand years, have names in hiſtory common to them with the correſponding years of the cycle. Phil. Tranſ. abr. vol. viii. part iv. p. 15, &c. According to M. Freret, in his Eſſays, the Chineſe date the epocha of Yao, one of their firſt emperors, about the year 2145, or as others ſtate it, 2057 years before Chriſt; and reckon their firſt aſtronomical obſervations, and the compoſition of their famous calendar, to have preceded Yao a hundred and fifty years: and thence it is inferred, that the aſtronomical obſervations of the Chineſe and Chaldeans coincide. Later authors date the riſe and progreſs of the ſciences in China from the grand dynaſty of Tcheou, about twelve hundred years before the Chriſtian æra, and ſhew, that all hiſtorical relations of events prior to the reign of Yao are fabulous. Mem. de l'Hiſtoire des Sciences, &c. Chinois: a work compiled by the miſſionaries of Pekin, vol. i. Paris, 1776. But it may be expected that ſome new light will be thrown on this obſcure and uncertain ſubject of inveſtigation by the General Hiſtory of China, in 12 vols. 4to announced to the public by the abbé Grouſſier.

CHRONOLOGY, *Newtonian principles of*. Sir Iſaac Newton has ſhewn, that the *chronology* of ancient kingdoms is involved in the greateſt uncertainty; that the Europeans in particular had no *chronology* before the Perſian empire, which began five hundred and thirty-ſix years before Chriſt, when Cyrus conquered Darius the Mede; that the antiquities of the Greeks are full of fables, becauſe their writings were in verſe only, till the conqueſt of Aſia by Cyrus the Perſian, about which time Pherecydes, Syrus,

Syrius, and Cadmus Milesius introduced profe. After this time feveral of the Greek hiſtorians introduced the computation by generations. The *chronology* of the Latins was ſtill more uncertain: their old records were burnt by the Gauls a hundred and twenty years after the expulſion of their kings, ſixty-four years before the death of Alexander the Great, and before Chriſt 388. The *chronologers* of Gaul, Spain, Germany, Scythia, Sweden, Britain, and Ireland, are of a ſtill later date. For Scythia, beyond the Danube, had no letters, till Ulphilas, their biſhop, formed them, about ſix hundred years after the death of Alexander the Great, or about A.D. 376. Germany had none till it received them from the weſtern empire of the Latins, about A.D. 400. The Huns had none in the days of Procopius, about A.D. 526. Sweden and Norway received them ſtill later.

After a general account of the defects and obſcurity of the ancient *chronology*, ſir Iſaac obſerves, that, though many of the ancients computed by generations and ſucceſſions, yet the Egyptians, Greeks, and Latins, reckoned the reigns of kings equal to generations of men, and three of them to a hundred, and ſometimes to a hundred and twenty years; and this was the foundation of their technical *chronology*. He then proceeds to evince, from the ordinary courſe of nature, and a detail of hiſtorical facts, the difference between *reigns* and *generations*; and that, though the latter, from father to ſon, may at an average be reckoned about thirty-three years, or three of them equal to a hundred years, yet when they are taken by the eldeſt ſons, three of them cannot be computed at more than about ſeventy-five or eighty-years; and the *reigns* of kings are ſtill ſhorter, ſo that eighteen or twenty years may be allowed a juſt medium. He then fixes on four remarkable periods, viz. the return of the Heraclides into the Peloponneſus, the taking of Troy, the Argonautic expedition, and the return of Seſoſtris into Egypt, after his wars in Thrace; and ſettles the epocha of each by the true value of a generation. We ſhall confine ourſelves to his eſtimate of that of the Argonautic expedition. Having fixed the return of the Heraclides to about the hundred and fifty-ninth year after the death of Solomon, and the deſtruction of Troy to about the ſeventy-fifth year after the ſame period, he obſerves, that Hercules the Argonaut was the father of Hyllus, the father of Cleodius, the father of Ariſtomachus, the father of Ariſtodemus, who conducted the Heraclides into Peloponneſus; ſo that their return was four generations, reckoning by the chief of the family, later than the Argonautic expedition, which therefore happened about forty-three years after the death of Solomon. This is farther confirmed by another argument. Æſculapius and Hercules were Argonauts. Hippocrates was the eighteenth inclusively from the former by the father's ſide; and the nineteenth from the latter by the mother's ſide; allowing twenty-eight or thirty years to each of them, the ſeventeen intervals by the father, and the eighteen intervals by the mother, will, at a medium, give five hundred and ſeven years: and theſe, reckoning back from the commencement of the Peloponneſian war, or four-hundred and thirty-firſt year before Chriſt, when Hippocrates began to flouriſh, will place the Argonautic expedition in the forty-third year after Solomon's death, or nine hundred and thirty-ſeven years before Chriſt.

The other kind of reaſoning, by which ſir Iſaac endeavours to eſtabliſh this epocha, is purely aſtronomical. The ſphere was formed by Chiron and Muſæus at the time, and for the uſe of the Argonautic expedition, as ſeveral of the aſteriſms referring to this event plainly ſhew: and at this time the cardinal points of the equinoxes and ſolſtices were placed in the middle of the conſtellations Aries, Cancer, Chelæ, and Capricorn. Our author eſtabliſhes this point by a conſideration of the ancient Greek calendar, which conſiſted of twelve lunar months, and each month of thirty days, and which required an intercalary month. Of courſe this luniſolar year, with the intercalary month, began ſometimes a week or a fortnight before or after the equinox or ſolſtice; and hence the firſt aſtronomers were led to the above mentioned diſpoſition of the equinoxes and ſolſtices; and that this was really the caſe, is confirmed by the teſtimonies of Eudoxus, Aratus, and Hipparchus. On theſe principles, ſir Iſaac proceeds to argue in this manner. The equinoctial colure in the end of the year 1689, cut the ecliptic in 8 6° 44′, and by this reckoning the equinox was then gone back 36° 44′ ſince the Argonautic expedition. But it recedes 50″ in a year, or 1° in ſeventy-two years, and conſequently 36° 44′ in 2645 years; which counted backward from the beginning of 1690, will place this expedition about twenty-five years after the death of Solomon. But, as there is no neceſſity for allowing that the *middle* of the conſtellations, according to the general account of the ancients, ſhould be preciſely the middle between the *prima ſtrictis*, and *ultima Canibus*, this great author proceeds to examine what were thoſe ſtars, through which Eudoxus made the colures to paſs in the primitive ſphere, and in this way to fix the poſition of the cardinal points. From the mean of five places he finds, that the great circle, which in the primitive ſphere, deſcribed by Eudoxus, or at the time of the Argonautic expedition, was the equinoctial colure, did, in the end of 1689, cut the ecliptic in ♎ 6° 29′ 45″. He likewiſe, in the ſame manner, determines the mean place of the ſolſtitial colure to be ♑ 6° 28′ 46″, and as it is at right angles with the other, concludes that it is rightly drawn. Hence he infers, that the cardinal points, in the interval between that expedition, and the year 1689, have receded from thoſe coſtures 1 ſign 6° and 29′ 5″, which, allowing ſeventy-two years to a degree, amounts to 2627 years; and theſe counted backwards, as above, will place the Argonautic expedition forty-three years after the death of Solomon. Our author hath, by other methods of a ſimilar nature, eſtabliſhed this epocha, and reduced the age of the world about five hundred years. This elaborate ſyſtem hath not eſcaped cenſure. M. Freret and M. Souciet have attacked it on much the ſame ground: the former hath confounded *reigns* and *generations*, which are carefully diſtinguiſhed in this ſyſtem. The aſtronomical objections of both have been anſwered by ſir Iſaac Newton himſelf and by Dr. Halley. Phil. Tranſ. abr. vol. viii. part iv. p. 4, &c. Newton's Chronology, ch. i.

M. Gibert, in a letter publiſhed at Amſterdam in 1743, has attempted to reduce the Babyloniac, Egyptian, and Chaldean annals, to our *chronology*. He begins with ſhewing, by the authorities of Macrobius, Euſebius, Varro, Diodorus Siculus, Pliny, Plutarch, St. Auguſtin, &c. that by a year, the ancients meant the revolution of any planet in the heavens; ſo that it conſiſted ſometimes only of one day. Thus, according to him, the ſolar day was the aſtronomical year of the Chaldeans; and the boaſted period of 473,000 years aſſigned to their obſervations is reduced to 1297 years, nine months; the number of years which elapſed, according to Euſebius, from the firſt diſcoveries of Atlas in aſtronomy, to the 384th year of Abraham, to the march of Alexander into Aſia in the year 1682 of the ſame æra; and the ſeventeen thouſand years added by Beroſus, to the obſervations of the Chaldeans, reduced in the ſame manner, will give forty-ſix years, and ſix or ſeven months, being the exact interval between Alexander's march, and the firſt year of the hundred and twenty-third Olympiad, or the time to which Beroſus carried his hiſtory. Epigenius attributes 720,000 years to the obſervations preſerved at Babylon; but theſe, according to M. Gibert's ſyſtem, amount only to 1071 years, three months, which differ from Calliſthenes's period of 1903 years, allotted to the ſame obſervations, only by ſixty-eight years, the period elapſed from the taking of Babylon by Alexander, which terminated the latter account, and to the time of Ptolemy Philadelphus, to which Epigenius extended his account.

CHRONOLOGY, *ſacred*. The ſyſtems of ſacred *chronology* have been very various. Nor is this to be wondered at, ſince our three biblical copies of principal note give a very different account of the firſt ages of the world. The Hebrew text reckons about 4000 years from Adam to Chriſt, and to the flood 1656 years; the Samaritan makes this interval longer, and reckons from Adam to the flood only 1307 years; and the verſion of the Septuagint removes the creation of the world to 6000 years before Chriſt. The interval between the creation and flood, according to Euſebius and the Septuagint, is 2242 years; according to Joſephus and the Septuagint 2256 years; and according to Julius Africanus, Epiphanius, Petavius, and the Septuagint, it is reckoned at 2262 years. Many attempts have been made to reconcile theſe differences; but none are quite ſatisfactory. See EPOCHA, SAMARITAN, &c.

Walton, and I. Voſſius, give the preference to the account of the Septuagint. Walton's Prolegomena. Voſſii Chronologia ſacra. Others have defended the Hebrew text. The reader may find an abſtract of the different opinions of learned men on this ſubject, in Strauchius's Brev. Chron. tranſlated by Sault, p. 166, &c. and p. 176.

The more eminent writers on *chronology*, among the ancients, are Julius Africanus in the third century; Dionyſius Exiguus, Euſebius, and Cyril.

Among the moderns, Bede, Funccius, Mercator, Lilius, Clavius, Scaliger, Vieta, Petavius, Caſſini, Munſter, Calviſius, Hardouin, Capellus, Uſher, Newton, Marſham, Helvicus,

Helvicus, I. Voſſius, Pagi, &c. Strauchius, Perron, Freret, &c.

CHRONOMETER, or CHROMETER, as it is ſometimes written, a general name for any inſtrument uſed in the meaſuring of TIME.

The word is compoſed of χρονος, *time*, and μετρον, *meaſure*.

In this ſenſe, clocks, watches, dials, &c. are *chronometers*: though there are ſome other inſtruments peculiarly called by the name *chronometer*; particularly one deſcribed by M. Sauveur, in his Principles of Acouſtics: ſo contrived as to meaſure a ſmall part of time very exactly, even to the ſixteenth part of a ſecond.

We have a deſcription of one of theſe, made by the ingenious Mr. George Graham, in Deſaguliers's Experim. Philoſoph. vol. ii. p. 373, 374.

A *chronometer* is of great uſe for meaſuring ſmall parts of time in aſtronomical obſervations, the time of the fall of bodies, the velocity of running waters, &c. But long ſpaces of time cannot be meaſured by it with ſufficient exactneſs, unleſs its pendulum be made to vibrate in a cycloid; becauſe, otherwiſe, it is liable to err conſiderably, as all clocks are which have ſhort pendulums that ſwing large arcs of a circle.

CHRONOSCOPE, a word ſometimes uſed for a PENDULUM, or machine, to meaſure time.

The word is formed of χρονος, *time*, and σκεπτομαι, *I conſider*.

CHROSTASIMA, in *Natural Hiſtory*, a name uſed by Dr. Hill, for all pellucid gems, which have one ſimple and permanent appearance in all lights.

Of this kind are the DIAMOND, the CARBUNCLE, the AMETHYST, the SAPPHIRE, the BERYL, EMERALD, and the TOPAZ.

CHRYSALIS, a term uſed by modern writers of natural hiſtory of inſects, in the ſame ſenſe with NYMPHA and AURELIA.

The word ſeems to imply a peculiar yellow, or golden colour, uſually in the *nymphæ* of ſome ſpecies of inſects: from χρυσος, *gold*: but this is purely accidental, and is not found in all *nymphæ*.

Some confine the word *chryſalis* to the *nymphæ* of butterflies and moths. See PUPPET.

CHRYSANTHEMUM, in *Botany*. See *Corn*-MARYGOLD.

CHRYSANTHEMUM, *Baſtard*, in *Botany*, *Silphium*, a genus of the *ſyngeneſia polygamia neceſſaria* claſs. Its characters are theſe: the common empalement of the flower is oval, imbricated, and permanent; the ſcales are oval, prominent, and reflexed in the middle; the diſk of the flower is compoſed of hermaphrodite florets, which are tubulous, indented in five parts at the top; theſe have five ſhort hair-like ſtamina, terminated by cylindrical ſummits, and a ſlender taper germen, ſupporting a long hairy ſtyle, crowned by a ſingle ſtigma; theſe are barren: the rays of the flower are compoſed of a few female half florets, which are long, ſpear-ſhaped, and for the moſt part have three indentures at their points; theſe have a heart-ſhaped germen, with a ſhort ſingle ſtyle, having two briſtly ſtigmas of the ſame length, and are ſucceeded by ſingle heart-ſhaped ſeeds, with a membranaceous border, indented at the top, each point ending with a horn or tooth, and are ſeparated by linear chaff, ripening in the empalement. There are four ſpecies, natives of America.

CHRYSANTHEMUM, *Hard-ſeeded*, *Chryſanthemoides*, or *Oſteoſpermum*, in *Botany*, a genus of the *ſyngeneſia polygamia neceſſaria* claſs. The characters are theſe: the flower hath an hemiſpherical empalement, which is ſingle, and cut into many ſegments: the flower is compoſed of ſeveral hermaphrodite flowers in the diſk, which are tubulous, and cut at the brim in five parts: theſe are ſurrounded by ſeveral female flowers, which are radiated, each having a narrow tongue, which is cut into three parts at the top; the hermaphrodite flowers have each five ſlender, ſhort ſtamina, terminated by cylindrical ſummits, with a ſmall germen ſupporting a ſlender ſtyle, crowned by an obſolete ſtigma; theſe are barren: the female flowers have each a globular germen, ſupporting a ſlender ſtyle, crowned by an indented ſtigma; the germen afterwards becomes one ſingle hard ſeed. Miller enumerates five ſpecies, ſome of which are brought from America, and others from the Cape of Good Hope.

CHRYSANTHERINUS *lapis*, in *Natural Hiſtory*, a name given by old writers to a ſtone, famous for its imaginary virtues of preventing children from ſickneſſes during the time of dentition, by being worn round the neck by way of necklace: we have no farther account given us of it by authors, than that it was a very briſtle ſtone, and not eaſily worked into form.

CHRYSARGYRUM, a tribute formerly levied on courteſans, and perſons of ill fame.

Hoffman ſays, it was paid in gold and ſilver; whence its name χρυσος, *gold*, and αργυρος, *ſilver*.

Zoſimus ſays, that Conſtantine firſt ſet it on foot; though there appear ſome traces of it in the life of Caligula by Suetonius; and that of Alexander by Lampridius. Evagrius ſays, Conſtantine found it eſtabliſhed, and had ſome thoughts of aboliſhing it. It was paid every four years: ſome ſay, all petty travellers were liable to it. It was aboliſhed by Anaſtaſius.

M. Godeau thinks the *chryſargyrum* was a general tribute, levied every four years, on perſons of all conditions, rich and poor, ſlaves and freemen; nay, even on all animals, as low as dogs; for each whereof they paid ſix oboli.

CHRYSITES, a name given by the ancients to *yellow* LITHARGE, ſuch as we call litharge of gold. We diſtinguiſh this only in regard to the colour, and ſo did the ancient Greeks; but Aviſcenna and the reſt of the Arabians have uſed this word only for the name of ſuch litharge as was made from gold, or whatever colour it happened to be; the reſt they called by the name of *argyrites*, as they tell us, whether it was made of ſilver, copper, or even of the marcaſite melted, and refined by lead. See KLIMIA.

CHRYSOBALANUS, in *Botany*. See *American*, or *Cocoa* PLUM.

CHRYSOBERYL, a precious ſtone; being a kind of pale beryl, with a tincture of yellow.

CHRYSOCBRAUNUS *pulvis*, is ſometimes uſed for AURUM *fulminans*.

CHRYSOCERI, in *Antiquity*, a denomination given to oxen deſigned for ſacrifices. They were ſo called from their horns being gilded.

CHRYSOCOLLA, in the *Materia Medica of the Ancients*, the name of a fine green arſenacous powder, properly one of the *ſaburræ*, and found on the ſhores of the Red Sea, on thoſe of ſome parts of America, and in Ruſſia; and that found at this time has all the properties of that mentioned by the ancients. It ſerves to the ſoldering of gold and other metals, and given internally as a violent and dangerous emetic.

It is of a very elegant colour, ferments violently with aqua fortis, and is wholly diſſolved by it, and tinges it with a bluiſh green; and being calcined, it loſes all its green colour.

Chryſocolla is repreſented by Pliny as found in mines of gold, ſilver, copper, and lead: its colour, he ſays, was various, according to that of the matter in which it is found; yellow, if among gold, white in ſilver, green in copper, and black in lead. The Arabs, and inhabitants of Guzuratte, call the modern *chryſocolla*, which is *borax*, *tincar*, or *tincal*. The beſt is that found in copper-mines; and the worſt in thoſe of lead.

CHRYSOCOLLA is alſo the name of a ſort of precious ſtones, mentioned by Pliny, lib. xxxvii. cap. 10. who calls it alſo *amphitane*. He deſcribes it as of a gold colour, and of a ſquare figure; adding, that it has the virtue of attracting iron, and even gold. But this, in all probability, is fabulous; and the ſtone he ſpeaks of is apparently no other than the cubic pyrites.

CHRYSOCOME, in *Botany*, a name by which ſome authors calls the *flos æs citrinus*, or GOLDYLOCKS.

CHRYSOGONON, or CHRYSOGONUM, in *Botany*, a name by which ſome authors have expreſſed the moth MULLEIN, or *blattaria*. In the Linnæan ſyſtem, it is a diſtinct genus of the *ſyngeneſia polygamia neceſſaria* claſs.

CHRYSOGONUM, in the *Materia Medica*, is alſo the name of a Syrian plant, called the red turnep, the LEONTOPETALON *coſta ſimplici* of Tournefort.

CHRYSOLACHANON, in *Botany*, a name by which Pliny, and ſome other authors, have expreſſed the white garden beet.

CHRYSOLITE, with us, a precious ſtone, of a duſky green colour, with a caſt of yellow.

The *chryſolite* of the ancients was no other than the topaz of the moderns; even in its moſt pure and perfect ſtate it is a gem of ſmall beauty, and of no great value. It is found of various ſizes, and ſome of the coarſer pieces of it are vaſtly larger than any of the other gems are ever found to be; its moſt frequent ſize, however, when perfect, is about the bigneſs of a nutmeg. It is found of very various figures, but never columnar, or in the form of cryſtal; it is in ſome places found ſmall, and in roundiſh, or irregular, pebble-like maſſes, and in others generally oblong and flatted, and is always of a rude ſurface, and leſs bright than any other of the native gems. It is canaliculated, or ſtriated, lengthwiſe. Its colour is a dead green, with a faint admixture of a pale yellow; it has three different tinges in the ſeveral ſpecimens in different degrees of mixture; but its moſt uſual colour is that of an unripe olive, with ſomewhat of a braſſy colour mixt with it, and ſometimes a pale and duſky green, obſcured by a mixture of brown, and with a

A fourth kind is alſo a Jamaica fruit, with the hiſtory of which we are not yet well acquainted; nobody has ſeen it growings but the fruit itſelf is preſerved in many of the collections of the curious, and has been figured and deſcribed by Cluſius, and others, under the name of a round exotic fruit rigid with four riſing nerves.

Theſe are the principal kinds of fruit that toſſed on ſhore with us; but how the products of Jamaica, or other parts of America, ſhould be brought to the ſhores of Scotland and Ireland, ſeems difficult to determine on any certain foundation. It is eaſy to conceive, that when they grow by the ſides of rivers, they may fall off from the trees into them, and be thence conveyed into the ſea. It is likewiſe eaſy to ſee, that when they are thus floating on the ſurface of the ſea, they may be carried about by the winds and currents to a conſiderable diſtance; but their motion this way muſt naturally be ſtopped by the main continent of America, and they muſt be forced through the gulph of Florida, or the canal of Bahama, going thence conſtantly eaſt, and into the North American ſea. This is eaſily conceived by a ſimilar fact which happens every day; which is, that a kind of ſea fennil, called *ſargaſſo*, which grows very plentifully on the rocks about Jamaica, is waſhed off from thence, and carried by the winds and currents, which for the moſt part go impetuouſly the ſame way, toward the coaſt of Florida, and thence into the North American Ocean; and is there found floating on the ſurface. Thus far it is eaſy to trace our fruits from their native ſoil; but how after this they ſhould be forwarded to us is unaccountable, unleſs we ſuppoſe, that as ſhips when they go ſouth expect a trade wind, and when they come north expect and generally find a weſterly wind, for at leaſt two parts in three of the year; ſo theſe fruits, being brought north by the current from the gulf of Florida, are put into the way of theſe weſterly winds, and by them conveyed to the coaſts of Scotland and Ireland. Phil. Tranſact. N° 222. p. 300.

By the ſame means that theſe *beans* came to Scotland, it is reaſonable to believe that the ſame winds and currents brought from America thoſe ſeveral things towards the Azores and Porto Santo, which are recorded by Ferdinand Columbus, in the life of his father; which gave this bold adventurer the firſt notion that there was ſuch a place as America. Among the things he mentions as waſhed aſhore in this manner, was a piece of wood very ingeniouſly wrought, but evidently without the help of iron tools. This was taken up by a Portugueſe pilot, four hundred and fifty leagues from thence, off Cape St. Vincent, after a weſt wind which had blown violently for many days: after this ſuch another piece of wood was taken up on the ſhores of Porto Santo, after ſuch another long and violent weſt wind. Large canes, vaſtly ſuperior to any of the growth of the then known parts of the world, were alſo found thrown on the ſame ſhores, and the fruits of pines which did not grow in any known part of the world: and finally, the bodies of two men appearing to be of a different nation from any of the known people, and two of their canoes, were driven on ſhore on the iſland Flores, one of the Azores. All theſe things having been found only after ſtrong and continued weſt winds, it appeared very evident, that there muſt be land ſomewhere to the weſt, where fruits and men were to be found; and that theſe men had no knowledge of our arts, by their want of iron. From theſe conjectural concluſions ſprung the greateſt diſcovery of modern times.

BEAN *caper*, *zygophyllum*, or *ſabago*, in *Botany*, a genus of the *decandria monogynia* claſs. Its characters are theſe: the complement of the flower is compoſed of five oval obtuſe leaves; the flower has five obtuſe petals, which are longer than the complement, and are indented at their points: it has a cloſed *nectarium*, which includes the *germen*, compoſed of ſeveral ſcales or little leaves, to which the baſes of the *ſtamina* are faſtened. It has ten awl-ſhaped *ſtamina*, terminated by oblong ſummits and an oblong *germen*, ſupporting an awl-ſhaped ſtyle, crowned by a ſingle *ſtigma*. The *germen* becomes an oval five-cornered capſule with five cells, containing ſeveral roundiſh ſeeds. Miller enumerates four, and Linnæus nine ſpecies.

The Syrians uſe this plant to kill worms on account of its bitterneſs.

BEAN *veſſel*, a ſmall ſailing-veſſel or pilot-boat, very common on the ſea coaſts and in the rivers of Portugal.

BEAN *trefoil*, *ſee* SHRUB TREFOIL.

BEAN *tree*, *erythrina*, *ſee* CORALLODENDRON.

BEAN *fly*, in *Natural Hiſtory*, the name given by authors to a very beautiful fly, of a pale purple colour, frequently found on *bean* flowers. It is produced from the worm or maggot called by authors *nidor*.

BEAN is alſo uſed by ſome *Anatomiſts* to denote the *glans of the penis*, on account of its figure and reſemblance to that pulſe.

BEAN is alſo improperly uſed for a weight, containing the third part of a ſcruple.

BEAN, *wyſe*, in *Phyſiology*, denotes a well-known quadruped of the cat kind, of ſome uſe in medicine, but more in commerce and ſport. *See Tab. of Quadrupeds, Sect. ſix.*

Bear, in the Linnæan ſyſtem of Zoology, makes a diſtinct genus of animals of the *firſt* kind, the characters of which are, that the fore-teeth, above and below, are ſix in number, the upper ones alternately hollow within; the cutting teeth are ſingle and conical; the grinders five or ſix; the tongue ſmooth, the noſe prominent, and the *penis* large. The common *bear* has a ſhort tail. Under this genus, the author takes in the creature called the *cani mundi*, under the name of *lotor*, or *wyſe canis aquaticus*. *See* RACKOON.

The *bear* differs, in many reſpects, from all the other beaſts of prey. Its head is much larger than their: its ſkin on the back is extremely hard, rough, and ſtrong; under the belly it is more tender: its hairs are longer, ſofter, and leſs rigid than in any other wild beaſt of prey, and reſemble wool in ſome degree: its ſkull is much thinner than that of the lion; but its brain more than twice as much in quantity: its eyes are very ſmall, and, what is very remarkable, have a nictitating membrane to cover them on occaſion. Its feet have alſo five toes, as well the hinder as the fore ones: and what is remarkable is, that the large toe, which anſwers to the thumb with us, is in the place of the little finger. It is a very common creature in Germany, Poland, Lithuania, and many other places. Ray.

The *bear* was formerly an inhabitant of the Britiſh iſland; and was tranſported from Britain to Rome. *Bear*-baiting was a favorite paſtime with our anceſtors; an inſtance of which occurs ſo lately as the time of queen Elizabeth.

The *bear* is obſerved to bear ſome analogy to man; as having hair on both eye-lids, which no other beaſt has. His ſtructure and anatomy are deſcribed by the French academiſts. Du Hamel Hiſt. Reg. Acad. Sc. lib. i. ſect. Some diſtinguiſh two kinds of *bears*, *terreſtrial* and *marine*; the former of which keep to the mountains, whereas the latter come out on the ice as far as the middle of the North Sea. Some of this kind are found in Nova Zemlia, of an incredible ſize.

Each male among the ſea *bears* has a ſeraglio to himſelf, conſiſting from fifteen to fifty females, which he poſſeſſes as his own property.

BEAR, *Polar*, *ſee* POLAR *Bear*.

BEAR, *Sea*, *ſee* SEA-*Bear*.

BEAR'S *fleſh* was much eſteemed by the ancients; even at this day, the paw of a *bear* ſalted and ſmoaked, is ſerved up at the tables of princes.

Bear's fleſh is reckoned one of the greateſt rarities among the Chineſe; inſomuch that, as Du Halde informs us, the emperor will ſend fifty or a hundred leagues into Tartary, to procure them for a great entertainment.

BEAR'S *greaſe* is eſteemed by ſome a ſovereign remedy againſt cold diſorders, eſpecially rheumatiſms. Some have alſo employed it with ſucceſs in the gout, and againſt rumors and ulcers.

To be good, it muſt be newly melted, greyiſh, glutinous, of a ſtrong diſagreeable ſmell, and a moderate conſiſtence. That which is too white, is adulterated with common tallow.

BEAR'S *ſkin* makes a fur in great eſteem, and on which depends a conſiderable article of commerce, being uſed in houſings, on couch-boxes, &c. In ſome countries, cloaths are made of it, more eſpecially bags wherein to keep the feet warm in ſevere colds. Of the ſkins of *bears* cubs are made gloves, muffs, or the like.

BEAR *garden*, a place where *bears* and other beaſts are expoſed as a public ſpectacle to be baited.

BEAR *leading*, to ſhew tricks, is an ancient practice, which we find prohibited in the canons of the church. Du-Cange.

BEAR *ward*, *urſarii*, were a kind of ſervants in great families among the Romans, who had the care of breeding and feeding thoſe animals. Pitiſc. Lex. Ant. tom. ii. p. 1110.

Our nobility had formerly officers of this kind. The annual ſalary of one of them belonging to the fifth earl of Northumberland was twenty ſhillings. Northumb. Houſhold Book.

Order of the BEAR, was a military order in Switzerland, erected by the emperor Frederic II. in 1213, by way of acknowledgment for the ſervice the Swiſs had done him, and in favour of the abbey of St. Gal. To the collar of the order hung a medal, on which was repreſented a *bear* raiſed on an eminence of earth.

BEAR, or BERE, is a ſpecies of barley cultivated in Scotland and Ireland, and the northern parts of England. It yields a large return, but is not eſteemed ſo good for malting as the common barley.

Ant BEAR, in *Zoology*, *ſee* ANT *eater*.

BEAR's *ears*, in *Botany*, see AURICULA.

BEAR's *ear sanicle*, see SANICLE.

BEAR-*bind*, see CONVOLVULUS.

BEAR's *breech*, ACANTHUS, in *Botany*, and BRANC *ursine*; a genus of the *didynamia angiospermia* class. Its characters are these: the empalement of the flower is two-leaved and bifid; the petal has but one lip, which is turned backward, and is divided into three at the end; the capsule has two cells, each containing one seed; it is of the ringent cloth of flowers, whose seeds are in a capsule. It is in the second division of Linnæus's fourteenth class. There are four species.

The common *acanthus*, whose leaves compose the ornaments of the Corinthian capital, and is used in medicine, grows naturally in Italy, Sicily, and the Levant.

The *farina* of *bear's breech*, microscopically examined, has the appearance represented in *Tab. of Microscopical Objects, copp.* 2.

BEAR's *foot*, see HELLEBORE.

BEAR, in *Astronomy*, a name given to two constellations called the *Greater* and the *Lesser Bear*; or URSA *major* and *minor*.

The pole star is said to be in the tail of the *Lesser Bear*; this star is never above two degrees distant from the north pole of the world.

BEARD, the HAIR growing on the chin, and adjacent parts of the face; chiefly of adults and males.

Various are the ceremonies and customs the *beard* has been liable to: Kingston assures us, that a considerable branch of the religion of the Tartars consists in the management of their *beards*; and that they waged a long and and bloody war with the Persians, and declared them infidels, though, in other respects, of the same faith with themselves, merely because they would not cut their whiskers after the mode or rite of the Tartars.

Athenæus, from Chrysippus, observes that the Greeks always wore their *beards* till the time of Alexander; and that the first who cut it at Athens ever after bore the addition of *κειρε, barber*, on medals. Plutarch adds, that Alexander commanded the Macedonians to be shaven, left the length of their *beards* should give a handle to their enemies; however this be, we find Philip, his father, as well as Amyntas and Archelaus, his predecessors, represented on medals without *beards*.

Pliny observes, that the Romans did not begin to shave till the year of Rome 454, when P. Titinius brought over a flock of barbers from Sicily; he adds, that Scipio Africanus was the first who introduced the mode of shaving every day.

Among that people, it became the custom to have visits made in form at the cutting of the *beard* for the first time: the first fourteen Roman emperors shaved, till the time of the emperor Adrian, who retained the mode of wearing the *beard*. Plutarch tells us he did it to hide the scars in his face.

Formerly there was a great deal of ceremony used in blessing the *beard*; and there are still extant the prayers used in the solemnity of consecrating it to God, when an ecclesiastic was shaven.

Persons of quality laid their children shaved the first time by others of the same, or greater quality, who, by this means, became god-fathers, or adoptive fathers of the children.

Anciently, indeed, a person became god-father of the child by barely touching his *beard*; thus historians relate that one of the articles of the treaty between Alaric and Clovis was, that Alaric should touch the *beard* of Clovis to become his *God-father*.

As to ecclesiastics, the discipline has been very different on the article of *beards*: sometimes they have been enjoined to wear them, from a notion of too much effeminacy in shaving, and that a long *beard* was more suitable to the ecclesiastical gravity; and sometimes again they were forbid it, as imagining pride to lurk beneath a venerable *beard*.

The Greek and Romish churches have long disputed together about their *beards*; since the time of their separation, the Romanists seem to have given more into the practice of shaving, by way of opposition to the Greeks; and have even made some express constitutions *de radendis barbis*.

The Greeks, on the contrary, espouse very zealously the cause of long *beards*, and are extremely scandalized at the beardlessimages of saints in the Roman churches.

By the statutes of some monasteries, it appears, that the lay-monks were to let their *beards* grow, and the priests among them to shave: and that the *beards* of all that were received into the monasteries were blessed with a great deal of ceremony.

To let the *beard* grow is a token of mourning in some countries, and to shave it in others. Le Comte observes, that the Chinese affect long *beards* extravagantly; but nature has balked them, and only given them very little ones, which, however, they cultivate with great care: the Europeans are strangely envied by them on this account.

The Russians were their *beards* till within these few years, when the czar Peter enjoined them all to shave; but, notwithstanding his injunction, he was obliged to keep on foot a number of officers to cut off by violence the *beards* of such as would not otherwise part with them.

Chevreau observes, that the kings of Persia had their *beards* woven or matted together with gold thread; and some of the first kings of France had, in the same manner, their *beards* knotted and buttoned with gold.

Among the Turks, it is more infamous for any one to have his *beard* cut off, than among us to be publicly whipt, or branded with a hot iron. They who serve in the seraglio have their *beards* shaven as a token of servitude; and when they are set at liberty, they permit it to grow. With them and the Persians, the *beard* is a mark of authority and liberty. There are many in that country who would prefer death to this kind of punishment. The Arabs make the preservation of the *beard* a capital article of religion, because Mahomet never cut his.

The Turkish wives kiss their husbands *beards*, and children their fathers, as often as they come to salute them. The men kiss one another's *beards* reciprocally on both sides, when they salute one another in the streets, or come off from any journey.

The Jews wear a *beard* on their chin, but not on the upper lip or cheeks.

BEARD, *touching the*, was an action anciently made use of by supplicants, and those who made vows.

BEARD, *anointing the*, with unguents, is an ancient practice both among the Jews and Romans, and still continues in use among the Turks; where one of the principal ceremonies observed in serious visits, is to throw sweet scented water on the *beard* of the visitant, and to perfume it afterwards with aloes wood, which sticks to that moisture, and gives it an agreeable smell, &c.

In *Middle Age Writers* we meet with *ustimire barbam*, used for stroking and combing it, to render it soft and flexible.

The Turks, when they comb their *beards*, hold a handkerchief on their knees; and gather very carefully the hairs that fall; and when they have got together a certain quantity, they fold them up in paper, and carry them to the place where they bury the dead.

BEARD, *shaving the*, was practised to Cynics by way of contempt.

Some authors also speak of *mortgaging the beard*, *barbam hypothecare*. Du-Cange.

BEARD, *barba falsa*, was an artificial one. In a general court of Catalonia, held in 1351, it is expressly enjoined, *Ne quis barbam falsam seu fictam audeat deferre vel fabricare*. Du-Cange.

Hottoman has given an elegant dialogue *de barba* first printed by Plantin in 1586.

BEARD *of a muscle*, oysters, or the like, denotes an assemblage of threads or hairs, by which those animals fasten themselves to stones, &c.

The hairs of this *beard* terminate in a flat spungy substance, which, being applied to the surface of a stone sticks thereto, like the wet leather-tuckers used by boys.

BEARDS, in the *History of Insects*, are two small, oblong, fleshy bodies, placed just above the trunk, in the gnats, and in the moths and butterflies.

BEARD, or *under beard*, called also *cheek*, of a horse, is that part under the lower mandible on the outside, and above the chin, which bears the curb of the bridle.

BEARD, *old man's*, in *Botany*, see CLEMATIS.

BEARD *of a comet*, denotes the rays which the comet emits towards that part of the heavens to which its proper motion seems to direct it.

In which the *beard* of the comet is distinguished from the *tail*, which is underlood of the rays emitted towards that part from which its motion seems to carry it. See TAIL.

It is called *beard*, from some fancied resemblance it bears to the *beard* of a man.

BEARDED, *barbatus*, denotes a person or thing with a BEARD, or some resemblance thereof.

In *Middle Age Writers*, this is sometimes expressed by *Multibarbis*, q. d. *barba in multis seu pernis*.

The faces on ancient Greek and Roman medals are generally *bearded*. Some are denominated *pogonati*, as having long beards, e. gr. the Parthian kings. Others have only a *lanugo* about the chin, as the Seleucid family. Adrian was the first of the Roman emperors who published

rifhed his beard: hence all imperial medals before him are *beardleſs*; after him, *bearded*.

The medals of gods, and heroes in vigorous youth, repreſent them *beardleſs*, except Jupiter, and a few others.

The Romans paid their worſhip to a *bearded* Venus, *Veneri barbatæ*, ſuppoſed to have been of both ſexes: a ſtatue of whom was alſo found in the iſle of Cyprus.

The reaſon of repreſenting the goddeſs of beauty with a *beard* is variouſly gueſſed at by the learned.

BEARDED *women* have been all obſerved to want the menſtrual diſcharge: and ſeveral inſtances are given by Hippocrates, and other phyſicians, of grown women, eſpecially widows, in whom the *menſes* coming to ſtop, *beards* appeared. Euſebius Nieurembergius mentions a woman, who had a *beard* reaching to her navel. Bartholin ſpeaks of a *bearded* woman at Copenhagen, who, partly in virtue thereof, paſſed for an hermaphrodite.

BEARDED *brothers, fratres barbati*, are more particularly uſed in *Eccleſiaſtical Writers* for thoſe otherwiſe called *fratres converſi* in the order of Grammont and the Ciſtercians.

They took this denomination, becauſe allowed to wear their *beards*, contrary to the rules of profeſſed monks.

BEARDED *hoſe*, among *Florifts*, a huſk which is hairy on the edges, as is that of the roſe, &c.

BEARDING *of wool*, ſee WOOL.

BEARER, in *Architecture*, a poſt, or brick wall, trimmed up between the two ends of a piece of timber, to ſhorten its bearing, or to prevent its bearing with the whole weight at the ends only.

BEARERS, *eccleſiaſtes*, in *Middle Age Writers*, are ſometimes uſed for a child's goſſips, becauſe they hold the infant in their arms, and preſent him to the prieſts in the ceremony of baptiſm. Du-Cange.

BEARERS *of a* BILL *of* EXCHANGE, denote the perſons in whoſe hands it is, and in favour of whom the laſt order or indorſement was made.

When a bill is ſaid to be *payable to bearer*, it is underſtood to be payable to him, who firſt offers himſelf after it becomes due. To be paid a bill of this kind, there needs neither order nor tranſfer; yet it is good to know to whom it is paid.

BEARERS are more peculiarly uſed among us for thoſe who carry the dead to their graves.

In a ſenſe ſomewhat different from this, we alſo ſay *pall-bearers*, *Vide* PALL.

The ancients had peculiar orders or officers of *bearers*, called by the greeks *acrobatæ*; by the Romans, *bellatores*. The *veſpillones*, or *ſpoli*, were a lower ſort of *bearers*, appointed for perſons of inferior rank.

BEARERS, in *Horticulture*, denote the fruit branches, or ſuch as bear fruit.

The *bearers*, or bearing branches of an apple-tree, and the like, are found to be rougher, and fuller of aſperities in their bark, than the other branches.

BEARERS, in *Heraldry*, ſee SUPPORTERS.

BEARER, *Croſs*, ſee CROSS.

BEARING, in *Geography*, and *Navigation*, the ſituation of one place from another, with regard to the points of the compaſs; or the angle which a line drawn through the two places makes with the meridians of each.

The *bearings* of places on the ground are uſually determined from the magnetic needle: on the managing of theſe lies the principal part of ſurveying, ſince the *bearing* and diſtance of a ſecond point from the firſt being found, the place of that ſecond is determined; or the *bearings* of a third point from two others, whoſe diſtance from each other is known, being found, the place of the third is determined: inſtrumentally we mean; for to calculate trigonometrically, there muſt be more *data*. Mr. Collins gives the ſolution of a problem in the Philoſophical Tranſactions, where the diſtances of three objects on the ſame plane being given, and the *bearings* from a fourth place in the ſame plain obſerved, the diſtances from the place of obſervation to the reſpective objects are required.

BEARING, in the *Sea-Language*. When a ſhip ſails towards the ſhore, ſhe is ſaid to *bear in with the land*. When a ſhip that was to windward comes under another ſhip's ſtern, and ſo gives her the wind, ſhe is ſaid to *bear under her lee*. If a ſhip ſails into a harbour with the wind large, or before the wind, ſhe is ſaid to *bear in with the harbour*, &c.

In conding they ſay, *bear up the helm*, that is, let the ſhip go more large before the wind—*bear up round*, that is, let the ſhip go between her two ſheets, directly before the wind—*bear a hand*, i. e. make haſte.

They alſo ſay, a ſhip *bears*, when, having too ſlender a quarter, ſhe will ſink too deep into the water with an over light freight, and therefore can carry but a ſmall quantity of goods.

To BEAR *ſail well* is ſaid of a ſhip, when ſhe is a ſtiff-guided ſhip, and will not couch down on a ſide with a great deal of ſail.

When a ſhip is ſaid to *bear but her ordnance*, it is meant, that her ordnance lie ſo high, and ſhe will go ſo upright, that in reaſonable fighting weather, ſhe will be able to keep out her lower tier, and not be forced to ſhut in her ports.

A ſhip is ſaid to *weather-bear*, when it is able, in a great gale of wind, to carry out more ſails, viz. a top-ſail more, or the like.

BEARING *off* is alſo uſed by *Seamen*, generally in buſineſs belonging to ſhipping, *for thruſt off*.

Thus, in hoiſting any thing into the ſhip, if it hath hold by any part of the ſhip or ordnance, or the like, they ſay, *bear it off from the ſhip's ſide*.—So, if they would have the breech or mouth of a piece of ordnance, or the like, put from one, they ſay, *bear off*, or *bear about* the breech.

BEARING *up*, or *bearing away*, is improperly uſed to denote the act of changing the courſe of a ſhip, in order to make her ſail before the wind, after ſhe had ſailed ſome time with a ſide-wind, or cloſe-hauled.

BEARING alſo expreſſes the ſituation of any diſtant object, eſtimated from ſome part of the ſhip, according to her poſition. In this ſenſe, the object muſt be either a-head, a-ſtern, a-breaſt, on the bow, or on the quarter.

BEARING *of a piece of timber*, in *Carpentry*, denotes the ſpace either between the two fixt extremes thereof, when it has no other ſupport; which is called *bearing at length*: or between one extreme, and a poſt, brick, wall, or the like, trimmed up between the ends to ſhorten its *bearing*.

Joiſts are not to *bear* above ten feet length: nor ſingle rafters more than nine feet. 19 Car. II. c. 3.

BEARING *of an arch or vault*, denotes the effort which the ſtones make to burſt open the piers, or *pieds-droits*.

This amounts to the ſame with what the French call *pouſſée*.

BEARINGS, in *Heraldry*, a term uſed to expreſs a coat of arms, or the figures of armories, by which the nobility and gentry are diſtinguiſhed from the vulgar, and from one another. Theſe ſigns of nobility with us are evidently a copy of the ſtatues and images among the ancient Romans, which they uſed to expoſe before their houſes on public days, and carried before the body at a funeral of a great perſon. Theſe ſtatues among them were the reſemblances of their noble anceſtors. And as our coats of arms evidently were brought up in the place of theſe, it ſeems very natural to date the riſe and origin of heraldry in England as now practiſed, from the time of the ſubverſion of the Roman empire by the Goths and Vandals; who, as they deſtroyed many liberal arts, ſo they ſeem in return, to have given birth to this of heraldry.

Theſe warlike nations, having ſubdued the mighty Roman empire, and raiſed their glory by military ſervice, became very fond of the atchievements of their anceſtors and great men, and derived their enſigns and titles of honour from what concerned a ſoldier. They firſt, therefore, diſtinguiſhed the whole community into three ranks; which they named, according to the different orders of military men, *miles*, *eques*, and *pedites*; and their poſterity, willing to commemorate their honours, reſerved to themſelves their ſeveral military enſigns; and theſe became what we call *bearings*, or arms, the marks of gentility, or of houſes, ſome one of which had once deſerved an elevation above the common rank of men. While the direct deſcendant of this honourable perſon carried his enſigns of honour for his diſtinction, the collateral branches alſo were ambitious of preſerving the memory of their having belonged to ſuch an honourable houſe; and therefore aſſumed the ſame figure, but with ſome difference, to diſtinguiſh the diſtance from the original claim. In proceſs of time, other families, who had deſerved as well of their prince and country, whether in civil or military affairs, became deſirous of the ſame ſort of diſtinction, by way of perpetual memorial of their ſervices; and upon this occaſion many other devices were formed into arms, and continued down to poſterity in the ſeveral families.

Armorial bearings, in the tenth and eleventh centuries, were ſingle and plain, conſiſting only of few figures. Charges, differences, quarterings, &c. are the inventions of later times.

BEARING *of an organ pipe*, denotes an error or variation from the juſt ſound it ought to yield. See TEMPERATURE.

BEARING *down of the matrix*, a diſorder in pregnant women, being a ſenſation of a weight at the bottom of the *abdomen*, or preſſure on the neck of the womb, ſo as to hinder the perſon from walking without pain; and ſometimes

sometimes also occasioning difficulty of urine, numbness of the hips, uneasiness in going to stool, and in the end abortion.

BEARING *down*, among *Cock-fighters*, denote the foremost toes, on which the bird goes; and if they be hurt or gravelled, he cannot fight.

BEARING *of a stag*, is used in respect of the state of his head, or the crotches which he bears on his horns.

If you be asked what a stag *bears*, you are only to reckon the crotches, and never to expect an odd number: as, if he have four crotches on his near horn, and five on his far, you must say he bears ten; a fair right on his near horn: if but four on the near horn, and six on the far horn, you may say he bears twelve; a double taste right on the near horn.

BEARN *done*, see PHOSPHORUS.

BEAST, see BRUTE. Authors make this difference between *beasts of the forest*, and *of chase*, that the first are *silvestres tantum*, the latter *campestres tantum*. *Beasts of the forest* make their abode all the day time in the great coverts and secret places of the woods; and in the night season, they repair into the lawns, meadows, pastures, and pleasant feeding places: whence their denomination *silvestres*, q. d. *beasts of the wood*.

Beasts of the chase reside all the day time in the fields, and on the mountains clear of, or present surprize; but on night's approach, they feed in the rail in meadows, &c. whence their appellation *campestres*, q. d. *beasts of the field*.

BEASTS *of* CHASE, in our *Statute-books*, are five; the buck, doe, fox, martin, and roe.

BEASTS *of the forest* are, the hart, hind, hare, boar, and wolf.

BEASTS and *fowls of the warren* are, the hare, coney, pheasant, and partridge. See GAME.

No other, according to Manwood, are accounted *beasts* or fowls of warren, than hares, coneys, pheasants, and partridges. Lord Coke is of another opinion, distinguishing *beasts* on the warren from fowls of the warren. Under the former, he includes, hares, coneys, and roes: the latter he divides into *silvestres*, *campestres*, and *aquatiles*. To the first belong the pheasant, woodcock, &c. to the second the partridge, quail, rail, &c. to the third the mallard, heru, &c. Coke on Littleton, p. 233.

BEAST *of burden* is understood of all quadrupeds employed in carrying goods on their backs.

BEAST *at ombre*, is, where the player, or person that undertakes the game, loses it to the other two; the penalty of which is a forfeiture equal to the stake played for.

BEAST, *le bête*, is also the name of a French game at cards.

BEASTS, *rother*, see ROTHER.

BEAT, or UNDULATION, in *Music*, see UNDULATION.

BEAT, in *Fencing* denotes a blow or stroke given with the sword.

There are two kinds of *beats*; the first performed with the foible of a man's sword on the foible of his adversary's which in the schools is commonly called *battery*, from the French *batre*, and is chiefly used in a pursuit, to make an *open* upon the adversary. The second and best kind of *beat* is performed with the fort of a man's sword upon the foible of his adversary's, not with a *fring*, as in binding, but with a jerk, or dry *beat*; and is therefore most proper for the parades without or within the sword, because of the rebound a man's sword has thereby from his adversary's, whereby he procures to himself the better and surer opportunity of ripposting.

BEAT, in the *Manege*. A horse is said to *beat the duft*, when, at each stroke or motion, he does not take in ground or way enough with his fore-legs.

He is more particularly said to *beat the duft* in *terra a terra*, when he does not take in ground enough with his shoulders, making his strokes or motions too short, as if he made them all in one place.

He *beats the duft* in curvets, when he does them too precipitantly, and too low.

He *beats upon a moth*, when he walks too short, and thus ride but little ground, whether it be in straight lines, rounds, or pillings.

BEAT *upon the hand*, in the *Manege*, see CHACK.

BEAT *of the drum*, in the *Military Art*, is differently performed, according to the purposes designed by it. Notice is hereby given of any sudden change; soldiers are summoned to repair to their arms and quarters: and the various movements before and after, and during the engagement, are denoted by different *beats* of the drum.

The chief *beats* or beatings on the drum are, the *general*, the *assembly*, the *march*, the *reveille*, the *retreat*, &c.

BEATA, see MAID *of the Bath*.

BEATER is applied, in *Matters of Commerce*, to divers sorts of workmen, whose business is to hammer or flatten certain matters, metals, or the like.

In this sense we meet with *plaster beater*, *cement-beater*, *mortar-beater*, &c.

BEATERS, *gold*, are artisans, who, by beating gold and silver with a hammer on a marble, in moulds of vellum and bullocks guts, reduce them to thin leaves fit for gilding, or silvering of copper, iron, steel, wood, &c.

Gold-beaters differ from *flatters* of gold and silver, as the former bring their metal into leaves by the hammer; whereas the latter only flatten it by passing it through a mill, preparatory to beating.

There are also *Tin-*BEATERS employed in the looking-glass trade, whose business is to beat tin on large blocks of marble, till it be reduced to thin leaves, fit to be applied with quicksilver behind LOOKING-GLASSES. See FOLIATING, and GOLD-*beating*.

BEATER is also used for an instrument wherewith to gravel walks and alleys in gardens even.

It is a piece of wood half a yard long, six inches thick, and eight or nine broad, having a handle fixed obliquely in the middle.

BEATIFIC *vision*, see VISION.

BEATIFICATION, in *Electricity*, a term used by professor Boze to denote an electrical experiment, by which he incircled the head of a person strongly electrified, and standing on a large cake of pitch, with a luminous glory, resembling that with which painters ornament the heads of saints. The secret of this experiment, which occasioned many fruitless and expensive trials to the first electricians in Europe, consisted in the use of a suit of armour, checked with steel, in various figures; and the glory was produced by rays issuing from the edges of the helmet.

BEATIFICATION, in the Romish *Church*, the act whereby the pope declares a person happy after death.

Beatification differs from *canonization*; in the former, the pope does not act as a judge in determining the state of the *beatified*, but only grants a privilege to certain persons to honour him by a particular religious worship, without incurring the penalty of superstitious worshippers: but, in canonization, the pope speaks as a judge, and determines, *ex cathedra*, upon the state of the *canonized*.

Beatification was introduced, when it was thought proper to delay the canonization of saints, for the greater assurance of the truth, and manifestation of the rigorous steps taken in the procedure.

It is remarkable, that particular orders of monks assume to themselves the power of *beatification*.

Thus Octavia Malchiorita was *beatified* with extraordinary ceremonies by the Dominicans, for a legacy of 7000 dollars to the order.

BEATING, among *Sportsmen*, denotes the noise which hares make in RUTTING-*time*.

The hare is said to *beat*, the hart to *bell*, &c.

BEATING, PULSATION, in *Medicine*, is applied to the reciprocal agitation or palpitation of the heart and pulse.

Some physicians distinguish eight-and-one different kinds of simple *beatings*, and fifteen compound ones. They compute sixty beats in the space of a minute, in a temperate man. But, in fact, we generally find a greater number.

BEATING *of the heart*. Divers fystematists have been trained to account for the *beating* of the heart. Some have doubted whether it be mechanical, that is, derivable from any known laws or powers of nature. See Ray's Wisdom of God, part 1. p. 48.

BEATING *flax*, or *hemp*, is an operation in the dressing of these matters, contrived to render them more soft and pliant.

When hemp has been swingled a second time, and the bands laid by, they take the strikes, and dividing them into dozens, and half dozens, make them up into large thick rolls, which being broached on long staves, are let in the chimney-corner to dry; after which they lay them in a round trough made for the purpose; and there, with beetles, beat them well, till they handle both softnest and whiteness as plant as possible, without any hardness, or roughness to be left: that done, they take them from the trough, open and divide the strikes as before, and if any be found not sufficiently beaten, they roll them up, and beat them over as before.

Beating hemp is a punishment inflicted on loose or disorderly persons.

BEATING, in *Book-Binding*, denotes the knocking of a book in quires on a marble block, with a heavy broad-faced hammer, after folding, and before binding or stitching it. On the *beating* of it properly, the elegance and excellence of the binding, and the easy opening of the book, principally depend.

BEATING, in the *Paper Works*, signifies the *beating* of paper on a stone with a heavy hammer, with a large, smooth head, and short handle, in order to render it more smooth and uniform, and fit for writing.

BEATING *the wind*, was a practice in use in the ancient method of trial by combat. If either of the combatants did not appear in the field at the time appointed, the other

other was to *beat the wind*, or make so many flourishes with his weapon; by which he was intitled to all the advantages of a conqueror. Du-Cange.

BEATING *the hands or feet*, by way of praise or approbation. See APPLAUSE.

BEATING *time*, in *Music*, a method of measuring and marking the time for performers in concert, by a motion of the hand or foot up and down successively, and in equal times.

The general rule is, to contrive the division of the measure so, that every down and up of the *beating* shall end with a particular note, on which very much depends the distinctness, and, as it were, the sense of the melody. Hence the beginning of every time, or *beating* in the measure, is reckoned the accented part thereof. Malcolm.

Beating time is denoted, in the Italian music, by the term *battuta*, which is usually put after what they call *ritirata*, where little or no time is observed, to denote, that here they are to begin again to mark or beat the time exactly.

The Romans timed at first somewhat of harmony in the strokes of their oars, and had an officer called *pertficulator* in each galley, whole business was to *beat* time to the rowers; sometimes by a pole or mallet, and sometimes by his voice alone.

The ancients marked the rhythm in their musical compositions; but to make it more observable in the practice, they *beat* the measure or time, and this in different ways. The most usual consisted in a motion of the foot, which was raised from, and struck alternately against the ground, according to the modern method.

To make the beats or strokes more audible, their feet were generally shod with a sort of *sandals*, either of wood or iron, called by the Latins *pedicæ*, *scabella*, or *scabilla*, because like to little stools, or foot-stools. Sometimes they beat upon sonorous foot-stools, with the foot shod with a wooden or iron sole.

They beat the measure not only with the foot, but also with the right hand, all the fingers whereof they joined together, to strike into the hollow of the left. He who thus marked the rhythm, was called *numerator*. The ancients also beat time or measure with shells, and bones of animals, which they struck one against another, much as the moderns now do castanets, and the like instruments. Burette, Mem. Acad. Inscr. tom. vii. p. 243, 247.

BEATING, in *Navigation*, the operation of making a progress at sea against the wind, in a zigzag line, or traverse. See TACKING.

BEATING, *drubbing*, or *stripes*, make one of the most ancient, as well as universal species of punishment. Among the Romans it obtained, under the denomination of *verberare*, *fustigare*, *flagellare*, *pulsare*, &c. In the East it still prevails under the name of BASTONADO.

Some distinguish between *pulsation* and *verberation*, as if the latter imported a *beating* with pain, the former without; but this distinction is not always kept to.

BEATING, in the English Law. See BATTERY.

BEATING *in the flanks*, a distemper to which black cattle are subject, and is an inflation of a great inflammation in the bowels.

BEATING, in *Husbandry*. See BURNING *of Land*.

BEATITUDE imports the supreme good, or the highest degree of happiness human nature is susceptible of.

In which sense, it amounts to the same with what we otherwise call *happiness* and *sovereign felicity*; by the Greeks εὐδαιμονία; and by the Latins *summum bonum*, *beatitudo*, and *beatitas*.

BEATITUDE, among *Divines*, denotes the beatific vision, or the fruition of God in a future life or all eternity.

BEATITUDE is also used in speaking of the *theses* contained in Christ's sermon on the mount, whereby he pronounces *blessed the poor in spirit, those that mourn, the meek*, &c.

BEATITUDE was also a title anciently given to all bishops; but of later days restrained to the pope.

It appears to have been sometimes also given to laymen.

BEATS, in a watch or clock, are the strokes made by the fangs or pallets of the spindle of the balance; or of the pals in a royal *perpetuum*.

To find the *beats* of the balance in any watch, or in one turn of any wheel.—Having found the number of turns, which the crown-wheel makes in one turn of the wheel you seek for (by the direction given under the word TURN), those turns of the crown-wheel, multiplied by its notches, give half the number of *beats* in that one turn of the wheel: for the balance or swing has two strokes to every tooth of the crown-wheel; inasmuch as each of the two pallets has its blow against each tooth of the crown-wheel: whence it is, that a pendulum which beats seconds, has in its crown-wheel only 30 teeth. To explain this, suppose the numbers of a fixteen-hour watch where-

$$\begin{array}{l} 4)32(8 \\ \quad 32 \\ \hline 5)55(11 \\ \quad 55 \\ \hline 5)45(9 \\ \quad 40 \\ \hline \quad 5 \end{array}$$

in the pinion of report is 4, the dial-wheel 32, the great wheel 55, the pinion of the second wheel 5, &c. The number of the notches in the crown-wheel 15, being multiplied into 6336 (the product arising from the continual multiplication of the quotients 8, 11, 9, 8) gives 107712, for half the number of *beats* in one turn of the dial-wheel; for 8 times 12 is 120, which is half the number of *beats* in one turn of the contrate-wheel 40, and 9 times 120 is 1224, the half-*beats* in one turn of the second wheel; and 11 times 1224 is 13464, the half-*beats* in one turn of the great wheel 55; and 8 times 13464 makes 107712. If you multiply this by the two pallets, i. e. double it, it gives 215424, which is the number of *beats* in one turn of the dial wheel, or 12 hours.

To know how many *beats* this watch has an hour, divide the *beats* in 12 hours into 12 parts, and it gives 17952, which is called the *train* of the watch, or the *beats* in an hour. If this be divided into 60 parts, it gives 299, and a little more, for the *beats* in a minute; and so you may proceed to seconds or thirds.

By the *beats* and turns of the fuse, the hours that any watch will go, may be found thus. As the *beats* of the balance in one hour, are to the *beats* in one turn of the fuse; so is the number of the turns of the fuse 1, to the continuance of the watch's going. Thus, 20160: 26928 :: 12: 16.

To find the *beats* of the balance in one turn of the fuse, say, As the number of turns of the fuse, to the continuance of the watch's going in hours; so are the *beats* in one hour, to the *beats* of one turn of the fuse; i. e. 12: 16 :: 20160: 26928.

To find the *beats* of the balance in an hour, say, As the hours of the watch's going, to the number of turns of the fuse; so are the *beats* in one turn of the fuse, to the *beats* of an hour. Thus, 16: 12 :: 26928: 20160. Derham's Artificial Clock Maker, p. 124, &c. and 251.

BEAVER, CASTOR, in the Linnæan *System of Zoology*, makes a distinct genus of animals, of the order of *glires*, and class of *mammalia*, the characters of which are, that the upper fore-teeth are truncated, and hollowed obliquely, and that the lower are oblique at the apex, with a thin rib; and with feet which have five toes on each, and palms adapted for swimming. Under this genus are comprehended, 1. The *beaver*, properly so called, or fiber, with a black, flat, and oval tail, with palmated feet: this species produces the CASTOREUM. 2. The *coffor*, with a flat lanceolated, or oblong tail, called by Clusius, the exotic *water-rat*. 3. The *ondatra*, with a long, flat, lanceolated tail, with cleven feet, called *zibethicus*.

The *beaver*, diftinctively so called, has two very different forts of hair, the one very fast and fine, the other long and thick; the first serves to defend the creature from the cold, the other to receive the mire in which it often wallows, and to prevent its getting to the skin. The teeth of this creature are formed in a very particular manner, and are extremely fit to cut trees, with which they build themselves lodging to defend them from the weather, and to breed their young in. The fore-feet are formed like the human hand, and by this means they are able to carry their materials, and work at their habitations: the hinder feet, which are destined to be of use to them in swimming, are on the contrary webbed like those of a goose. Their address and contrivance in constructing their habitations, would scarcely obtain credit, were they not well attested.

Beavers were formerly found in Great Britain; but the breed has been long extirpated. Giraldus Cambrensis's account of them is the latest in 1188. See 1564, 579.

The bladders in this animal destined for receiving the medicinal substance called *castor*, are distinct from the testicles, and are four large ones, placed about the lower part of the *os pubis*; two of these stand above the other two, but chiefly joined to one another, the two upper being to prepare the matter, and the two other to bring it to the greater perfection and maturity. The reader is of a stronger scent and deeper colour, as it is always found with this difference in these bags from what it is in the upper ones. The lower bags, for this reason, are of a glandular structure; and under these lower bags there is another long one full of a matter, more yellow and liquid, and seeming more elaborated than any of the others. This is of a different smell from the former, and more than any thing else resembles the yolk of an egg. It is said that the creature uses this liquor to get itself an appetite, and that it gets it out by squeezing the bag that contains it with its paws. The people of Canada set gins for these creatures, and catch many of them that way; and, knowing how fond they are of this liquor, they always anoint the gins with some of it.

It has been generally said that the testicles of this crea-

ture were fastened to the back-bone, but they are, in reality, not so, but placed on the sides of the *os pubis*, about the groin, and are altogether bull, not appearing at all any more than the paps, till the bull is castrated; and the *stones*, contrary to that of a *dog*, which goes from the *stones* to the navel, descends in this animal downwards to the root of the *yard*, at which place it terminates.

BEAVER, *Fiber*, the fur or skin of an amphibious animal, called the *ostor*, or *bever*, sometimes found in France, Germany, and Poland, but most abundantly in the province of Canada in North America.

In chief use is the for the composition of hats, furs, &c. Before this, in 1666, an attempt was made to employ it in fulling cloths; but experience soon found that the *beaver* cloth lost more dye when wet, and that when dry again, they were hard and stiff to wear.

The merchants distinguish three kinds of *castor*, though all equally the skins of the same animal; these are *castor*, *dry castor*, and *fat castor*, or *new castor*, called also *castor castor*, and *Upsala castor*, because ordinarily received to send into Muscovy; this is that taken in the winter huntings. This is the best and most esteemed for wear furs, as having left none of its hair by moulting. *Dry castor*, or *new castor*, is the refuse of the summer huntings; when the beast is moulted, and has left part of its hair: this being much inferior to the former, is little used in furs, but chiefly in hats. *Fat castor*, usually called *old-coat*, or *coat-beaver*, is that which has contracted a certain fat, unctuous humour, by sweat exhaled from the bodies of the savages, who have worn it for some time: this, though better than the *dry*, is yet only used for hats.

After the hair is cut off the skin to be used in hats, the pelt or thin hide is used in various works, as for the covering of trunks, in harness, &c.

Beaver is chiefly imported by the Hudson's-bay company, from the northern parts of America; where the animal abounds.

BEAVER is also used to denote a hat made of *beaver's hair*.

BEAUFET, BUFFET, or BUREL, was anciently a little apartment separated from the rest of a room by frames of wooden columns, for the disposing china and plate ware, &c. called also a *cabinet*.

It is now, properly, a large table in a dining-room, called also a *side board*, for the plate, glasses, bottles, bafons, &c. to be placed, as well for the service of the table as for magnificence.

The *buffet*, among the Italians called *credenza*, is enclosed within a balluster, elbow-high.

BEAUMAS. See MASS.

BEAU-PLEADER, or BEAU-PLEADER, a writ on the statute of Marlebridge, whereby it is provided, that no fine shall be taken of any man in any court for *fair-pleading*, i. e. for not pleading aptly, and to the purpose.

BEAUTY is a term whereby we express a certain relation of some object, either to an agreeable sensation, or to an idea of approbation.

When, therefore, I say a thing is *beautiful*, I either mean that I perceive something that I approve, or that something gives me pleasure: whence it appears, that the idea annexed to the word *beauty* is double; which renders the word equivocal, and this is the source of most of the disputes on the subject of *beauty*.

We must therefore distinguish between *ideas* and *sensations*. Ideas occupy the mind, sensations interest the heart. Though we see nothing in an object to interest us, we may yet discover something in its idea to merit our approbation. Such an object therefore pleases, and does not please, i. e. it pleases the understanding, and not the sense. On the contrary, there are some objects, whose ideas do not offer any thing laudable, which yet excite agreeable sensations. There is therefore *beauty* of two sorts. It is exceeding hard to fix any general characters of *beauty*: for, as the ideas and sensations of different persons differ according to the habitudes of the body, and the turn of the mind, so do the relations of objects to those ideas and sensations vary, whence what we call *beauty*, results. Hence arise those different opinions of a *beautiful* thought, a *beautiful* woman, a *beautiful* painting, &c. The principles of *beauty*, according to Mr. Hogarth, are *fitness*, *variety*, *uniformity*, *simplicity*, *intricacy*, and *quantity*. Analysis of *Beauty*. The line of *beauty*, according to this writer, is the waving line, or a curve bending backwards and forwards, somewhat in form of the letter S. This he observes, is often found in *shells*, *flowers*, and such other ornamental works of nature: and it is common also in the figures deligned by painters and sculptors, for the purpose of decoration.

Dr. Hutcheson makes uniformity amidst variety the source of *beauty*; and he refers our ideas of it merely to an implanted sense. Inquiry into the Original of our Ideas of Beauty and Virtue. See SENSE.

Mr. Perrault distinguishes two kinds of *beauty* in architecture, which correspond with the two species of *beauty* above-mentioned, he calls *positive* and *convencional*; such as the richness of the materials, grandeur of the structure, ornaments of the workmanship, symmetry, &c. The other he calls *arbitrary*, which depend on the will, and which would admit of having their proportions changed without deformity. These only please by the connexions or associations of their ideas with objects of a different kind which please of themselves; they owe their *beauty* to that prepossession of the mind, whereby a thing, whose value we do know, insinuates an esteem for others which we do not know.

Thus, he observes, there are many things in architecture, which reason and good sense would judge deformed, and which, however, custom has not only made tolerable, but even *essential*, by their being always joined with other *beauties* that are positive. Thus, being at first pleased with viewing them in company, and merely on account of their company, at length we become pleased with them alone; and thus we frequently grow fond of faults, and fall in love with DEFORMITY.

BEKAH, or BEKAU, a Jewish coin, being half a SHEKEL. In Dr. Arbuthnot's table of reductions, the *bekah* amounts to 15*d.* In Dr. Prideaux's computation to 11*d.* 2*q.* Every Israelite paid an hundred *bekahs* a head every year for the support of the temple. Calmet.

BECALMING, in the *Sea Language*, is when any thing keeps the wind off or away from a veſſel.

Thus one ship is said to *becalm* another, when she comes up with her on the weather-bow: the ship is said of the ſhore, when it keeps the wind away. A ship is likewiſe ſaid to be *becalmed*, when there is no wind ſtirring.

BECASSE, in *Natural Hiſtory*. See WOODCOCK.

BECASSINE, in *Ornithology*, a name given by many to the *rusticola major*, or, as we commonly call it, the *woodcock*.

BECCA, in the *Materia Medica of the Ancients*, a name given to a fine kind of ſtring, collected from the turpentine trees of Greece and Aſia, and mixed by them for uſe. It was much eſteemed formerly, and not only uſed in the country where it was produced, but carried in great quantities to Mecca, and other parts of the Turkiſh dominions, where it was valued as a very great rarity.

BECCA *Bunca*. See BROOKLIME.

BECCIFAGO, in *Ornithology*, the name of a ſmall bird, ſcarce ſo large as the common linnet, and with a very remarkable thorn body. Its head, neck, back, wings, and tail, are of a greeniſh grey, and in ſome of the birds of a greeniſh brown. It feeds on vegetables, berries, &c. and is common in the north of England, where it is called the *petty-chaps*. Ray.

BECHICS, BECHICA, medicines proper for relieving coughs. The word is formed of the Greek, βηξ, *tuſſis*, a cough.

Bechics amount to much the ſame with what we otherwiſe call *pectorals*, *thoracics*, EXPECTORANTS, and RECTORALS.

BECHIC *pills*. See PILL.

BECK, a little river or brook, called alſo rivulet, or rill.

According to Verſtegan, the original word is *bec*, which properly ſignifies a ſmall ſtream of water flowing from ſome bourn or ſpring.

Hence *becksands*, little brooks ſo called, on account of their ſhallowneſs and depth, or rather from their being covered, or much concealed. See HILL.

Beck is chiefly uſed among us in the compoſition of names of places originally ſituate on rivulets, hence Welbeck, Bourneback, &c.

The Germans uſe *bach* in the ſame manner.

BECKETS, in the *Marine*, ſignify large hooks, or circular wreaths of rope, or wooden brackets, uſed to confine ropes, tackles, oars, or ſpars, in a convenient place, till they are wanted. And, *to put the oars and ſpars in the beckets*, is to hang up the weather-main and fore-ſheet, and the lee-main and fore-tack, to a little knot and eye-*becket* on the foremoſt main, and fore-ſhrouds, when the ſhip is cloſe-hauled, to prevent them from hanging in the water.

BECTASSE, a ſect among the Turks, denominated from their founder Bectash, preacher to Sultan Amurath.

All the Janizaries belonging to the Porte are of the religion of *Bectash*, and are ſaid to have derived their origin from the founder of this ſect.

BED, a place prepared to ſtretch and compoſe the body on, for reſt and ſleep; made chiefly of feathers incloſed in a ticken caſe.

We ſay a feather *bed*, a down *bed*, a ſtanding *bed*, a ſacking *bed*, a tent *bed*, a truckle *bed*, &c.

No *beds* are to be ſold, except filled with one ſort of ſtuffing only; i. e. no feather *beds* with only ſtreet ſcuttled feathers; and down *beds* with cheap down alone. No ſcuttled

feathers are to be mixed with the former; nor feathers with the latter, on pain of forfeiture; the measure of such things being conceived as corruptions for man's body to lie on. Stat. 1 Hen. VII. cap. 19.

Arbor bed is a mattrass, and cushions stuffed with horse-hair, fea-drawn, goats-hair, and rems-hair, which are dressed in time; and which the heat of man's body will cause to exhale and yield a noxious smell, whereby many of the king's subjects have been destroyed, are prohibited by the same statute.

The ancient Romans had various kinds of *beds* for repose; as their *cubicularis*, or *chamber-bed*, whereon they slept; their *accubitorium*, or *lectus discubitorius*, whereon they eat (for they always eat lying), there being usually three persons to one *bed*, wherein the middle place was accounted the most honourable, as well as the *middle bed*.—These *beds* were unknown before the second Punic war: the Romans, till then, sat down to eat on plain wooden benches. As for the ladies, it did not seem at first consistent with their modesty to adopt the mode of lying; accordingly they kept to the old custom all the time of the common meal; but, from the first Cæsars, they eat on their *beds*. As to the youth, who had not yet put on the *virile toga*, they were long kept to the ancient discipline. When they were admitted to table, they only sat on the edge of the *beds* of their nearest relations. Never, says Suetonius, did the young Cæsars, Caius and Lucius, eat on the raised. Augustus; but they were set *in imo lecto*, or, as Tacitus expresses it, *ad lecti pedes*. From the greatest simplicity, the Romans, by degrees, carried their dining *beds* to the most inspiring magnificence. Many affairs in, it was no new thing to see them covered over with plates of silver, adorned with the richest mats, and the richest counterpanes. Hist. Nat. lib. xxxiii. cap. 12.—They had also their *lectus funebris*, whereon they flourished; and a *lectus funebris*, or *funeralis*, whereon the dead were carried to the pile. See FUNERAL.

BED *of state*. See PAVILION.

BED *of justice*, *lit de justice*, in the French *Laws*, denotes a throne whereon the king is seated in parliament.

In this sense, the king is said to hold his *lit de justice*, when he goes to the parliament of Paris, and holds a solemn session, under a high canopy erected for the purpose.

The *bed of justice* is only held on affairs relating to the state; on which occasion all the officers of the parliament appear in red robes; at other times they wear black ones. Several authors have treated expressly on the ceremonies of the *bed of justice*.

BED *of a great gun*, is a piece of plank laid within the cheeks of the carriage, on the middle transom, for the breech of the gun to rest on.

BED *or bed of a mortar*, is a solid piece of oak, in form of a parallelepiped, bigger or less, according to the dimensions of a mortar, hollowed a little in the middle to receive the breech, and half the trunnions.

On the sides of the *bed* are fixed the cheeks or brackets by four bolts of iron.

In ships, when the decks lie too low from the ports, so that the carriages of the pieces, with the trucks, cannot mount the orlop or gallicoening, but that they lie too near the gun-wales; the method is to make a falfe deck for so much as the piece will require for her traversing to mile it higher; and this they call a *bed*.

BED, in *Gardening*, a piece of ande-ground, raised above the level of the adjoining ground, usually square or oblong, and enriched with dung, or other amendments; intended for the raising of herbs, flowers, feeds, roots, or the like.

BEDS for raising melons, mushrooms, and the like, are commonly denominated *ridges*.

Mushrooms raised on *beds* are not so good as those which grow at large on the natural foil.—See HOT-*bed*.

BED, in speaking of hops, denotes the floor whereon they are spread to dry.

BED *of corn* is a heap, flat at top, three or four feet high, otherwise called a *couch*.

Corn, in granaries, keeps beft in *beds* or couches.

BED-*starre*, a name given by the Arab aftronomers to a fixed ftar of the firft magnitude in the right fhoulder of ORION.

Bed-starre is of a ruddy colour, by which it is eafily diftinguifhed.

BED, in *Mafonry*, denotes a COURSE or range of ftones.

BED, *joint of the*, is the mortar between two ftones placed over each other.

BED, in *Sea Language*, a flat, thick piece of timber, laid under the quarters of cafks, containing any liquid, and placed in the fhip's hold.

BED *of a river*, the bottom of the channel in which the ftream flows.

BEDS, in fpeaking of minerals and foffils, fignify certain STRATA, or layers of matter difpofed over each other.

BEDS, in the *New Hufbandry*, denote the fpaces occupied by the rows of corn, in contradiftinction from the open fpaces between them, which are called ALLEYS.

BED-CHAMBER.—*Lords of Gentlemen of the* BED-CHAMBER, are perfons of the firft rank, fourteen in number; whofe office is, each in his turn, to attend a week in the king's *bed-chamber*, lying by the king on a pallet-bed all night, and to wait on the king when he rifes in private.

The firft of thefe is called *groom of the ftole*.

BED-MOULDING, or BEDDING-*moulding*, in *Architecture*, is a term ufed by the workmen of thofe members in a cornifche, which are placed below the cornice.

A *bed-moulding* ufually conftfts of thefe four numbers, an ogee, a lift, a large cimatium, and another lift under the cornice.

BEDALACH, in the *Materia Medica*, a name given by fome writers to the gum bdellium; but particularly to that kind of it which was brought from Arabia, and was of a yellowifh colour, like wax.

BEDAUDE, in *Natural Hiftory*, a name given by French authors to a fort of prickly CATERPILLAR found on the elm.

BEDDING, *littering*, in refpect of horfes and other cattle, denotes ftraw or litter fpread under them in its ftall.

Bedding, in fpeaking of a roe, is ufed by fportfmen, for the lodging of that beaft.

A roe is faid to *bed*, a hart to *harbour*, a fox to *kennel*.

BEDENEGIAN, in *Botany*, a name given by Avicenna and Serapion to the *fomen veneris*, or *teratophyllon*, a fort of leaf ufed in food by the Italians, and fome other nations, and feeming to be the third kind of the *gramen*, or *fcanum*, mentioned by Theophraftus. That author firft defcribes two kinds of this plant, the one of which occafioned fleepy diforders, and the other threw people who eat of it into paralytic fits. After thefe, which he properly accounts poifonous kinds, he mentions a third, which was cultivated in gardens, for the ufe of the ftalk, which, he fays, is large and efculent. This is certainly the fame with *bedenegian*, or *fomen aquatic*.

BEDOARA, in *Botany*, a name ufed by the Arabians, and fome other authors, for the white thorn.

BEDRIP, or BEDRETE, or BEDERARE, the ceftuary fervice which inferior tenants anciently paid their lords, by cutting down his corn, or doing other work in the field.

The word is formed from the Saxon *bedere*, *to pray*, and *rape*, *a rent*, or *out corn*.

BEDSTRAW, fee LADY'S *Bedftraw*.

BEE, in *Phyfiology* and *Hufbandry*, a winged, fcalloous inſect, bred from maggots or worms, that are *apous*, or without feet; remarkable for its ſkill and induſtry in collecting honey and wax from flowers, &c. and on that account frequently preſerved in gardens. In the linnæan ſyſtem, it is a genus of inſects belonging to the claſs of *hymenoptera*, and comprehending fifty-ſix different ſpecies. Beſide the common *honey-bee*, Mr. Ray reckons nine other ſpecies, which are found wild about the fields. To this ſpecies of *bees-bees* belong the common *working-bee*, the *drones*, and the *queen-bee*.

BEE, *age of*. The large drones live but a little while, being deſtroyed without mercy by the working bees, probably to ſave honey. But there is another ſort of drones, lately diſcovered, no larger than the working *bees*, and not eaſily to be diſtinguiſhed from them, the age of which has not yet been aſcertained. See DRONE.

Writers are not agreed as to the age of the honey-*bees*. Some maintain that they are annual, and others ſuppoſe that they live many years. Many of them, it is well known, die annually of hard labour; and though they may be preſerved by ſucceſſion in hives, or colonies, for ſeveral years, the moſt accurate obſervers are of opinion, that their age is but a year, or, at the longeſt, no more than two ſummers.

BEE, *anatomy and ſtructure of*. This inſect is divided by two ligaments into three principal parts; viz. the head, the breaſt, and the belly. The head is furniſhed with two eyes of an oblong figure, and black colour, which are guarded by a ſtarry tunicle, not eaſily penetrated. Between the eyes, near the middle of the head, are placed the *antennæ*, or pair of horns, which are the principal inſtruments of feeling, eſpecially in a dark hive. The jaws open on the right and left, and ſerve to carry out of the hives any thing that incommodes or offends them. Theſe are armed with teeth, which they make uſe of in their wars with each other, and the wounds of which are always mortal. The trunk, or tongue, is long and taper, and extremely pliant and flexible, adapted to the purpoſe of penetrating to the bottom of the flowers, and exhauſting them of their meliflurous ſaliva. This part is porous, and compoſed of circular fibres, ſo that it may be contracted and folded up, when it is not uſed; and it is likewiſe fortified againſt injury by four ſtrong ſcales, two of which ſheath it, and the other two, which are larger, encompaſs the whole. Leeuwenhoeck calls this

part the wiser, and Dr. Garden describes it under the name of the *hacker*, or *prickfoot*. Phil. Trans. N° 94, and N° 175.

The breast of the *bee* is of a cylindrical, or rather a spheroidical form; on each side of the breast there are two wings, and underneath six legs of unequal length, three on the right, and three on the left, the paws of which are furnished with small hooks, that may be seen with the microscope, whereby they fasten themselves together in living and swarming, and also with a spungy substance, which preserves their claws from injury. The belly of the *bee* is formed by six rings, which are capable of extension or contraction, as occasion requires, and within those joints they fix and carry their wax. The belly, beside the intestines, contains a bag or bladder, in which are lodged the juices collected from flowers, and out of which it is afterwards discharged, by the two canals which it is also watched and conveyed, into the cells of the honey-comb for winter supply. The sting of the *bee* is a very curious weapon, and, when examined by the microscope, appears of a very surprising structure. It has a horny sheath, or scabbard, which includes two bearded darts. That sheath ends in a sharp point, near the extremity of which a slit opens, through which, at the time of stinging, the two bearded darts are protruded beyond the end of the sheath; one of these is a little longer than the other, and fixes its barbed end, and the other instantly following, they penetrate alternately deeper and deeper, taking hold of the flesh with their beards or hooks, till the whole sting is buried in the flesh; and then a venomous juice is injected through the same sheath, from a little bag at the root of the sting, which occasions an acute pain, and a swelling of the part, that sometimes continues several days. But this is best prevented by forcing the wound directly to give it a discharge. Dr. Derham counted on the sting of a wasp eight beards on the side of each dart, some of which like the beards of fishhooks; and the same number are to be counted on the *darts* of the *bee* sting. Derham's Phys. Theol. p. 242. Ruler's Miscellan. Rem. p. 210.

When these beards are struck deep in the flesh, if the wounded person starts, or disimposes the *bee* before it can discharge them, the sting is left behind sticking in the wound; but if he hath patience to stand quiet, the *bee* will bring the hooks close to the sides of the darts, and withdraw the weapon; in which case, the wound is always much less painful. A wasp is not so liable to leave its sting in the wound as a *bee*; the beards of it being shorter, and the insect more vigorous and nimble in its operations. The *bee* is covered with a fine hair, smooth and shining like velvet.

BEES, *artificial bees of*. See HONEY-*comb*.

BEES, *blown of*. See HIVE.

BEES, *preservation of*. These insects begin to breed in the upper part of the hive, in the empty cells adjoining to those that are filled with honey; and they defend gradually from the lower parts, as the flowers which furnish them with the means of subsistence increase; and the brood is carried to the outermost part of the combs.

The queen-*bee* lays an egg, of an oblong figure, and larger at one end than the other, at the bottom of each cell; fixing it to one of the angles by its smaller end, whilst the other end points exactly to the opposite angle. Sometimes more than one egg has been deposited in the same cell; when this is the case, the working *bees* remove the supernumerary eggs, and leave only one in each cell. On the first or second day after the egg is lodged in the cell, the drone-*bee* injects a small quantity of whitish liquid, in which it may be absorbed by the egg. On the third or fourth day is produced a worm or maggot, which, when it is grown so as to touch the opposite angle, coils itself up in the shape of a serpentine, and floats in a proper liquid, whereby it is nourished and enlarged in its dimensions: this liquor is of a whitish colour, of the thickness of cream, and of an insipid taste like flour and water. Naturalists are not agreed as to the origin and qualities of this liquid; some have supposed, that it consists of some generative matter, injected by the honey-*bee* into each cell, in order to give fecundity to the egg; but the most probable opinion is, that it is the same with what some writers have called the *bee*-bread; and that it is a mixture of water with the juices of plants and flowers collected merely for the nutrition of the young, which they are in their weak and helpless state. Whatever be the nature of this aliment, it is certain that the common working *bees* are very industrious in supplying the worms with a sufficient quantity of it. The worm is fed by the working *bees* for about eight days, till one constructs, the other in the form of a ring; and when it begins to feel itself uneasy in its first posture, it ceases to eat, and begins to unroll itself, thrusting that end forward towards the mouth of the cell, which is to be the head. The attendant *bees*, observing these symptoms of approaching transformation, desist from their labours in carrying proper food, and employ themselves in fastening up the top of the cell with a lid of wax, formed in concentric circles, and by their natural heat in cherishing the brood, and hastening the birth. In this concealed state the worm extends itself at full length, and prepares a web of a sort of silk, in the manner of the silk-worm; this web forms a complete lining for the cell, and affords a convenient receptacle for the transformation of the worm into a nymph, or chrysalis. Some naturalists suppose, that, as each cell is destined to the successive breeding of several worms, the whole web, which is composed of many coats or doubles, is, in reality, a collection of as many webs as there have been worms. M. Maraldi apprehends, that this lining is formed of the skin of the worm thrown off at its entrance into the nymph state; but it is urged, that if the cells are opened when newly covered by the *bees*, the worm within will be found in its own form, and stretched in the act of spinning its web; and by means of glasses it will be found composed of fine threads, regularly woven together, like those of other spinning animals.

In the space of eighteen or twenty days the whole process of transformation is finished, and the *bee* endeavours to discharge itself from confinement by forcing an aperture with its teeth through the covering of the cell: the passage is gradually effected, so that one hour first appears, then the head, and afterwards the whole body: this is usually the work of three hours, and sometimes of half a day. The *bee*, after it has disengaged itself, stands on the surface of the comb, till it has acquired its natural complexion, and full maturity and strength, in order to become fit for labour. The cell of the *bee* farther round it in this state, easily distinguishes its birth, and odder it brown out of their own mouths. The coarser, and feculent pieces of wax which are left in the cell, are removed by the working *bees*; and the *matrix* is so sooner cleansed, and fit for new fecundation, but the queen deposits another egg in it; insomuch that, Mr. Maraldi says, he has seen five *bees* produced in the same cell, in the space of three months. The young *bees* are easily distinguished from the others by their colour; they are grey, inclined of the yellowish brown of the common *bees*. The reason of this is, that their body is black, and the hairs that grow upon it are white, from the mixture of which form together results a grey; but this colour forms itself into a brownish yellow by degrees, the rings of the body becoming more brown, and the hairs more yellow.

The *drones* owe their original to the same cause with the honey-*bees*; they are generated after the same manner, only in different cells designedly prepared for them in the drone-comb; of which there is one in each hive, often two, and sometimes three: the circumstances that attend the production of the *drones* are more peculiar. See DRONE and QUEEN-*bee*.

BEES, *government of*. See QUEEN-*bee*.

BEES, *hiving of*. See HIVE and HIVING.

BEES, *economy of*. Naturalists relate wonders on this subject. The moral virtues have been all, at one time or other, attributed to the *bees*; and they have been particularly celebrated for their prudence, industry, mutual affection, unity, loyalty to their sovereign, public spirit, sobriety, and cleanliness. The sagacity of *bees* in foreseeing rain has been often mentioned; but it is very questionable. Though some of the accounts that have been given of these insects are fabulous, yet intimate acquaintance with them in their domestic operations hath furnished many real facts that are as surprising as those which are groundless. It must not however be omitted, that in certain times, when they think their stores will fall short, they make no scruple to throw out of the hives their own offspring, the nymphs and young *bees* of the drone kind, scarce extricated from their covering, have been carried away, and left to perish. Though they are just in their own kingdom, and to those who may properly be called their fellow-subjects, they rob and plunder strangers and foreigners whenever they have power and opportunity; and they have frequent battles in committing depredations on neighbouring colonies and hives, or in self-defence, which end fatally to many of their number. But it should be observed that this never happens, unless in the spring or autumn, when the weather is warm, and honey scarce, and there are no flowers to produce it. In this case, when they have ranged the fields without success, they endeavour to supply themselves, at the hazard of their lives, from the flocks of other *bees*. However, if the queen of either hive that happens to be engaged is killed, the contest is finished, and both parties unite under the survivor.

The industry and activity of *bees* in their domestic labours afford a very instructive and amusing spectacle; all are busily engaged in their several departments; whilst some are employed in gathering honey in wax, others repair

rotten combs; others carry out the dead, and cleanse the filth: others keep guard, placing themselves in five or six files, eight or ten deep, upon the floor of the hive. So that all the bees at entrance must pass between them; some are even said to serve for bridges, or ladders, for others to pass over, and when they are tired with labour, they recruit themselves with reft. For this purpose they form *chaplets* or larger clusters in the following manner: each *bee*, with its two fore-legs, lays hold of the hinder legs of the *bee* that is next above it, and thus a chain is made by the successive application of one to another, and the firſt bee ſupports the weight of all the reſt to the bottom of the chain. The larger clusters are only a multiplicity of theſe chains, of which there are ſometimes many hundreds together. The *bees* never lay hold of any part of one another, except the legs. In this way they likewiſe guard themſelves from the effects of cold, and continue for ſeveral weeks in a torpid ſtate.

BEE, *preſervation of*. The preſervation of this induſtrious and uſeful inſect is an object of great importance; and it chiefly depends on ſupplying them with a ſufficient quantity of food, on guarding them from their enemies, and collecting the produce of their labour, without deſtroying them. Beſides the attention which ſhould be paid in the neceſſities of *bees*, in chuſing the ſituation of an APIARY, it may be neceſſary to feed them towards the cloſe of autumn, and again in the ſpring, if they appear to have conſumed their winter ſtock. This ſhould be done, eſpecially in cloudy miſty weather, when they go little abroad, and when ſeveral days of bad weather immediately follow their ſwarming. Mr. Thorley directs, that no hive ſhould be kept which does not weigh twenty pounds; and that the ſupply ſhould be given in quantities of honey, which is their proper food, not leſs than a pound and a half, or two pounds, at a time. The honey ſhould be firſt ſtirred with water, or ſmall beer, and then poured into an empty comb: a thoſe comb is the ſtrongeſt, and the beſt for the purpoſe; and for the evening, when the *bees* are quiet, the hive ſhould be gently raiſed on one ſide, and the comb put under it; the contents will be conveyed away the next day into the ſeveral magazines.

Reaumur recommends a plate of liquid honey, unmixed with water, ſeveral with ſtraws, and covered with a paper full of holes, through which the *bees* will ſuck the honey, without daubing themſelves. But care ſhould be taken that the hive be well guarded from robbers, whenever it is provided with a freſh ſupply. The winter-quarters of *bees* ſhould likewiſe be well ſecured both againſt the weather, and againſt other enemies that would annoy them. Mild winters, as well as ſevere cold, are injurious; for a mild winter tempts them to go abroad, and expoſes them to the fatal effects of ſudden changes, either of cold or rain. *Bees*, it has been remarked, are moſt likely to ſurvive in ſnowy winters, becauſe they are then in a torpid ſtate, and require little nourihment, provided the apiary be well ſecured from northerly and eaſterly winds; whereas a ſmall degree of warmth enlivens them, and they conſume their winter ſtock, and are left deſtitute in a cold, wet ſpring. When they are chilled, and apparently dying by cold, and the clutters of them are broken, ſo that they drop down in the hive, they may be recovered by a ſmall degree of heat. Varro and Columella adviſe hot aſhes to be laid about the hive, or ſprinkled over cluſters of *bees* which lie ſeemingly dead at the bottom. But a ſufficient warmth may be given them by putting them into a ſtrainer-cloth, and treading upon them, or by placing them in the fun-beam, and laying them before the fire. This precaution ſhould be uſed in time; otherwiſe, when their vitals are ſcorched, it is impoſſible to recover them. However it is much to be wiſhed, that a method could be found of preſerving all the hives from injury, without removing them out of the places where they ſtand during the ſummer. Reaumur made many attempts for this purpoſe. Some hives he covered over with ſtraw, by means of ſticks fixed round them, and reaching a few inches above the top; but the moſt ſucceſsful method was that of preſerving them in large tubs with earth or hay; contriving, at the ſame time, to convey air to them through a ſquare tube of wood, two inches in width and half an inch in depth, which paſſed through the ſide of the tub, and of ſuch a length as to reach the mouth of the hive, and to project three or four inches from the ſides of the tub. After all, the common ſtone covering, which is generally uſed in England, is ſufficient for the purpoſe.

There are other enemies, beſide hunger and cold, againſt which the proprietors of *bees* ſhould be cautioned. It has been obſerved already, that different colonies of *bees* ſometimes plunder each other; and theſe rovers make their attacks chiefly in ſpring and autumn. The moſt effectual way to guard againſt their incurſions is to leſſen the entrance into the hive, ſo as to leave room only for two or three *bees* to paſs abreaſt; or to ſtop up the hives that are attacked till the rovers diſappear; or if ſtrangers have gained admittance, the proper inhabitants of the hive may be roufed to ſelf-defence by diſturbing them with a bunch of ſtinking madder, faſtened to the end of a ſmall ſtick of a convenient length; thus their enemies will be roufed, and they will inſtantly fetze the robbers. This, indeed, is neceſſary, if the queen is loſt. However, if the hives that are attacked have but few *bees*, and little honey, it is better to take them than to ſtand a trial.

Hornets and waſps are alſo very formidable enemies; their neſts ſhould be carefully deſtroyed. Mice ſhould be guarded againſt, by diminiſhing the entrance into the hives as the cold comes on, ſo that the *bees* are leſs able to defend themſelves; and the hives may be placed in ſuch a manner, that it will be impoſſible for the mice to reach them. Spiders and caterpillars are very deſtructive to *bees*; a ſpecies of the latter, called the wax-worm, or wax-moth, becauſe it feeds on wax, lays its eggs in the hive, which turn to maggots that are very noiſome and prejudicial. Hives of *bees* that have ſwarmed more than once, and ſuch as contain little honey, are moſt expoſed to theſe inſects: for the empty combs ſerve them for ſhelter, and the wax ſupplies them with food. Theſe hives ſhould be cleaned at leaſt once a week; and the ſtools on which they reſt, where the moths are laid by the *bees*, ſhould be cleaned every morning. But they cannot be entirely deſtroyed, without taking away the infected hive, removing the *bees*, and cleanſing it of the moths, before it is reſtored to its former occupants. *Bees* are often troubled with lice, which may be deſtroyed by ſtrewing tobacco over them. The depredations of birds, and particularly of the houſe-ſwallow, ſwallow, ſhould be carefully prevented.

Theſe inſects are ſubject to a kind of purging in the ſpring, which is often very fatal. Madame Vieu, in the Memoires, &c. of the Berne Society for 1780, aſcribes this diſtemper to the honey which the colt has candied in the hive. Columella ſuppoſes that it was unuſual diſtemper, occaſioned by ſpring bloſſoms and elm ſeeds; and he adviſes giving them rainwater and honey, diluted with water. The moſt effectual cure is that preſcribed by Ariſtomachus, which is the removal of the infected combs, or of thoſe in which there are open cells containing candied honey. Others attribute this diſeaſe to their feeding on pure honey, and recommend their being fed with a honey-comb taken out of another hive, the cells of which are filled with crude wax, or *bee-bread*. Perhaps the true cauſe, and the effectual remedy of this diſeaſe are ſtill unknown.

For the method of preſerving *bees* in hives and hives, and of collecting the produce of their labours without deſtroying them, ſee HIVE, HONEY, and WAX.

BEES, *ſort of*. There are in every hive or colony three ſorts of *bees*, viz. the ſovereign or queen, the working or honey *bees*, and the drones. The working *bees* have generally been ſuppoſed to be neutral, or of neither ſex; but M. Schirach, in his Hiſtoire Naturelle de la Reine des Abeilles, &c. publiſhed in 1772, has advanced a new and ſingular opinion on this ſubject. He ſuppoſes that all the common, or honey-*bees*, are females in diſguiſe; in which the organs that diſtinguiſh the ſex, and particularly the *matrix*, are obliterated, or, at leaſt, through their extreme minuteneſs, they have not yet been obſerved: and that every one of theſe *bees*, in the earlier period of its exiſtence, was capable of becoming a queen-*bee*, had it been lodged and fed, and brought up, when in the worm-ſtate, with that deſign. He adduces a great variety of experiments in confirmation of this hypotheſis; in one inſtance two ſpoonfuls of common *bees* were ſhut up in a ſmall box, four inches ſquare, with a piece of brood-comb of the ſize of a crown piece, containing worms of three days. This ſmall colony, upon examining it four days afterwards, had completed two royal cells, which was a certain indication that one or more queens was to be produced. He likewiſe challenges any perſons to chooſe a piece of the common brood-comb, as ſmall as they pleaſe, and to deſtroy all the eggs, worms, and nymphs, contained in it, reſerving only one worm of their own choice, and leaving it in its cell, and he undertakes by the aſſiſtance of the working *bees*, to produce this worm metamorphoſed into a queen-*bee*. M. Schirach has more than once fulfilled his engagement. M. Bonnet, the celebrated naturaliſt of Geneva, was profelyted to this opinion.

The drones have been ſuppoſed by many to be the males; and later experiments and diſcoveries have confirmed this opinion. See DRONES and QUEEN-*bee*.

There is in ſome parts of America a very different ſpecies of *bees* from ours; and the manner of erecting their combs, and lodging their honey, is not leſs different than their form. Their combs are compoſed of a ſeries of

small bottles or bladders of wax, of a dusky brown, or blackish colour; and each of these is much of the size and shape of a Spanish olive. They hang together in clusters, almost like a bunch of grapes, and are so contrived, that each of them has its aperture, while the *bees* are at work upon it; but as soon as it is filled with honey, this aperture is closed, and the *bee* leave it, and go to work upon another vessel. Their lodgings are usually taken up in the hollow of an old tree, or in some cavity of a rock by the sea side. They are ingenious in chusing the most secure retreats, because their honey is so delicious a bait, that they are hunted after by many animals; and they have no power of defending themselves, having no stings, as our *bees* have. The combs are brittle; and the honey is clear and liquid like rock-water. It is used by the natives rather as a drink with their food, than as honey. They use it also in medicine as a purge, drinking half a pint of it in the morning, fasting. Phil. Transf. N° 172.

Mr. Dudley speaks of a method of hunting *bees*, for finding their nests, practised of late years in the woods in New England. It consists in catching a *bee*, then letting it fly, and observing the way it steers; this shews the hunter the course or bearing of the nest. To find the distance, he takes an object of a hundred perches, and lets fly another *bee*, belonging to the same nest; the angle or point wherein these two courses intersect, is the place of the nest. Phil. Transf. N° 376; or Abr. vol. vii. part iii. p. 403.

BEES, *swarming of.* See SWARM.

BEES, *writers on.* Many authors have written on *bees*. Among the ancients, Aristomachus is said to have studied them sixty years; Philiscus retired into a desert wood, that he might have the opportunity of observing them to better advantage. Aristotle made a great number of curious observations on this insect, which Virgil has put into Latin verse: they have been enlarged and confirmed by Pliny and others. Theophrastus has a fragment still extant, *Περι μελιτων, concerning bees*; or as entitled in Laertius, *Περι μελιττης, of honey*.

Among the moderns, prince Frederic Cesi, institutor of the Roman Academy of Sciences, wrote expressly on *bees*; but it is not known what became of the MS. no more than of that promised by Swammerdam on the anatomy of the *bee*, the want of which has been much regretted among the French.

Maraldi, and Reaumur in his hist. Insects have largely treated of *bees*.

Among the English, Butler, Gurnay, Mills, Levett, Thorley, Southern, Remnant, Hartlib, Rusden, Warder, White, Wildman, and others, have discourses expressly on *bees*. Phil. Transf. N° 257. p. 365.

BEE, in *Heraldry*; see APIS.

BEE is also used figuratively to denote sweetness, industry, &c. Thus Xenophon is called the Attic *bee*, on account of the great sweetness of his style. Antonius got the denomination *mellifluus*, or *bee*, on account of his collection of common places.

Leo Allatius gave the appellation *apes urbanæ* to the illustrious men at Rome from the year 1630 to the year 1632.

BEE-*bird.* See COLIBRI.

BEE-*bread.* See HIVE.

BEES-*bread.* See PAIN *d'Abeilles*.

BEE-*eater*, in *Zoology.* See APIVORUS *buto*.

BEE-*flower*, OPHRYS. See TWYBLADE.

BEE-*fly.* See DRONE-*fly*.

BEE-*glue*, a *soft*, unctuous matter, employed by *bees* to cement the combs to the HIVES, and to close up the cells.

BEE-*hive.* See HIVE.

BEE, *humble.* See BOMBYLIUS.

BEECH-*tree*, *Fagus*, in *Botany*, a tree of the mast-bearing kind, the characters of which are these. It hath male and female flowers on the same tree; the male flowers are collected into globular heads, and have no petals, but have several stamina included in an empalement of one leaf. The female flowers have a one-leaved empalement, cut into four parts, but have no petals; the germen is fixed to the empalement, which afterwards becomes a roundish capsule, armed with soft pines, opening in three cells, each containing a triangular nut. This genus belongs to the *monœcia polyandria* class of plants in the Linnæan system, and comprehends the common CHESTNUT-*tree.* See *Tab.* X. *of Botany Class* 19.

This tree will grow to a considerable stature, though the soil be stony and barren; as also upon the declivities of hills, and chalky mountains, where it will resist the winds better than most other sorts of trees: but then the nurseries for the young plants ought to be made on the same soil. For if they are raised in a good ground, and a warm exposure, and afterwards transplanted into a bleak and barren situation, they seldom thrive, which holds true in most other trees. The nursery therefore ought to be made upon the same soil with the intended plantation; and the plants annually drawn, that the plantation may be extended.

These trees are very proper to form large hedges to surround plantations, or wilderness quarters; and may be kept to a regular figure, if cut once a year, especially if they shoot strong; in which case, if they are neglected for a season or two, it will be difficult to reduce them again. The shade of this tree is very injurious to most sorts of plants which grow near it; but is generally believed to be very salubrious to human bodies.

Beech-wood is whitish, hard, and dry. It crackles in the fire, and is used in building and furniture; also to make utensils, as shovels, ladles, bellows, stools, shoes, dishes, trays, trenchers, dresser-boards, follies of carts, &c.

If *beech*-timber be kept altogether under water, it is little inferior to elm; but if kept dry, or partly wet, partly dry, it is liable to the worm.

That of the mountain-*beech* is whitest, and most fit for the turner's use; that of the field-*beech* is blacker, but more durable. In turning *beech*, it yields a well-scented effluvia, not unlike roses.

The scale of *beech* wood serves to make scabbards and hand boxes. The bark is used as floats for fishers nets, instead of cork. Its shavings are of use for fining wine.

Its ashes, according to Cenforinus, with proper mixtures, are excellent to make glass.

Its leaves, gathered about the fall, before they are much frost-bitten, afford the best materials to lay under quilts, instead of straw, as being very soft, and continuing sweet for seven years. When chewed, they are held good for the gums and teeth.

The stagnant water gathered on the hollow of the *beech*-tree, is said to cure tetter-scabs and scurfs in man and beast, by fomentation.

BEECH-*gall*, in *Natural History*, the name of a species of GALLS or protuberances found on the *beech*-tree, and serving for the lodgment of insects.

These galls are found on the leaves of the *beech*, and are sometimes only one upon a leaf, sometimes more: they always grow from the same point, owing, no doubt, to the fly's having laid so many eggs in the same spot.

These galls are of an oblong figure, and somewhat flatted. They resemble the stone of a plum in shape, and are so hard, that they are not to be broken between the fingers: their substance seems of the same nature with that of a nut-shell. In each gall there is only one cavity, inhabited by a white worm, which in time passes through the nymph state into that of the fly, to which it owed its origin.

BEECH-*mast*, the fruit of the *beech*-tree. It fattens hogs and deer, and has sometimes supplied men instead of bread. Chios is said to have endured a memorable siege by means of it.

BEECH-*oil*, an oil drawn from the fruit, or mast, of the *beech*-tree.

The *beech*-*mast* is a kind of triangular *seed*, in form of a nut, or rather acorn, containing a whitish, oleaginous pith, of a very agreeable taste; whereof is made an oil much valued for falladay, &c.

It is very common in Picardy, and other places, where the mast abounds. They draw it cold by expression, after the mast has been shelled, and pounded.

An attempt was made, a few years ago, to introduce the manufacture of *beech*-oil in England, and a patent granted to the proprietor, but without success; the country people, it seems, turning their mast to better account in feeding the hogs with it, than in selling to the patentee, and his co-proprietors, for oil.

BEELE, in *Mining*, an instrument used by the workmen to break and pick out the ore from the rocks in which it lies. This instrument is called by the tin men in Cornwall a *tobber*. It is an iron instrument of eight or ten pounds weight, made sharp, and steeled on both ends, and having a hole in the middle, where the handle is fixed in. When the ore lies in hard rocks, this instrument wears out so fast, that it must have new points made to it every fortnight. The miners, who dig up the ore in the mines, are, from the use of this instrument, called *beele*-men; and those who attend them, and whose business it is to take up the matter the others loosen or break up, are, from their instrument, which is a broad and hollow iron shovel, or a wooden one, with a very strong iron lip, called the *shovellers*. In Cornwall, when the ore lies in a hard bed, they allow two shovellers to three *beele*-men; and when it lies in a soft or earthy matter, two *beele*-men and three shovellers are the proportion. Phil. Transf. N° 69. p. 2104.

BEEMEN, or SHEEMEN, in *Astronomy*, seven stars of the fourth magnitude, following each other, in the fourth departure of the constellation ERIDANUS.

BEER,

BEER, a popular drink, prepared from MALT and HOPS. The word is Saxon, formed from the German *bier*, of the Latin *bibere*.

Matthiolus takes the *zythum* and *cervisa* of the ancients to be the same with the *beer* and ALE of our days; and thinks the only difference between *zythum* and *cervisa* to have consisted in some circumstances of the preparation, which rendered the one stronger than the other.

Tacitus, in speaking of the ancient Germans, as also Dioscorides, Galen, &c. condemn *beer*, as prejudicial to the head, nerves, and membranous parts, as occasioning a more lasting and more uneasy drunkenness than wine, and as promoting a putrefaction of urine, and sometimes a leprosy.

Mess. Perrault, Rohault, and others, defend the modern *beer*; urging, that the hops used with us, and which the ancients were strangers to, having a faculty of purifying the blood, and removing obstructions, serve as a corrective, and free our drink from the inconveniencies objected to that of the ancients.

For the manner of preparing *beer*, see HOPS, and BREWING. For its qualities, MALT-LIQUOR.

In New England they make *beer* from maize, or even the bread made thereof. Some physicians recommend *beer* made of nuts and birch-water, as preferable, in nephritic cases, to that made of barley. Phil. Trans. N° 97. p. 6135. N° 138.

Sour or decayed *beer* may be restored divers ways; as by salt made of the ashes of barley-straw, put into the vessel, and stirred; or by three or four handfuls of beech-ashes thrown into the vessel, and stirred: or, where the liquor is not very sour, by a little put in a bag, without stirring; chalk calcined, oyster-shells, egg-shells burnt, sea shells, crabs eyes, alcalized coral, &c. do the same, as they imbibe the acidity, and unite with it into a sweetness.

Beer, it is said, may be kept from turning sour in summer, by hanging into the vessel a bag containing a new-laid egg, pricked full of little pin-holes, some laurel-berries, and a few barley-grains; or by a new-laid egg and walnut-tree leaves. Laurel berries alone, their skin being peeled off, will keep *beer* from deadness; and the throwing FIXT AIR into it will restore it. Glauber commends his sal mirabile and fixed nitre, put in a linen bag, and hung on the top of the cask, so as to reach the liquor, not only for recovering four *beer*, but preserving and strengthening it.

Beer falling of the cask, may be freed from it, by putting a handful of wheat in a bag, and hanging it to the vessel. The grounds of *beer* form a very rich manure.

Beer, as a malt liquor, is of so great antiquity in this kingdom, that in the year 1292, we meet with a licence from Henry VII. to a Fleming, to export fifty tons of ale, called *beer*.

BEER-*posset*. See ZYTHOGALA.

BEER, *sager*, is used by callico-printers, chemists, lapidaries, scarlet-dyers, vinegar-merchants, white-lead-men, &c.

BEER-*measure*. See MEASURE.

BEER-*vinegar*. See VINEGAR.

BEES-WAX. See WAX.

BEESTINGS, or BREASTINGS, denote the first milk taken from a cow after calving.

The *beestings* are of a thick consistence, and yellow colour, seemingly impregnated with sulphur. Dr. Morgan imagines them peculiarly fitted and intended by nature to cleanse the young animal from the excrements gathered in its stomach and intestines during its long hibernation in *utero*. The like quality and virtue he supposes in women's first milk after delivery; and hence infers the necessity of the mother's suckling her own child, rather than committing it to a nurse whose first milk is gone.

BEET, BETA, in *Botany*, the name of a genus of plants of the *pentandria digynia* class, of which the characters are these: the flower hath a five-leaved empalement, which is permanent, but no petal, and five stamina placed oppolite to the leaves of the empalement; the germen is situated below the receptacle, which afterward becomes a capsule with one cell, having a single seed wrapped up in the empalement. There are three species.

All the species of this plant are propagated by sowing their seeds in February or March in a loose deep soil, not over dunged. When they are come up they must be hoed out, so as to leave them ten or twelve inches asunder: for, if they have not room, the roots seldom grow large. It is a custom with the gardeners about London to sow carrots on the same ground with their *beets*. The carrots are drawn off in the summer time, and the *beets* have then sufficient time to grow to their size. *Beets* are more used as a pot herb, and to eat with salt meat, than physically. They loosen the belly, and attemperate hot colic humours. The juice of the roots is sometimes used as an errhine, being snuffed up the nose to clear the head of phlegm, and mucous humours; and by that means to help old head-achs.

The *beet* is one of the five emollient herbs.

BEET, *bore's*, *beta leporina*, a name given by some of the old Latin writers to a small green plant of an acrid taste.

BEET-*fly*, a very small fly, found always among the flowers of the *beet*.

BEET-*yellow-spot*. See GALL-*insect*.

BEETLE, in *Zoology*. See SCARABÆUS.

BEETLE, *Capricorn*, in *Zoology*, the English name for the CERAMBYX. The generical character of these insects are these: they have long and slender bodies; their horns are long and jointed; and they are fond of places in the neighbourhood of rivers. There are six different species of this insect described by Lister, in his treatise De Scarabæis, published at the end of Mr. Ray's History of Insects.

BEETLE, *oil*, *Meloe*, in *Zoology*, the name of a genus of four-winged flies, whose *antennæ* are slender and filiform; and the exterior wings are dimidiated. It is called in English the *oil-beetle*, as being soft and mucous to the touch. It is black, but not at all glossy, and has been described by authors under the names *scarabæus mollis*, *cantharus mollipes*, and *proscarabæus*. See SCARABÆUS.

BEETLE, *flinting*, *Tenebrio*, in *Zoology*, the name of a genus of beetles, the *antennæ* of which are oblong, slender, and filiform.

It has no interior wings, in which singular deficiency it differs widely from all other beetles; but the form and structure of all its other parts refer it to this class. See SCARABÆUS.

Mouffet has called it the *blatta fœtida*. There are several species of it.

BEETLE, *water*, *Dytiscus*, in *Zoology*, the name of a genus of four-winged flies, the *antennæ* of which are slender and setaceous. They have likewise feet formed for swimming, and their habitation is generally in the water, whence they have been called in English, *water-beetles*.

BEETLE, in a mechanical sense, denotes a large wooden instrument, formed after the manner of the mallet, having each face bound with a strong iron hoop, to keep it from spreading, and used for driving piles, flakes, palisades, wedges, and the like.

In this sense, the word is also corrupply written in some places *beyle*. Skinner derives it from the English *beating*.

For the military use, *beetles*, called also *stampers*, are thick round pieces of wood, a foot and a half long, and eight or ten inches in diameter, having a handle of about four feet long. Their use is for beating or ramming the earth of a parapet, or about pallisades; which is done by lifting up the *beetle* a foot or two, and letting it fall with its own weight.

The name *beetle* is also given to the pavious's rammer, or instrument, wherewith the stones are beaten down, and fastened.

BEEVES, a general name for oxen.

BEG, or BEY, is a Turkish title, properly signifying *lord*. The word is also written *begh*, *or beig*, sometimes *bee*, or *bei*, or *beh*; but pronounced BEY.

BEGS, or BEGHS, of Egypt, denote twelve generals, who have the command of the militia, or standing forces of the kingdom, and are to secure the country from the insults of Arabs, as well as to protect the pilgrims in their annual expeditions to Mecca.

The *begs*, several of whom are descended from the ancient race of the Mamalukes, are very rich and powerful, maintaining each five hundred fighting men for their own guard, and the service of their court. On discontents, they have frequently risen in rebellion. They are often at variance with the *bashaw*, whom they have more than once plundered and impriloned.

BEGGAR. *Beggars* pretending to be blind, lame, &c. found begging in the streets, are to be removed by the constables; and refusing to be removed, shall be whipped, &c. Stat. 12 Anne; and our statutes have formerly been strict for punishing of *beggars*, that in the reign of king Henry VIII. a law was enacted, that sturdy *beggars* convicted of a second offence, should be executed as felons. But this statute was afterwards repealed. See ROGUE and VAGABOND.

BEGGING *order*. See MENDICANT.

BEGHARDI, BEGGARDI, or BEGGHARDI, called also in Italy *bizochi*, and in France *beguins*, derive their name from the old German word *beggen*, *beggen*, which signifies to *ask any thing with zeal and importunity*. This was a general appellation given to no less than thirty sects, or orders, that sprung up in Europe in the thirteenth century, which differed widely from each other in their opinions, their discipline, and manner of living. It was at first indiscriminately applied to all persons, who embraced, with resignation and free choice, the horrors of absolute poverty; begging their daily bread from door

to

to door, and renouncing all their worldly possessions and occupations. It was afterwards restricted to those, who distinguished themselves by an extraordinary appearance of devotion, and was used much in the same sense with the term *Methodist* among us. These persons formed a sort of intermediate order between the monks and citizens, resembling the former in their manner of living, without assuming their name, or contracting their obligations. They were divided into two classes, which observed their different denominations of *perfect* and *imperfect* from the different degrees of authority that they discovered in their manner of living. The *perfect* lived upon alms, obtained from wedlock, and had no fixed habitations. The *imperfect* conformed in the customs of the rest of their fellow citizens in their respects. The name was at first honourable, but by degrees it sunk into reproach; being adopted by many, who, under the mask of religion, concealed the most abominable principles, and committed the most enormous crimes.

The *beghards* of Flanders is a denomination, by which certain unmarried persons, both bachelors and widowers, are distinguished, who formed themselves into communities of the same kind with those of the female *beguines*, reserving to themselves the liberty of returning to their former method of life. The first society of these *beghards* was established at Antwerp in the year 1228, and continues still; though the brethren of which it is composed have long since departed from their primitive rule of discipline and manners. This first establishment was succeeded by many others in Germany, France, Holland, and Flanders. These fraternities long enjoyed the tolerance of the Roman pontifs; but most of their convents are now either demolished, or converted to other uses. See BRETHREN *of the Free Spirit*. Mosheim's Eccl. Hist. vol. iii. p. 25. 8vo. 1758.

BEGINNING *of an office*. See ECLIPSE.

BEGINNING *of the action*. See ACTION.

BEGLERBEG, a Turkish title for the chief governor of a province, who has under him several *begs*, or *sangiacs*, that is, subgovernors.

The word is also written *beglerbey*, *beglerbeg*, *beghlerbeghi*, and *beglerbeg*.—It is compounded of *begler*, *lords*; the plural of *beg*, *lord*, with the word *beg* subjoined; importing as much as *lord of lords*.

The next to the visir *azem*, or the first viziers, are the *beglerbegs* in Turky, who, according to Ricaut, may be compared to archdukes in some other countries, being the next immediate below the prime vizier, and having under their jurisdiction many *sangiacs* of provinces, and their *begs*, *agas*, &c.

To every *beglerbeg* the grand signior gives three ensigns or flowers, trimmed with a horse-tail, to distinguish them from the bashaws, who have but two, and from simple *begs*, or *sangiacbegs*, who have but one.

The province or government of a *beglerbeg* is called *beglerbeglick*, or *beglerbeglik*. These are of two sorts; the first called *beglerbeglik-ziamet*, which have a certain rent assigned out of the rents, rewenues, and signories allotted to the principality; the second called *timiots beglerbeglik*, for maintenance of which is reserved a certain salary or rent, collected by the grand signior's officers with the treasure of the empire.

The *beglerbegs* of the first sort are in number twenty-two, viz. those of Anatolia, Caramania, Diarbekir, Damascus, Aleppo, Tripoli, Trebizond, Buda, Temiswar, &c.

The *beglerbegs* of the second sort are in number six, viz. those of Cairo, Babylon, &c.

Five of the *beglerbegs* have the titles of viziers, viz. those of Anatolia, Babylon, Cairo, Romania, and Buda.

The *beglerbegs* appear with great state, and a large retinue, especially in the coup, being obliged to bring a tribute for every five thousand aspers rent which they enjoy.

The *beglerbegs* of Romania brought ten thousand effective men into the field.

BEGLERBEGO is also a title given to the chief governors of provinces, in the Persian empire, having the command over all kans, sultans, &c. in their respective districts.

BEGONIA, in *Botany*, the name of a genus of plants of the *polygamia monoecia* class; the characters of which are these: the flowers are of two kinds; the one kind is the barren, or male flower; this is composed of four leaves, some broader, and others narrower; the other kind, which produces the embryo-fruit, is of the roseaceous sort, and is composed of several petals, arranged in a circular form, and placed on a foliated cup, which finally becomes a trigonal aluted fruit, divided into three cells, and containing small seeds. There is one species.

BEGUINS, devout societies of young women, established in several parts of Flanders, Picardy, and Lorrain; who maintained themselves by the work of their own hands; leading a middle kind of life, between the secular and religious, but make no vows. The poor and distressed were supported by the pious liberality of such opulent persons as were friends to the order.

These societies began at Nivelle, in Brabant, A. D. 1226, though others say in the year 1207, and soon spread into France, Germany, Holland, and Flanders, where a considerable number of them still subsist. Their habit was particular, but modest; they lived in common, and had men of great piety for their governors.

BEHEADING, a capital punishment, wherein the head is severed from the body by the stroke of an ax, sword, or other cutting instrument.

Beheading was a military punishment among the Romans, known by the name of *decollatio*. Among them the head was laid on a *cippus* or block, placed in a pit dug for the purpose; in the army, without the *vallum*; in the city without the walls; or a place near the *porta Esquilina*. Preparatory to the stroke, the criminal was tied to a stake, and whipped with rods. In the early ages the blow was given with an ax; but in after-times with a sword, which was thought the more reputable manner of dying. The execution was but clumsily performed in the first times; but afterwards they grew more expert, and took the head off clean, with one circular stroke.

In England and France, *beheading* is the punishment of nobles; being reputed not to derogate from nativity, as hanging does.

In Scotland they do not behead with an ax, as in England; nor with a sword, as in Holland and France; but with an edged instrument called the MAIDEN.

BEHMISTS, BOHMENISTS, or BOHMISTS, a kind of mystic philosophers and followers of Jacob Behmen, commonly called the Teutonic Philosopher.

The *Behmenists* are attached to that motley species of philosophy first introduced by Paracelsus, under the name of THEOSOPHIA.

Behmen, or Bohmen, from whom the sect takes its denomination, was born in 1575 near Gorlitz, and bred up to the trade of a shoemaker, or taylor, having just learned enough to read and write a little, which he acquired in ten years of age. He derived the greatest part of his mystical doctrine from the writings of Robert Fludd, a native of England. Wood's Athenæ Oxonienses, v. i. p. 610.

In 1600 he was seized with a spiritual rapture, and ten years after began to compose a book on the light he then received, entitled Aurora, being a mixture of *astrology*, *philosophy*, *chemistry*, and *divinity*, written in a quaint obscure style; seven years after he wrote divers others on the same models; the chief is the *Mysterium Magnum*. He died in 1624. All his works have been published together at Amsterdam in 1682, 8vo. His tenets are, that there is a great darkness among the stars, where the devil holds his principality; that all arts and sciences flow from the liberal spirit of this world; that the seven liberal arts proceeded from seven spirits of nature; that all human things are composed of the four first properties, bitter, sour, heat, and pain. (Angore).

Quistius, Kuhlman, Abr. Frackenberg, and Dunermann, are the most eminent ranked among the *Behmenists*. Mr. William Law, an English visionary, was an industrious and zealous disciple of Behmen; and he prepared a new edition and translation of his works, which have been published in two vols. 8vo. since his decease.

Gilbert Ichtelshius, and Antagonius, were great opposers of *Behmenism*.

Dr. Henry More has also a piece against *Behmenism*, Censura Philosophiæ Tentonicæ, printed in his works p. 330.

BEHEMOTH, a huge animal mentioned in scripture, concerning which interpreters are much divided.

BEHEN. See BEN.

BEHENIAN *Stellæ*, a name given by some astronomers to the principal fixed stars in each constellation.

The appellation is more particularly given to the stars of the first magnitude, otherwise called the *honors*, *cardia*, of the several constellations; though some would distinguish between *cardia*, and *behenian stellæ*, restraining the former to stars only of the first magnitude, and extending the latter to several of the second, or even third.

Hermes has a treatise expres De Stellis Beheniis, published by Junctinus, in his Speculum Astrologicum, and also in his Commentaries upon Jo. de Sacrobusco's book De Sphæra.

BEIDELSAR, in *Botany*, a name by which some authors call the Syrian DOG'S-*bane*, or *apocynum Syriacum*, a poisonous plant.

BEISSKER, in *Ichthyology*, a name given by Gesner and others to the fish commonly called *mustela fluviatilis*: this is a species of the COBITIS, distinguished by Artedi by the name of the bluish COBITIS, with nine black longitudinal lines on each side. Schoenefeldt calls this the *fascia*, and Johnston the *fasciis fluviis*.

BEIZA, or BEZIATH, a Hebrew word, fignifying an *egg*, in Jewiſh *Antiquity*, a certain meaſure in uſe among the Jews: they ſay that the *homa* contains the ſixth part of a *log*. The *homa* is alſo a ſort of gold coin common among the Perſians: it weighs forty *drachmas*, and from this word, not from the city Byzantium, the *bezant* was formed. A *bezant* is worth two *almars*, and every *almar* twenty of ſtone and twenty *drachmas*.

BEKKERANISM, or BEKKERIANISM, the ſyſtem or ſentiments of Balth. Bekker, who denied that ſpirits can act or operate on bodies.

The author of this ſyſtem was a Dutch divine, towards the cloſe of the ſeventeenth century, ſtrongly impreſſed with the Carteſian principle, that the eſſence of ſpirit conſiſts in thinking; hence he was led to conclude, that ſpirits cannot act, either on bodies, or on other ſpirits; and therefore he underſtood the declarations of Scripture concerning the operations of ſpirits, in a metaphorical ſenſe. He attributed the poſſeſſions recorded in the Goſpel to bodily diſeaſes, or mental diſorders. Budd. Elem. Phil. Theor. p. 5. cap. 2. § 1—12. See DEMONIAC.

BEL, in *Botany*, the name of a plant called by ſome the *cucumis ſepparis*, or *anguria*, or *cucumis anguinus*. This plant is very imperfectly deſcribed to us: and we find among the Arabian writers, that the fruit was called by this name as well as the whole plant. Avicenna, who gives the fulleſt account we have of it, ſays that it was an Indian plant, reſembling in growth the common cucumber-plant, but bearing a fruit like the capers: he tells us that this fruit was the only part of the plant uſed in medicine, and that it was very hot and bitter, being ſomewhat like ginger in the fiery heat of the taſte, and in qualities hot and dry in the ſecond degree, as they expreſſed it; or, according to Dioſcorides, in the third.

BELATUCADRUS, the name of an ancient Britiſh idol, recorded in old inſcriptions; and ſuppoſed by Selden and Vollius, to be the ſame with BELENUS.

BELAY, on board a ſhip, ſignifies the ſame as *faſten*. Thus they ſay, *belay* the ſheet, or rack, that is, faſten it to the keel, by winding it ſeveral times round a bolt, &c.

BELCHING. See RUCTATION.

BELEMNITES, or BELEMNITE, in *Natural Hiſtory*, a kind of figured *ſtone*, uſually hollow, and a little tranſparent, ſhaped ſomewhat like an arrow, formed of ſmall *ſtriæ*, or threads, radiating from the axis to the ſurface of the ſtone; and which when burnt, or rubbed againſt another, or ſcraped with a knife, yields an odour like raſped horn. See its figure repreſented in *Tab.* III. *of Foſſils, Claſs* 10. The word is formed from the Greek βελεμνον, *a dart*. The *belemnites* in other wiſe denominated *dactyloi*, or *dactylus idæus*, on account of its bearing a reſemblance to the figure of a finger; by the ancients, *lomentus lapis*, or *lapis lyncis*, as being ſuppoſed to be generated of the urine of the *lynx*.

Among us, popularly, it is called the thunderbelt, or thunder-ſtone, as having been ſuppoſed to fall in time of thunder. Dr. Woodward, and a great many other authors, ſuppoſe the *belemnites* to be a native foſſil in its own proper figure; but it is more probably ſuppoſed by others to owe its preſent form to ſome animal body: and to be, like the other formed ſtones, the *echinites*, &c. a ſubſtance caſt in a mould. Phil. Tr. vol. xlviii. art. 97. and vol. liv. art. 5. The general diſtribution of the *belemnites* is into three kinds; viz. the cylindric, conic, and fuſiform, of which the latter are moſt rare.

The *belemnites* are all of an alcalious nature, making a ſtrong efferveſcence with acids. Hence alſo they become abſorbent and reſolvent, and, on theſe accounts, are ranked by phyſicians among aplenephritic medicines.

The German writers ſpeak much of the virtue of this foſſil, and it is kept in their ſhops, and ſometimes enters into extemporaneous preſcription. They give it in caſes of the gravel, and all nephritic complaints; and ſay, that it has great virtues againſt the ſtone. With us it is not uſed at all, except among farriers; but, in all probability, it will anſwer the purpoſe of lyme in any other form; and lyme has at all times been celebrated for its virtues as a lithontriptic, whether given under the form of the LAPIS JUDAICUS, or that of the OSTRACITES, or, finally, as diſſolved in the water of certain ſprings, which form incruſtations on things that fall into them.

BELENNUS, in *Ichthyology*, the name of a ſmall anguilliform fiſh, called by others BLENNIUS. It is a ſea-fiſh, and very ſcarce. It approaches much in figure to the Engliſh bull-head, or miller's thumb, the COTTUS of authors.

BELENUS, in *Mythology*, a name which the Gauls gave to the ſun, which they alſo called *Abellio*; and, as ſome ſuppoſe, the ſame with the *Baal* of Scripture, and the *Belus* of the Aſſyrians.

BELFRY, BELFREDUS, is uſed by military writers of the middle age for a ſort of tower, erected by beſiegers to overlook and command the place beſieged.

They were alſo called *berfredi*, *berfredi*, *verfredi*, and *belfragia*. Their ſtructure and uſe are deſcribed in verſe by a poet of thoſe days.

Belfrey originally denoted a high tower, wherein centinels were placed to watch the avenues of a place, and prevent ſurpriſe from parties of the enemies, or to give notice of fires by ringing a bell. Du-Cange.

In the cities of Flanders, where there is no *belfrey* on purpoſe, the tower of the chief church ſerves the ſame end. The word *belfry* is compounded of the Teutonic *belf* and *freid*, *peace*, becauſe the bells were hung for preſerving the peace.

BELFRY is alſo uſed for that part of a ſteeple wherein the bells are hung.

This is ſometimes called by middle-age writers *campanile*, *clocarium*, and *triſtegum*. Du-Cange.

BELFRY is more particularly uſed for the timber-work, which ſuſtains the bells in a ſteeple; or that wooden ſtructure, in which the bells in church-ſteeples are faſtened.

BELIDES, in *Antiquity*. See DANAIDES.

BELIEF, in its general and natural ſenſe, denotes a perſuaſion, or a ſtrong aſſent of the mind to the truth of any propoſition.

In which ſenſe, *belief* has no relation to any particular kind of means or arguments, but may be produced by any means whatever. Thus we are ſaid to *believe* our ſenſes, to *believe* our reaſon, to *believe* a witneſs, &c. And hence, in rhetoric, all ſorts of proofs, from whatever topics deduced, are called *fides*, becauſe apt to get *belief*, or perſuaſion, touching the matter in hand.

BELIEF, in its more reſtrained and technical ſenſe, invented by the ſchoolmen, denotes that kind of aſſent which is grounded only on the authority, or teſtimony, of ſome perſon or perſons, aſſerting or atteſting the truth of any matter propoſed.

In this ſenſe, *belief* ſtands oppoſed to knowledge and ſcience. We do not ſay we *believe* that ſnow is white, or that the whole is equal to its parts; but we *ſee* and *know* them to be ſo: that the three angles of a triangle are equal to two right angles, or that all motion is naturally rectilinear, are not ſaid to be things *credible*, but *ſcientifical*; and the comprehenſion of ſuch truths is not *belief*, but *ſcience*.

But, when a thing propounded to us is neither apparent to our ſenſe, nor evident to our underſtanding; neither certainly to be collected from any clear and neceſſary connexion with the cauſe from which it proceeds, nor with the effects which it naturally produces; nor is taken up upon any real arguments, or reaſon thereof to other acknowledged truths; and yet, notwithſtanding, appears as true, not by a manifeſtation, but by an atteſtation of the truth, and moves us to aſſent, not of itſelf, but in virtue of a teſtimony given to it—this is full to be properly *credible*; and an aſſent to this is the proper notion of *belief* or FAITH.

BELIEVERS, an appellation given towards the cloſe of the firſt century, to thoſe Chriſtians who had been admitted into the church by baptiſm, and inſtructed in all the myſteries of religion: they had alſo acceſs to all the parts of divine worſhip, and were authoriſed to vote in the eccleſiaſtical aſſemblies. They were thus called in contradiſtinction to the *catechumens*, who had not been baptized, and were debarred from theſe privileges.

BELINGELA in *Botany*, a name given by ſome authors to the *mala inſana*, or *mad apples*. See MAD-*apple*.

BELL, a popular machine, ranked by muſicians among the number of muſical inſtruments of percuſſion. See MUSIC. The parts of a *bell* are the body or barrel, the *clapper* within ſide, and the ear or *cannon*, whereby it is hung to a large beam of wood. Its uſual matter is a kind of compound metal, called *bell-metal*. The thickneſs of its edges is uſually $\frac{1}{9}$ of the diameter, and its height twelve times its thickneſs. The *bell* founders have a diviſion, or *bell*-ſcale, wherewith they meaſure the ſize, thickneſs, weight, and tone, of their *bells*. For the method of caſting *bells*, ſee FOUNDERY.

The uſes of *bells* are ſummed up in the Latin diſtich:

Laudo Deum verum, plebem voco, congrego clerum,
Defunctos plango, peſtem fugo, feſta decoro.

The firſt *bells* are ſaid to have been made about the year 400, at Nola, in Campania, whereof St. Paulinus was biſhop; at leaſt, it is aſſured, he was the firſt who brought them into uſe in the church. And hence, it is added, they had their Latin names, *Nolæ* and *Campanæ*: but others ſay, they take theſe names, not from their being invented in Campania, but becauſe it was here the manner of hanging and balancing them, now in uſe, was firſt practiſed; at leaſt, that they were hung on the model of a ſort of balance invented or uſed in Campania. For in Latin writers we find *Campana ſtatera*, for a *ſteel yard*; and in the Greek καμπανιζειν, *for ponderare, to weigh*.

Polydore Virgil aſcribes the inventim of church *bells* to pope Sabinian, St. Gregory's ſucceſſor; but by miſtake: for St. Jerom, contemporary with Paulinus, makes men-

tion of one. In effect, pope Sabinian did not invent *bells*; but he was the first who appointed the canonical hours to be distinguished by them.

We even find mention made of *bells* in Ovid, Tibullus, Martial, Statius, Manilius, and the Greek authors under the appellations of *tinnimabile*, and *sounding brass*. Suetonius, Dion, Strabo, Polybius, Josephus, and others, mention them under the names of *petasus*, *tintinnabulum*, *arcimbalum*, *cymbalum*, *sagum*, &c. But these appear to have been no more than bubbles, and little like the huge *bells* in use among us.

Hieronymus Magius, who has a treatise on *bells* (written when in chains, in Turky, and which is accounted very remarkable), puts them in memory, without the assistance of any books; makes large *bells* a modern invention. Indeed, we do not hear of any before the fixth century: in 610, we are told, Tetricus, bishop of Orleans, being at Sens, then beſieged by the army of Clotharius, frighted away the beſiegers by ringing the *bells* of St. Stephen's. The firſt large *bells* in England are mentioned by Bede towards the latter end of that century. They ſeem to have been pretty common in the next *Sth*. The Greeks are uſually ſaid to have been unacquainted with them till the ninth century, when their conſtruction was firſt taught them by a Venetian.

Indeed, it is not true, that the uſe of *bells* was entirely unknown in the ancient eaſtern churches, and that they called the people to church, as at preſent, with wooden mallets. Leo Allatius, in his Diſſertation on the Greek Temples, proves the contrary from ſeveral ancient writers. It is his opinion that *bells* firſt began to be diſuſed among them, after the taking of Conſtantinople by the Turks; who, it ſeems, prohibited them, leſt their ſound ſhould diſturb the repoſe of fouls, which, according to them, wandered in the air. He adds, that they ſtill retain the uſe of *bells* in places remote from the intercourſe of the Turks; particularly, very ancient ones in Mount Athos. F. Simon thinks the Turks rather prohibited the Chriſtians the uſe of *bells* out of political than religious reaſons; inaſmuch as the ringing of *bells* might ſerve as a ſignal for the execution of revolts, &c.

The city of Bourdeaux was deprived of its *bells* for rebellion; and, when it was offered to have them reſtored, the people refuſed it, after having raiſed the caſe and conveniency of *being* freed *from the conſtant din and jangling of* bells.

Matthew Paris obſerves, that anciently the uſe of *bells* was prohibited in the time of mourning; though, at preſent, they make one of the principal ceremonies of mourning. Mabillon adds, that it was an ancient cuſtom to ring the *bells* for perſons about to expire, to adverſiſe the people to pray for them; whence our *paſſing-bells*.

Loobman obſerves, that the cuſtom of ringing *bells*, at the approach of thunder, is of ſome antiquity; but, that the deſign was not ſo much to ſhake the air, and ſo diſſipate the thunder, as to call the people to church, to pray that the pariſh might be preſerved from miſchief from it.

The cuſtom of chriſtening, or bleſſing *bells*, is very ancient. Some ſay it was introduced by pope John XIII. in 972, but it is evidently of an older ſtanding; there being an expreſs prohibition of the practice in a capitular of Charlemagne in 789. See Heſpanian de Origine Templorum, p. 113, where there is a particular account of all the ridiculous ceremonies practiſed about *bells*.—See Dr. Franklin's Obſervations on conſecrated Bells, and and the form in conſecrating them, Experiments, Obſervations, &c. p. 448. ed. 1769.

Nankin, a city of China, was anciently famous for the largeneſs of its *bells*; but their enormous weight having brought down the tower, in which they were hung, the whole building fell to ruin, and the *bells* have ever ſince been diſtreſſed. One of theſe *bells* is near twelve Engliſh feet high, the diameter ſeven and a half, and its circumference twenty-three; its figure almoſt cylindric, except for a ſwelling in the middle, and the thickneſs of the metal about the edges, ſeven inches. From the dimenſions of this *bell*, its weight is computed at 50000 pounds, which is more than double the weight of that at Erfort, ſaid by father Kircher to be the greateſt *bell* in the world. Theſe *bells* were caſt by the firſt emperor of the preceding dynaſty, about three hundred years ago. They have each their name, the hanger *tchuen*, the eater *che*, the ſleeper *chuy*, the will *ſi*. Father le Compte adds, that there are ſaid other *bells* in Pekin, caſt in the reign of Youlo, each of which weighs 120,000 pounds. But the founds even of their biggeſt *bells* are very poor; being ſtruck with a wooden inſtead of an iron clapper.

The Egyptians have none but wooden *bells*, except one brought by the Franks into the monaſtery of St. Anthony. The ſound of a *bell* ariſes from a vibratory motion of the parts thereof, much like that of a muſical chord. The ſtroke of the clapper, it is evident, muſt change the figure of the *bell*, and of round make it oval: but the metal having a great degree of elaſticity, that part which the ſtroke drove fartheſt from the centre will fly back again, and this even ſomewhat nearer to the centre than before: ſo that the two points, which before were the extremes of the longer diameter, now become thoſe of the ſhorter. Thus, the circumference of the *bell* undergoes alternate changes of figure, and by means thereof gives that tremulous motion to the air, wherein SOUND conſiſts.

M. Perrault maintains, that the ſound of the ſame *bell* or chord, is a compound of the ſounds of the ſeveral parts thereof; ſo that where the parts are homogeneous, and the dimenſions of the figure uniform, there is ſuch a perfect mixture of all the ſounds, as conſtitutes one uniform, ſmooth, even ſound: and the contrary circumſtances produce harſhneſs. This he proves from the *bells* differing in tune according to the part you ſtrike; and yet ſtrike it any where, there is a motion of all the parts. He therefore conſiders *bells* as compoſed of an infinite number of rings; which, according to their different dimenſions, have different tones, as chords of different lengths have; and, when ſtruck, the vibrations of the parts immediately ſtruck determine the tone; being ſupported by a ſufficient number of conſonant tones in the other parts. Mr. Hauksbee, and others have found by experiment, that the ſound of a *bell* ſtruck under water is a fourth deeper than in the air: though Merſenne ſays, it is of the ſame pitch in both elements.

Bells are obſerved to be heard farther, placed on plains, than on hills; and ſtill farther, in valleys, than on plains: the reaſon of which it will not be difficult to aſſign, if it be conſidered that the higher the ſonorous body is, the rarer is its medium; conſequently, the leſs impulſe it receives, and the leſs proper vehicle it has to convey it to a diſtance. There is a curious obſervation in a paper of M. Reaumur's in the Memoirs of the Paris Academy, relating to the ſhape moſt proper for *bells*, to give them the loudeſt and cleareſt ſound. He obſerves, that as pots, and other veſſels more immediately neceſſary to the ſervice of life, were doubtleſs made before *bells*, it probably happened, that the obſerving of theſe veſſels to have a ſound when ſtruck, gave occaſion to making *bells*, intended only for ſound, in that form: but that it does not appear that this is the moſt eligible figure; for lead, a metal which is, in its common ſtate, not at all ſonorous, yet becomes greatly ſo on its being caſt into a particular form, and that very different from the common ſhape of *bells*. In melting lead for the common uſeſulness of caſting in ſmall quantities, it is uſually done in an iron ladle; and as the whole is ſeldom poured out, the remainder, which falls to the bottom of the ladle, cools into a maſs of the ſhape of that bottom. This is conſequently a ſegment of a ſphere, thickeſt in the middle, and thinner towards the edges: nor is the ladle any neceſſary part of the operation, ſince if a maſs of lead be caſt in that form in a mould of earth or ſand, in any of theſe caſes it is found to be very ſonorous. Now, if this ſhape alone can give ſound to a metal which in other forms is perfectly mute, how much more muſt it neceſſarily give it to other metals naturally ſonorous in whatever form. It ſhould ſeem, that *bells* would much better perform their office in this than in any other form, and that it muſt particularly be a thing of great advantage to the ſmall *bells* of common houſe-clocks, which are required to have a ſhrill note, and yet are not allowed any great ſize. M. Reaumur very judiciouſly obſerves, that had our forefathers had opportunities of being acquainted with the ſound of metals in this ſhape, we ſhould probably have had all our *bells* at preſent of this form. Mem. Acad. Par. 1726.

BELL, *bearing the*. See RACING.

BELL, *founding of*. See FOUNDERY.

BELL, *ringing*. See DIVING.

BELLS, *electrical*, are uſed in a variety of entertaining experiments by electricians. The apparatus, which is originally of German invention, conſiſts of three ſmall *bells* ſuſpended from a narrow plate of metal (*Plate, Electricity, fig.* 2.) the two outermoſt by chains, and that in the middle, from which a chain paſſes to the floor, by a ſilken ſtring. Two ſmall knobs of braſs are alſo hung by ſilken ſtrings, one on each ſide of the *bell* in the middle, which ſerve for clappers. When this apparatus is connected with an electrified conductor, the outermoſt *bells* ſuſpended by the chains will be charged, attract the clappers, and be ſtruck by them. The clappers becoming electrified likewiſe will be repelled by theſe *bells*, and attracted by the middle *bell*; and diſcharge themſelves upon it by means of the chain extending to the floor. After this, they will be again attracted by the outermoſt *bells*, and thus, by ſtriking the *bells* alternately, occaſion a ringing, which may be continued at pleaſure. Flaſhes of light will be ſeen in the dark between the *bells* and the clappers; and if the electrification be ſtrong, the diſcharge will be made without actual contact, and the ringing will ceaſe. An apparatus of this kind, connected

with one of those CONDUCTORS that are erected for securing buildings from lightning, will serve to give notice of the approach and paſſage of an electrical cloud.

BELL, in *Chemiſtry*, denotes a glaſs veſſel placed over ſome matter in a ſtate of exhalation, either to collect the vapour, or gather the flowers.

Chemical *bells* are a ſort of receptacles chiefly uſed in preparing the oil or ſpirit of ſulphur, for gathering and condenſing fumes into a liquor.

BELL, in *Building*, is uſed to denote the body of the Corinthian and Compoſite capital, by reaſon of its reſemblance to the figure of a *bell* inverted.

In this ſenſe, *bell* is the ſame with what we otherwiſe call *vaſe* and *tambour*, ſometimes alſo *corbeil*.

The naked of the *bells* always to be even and perpendicular with the bottom of the ſtutings of the column.

BELL *flower*, in *Botany*. See CAMPANULA.

BELL, *hair*, in *Botany*. See HYACINTH.

BELL-*metal* is a compoſition of tin and copper melted together in due proportion; which has this property, that it is more ſonorous than any of the ingredients taken apart.

The ordinary proportion is about twenty-two or twenty-three pounds of tin to one hundred weight of copper; though the proportion varies according to the uſe of the *bells*; a greater quantity of copper being uſed in the greater *bells* than in the ſmaller ones. Some add lead and braſs, others zinc or ſpelter, to the compoſition.

It has long been obſerved, that though tin is ſpecifically lighter than copper, yet the gravity of the compound *bell-metal* is greater than that of copper itſelf. Notice has been frequently taken of this not uncommon phenomenon in chemiſtry, from which it appears that Archimedes's propoſition and tables, calculated upon that principle, for determining the proportion of two metals in any given compound, by hydroſtatical experiments, are leſs to be depended upon than has hitherto been ſuppoſed. Some alſo ſpeak of a native mineral under the denomination *bellmetal*, or *bismuth*, from which Becher affirms he procured ſilver and gold.

BELL-*animal*, a name given by the writers on microſcopical diſcoveries to a very ſmall animal found at the roots of the common duck-weed. The bodies of theſe animals are ſhaped like *bells*; and they have very long and ſlender tails, by which they faſten themſelves to the roots of theſe little plants. They are uſually found in great numbers together, in a form of cluſters or bunches; and all of the ſame bunch have always the ſame motion, very frequently contracting themſelves, and afterwards expanding all together to the full length of their tails. They uſually contract and expand themſelves again. Baker's *Microſc.* p. 90.

BELL-*muſhroom*, in *Botany*, a name given by ſome authors to the pileus called *boletus muſcharius*, and muſch-food.

BELL-*pepper*, in *Botany*. See CAPSICUM.

BELL-*ſhrimp*, in *Zoology*, a particular ſpecies of POLYPE, the extremities of whoſe branches reſemble *bells*. See *Tab. of Microſcopical Objects, Claſs* 2.

BELL-*weed*, an Engliſh name uſed by ſome authors for the *lucca nigra*, or common knop-weed, called alſo by many Engliſh writers MATFILON.

BELLADONA *lily*. See AMARYLLIS.

BELLADONA, in *Botany*, a name given by the Italians to the *deadly* NIGHTSHADE, becauſe the ladies make a coſmetic of the juice, or diſtilled water, which they uſe to make their complexion fair and white. Ray.

Others derive the name from the intoxicating quality of this plant: *Sumpſi infoeliſſimi poſthoras ſphondas vaſtiores frenſuſque.* Bod. Comment. in Theophraſt. p. 1078.

BELLATRIX, in *Aſtronomy*, a ruddy, glittering ſtar of the ſecond magnitude, in the left ſhoulder of ORION.

It takes its name from *bellum*, as being anciently ſuppoſed to have great influence in kindling wars, and forming warriors.

BELLE *de nuit*, in *Botany*, a name which the French give to the flower of the JALAP.

BELLICA *columna*, in *Antiquity*, a *column* near the temple of Bellona, from which the conſuls or feciales caſt javelins towards the enemy's country, by way of declaration of war.

BELLICULI, or BELLERICI *Marini*, among *Naturaliſts*, denote a ſpecies of ſea-ſhells of an umbilical figure, ſometimes of a white colour, ſpotted with yellow; and ſometimes of a yellow, ſtreaked with black lines, after the ſnail-faſhion.

BELLING *of hops*, denotes their opening and expanding to their cuſtomary ſhape, ſuppoſed to bear ſome relation to that of a bell.

Hops blow towards the end of July, and *hell* the latter end of Auguſt, or beginning of September.

BELLIS, in *Botany*. See DAISY.

BELLON, or BELLARD, in *Medicine*, a diſtemper very common in Derbyſhire, and other counties, where they *ſmelt* lead ore; to which beaſts, and even poultry, as well as men, are ſubject; and for this reaſon, a certain ſpace round the ſmelting houſes is called *bellon-ground*, where it is dangerous for any animal to reſt. This diſorder is attended with langours, weakneſs, and intolerable pains, tenſion, or gripings in the belly, and generally coſtiveneſs. It frequently proves fatal.

The method of cure which has been found moſt ſucceſsful in this diſtemper, is, to give *cremor*, or cryſtals of tartar, in ſmall doſes, and to repeat them frequently, as two or three times a day.

BELLONA, in *Mythology*, *a bella*, the goddeſs of war, ſiſter to Mars. Before her temple the herald ſet a ſpear on a pillar, when any war was proclaimed.

BELLONARII, in *Antiquity*, prieſts of Bellona, the goddeſs of war and battles.

The *Bellonarii* cut and mangled their boſſes with knives and daggers in a cruel manner, to pacify the deity. In this they are ſingular, that they offered their own blood, not that of other creatures, in ſacrifice. In the fury and enthuſiaſm wherewith they were ſeized on theſe occaſions, they ran about raging, uttering prophecies, and foretelling blood and ſlaughter, devaſtations of cities, revolutions of ſtate, and the like; whence Martial calls them *turba enthuſa Bellonæ*. Lactant. Inſt. lib. i. cap. 7. Lucan. lib. 1. Tertull. Apol. cap. 9. Minut. Felix. p. 298. In after-times they ſeem to have abated much of their zeal and tranſport, and to have turned the whole into a kind of farce, contenting themſelves with making ſigns and appearances of cutting and wounds. Lampridius tells us, the emperor Commodus, out of a fancy of cruelty, turned the farce again into a tragedy, obliging them actually to cut and mangle their bodies. Lamp. in Commod. cap. 9.

BELLONIA, ſo called after the name of M. Bellon, a phyſician of Caen, in *Botany*, a genus of the *pentandria monogynia* claſs. The characters of this plant are, that the flower is wheel-ſhaped, of one leaf with a ſhort tube, but ſpread open above, and cut into five obtuſe ſegments; that it hath five ſtamina which cloſe together; that the germen is ſituated under the receptacle of the flower which afterwards becomes an open unbilicated ſeed-veſſel, ending in a point, having one cell filled with ſmall round ſeeds.

We have but one ſpecies of this plant, viz. ſcrubby *bellonia*, with a rough hairy leaf. This plant is very common in ſeveral of the warm iſlands in America.

BELLOWING, among *Sportſmen*, is uſed for the noiſe which roes make in BUTTING-time.

BELLOWS, a machine uſed to give a brisk agitation to the air, by enlarging and contracting its capacity, and thus expiring and inſpiring the air by turns.

Bellows are of various kinds, as *domeſtic bellows*, *chamelers*, *bellows*, *ſmiths bellows*, &c.

There are ſome *bellows* triangular, which only move on one ſide; others, called *lantern bellows*, from their reſembling a paper lantern: theſe move every way, and yet ſtill continue parallel.

Mr. Triewald, engineer to his Sweediſh majeſty, has contrived a kind of *water-bellows*.—This is not the firſt time that water has been employed to blow the fire. The ſame is done at Tivoli, and other parts of Italy, where the contrivances for this purpoſe are called *feux d'eaux*.—Phil. Tranſ. N° 448. p. 234.

Mr. Sterling has given the deſcription of a *water-bellows*, or machine to blow fire by the fall of water. Phil. Tranſ. N° 475. § 19. Dr. Lewis's Com. Ph. Techn. p. 269, &c. Where may be ſeen an account of *bellows*, and of BLOWING *machines*, of various conſtructions, for all kinds of furnaces; and many curious and important remarks on the various quantity of air afforded by them, &c.

The action and effect of *bellows of every kind*, whether leathern or wooden, wrought by water or men, depend on this, that the air which enters them, and which they contain when raiſed, is again compreſſed into a narrower ſpace when they are cloſed. And, as the air, like all other fluids, runs to that place where it meets the leaſt reſiſtance, the air muſt of conſequence fly out of the pipe or aperture with a velocity proportional to the force whereby the air is compreſſed, and muſt of conſequence blow ſtronger or weaker, as the velocity with which the top and bottom of the *bellows* meet is greater or leſſer. The blaſt alſo will laſt in proportion to the quantity of air that was drawn into the *bellows* through the valve or wind-clap.

The Heſſian *bellows* are a contrivance for driving air into a mine for the reſpiration of the miners. This M. Papin improved, changing its cylindrical form into a ſpiral one; and, with this, working it only with his foot, he could make a wind to raiſe two pound weight.

Anacharſis the Scythian is recorded as the inventor of *bellows*. Strabo, lib. vii. p. 209.

The action of *bellows* bears a near affinity to that of the lungs; and what we call blowing in the latter, affords a good

good illustration of what is called respiring in the former. There are *bellows* made wholly of wood, without any leather upon them; one of which is preserved in the repository of the Royal Society; and Dr. Plot describes another used in the copper-works at Ellaston, in Staffordshire. Nat. Hist. Staff. chap. 4. sect. 18.

We are also told of a new sort of *bellows* to work in vacuo. Some have even pretended to effect a perpetual motion by a new-contrived *bellows*. Boyle's Works, abr. tom. ii. p. 503. Phil. Trans. N° 182.

Smiths and founders *bellows*, whether single or double, are wrought by means of a rocker, with a string or chain fastened thereto, which the workman pulls. The *bellows*-pipe is fitted into that of the tewel. One of the boards is fixed, so as not to play at all. By drawing down the handle of the rocker, the moveable board rises, and by means of a weight on the top of the upper board, sinks again.

The *bellows* of forges and furnaces of mines usually receive their motion from the wheels of a water-mill. Others, as the *bellows* of enamellers, are wrought by means of one or more flaps or treddles under the workman's feet.

Acosta says, that the metal of the Peruvian mines of Porco is easily refined with *bellows*; but that of the mines of Potosi cannot be fused with them, but only by the breath of their small furnaces built upon the sides of mountains, and directed where the wind lies.

The *bellows* of an organ are six feet long, and four broad; each having an aperture of four inches, that the valve may play easy. There should likewise be a valve at the nose of the *bellows*, that one may not take the air from the other. To blow an organ of fifteen feet, there are required four pair of these *bellows*.

The *bellows* of organs are wrought by a man called the blowers, and, in small organs, by the foot of the player.

BELLOWS, *bow*, *spelgen vena*, occur in Herodotus for those applied by the Scythians to the genitals of mares, in order to distend the *uterus*, and by this compression, make them yield a greater quantity of milk.

BELLOWS, *Hydrostatic*, see HYDROSTATIC.

BELLUCE, in *Zoology*, the fifth order of the *mammalia*, the character of which is, that their fore-teeth are obtusely truncated, their feet hoofed, their walk heavy, and their food vegetables. The genera of the *horse*, hippopotamus, hog, and rhinoceros, belong to this order.

BELLUGA *fine* in *Natural History*, the name of a *cetaceous* or fhone found in the *beluga*, a large fish, accounted a species of flurgeon, and called by Artedi *acipenser rubicundus curvus*.

The fish is much like the flurgeon in fhape; but its fnout is fhorter and thicker. Of its roe or fpawn is made caviar; and fome of them are fo large as to yield two hundred weight of it. The fifh is very common and very large in the Volga, near the city of Aftrican. It has been caught there thirty-fix feet long, and eighteen thick. It is alfo found in the Don, and other rivers, and in the Baltic and Caſpian feas. See ACCIPENSER.

It is not certainly known in what part of this fifh the ſtone is found. It is found in both ſexes, but moſt frequently in the male; and is found in fifh of all ages and ſizes. It is fat from being common, however; for in a thouſand fiſhes, there ſometimes is not found one ſtone. It is hence evident, that theſe ſtones are no natural part of the fifh; but are mere morbid concretions like the bezoar ſtones in the animal which produces them, or like the ſtones in human bladders. The ſituation of the parts in which it is found, and other circumſtances, may allot it its particular appearances.

This ſtone is of various ſhapes and ſizes; but its moſt uſual figure is either globular or oval. It is of a yellowiſh white colour, and of a ſmooth and naturally poliſhed ſurface; and it is found from the ſize of a pigeon's egg to that of a gooſe. They are uſually compact, ponderous and ſolid, not friable, but requiring a ſtrong blow to break them. They yield eaſily to the file; but this defaces their internal texture, which is naturally very elegant and regular. The ſtones conſiſt of ſeveral concentric coats, firmly adhering to one another, formed about a *nucleus*, which generally appears to be ſome heterogeneous ſubſtance.

But another very obvious circumſtance there is in its ſtructure, which makes it greatly different from all other ſtones of this kind, that is, its radiated ſtructure, it being compoſed of a number of regular and even *ſtriæ* running from the centre to the circumference, repreſenting, both in colour and form, the flakes of the *terra foliata tartari*, or the ſtriated *piſtillus* of antimony.

If the ſtone be ſcraped to powder, and ſprinkled upon a hot iron, it gives a faint urinous ſmell, and calcines into a light, inſipid, greyiſh earth.

The people about the Volga eſteem it greatly, and account it to have great virtues; they ſay it promotes delivery and give it conſtantly in caſes of the ſtone, and diſorders of the urinary parts. Its doſe is from ten grains to a dram. Phil. Tranſ. vol. xliv. part ii. N° 4.

BELLUA *lupi*, in *Ichthyology*, a name given by Paulus Jovius to that ſpecies of the ray fiſh, which was called by the old Greek and Latin writers *lus marinus*, and by the latter authors *cepia aureorubus*. It is diſtinguiſhed by Artedi by the name of the variegated ray, with ten prickly tubercles on the middle of the back.

BELLY, in a general ſenſe, denotes the whole ABDOMEN, or that region of the body contained between the *ſcapulæ tranſverſæ*, the *hypochondria*, and *pubes*.

BELLY is alſo uſed, in a more confined ſenſe, for the inteſtines alone, as containing the *feces*.

In this ſenſe we ſpeak of the looſeneſs or coſtiveneſs of the *belly*, &c.

BELLY is alſo uſed ſometimes for a pregnant woman.

In this ſenſe we are to underſtand the phraſe among *Civil Lawyers*, to put the *belly* in poſſeſſion of an eſtate.

BELLY is alſo uſed in ſpeaking of the bodies of beaſts. Thus, we ſay a light *belly*, meaning a ſlender or lank one; a *cow-belly*, that where the ribs being unable to hold the *viſcera*, they preſs downwards, and bulge diſagreeably.

Feeding horſes with graſs, or much hay, and few oats, makes them grow cow-bellied. It is a maxim, that horſes which are light bellied, and fiery, ſoon deſtroy themſelves.

The *belly* of a horſe ſhould be of an ordinary bigneſs, except in draught horſes, where the larger the better, provided it be round, and well incloſed within the ribs; rather extending upon the ſides than downwards. Thoſe horſes are apt to be cow-bellied, which, having ſtraight ribs, are great feeders.

The *belly* is ſometimes alſo denominated the body, cheſt, gut, or flank.

A horſe is ſaid to be thick-bellied, well-bodied or flanked, when he has large, long, and well-made ribs, neither too narrow nor too flat. A horſe again is ſaid to have no *belly*, or body, or to be ſhin-flanked, when his ribs are too narrow or ſhort, and the flank turns up; ſo that his body looks flankleſs, like a greyhound. Such horſes are called by the French *epinés*, and generally prove fine and tender, not fit for travelling or fatigue, unleſs they feed very heartily. Coach-horſes are rejected when they are not well-bellied, or well-bodied, but narrow or thin-gutted, ſeeming to have the ſkin of their flanks ſtitched on their ribs. But a hunter is not the worſe liked for being light-bellied. Horſes pained, or weak in their hind-quarters, are commonly light-bellied. Such as have painful ſcratches in their hind-legs are found to loſe their *bellies* extremely.

BELLY *of a* MUSCLE, in *Anatomy*, denotes the body thereof; as conſtituſtinguiſhed from the two extremities, or tendons.

From the conditions of this, muſcles are divided into monogaſtric, or ſingle-bellied; and digaſtric, or double-bellied. Phil. Tranſ. N° 238.

Lower will have all the muſcles to be digaſtric, or double-bellied; in which he is ſeconded by Hoffman, and others.

BELLY-*ache* *uſed*, a name given in America to a ſpecies of the *ſatyriaſis*. See CASSADA.

BELLY, *Dragon's*, *winter dragonis*, is uſed by ſome *aſtronomers* to denote the point in a planet's orbit, wherein it has its greateſt latitude, or is fartheſt diſtant from the ecliptic; more frequently called its ſimir.

BELOAR, a name given by ſome to a ſtone, otherwiſe called WIDARA.

BELOMANCY, BELOMANTIA, a kind of divination by means of *arrows*, practiſed in the Eaſt, but chiefly among the Arabians.

The word is of Greek origin; compounded of βελος, *arrow*, and μαντια, *divination*.

Belomancy has been performed in different ways: one was, to mark a parcel of arrows, and put eleven, or more of them, into a bag; theſe were afterwards drawn out, and according as they were marked, or not, they judged of future events.

Another way was, to have three arrows, upon one of which was written, *God orders it me*; on another, *God forbids it me*; and upon the third, nothing at all. Theſe were put into a quiver, out of which they drew one of the three at random; if it happened to be that with the firſt inſcription, the thing they conſulted about was to be done; if it chanced to be that with the ſecond inſcription, it was let alone; and if it proved to be that without inſcription, they drew over again.

Belomancy is an ancient practice, and probably that which Ezekiel mentions, chap. xxi. ver. 21. At leaſt St. Jerom underſtands it ſo, and obſerves that the practice was frequent among the Aſſyrians and Babylonians. Something like it is alſo mentioned in Hoſea, chap iv. only that *ſtaves* are there mentioned inſtead of *arrows*, which is rather *rhabdomancy* than *belomancy*.—Grotius, as well

well as Jerom, confounds the two together, and shews that they prevailed much among the Magi, Chaldeans, and Scythians; whence they passed to the Sclavonians, and thence to the Germans, who, as Tacitus observes, made use of *belmanny*.

BELONE, in *Ichthyology*, a name by which some of the old naturalists have called the ACUS *Oppiani*, called in English the horn-fish, or gar-fish, a species of the ESOX. The name is retained by Linnæus.

BELSEBUL, a species of the *simia*, with a bearded black tail.

BELT, BALTHEUS, properly denotes a kind of military girdle, usually of leather, wherewith the sword or other weapons are sustained.

Belts are known among the ancient and middle-age writers by divers names, as ζωνη, ζωστηρ, *zona*, *cingulum*, *renunculum*, *rinca*, or *ringa*, and *baldrellus*.

The *belt* was an essential piece of the ancient armour; insomuch that we sometimes find it used to denote the whole armour. Pott. Arch. Græc. tom. ii. lib. iii. cap. 4. In later ages, the *belt* was given to a person when he was raised to knighthood; whence it has also been used as a badge or mark of the knightly order.

The denomination *belt* is also applied to a sort of BANDAGES in use among surgeons, &c.

Thus we meet with quicksilver *belts*, used for the itch. A late writer describes a *belt* for keeping the belly tight, and discharging the water in the operation of TAPPING. Medic. Eff. Edinb. tom. i. p. 218.

BELT, or BELTIE, in *Ecclesiastical Writers of the Middle Age*, denotes a sort of string of beads.

BELT is also a frequent disease in sheep, cured by cutting their tails off, and laying the sore bare; then calling mould on it, and applying tar and goose-grease.

BELTS, *Fasciæ*, in *Astronomy*, two zones or girdles surrounding Jupiter's body, more lucid than the rest, and terminated by parallel lines; being sometimes broader, and sometimes narrower, nor constantly taking up the same places in his disk.

Dark spots have been frequently observed on Jupiter's *belts*. Cassini has also discovered a permanent one in the most northern part of the most southern *belt*: by this he has determined the length of Jupiter's day; that is, the time of his revolution on his axis, which is finished in 9 hours 56 minutes. Phil. Trans. N° 10. and vol. lxiii. part i. N° 11. p. 73.

Some astronomers take the *belts* to be seas, which alternately cover, and leave bare large countries of the Jovial world. The spots are by these writers conjectured to be gulfs in those seas, perhaps as big as our ocean, and sometimes full, sometimes dry. M. Amont rather imagined the spots to be protuberances of the *belts*. Hist. Acad. Sc. 1708. 1692. Phil. Trans. N° 34. i. 15.

But the generality of astronomers take the spots, we mean the transparent and moveable ones, for the shadows of Jupiter's satellites.

The *belts* of Jupiter were first observed, and described by Huygens, in his Syst. Saturnin. p. 7.

Cassini also speaks of *belts* of Saturn; being three dark, straight, parallel bands, or *fasciæ*, on the disk of that planet.

Saturn's *belts* do not appear to be inherent on his globe, as those of Jupiter are; but rather to be large dark rings at a distance from the planet, and surrounding his body. Some imagine them to be clouds in his atmosphere. The middlemost seems to be the shadow of Saturn's ring. Hist. Acad. Sc. 1715.

BELTS, in *Navigation*, denote certain streights near the sound, through which ships must pass going between the Baltic and the German ocean.

The *Belts* belong to the king of Denmark, who exacts a toll of all ships which pass them excepting the Swedes, who are exempt from it.

BELVIDERE, an Italian term, denoting a fine prospect. The name is more peculiarly given to a pavilion on the top of a building, or an eminence in manner of a platform in a garden, sustained by a terrace-wall, or a massive of turf, contrived for the sake of commanding a large or beautiful prospect.

BELVIDERE, in *Botany*, a species of the CHENOPODIUM.

BELULCUM, a chirurgical instrument of various figures, contrived for extracting darts, arrows, or the like, from wounds.

Hence also the denomination *belulcum*; *quasi* τὸ βελος ελκων.

BELUS, in *Mythology*, the principal deity of the Babylonians; and if, as some suppose, the tower of Babel was his temple, one of the most ancient among the pagans. The kings of Babylon amassed immense treasures in this place, which were pillaged by Xerxes on his return from the expedition into Greece. Herod. lib. i.

BEMA, βημα, in *Antiquity*, denotes a step or pace.

The *bema* made a kind of itinerary measure among the Greeks, whose length was equivalent to one cubit, or two thirds, or ten palms.

Whence also the term βεματιζειν, *to measure a road*.

BEMA, in *Ecclesiastical Writers*, denotes the altar-part, or sanctuary, in the ancient churches.

In which sense, *bema* made the third, or innermost part of the church, answering to the chancel among us.

BEMA was also used for the bishop's chair, seat, or throne, placed in the sanctuary. It was called *bema* from the steps by which it was to be ascended.

BEMA was also used for the reader's desk.

This in the Greek church was denominated βημα ψαλτου, in the Latin church AMBO.

BEMA is more peculiarly used for the *Manichees* altar, which was in a different place from that of the catholics.

BEMA was also a denomination given by this sect to the anniversary of the day when *Manes* was killed, which with them was a solemn feast, and day of rejoicing.

One of the chief ceremonies of the feast consisted in setting out and adorning their *bema*, or altar, with great magnificence.

BEMETRE, in *Ornithology*, a name by which the Portuguese in the Brasils call a greenish black-bird of the starling kind, common there, and more generally known by its Brasilian name PITANGUA-GUACU.

BEMILUCIUS, in *Mythology*, a surname of Jupiter, represented young and beardless.

BEN, or BEHEN, in *Pharmacy*, denotes a medicinal root, celebrated, especially among the Arabs, for its aromatic, cardiac, and alexiterial virtues.

There are two kinds of *ben*, viz. the *white ben*, which is insipid, making little impression on the tongue, besides that of a little bitterness which it leaves behind it, and supposed by some modern botanists to be the same with our *pabois terrestris*, by others called the *papaver spumeum*. *Red ben*, is fibrous, brown without, and reddish within; supposed to be the root of a species of *limonium*, or *sea-lavender*.

They are both brought from the Levant, and have much the same virtues, being substituted for each other; they must be chosen dry, and of an aromatic astringent taste.

BEN, or BEN-*nut*, a fruit about the size of a filbert, the product of a middle-sized tree, said to resemble the birch, and to grow spontaneously in the East Indies, and in America. It is the *guilandina moringa* of Linnæus; and the same, the wood of which is called the *lignum nephriticum*. Lemery, in his Dictionnaire des Drogues, mentions several kinds of this fruit. It is called *glans unguentaria*, because it yields an oil by expression, which is used by perfumers in perfuming other oils, and never turns rancid; as being a detergent, it is thought proper in cutaneous diseases, &c. Geoffroy.

To impregnate oil of *ben* with the odour of flowers, dip some fine carded cotton in the oil, and put it in the bottom of some proper vessel; on this spread a thick layer of fresh flowers, and above them more cotton dipped in oil, and thus alternately *stratum super stratum*, till the vessel be full; and then by DIGESTION, during twenty-four hours in a *water-bath*, the oil will receive the odour of the flowers. As the oil of *ben* does not become rancid, at least for years, it is the best *menstruum* for extracting the odoriferous parts of roses, jonquils, and many other flowers, which yield little or no essential oil by *distillation*, but impart their fragrance to expressed oils.

BENÆ *lapis*, in the *Natural History of the Ancients*, the name given by the earliest writers to that fossile body, afterwards called THRACIUS *lapis*.

BENCH. See BARE, BANK, &c.

BENCH, *King's* See COURT of *King's Bench*.

BENCH, *free*. See FREE-*Bench*.

BENCH-*widow*. See WIDOW.

BENCHERS, in an INN of *court*, the seniors of the house, who have the government and direction thereof; and out of whom is yearly chosen a treasurer, &c.

BEND, in *Heraldry*, an ordinary or bearing, formed by two lines, drawn diagonally, or athwart, from the dexter chief of the shield to the sinister base; being supposed to represent a shoulder belt, or scarf, worn over the shoulder.—See *Tab. Herald. fig.* 7.

The *bend* is one of the ten honourable ordinaries, containing a third part of the field when charged, and a fifth when plain.—It is sometimes indented, ingrailed, &c. Heralds speak of a *bend dexter*, and a *bend sinister*.

A *bend* is subdivided into a *bendlet*, or *bendelet*, which is the sixth part of the field; a *garter*, which is the moiety of a *bend*; a *cost*, which is the fourth part of a *bend*; and a *riband*, which is the moiety of a *cost*.

BEND *dexter*, is that properly and absolutely called a *bend*, as above defined.—The word *dexter* is usually annexed to prevent mistakes, and distinguish it from the

BEND *sinister*, which is the same with what is otherwise called after the French heralds, a BAR, *barre*.

The *bend sinister* is subdivided into the *scarf*, or *scarp*, and the *baston*: which latter is the fourth part of the *bend*,

and the moſt uſual mark of illegitimacy; but then it never extends itſelf quite athwart the ſhield, but is cut off a little at each end. See BASTON, and *fig.* 6.

When two ſtraight lines drawn within the *bend* run nearly parallel to the outward edges of it, this is called *wedding*; and, he that bears it, is ſaid *to bear a bend wedded*.

Party per BEND. *ancter.* See PARTY.

Pointin BEND. See POINT.

BENDIDIA, *bendidiæ*, in *Antiquity*, ſolemn feaſts held by the Athenians on the twenty firſt day of the month Tragelion, in honour of the goddeſs Diana.

The word is formed of *Bendis*, a denomination of Diana, according to Strabo, or of the moon, according to Suidas, which amounts to the ſame.

The *bendidia* were held in the Piræus, and bore ſome reſemblance to the BACCHANALIA.

BENDING. M. Bernouilli has a diſcourſe on the *bending* of ſprings, or elaſtic bodies. M. Amontons gives ſeveral experiments concerning the bending of ropes. The friction of a rope *bent*, or wound round an immoveable cylinder, is ſufficient, with a very ſmall power, to ſuſtain very great weights. Mem. Acad. Sc. 1703. 1705. 1699.

Divers methods have been contrived for *bending* timber, in order to ſupply crooked planks, and pieces for building ſhips: M. Duhamel ingeniouſly enough propoſed to have the young trees bent, while growing in the foreſt. The method of *bending* planks by a fire-heat, now uſed in the king's yards at Deptford, was invented by captain Cumberland. Phil. Tranſ. N° 371. p. 75.

The *bending* of boards, and other pieces of timber for curved works in joinery, is effected by holding them to the fire, then giving them the figure required, and keeping them in this figure by tools for the purpoſe.

A method has been lately invented and practiſed for *bending* pieces of timber, ſo as to make the wheels of carriages without joints. See WHEELS.

BENDING, in the *Sea Language*.—They ſay, *bend the cable*, when it is to be made faſt to the ring of the anchor.—To *bend two cables*, ſignifies to tie them together with a knot, which, though leſs ſure than ſplicing, is ſooner done.

To *unbend the cable*, is to looſen it from the ring of the anchor; which is done when a ſhip deſigns to be long at ſea.

To *bend a main ſail*, is to make it faſt to the yard in its proper place.

BENDS, in a ſhip, are the ſame with *wales*, or *wales*, which are the outermoſt timbers of a ſhip, on which men ſet their feet in climbing up.

They are reckoned from the water, the *firſt*, *ſecond*, and *third bend*: they help much to ſtrengthen the ſhip, and have the beams, knees, and foothooks bolted into them.

BENDY, BANDE, in *Blaſonry*, denotes an eſcutcheon's being divided bend-wiſe into an even number of partitions, varying in metal and colour.—If they be odd, the field muſt firſt be named, and then the number of bends. In England, the number is always made even; in other countries this is not regarded.

They *ſay bendy* of four, *bendy* of ſix, &c.

*Barry-*BENDY. See BARRY.

*Counter-*BENDY. See COUNTER.

Pale BENDY. See PALY.

BENE. See DE *Bene eſſe*.

BENEAPED, in the *Sea Language*, is ſaid of a ſhip, when the water does not flow high enough to bring her off the ground, out of the dock, or over the bar.

BENEDICITE is a name given to the hymn, or ſong of the three children in the fiery furnace; by reaſon of its beginning with the words *Benedicite omnia opera Domini*.

The uſe of the *benedicite* is very ancient, it appearing to have been ſung in all the Chriſtian churches, as early as St. Chryſoſtom's time.

BENEDICTINS, or BENEDICTIN *order*, is an order of monks, who profeſs to follow the rule of St. Benedict, or Benoit, of Nurſia, who was born about the year 480. The *Benedictin* are thoſe properly called *monks*, monk; the other orders are better denominated *friers*, or *religieux*.

In the canon law, the *Benedictins* are called *Black Monks*, being diſtinguiſhed from the other orders by the colour of their habit: and not by the name of their patriarch, St. Benedict.—Among us they were formerly alſo denominated *Black Friers*.

The *Benedictins* wear a looſe black gown, with large wide ſleeves, and a capuche on their heads, ending in a point behind.

The liſt of ſaints of the *Benedictin* order is very ample; but they are acculed by Baronius, and many other writers, of putting many in the liſt who were never of the order.

For ſix hundred years after the erection of the *Benedictin* order, moſt of the European monks were followers of this rule: whatever other names they went by, Carthuſians, Ciſtercians, Grandimontenſes, Premonſtratenſes, Cluniacs, &c. they were but *different* branches of the *Benedictins*, till about the year 1220, when the Dominicans and Franciſcans took new rules.

Helyot in fact reckons no leſs than twenty-three religious orders that ſprang from this one.

According to the *Benedictin* computation, there have been of this order 24 popes, 200 cardinals, 7000 archbiſhops, 15,600 biſhops, 15,700 abbots, 4000 ſaints, 40,000 confeſſors, above 3000 martyrs and apoſtles, who have converted 30 provinces to the Chriſtian faith, beſides emperors, kings, &c.

The *Benedictins*, though but one order, are divided into ſeveral congregations, which have their peculiar cuſtoms and obſervances different from the reſt.

Each of theſe are ſubdivided into provinces, which have their general chapters. This order is ſaid to have been brought into England about the year 596.

The Engliſh congregation, which had ſubſiſted from the time of the miſſion of St. Auſtin, was deſtroyed under Henry VIII. and by degrees reduced to one ſingle man; father Buckley, who in 1607, procured a re eſtabliſhment of the congregation, at Doway, in the Netherlands, where it ſtill ſubſiſts in a kind of dependency on that of St. Valladolid in Spain.

At the general chapters they chuſe provincials, with their aſſiſtants, for each of the provinces of Canterbury and York, who have juriſdiction over the miſſionaries employed therein. They are governed by a preſident-general, and three DEFINITORS, choſen every three years.

At their admiſſion they make a fourth vow, viz. that they will go to the miſſion in England, and return when their ſuperiors think fit.

BENEDICTIN *nuns*, are religious women who embrace the rule of St. Benedict.

BENEDICTION, in a general ſenſe, the act of bleſſing, or giving praiſe to God, or returning thanks for his favours.

Hence alſo *benediction* is ſtill applied to the act of ſaying grace before or after meals.

Neither the ancient Jews, nor Chriſtians, ever eat without a ſhort prayer.

The Jews are obliged to rehearſe a hundred *benedictions* per day; of which, eighty are to be ſpoken in the morning. Vitring. de Synag. Vet. lib. iii.

Rabbi Nehemiah Boruch, in 1685, publiſhed a diſcourſe on the manner wherein the facerdotal *benediction* is to be pronounced. In the Synagogue of Ferrara, it is rather ſung than ſpoken.

The cuſtom of receiving *benediction*, by bowing the head before the biſhops, is very ancient, and was ſo univerſal, that emperors themſelves did not decline this mark of ſubmiſſion.

Under the name *benediction*, the Hebrews alſo frequently underſtand the preſents which friends make to one another, in all probability becauſe they are generally attended with bleſſings and compliments both from thoſe who give, and thoſe who receive them.

BENEDICTION, *nuptial*, the eccleſiaſtical ceremony performed by the prieſt in the office of matrimony.

The *nuptial benediction* is not eſſential to, but the confirmation of a marriage in the civil law.

BENEDICTION, *extra*, *benedictio beatæ*, is the *maximum* given to dying perſons.

The pope begins all his bulls with this *form*: *Salutem & apoſtolicam benedictionem.*

BENEDICTION, *regular*, that conferred by abbots on their monks, or by a ſenior monk on a junior.

BENEDICTION *privative*, to be deprived of benediction, was a kind of puniſhment inflicted on monks, whereby, when the reſt received the abbot's bleſſing, the offenders were diſmiſſed without it.

BENEDICTION is alſo uſed for an eccleſiaſtical ceremony, whereby a thing is conſecrated, ſacred, or conſecrable.

In this ſenſe *benediction* differs from conſecration, as in the latter unction is applied, which is not in the former. Thus the chalice is conſecrated, and the pix bleſſed, as the former, not the latter is anointed: though in the common uſage theſe two words are applied promiſcuouſly.

The ſpirit of piety, or rather of ſuperſtition, has introduced into the Romiſh church *benedictions* for almoſt every thing.—We read of forms of *benediction* for wax-candles, for bouches, for altars, for church-veſſels, and ornaments; for flags or enſigns, arms, firſt-fruits, houſes, ſhips, paſchal eggs, *alleluia*, or the hair-cloth of penitents, church-yards, &c.

BENEDICTION *of arms* was a ſort of public conſecration of the weapons, and enſigns, before the entering on a war, by a *formula* of words, and ceremonies appointed for that purpoſe.

BENEDICTIONALIS *liber*, an ancient church book, containing the forms of the divers ſorts of *benedictions* given by biſhops, prieſts, &c.

Such

Such was the *benedictionalis liber* of Gregory the Great, described by Lambecius.

BENEDICTUM, an epithet formerly given to lenient, or gently operating medicines; more especially rhubarb.

In this sense we find, in some dispensatory writers, *benedictum laxativum*, used for lenitive electary. Though in others, *benedicta laxativa*, or the *blessed laxatives*, denotes another easy purge, made up of turbith, *diagrydium*, spurges, hermodactyls, anile-seeds, fennel-seeds, *fal-gemma*, and honey.

Schroder also gives the appellation *aqua benedicta* to his emetic; and Mynsicht does the same to his *aqua serpylli*, or water of wild thyme.

Some have called the philosopher's stone *lapis benedictus*.

BENEDICTUM vinum. See VINUM.

BENEDICTUS, *carduus*. See THISTLE.

BENEDITTO *sacco*. See SAN BENITO.

BENEFICE, BENEFICIUM, in an ecclesiastical sense, a church endowed with a revenue for the performance of divine service; or the revenue itself, assigned to an ecclesiastical person for life, in return for his performing the service of the church.

All church preferments, except bishoprics, are called *benefices*; and all *benefices* are, by the canonists, sometimes called *dignities*: but we now ordinarily distinguish between *benefice* and *dignity*, by applying the word *dignity* to bishoprics, deaneries, archdeaconries, and prebends; and *benefice* to parsonages, vicarages, and donatives.

The term *benefice* comes to us from the old Romans who using to distribute part of the lands they had conquered on the frontiers of the empire to their soldiers; those who enjoyed such rewards, were called *beneficiarii*, and the lands themselves *benefices*, as being held on the pure beneficence and liberality of the sovereign. These *benefices* at first were given for life only; but afterwards they became hereditary and patrimonial.

From the Romans, both the name and the thing passed into France and England: with this difference, as Mr. Blount observes, that *benefices* were not given as mere gratuities for past services, but as warrants for future ones: and were accordingly held by the tenure of serving, on occasion, in the wars, &c. So that what was before a *benefice*, became now converted into a FEE, and SERVICE.

There is no obvious reference in the term *benefice* to the feudal system, which was incorporated in all the governments of Europe. As the lands of all private proprietors were holden of the prince, and because they were originally gratuitous donations, denominated *beneficia*, the pope assumed the privileges of a feudal lord, and claimed the authority of distributing the preferments of the church at pleasure; and hence the cure of the souls of a parish came to be called a *benefice*. Blackstone's Comm. vol. iv. p 106. ed. 1769.

Hence, doubtless, came the term *benefice* to be applied to church livings: for, beside that the ecclesiastics held for life like the soldiers, the riches of the church arose from the beneficence of princes.

As to the origin of ecclesiastical *benefices*, it is hard to determine when the revenues of the church were first divided: it is certain, till the fourth century, all the revenues were in the hands of the bishops, who distributed them by their œconomy; they consisted principally in alms, and voluntary contributions.—As the church came to have lands, parts thereof were assigned for the subsistence of the clerks, and called *benefices*; of which we find some traces in the fifth and sixth century: but then there does not appear to have been any certain partition, nor any precise quota allotted to each particular; but the allotments were absolutely discretional till about the twelfth century.

At first, each was contented with a single *benefice*, but pluralities were, by degrees, introduced, on pretence of equity: for, a single *benefice* being sometimes found enough for a competency, the priest was allowed two; as his quality, or occasions, increased, so the number of *benefices* that were to support him were increased too. Hence time, affording to equal priests in quality, pretend to revenues answerable to it.

The canonists distinguish three ways of vacating a *benefice*, viz. *de jure*, *de facto*, and *by the sentence of a judge*.—A *benefice* is vacated *de jure*, when the person enjoying it is guilty of certain crimes, expressed in laws, as hereſy, simony, &c.—A *benefice* is vacated *de facto*, as well as *de jure*, by the natural death, or the resignation of the incumbent; which resignation may be either express, or tacit; as when he engages in a state, &c. inconsistent with it; as among the Romanists, by marrying, entering a religious order, or the like.—A *benefice* becomes vacant by the *sentence of a judge*, by way of punishment for certain crimes, as concubinage, perjury, sorcery, &c. See DEGRADATION.

Benefices are divided by the canonists into *simple*, and *sacerdotal*: in the first, there is no obligation but to read prayers, sing, &c. Such are canonries, chaplainships, chantries, &c.—The second are charged with a cure of souls, or the direction and guidance of consciences. Such are the vicarages, rectories, &c.

The Romanists again, distinguish *benefices* into *regular* and *secular*.

Regular or *titular* BENEFICES, are those held by a religious, or a regular, who has made profession of some religious order. Such are abbeys, priories conventual, &c.

Or rather, *regular benefice* is that which cannot be conferred on any but a religious; either by its foundation, by the institution of some superior, or by prescription: for prescription, forty years possession by a religious, makes the benefice regular.

Secular BENEFICES, are those which are only to be given to secular priests, i. e. to such as live in the world, and are not engaged in any monastic order.

All *benefices* are reputed secular, till the contrary is made appear. They are called *secular benefices*, because held by seculars. Of which kind are almost all cures.

Some *benefices* regular in themselves, have been secularised by the pope's bull. See REGULAR and SECULAR.

A BENEFICE, *in commendam*, is that, the direction and management whereof, upon a vacancy, is given, or recommended to an ecclesiastic for a certain time, till it may be conveniently provided for. See COMMENDAM.

BENEFICE, *Consistorial*, in the *French Customs*, are those of royal foundation, which were elective before the concordat, and are now nominated by the king of France.

They are called *consistorial*, because, on the king's nomination, they are to be proposed in the papal consistory, that is, in the congregation of cardinals, where the pope presides.

To this class belong archbishoprics, bishoprics, and abbies. These *benefices* were formerly elective; but by the concordat, which abolished all elections, they are to be conferred by the pope, on the king's nomination. Annates are to be paid, and the pope's bulls obtained, for *consistorial benefices*.

BENEFICE, *Non-consistorial*, are either elective, or collative, or in patronage.

BENEFICE, *Elective*, are those which are to be filled or supplied in the way of election; only this election to be confirmed by the proper superior.

BENEFICE, *Collative*, are those in the free disposal of the collator, and which need no confirmation; provided the party have the qualifications required.

BENEFICE *in patronage*, are those which the collator is obliged to confer upon those presented by the patron.

BENEFICE *tenant in curia*, are those, whose incumbents or beneficiaries die *in curia*, that is, within ten leagues round Rome.

BENEFICE, *manual*, is that depending on an abbey, and served by a religious sent thither, who is removeable at pleasure by the superior.

We also meet with *manual benefices*, *beneficia manualia*, used for those, where the daily allowances of provisions were only distributed to the residents.

These are also denominated *victual benefices*, *beneficia victualia*.

Possession of a BENEFICE; see POSSESSION.

BENEFICIARII, in *Roman Antiquity*, denote soldiers who attended the chief officers of the army, being exempted from other duty.

Beneficiarii were also soldiers discharged from the military service or duty, and provided with *benefices* to subsist on.

These were probably the same with the former, and both might be comprised in the same definition. They were old, experienced soldiers, who having served out their legal time, or received a discharge, as a particular mark of honour were invited again to the service, where they were held in great esteem, exempted from all military drudgery, and appointed to guard the standard, &c.

These, when thus recalled to service, were also denominated *evocati*; and before their recall, *emeriti*.

BENEFICIARII was also used for those raised to a higher rank by the favour of the tribunes, or other magistrates. The word *beneficiarius* frequently occurs in the Roman inscriptions found in Britain, where *consulis* is always joined with it; but besides *beneficiarius consulis*, we find in Gruter *beneficiarius tribuni*, *prætorii*, *legati*, *præfecti*, *proconsulis*, &c.

BENEFICIARY, in a general sense, something that relates to BENEFICES.

Rebuffe has collected six volumes on *beneficiary* matters. F. Paul has also a treatise on them.

BENEFICIARY, *beneficiarius*, is more particularly used for a benefited person, or him who receives and enjoys one or more benefices.

BENEFICIARY is more particularly uſed, among *Roman Writers*, for a perſon exempt from public offices.

In which ſenſe, BENEFICIARII ſtand contradiſtinguiſhed from *munificati*.

BENEFICIARY is alſo uſed, in *Middle Age Writers*, for a feudatory or vaſſal.

BENEFICIARY is alſo uſed for a clerk or officer, who kept the account of the *beneficia*, and made the writings neceſſary thereto.

The ſame denomination was alſo given to the officers who collected the rents and duties belonging to the *fiſcus*.

BENEFICIO; ſee DEPRIVATION *à beneficio*.

Suſpenſio à BENEFICIO; ſee SUSPENSION.

Privatio BENEFICIO *eccleſiaſtico ſubtrahit*; ſee PRIMO.

BENEFIT is uſed for a privilege granted to ſome perſon, as of an immunity, or the like.

BENEFIT *of ceſſion*, in the *French Laws*, is when a debtor is admitted to ſurrender all his effects to his creditors, and in conſequence thereof ſet at liberty.

BENEFIT *of age*, in France, is when a minor obtains the king's letters, whereby he is emancipated, and impowered to manage his own income from eighteen years to his full majority.

BENEFIT *of clergy*; ſee CLERGY.

BENENAIM, BENENATH, BENENASCH, or BENENAT, in *Aſtronomy*, the outermoſt ſtar, of the ſecond magnitude, in the tail of the URSA *minor*.

This is ſometimes alſo called *alkaiſath*.

BENEVOLENCE, *Univerſal*, in *Ethics*, denotes a hearty deſire of the good of mankind, evidencing itſelf, as ability and opportunity offer, in the chearful and diligent practice of whatever may promote the well-being of all. Some have traced the origin of this affection in ſelf-love: others again in ſome INSTINCT or determination of our nature, antecedent to all reaſon from intereſt, which influences us to the love of others, and they have accordingly made it the foundation of univerſal VIRTUE: others more properly aſcribe it to the *intelligent* conſtitution of human nature, and obſerve, that it ariſes not from inſtinct, but from the natures and neceſſity of things. Hutcheſon's Inquiry concerning Moral Good and Evil. Price's Review, &c. chap. iii.

BENEVOLENCE is uſed, both in our ſtatutes and chronicles, for a voluntary gratuity given by the ſubjects to their ſovereign, to which each perſon contributes in proportion to his eſtate: and as *benevolences* had been extorted under many ſucceeding princes, without a real and voluntary conſent, it was made an article in the petition of right, 3 Car. I. that no man ſhall be compelled to yield any gift, loan, or *benevolence*, &c. without common conſent by act of parliament.

In this ſenſe, *benevolence* amounts to much the ſame with what in other nations is called *ſubſidium charitativum*, given ſometimes by tenants to their lords, by the clergy to their biſhops, &c.—In France it is called *free gift*, excepting that this latter is reſtrained to the act of the clergy.

Among us, there are ſeveral ſtatutes againſt charging he people with *benevolences*; ſee 1 Rich. III. c. 2. 13 Car. II. ſtat. 1. c. 4.

BENJAMIN, in *Pharmacy*, a *reſin*. See ASA *dulcis*, and BENZOIN.

BENJAMIN *tree*, in *Botany*, a ſpecies of the BAY.

BENISH *Days*, among the Egyptians, a term for three days of the week, which are days of leſs ceremony in religion than the other four, and have their name from the *beniſh*, a garment of common uſe, not of ceremony.

In Cairo, on Sundays, Tueſdays, and Thurſdays, they go to the hathaw's divan; and theſe are the general days of buſineſs. Fridays they ſtay at home, and go to their *moſques* at noon; but though this is their day of devotion, they never abſtain from buſineſs. The three other days of the week are the *beniſh* days, in which they throw off all buſineſs and ceremony, and go to their little ſummer-houſes in the country.

BENLOJA, in *Ichthyology*, the name by which the Swedes call that ſpecies of CYPRINUS, which we call the *bleak*. It is the ALBURNUS of authors.

BENNET *Herb*, in *Botany*; ſee HERB *Bennet*.

BENZOIN, a medicinal kind of reſin, imported from the iſlands Siam and Sumatra, and ſeveral other parts of the Eaſt Indies.

Benzoin is the ſame with what is popularly called *benjamin* or *benjoin*, ſometimes alſo ASA *dulcis*.

It is procured by a wound, or inciſion made in a tree, whoſe leaves reſemble thoſe of the lemon-tree, the *croton benzoe* of Linnæus. The *benzoin*-tree is plentiful in Virginia and Carolina, and has been brought from thence into England, where it grows with vigour in the open ground. The bark and leaves yield with rectified ſpirit a reſin like *benzoin*, though this tree diſcharges none naturally in our clime nor in America. It is of a yellowiſh colour, of an agreeable ſcent, and melts eaſily. There are three ſorts of *benzoin*. The firſt is called *amygdaloides*, becauſe of its being interſperſed with ſeveral white ſpots, which reſemble broken almonds: this comes from Siam, and is eſteemed the beſt. The ſecond is black, and very odoriferous; it drops from young trees, and comes from Sumatra; it is called *benzoinum de Boninas*. The third ſort is alſo black, but leſs odoriferous; this is found on the iſlands of Java and Sumatra. See Geoffroy, p. 354.

Benzoin is uſed in phyſic, as a pectoral, and anti-aſthmatic; and thrown on live coals, it ſerves to perfume houſes, &c.

Some recommend *benzoin* diſſolved in ſpirit of wine as a cephalic. It makes a tincture, commended for taking away freckles. It alſo enters the compoſition of ſome plaiſters, as a diſcutient and ſtrengthener.

Pharmaceutic writers ſpeak of a watry and tincture of *benzoin*, drawn with the ſpirit of wine, ſaid to be good againſt aſthmas, &c. Flowers of *benzoin*, procured by ſublimation, are eſteemed a powerful pectoral, and, ſnuffed up the noſe, are ſaid to be a powerful errhine. Spirit of *benzoin* is uſed as a diuretic; and oil of *benzoin* is accounted a good vulnerary.

If two or three pounds of *benzoin* be diſtilled dry in a retort, with a mixture of a little ſand, there will ariſe ſpirit, oil, and flowers. This ſpirit being ſeparated from the reſt by filtration, and mixed with *ſal ammoniac*, two parts of the ſpirit of *benzoin* to one part of the other, though both are ſeparately clear and colourleſs, the mixture will become red. Phil. Tranſ. N° 225.

The principal uſe of this fragrant reſin, is in perfumes, and as a coſmetic for ſuſtening and ſmoothing the ſkin. For this laſt purpoſe it is diſſolved in ſpirit of wine, with an addition ſometimes of ſtorax, and the ſolution mixed with water, makes a white liquor, which is called VIRGIN'S *milk*.

BER, in *Botany*, a name uſed by ſome authors for the Indian *jujube*; that ſpecies of the jujube-tree, on which the gum *lacca* of the ſhops is uſually found.

BERBENGINE, a name given by the *Arabian Phyſicians* to the *pomum amoris*, or *love-apple*, a kind of eſculent nightſhade; and by ſome to a tree producing the nut *mateï*, becauſe of its likeneſs to the plant which produces the *anthongena* in the ſhape of its leaves.

BERBERII, in *Medicine*; ſee PALSY.

BERBERIS; ſee BARBERRY-*tree*.

BERCARIA, BERQUERIA, or BERKERIA, in *Middle Age Writers*, denotes a ſheep-fold, ſheep-cote, ſheep-pen, or other incloſure, for the ſafe-keeping of a flock of ſheep. The word is abbreviated from *berbicaria*; of *berbex*, detorted from *vervex*. Hence alſo a ſhepherd was denominated *berbicarius*, and *berquarius*.

BERCHEROIT, or BERCKOVS, a weight uſed at Archangel, and in all the Ruſſian dominions. It is equal to about 364 pounds Engliſh avoirdupois.

BERDASH, in *Antiquity*, was a name formerly uſed in England for a certain kind of neck-dreſs; and hence a perſon who made or ſold ſuch neck-cloths was called a *berdaſſher*, from which is derived our word HABERDASHER.

BERDIN, in *Natural Hiſtory*, a name given the PATELLA, or limpet, in Normandy, and other places. In ſome it is pronounced *berſin*.

BERENGARIANS, a religious ſect, adhering to the opinions of Berengarius, archdeacon of Anjou, who, in the latter part of the eleventh century, a conſiderable time before Luther, oppoſed the doctrine of tranſubſtantiation, and the real preſence, ſtrenuouſly maintained by Lanfranc and Anſelm.

He is further charged by the Romaniſts with decrying marriage, and maintaining the common uſe of all ſorts of women, and aſſerting infant-baptiſm of no effect.

His followers were divided on the head of the euchariſt: though they all agreed, that the bread and wine were not eſſentially changed, yet ſome allowed, that the body and blood of Chriſt were contained in them, though concealed under an impanation, which was the opinion of Berengarius himſelf: others denied any change at all, and reſolved the whole into figure; others again allowed a change in part; and others an entire change with this reſtriction, that to thoſe who preſented themſelves unworthily it was changed back again. See Moſheim's Eccl. Hiſt. vol. ii. p. 328, &c.

Mabillon has a diſſertation expreſs on the manifold condemnations of Berengarius, his retractions, relapſes, and repentance.

BERENICE'S *Hair*; ſee COMA *Berenices*.

BEREWICHA, or BEREWICA, in our *Old Writers*, denotes a village or hamlet belonging to ſome town or manor, ſituate at a diſtance therefrom.

The word frequently occurs in Doomſday-book: *Iſta ſunt* berewichæ *ejuſdem manerii*.

BERVISCH, in *Ichthyology*, a name given by the Germans to the common PEARCH, or *perca*.

BERYL, *prasius*, in *Natural History*, the name of an earth used in painting, and properly called *green ochre*, though not known among the colour men under that name. It is found in many parts of Germany, Italy, and England, commonly in the neighbourhood of copper-mines, from particles of which metal it receives its colour. The characters by which the native kind is known from other green earths, are these: it is a dense, compact substance, considerably heavy, and of a pale, but not disagreeable green; of a rough and uneven, but not dusty surface, and somewhat unctuous to the touch. It adheres firmly to the tongue: does not break easily between the fingers; nor at all stain the hands. It is of a brackish disagreeable taste, and does not ferment with acids.

BERGAMOT gives the denomination to a kind of essence, drawn from a fruit, produced by ingrafting the lemon-tree on the *bergamot* pear-stock. It is properly the oily fluid of the peels of these lemons, expressed by the fingers.

There is likewise a kind of snuff of the same name, which is only clean tobacco, with a little of the essence rubbed into it.

BERGAMOT is also the denomination of a coarse tapestry, manufactured with flocks of silk, wool, cotton, hemp, ox, cow, or goat's hair, and supposed to be invented by the people of Bergamo in Italy.

BERGANDER, in *Ornithology*, a name by which some have called the Shield-drake, or Burrough-duck, a very beautiful species of duck, common in the coasts of Lancashire; but not much esteemed for eating, called TADORNA.

BERGHMOT, or BERGHMOOTE, vulgarly BARMOTE, a court held on a hill for deciding pleas and controversies among the Derbyshire miners.

The word is formed from the SAXON *berg*, *mont*; and *mote*, *conventus*, *assembly*, or *meeting*.

BERIBERI, the name of a disease among the Indians, being a species of PALSY.

BERICARIA, BERCARIA, or BERQUARIA, a sheep-down, or ground whereon to feed sheep.

BERITH, a simple mentioned in Scripture, used for cleansing or taking out spots. Jerem. chap. ii. ver. 22. Some will have it to be the *kali*, or *salt-wort*, from the ashes of which soap is made; and in our version it is rendered *soap*: others, after Rudbeck, make it to be the dye of the purple fish.

BERLIN, a sort of vehicle, of the chariot kind; taking its name from the city of Berlin, in Germany: though some attribute the invention of it to the Italians, and derive the word from *berlina*, a name given by them to a sort of stage, whereon persons are exposed to public shame.

The *berlin* is a very convenient machine to travel in, being lighter, and less apt to be overturned, than a chariot. The body of it is hung high, on straps, by leathern braces; there being a kind of stirrup, or footstool, for the convenience of getting into it: instead of side windows, some have screens to let down in bad weather, and draw up in good weather.

BERLIN, in *Natural History*; see LIMPET.

BERLUCCIO, in *Ornithology*, the name of a small bird of the *bernicula* kind, and much resembling the *yellow-hammer*; but something smaller, and longer bodied.

BERME, in *Fortification*, a small space of ground, four or five feet wide, left without the rampart, between its foot and the side of the moat, to receive the earth that rolls down from the rampart, and prevent its falling into, and filling up the moat.

This is also called *liziere*, *relais*, *retraite*, *pas de souris*, *fore-land*, &c.

Sometimes for greater security, the *berme* is palisadoed.

BERMUDIANA, in *Botany*; see SISYRINCHIUM.

BERNACLE, in *Ornithology*; see BARNACLE.

BERNARD *the hermit*, in *Ichthyology*; see SOLDIER.

BERNARDINS, or BERNARDITES, the name of a religious order, differing very little from the CISTERCIANS. Their usual habit is a white gown, with a black scapulary; but when they officiate, they put on a large white cowl with great sleeves, and a hood of the same colour.

BERNHARDIA, in *Botany*, a name given by Houstoun to a genus of plants, characterised by Linnæus under the name of CROTON.

BERNICLE, in *Natural History*, the name of a species of shell-fish, called by authors CONCHA *anatifera*.

This is composed of five shells or valves, and agrees, according to Lister, with the *pholas*, as well in the disposition as in the number of the valves. Lift. Hift. Nat. p. 560.

BERNICLE is also a name given by the people of many parts of France to the *percebe*, or LIMPET.

BEROE, in *Natural History*, is a marine animal found on the coasts of a gelatinous transparent nature, and of an oval or spherical form, about half an inch to an inch diameter, striated like a melon into longitudinal ribs, each of which is furnished with rows of minute fins, by means of which this animal, like the *animalcula infusoria*, can swim in all directions with great swiftness. The excellent Linnæus, says Mr. Ellis (who gives the above mentioned description of this animal), have joined the *beroe* to the *volvox*, one of the *animalcula infusoria*.

BERRY, *bacca*, a grain, fruit, or seed, produced by several herbs, trees, and shrubs, thence called BACCIFEROUS, for the conservation, and reproduction of their kind.

Some define *berries* as a fruit smaller than apples, growing in bunches, but not so thick or close as grapes. Others a soft, fleshy, succulent fruit, having stones or kernels within them.

Such are the fruits of laurels, olives, currants, and the like.

Berries are of various sizes, forms, properties, and uses, according to the plants wherein they grow.—Some are used in medicine, as juniper *berries*, buckthorn *berries*, &c.—Others in dying, as French or yellow *berries*, &c.

The yellow *berry* wash may be thus prepared: take a pound of the French *berries*, and put them to a gallon of water, with half an ounce of alum; boil them an hour in a pewter vessel, and filter off the fluid: put them again into the boiler, and evaporate the fluid till the colour appear of the required strength.

BERRY likewise denotes a pulpy *parisarpium*, without valves, in which the seeds are naked.

BERRY, *Avignon*; see AVIGNON.

BERRY, *Ale*; see ALE.

BERS, in *Ancient Medicine*, an electuary used by the Egyptians to excite deliriums.

BERSARII, in *Writers of the Middle Age*, a kind of hunters or sportsmen, who pursued wild beasts in forests and chases.

The word seems derived from the barbarous Latin *berfare*, *to shoot with a bow*. On which principle, it should properly denote archers only, or bowmen. Or it might be derived from *berfa*, the *fence* or *pales of a park*. In which view, it should primarily import those who hunt or poach in parks or forests.

Hincmar speaks of a kind of inferior officers in the court of Charlemagne, under the denomination of *berjarii*, *bestiarii*, and *bearnarii*. Spelman takes the first to denote those who hunted the wolf; the second, those who had the superintendency of the hounds for that use; and the third, those who hunted the beaver.

BERSE, in *Botany*, the name given by the French writers to the *sphondylium*, or COW-PARSNEP, a species of umbelliferous plants common in our meadows, and known by its large rough leaves and remarkable height.

BERTH, in the *Sea-language*, denotes a convenient distance or room to moor a ship in.

To take a good BERTH, signifies to go some distance to sea-board off any point, rock, or other thing which the seamen would go clear of.

BERTHING, in the *Sea-language*, denotes the raising or bringing up of ship-sides. Thus they say, a clincher hath her sides *berthed* up before any beam is put into her.

BERTONA, BERTORIA, BERTHONA, BERTOR, or BARTON, properly denotes that part of a country farm where the barns and other inferior offices stand, and wherein the cattle are fostered, and other business is managed.

BERTON is also used to signify a farm, as distinct from a manor. Du Cange.

In some parts of the West of England, they call a great farm a *berton*; and a small one a *tenure*.

Hence also *bertonarii* was anciently used for those we now call farmers, or tenants of *bertons*.

BERULA, in *Botany*, a name given by some authors to the common upright water-parsnep, or *sium erectum* nobilatum. See SKIRRET.

BERUS, a species of the COLUBER.

BERY, BERIA, or BERIE, in *Middle Age Writers*, denote a fair, wide champaign.

In which sense, the word differs from *bury* or *borough*, *a town*, though usually confounded with it by glossographers. Hence *Berie S. Edmundi*, mentioned by Matt. Paris under the year 1274, is not to be understood of the town, but of the adjoining plain.—And hence the denomination *berry-field*, and *berry-meadow*, is still retained in divers flat and wide meads, and open grounds. Hence also *berra effaturire* is to dry or plow up heaths or downs. And hence our warrens are called *conyberies*.

Bery is either used separately, or in composition with the names of divers places; as *Minsbery*, *shewsbery*, &c.

BERYL, or BERYLL, *beryllus*, in the *Ancient Physiology*, denotes a transparent stone, or gem, brought from India,

of a light, or pale green colour; insomuch that some have represented it as it were two colours, the one green, the other pale.

The *beryl* of the ancients is the same with what in later times has been denominated AQUA *marina*, by reason of its glassiness, or sea-green colour.

The *beryl* differs from the *chrysoberyll*, which is somewhat paler, and partakes more of the yellow: and from the *chrysoprasus*, which partakes more of the green.

Some authors take the *beryl* to be the diamond of the ancients.

The *beryl* is sometimes found in pieces large enough to form fine vases. It is said there are many of these in Cambaya, Mazandran, Pegu, and Ceylon.

The *beryl*, in its finest kind, approaches to the hardness of the garnet; but it is often much softer, and consequently of the less value. There is, however, a common error which gives our jewellers an idea of this and other of our gems, being much softer than they really are, which is, the mistaking of the common tinged crystals frequent in mines and called by authors *pseudoberylli*, &c. for the genuine gems of those names. It is easy to conceive these cannot be any harder, and it is natural enough to suspect they cannot be so hard as crystal in its common colourless state.

The *beryl* parts with its colour in a very small fire; but in, when coloured, greatly inferior to the amethyst or sapphire. It is found in great abundance in the island of Ceylon, and in many other parts of the East Indies, as also in America; many of these are found also in Bohemia, and some other parts of Europe, but in this, as in all other gems, the oriental are vastly superior to those of any other part of the world in hardness, as well as in lustre, and the beauty of their colour.

Guarinus gives a list of eight sorts of *beryls*, distinguished only by the diversity of their colours.

Mr. Boyle who speaks of a white kind *of beryl*.

BERYL I. also a name given by foreign or our jewellers to a species of brown long crystal, with a remarkably long pyramid.

This is the brightest of all the brown crystals, and is essentially different from the species commonly known by that name. It is found in Italy, and some parts of Germany. The Italians call it, by way of eminence, *the beryl crystal*; but our jewellers drop the word crystal, and call it simply the *beryl*. Hence any tolerably clear brown crystal was some time ago cut, to supply its place; and good brown crystal was generally accounted the *beryl* of the ancients.

BERYL, *beryllus*, is also a name given to a kind of crystal looking glass, superstitiously consecrated to the purposes of conjuring and divination.

Hence also the term *beryllistica*, used for the mysterious art of seeing future or distant events in such glasses.

BERYTTUM, in the *Ancient Physic*, an opthalmic medicine or collyrium, invented by Berytus against the severest ophthoras.

The same denomination is also given to a sort of pastil, of use in dysenteries.

BES, or BESSIS, an ancient Roman weight, containing two thirds of the *as*; that is, eight *uncia*.

The *as* originally weighed two *asses*; whence the origin of the word *assis binis as*. Though Scaliger conjectures it to have been formed from *duo*; as *bidum* from *biduum*, or *binum* from *binarium*.

BES was also used in the mensuration of lands, to denote two thirds of a *jugerum*, or acre.

BESAILE, in the *Common Law*, a writ that lies where the great-grandfather or great-grandmother was seised of the day that he or she died of any lands or tenements in fee-simple; and after his or her death, a stranger entered the same upon him, and keeps out the heir.

The word is French, *besaïle*, *or bisayeul*, a *great-grandfather*.

BESANT, or BEZANT, BYZANT, or BYZANT, a sort of coin, struck at Byzantium, in the time of the Christian emperors.

The *besant* was pure gold, or twenty-four carats fine; but writers are not generally agreed with respect to its value.

Hence also the gold offered by the king at the altar, on festivals, is still called *besant*, or *besant*.

Thirteen *besants*, or *bizantines*, are presented at the mass at the coronation of the kings of France. Henry II. had that number coined on purpose.

BESANTS, or BEZANTS, in *Heraldry*, are representations of round, flat pieces of money or bullion, without stamp or impress, introduced into coat-armour by those who went at the holy war.

Besants are ever of metal, and when blazoned, should be expressly said to be of *or*, or *argent*. The English heraldry knows only the gold; but foreigners have also the silver kind.

When a field or charge contains above eight *besants*, so placed as to fill the same equally on all sides, and representing a promiscuous strewing of pieces over the whole, some blazon the field or charge *besanté*, *bezanté*; but if there be ten, twelve, fifteen, or more, ranged in any particular form or position, the number and form must be particularly mentioned. Chart's Dict. Herald.

Cross BESANTED, *bezanté*, denotes a cross made up of *besants*, or pieces of money.

This answers to the same with what Upton calls a *cross bezanted*, *cross talentata*, or made up of talents.

BESENE, in the *Materia Medica*, a name given by the Arabian writers to Scorpion and Arisæma to mean; but as the names *besena* and *mour* are very much alike in sound, though different in sense, they have confounded these two things under the same term *besena*; the one denoting the covering of the nutmeg, and the other the bark of a tree used as an ingredient; so that this word *besena* is to be understood as meaning the one or the other of these according to the various circumstances.

BESD, a term often used by Arabian writers for the plant called MARUBIUM.

BESLERIA, in *Botany*, the name given by Plumier, but afterwards by Linnæus, in honour of the *botanical writer* of Nuremberg of that name.

This is a genus of plants the characters of which are these: the flower is of the lip kind, and of one leaf: it has four *stamina* in the tube of the flower, two of which are longer than the other; with an oval *germen*, which afterward becomes an oval berry, with one cell filled with small seeds. There are three species which grow naturally in the warm parts of America, but are too tender to live in this country, without artificial heat.

BESORCH, a term of art, or of some alloyed metal, current at Ormus, at the rate of about $\frac{7}{8}$ parts of a sterling sterling.

BESSIS *centesimæ*, denotes two thirds of centesimal interest, or usury at eight *per cent.*

BESTAIL, or BESTIAL, in *Ancient Statutes*, is used for CATTLE. 5 Ed. III. c. 2.

BESTARCHA, a dignity in the courts of the emperors of Constantinople, supposed to answer to that of the *master of the ceremonies* among us.

The word *bestarcha* seems to have been formed from *vestarcha*, by a change of the *v* into *b*.

BESTIARII, among the *Ancient Romans*, those who were hired to combat with beasts, or those who were exposed to them, by sentence of law.

We usually distinguish two kinds of *bestiarii*; the first were those condemned to the beasts either as being enemies, traitors, prisoners, or as being thieves, and guilty of some enormous crime—These were all exposed naked, and without defence, to the beasts; nor did it ought avail to conquer and kill the beast, fresh ones being continually let loose on them, till they were dead. But it seldom happened, that two were required for the same man; on the contrary, one beast frequently dispatched several men. Cicero mentions a lion, which alone dispatched two hundred *bestiarii*.—Those who succeeded the first were called *postulati*, and the last *postulatitii* among the Romans, *novitiani*.

The Christians were *bestiarii* of this kind; even some of them who were Roman citizens; though it was the legal right of such to be exempt from it.

The second kind of *bestiarii*, Seneca observes, consisted of young men, who, to become expert in managing their arms, fought sometimes against beasts, and sometimes against one another; and of heavies, who, to show their courage and dexterity, exposed themselves to this dangerous combat. Augustus encouraged this practice in young men of the first rank; Nero exposed himself to it; and it was for the killing beasts in the amphitheatre, that Commodus acquired the title of the *Roman Hercules*.

Vigenere to these adds two kinds of *bestiarii* more: the first were those who made a trade of it, and fought for money; the second was where several *bestiarii*, armed, were let loose at once, against a number of beasts.

BETA, in *Botany*, the BEET.

BETEL, in *Botany*, an Indian plant, in great use and esteem throughout the East, where it makes a considerable article of commerce.

The *betel* bears some resemblance to the pepper-tree. Its leaves are like those of ivy, only softer, and full of red juice, which, among the Orientals, is reputed of wonderful virtue for fortifying the teeth, and rendering the breath sweet. The Indians are continually chewing these leaves, which renders their lips so red, and teeth black, a colour by them vastly preferred to the whiteness affected by the Europeans.

The consumption of *betel* leaves is incredible, no body, rich or poor, being without their box of *betel*, which they present to each other by way of civility, as we do snuff. In many places they chew the areca nut, either alone or mixt with the *betel* leaf and lime, and the leaves of this plant

plant are sometimes chawed alone; but they are too sharp, and usually injure the teeth, and it is not uncommon to find men of twenty-five wholly toothless in the part of the world, merely from their having chewed this plant to an excessive degree. The prepared *betel* is a very common present among the poorer sort; and, on taking leave of a friend, it is always the custom to make him a present of a parcel of the leaves prepared for use. When the head or feet are to appear before the rich, they always chew a large quantity of *betel*, to give them a sweet breath; and the women, on certain occasions, never fail to take largely of it as a provocative. On all visits, the company is regaled with prepared *betel*. The principal time of using it is after dinner, at which time they lay it presents to rests at the monarch; and they never abstain from it, except on the solemn occasions of the funerals of their relations, and their days of fasting. Moderately used, it strengthens the gums, corroborates the heart and stomach, dissipates flatulencies, and purges both the stomach and brain. If chewed after breakfast, it makes the breath sweet for the whole day. The Portuguese women are as fond of the *betel* as the Indians themselves, and cannot live a day without it.

BETELGEUSE, or BEDELGAZE, a fine star of the first magnitude in Orion's right-shoulder.

BETH, in *Literary History*, makes the title of a multitude of books in the Hebrew language; e. gr. *beth auth*, or *the house of the fathers*; *beth Elohim*, or *the house of God*; *beth Israel*, or *the house of Israel*, &c.

BETHLEHEM *star*, in *Botany*, the STAR *of Bethlehem*.

BETHLEHEMITES, or BETHLEMITES, in *Church History*, a sect of monks introduced into England in the year 1257, habited like the Dominicans, except that, on their breast, they wore a star with five rays, in memory of the star or comet which appeared over Bethlehem at the nativity of our Saviour. They were called at Cambridge, and had only one house in England.

There is also an order of *Bethlehemites* still subsisting in Peru, who have convents at Lima; one called of the Incurables, the other of our Lady of mount Carmel.

These *Bethlehemites* came originally from the city of Guatimala in Mexico, where they were instituted by the venerable Peter Joseph of Betancur, for the service of the poor. Innocent XI. in 1687, approved the institution. They have already nine convents in Peru.

The *Bethlehemites*, though outwardly of great simplicity, pass for the most refined politicians; insomuch as to be called the quintessence of the Carmelites and Jesuits. They are all friars. For their almoner they choose a secular priest, whom they hire, and who has no vote in the chapter.

BETON, a name given by the French engineers to a kind of mortar, which they use in rolling the foundations of masonry under water. It consists of twelve parts of pozzolana, or Dutch terrafs, six of good sand, nine of unslaked lime, thirteen of stone splinters about the size of an egg, and three of the dust, or cinders, or scales of iron out of a forge; this being well worked together, is left to stand for about twenty-four hours, or till it becomes so hard as not to be separated without a pick ax.

BETONY, BETONICA, in *Botany*, a genus of plants, of the *didynamia gymnospermia* class; the characters of which are these: the flower is of one leaf, of the lip kind, with a cylindrical incurved tube: the upper lip is roundish, plain, erect, and entire; the lower lip is cut into three parts. It hath four *stamina*, two long, and two shorter, which incline to the upper lip. The *pericarpium* is quadripartite, which afterward becomes four naked oval seeds, lodged in the cup-compliment. Linnæus enumerates four and Miller seven species.

The officinal *betony* has been celebrated for abundance of medicinal virtues, but does not promise to have any considerable activity. Its principal use is in herb drafts, and as a substitute for tea. Its root, like the root of hellebore, operates both upwards and downwards.

Betony is esteemed a good cephalic, vulnerary, cardiac, diuretic, and aperient. Some also make *betony* a good splenetic, hepatic, thoracic, uterine, &c.

The Italians, when they would praise any body, say, *tu hai più in testa che non ha betonica*; that is, *you have more virtues than betony*: and proverbially desire, *vende la camisa per comprar la betonica*; that is, *sell your coat and buy betony*. Ant. Musa, physician of the emperor Augustus, wrote a treatise expressly, *De Betonica*, still extant; wherein he commends it greatly as a vulnerary, especially in wounds of the head, and enumerates its uses in the cure of no less than forty-seven diseases.

Betony is chiefly administered in the way of decoction, sometimes of tisane, sometimes as an ingredient of a cerat or plaster, hence called *emplastrum de betonica*. Some also give its juice, boiled to the consistence of honey, mixt with a little balsam of Peru, as a pectoral healer.

Foreign dispensaries also give the preparations of a *betony* water, a syrup, conserve, and extract of *betony*.

BETONY, *Water*, in *Botany*, the *Scrophularia*.

BETONICE *Pauli*, in *Botany*, a name given by many to some of the species of the *veronica*, or SPEEDWELL.

BETROTHMENT, a mutual promise or compact between two parties for a future marriage.

The word imports as much as giving one's troth; that is, your faith, or word.

Betrothment amounts to the same with what is called by civilians and canonists *sponsalia*, or *espousals*; sometimes *stipulationes*, and by the French *fiançailles*.

Betrothment is either solemn, made in the face of the church, or private, made before witnesses out of the church. *To betroth by giving earnest*, or earnest, is called by *Middle Age writers*, *subarrare*.

The nuns of the *Annunciade* hold an annual feast, in honour of the betrothment, or espousal of the Virgin Mary to Joseph.

BETULA, in *Botany*, the BIRCH.

BEVEL, in *Masonry*, and among *Joiners*, a kind of square, one leg whereof is frequently straight, and the other crooked, according to the sweep of an arch, or vault; being withal moveable, on a point, or center, so that it may be set to any angle.

The make and use of the *bevel* are pretty much the same as those of the common square and miter, except that these latter are fixed; the first at an angle of ninety degrees, and the second at forty-five; whereas the *bevel*, being moveable, may, in some measure, supply the office of both, and yet, which is to chiefly intended for, supply the deficiencies of both, serving to fix off, or transfer angles, either greater or less than ninety, or forty-five degrees.

Bricklayers have also a *bevel*, by which they cut the under sides of the bricks for arches straight or circular, to such oblique angles, as the arches require, and also for other uses.

BEVEL, *Graduated*, is that which has about the centre of one of its arms a semicircle graven, and divided into 180 degrees, whose diameter stands square with the other end of the same arm; so that the end of the other arm, being divided at right angles, almost to the centre, shews by its motion the number of degrees contained in the angle to be measured.

This is also called *sexagenary*, and *semicentry*.

BEVEL *angle* is used among the workmen, to denote any other angle beside those of ninety or forty-five degrees.

BEVELLING, in *Ship-building*, the act of hewing timber with a proper and regular curve, according to a mould which is laid on one side of the surface.

BEVERAGE, in a general sense, signifies a drink. Hence nectar is said to be the *beverage* of the Gods. In *Writers of the Middle Ages*, *beverage*, *bevenagium*, or *bevragium*, denotes money given to an artificer, or other person, to drink over and above his hire or wages. Du-Cange.

BEVILL, in *Heraldry*, denotes a thing broken, as appearing like a carpenter's rule.—Thus he beareth argent a chief *bevill* vert, by the name of *Bevill*. Vide *Leg. Herald. Eg.* 8.

BEWTIS, in *Falconry*, denote pieces of leather to which a hawk's bells are fastened, and buttoned to his legs.

BEXDQUILLO, in the *Materia Medica*, a name given to the white *Ipecacuanha*, which the Spaniards bring from Peru, as the Portuguese do the known from Brasil.

BEY, or BEG, denotes a governor of a country, or town, in the Turkish empire.

The Turks write the word *begh*, or *Ith*, but they pronounce it *bey*: properly it signifies *lord*, but is particularly applied to a *lord of a banner*, whose in the same language they call *sanjakbeg*, or *beg sanjaki*, which among them signifies *banner*, or *standard*, being the badge of him who commands in an inferior place of some province, having under him a considerable number of spahis, or horse.

Each province in Turky is divided into seven of these *sanjaks*, or banners, each of which qualifies a *bey*; and these are all commanded by the governor of the province, whom they also call *beghlar-begh*, or *beglar-bey*, i. e. *Lord of the lords or bey of the province*.

These *beys* are, in a great measure, the same that *baronets* formerly were in England.

BEY, of Tunis, denotes a *prince*, or *king* thereof: answering to what at Algiers is called the *dey*.

In the kingdom of Algiers, each province is governed by a *bey*, or vice-roy; who is appointed and removed at pleasure by the dey; but has a despotic power within his jurisdiction; and at the season for collecting the tribute from the Arabs, is attended by a body of troops from Algiers.

BEZANT, see BESANT.

BEZANTLER, among *Sportsmen*, that branch of a deer's horn next below the brow antler.

BEZOAR, or BEZOARD, primarily denotes an antidote, or counter-poison.

The word is formed from the Persian *pa-zahar*, which denotes the same; *pa* signifying *against*; and *zahar*, *poison*.

In this sense the name is applied to divers chemical compositions of that intention; as the *mineral*, *solar*, and *perpetual bezoards*.

Some have also given the appellation *animal bezoard*, to a powder, made of the heart and lives of *vipers*, pulverized together.

BEZOAR, or BEZOARD, in a more proper sense, denotes a medicinal stone, brought from the East or West Indies, composed of several coats, or *lamina*, laid one over another, like an onion, generated in the stomach of an animal of the goat kind, and esteemed a powerful antidote and cardiac. See ÆGAGROPILUS.

This is sometimes also called the *true bezoar*, and is of two kinds, *oriental* and *occidental*.

BEZOAR, *Oriental*, is in the most esteem, and is brought from several parts of the East Indies, chiefly Golconda and Cananor: it is there found mingled with the dung of an animal of the goat kind, called *pasan*; in the belly whereof this stone is found.

These is generally, if not always, some foreign body in the centre of the *bezoar*, around which, as a *nucleus*, the bezoartic coats, or *strata*, are ranged; as straws, hair, matcasses, pebbles, talc, sand, &c. and stones like cherry-stones; but the common *nucleus* is the pod of a fruit much like that of the ACACIA *vera Ægyptiaca*; though at first sight it resembles a *cassia*, or tamarind-stone. This fruit being taken into the stomach, causes, by its astringency, a condensation of the liquors it there meets with, from which in time arises the *bezoar*. Phil. Trans. N° 282. p. 1284.

In some of the stones also found on this *nucleus*, the outer membrane of the bean having perished, and the bean thereby in drying, there remains a swelling between it, and the next coat of the *bezoar*; so that it rattles within, when shaken, in the manner of an *addle*.

The formation of the *bezoar* seems to be this, that the undigested matter, be it what it will, remaining in the stomach of the animal, irritates the glands, and makes them discharge their contents, which, mixing with the juices of the stomach, impregnated with the virtues of the aromatic plant on which the animal feeds; these may together collect, and harden by degrees about this substance. In fine, their coats surrounding one another; the consequence of which must be, that the whole *bezoar* must be of the shape of the accidental matter, on which it was formed. If it be a straw, the *bezoar* will be long; if a small pebble, the *bezoar* will exactly be of its shape, however irregular that be; and, if a kidney bean, there will be seen on the *bezoar* the several lineaments of that fruit. Mem. Acad. Paris 1711.

The stones produced by each animal may be felt and numbered on the outside, by which in trade the price of the animal is regulated.

Bezoar ordinarily grows to the bigness of an acorn, sometimes to that of a pigeon's egg: it is composed of several thining skins, or coats, like an onion, sometimes of a blood colour, sometimes a greenish yellow, a brownish red, and honey colour.—The number of *bezoars* produced by each animal is various, some yielding one, two, &c. to six, and others none at all.

The larger the stone, the more valuable it is held; its price increasing like that of the diamond.—A stone of one ounce is sold in the Indies for 100 livres, and one of four ounces and a quarter for 2000 livres.

The genuine *bezoar* stones are so scarce even in the *Indies*, that few, if any of them, are brought into Europe. The greater number are no other than artificial compounds made there. These, which are supposed to be genuine, Mr. Neumann observes, are compounded of plaister of Paris, chalk, or other earths, impregnated with a vegetable green tincture: those which are acknowledged to be counterfeit, are formed chiefly of resinous substances, and are distinguishable by their liquefying in the fire, and dissolving in spirit of wine. He never could discover in either of these any mark of an animal nature. Chemical Works, by Dr. Lewis, p. 533, &c.

Oriental *bezoar* must be chosen glossy, of a smell like that of ambergrise, smooth to the touch, and in large pieces; its figure is indifferent, its colour usually olive.

Bezoar is easily sophisticated; but the deceit is as easily discovered. The methods of proving it are, 1st. To steep it three or four hours in luke-warm water; if the water be not tinged, nor the *bezoar* lose of its weight, it is pure. 2dly. To try it with a sharp, red-hot iron; if it enters the stone, and the heat makes it fey and shrivel, it is factitious. 3dly. To rub it over a paper smeared with chalk, or quick-lime; if it leave a yellow teint on the former, or a green one on the latter, it is good.

We are, however, told of *artificial bezoars* in the *isle of Crimea*, made so dexterously, as not to be discernible from the *natural*, unless they be first broken. *Bezoar* is said to be adulterated among us with powders, soaps, and mucilage. Le Mort describes a factitious *bezoar*, resembling the native one, and shows how it may be prepared, from the magistery of alexipharmic herbs.

The true oriental *bezoars*, were, about eighty years ago, by common in Cananor, that those of the bigness of a pigeon's egg were frequently brought to market at six or seven rials a piece, and those of the bigness of a hen's egg at twelve rials. The method of trying the genuineness of the *bezoar* by water, was first brought into use in that place.

Bezoar is given in vertigoes, epilepsies, palpitations of the heart, jaundice, colic, and to many other diseases, that were its real virtues answerable to its reputed ones, it were doubtless a *panacea*. Indeed, its rarity, and the peculiar manner of its formation, have contributed as much to its reputation, as any intrinsic worth. At present it begins to be prized less, and a great many able physicians regard it, as of no use or efficacy at all.

BEZOAR, *Occidental*, is heavier, more brittle, of a dirtier green colour, as also less glossy, and generally held much inferior in virtue to the oriental kind.—It is said to be found in the belly of several animals, especially in Peru; as the *guanaco*, *sasbee*, *vicunna*, and *taruguna*; the *bezoar* of which last is the most esteemed, this animal being much like the goat that produces the oriental. But that of the first is more common, viz. the *guanaco*, a creature about the size of a horse, by some described as a species between a camel and a wild goat.

In some, this stone is of the bigness of a nut, in others of a pullet's egg: in some it is oval, in others flat, in others round; it is usually of an ash colour, sometimes dusky; and formed of scales, like the oriental, but much thicker; it is smooth and even without-side, but when broken, looks as if it had been sublimated, by reason of the little shining needles wherein it appears to be compoled.

This kind of *bezoar*, *Mr. Neumann* apprehends, is more likely to be an animal production than the former, as it yields in distillation some small portion of volatile urinous matter. Chem. Works, p. 537.

BEZOAR, in a more extensive sense, includes all animal substances formed *circum fuper stratum*, in the stomachs or intestines of animals. Gentil. in Mem. Acad. Scienc. 1712. p. 268.

In which sense, pearls, the stones found in *oesterens*, &c. belong to the class of *bezoars*. Fontan. Hist. Acad. Scienc. 1717. p. 32.

Human *bezoars* are stony substances found in the intestines of several persons, formed from the stones of plums, or other fruits, retained in the *cecum*, or other guts, and growing coated over; of which we have an instance given by Dr. Cole, Philos. Transact. N° 235. p. 30.

To this kind also belong the *lapis lithius*, or *bezoar equinum*, a sort of stone sometimes voided by these creatures by siege. Ibid. N° 250. p. 99.

BEZOAR, *German*, which some call *ecua's egg*, is said to be found in the stomach of some cows, but more frequently in that of the *chamois*, a sort of *rupicapra*, or wild goat.

These *bezoars* are supposed to be nothing else but the hair of those animals, which being occasionally licked off by the tongue, is swallowed down, and being impregnated with the *fabrica*, &c. is condensed into balls.

Some of them weigh eighteen ounces; but they are not much esteemed, though they are used in some medicines, and by the painters in miniature, to make a yellow colour.

Besides these, there are other kinds, viz.

The *Hog* or *Boar* BEZOAR, called by the Dutch, *pedra de porco*; and by the Portuguese, who first brought it into Europe, *pedra de porquis*, found in the gall-bladder of a boar in the East Indies.

In figure and size it resembles a *filbert*, though more irregular; its colour not fixed, but most commonly white, with a teint of green; it is smooth and shining; and is valued at ten times its weight in gold.

The Indians attribute infinite virtues to this *bezoar*: they call it *muffra de felle*, and prefer it to the *goat bezoar*; not so much on account of its being supposed the best preservative in the world against poisons, as on account of its being sovereign in the cure of the *murdoxi*, a disease they are very liable to, and which is not less dangerous than the plague in Europe. Other properties which they ascribe to it are, that it is admirable against malignant fevers, small-pox, and most diseases of women not with child; experience shewing, that it promotes

moter abortion in those who are, if they use it indiscreetly. To use it, they infuse it in water, or wine, till it has communicated a little bitterness to it. To facilitate the infusion, and at the same time preserve so precious a stone, they usually set it in a gold case pierced with holes.

The *Porcupine* and *Monkey* BEZOARS only differ from those of the dog, in that they are found in the gall-bladders of those animals; unless we say with Tavernier that these two, which he calls *Malacca-stones*, are not taken from the gall bladders, but from the heads, of the monkey and porcupine, and that they are held in such esteem by the natives of Malacca, that they never part with them, unless as presents to ambassadors, or the greatest princes of the East.

The *bezoar* of the ape, and that of the porcupine, called *piedra del puerco*, have been valued much. Single stones have been sold for sixty and eighty pounds sterling. Neumann.

Some add, that they are likewise found in Siam.—Indeed, the form, colour, and properties of these three *bezoars* are so near akin, that it is more than probable, they are all the same stone under three different names.

The *cow bezoar*, in the Chinese cabinet, in the repository of the Royal Society, though composed of *laminæ* or coats, is apparently factitious, because it melts, when applied to the candle. Sloane, Phil. Trans. N° 250. p. 70.

The forms in which *bezoars* appear, when genuine, are very different; the most frequent figure is round, but many are oblong; some of the shape of a kidney, and some perfectly irregular: they are of a greenish, or olive colour, and are spotted with pale, or whitish spots in different places; when tried by burning, they are found to be easily inflammable, and to contain a volatile salt, and an oil; and the *residuum* much resembles the *caput mortuum* left in the retort, after the distillation of different animal substances; a gentle heat will often make the several beds or *laminæ*, of which a *bezoar* is composed, separate from one another. If *bezoar* stones are put to infuse in spirit of wine, or in common water, both liquors will thoroughly penetrate their substances, but neither will receive any change from them.

BEZOAR *goat*, in *Zoology*, a name used for the Indian ANTELOPE, on account of the *bezoar* stone found in its stomach.

BEZOAR is also applied to a kind of fossile figured stone, formed like the animal *bezoar* of several coats, or *strata*, ranged round some extraneous body, which forms a *nucleus*, and is supposed to have the same virtues with the other. Mem. Acad. Scienc. an. 1710. p. 316.

It is found in Italy, especially Sicily; and in France, especially Languedoc. We have also instances of it in England. Woodw. Nat. Hist. Eng. Foss. tom. ii. p. 9.

The fossile, or mineral *bezoar*, is a crustated ferruginous body.

The Sicilian *bezoar*, or *bezoar minerale Siculum*, is by some, with Boccone, taken for a species of *pyrites*, from which Dr. Woodward distinguishes it, as well as from the *echytes* and *aetites*, in that it has properly no cavity with matter in it, as those bodies have. Phil. Trans. N° 311. p. 456. and N° 249. p. 151.

Boccone mentions *nuclei* of different matters, as flints, gravel, wood, metal, coal, &c. M. Geoffroy even found rock crystal in the middle of a mineral of this species, called *perapalites*.

BEZOARDIC is applied to certain medicinal powders, stones, &c. wherein *bezoar* is an ingredient.

To the class of *bezoardic* powders belong the Cadogan's, and countess of Kent's *powders*, and others formed thereof. Among *bezoardic* stones is found the *lapis de Goa*, or Goa stone. We also meet with *bezoardic* tinctures given in fevers, &c.

BEZOARDIC is more generally applied to all medicines endowed with a powerful alexipharmic virtue, used for expelling poisons, and other malignities.

In this sense, *bezoardics* are either simple or compound, and derived either from the vegetable or animal kingdoms. The chief in the vegetable kind is the root of *ambora*, or *contrayerva*; and in the animal kingdom, hartshorn, or, according to some, the unicorn's horn.

Among the compound kind, the *modern bezoardica Millandi* is in much request, as well abroad, salt of hartshorn is by some called *bezoar japonicum*. Willis has a poem on the use and abuse of the *northern bezoar*.

BEZOARDICA *terra*, a name used by some authors for a medical earth dug in the pope's territories, and more frequently called TERRA *sigillata*.

BEZOARDICUM *Mineriale*, or *Minerale* BEZOAR, is a preparation of antimony corrected with spirit of nitre, and purified by repeated lotions, which carry off the purgative virtue, and substitute a diaphoretic one; by which it promotes sweat, like the stone of that name, [illegible] of ANTIMONY.

It appears to have been the invention of Basil Valentine, though later chemists have given other processes for preparing it. It is much adulterated, by adding to it half, or two thirds, the quantity of *sal ammoniac*.

Sylvius first ventured to introduce it into medicine, and frequently gave it with very bad success. Yet many are to this day persuaded with him, that it is possessed of wonderful antidotal virtues, as being obtained innocent and harmless from that violent poison, butter of antimony; whence they conclude, it must needs have a magnetical power of attracting to itself, like the *bezoar* stone, all the poison in the body.

Boerhaave, however, controuls all its virtues, chiefly from the manner of preparing it. The acid of the antimony, he argues, being driven away by the violence of the fire, nothing remains but the sluggish and calcined metalline part, which, though dignified with the name of *mineral bezoar*, is destitute of all medicinal virtues, and only serves to oppress the body by its gravity, being *perfectly* indigestible therein. Mem. Chym. P. iii. p. 318.

From the *bezoar mineral*, mixed with other metals in various ways, with or without detonation, arise other compound *bezoardics*, which is a common appellation in Germany, &c. for all medicines supposed to be of alexipharmic powers. Neumann, p. 533.

BEZOARDICUM *solare*, a name given by the chemists to a preparation of gold. It is made by dissolving plates of gold in the *spiritus nitri bezoardicus*, and fixing it by pouring it on butter of antimony. It is said to be a great sudorific, and of great use in the pox, the plague, the gout, the dropsy, fevers, and obstructions of the spleen. Its dose is from three to eight grains.

BEZOARDICUM *Veneris*, *bezoar* of copper, a name given by the chemists to a preparation of copper, made by extracting a tincture from the filings of copper with rectified butter of antimony, and fixing it according to art with spirit of nitre. It is given by some in leprosies, and diseases of the head and brain. Its dose is six grains. Externally its use is as of the rest, in ulcers, fistulæ, and impetigines.

BEZOARDICUM *Saturni*, *bezoar* of lead, the name given by the chemists to a preparation of lead: it is made by extracting a tincture from glass of lead, prepared from red lead and flints, and mixing this with rectified butter of antimony, and fixing it by means of spirit of nitre. It is esteemed an anti-hysteric, and is said to be good in disorders of the spleen; the dose is six grains.

BEZOARDICUM *Jovialis*, or BEZOAR *of Jupiter*, is a regulus made by melting three ounces of regulus of antimony, and two of block-tin, powdered and mixed with six ounces of corrosive sublimate, and distilled off in a kind of butter, and that dissolved in spirit of nitre, and the solution distilled three times; the *bezoar* remaining at the bottom is to be powdered, washed, and mingled with spirit of wine, till it grow unripid. See ANTIMONIUM *Potens*.

BEZOARDICUM *lunale*, or of silver, is made by mixing rectified butter of antimony with fine silver, dissolved in spirit of nitre: upon which, a powder falls to the bottom, which is the *bezoar*.

It is esteemed a specific in epilepsies, convulsions, and apoplexies; and is said to be anodyne and sudorific, and of great use against the erysipelas. The dose is from six to ten grains.

BEZOARDICUM *martiale*, is a dissolution of *crocus Martis* by reverberation in butter of antimony, with spirit of nitre poured on it: commended by some against hysterical, hypochondriacal, and ictherical disorders.

BEZOLA, in *Ichthyology*, the name of a tenacious fish of the *alosa* kind, and called by Gesner the *alosa carinata*. It resembles the herring in shape, is of a dusky bluish colour, and does not essentially differ from the SAVARETUS.

BIA, a name given by the Siamese, to a sort of little white shells brought from the Maldive islands, and used throughout most part of the East Indies for small money. Nine of these are equal in value to the French *denier*.

These are otherwise called *cauris*, or *cowries*.

BIÆUM, from *Bia*, *ratiocinium*, in *Rhetoric*, denotes a kind of counter-argument, whereby something alledged for the adversary is retorted against him, and made to conclude a different way: for instance, *Occidisti, quia occidisti interfectum.—Immo quia occidi interfectus, non occidi; nam si occidi, ego fugam non corripuissem.* "You killed the person," because you were found standing by his body." (*Boerem.*) "Rather I did not kill him, because I was "found standing by his body; since, in the other case, "I should have fled away."

BIÆUM, in the *Grecian Laws*, was an action brought against those who ravished women, or used violence to any man's person. Potter, Archæol. lib. i. c. 24.

BIBLUM also denotes a kind of saline or sea-wine, used by the ancient Greeks in various disorders. It was made of grapes gathered a little before ripe, and dried in the sun; then pressed, the juice put up in casks, and mixed

with a large proportion of sea-water; though Dioscorides seems to determine it as made of grapes steeped in sea-water, and then pressed. Gorr. Def. Med. p. 75.

BIAFORA, is the *Customs of the Middle Age*, a form of cry, *or alarm to arms*; on the hearing whereof, the inhabitants of towns or villages were to issue forth, and attend their prince. *The word seems originally* from Gascoyn; and the Italians even now, on a sudden insurrection of the people, commonly cry, *Via fora*, by an usual change of the letter B into V.

BIARCHUS, an officer in the court of the emperors of Constantinople, intrusted with the care and inspection of the provisions of the soldiery.

The word is formed from βία, *annona*, *victuals*, and ἀρχὴ, *chief*.

The *biarchus* was the same with what the Latins call *præfectus annonæ*. His function was called *biarchia*; by the Latins, *præfectura annonæ*. He belonged to the *scholæ scriniorum et votivi*. See ARCHIVES.

BIARUM, in *Botany*, a name by which the people of Egypt at this time call the root of the SELLOAR, or *Jatha Ægyptia* growing on the Nile.

BIAS, or BIASS, the tendency or propensity of a thing towards one side more than the other; particularly the deviation of a body, or a plane, from its rectilinear course, or its level. See INCLINATION.

The word is French, *biais*, which signifies the same. Menage deduces this further from the Italian *biaco*; and that again from the Latin *obliquus*.

BIAS *of a bowl*, is a piece of lead put into one side, to load and make it incline towards that side.

BIATHANATI, *Suicides*, from βία, *violence*, and θάνατος, *death*: the same with suicides, or those who kill themselves. Dr. Donne, dean of St. Paul's, has a work under the title of *Biathanatos*; wherein he undertakes to prove this position, or paradox: "That suicide is not so naturally sin, "as that it may never be otherwise." *Lond. 4to.* 1644.

BIBIO, the *ursaculus*, in the *History of Insects*, a very small fly, found frequently among empty wine-casks. It is produced from a small reddish, red worm, very common in the sediments of wine. See WINE-FLY.

BIBITORY *Statute*, see ANNUITOR Oculi.

BIBLE, a book, by way of eminence so called, containing the Scriptures, i. e. the writings of the Old and New Testament.

The word *Bible* comes from the Greek βιβλία, or βιβλος, used to denote any book; but, by way of eminence, applied to the book of Scripture. Βιβλος again comes from βύβλος, the Egyptian *reed*, from which the ancient paper was procured. See BYBLUS.

The *Bible* is known by various other appellations, as the *sacred books*, the *inspired writings*, *holy word*, *sacred text*, &c. By the Jews it is called *mikra*, that is, *lectures*, or *reading*; by the Christians usually *Scripture*, q. d. *writing*; sometimes also the *book of God*, the *canon*, *rule of faith*, &c.

Bibles are distinguished, according to their language, into Hebrew, Greek, Latin, Chaldee, Syriac, Arabic, Coptic, &c. Some account of each, and their several editions, &c. we shall here subjoin.

The list of the books contained in the *Bible* is called the CANON of Scripture.

The books of the *Bible* are said to be *canonical*, by way of contradistinction from others called *deutero-canonical*, *apocryphal*, *pseudo-apocryphal*, &c.

For the authors of the *Bible*, the names of most of them are prefixed to the books supposed to be written by them; as the Pentateuch by Moses; Joshua, by the general of that name, &c. though many objections have been made to divers of them.

Aben Ezra, followed by Hobbes, Pereyra, Spinoza, and some others, deny the five first books to have been written by Moses. P. Simon in particular affirms, that the books, as we now have them, are not the originals written by the inspired penmen, but abridgments of them, made in after-times by a kind of college or order of public actuaries or scribes appointed for that end.

The original language of the Old Testament was doubtless the old Hebrew, at least the greatest part; for all the books do not appear to have been written in the same. Some chapters of Ezras and Daniel are judged to have been composed in Chaldaic; and other chapters of this latter writer, as also the apocryphal books of Maccabees, of Wisdom, &c. in Greek; Tobit and Ecclesiasticus either in Greek or Syriac. Du Pin, Diff. Prel. § 3. Calmet's Dict. Bib. tom. i. p. 203.

As for the New Testament, it was written in Greek, except the Gospel of St. Matthew, which is thought by many to have been composed in the later Hebrew, that is, the Syriac. Some will have Mark's Gospel to have been written in Latin; and the Epistle to the Hebrews in Hebrew. Calmet.

Divers of the ancient *Bible* books appear to have been irrecoverably lost, whether it be that the copies of them perished, or that Esdras threw them out of his canon. Hence it is that, in the books still extant, we find diverse citations of, and references to others, which are no-where more; as the book of Jasher, the book of the wars of the Lord, annals of the kings of Judah and Israel, part of Solomon's three thousand Proverbs, and his thousand and five Songs, besides his books on plants, animals, fishes, insects, &c. To which may be added, a book of Jeremiah, wherein he enjoined the captives who went to Babylon to take the sacred fire and conceal it; also the precepts which that prophet gave the Jews to preserve themselves from idolatry, and his lamentations on the death of king Josiah.

In the time of Josiah, through the impiety of the two preceding reigns of Manasseh and Ammon, the book of the law was to totally lost, that, besides a copy of it, found by Hilkiah in the temple, none other appears to have been known; at least, the surprise which Hilkiah threw'd at the finding of it, and the grief which Josiah expressed at the hearing of it read, shew that neither of them had ever seen it before. 2 Kings, chap. xxii. ver. 8—13. 2 Chron. chap. xxxiv.

Copies were now made and dispersed; yet, within a few years after, the authentic copy preserved in the temple, was burnt, with the temple, by the Babylonians. It was restored again after the return of the Jews from the Babylonian captivity by Nehemiah, or rather by Ezra; some say by divine inspiration; others, with greater probability, by collecting the fragments and copies which were still remaining, comparing them together, and, out of them all, framing one complete copy, where the readings were adjusted, and the several books ranged in their proper order. Prid. Conn. P. I. lib. v. Du Pin, Diff. Prel.

Ezra made additions in several parts of the book, among which is to be reckoned the last chapter of Deuteronomy, wherein Moses seems to give an account of his own death and burial, and of the succession of Joshua after him. To the same canon are to be attributed many other interpolations in the *Bible*, which created difficulties and objections to the authenticity of the sacred text, but will be solved without allowing them. Hidden.

The present Samaritan and Jewish copies of the *Bible* differ in many respects, chiefly in the chronology of the patriarchs, where the Samaritan comes nearer to the Septuagint. Other variations may be resolved into the errors of transcribers, interpolations for explication's sake, and, perhaps, the designed corruption of the Samaritan.

The books of the *Bible* are divided by the Jews into three classes, viz. the law, the prophets, and the hagiographers; a division which they are supposed to borrow from Ezra himself.

The Jews, at first, were very reserved in communicating their scripture to strangers: despising and shunning the Gentiles, they would not disclose to them any of the treasures concealed in the *Bible*. We may add, that the people bordering on the Jews, as the Egyptians, Phœnicians, Arabs, &c. were not very curious to know the laws or history of a people, whom in their turn they hated and despised. Their first acquaintance with their books was not till after the several captivities of the Jews, when the singularity of the Hebrew laws and ceremonies induced several to desire a more particular knowledge of them. Josephus seems surprised to find such slight footsteps of the scripture-history interspersed in the Egyptian, Chaldean, Phœnician, and Grecian history; and accounts for it hence, that the sacred books were not as yet translated into Greek or other languages, and consequently not known to the writers of those nations. Contra Appion. p. 1038. Calmet.

The first version of the *Bible* was that of the SEPTUAGINT into Greek, in the time of Ptolemy Philadelphus; though some maintain that the whole was not then translated, but only the Pentateuch; between which and the other books in the version called of the Seventy, the critics find a great diversity in point of style and expression, as well as of accuracy.

Divers kinds of books have been composed on the *Bible*, either to explain the texts, or make its doctrine more obvious, to facilitate the remembrance of it, or to establish particular opinions from it; as introductions, apparatuses, summaries, manuals, histories, expositions, concordances, harmonies, &c.

BIBLES, *Hebrew*, are either manuscript, or printed.—The best *manuscript bibles* are those copied by the Jews of Spain. Those copied by the Jews of Germany are less exact, but more common. The two kinds are easily distinguished from each other; the former being in beautiful characters, like the Hebrew *Bibles* of Bombergs, Stephens, and Plantin; the latter in characters like those of Munster and Gryphius.—F. Simon observes, that the oldest manuscript Hebrew *Bibles* are not above six or seven hundred years old; nor does rabbi Benjamin, who

quotes

quotes a vaſt number of them, preſcnt that any of them exceed ſix hundred years.

Dr. Kennicott, in his Diſſertatio Generalis, prefixed to his Hebrew *Bible*, p. 21. obſerves, that the moſt ancient MSS. were written between the years 900 and 1100: but though thoſe that are the moſt ancient are not more than 800 or 900 years old, they were tranſcribed from others of a much more ancient date. The MS. preſerved in the Bodleian library is not leſs than 800 years old. Another MS. not leſs ancient is preſerved in the Cæſarian library at Vienna.

The moſt ancient *printed* Hebrew *Bibles* are thoſe publiſhed by the Jews of Italy, eſpecially of Peſaro and Breſcia. Thoſe of Portugal alſo printed ſome parts of the *Bible* at Liſbon, before their expulſion.—This may be obſerved in the general, that the beſt Hebrew *Bibles* are thoſe printed under the inſpection of the Jews: there being ſo many *minutiæ* to be obſerved, that it is ſcarce poſſible for any other to ſucceed in it.

The Complutenſian *Bible* was printed in 1515. See BIBLES, *Greek*.

In the beginning of the ſixteenth century Dan. Bomberg printed ſeveral Hebrew *Bibles* in folio and quarto at Venice, moſt of which are eſteemed both by the Jews and Chriſtians: the firſt in 1517, which is the leaſt exact and generally goes by the name of Felix Pratenſis, the perſon who reviſed it. This edition contains the Hebrew text, the targum, and the commentaries of ſeveral rabbins. In 1528, the ſame Bomberg printed the folio *Bible* of rabbi Benchajim, with his preface, the maſoretical diviſions, a preface of Aben Ezra, a double *maſora*, and ſeveral various readings. The third edition was printed in 1618; it is the ſame with the ſecond, but much more correct. From the former editions it was, that Buxtorf, the father, printed his rabbinical Hebrew *Bible* at Baſil, in 1618; which, though there are many faults in it, is more correct than any of the former. In 1623 appeared at Venice a new edition of the rabbinical *Bible* by Leo of Modena, a rabbin of that city, who pretended to have corrected a great number of faults in the former editions; but, beſides that it is much inferior to the other Hebrew *Bibles* of Venice, with regard to paper and print, it has paſſed through the hands of the inquiſitors, who have altered many paſſages in the commentaries of the rabbins.

As to Hebrew *Bibles* in 4to. that of R. Stephens is eſteemed for the beauty of the characters; but it is very incorrect. Plantin alſo printed ſeveral beautiful Hebrew *Bibles* at Antwerp: one, in eight columns, with a preface by Arias Montanus in 1571, which far exceeds the Complutenſian in paper and print, and contents; this is called the Royal *Bible*, becauſe it was printed at the expence of Philip II. of Spain: another at Geneva, in 1619; beſides many more of different ſizes, with and without points. Manaſſah Ben Iſrael, a learned Portugueſe Jew, publiſhed two editions of the Hebrew *Bible* at Amſterdam; the one in 4to. in 1635; the other in 8vo. in 1639: the firſt has two columns; and for that reaſon is commodious for the reader. In 1659, R. Jac. Lombroſo publiſhed a new edition in 4to. at Venice, with ſmall literal notes at the bottom of each page, where he explains the Hebrew words by Spaniſh words. This *Bible* is much eſteemed by the Jews at Conſtantinople: in the text they have diſtinguiſhed between words where the point *camets* is to be read with a *camets-katoph*, that is, by *o* and not an *a*.

Of all the editions of the Hebrew *Bible* in 8vo. the moſt beautiful and correct are the two of Jo. Athias, a Jew of Amſterdam. The firſt, of 1661, is the beſt paper; but that of 1667, is the moſt exact: that, however, publiſhed ſince at Amſterdam by Vander Hooght, in 1705, is preferable to any of them.

After Athias, three Hebraizing proteſtants engaged in reviſing and publiſhing the Hebrew *Bible*; viz Clodius, Jablonſki, and Opitius.—Clodius's edition was publiſhed at Frankfort, in 1677, in 4to. At the bottom of the page it has the various readings of the former editions; but the author does not appear ſufficiently verſed in the accenting, eſpecially in the poetical books; beſides, as it was not publiſhed under his eye, many faults have crept in. That of Jablonſki in 1699, in 4to. at Berlin, is very beautiful as to letter and print; but, though the editor pretends he made uſe of the editions of Athias and Clodius, ſome critics find it ſcarce in any thing different from the 4to. edition of Bomberg.—That of Opitius is alſo in 4to. at Kiel, in 1709; the character is large and good, but the paper bad: it is done with a great deal of care; but the editor made uſe of no manuſcripts but thoſe of the German libraries; neglecting the French ones, which is an omiſſion common to all three.—They have this advantage, however, that beſides the diviſions uſed by the Jews, both general and particular, into *paraſhas* and *peſukim*, they have alſo thoſe of the Chriſtians, or of the Latin *Bibles*, into chapters and verſes; the *keri kreik*, or various readings, Latin ſummaries, &c. which made them of conſiderable uſe, with reſpect to the Latin editions, and the concordances. See CHAPTERS.

The little *Bible* of R. Stephens, in 1610, is very much prized for the beauty of the character. Care, however, muſt be taken: there being another edition of Geneva, exceedingly like it, excepting, that the print is worſe, and the text leſs correct.—To theſe may be added ſome other Hebrew *Bibles* without points, in 8vo. and 24to. which are much coveted by the Jews; not that they are more exact, but more portable than the reſt; and are uſed in their ſynagogues and ſchools: of theſe there are two beautiful editions, the one of Plantin, in 8vo. with two columns, and the other in 24to. reprinted by Raphalengius at Leyden, in 1610. There is alſo an edition of them by Lauricius at Amſterdam, in 1631, in a larger character; and another in 12mo. at Frankfort, in 1694, full of faults, with a preface of M. Leuſden at the head of it.

Houbigant publiſhed an elegant edition of the Hebrew *Bible* at Paris, in 1753, contained in four volumes, folio. The text is that of Van der Hooght, without points, to which he has added marginal notes, ſupplying the variations of the Samaritan copy. Dr. Kennicott, after almoſt twenty years laborious collation of near ſeven hundred copies, manuſcript and printed, either of the whole, or of particular parts of the *Bible*, did, in 1776, publiſh the firſt volume of his Hebrew *Bible*, in folio. The text is that of Everard Van der Hooght, already mentioned; ſuffering from it only in the diſpoſition of the poetical parts, which Dr. Kennicott has printed in hemiſtichs, into which they naturally divide themſelves; however the words follow one another in the ſame order as they do in the edition of Van der Hooght. This edition is printed on an excellent type; the Samaritan text, according to the copy in the London Polyglot, is exhibited in a column parallel with the Hebrew text; thoſe parts of it only being introduced, in which it differs from the Hebrew. The numerous variations both of the Samaritan manuſcripts from the printed copy of the Samaritan text, and of the Hebrew manuſcripts from the printed text of Van der Hooght, are placed ſeparately at the bottom of the page, and marked with numbers referring to the copies from which they are taken. The editor regrets, that the Diſſertatio Generalis, which would help much to enrich this article, is not to be publiſhed till the ſecond volume is ready.

BIBLES, *Greek*.—There is a great number of editions of the *Bible* in Greek; but they may be all reduced to three or four principal ones, viz. that of Complutum, or Alcala de Henares, that of Venice, that of Rome, and that of Oxford.—The firſt was publiſhed in 1515, by cardinal Ximenes, and inſerted in the *Polyglot Bible*, uſually called the *Complutenſian Bible*: this edition is not juſt, the Greek of the Old Teſtament being altered in many places according to the Hebrew text.—It has, however, been reprinted in the *Polyglot Bible* of Antwerp, in that of Paris, and in the 4to. *Bible*, commonly called, *Walton's Bible*.

The ſecond Greek *Bible* is that of Venice, printed by Aldus, in 1518. Here the Greek text of the Septuagint is reprinted juſt as it ſtood in the manuſcript, full of faults of the copyiſts, but eaſily amended.—This edition was reprinted at Strasburg, in 1526, at Baſil, in 1545, at Frankfort, in 1597, and other places, with ſome alterations to bring it nearer the Hebrew. The moſt commodious is that of Frankfort; there being added to this little *ſcholia*, which ſhew the different interpretations of the old Greek tranſlators: the author of this collection has not added his name; but it is commonly aſcribed to Junius.

The third Greek *Bible* is that of Rome, or the Vatican, in 1587, with Greek *ſcholia* collected from the manuſcripts in the Roman libraries by Pet. Morin. It was firſt ſet on foot by cardinal Montalbo, afterwards pope Sextus Quintus. This fine edition has been reprinted at Paris in 1628, by J. Morin, prieſt of the Oratory, who has added the Latin tranſlation, which in the Roman was printed ſeparately with *ſcholia*.—The Greek edition of Rome has been printed in the *Polyglot Bible* of London; to which are added, at bottom, the various readings of the Alexandrian manuſcript. This has been alſo reprinted in England in 4to. and 12mo. with ſome alterations. It has been again publiſhed at Frankfort in 1709, by Bos, who has added all the various readings he could find.

The fourth Greek *Bible* is that done from the Alexandrian manuſcript, begun at Oxford by Dr. Grabe in 1707. In this the Alexandrian manuſcript is not printed ſuch as it is, but ſuch as it was thought it ſhould be; i. e. it altered whatever there appeared any fault of the copyiſts, or any word inſerted from any particular dialect: this ſome think an excellence, but others a fault; urging, that the manuſcripts ſhould have been given abſolutely and entirely of itſelf, and all conjectures, as to the

the readings, should have been thrown into the notes. See SEPTUAGINT.

BIBLES, *Latin*, how numerous soever, may be all reduced to three classes; the *ancient* VULGATE, called also *Italica*, translated from the Greek *Septuagint*: the *modern* VULGATE, the greatest part of which is done from the Hebrew text; and the *new Latin translations*, done also from the Hebrew text in the fixteenth century.—We have nothing remaining of the *ancient Vulgate*, used in the primitive times in the Western churches, but the Pfalms, Wisdom, and Eccleſiaſtes. Nobilius has endeavoured to retrieve it from the works of the ancient Latin fathers; but it was impoſſible to do it exactly, becauſe moſt of the fathers did not keep cloſe to it in their citations.

As to the *modern* VULGATE, there are a vaſt number of editions very different from each other. Cardinal Ximenes has inſerted one in the *Bible of Complutum*, corrected and altered in many places. R. Stephens, and the doctors of Louvain, have taken great pains in correcting the modern Vulgate.

The beſt edition of Stephens's Latin *Bible* is that of 1540, reprinted in 1545, in which are added, on the margin, the various readings of ſeveral Latin manuſcripts, which he had conſulted. The doctors of Louvain reviſed the modern Vulgate after R. Stephens; and added the various readings of ſeveral Latin manuſcripts. The beſt of the Louvain editions are thoſe, at the end of which are added the critical notes of Francis Lucas of Bruges.

All theſe reformations of the Latin *Bible* were made before the time of pope Sixtus V. and Clement VIII. ſince which, people have not dared to make any alterations, excepting in comments, and ſeparate notes. The correction of Clement VIII. in 1592, is now the ſtandard throughout all the Romiſh churches: that pontiff made two reformations; but it is the firſt of them that is followed. From this the *Bibles* of Plantin were done, and from thoſe of Plantin all the reſt; ſo that the common *Bibles* have none of the after-corrections of the ſame Clement VIII.—It is a heavy charge that lies on the editions of pope Clement, viz. that they have ſome new texts added, and many old ones altered, to countenance and confirm what they call the Catholic doctrine; witneſs that celebrated paſſage of St. John, *tres ſunt*, &c.

There are a great number of Latin *Bibles* of the third claſs, comprehending the verſions from the originals of the ſacred books made within theſe two hundred years.—The firſt is that of Santes Pagninus, a Dominican, under the patronage of pope Leo X. printed at Lyons in 4to. in 1527, much eſteemed by the Jews. This the author improved in a ſecond edition. In 1542, there was a beautiful edition of the ſame at Lyons in folio, with *ſcholia*, publiſhed under the name of Michael Villanovanus, i. e. Michael Servetus, author of the *ſcholia*. Thoſe of Zurich have likewiſe publiſhed an edition of Pagninus's *Bible* in 4to. And R. Stephens reprinted it in folio, with the Vulgate, in 1557, pretending to give it more correct than in the former editions. There is alſo another edition of the ſame columns, under the name of *Tremellius*; and we find it again in the Hamburgh edition of the *Bible* in four languages.

In the number of Latin *Bibles* is alſo uſually ranked the verſion of the ſame Pagninus corrected, or rather rendred literal, by Arias Montanus; which correction being approved of, by the doctors of Louvain, &c. was inſerted in the *Polyglot Bible* of Philip II. and ſince in that of London. There have been various editions of this in folio, quarto, and octavo; to which have been added the Hebrew text of the Old Teſtament, and the Greek of the New. The beſt of them all is the firſt, which is in folio, 1571.

Since the Reformation, there have been ſeveral Latin verſions of the *Bible* from the originals, by proteſtants. The moſt eſteemed are thoſe of Munſter, Leo Juda, Caſtalio, and Tremellius: the three laſt whereof have been reprinted various times. Munſter publiſhed his verſion at Baſil in 1534, which he afterwards reviſed; he publiſhed a correct edition in 1546.—Caſtalio's fine Latin pleaſes moſt people; but there are ſome who think it too much affected; the beſt edition thereof is that in 1573. Leo Juda's verſion, altered a little by the divines of Salamanca, was added to the ancient Latin edition, as publiſhed by R. Stephens with notes, under the name of *Vatablus's Bible*, in 1545. It was condemned by the Pariſian divines, but printed with ſome alterations by the Spaniſh divines of Salamanca. That of Junius and Tremellius is preferred eſpecially by the Calviniſts, and has undergone a great number of editions.

One may add a fourth claſs of Latin *Bibles*, comprehending the *Vulgate* edition corrected from the originals. The *Bible* of Iſidorus Clarus is of this number: that author, not being contented with reſtoring the ancient Latin copy, has corrected the tranſlator in a great number of places, which he thought ill rendered. Some proteſtants have followed the ſame method; and, among others, Andrew and Luke Oſiander, who have each publiſhed a new edition of the whole, corrected from the originals.

BIBLES of *Oriental*.—At the head of the Oriental verſions of the *Bible* muſt be placed the Samaritan; as being the moſt ancient of all, though neither its age nor author have been yet aſcertained, and admitting no more for holy Scripture but the Pentateuch, or five books of Moſes.—This tranſlation is made from the Samaritan Hebrew text, which is a little different from the Hebrew text of the Jews. This verſion has never been printed alone; nor any where but in the *Polyglots* of London and Paris.

BIBLES, *Chaldee*, are only the glooſes or expoſitions made by the Jews in the time when they ſpake the Chaldee tongue. Theſe they call by the name of *Targumim*, or *paraphraſes*, as not being any ſtrict verſions of the Scripture. They have been inſerted entire in the large Hebrew *Bibles* of Venice and Baſil; but are read more conveniently in the *Polyglot*, being there attended with a Latin tranſlation.

BIBLES, *Syriac*.—There are extant two verſions of the Old Teſtament in the Syriac language: one from the Septuagint, which is ancient, and made probably about the time of Conſtantine; the other called *antiqua & ſimplex*, made from the Hebrew, as ſome ſuppoſe, about the time of the apoſtles. This verſion is printed in the *Polyglots* of London and Paris.

In the year 1562, Widmanſtadius printed the whole New Teſtament in Syriac, at Vienna, in a beautiful character; after him there were ſeveral other editions; and it was inſerted in the *Bible* of Philip II. with a Latin tranſlation. Gabriel Sionita alſo publiſhed a beautiful Syriac edition of the Pſalms, at Paris, in 1525, with a Latin interpretation.

BIBLES, *Arabic*.—In the year 1516, Aug. Juſtinian, biſhop of Nebio, printed at Genoa an Arabic verſion of the Pſalter, with the Hebrew text, and Chaldee paraphraſe, adding Latin interpretations. There are alſo Arabic verſions of the whole Scriptures in the *Polyglots* of London and Paris; and we have an edition of the Old Teſtament entire, printed at Rome in 1671, by order of the congregation *de propagandâ fide*; but it is of little eſteem, as having been altered agreeably to the *Vulgate* edition. The Arabic *Bibles* among us are not the ſame with thoſe uſed with the Chriſtians in the Eaſt.—Some learned men take the Arabic verſion of the Old Teſtament, printed in the *Polyglots* to be that of Saadias, who lived about the year 900; at leaſt in the main. Their reaſon is, that Aben Ezra, a great antagoniſt of Saadias, quotes ſome paſſages of his verſion, which are the ſame with thoſe in the Arabic verſion of the *Polyglots*; yet others are of opinion, that Saadias's verſion is not extant. In 1622, Erpenius printed an Arabic Pentateuch, called alſo the Pentateuch of Mauritania, as being made by the Jews of Barbary, and for their uſe. This verſion is very literal, and eſteemed very exact. The four evangeliſts have alſo been publiſhed in Arabic, with a Latin verſion, at Rome in 1591, folio. Theſe have been ſince reprinted in the *Polyglots* of London and Paris, with ſome little alteration of Gabriel Sionita. Erpenius publiſhed an Arabic New Teſtament, entire, as he found it in his manuſcript copy, at Leyden, in 1616.

There are ſome other Arabic verſions of late date mentioned by Walton in his Prolegomena; particularly a verſion of the Pſalms preſerved in Sion College, London, and another of the Prophets, at Oxford; neither of which have been publiſhed.

BIBLES, *Coptic*.—There are ſeveral manuſcript copies of the Coptic *Bible* in ſome of the great libraries, eſpecially in that of the French king.

Dr. Wilkins publiſhed the Coptic New Teſtament in 4to. in the year 1716, and the Pentateuch alſo in 4to. in 1731, with Latin tranſlations. He reckons theſe verſions to have been made in the end of the ſecond, or the beginning of the third century.

BIBLES, *Ethiopic*.—The Ethiopians have alſo tranſlated the *Bible* into their language.—There have been printed ſeparately the Pſalms, Canticles, ſome chapters of Geneſis, Ruth, Joel, Jonah, Zephaniah, Malachi, and the New Teſtament; all which have been ſince reprinted in the *Polyglot* of London.—As to the Ethiopic New Teſtament, which was firſt printed at Rome in 1548, it is a very inaccurate work, and is reprinted in the Engliſh *Polyglot* with all its faults.

BIBLES, *Armenian*.—There is a very ancient Armenian verſion of the whole *Bible*, done from the Greek of the Septuagint, by ſome of their doctors about the time of St. Chryſoſtom. This was firſt printed entire in 1664, by one of their biſhops at Amſterdam in 4to. with the New Teſtament in 8vo.

BIBLES, *Perſian*.—Some of the fathers ſeem to ſay, that all the Scripture was formerly tranſlated into the language of the Perſians; but we have nothing now remaining of the ancient verſion, which was, certainly, done from the Septuagint. The Perſian Pentateuch printed in the Lon-

don *Polyglot* is, without doubt, the work of Rabbi Jacob, a Persian Jew. It was published by the Jews at Constantinople, in the year 1551. In the same *Polyglot* we have likewise the four Evangelists in Persian, with a Latin Translation; but this appears very modern, incorrect, and of little use. Walton says this version was written above four hundred years ago. Another version of the Gospels was published at Cambridge by Wheloo in the last century: there are also two Persian versions of the Psalms made in the last century from the vulgar Latin.

BIBLES, *Gothic*.—It is generally said, that Ulphilas, a Gothic bishop, who lived in the fourth century, made a version of the whole *Bible*, excepting the book of Kings, for the use of his countrymen. That book he omitted, because of the frequent mention of the wars therein; as fearing to inspire too much of the military genius into that people. We have nothing remaining of this version, but the four evangelists, printed in 4to. at Dort, in 1665, from a very ancient MS.

BIBLES, *Muscovite*.—An entire *Bible*, in the Sclavonic tongue, was printed at Ostravia in Volhinia, in the year 1581, and this is what we commonly call the *Muscovite* BIBLE. It was printed at the expence of Constantine, duke of Ostravia, for the common service of all Christians, who make the Sclavonic language, whereas the Muscovitish is a dialect.

BIBLES, *Spanish*.—There are two translations of the *Bible* into this language; one done by the Jews, and first printed at Ferrara in 1553; the other by Cassiodore, printed at Basil in 1569. A corrected edition of it was printed at Amsterdam in 1602.

BIBLES, *Italian*.—There are four Italian versions: the first towards the close of the thirteenth century, by James de Voragine, archbishop of Genoa; the second by Brucciolus, in 1530; the third by Malermi, printed at Venice in 1531; and the fourth by Diodati, a protestant, which is much esteemed, and has been often printed.

BIBLES, *French*.—There are nine French versions. There are also Dutch, Flemish, Polish, Hungarian, and Croatian versions. Luther, with the assistance of Melancthon, and others of his disciples, translated the *Bible* into the German tongue in 1524, and the publication of it very much contributed to the progress of the Reformation.

BIBLES, *Saxon*.—The whole scripture is said by some to have been translated into the Anglo-Saxon by Bede, about the year 701; though others contend he only translated the Gospels.

We have certain books or parts of the *Bible* by several other translators; as, 1. The Psalms, by Adelm bishop of Shireborn, contemporary with Bede; though by others this version is attributed to king Alfred, who lived two hundred years after. Another version of the Psalms in Anglo-Saxon was published by Spelman in 1640. 2. The Evangelists, still extant, done from the ancient Vulgate, before it was revised by St. Jerom, by an author unknown, and published by Matth. Parker in 1571. An old Saxon version of several books of the *Bible*, made by Elfric abbot of Malmsbury, several fragments of which were published by Will. Lilly in 1638, the genuine copy by Edm. Thwaites in 1699, at Oxford.

BIBLES, *Indian*.—A translation of the *Bible* into the North American Indian language, by Elliot, was published in 4to. at Cambridge, in 1685.

BIBLES, *English*.—The first English *Bible* we read of was that translated by J. Wickliffe about the year 1360; but never printed, though there are MS. copies of it in several of the public libraries. J. de Trevisa, who died about the year 1398, is also said to have translated the whole *Bible*: but whether any copies of it are remaining, does not appear.

BIBLES, *Tindal's*.—The first printed *Bible* in our language was that translated by Will. Tindal, assisted by Miles Coverdale, printed abroad in 1526; but most of the copies were bought up and burnt by bishop Tunstal and Sir Thomas More. It only contained the New Testament, and was revised and republished by the same person in 1530. The prologues and prefaces added to it, reflect on the bishops and clergy; but this edition was also suppressed, and the copies burnt.

In 1532, Tindal and his associates finished the whole *Bible*, except the Apocrypha, and printed it abroad: but while he was afterwards preparing for a second edition, he was taken up, and burnt for heresy in Flanders.

BIBLE, *Matthew's*.—On Tindal's death, his work was carried on by Coverdale and JOHN ROGERS, superintendant of an English church in Germany, and the first martyr in the reign of queen Mary, who translated the Apocrypha, and revised Tindal's translation, comparing it with the Hebrew, Greek, Latin, and German, and adding prefaces and notes from Luther's *Bible*. He dedicated the whole to Henry VIII. in 1537, under the borrowed name of Thomas Matthews; whence this has been usually called *Matthew's Bible*. It was printed at Hamburgh, and licence obtained for publishing it in England by the favour of archbishop Cranmer, and the bishops Latimer and Shaxton.

BIBLE, *Cranmer's*.—The first *Bible* printed by authority in England, and publicly set up in churches, was the same Tindal's version, revised, compared with the Hebrew, and in many places amended, by Miles Coverdale, afterwards bishop of Exeter, and examined after him by archbishop Cranmer, who added a preface to it; whence this was called *Cranmer's Bible*. It was printed by Grafton, of the largest volume, and published in 1540; and, by a royal proclamation, every parish was obliged to set one of the copies in their church, under the penalty of forty shillings a month; yet two years after, the popish bishops obtained its suppression of the king. It was restored under Edward VI. suppressed again under queen Mary, and restored again in the first year of queen Elizabeth; and a new edition of it given in 1562.

BIBLE, *Geneva*.—Some English exiles at Geneva in queen Mary's reign, Coverdale, Goodman, Gilbie, Sampson, Cole, Whittingham, and Knox, made a new translation, printed there in 1560; the new Testament having been printed in 1557; hence called the *Geneva Bible*, containing the various readings, marginal annotations &c. on account of which it was much valued by the puritan party in that and the following reign.

BIBLE, *Bishop's*.—Archbishop Parker resolved on a new translation for the public use of the church, and engaged the bishops and other learned men to take each a share or portion. These being afterwards joined together, and printed, with short annotations, in 1568, in a large folio, made what was afterwards called the *Great English Bible*, and commonly the *Bishop's Bible*. The following year it was also published in 8vo. in a small but fair black letter: and here the chapters were divided into verses; but without any breaks for them, in which the method of the Geneva *Bible* was followed, which was the first English *Bible* where any distinction of verses was made. It was afterwards printed in large folio, with corrections, and several *prolegomena*, in 1572; this is called *Matthew Parker's Bible*. The initial letters of each translator's name were put at the end of his part, e. gr. at the end of the Pentateuch, W. E. for William Exon; that is, William bishop of Exeter, whose allotment ended there: at the end of Samuel, R. M. for Richard Menevensis, or bishop of St. David's, to whom the second allotment fell: and the like of the rest. The archbishop overlaw, directed, examined, and finished the whole. This translation was used in the churches for forty years, though the Geneva *Bible* was more read in private houses, being printed above thirty times in as many years. King James bore it an inveterate hatred on account of the notes, which, at the Hampton-court conference, he charged as partial, untrue, seditious, &c. The *Bishop's Bible* too had its faults, the king frankly owned he had yet seen no good translation of the *Bible* in English; but he thought that of Geneva the worst of all.

BIBLE, *Rhemish*.—After the translation of the *Bible* by the bishops, two other private versions had been made of the New Testament; the first by Laur. Thomson, made from Beza's Latin edition, together with the notes of Beza, published in 1582, in 4to. and afterwards in 1589, varying very little from the Geneva *Bible*; the second by the papists at Rheims in 1582, called the *Rhemish Bible*, or *Rhemish translation*. These finding it impossible to keep the people from having the scriptures in the vulgar tongue, resolved to give a version of their own, as favourable to their cause as might be. It was printed on a large paper, with a fair letter and margin. One complaint against it was retaining a multitude of Hebrew and Greek words untranslated, for want, as the editors express it, of proper and adequate terms in the English to render them by; as the words *azymes, tunike, rational, holocaust, pasque, paske*, &c. However, many of the copies were seized by the queen's searchers, and confiscated; and Th. Cartwright was solicited by secretary Walsingham to refute it; but, after a good progress made therein, archbishop Whitgift prohibited his further proceeding therein, as judging it improper the doctrine of the church of England should be committed to the defence of a puritan, and appointed Dr. Fulke in his place, who refuted the Rhemists with great spirit and learning. Cartwright's refutation was also afterwards published in 1618, under archbishop Abbot. About thirty years after their New Testament, the Roman catholics published a translation of the Old at Douay, 1609 and 1610, from the Vulgate, with annotations, to that the English Roman catholics have now the whole *Bible* in their mother-tongue: though, it is to be observed, they are forbidden to read it without a licence from their superiors.

BIBLE, *Liber Sanctus*.—The laſt Engliſh *Bible* was that which proceeded from the Hampton-court conference in 1603, where many exceptions being made to the Bishops' *Bible*, king James gave order for a new one; or, as the preface expreſſes it, for a tranſlation altogether new, not yet to make of a bad one a good one, but to make a good one better, or of many good ones one beſt. Fifty-four learned perſons were appointed for this office by the king, as appears by his letter to the archbiſhop, dated in 1604; which being three years before the tranſlation was entered upon, it is probable ſeven of them were either dead, or had declined the talk, ſince Fuller's liſt of the tranſlators makes but forty-ſeven; who being ranged under ſix diviſions, entered on their province in 1607. It was publiſhed in 1613, with a dedication to James and a learned preface, and is commonly called *King James's Bible*. After this, all the other verſions dropped, and fell into diſuſe, except the Epiſtles and Goſpels in the Common Prayer Book, which were ſtill continued, according to the biſhops tranſlation, till the alteration of the liturgy in 1661, and the Pſalms and Hymns, which are to this day continued as in the old verſion.

There was a Welch tranſlation of the *Bible* made from the original in the time of queen Elizabeth, in conſequence of a bill brought into the houſe of commons for this purpoſe in 1563. It was printed in folio in 1588. Another verſion, which is the ſtandard tranſlation for that language, was printed in 1620. It is called Parry's *Bible*. An impreſſion of this was printed in 1690, called Biſhop Lloyd's *Bible*. Theſe were in folio: the firſt 800. impreſſion of the Welch *Bible* was made in 1630.

There is alſo a verſion of the *Bible* in the Iriſh language.

BIBLIA, or BIBLIA *pauperum*, in a military ſenſe, denotes a machine uſed by the ancients for throwing ſtones or darts.

BIBLIOGRAPHIA, a branch of ARCHITECTONICA, employed in the judging and peruſing of ancient manuſcripts, whether written in books, papers, or parchment.

The ſenſe of it is now extended, and it ſignifies a work, intended to give information concerning the firſt, or beſt editions of books; and the arts of diſtributing and claſſifying them properly. In this, it is uſed for a *treatiſe* or deſcription of printed books, either in the order of the alphabet, of the times when printed, or of the ſubject-matter.

In which ſenſe, *bibliographia* amounts to much the ſame with what is otherwiſe called BIBLIOTHECA.

Literary journals alſoo alſo a kind of *bibliographia*.

BIBLIOMANCY, a kind of divination performed by means of the BIBLE.

This amounts to much the ſame with what is otherwiſe called *ſortes biblicæ*, or *ſortes ſanctorum*.

It conſiſted in taking paſſages of ſcripture at hazard, and drawing indications thence concerning things future; as in Auguſtin's *tale & lege*. It was much uſed at the conſecration of biſhops.

F. J. Dorbilius, a jeſuit, has publiſhed a *bibliomancy*, under the borrowed name of *Theodorus Chriſtianus*.

BIBLIOMANIA, an extravagant paſſion for books, to a degree of madneſs; or a deſire of accumulating them beyond all reaſon and neceſſity.

BIBLIOTHECA, from βιβλος, *book*, and θηκη, *repoſitory*, from τιθημι, *I put*, properly ſignifies a LIBRARY, or repoſitory of books.

It is alſo uſed for a compilation of all that has been written on a certain ſubject, or a digeſt of all the authors who have treated of it.

In this ſenſe, we have hiſtorical *bibliotheca*, as that of Diodorus Siculus; mythological *bibliotheca*, as that of Apollodorus; theological and ſacred *bibliotheca*, as thoſe of Bauvenſius, &c.

It is alſo uſed for a catalogue of the books in a library; ſuch are the *Bibliotheca Ciſſiana*, *Bibliotheca Gudiana*, *Bibliotheca Thuana*, *Bibliotheca Bigotiana*, *Bibliotheca Boſſiana*, &c.

L'Abbe has publiſhed a *Bibliotheca of Bibliotheca*, or a catalogue of the names of thoſe who have written *bibliotheca*, which has ſince been continued, and improved under another title by Teiſier, from 800 writers to the number of no leſs than 2500. Schrammius has alſo publiſhed a *programma* on the writers of theological *bibliotheca*.

BIBLIOTHECA is a name given to the books of the Old and New Teſtament, in reſpect of their excellency, and ſufficiency for the uſes of the Chriſtian life; and it is alſo a title given to divers journals, or a periodical accounts in French of new books.

BIBLIOTHECA *patrum*, or *of the fathers*, is a collection of the writings of the latter fathers, printed in one or more volumes. The firſt of this kind was publiſhed at Paris by Margo, de la Bigne, in 1576.

BIBLIOTHECARIAN, a library-keeper, otherwiſe called LIBRARIAN.

The word is alſo uſed for the author of a BIBLIOTHECA, or a catalogue of books.

In this ſenſe, P. L'Abbe has given a *bibliotheca*, or catalogue of *bibliothecarians*. Geſner, Lipenius, Struvius, Fabricius, &c. are celebrated *bibliothecarians*.

BIBLISTS, *biblici*, an appellation given by ſome Romiſh writers to thoſe who profeſs to adhere to ſcripture alone as the ſole rule of faith, excluſive of all tradition, and the ſuppoſed authority of the church.

In which ſenſe, all proteſtants are, or ought to be, BIBLISTS.

Biblicſts, among Chriſtians, anſwer nearly to SAMARITES or TEXTUARIES among the Jews. The Chriſtian ſectaries were diviſed, towards the cloſe of the twelfth century, into two claſſes: viz. the *traditors*, and the *biblicſts*: the former were called *traditors of the ſacred page*, becauſe they explained the doctrines of Chriſtianity in their manner by the ſacred writings: however, their opinions declined, and the ſcholaſtic theology prevailed in all the European colleges till the time of Luther.

BIBLUS, in *Botany*, an aquatic plant in Egypt, called alſo PAPYRUS; of the ſkin whereof the ancient Egyptians made their PAPER.

Hence alſo the Greeks gave the denomination BIBLOS, to books made thereof.

BICAUDA, *from bis, double, and cauda, tail, in Ichthyology*, the name of a fiſh of the *ſcirpus* or SWORD-FISH kind.

It is five feet long, or more, and a foot and half broad at the breaſt, tapering gradually towards the tail. It is covered with a thick and rough ſkin, and is brown on the back and ſides; and has three ſeveral rows both pectoral: its belly is white: its fins are all a browniſh grey, and the back one has ſeveral beautiful black ſpots. It is very well taſted fiſh.

BICAUDALIS, in *Anatomy*, an appellation given by ſome to a muſcle of the external ear, on account of its having two tails; but which is ſubject to great variety, having ſometimes only one, and ſometimes three tails: in which caſe, it is called *tricaudalis* and *tricaudati*.

BICE, or BISE, among *painters*, a blue colour, prepared from the ASHES ARMENIA, formerly brought from Armenia, but now from the other parts in Germany. This Travel Nieuhof, p. 98.

The word comes from the barbarous Latin *biſe*, or *biſetus*; and that, perhaps, from the French *bis gris*, *grey*, or *ſadneſs of colour*. Vide Du Cange, Gloſſ. Latin. tom. i. p. 960. Skin. Etymol. voc.

Bice bears the beſt body of all bright blues, uſed in common work; but it is the palleſt, or thickeſt. It works indifferently well; but muſt have a little to be ſaved, and therefore requires good grinding on a very hard ſtone and ſhould be waſhed before it is uſed. It has beſt near the eye of any blue now in uſe, except ULTRAMARINE.

We have alſo a green *bice*, made of the blues, with the addition of verjuice.

BICEPS, from *bis*, and *caput*, *head*, in *Anatomy*, is a name common to ſeveral muſcles, which are ſeparated into two diſtinct portions called *heads*.—Such is the

BICEPS *cubiti*, or *humeri*, a muſcle of the arm, one of whoſe heads ariſes from the upper edge of the cavity of the head of the *ſcapula*, and is round and tendinous, and encloſed in the channel in the head of the *humerus*: the other ariſing from the *proceſſus coracoides*, is broad and tendinous: and both unite about the middle and fore-part of the arm, and make one belly, which is inſerted by a ſtrong and round tendon into the tuberoſity at the upper end of the *radius*.—See *Tab. Anat. Libro* i. fig. 1. e. e. fig. 2. e. e. fig. 3. e. e.

Some of the fibres of the tendon form a large and thin *aponeuroſis*, which covers all the muſcles of the *cubitus* and fingers externally.—Care ought to be taken in bloodletting, not to cut a-croſs, but according to the length of the fibres of this *aponeuroſis*.—This muſcle, with the BRACHIUS *internus*, bends the arm.

BICEPS *externus*, is called alſo GEMELLUS.

BICEPS *fibræ*, or *femoris*, a muſcle made up of two portions, one long, the other ſhort, and ending in one common tendon. Both portions are fleſhy, and conſiderably thick, and are ſituated on the back and outſide of the thigh, between the buttock and the ham. The great portion is fixed above by a ſtrong tendon, in the poſterior and lower part of the tuberoſity of the *iſchium*, under the inſertion of the inferior *gemellus*, and cloſe behind that of the *ſemitendinoſus*: from thence it runs down towards the lower extremity of the thigh, where it meets the other portion, and joins with it, forming a common tendon. The ſmall portion is tied by fleſhy fibres to the outſide of the *linea aſpera*, below its middle, and to the *foſſula ante*, where it forms a *ſulcus* between the *triceps* and *vaſtus externus*; from thence the fibres run down a little way, and then meeting the great portion, a common tendon is formed between them. This ſtrong tendon runs down to the ſide and back part of the knee

and

and is inserted in the lateral ligament of the joint, and in the head of the *fibula*, by two very short tendinous bunches. It sometimes sends off a tendinous expansion, which is often unskilfully cut off with the fat. As they run down they become contiguous, and afterwards closely united by one common broad tendon.

Both the fleshy bodies of the *biceps* contribute to the formation of the *aponeurosis*, each of the two portions, of which the common tendon is made up, furnishing a series of tendinous fibres, which covering the fore-part of the true tendon, unite near the internal condyle by a particular kind of inter-texture, and thus form the *aponeurosis* Winslow.

Its use is to help to bend the *tibia*, and it is likewise employed in turning the leg, together with the foot and toes, outward, when we sit down.—See *Tab. Anat. Myol. Fig.* 6. *n.* 40.

BICHET, a corn measure, containing about a Paris *minot*, chiefly used in Burgundy and the Lyonnois.

BICHET denotes also a certain quantity of land, as much as may be sown by a *bichet* of corn.

BICINIUM, from *bis*, and *canto*, *I sing*; in *Church Affairs*, the singing of two, either together or alternately.

In which sense, the word stands opposed to MONODY.

BICKERN *is an* ANVIL, the pike or beak-iron.

BICLINIUM, from *bis*, and *κλινη*, *bed*, in *Antiquity*, two beds about a table; or, as some say, rather a BED whereon two persons lay to eat.

BICORNES, from *bis*, and *cornu*, *horn*, in *Botany*, plants whose *anthers* have the appearance of two horns. The term likewise expresses an order of plants in the Fragments Method Naturalis of Linnæus.

BICORNE *is*, or *two-horned bone*, in *Anatomy*, the same with the OS HYOIDES.

BICORNIS, in *Anatomy*, an extensor muscle of the arm, otherwise denominated RADIUS *externus*, and EXTENSOR *carpi radialis*.

BICORNIS *pollicis manus*, is the proper extensor muscle of the thumb: sometimes also, from the number of its horns, called *tricornis*.

It takes its rise from the posterior and middle part of the *radius* and *ulna*, and is inserted in the first, second, and third phalanx.

BICORPOREA *signa*, from *bis*, and *corpus*, *body*, those signs of the zodiac which have two bodies, or consist of two figures.

Such are *Gemini*, or the Twins; also *Pisces*, and *Sagittarius* consisting of a man and a horse.

BICUBA, in *Botany*, the name of an Indian nut, used for relieving colics; and from which an oil is extracted for the cure of cancers.

BIDAL, or BIDALE, in our *Ancient Customs*, denotes the invitation of friends to drink ale at some poor man's house, who, in consideration hereof, expects some contribution for his relief.

This custom still obtains in the west of England, and is mentioned in some of our ancient statutes, 26 Hen. VIII. c. 6.

BIDALDI, an ancient kind of foot-soldiers mentioned by the French historians, armed with two darts.

Hence the origin of the word, which seems to be a corruption for *bidardi* or *a blais dardis*. They are also called *bidarii*, *bidaes*, *bidenes*, *bidauti*, and *pitauti*.

BIDDING, is used for proclaiming or hoisting; also for offering a price for goods put up by auction.

BIDDING *of the beads*, a charge or warning which the parish-priest gave to his parishioners at certain special times, to pray for many *benefactors*, &c. on their beads.

BIDENS, in *Botany*, see *Water-hemp* AGRIMONY.

BIDENTAL, in *Antiquity*, a place struck with a thunderbolt, and on that account consecrated to the gods, and forbidden to be trod on. *Bidental* only differs from *puteal*, as in the latter the thunderbolt was supposed to be hidden, or buried with ceremony under the ground. The fall of lightning, or a thunderbolt, on any place, was judged by the Romans an indication that Jupiter demanded it for himself. Hence they surrounded it with a wall, rail, palace, or even a rope; and explored it, by the sacrifice of a *bidens*, or sheep of two years old. Festus represents the *bidental* as a temple, where sheep of two years old were offered in sacrifice. But by temple he here means no more than a place enclosed, and consecrated to the gods.

BIDENTALES, priests among the ancient Romans, instituted for the performance of the ceremonies of a *bidental*.

The *bidentales* constituted a college, or society, who had the service and procuration, or interpretation of thunder and lightning.

The first and principal part of their office was the sacrificing a sheep of two years old, which in their language was called *bidens*, as having only two teeth, one on each side; or rather from *bidentes*, anciently written for *binenes*, *two years old*.

BIDENTES, in *Middle Age Writers*, denote two yearlings, or sheep of the second year.

The wool of these *bidentes*, or two year old sheep, being the first shearing, was sometimes claimed as a heriot to the king, on the death of an abbot.

Among the ancient Romans, the word was extended further to any sorts of beasts used for victims, especially those of that age whereon we meet with no *tokens*.

BIDET, a nag, or little horse, formerly allowed each trooper, and dragoon, for his baggage, and other occasions.

Bidets are grown into disuse, on account of the expences thereof, and the disorders frequently arising from those who rode on them.

BIDIAEI, an order of magistrates at Sparta, five in number, whose business was to superintend the *agoræ*, and be present at their exercises, wrestlings, &c.

BIDON, a liquid measure of about five quarts English measure; seldom used except among ship's crews.

BIER, a kind of wooden carriage, on which the bodies of the dead are borne to their grave. See BARE.

The word comes from the French *biere*, which signifies the same. It is called in Latin *feretrum*, *a ferendo*.

Among the Romans, the common *bier*, wherein the poorer sort were carried, was called *sandapila*; that used for the richer sort, *lectica*, *lectus funebris*, sometimes *lectus*. The former was only a sort of wooden shell, *vilis arca*, which was burnt with the body; the latter was enriched and gilded for pomp. It was covered here, or uncovered, when the person died a natural and easy death; when he was much disfigured or mutilated, it was veiled or covered over.

BIER is more peculiarly used for that whereon the bodies of saints are placed in the church to rest, and exposed to the veneration of the devout.

BIFARIA, *Fish*, in *Botany*, are such as point two ways.

BIFFA, in *Middle Age Writers*, a machine for casting Bones and Earth, having a moveable counterpoise, which turned round its yard.

BIFID *leaf*, in *Botany*, a leaf cleven into two parts.

BIFOLIUM, in *Botany*, see TWAYBLADE.

BIFRONS, a person double fronted, or two-faced.

BIFRONS is more particularly an appellation of JANUS, who was represented by the ancients with two faces, as being supposed to look both backwards and forwards; though other reasons for it are assigned by Plutarch. Sometimes he was painted with four faces, *quasi prisci*, as respecting the four seasons.

BIGA, a chariot for racing, drawn by two horses abreast. The word ought rather to be written *bigæ*, in the plural, q. d. *jugæ*, two horses being joined by a yoke or yoke.

Biga stand contradistinguished from *trigæ*, *quadrigæ*, &c. *Bigæ* are of very ancient standing: all the heroes in Homer, Hesiod, Virgil, &c. fought in them.

The invention of *bigæ* is attributed by Pliny to the Phrygians; by Isidore, to Cynisthes of Sicyon, who first yoked two horses together.

Bigæ were the CHARIOTS first used in the Circensian games; then *trigæ*, and afterwards *quadrigæ*.

The moon, night, and the mornings, are by mythologists supposed to be carried in *bigæ*, the sun in *quadrigæ*.

STATUES in *bigæ* were at first only allowed to the gods, then to conquerors in the Grecian games; under the Roman emperors, the like statues, with *bigæ*, were decreed and granted to great and well-deserving men, as a kind of half-triumph, being erected in most public places of the city.

Figures of *bigæ* were also struck on their coins, and are termed BIGATI.

The drivers of *bigæ* were called *bigarii*; a name half of one Flavius a *bigarius* is still seen at Rome.

BIGA, or BIGATA, in *Writers of the Middle Ages*, a cart with two wheels, drawn often with one horse. It was more frequently called *birota*.

BIGAMY, a double marriage, or the possession of two wives at the same time.

Among the ancient Romans, those convicted of bigamy were brought into a state of ignominy; and, in France, they were anciently punished with death. See POLYGAMY.

BIGAMY, in the Canon Law, is also where a person either marries two women successively, or only marries one woman who had been married before. Each of which the canonists account impediments to be a *clerk*, so to hold a benefice without a dispensation; a point of discipline founded on that of St. Paul, *Let a bishop be the husband of one wife*, 1 Tim. chap. iii. ver. 2. Apost. Const. 17. 28.

Bigamy they make of two kinds; *real*, as where a party actually marries twice; and *interpretative*, where he marries a widow, or woman called before, which is esteemed a kind of second marriage.

The

The Romanists make a third kind of *bigamy, by interpretation*; as, when a person in holy orders, or that has taken on him some monastic order, marries.—This the bishop can dispense withal, at least on some occasions.

There is also a kind of *spiritual bigamy*; as, when a person holds two incompatible benefices, v. gr. two bishopricks, two vicarages, two canonries *sub eodem tecto*, &c.

BIGATI, in *Antiquity*, a kind of ancient Roman silver coins, on one side whereof was represented a *biga*, or chariot drawn by two horses.

The *bigatus* was properly the Roman *denarius*, whole impression, during the times of the commonwealth, was a chariot driven by Victory, and drawn either by two horses or four, according to which it was either denominated *bigatus* or *quadrigatus*.

Bigati therefore were of different values, according to the species of *denarii*, &c.

Several of these called *consulate* medals are also *bigati*.

In lieu of horses, the chariot is represented on some *bigati*, as drawn by two deer, especially in the medals of the family of Axia; on those of the family of Crepereia, by two *hippocampi*, who draw, or rather bear Neptune on their backs.

BIGGEL, in *Natural History*, a quadruped much about the colour and bigness of a rein-deer; its head is said to be like that of a horse; in main like that of an ass, with black cloven feet, and two black horns on his head.

This animal is found in the East Indies, according to Mandelsloe, in Harris's Collection of Voyages.

BIGHT, in the *Sea-language*, denotes any part of a rope, as it is taken compassing, coiled up; or the double part of a rope, when it is folded in contradistinction to the end. It fignifies also a *small* bay between two points of land.

BIGNONIA, in *Botany*, TRUMPET-*flower*.

BIGOT, a perfon foolifhly obftinate, or perverfely attached to an opinion.

The word comes from the German *by*, and *Gott*, or the *Englifh by-God*.

Camden relates, that the Normans were firft called *Bigots*, on occafion of their duke Rollo; who receiving Gifla, daughter of king Charles, in marriage, and with her the inveftiture of the dukedom, refufed to kifs the king's foot in token of fubjection, unlefs he would hold it out for that purpofe: and being urged to it by thofe prefent, anfwered haftily, *Ne by God*; whereupon the king, turning about, called him *Bigot*; which name paffed from him to his people.

BIGOT, in Italian, *bigotto*, is ufed to denote a Venetian liquid meafure, containing the fourth part of the *amphora*, or half the *laft*.

BIGOURNEAU, in *Natural Hiftory*, a name given by Bellonius to that genus of *cochlea*, called the femi-circular mouthed, or femi-lunar kind, including the NERITA.

BIJUGUM *folium*, in *Botany*, denotes a winged leaf, bearing two pair of *foliola*.

BIL, in *Ichthyography*, a name given in fome parts of England to a particular fpecies of cod-fifh, called by Willughby *afellus luteus*. It is diftinguifhed from the cod by its fmallnefs, by its being fhorter and broader in its fhape, by the palenefs of its colour, and largenefs of its fcales; though it agrees with it, in having a beard under the chin.

BILANCIIS *deferendis*, a *writ* directed to a corporation, for the carrying of weights to fuch a haven, there to weigh the wool, which perfons by our ancient laws were licenfed to tranfport.

BILANDER, in *Navigation*, a fmall merchant-fhip with two maits; diftinguifhed from other veffels of the fame kind by the form of the main-fail. Few veffels are now rigged in the manner of *bilanders*; the name has been variouſly applied in different countries.

BILARIUS PORUS, BILARY *pore*, or *hepatic duct*, a conſiderable appendage of the liver, formed from the concurrence of a multitude of fmall ramifications fpringing from the glands of the liver, which unite into feveral trunks equal in magnitude to the branches of the hepatic arteries; and accompany them branch for branch through the whole fubftance of the liver; being wrapped up in the fame *capſula* with the *porta*. *See Tab. Anat. (Splanch.) fig. 5. lit. ſ.*

Thefe branches are about the fize of a wheat-ſtraw, the biggeſt large enough to admit the ſmall finger; and are diſtinguiſhable from the *porta* by their contents, being always full of bile. Beſides the *capſula* common to theſe and the *porta*, each has a thick white coat proper to itſelf, like the muſculous coat of an artery.

On the concave ſide of the liver the ſeveral ramifications meet, and form one trunk, or channel, properly called the *bilary pore*, about the bigneſs of a gooſe quill, which deſcending about two inches, meets with the cyſtic duct, and together with it forms what we call the *ductus communis*; which deſcending in a right line, about four inches, diſcharges itſelf into the *duodenum*, by an oblique inſertion, oftentimes at the ſame aperture with the pancreatic duct.

The *porus bilarius* communicates with the gall-bladder, by a duct firſt deſcribed by Dr. Gliſſon, and afterwards by Bianius and Perrault, who gave it the name of the *cyſtohepatic duct*. Verheyen, in exen, found two, three, or four of theſe *cyſt-hepatic ducts*; and the like has been obſerved in a dog, and a man.

BILATERAL COGNATION, denotes kinſhip, or kindred, on both ſides; that of the father as well as the mother.

Such is the relation of brothers, and ſiſters. *Bilateral* ſtands contradiſtinguiſhed to *unilateral*.

BILBERRY, *in Botany*, WHORTLE-BERRY.

BILBOWS, in *Sea-phraſe*, a puniſhment anſwering to the STOCKS at land.

BILCOCK, in *Ornithology*, a name given by ſome to the water-rail, a bird of the moor-hen kind, but ſmaller than the common moor-hen. *See* RALLUS.

BILDGE, or BILGE *of a ſhip*, denotes the bottom of her floor; or the breadth of that part which ſhe reſts on, when ſhe is a-ground.

BILDGE-*water*, is that which, by reaſon of the *flatneſs* of the ſhip's bottom, lies on her floor, and cannot go to the well of the pump.

The Dutch, whoſe ſhips are often of this form, uſe a ſort of pumps called *bildge-pumps*; or, as we call them, *burr-pumps*, to carry off the *bildge-water*.

When a ſhip ſtrikes on a rock, they alſo ſay, ſhe is *bilged*, or *bilged*.

BILE, BILIS, a yellow bitter juice, ſeparated from the blood in the liver, collected in the *porus bilarius*, and gall-bladder, and thence diſcharged by the common duct into the *duodenum*.

The word *bile* comes from the Latin *bilis*, which ſome derive further, from the Greek βια, *violence*; becauſe bilious people are inclined to anger: others derive it from the Latin *bullire*, *to boil*.

Bile is of two kinds; *hepatic*, and *cyſtic*.—The firſt, moſt properly called *bile*, is ſeparated immediately from the glands of the liver into the *porus* BILARIUS.—The ſecond, more properly called *gall*, is ſeparated likewiſe from the glands of the liver into the gall-bladder, by roots or ducts proper to itſelf. *See* GALL.

The *cyſtic bile* is thicker, of a deeper yellow, and bitter; though it has varied in colour and taſte in different ſubjects, and different circumſtances; is not evacuated continually, but only when its receptacle is replete; in which caſe, the contraction of the irritated fibres propels it into the *duodenum*.—The *hepatic bile* is greener, thinner, more mild and pellucid, reſembling lymph, ſubalcaline, and rather oily, and is continually oozing out; being expelled by the ſole action of the neighbouring parts. The *cyſtic bile* reſiſts acids, and, mixed with other fluids, gives them the like property: it abſterges like ſoap, and renders oils capable of mixing with water; it reſolves and attenuates reſins, gums, and other tenacious bodies, rendering them homogeneal to itſelf. It is neither alcalious nor acid, but ſeems a concretion of oil, ſalt, and ſpirits diluted with water. By a chemical analyſis, Dr. Drake obſerves it affords ſome ſulphur, or oil, ſome volatile ſalt, a good deal of fixt ſalt (in which particular it differs from all other animal liquors), and a moderate quantity of *ſaput nurtum*, or earth: the baſis is phlegm.

Dr. Mackay obſerves, that the mixture of the mineral acids with the *bile* produces a fine green colour, which he attributes to the union of the phlogiſton of the *bile* with the acid: and that the action of the concentrated mineral acids upon the *bile*, whereby they change and decompoſe it, depends on their violent attraction for the principle of inflammability: and that the neutrum which extracts the colour of the *bile*, extracts at the ſame time its bitterneſs; ſo that it no longer exhibits the phenomena depending on its phlogiſton. The vegetable acids do not decompoſe the *bile*, which, he ſuppoſes, is owing to their weaker attraction of the phlogiſton. As the brown colour of the *cyſtic bile* is reſtored by the addition of an alcali, he infers, that this colour depends on an alcaline nature acquired by the *bile* during its ſtagnation in the gall-bladder. He concludes alſo, that there is fixed air in the *bile*, becauſe the cauſtic alcali, diſſolving its coagulum, becomes mild, and capable of effervescence. From other experiments he infers, that the antiſeptic principle of the *bile* cannot reſide in the part to which it owes its coagulability, and which is exactly analogous to the lymph of the blood; but that it is probably connected with its bitterneſs, and that both are qualities of the coloring matter. Of all the animal fluids, Dr. Mackay thinks, that the milk and the *bile* are moſt analogous to one another, and to the BLOOD. See Mackay's Exp. on the Human Bile.

The

The principal use and effect of the *bile* are, by mixing with the chyle and *faces*, to attenuate, resolve, abbreige, and stimulate the *villous motions* of the intestines; as also to mix together things very different, to bruise and blunt those that are sharp and saline, to divide those that are coagulated, to open the passages for the chyle, to excite appetite, to aid the part of a ferment, and to assimilate crude things to things concocted. These effects the *cystic bile* has in a greater, the *hepatic* in a less degree.

Dr. Quincy thinks the principal use of both sorts of *bile*, is to sheathe and blunt the acids of the chyle, entangling them with its sulphur, so as to prevent their being sufficiently diluted by the pancreatic juice to enter the lacteals: which seems confirmed by this, that, notwithstanding the great quantity of acid *bile* in the aliment in the stomach, there are never any found in the chyle after it has passed the *duodenum*, and being impregnated with the *bile* continually oozing out of the ROADS *biliaries*. See ACID, and BLOOD.

Boerhaave asserts, that part of the *bile*, discharged into the intestines, re-enters the meserale veins, and, uniting with the blood of the *vena porta*, is again percolated through the liver; and Boerhaave seems of the same opinion on which footing the *bile* has its circulation, as well as the BLOOD.

Some will have the *cystic bile* brought to its receptacle three different ways, and that it is even composed of three different kinds of *bile*, whence its different properties. Though Boerhaave takes those properties rather to result from its stagnating in the gall-bladder; and, with Mahright, thinks the bitter part may probably become so in the glands, between the coats of the gall-bladder, which are furnished from the cystic arteries; whereas it proceeds bitter, and mixes with the rest in the bladder.

The influence of *bile* upon the animal economy is allowed to be very great. By its fermentative quality, it promotes digestion, in which respect, it differs widely from vegetable bitters, which are retarders of fermentation. However, in one thing it agrees with them, viz. as a corrector of acidities.

Bile speedily corrupts, but not to such a high or offensive degree as the blood or fibrous parts of the body. To this corruption of the *bile*, as one cause, Dr. Pringle attributes the paroxysms in bilious fevers: nay, all bilious disorders, as the *cholera morbus*, dysentery, &c. are thought to be chiefly owing to a redundance or corruption of the *bile*. Hence, the reason why these disorders are most frequent in hot countries, and in armies when much exposed to the sun, is, that the *bile*, if not more abundant, is in such circumstances more corrupted than usual.

The *bile* is a juice of great importance, with regard to the good or ill-habitude of the animal. Dr. Woodward has traced its effects throughout the body very minutely, and makes no scruple to ascribe most of the diseases thereof to some disorder of the *bile*. This he takes to be the chief spring in the animal machine, and from this accounts for most of the phenomena of a body, whether healthy or diseased: and yet the ancients generally took it to be no more than an excrement, for which they could not find any use.

Many of the moderns, from the small quantity of *bile* secreted, have been led into a mistake, that this secretion is not the sole end of so considerable a *viscus* as the liver.

Dr. Keil observes, that in a dog, whose common thirst was near as big as that of a man, he gathered at the rate of about two drachms an hour; though, in a human body, there is reason to think the quantity secreted to be greater.

The *bile* is a part found in all animals; even pigeons, &c. which have no gall-bladder, yet have *bile* in their liver being found very bitter. Mr. Lauvry observes, that the *bile* becomes one of the principle causes of THIRST, by mixing with the salival juice.

Sometimes the *bile* from yellow becomes greenish, like verdigrise, and frequently pale, like the yolks of eggs, and that without any other apparent cause than a little motion, a convulsion, or a violent passion of the mind. This occasions many and terrible diseases; as nausea, an abhorrence of food, anxiety, sighing, cardialgias, wind, diarrhœas, dysenteries, acute diseases, fevers, and convulsions.

Sometimes it becomes black, and takes the name of *chalor*: in this case it sometimes tastes like a very sharp vinegar; sometimes like putrefied blood; gnawing, burning, disturbing, consuming, occasioning inflammations, gangrenes, mortifications, violent pains, and terrible fermentations.

Of ATRA *bilis*, or *black bile*, Boerhaave distinguishes three kinds: first, the mildest, arising from the matter of the blood, put in too great a motion, which hence takes the name of the *adust*: the second is an aggravation of the first, arising from the same cause only heightened: the third is a corrupt, parched *bile*, which is it more from a greenish or pallish sort, is still worse.

Too great an evacuation of the *bile*, either upwards or downwards, robs the chylefaction of its main instrument; hence it prevents digestion, fecession, excretion of the *faces*, and produces an acid temperament, coldness, weakness, faintness, swoonings, &c. When the stomach is full, the *cystic bile* is more copiously discharged into the *duodenum*; when it is empty, the *hepatic bile* is more freely secerned in the gall-bladder. If the *bile*, when purposed, be prevented its discharge into the intestines, it produces a JAUNDICE, and an overflowing of the GALL.

BILE, *secretion of the*.—For the manner in which the *bile* is separated in the liver, there are various opinions. Some maintain, that the pores of the secretory glandules of the liver have a certain configuration and magnitude, to which the particles of the *bile* floating in the blood being all subservient, both in bulk and figure, are admitted in, and all the rest excluded. Others, with Silvius and Lister, not allowing any difference in the configuration, as knowing that the pores of all the vessels are circular, and that particles of all kinds will be admitted, if small enough, have recourse to a ferment, which they suppose to reside in the liver, by means whereof the particles of the blood, in their passage through the secretory ducts, assume the form of *bile*. But, as this is little else than begging the question, others have recourse to another hypothesis; maintaining, that the fluids contained in the blood of the *vena porta*, while that enters the substance of the liver in its way to the extremities of the *vena cava*, indifferently apply to the apertures of the secretory tubes contiguous to the extreme branches of the *porta*, which are wide enough, and to the roots of the *cava*, which are not wide enough to receive them; by which means, being separated from the society and the intestine motion of the other and essential part of the blood, and being no longer agitated by the vital action of the blood-vessels, and becoming exposed to the actions of the biliary vessels, they constitute a new humour, different from the blood, called *bile*, &c. Dr. Keil accounts for the secretion of the *bile* from the strong attraction between the particles whereof it is composed. He observes that the heart and liver being so near each other, were the coeliac artery to have carried all the blood to the liver, considering the velocity of the blood, to effect a secretion as the *bile* could never have been effected. Nature, therefore, forms a vein for the purpose; viz. the *porta*; and by it sends the blood from the branches of the mesenteric and coeliac arteries to the liver; by which the blood is brought a great way about, passing through the intestines, stomach, spleen, and *pancreas*, before it arrives at the liver: thus its velocity is exceedingly diminished, and the particles that are to form the *bile* have a sufficient time to attract one another, and unite, before they come to their secerning vessels. But, as if this diminution of velocity were not sufficient for the purpose, nature has gone farther, having made the cavities of all the arteries increase as they divide: thus the sum of the branches, arising from the *aorta*, is to the *aorta* itself, as 102740 to 100000. And yet, as if that proportion were too little for the present purpose, nature has here taken a further step, and increased the branches springing from the mesenteric artery in a greater ratio. Thus, in a body which he examined, he found the sum of the branches more than double that of the trunk; and therefore the velocity of the blood, in the former, must be less than half that of the latter. He further shews, from a just calculation, that the time the blood now takes, in its passage from the *aorta* to the liver, is at least seven-six minutes; whereas, had an artery gone directly from the *aorta* to the liver, it would have passed in less than half a second; viz. 2437 times in the space it now takes up in its passage. Whence it appears, that the blood was not in a state fit to yield *bile*, had it gone directly from the *aorta* to the liver; and that a longer time, and more languid motion, was necessary to have the bilious particles in a readiness to be separated. He adds, that did the humours exist in the glands the same as they are found after fecretion, nature would not, on this occasion, have been at so much expence to retard the blood's velocity; besides, that the *bile* has another advantage from the use of the *porta*: for, by running through so many parts before it reaches the liver, it leaves behind it most of its *lymph*; by which means the particles being brought nearer each other, are, by their mutual attraction, sooner united. But it has been objected, that this account is too systematical. See GALL, SECRETION, &c.

BILIARY *concretions*, found in the passage of the *bile*, or in the gall-bladder, commonly called gall-stones, are not of a cretaceous nature, but are merely coagula of the

fale formed by an acid; which, being allowed to ſtagnate, acquire a ſtony hardneſs.

BILGE, *ſee* BILGE.

BILIMBI, in *Natural Hiſtory*, the name of an Eaſt India tree, very famous throughout that part of the world for its uſes in medicine. European botaniſts have called it MALUS *Indica fructu pentagono*, or the India apple-tree, with the five-cornered fruit.

It ſeldom grows to above twelve feet high, and is not commonly wild, even in the Eaſt Indies, but is carefully cultivated in gardens, where it flowers all the year round. The juice of the root is drank as a cure for fevers. The leaves boiled, and made into a cataplaſm *with rice*, are famed in all ſorts of tumors, and the juice of the fruit is uſed in almoſt all external heats, dipping linen rags in it, and applying them to the parts. It is drunk, mixed with arrack, to cure diarrhœas: and the dried leaves, mixed with betel leaves, and given in arrack, are ſaid to promote delivery. The fruit is pleaſant to the taſte when fully ripe, and is commonly eaten, when ſmaller, and unripe, it makes a very pleaſant pickle.

BILINGUIS, *in Law*, *ſee* MEDIETAS *Linguæ*.

BILINGUIS *properly denotes a perſon who has two tongues in his mouth*: an inſtance of which is given by Dr. Hunt. It is alſo uſed for a perſon who ſpeaks two languages.

BILIOUS *complexion*, &c. CHOLERIC, COMPLEXION, TEMPERAMENT.

BILIOUS *colic*, *ſee* COLIC.

BILIOUS *fever*, a term uſed by medical writers to expreſs ſuch fevers as ariſe from an immoderate effuſion of the bile. Theſe often ariſe from violent fits of anger in the patient. Of this nature are the *cholerica febris*, and *cauſus*.

Dr. Pringle, in his Obſervations on the Diſeaſes of the Army, remarks, that the *bilioſa* or putrid fever is epidemic in camps, eſpecially in low and marſhy countries, where the air, being moiſt and full of putrid effluvia, tends to relax the fibres and promote putrefaction. As to the ſymptoms of the *bilioſa* fever, it always begins with *chilliness* and laſſitude, pains of the head and bones, and a *diſguſt* at the ſtomach. At night the fever runs high; the heat and thirſt are great; the tongue is parched; the head aches violently; the perſon gets no reſt, and often becomes delirious; but generally in the morning an imperfect ſweat brings on a remiſſion of all the ſymptoms. In the evening the paroxyſm returns, but without any cold fit, and is commonly worſe than the former: on the ſecond morning it remits as before. Theſe periods go on daily, till the fever changes inſenſibly, either into a confirmed, or into an intermitting ſtate. Sometimes looſe ſtools carry off the *fit*, and ſupply the place of ſweat: however, though it reſembles an ague in many particulars, yet it is rare to meet with a real ague in the camp, unleſs the perſon has been ill of it before he took the field. The remiſſions uſually appear from the beginning, eſpecially if the patient has been plentifully bled: but ſometimes there are no remiſſions for the laſt two or three days. Hæmorrhages of the noſe happen frequently in the height of the paroxyſm, and always bring on the remiſſion ſooner, and make it fuller. Vomiting and purging have the like effects. The fits are ſeldom preceded by ſhiverings, or any ſenſe of cold after the firſt attack; the pulſe is always full and quick during the paroxyſms, and in the remiſſions it ſtill indicates ſome degree of fever. The blood is fluid, the *craſſamentum* is firm, in large quantity, and ſinks in the *ſerum*. Whilſt the weather continues warm, the *bilioſa* ſymptoms are moſt frequent, but as winter approaches, the INFLAMMATORY ones prevail.

The doctor enumerates other ſymptoms, as cruſtineſs of the urine, *bilioſa* ſtools, coſtiveneſs, &c. and further obſerves, that the infantry are more liable to it than the cavalry.

As to the cure of the *camp-fever*, before it becomes confirmed, it depends upon the proper uſe of evacuations, the nouriſhing diet, and the bark. Bleeding he judges indiſpenſible; which he would have repeated once or oftener, according to the urgency of the ſymptoms. After bleeding it will be neceſſary to give an emetic, the beſt time for doing which is in the remiſſion of the fever, and rather ſooner after a paroxyſm than before one. He adds, however, that vomits do harm when the ſtomach is much inflamed; in which caſe they ought never to be given. Ipecacuanha is the faſeſt and eaſieſt, but antimonials make the moſt effectual vomit. If the body remains coſtive, it is neceſſary to open it with ſome lenient phyſic; and eſpecially if the bowels are affected with pains, or a *tenſmus*. He likewiſe recommends ſalt of wormwood, lemon juice, *ſpiritus Mindereri*, and the bark; which laſt ought not to be given till the urine breaks, and the intermiſſions take place. Bleeding and purging are alſo neceſſary before the bark ought to be given: it anſwers beſt in ſubſtance, adminiſtered in Rheniſh wine, after ſtanding a night in infuſion.

If, after remiſſions, or intermiſſions, the diſeaſe changes into a continued fever, bleeding becomes neceſſary, unleſs other ſymptoms forbid it; but whether there be room for bleeding or no, bliſters are not only uſeful, but the beſt remedy. To theſe may be joined the neutral ſalts and diaphoretic powders. But, though a ſweat be the proper *criſis*, it ought never to be promoted by *cordials*, or the like hot medicines; unleſs the pulſe ſhould ſink, and the *lethargic* or other bad ſymptoms appear: in which caſe, the warmer alexipharmics are neceſſary, as the diſeaſe is changed into a MALIGNANT FEVER. *See Malignant catarrhal* FEVER.

BILL, in *Huſbandry*, denotes an edge-tool, of the ax kind, with a hooked point, fitted to a handle, and uſed to lop boughs of trees, &c.—When ſhort, it is called an *hand-bill*; when long, an *hedge-bill*.

BILL, in *Commerce*, denotes a ſecurity for money under the hand, and ſometimes ſeal, of the debtor, without any condition or forfeiture, in caſe of non-performance.—In which it is diſtinguiſhed from a bond or obligation. It has been uſually defined a writing, wherein one man is bound to another to pay a ſum of money, on a day that is future, or preſent upon demand, according to the agreement of the parties at the time when it is drawn, and the dealings between them.

BILL, in *Law*, denotes a declaration in writing, expreſſing a wrong, or grievance, which the complainant hath ſuffered by the party complained of; or elſe ſome offence committed by him againſt ſome law or ſtatute of the realm. This *bill* is commonly addreſſed to the lord chancellor, eſpecially for unconſcionable wrongs done ſometimes to others having juriſdiction, according as the law they are grounded on directs. It contains the fact complained of, the damages ſuſtained, and the petition of proceſs againſt the defendant for redreſs.

BILL, in PARLIAMENT, denotes a paper containing propoſitions offered to the houſes, to be paſſed by them, and then to be preſented to the king to paſs into an act or law.

BILL *of attainder*, *ſee* ATTAINDER.

BILL *of appeal*, *ſee* APPEAL.

BILL *of* EXCHANGE, a ſhort note, or writing, ordering the payment of a ſum of money in one place to ſome perſon aſſigned by the drawer, or remitter, in conſideration of the like value paid to him in another place. *See* REMITTANCE.

The whole eſtate and effects of merchants often conſiſt in *bills of exchange*.

A *bill of exchange* is an inſtrument ſo noble and excellent, that though it want thoſe formalities required by the common laws as ſeal, delivery, and witneſſes; and ſo cannot be deemed a ſpecialty; yet is it ſuperior to any bond or ſpecialty by the reſpect that is paid it, and the punctuality and preciſeneſs of the payment.

There is ſome diſpute about the nature and function of a *bill of exchange*: ſome take it to be a contract of permutation, or exchange; but the more general opinion is, that it is a mere contract of buying and ſelling; that the money given the perſon who draws the bill is the price of ſale; and that paid at the appointed place, the thing bought and ſold.

Bills of exchange were unknown in the ancient Roman commerce, as well as juriſprudence. According to the common opinion, they are the invention of the Jews: who, being baniſhed France, for ſome enormous crimes charged on them, retired into Lombardy about the twelfth century, and found means to withdraw their effects, which they had lodged in the hands of friends, by ſecret letters and *bills* conceived in ſhort preciſe terms, like the modern *bills of exchange*; and this, by the aſſiſtance of merchants and travellers.—The faction of the Gibellins, being expelled Italy by the Guelphs, retired to Amſterdam, and uſed the ſame means, for the recovery of their effects in Italy, as the Jews had done; hence the Dutch merchants took the hint of negotiating *bills of exchange*; and ſoon ſpread the practice throughout all Europe.—The ſame Gibellins are ſaid to be the inventors of the *exchange*, on account of damages and intereſts, when *bills of exchange*, which they call *lettres de combat*, are not paid, but returned on proteſt. *See* RE-EXCHANGE.

That which conſtitutes the form and eſſence of a *bill of exchange*, is, the ceſſion, or tranſferring of a ſum of money made by the drawer, to him on whoſe account it is drawn, to be received of a correſpondent in another place; which ceſſion, or tranſfer, is made, in the mercantile terms, *for value received*, i. e. for a like ſum given by the perſon for whoſe ſake the *bill* is drawn, to the drawer, in money, merchandize, or other effects.

There are therefore three things neceſſary to conſtitute a *bill of exchange*. 1ſt, That it be drawn in one city on another. 2dly, That there be three perſons concerned; the

the drawer, the preſenter, or the perſon for whom it is drawn, and the ACCEPTOR, or he on whom it is drawn. 3dly, That it make mention, that the value which the drawer has received, is either in *bills of exchange*, in money, merchandize, or other effects, which are to be expreſſed; otherwiſe it is no *bill of exchange*.

When a *bill of exchange* is expreſſed to be *value in myſelf*, it is not ſuppoſed the drawer has received the ſum; but the perſon for whom it is drawn ſtands debtor to him for it.—When a *bill of exchange* bears, *for which ſum I promiſe to furniſh bills of exchange* to ſuch a place, the perſon for whom the *bill* is drawn may compel him to give the *bills*, or to return the money.

Bills of exchange may be divided into *inland* and *outland*. *Outland*, or *foreign bills*, are thoſe made for money taken up in ſome other country and to be paid in England; or *vice verſa*.—*Inland bills* are thoſe made for money taken up in one part of the kingdom, and to be repaid in another.—By the ſtat. 9 and 10 Will. III. theſe latter are made equally binding with the former: and the method of proceſſing ſuch *bills* is farther regulated by 3 and 4 Anne. See NOTE.

BILLS, *Lombard*, are inſtruments of an uncommon kind and figure, uſed in Italy and Flanders, and of late alſo in France; conſiſting of a piece of parchment, cut to an equal angle, about an inch broad at top, and terminating in a point at bottom; chiefly given, where private perſons are concerned in the ſitting out of a ſhip on any long voyage.

The manner is this: the party who is deſirous to be concerned in the cargo or venture, carries his money to the merchant, who fits out the ſhip, where it is entered down in a regiſter; at the ſame time the merchant writes down on a piece of parchment, upwards of an inch broad, and ſeven or eight inches long, the name of the lender, and the ſum lent, which being cut diagonallwiſe, or from corner to corner, each party retains his half. On the return of the veſſel, the lender brings his moiety to the merchant, which being compared with the other, he receives his dividend accordingly. Much the ſame is practiſed in Holland, by thoſe who lend money on pledges: the name of the borrower, and the ſum, are written on a like ſlip of parchment, which is cut in two, and half given to the borrower, and the other half ſtitched to the pledge; that, upon comparing them together again, the borrower may receive his goods on paying the money ſtipulated.

BILL, *to vote a*. See VOTE.

BILL, *to proteſt a*. See PROTEST.

BILLS, *bank*, are notes or obligations ſigned on behalf of the company of the BANK, by one of their caſhiers, for value received. See NOTE.

BILL *of parcels*, an account of the particular ſorts and prices of goods bought, given by the ſeller to the buyer.

BILL *of lading*, an inſtrument ſigned by the maſter of a ſhip, acknowledging the receipt of a merchant's goods, and obliging himſelf to deliver them at the place to which they are conſigned, in good condition.

Of ſuch *bills* there are uſually three; the *firſt*, the merchant keeps; the *ſecond* is ſent to the factor to whom the goods are conſigned; and the *third* is kept by the maſter of the ſhip.

BILL *of ſale*, is when a perſon wanting a ſum of money, delivers goods as a ſecurity to the lender, to whom he gives this *bill*, impowering him to ſell the ſaid goods, in caſe the ſum borrowed is not repaid, with intereſt, at the time appointed.

BILL *of ſtore*, a kind of licence granted at the cuſtom-houſe to merchants to carry ſuch ſtores and proviſions as are neceſſary for their voyages, outwards.

BILL *of ſufferance*, a licence granted at the cuſtom-houſe to a merchant, to ſuffer him to trade from one Engliſh port to another, without paying cuſtom.

BILL *of entry*, an account of goods entered at the cuſtom-houſe, both inward and outward; wherein is expreſſed, the merchant importing or exporting, the quantity of goods, and the ſorts, and from whence imported, or to what place exported.

BILLS *of mortality* are weekly liſts compiled by the pariſh-clerks in and about London, containing the numbers of ſuch as die of each diſeaſe, as well as of thoſe that are born, every week. See MORTALITY.

BILL *of rights*. See RIGHTS.

BILL, in *Phyſiology*, is a cartilaginous ſubſtance covered with a ſkin or *cutis*, which forms the beak, or *roſtrum*, of a BIRD.

The *bill* does the office of teeth in ſome birds; alſo of weapons of offence. In the parrot kind it is hooked, and ſerves to climb, and catch hold of boughs. The upper *bill* of this bird is filled with rows of croſs bars; and the under bill, which is much ſhorter, ſhuts within the upper, and draws againſt the roof of the mouth; by which means a kind of maſtication is effected, before the meat paſſes into the craw. The PHOENICOPTER's *bill* is a true *hyperbole*, poiſed at the end like a ſword: and what is remarkable, the upper *bill* of this bird moves in eating, the lower being fixed, which is the contrary of what is found in all other kinds. The wood-pecker's *bill* is ſtrong, and ſharp enough to dig holes, and build in the heart of the hardeſt timber. See PHOENICOPTERUS and PICUS. Phil. Tranſ. N° 211. p. 353. N° 350. p. 509.

In the iſland of Fero, a fixed reward is given for the *bills* of ravenous birds: all watermen are obliged to bring a certain number yearly to the country court, at the feaſt of St. Olaus; when they are thrown into a heap, and burnt in triumph. Plott gives divers inſtances of monſtrous irregularities in the *bills* of birds; particularly of a raven, whoſe mandibles graſped each other, the lower chap running upwards, and the other downwards. Plott's Nat. Hiſt. Oxfordſh. ch. viii. § 4.

BILL, *crane's*, among *Chemiſts*, the beginning of the fineſt proceſs of the philoſopher's ſtone, diſcovered by the Rhodians of the matter, called alſo the *crane's head*.

BILLYARA, *the bill is true*. The grand jury indorſing a *bill* when by any crime puniſhable in that court is preſented to them, with the words *billa vera*, finally cherries, that the preſenter has furniſhed his preſentment with probable evidence, and worthy of further conſideration; whereupon the party preſented is *laid to ſtand indicted* of the crime, and bound to make anſwer thereto, either by confeſſing or traverſing the indictment.

BILLARD, in *Ichthyology*, an Engliſh name for the young of the cod-fiſh, or rowling-pollack, up to a certain ſize, as the cod to a certain ſize is called a *codling*. Willoughby.

BILLES, in *Trade*, a name given by the French, and afterwards by other nations, to the maſſes of raw ſilk, or ſuch as has been tempered for ſale, and is ready to be wrought into cloth, &c. This in working loſes its temper, but it recovers it again by plunging it into cold water.

BILLET, in *Heraldry*, a bearing, in form of a long ſquare. See *The Herald. fig. 9.*

Billets are ſaid to be couched, or inverted, when their longeſt ſide is parallel to the top of the *eſcheld*, and the ſhorteſt perpendicular.

They are ſuppoſed to repreſent pieces of cloth of gold or ſilver, longer than broad, placed as a diſtance by way of ornament, on coaths, and afterwards tranſlated to their coat-armour; though Guillim takes the *billet* to repreſent a letter folded up.

A coat is ſaid to be *billeted*, when it is charged with *billets*; thus, he bears *argent billettée* a croſs engraiſed gules by the name of *Heathe*. Bloom ſays, the number of the *billets* muſt be expreſſed when they are not above ten.

BILLET, *Billette*, in the *French Cuſtoms*, a little ſign in form of a cake, hung up at places where toll is to be paid, to adverriſe paſſengers and carriages, that before they advance farther, the dues are to be paid to the king, or the lord who is charged with the care of repairing the highways.

BILLETS *for fuel*, are to be three feet four inches long, and the bund twenty-four inches round.

BILLETING *of ſoldiers*, is the lodging or quartering of them in the houſes of the inhabitants of a place.

BILLETINS. See BROTHERS *of Charity*.

BILLIARDS, an ingenious kind of game played with two ſmall ivory balls, on an oblong table, covered with green cloth, and placed exactly level, which balls are driven by ſticks, made on purpoſe, alternately againſt each other with a view to puſh the paſſive ball into hazards or holes, on the edges and corners, according to certain laws, or conditions of the game.

The word comes from the French, *billard*, of *bille*, the ball made uſe of; and that from the Latin *pila*, a *ball*.

BILLON, BILLO, in *Coinage*, a kind of baſe metal, either of gold or ſilver, in whoſe mixture, copper predominates.

The word is French, formed according to Menage, from the Latin *billa*, or *bulla*, *bullion*.—We do not find it is naturalized among us; but the neceſſity we are frequently under of uſing it in the courſe of this work, required its being explained.

According to M. Boutteroue, *billon of gold* is any gold beneath ſtandard, or twenty-one carats; and *billon of ſilver*, all below ten penny-weights. But, according to others, and amongſt the reſt, M. Bolzard, gold and ſilver beneath the ſtandard, as far as twelve carats, and ſix penny-weights, are properly baſe gold and ſilver; and all under thoſe, *billon of gold* and *billon of ſilver*, in regard copper is the prevailing metal.

BILOCULAR, in *Botany*, a term applied to a CAPSULE having two cells.

BILUR, in *Natural Hiſtory*, a name given by many of the Arabian writers to a gem, which, though they often mention, yet they leave no where given us a deſcription of. Some have imagined it the ruby, and others the *beryl*; but it appears more probably to have been a ſpecies of cryſtal; probably the pebble-cryſtal of the Eaſt Indies, which is conſiderably finer than the common ſpeig-cryſtal,

tal, and is often sold under the name of the white sapphire; though confiderably inferior, both in luftre and hardneſs, to the true white ſapphire.

BIMEDIAL, in *Mathematics*. When two medial lines, as AB and BC, commenſurable only in power, and containing a rational rectangle, are compounded, the whole AC ſhall be irrational, with reſpect to either of the two, and is called a *firſt bimedial* line. Euck. lib. x. prop. 38.

BINACLE. See BITTACLE.

BINARY *number*, that compoſed of two units. See NUMBER.

BINARY *arithmetic*, a method of computation, firſt propoſed by M. Leibnitz; wherein, in lieu of the ten figures in the common arithmetic, and the progreſſion from 10 to 10, he has only two figures, and uſes the ſimple progreſſion from two to two.

Joſ. Peliſon of Prague has more largely explained the principles and practice of the *binary* arithmetic, in a book entitled, Arithmeticus ſeptenarius, qui tria numerorum genera. 1712.

All his characters uſed in this arithmetic are 0 and 1; and the epithet, *bene*, multiplies every thing by 2, as in the common arithmetic by 10. Thus 1 is once 1, two; 11, three; 100, four; 101, five; 110, ſix; 111, ſeven; 1000, eight; 1001, nine; 1010, ten, *&c.* which is founded on the ſame principles with the common arithmetic.

Hence immediately appears the reaſon of the celebrated property of the duplicate geometrical proportion in whole numbers; viz. that one number of each degree being had, we may thence compoſe all the other whole numbers above the double of the higheſt degree. In being binary, v. gr. as if one ſhould ſay, 111 is the ſum of 4, 2, and 1, which property may ſerve whoſoever has to weigh all kinds of maſſes with a little weight; and may be uſed in coins, to give ſeveral values with ſmall pieces. This method of expreſſing numbers once eſtabliſhed, all the operations will be eaſy: in multiplication particularly, there will be no need for a table, or getting any thing by heart.

100	4
10	2
1	1
111	7

The author, however, does not recommend this method for common uſe, becauſe of the great number of figures required to expreſs a number; adding, that if the common progreſſion were from 12 to 12, or from 16 to 16, it would be ſtill more expeditious: but its uſe is in diſcovering the properties of numbers, in conſtructing tables, *&c.*

What makes the *binary* arithmetic the more remarkable is, that it appears to have been the ſame with that uſed 4000 years ago among the Chineſe, and left, it ſeems, by Foh, the founder of their empire, as well as of their ſciences.

M. Lagni has propoſed a new ſyſtem of logarithms, on the plan of the *binary* arithmetic; which he ſays ſhorter, more eaſy and natural, than the common ones.

BINARY *meaſure*, in *Muſic*, is that which is beaten equally, or where the time of riſing is equal to that of falling. See TIME and MEASURE.

BINATED *leaf*, in *Botany*, a digitate leaf, conſiſting of two *foliola*.

BIND-*weed*. See CONVOLVULUS, and BRYONY.

BIND-*weed, ſmall*. See SMILAX.

BIND-*weed, ſea*. See SOLDANELLA.

BINDER-*reed*, the weakeſt kind of *ſun-reed*. See TARRING.

BINDING *joiſts*, in *Architecture*, are thoſe joiſts in a floor, into which the trimmers of ſtair-caſes, or well-holes of the ſtairs, and chimney-ways, are framed; they ought to be ſtronger than common joiſts.

BINDING, in the *Art of Defence*, a method of ſecuring or croſſing the adverſary's ſword with a preſſure, accompanied with a ſpring from the wriſt. See BEATING.

Unleſs a man, by ſome kind of croſs, ſecure, as it were, or render his adverſary's ſword incapable to offend him during the time of his performing a leſſon upon him, it is impoſſible for him to be certain but that he may receive from his adverſary, either a fortuitous *contretemps*, or an exchanged thruſt, before the recovery of his body, or going off after a thruſt.

The great objection made by ſome people, particularly thoſe time-catchers, againſt the frequent uſe of *binding*, is, that when a man, in performing it, cleaves too much to his adverſary's ſword, he is liable to his adverſary's ſlipping of him, and conſequently of receiving either a plain thruſt, or one from a feint.

BINDING is a term in *Falconry*, which implies ſtaring, or when a hawk ſcizes.

BINDING *leaf*. See BOOK-*binding*.

BINN, *bina*, a ſort of cheſt or cupboard, wherein to lock up bread, meat, or other proviſions.

The word is alſo uſed for a place boarded up to put corn in.

BINN, or BIN. The peaſe and oatmeal, uſed at ſea, are apt to ſpoil in caſks. Dr. Hales propoſes to prevent this by putting them into large *binns*, with falſe bottoms of hair cloths laid on bars, whereby freſh air may be blown upwards through them, at proper times, with ſmall VENTILATORS.

BINOCLE, or BINOCULAR *teleſcope*, from *binus*, *double*, and *oculus*, *eye*, that to which both the eyes may be applied, and conſequently the ſame object be obſerved at the ſame time by both.

It conſiſts of two tubes, with two ſets of glaſſes of the ſame power, and adjuſted to the ſame axis; and ſome have pretended that it repreſents objects much larger and clearer, than a ſingle, or MONOCULAR glaſs.

But this is only an illuſion, occaſioned by the ſtronger impreſſion, which two equal images alike illuminated make upon the eye. This method of conſtruction was invented by father Rheita, and brought into uſe by father Chereau of Orleans. There are alſo microſcopes of the ſame kind, but very ſeldom uſed.

BINOMIAL, or BINOMIAL, from *bis*, *twice*, and *nomen*, *name*, in *Algebra*, a root conſiſting of two parts, or members, connected by the ſign +, or −.

Thus $a+b$ and $x-z$ are *binomials*, conſiſting of the ſum and difference of thoſe quantities; though the latter is uſually called a RESIDUAL.

The powers of a *binomial* are found by a continual multiplication of it by itſelf, as often as unit is contained in the index of the power required. Thoſe of a *reſidual*, $a-b$, are obtained in the ſame manner, only with this difference in the reſult, that the terms in which the exponent of b is an odd number, will be negative.

If a root have three parts, as $a+b+c$, it is called a TRINOMIAL; if more, a MULTINOMIAL.

BINOMIAL, *impoſſible*, in *Algebra*, is uſed for a *binomial*, one of the terms of which is an impoſſible quantity. Thus, $a+\sqrt{a^2+b}$, is an *impoſſible binomial*.

BINOMIAL *ſurd* is uſed for a *binomial*, the terms of which are ſurds: as $\sqrt{a^2+b}+\sqrt{b}$, or a^m+b^n, if m and n be fractions. The term *binomial ſurd*, is alſo applied to any quantity having a rational part and a ſurd part, as $25+\sqrt{968}$.

For the extraction of roots of *binomial ſurds*, ſee Newton's Arithmetica Univerſalis, and Mac Laurin's Algebra, p. 124—130.

BINOMIAL *curve* is uſed for a curve, the ordinate of which is expreſſed by a *binomial*. Thus if the ordinate of a curve be

$$y=\sqrt[n]{x^m}+\sqrt[q]{x^p},$$

of this form $z+\sqrt{x^3}$, the curve is called a *binomial curve*. Stirling, Method. differ. p. 58.

BINOMIAL *theorem* is often uſed to ſignify Sir Iſaac Newton's theorem for raiſing a *binomial* to any power, or for extracting any ROOT of a *binomial*.

This *theorem* may be inveſtigated and explained in the following manner: whatever power of $a+b$ be required, it is obvious, from a continued multiplication of this quantity into itſelf, that the index of a in the firſt term is equal to the index of the power required; and that the indices of a decreaſe by the ſame difference, viz. unit, ſo as to become 0 in the laſt term; the quantity being $a^m=a$. Thoſe of b increaſe; in the firſt term it has 0 for its index, in the ſecond 1, *&c.* and in the laſt term its index is the ſame with that of a in the firſt; and the ſum of the indices of both quantities in every term is the ſame, or equal to the index of the power required. The coefficient for any term is eaſily found; that of the firſt term being unit, by multiplying the coefficient of the preceding term by the index of a in the ſame term, and dividing the product by the index of b in the given term, and continuing the operation, till the number of coefficients after the firſt be equal to the number of units in the index of the power required. Whence it appears that the coefficients increaſe, till the indices of the two quantities are equal, in a power denominated by an even number; and in a power denominated by an odd number thoſe of the two middle terms are the ſame; and then the remaining coefficients decreaſe in the ſame order. Thus, if $a+b$ is to be raiſed to a power denoted by m, $a+b^m$ will be equal to $a^m+ma^{m-1}b+m\times\frac{m-1}{2}\times a^{m-2}b^2+m\times\frac{m-1}{2}\times\frac{m-2}{3}\times a^{m-3}b^3+m\times\frac{m-1}{2}\times\frac{m-2}{3}\times\frac{m-3}{4}\times a^{m-4}b^4$, *&c.* The ſame *theorem* may be eaſily applied to the *evolution* of powers, or the *extraction* of any root; the index in this caſe being a fraction whoſe denominator is equal to the index of the root required. E. gr. $\sqrt{a+b}=a+b^{\frac{1}{2}}=a^{\frac{1}{2}}+\frac{1}{2}\times a^{-\frac{1}{2}}b+\frac{1}{2}\times\frac{-\frac{1}{2}}{2}\times a^{-\frac{3}{2}}b^2+\frac{1}{2}\times\frac{-\frac{1}{2}}{2}\times\frac{-\frac{3}{2}}{3}\times a^{-\frac{5}{2}}b^3$, *&c.* $=a^{\frac{1}{2}}+\frac{1}{2}\times a^{-\frac{1}{2}}b-\frac{1}{8}\times a^{-\frac{3}{2}}b^2+\frac{1}{16}\times a^{-\frac{5}{2}}b^3$, *&c.*

$a^{-\frac{1}{2}} \pm \frac{1}{2} \times -\frac{1}{2} x \pm \frac{1}{2} \times a^{-\frac{1}{2}} y^2$, &c. $= a^{\frac{1}{2}} \mp \frac{1}{2} a^{-\frac{1}{2}} y^2 - \frac{1}{2} \times a^{-\frac{1}{2}} y^2 \mp \frac{1}{2} \times \frac{-1}{2+1} \times a^{-\frac{1}{2}} y^2$, &c. $= a^{\frac{1}{2}} \mp \frac{y^2}{2a} - \frac{y^4}{8a^2} \mp$, &c. See ROOT, REVERSION, SERIES, &c.

BINOMIUS, from *bis* and *nomen*, *name*, in *Middle Age Writers*, denotes a person with two names.

Most Christians anciently were *binomii*, as having had other names in their heathen state, which they changed at their conversion. Besides, it was an ancient custom for parents to give names to their children immediately after they were born, and sometimes other different ones afterwards at their baptism: one of which frequently become a *cognomen*, or surname. In reality it was a constant practice to assume a new name at baptism, as the religious still do in the Romish church, on their reception into the monastic state; or the Jewish proselytes at their circumcision.

BIOCOLYTÆ, in the *Byzantine Empire*, an order of officers appointed to prevent the violences frequently committed by the soldiers.

The word is compounded of βια, *vis*, *violence* and κωλυω, *I hinder*; and should rather be written *biocolytæ*.

The *biocolytæ* appear to have been much the same with the French archers of the Marshalsea. They were suppressed by the emperor Justinian.

BIOGRAPHER, an author who writes a history, or life, of one or more persons.—Such were Plutarch, Corn. Nepos, &c.

The word is formed from the Greek βιος *life*; and γραφω, *I describe*.

BIOGRAPHY, the art of describing or writing lives.

Biography is a branch or species of history more entertaining, as well as more useful in many respects, than general history, as it represents great men more distinctly, unincumbered with a crowd of other actors, and descending into the detail of a man's actions and characters, gives more light into human nature, as well as carries us more to imitation. See an excellent paper on *biography* in the Idler, and in the Annual Register, vol. i. p. 436. an. 1759.

BIOLYCHNIUM, a substantial fire, flame, or HEAT, which some physicians suppose actually lodged, or inherent in the heart, and remaining there as long as life lasts.

The word *biolychnium* is compounded of the Greek βιος, *life*, and λυχνος, *light*.

Some will have it to have been the human soul, others the animal spirits, and others the Deity, that did the office of a *biolychnium*, and was the spring of all the actions and motions of the body. See BLOOD, &c.

Cafs. Hoffman, and Conringius have written treatises expres on the ancient doctrine of the lamp of light, or innate heat.

BIOLYCHNIUM is also a denomination of a peculiar kind of vital balsam, prepared from human blood; the process of which is described by Beguinus. J. Ern. Burgravius has a treatise expres on it.

BIOTA, in *Zoology*, a name introduced by Dr. Hill for the POLYPE.

It is of a cylindric figure, but variable; the *tentacula* are arranged in a single series, round the aperture of the mouth, at the extremity of the body. There are several species of this animal.

Linnæus calls this creature *hydra*, no doubt from the reproduction or repullulation of the parts, when cut off; and this name, *biota*, is likewise given it on the same account, being derived from βιοω, *live*.

BIOTHANATI, from βιος, *violence*, and θανατος, *death*, in some *Medical Writers*, denotes those who die a violent death.

The word is also written, and with more propriety, *biathanati*; sometimes *biaethanati*.

In a more particular sense, it denotes those who kill themselves, more properly called *autothanati*. See MURDER.

In this sense it is, that the word is used both by Greek and Latin writers. By the ancient discipline of the church, they were punished by denying them burial, and refusing all commemoration of them in the prayers and offices of the church.

BIOTHANATI, supposed by some to be derived from βιος, *life*, and θανατος, *death*, and alluding to the belief of a future life after death, was also a name of reproach given by the heathens to the primitive Christians, for their constancy, and forwardness to lay down their lives in martyrdom.

BIOTHANATOS is also used in some writers of the barbarous age for wicked, damnable, or accursed. Du-Cange

BIOUAC, BIVOUAC, or BIVAC, in the *Military Art*, a nightly guard performed by the whole army, when there is an apprehension of danger from the enemy.

The word is formed, by corruption, from the German *wey-wacht*, a *double watch* or *guard*.

BIPARTIENT, in *Arithmetic*, is a number that divides another into two equal parts without a remainder. Thus 2 is a *bipartient* to 4, &c.

BIPARTITE *leaf*, in *Botany*, signifies a leaf divided into two segments.

BIPARTITION signifies such dividing.

BIPENNIS, in *Roman Antiquity*, a two-edged ax, used anciently by the Amazons in fight; as also by the seamen to cut asunder the ropes and cordage of the enemy's vessels.

The *bipennis* was a weapon chiefly of the oriental nations, made like a double ax, or two axes, joined back to back, with a short handle. Some compare it to the figure of a pen, and suppose it hence to have acquired the name *bipennis*; the tube or barrel of the pen representing the handle, and the point or nib the head. Modern writers usually compare it to our HALBARD, or *partisan*; from which it differed in that it had no point, and that its shaft or handle was much shorter.

BIPES, *amphibium*. See SIREN.

BIQUADRATE, or BIQUADRATIC, is the next POWER above the cube, or the square multiplied by itself.

BIQUADRATIC *equation*, in *Algebra*, an equation raised to the fourth powers, or where the unknown quantity of one of the terms has four dimensions: thus $x^4 + ax^3 + bx + cx + d = 0$ is a *biquadratic* equation. See EQUATION.

BIQUADRATIC *parabola*, in *Geometry*, a curve-line of the third order, having two infinite legs tending the same way. See PARABOLA.

BIQUADRATIC *power of any number*, is the fourth power, or squared squares, of that number: thus 16 is the *biquadratic* power of 2; for $2 \times 2 = 4$ and $4 \times 4 = 16$.

BIQUADRATIC *root of any number*, is the square root of the square-root of that number: thus the *biquadratic* root of 81 is 3; for the square root of 81 is 9, and the square root of 9 is 3.

BIQUALAR, in the *Customs of the Algerines*, a cook of the divan.

The janissaries, whom the Algerines call *odabachi*, after serving a certain time as common soldiers, are preferred to be *biqualars*, or cooks of the divan, which is the first step towards arriving at higher preferments. *Biqualars* have the care of furnishing the officers and commanders of the Algerine soldiery with meat and drink in the camp, in garrison, &c. From *biqualars* they are made *oudachi*; that is, corporals of companies, or commanders of squadrons.

BIQUINTILE, an ASPECT of the planets, when they are 144 degrees distant from each other. It is thus called, because they are distant from one another by one the *fifth* part of 360 degrees.

BIRABETANE, in the *Botanical Writings of the Ancients*, a name given to *verbena*, or vervain, and to other herbs used in sacrifices. It is only the word *hierobotane*, or altered by the Æolic manner of writing and speaking it. *Hierobotane* is the common Greek name of vervain, and other sacrificial herbs, and it is probable that the Latin name *verbena* came from the Æolic manner of speaking this word. All these herbs, which were laid upon the altars on solemn occasions, such as making of peace, and other solemn contracts, and were to be taken up by the contracting parties as part of the ceremony, were called by the Greeks *hierobotanæ*, that is, *sacred plants*, and *verbenæ*, but as the plant we now particularly know by the name *verbena* was more frequent in use than any other on this occasion, it was afterwards distinguished by that name.

BIRAO, in *Botany*, the name given by the inhabitants of the Philippine islands to a plant more commonly known among botanical writers by the name TUOU, and supposed by Cornelli, who carefully observed it on the spot, to be the true AMOMUM of the ancient Greeks.

BIRCH-*tree*, *Betula*, in *Botany*, a genus of trees of the *monœcia tetrandria* class; the characters of which are these: it hath male and female flowers, at separate distances on the same tree; the male flowers collected in a cylindrical catkin. The flower is composed of three equal florets, fixed to the empalement by a single scale, having four small stamina. The female flowers grow in a catkin, in the same manner as the male, which are heart-shaped. They have no visible petals, but a short oval germen. It hath no *pericarpium*, but the seeds are included in the scales of the catkin, which are oval and winged. Linnæus reckons six and Miller four species.

The first is the common *birch*-tree, which is so well known as to need no description. This is not much esteemed for its wood, but however may be cultivated to advantage upon barren land, where better trees will not thrive; for there is no ground so bad but this tree will thrive in it; it will grow in moist springy land, or in dry gravel or sand, where there is little surface. So that upon ground which produced nothing but moss, these trees have succeeded so well, as to be fit to cut in ten years after planting, when they have been sold for near 10*l.* an acre standing, and the after-produce has been considerably increased. Many woods near London, which were chiefly

flocked with these trees, having been of late years grubbed up, the value of these plantations has advanced in proportion. Persons therefore, who are poſſeſſed of poor land, cannot employ it better than by planting it with theſe trees, eſpecially as the expence of doing it is not great. The beſt method of cultivating this tree, is to procure young plants from the woods, where they grow naturally; but where no young plants are near, they may be raiſed from ſeeds, which ſhould be carefully gathered in autumn, as ſoon as the ſcales under which they are lodged begin to ripen, otherwiſe they will ſoon fall out and be loſt; and being ſmall, ſhould not be buried deep in the ground. Autumn is the beſt ſeaſon for ſowing them; and in a ſhady ſituation they will thrive better than when expoſed to the full ſun.

The ſeeds of *birch* are ſo diſpoſed for germination, that they will even grow on the body of the mother tree when falling, and being incaſed on it, adhere ſo ſtrongly, as never to ſeparate from it; but increaſing yearly, form thoſe crouded buſhes, like birds neſts, often ſeen on *birch* trees. If the plants take kindly to the ground, they will be fit to cut in about two years; after which they may be cut every ſeventh or eighth year, when deſigned for the broom-makers only; but when they are intended for hoops, they ſhould not be cut oftener than every twelfth year.

Broom-makers are conſtant cuſtomers for *birch*, in all places within twenty miles of London, or where it is near water-carriage; in other parts the hoop benders are the purchaſers. But the larger trees are often bought by the turners; and the wood is uſed for making ox-yokes, and other inſtruments of huſbandry. In ſome of the northern parts of Europe, the wood of this tree is greatly uſed for making carriages and wheels, being hard, and of long duration. In France it is generally uſed for making wooden ſhoes, and it is good fuel. In ſome places theſe trees are tapped in the ſpring, and the ſap drawn to make *birch* wine, which has been recommended for the ſtone and gravel, as is alſo the ſap unfermented. In Sweden the houſes are covered with it, where it laſts many years. It frequently happens that the wood is entirely rotten, while the bark is perfectly ſound and good. The piercing and bleeding of *birch* is performed thus: about the beginning of *March*, when the buds begin to be proud and turgid, and before they expand to leaves, with a chiſſel and a mallet cut a ſlit almoſt as deep as the pith, under ſome branch of a well-ſpreading *birch*; cut it oblique, and not long ways, as a ſurgeon does a vein; and inſert a ſmall ſtone or chip, to keep the lips of the wound a little open; laſtly, to this orifice faſten a bottle, or other convenient veſſel, appendant, into which will exiſt a limpid and clear water, retaining an obſcure ſmack both of the taſte and odour of the tree. The wonder is, that, in the ſpace of twelve or fourteen days, as much juice will be gathered, as will outweigh the whole tree, body and roots. Phil. Tranſ. N° 43, p. 854. N° 44. p. 880. N° 46, p. 917 and 963.

The liquor or juice, thus procured, is uſed, in ſome northern countries, as a preſervative againſt the ſtone. Van Helmo: extols a drink prepared with this juice, ſaxifrage-ſeeds, and brooklime. Mr. Boyle tells us he has ſeen extraordinary medicinal effects of the juice itſelf, even when the other remedies failed; ſo that he uſually provided a quantity of it every ſpring. He ſays, it may eaſily be preſerved, by pouring a little oil on the top of it, or by diſtillation; but that the beſt way is, to impregnate it with the fumes of ſulphur. Phil. Works abr. vol. i. p. 51. and vol. iii. p. 338.

The juice is uſed both to make wine of, and for brewing; being here employed in lieu of water, a barrel of malt will afford as much, and as good ale, as four with common water. Phil. Tranſ. N° 46. p. 963.

A great difference is found between the efficacy of that liquor which diſtils from the bold, or parts of the tree nearer to the root, and that which weeps out from the more ſublime branches; the former being more crude and watery, the latter purer, and more refined. Evel. Syiv. cap. xvi. § 3. p. 71.

BIRCH-*tree of Canada*. See MASTIC-*tree*.

BIRCH-*bark* being bituminous, and conſequently warm and emollient, is uſed in fumigations to correct a diſtempered air.

The inner ſilken bark was anciently uſed for writing tables, before the invention of paper; though Ray rather aſſigns the office of paper to the cuticle, or outer ſkin, which peels off yearly. And with the outward, thicker, and coarſer part are houſes in Ruſſia, Poland, and other northern tracts, covered, inſtead of ſlates and tyle. Phil. Plant.

The Indians make pinnaces with white cedar; which they cover with large flakes of *birch*-bark, ſewing them with thread and ſpruce-roots, and pitching them; as the ancient Britons did with the willow. Pliny ſpeaks of a bitumen actually procured from the *birch-tree*. Hiſt. Nat. lib. xvi. c. 18.

BIRCH, *fungus of*, an exceſcence growing on its trunk: it is aſtringent, and good againſt hæmorrhages; when boiled, beaten, and dried in an oven, it makes excellent ſpunk, or touchwood.

BIRCH-*leaves* are of uſe in the dropſy, itch, &c. either internally or externally applied.

BIRCH-*twigs* ſerve to make rods and brooms; ſmeared with bird-lime they are uſed by fowlers, to ſay nothing of the ancient faſces carried by lictors.

BIRCH-*wine* is made by fermenting the vernal juice: formerly it was in great repute againſt all peſtilitic diſorders, but is left out in the modern London practice.

The preparation of *birch*-wine is well and amply deſcribed in a book, intituled, Venetum Britannicum. Phil. Tranſ. N° 123. p. 674.

BIRD, *Avis*, in *Natural Hiſtory*. The characters of this claſs of animals are, that they have a body covered with feathers, two legs, two wings, and a hard or bony bill; and that the females are oviparous.

Linnæus, from the conſideration of the different ſhapes and ſtructure of their beaks, has diſtributed *birds*, which form the ſecond claſs of animals, into ſix orders, viz. *accipitres*, *pice*, *anſeres*, *grallæ*, *gallinæ*, and *paſſeres*, comprehending 922 known ſpecies. Syſtema Nat. ed. 13. tom. i.

The hiſtory and deſcription of *birds* make a particular branch of ſcience called ORNITHOLOGY.

Birds are variouſly divided and denominated by naturaliſts from the places of their abode, their food, and manner of living, make of their bills, wings, feet, &c.

Birds are uſually divided into *terreſtrial* and *aquatic*.

BIRDS, *terreſtrial*, comprehending the *rapacious*, *pies*, the *gallinaceous*, the *columbine*, and the *paſſerine*, are ſubdivided into thoſe which have *crooked beaks* and *talons*; and thoſe whoſe beaks and claws are *ſtraighter*.

Of *birds* with *crooked beaks* and *talons*, ſome are carnivorous and rapacious, called *birds of prey*; others are ſugivorous, called by the general name of *parrots*.

Of *birds of prey*, ſome prey in the day-time, and are called *diurnals*; others in the night, and are called *nocturnal birds*. *Diurnal birds of prey* are either of a *greater* or a *leſſer* ſize.—The *greater* are either of a more bold and generous nature, as the eagle-kind, or of a more cowardly and ſluggiſh, as the vulture.

Concerning the carnivorous or rapacious *birds*, it is obſerved, 1. That though Ariſtotle ſays they fly ſolitary, yet that holds not in all; ſeeing that vultures have been ſeen to fly in troops fifty or ſixty together.

2. That the females of the ravenous *birds* are bigger, ſtronger, and of greater courage, than the males; nature ſeeming to have been ſo provident as to furniſh theſe females with ſuch advantages, upon the account that they muſt provide food not only for themſelves, but alſo for their young ones. Phil. Tranſ. N° 120. N° 483.

The *leſſer* diurnal *birds* of prey are either of a generous and docile, or of a cowardly, ſluggiſh, and untractable nature. The *generous* and *docile* are the hawk-kind, which are wont to be reclaimed and manned for fowling. Theſe by the falconers are diſtinguiſhed into *long-winged*, as the *falcon*, *lanner*, *ſacre*, *gerfalcon*, *baſtard*, &c. whoſe wings reach almoſt as far as the end of their train; and *ſhort-winged*, as the *goſ-hawk* and *ſparrow-hawk*, whoſe wings, when cloſed, fall much ſhort of the end of their trains.

The *cowardly* and *ſluggiſh* are neglected by our falconers, and ſo live at large.—Of theſe alſo there is a *greater* ſort, as the *buzzard-kind*; to which may be added, the *ring-tail* and *kite*; and a *leſſer*, as the *butcher-bird*, or *ſhrike*, about the bigneſs of a *blackbird*.

Of *birds* of prey with crooked beaks and talons, others are *nocturnal* as the *owl kind*, which prey by night; and theſe are either horned or eared, as the eagle-owl, horn-owl, &c. or without horns or ears, as the brown owl, white owl, grey owl, ſhower-horn-owl, or goat-ſucker, &c.

Frugivorous land-*birds*, with crooked beaks and talons, are diſtinguiſhed into three ſorts, according to their bigneſs; the *greater* ſize being called *mattaccas* and *cacatoons*; the *middle-ſized*, and moſt common, *parrots*, and *poppingays*; and the *leaſt* ſort *parrakeets*: theſe all make uſe of their beak in climbing, and move the upper jaw.

Land-*birds*, which have their bills and claws more ſtraight, are diſtinguiſhed into three ſizes; the greateſt kind are ſuch as by reaſon of the bulk of their bodies, and ſmallneſs of their wings, cannot fly at all; ſuch are the *oſtrich*, the *caſſuaway*, and the *dodo*.

The *middle-ſized* are divided into ſuch as have either *large* and *long*, or *ſmaller* and *ſhorter bills*.

Of thoſe with large, thick, ſtrong, and long bills, ſome feed promiſcuouſly on fleſh, inſects, and fruits, as the *crow-kind*, which are wholly black; and the *pye-kind*, which are party-coloured, as the *magpye*, *jay*, &c. others feed on fiſh only, as the *king's-fiſher*; and others on inſects only, as the *wood-pecker*.

As for thoſe which have a ſmaller and ſhorter bill, their fleſh

is either white, as the poultry kind; or blackish, as the *pigeon*, and *thrush kind*.

The *least-sized* kind of *land-birds*, with straight bills and claws, are called *small birds*. Small *birds* are subdivided into those with *slender bills*, as the *lark*, *swallow*, *martin*, &c. *thick and short bills*, as the *bull-finch*, *house-sparrow*, *linnet*, &c. those with a hard protuberance on the upper chap or bill, as the *bunting*, *yellow hammit*, *reed-sparrow*, &c. Among *birds* which have straight beaks and claws, Mr. Willughby observes, that the *cassowary* (as well as the *pelican*) is without a tongue; swallowing not only bits of iron, as the *ostriches*, but also red-hot coals; yet, not digesting the iron, but voiding it whole, as the *ostrich* also does.

BIRDS, *aquatics*, or *water-fowl*, comprehending the *cloven-footed*, the *fin-footed*, and *web-footed*, are distinguished into such as *wade* in the waters and such as *swim* in them.

Aquatics which *wade*, are all cloven-footed, and generally have long legs, and those naked, or bare of feathers, a good way above the knee, that they may the more conveniently wade in waters. Of these authors reckon two kinds; a *greater* and a *lesser*.—To the *greater* belong the *crane*, *ibirin*, &c.—The *lesser* are either *piscivorous*, as the *heron*, *spoon-bill*, *stork*, &c. or *muscivorous*, and *insectivorous*. Of aquatic *birds*, some have *slender bills*, sharp-pointed, as the greatest *gull*, *siver*, *grey gull*, &c. others *toothed bills*, as the *gossander*, &c. others *broad bills*, as the *swan*, *booper*, *goose*, *duck*, &c.

Of *insectivorous* water-fowl, some have *very long* bills; others *middle sized* ones, as the *sea pye*, and *red shank*; others *short bills*, as the *lapwing* and *plover*.

Of those with *long bills*, some have them crooked, as the *curlew* and *twimbrel*, and others straight, as the *woodcock* and *godwit*.

Note, those are reckoned short bills, which exceed not an inch and a half; middle-sized bills, two inches and an half; and long bills above two inches and a half.

Of aquatics, which *swim* in the water, some are *fissipedes*, cloven-footed, as the *rail*, *plover*, &c. some are fin-footed, *pinnati*, as the *coot* and *grebe*, &c. but most are web-footed, or web-footed, *palmipedes*.

Of these, some few have very long legs, as the *flamingo*, the *avosetta*, and *cornorn*; but the generality are short-legged.

Of the *short-legged*, *web-footed aquatics*, some have but three toes on each foot, as the *penguin*, *razor-bill*, &c. but generally they have four toes on each foot, and these either all connected together by intervening membranes, as in the *pelican*, *soland-goose*, &c. or more usually with the back-toe loose.

This last kind are either *narrow-billed*, or *broad-billed*.—Those with *narrow bills* have them either blunt or hooked at the tip, or sharp-pointed and straighter.

Of the former sort some are serrate, as in the diver-kind; and some not toothed, as in the *auglin*.

Of those with sharp-pointed and straighter bills, some have long wings, as the *gull* kind, and some shorter, as those diving *birds* called *dunckers*.

Those with *broad bills* may be divided into the *goose-kind*, which are larger; and the *duck-kind*, which are smaller; and these latter into sea-ducks, and river, or plash-ducks.

In flat-billed *birds*, as *ducks*, there are three pair of nerves, which come down between the eyes into the upper bill, whereby they are enabled to smell, and find out their food in the mire, water, and the like. The like has also been discovered in several round billed *birds*; but much smaller, and scarce discernible, except in the rook, where they are conspicuous enough; and it is remarkable that these, more than any other round-billed *birds*, seem to grope for their meat in cow-dung and the like. In the lower bill there are also nerves, which have much the same situation with those in the flat-billed kind; but very small, and scarce discernible. Phil. Trans. N°. 206. p. 696.

Most water-fowls have a short tail; and none of this kind have their feet disposed like parrots and woodpeckers, which have two toes forward, and two backward; whereas none of these have more than one back-toe, and some have none at all.

The structure and œconomy of *birds* are, in many respects, different from those of their fellow-biped, man, and of their fellow brutes, the quadrupeds, having some parts which those want, and being without others which they have, besides great variations in the contrivance of parts which are common to both; all wisely adapted to their different conditions and manners of life.

Among the parts peculiar to *birds*, are first, the bill, which serves them both in lieu of lips and teeth; wherewith the rapacious tear their meat, the granivorous crack their seeds, and separating the pulp with the tongue, throw out the husk. Drake's Anthrop. lib. i. cap. 14.

Secondly, a horny nictitating membrane, to draw over and cover their eyes, and save them from the annoyance of thorns and bushes, much like that which frogs are furnished with to secure their eyes from mud and dirt. See Derham's Phyf. Theol. & Nieuwent. Rel. Philof. § 18.

To which may, thirdly, be added, feathers and wings for cloaking and flight.

The parts which physiologists have generally supposed not to be found in *birds* are, 1. Teeth and lips, as already mentioned. 2. Lacteal vessels. But Mr. Hewson observes that the difficulty of discovering the lacteals of *birds* is owing to the transparency of the chyle which they contain, and the want of mesenteric glands. The lymphatic system in *birds*, he says, may be divided, as it is in quadrupeds, into two branches, viz. the lacteals and lymphatics, and their trunk, or thoracic duct. The lacteals are the lymphatics of the intestines, and, like the other lymphatics, carry a transparent lymph; and, instead of one thoracic duct, there are two, of which one goes to each jugular vein. The lymphatics in the necks of fowls were discovered by Mr. J. Hunter many years ago. We may infer from hence, that absorption is not carried on even in *birds* by the common veins. See an account of the lymphatic system in *birds* by Mr. Hewson, Phil. Trans. vol. lviii. N° 34. 1768. 3. Kidneys, and a bladder of urine, which they can be without, as they have but little moisture in their bodies, so but rarely drink, and this only to moisten their food. 4. A *septum transversum*, the want of which is supplied by a peculiar disposition of the lungs. Lastly, Pliny says they also want an *epiglois*; but in two eagles, and other birds dissected by the royal academists at Paris, there were membranes like *epiglottis* found.

Some authors also speak of ducts which pass immediately from a sort of kidneys to the extremity of the *rectum* of *birds*, whereby a white, liquid kind of excrement is discharged, being first mixed with the grosser *fæces*. Gentzken's Phyf. Hypoth. p. ii. c. 5. &c.

Variations in the parts of *birds* from those of men and quadrupeds, are, 1. In the ear where the cavities and the drum are of a peculiar make. Phil. Trans. N° 190. The ears of *birds* differ much from those of men or beasts; there is almost a direct passage from one ear to the other of *birds*; so that prick but the small membrane called the drum in either ear, and water poured in at the one ear will run out at the other. But this is not all: what is much more remarkable, they have no *cochlea*; but instead thereof, there is a small twisted passage that opens into a large cavity running betwixt two scults, and passes all round the head; the upper scull is supported by many hundreds of small thread-like pillars or threes, which, as it is supposed, have another use also, to break the sound from making any confused echo, and to make it one and distinct.

This passage, observed betwixt the two scults, is much larger in singing *birds* than in others that do not sing; so very remarkable, that any person that has but been shown this, may easily judge by the head, what *bird* is a singing *bird*, or has aptitude thereto, though he never saw the *bird* before, nor knew what *bird* it were. Phil. Trans. N° 206. p. 995.

2. In the division of the *aorta*.

3. In the spinal marrow, which is divided into two in the middle of the back, with a ventricle between the two. Phil. Trans. No 180. p. 374.

4. In the bones, which are all hollow and fistular, to make the body lighter and more buoyant. Nieuwent. Relig. Philof. cont. 22. § 12. p. 335, seq.

Both in the bones, and in the fleshy parts, there are receptacles of air communicating with the lungs. Phil. Trans. vol. lxiv. N° 29.

5. In the heart, which has a fleshy valve at the mouth of the *vena cava*. See Pitfield's Nat Hift. of Anim.

6. In the lungs, which are strongly conjoined to the back, for greater convenience of flight. Vater. Phyf. Exp. p. 826, &c.

7. In the stomach, of which *birds* have two or three, to supply the want of mastication. See Grew's Comp. Anat. The digestion of *birds* is very strong, especially in *hens*, *ducks* and *pigeons*, whose stomachs have been found to act even on glass bullets. Boyle's Phil. Works, abr. ton. ii. p. 183.

8. In the legs and feet, which, in some species of *birds*, are made to hold or cling soft by; in others to wade in the mud without sinking. Nieuwent. Relig. Phil. p. 341. The posture and action of *birds* in standing and walking, are shewn by Borelli to be very different from those of man, though both be bipeds; particularly as to equipoise, whereby *birds* are enabled to stand better on one foot. See Phil. Trans. N° 344. p. 63. N° 67, p. 6004.

9. In their tails, which are made to poise their bodies in flight. Ibid. inct. 20. p. 343.

10. In the pectoral muscles, which, in *birds*, are the strongest of all, as serving for the motion of the wings, which, in long or swift flights, requires great strength; where-

whereas, in man, the crural muscles are strongest; so that, if he would fly, it must rather be by the action of his legs than his arms. Phil. Transf. N° 220.

Their whole structure is admirably accommodated to flight, especially that of the *pelican*, which beside all other *apparatus* for this purpose, has a quantity of air lodged in the *cellulæ* of the skin, which it takes in at every inspiration, and expels again at expiration, whereby its bulk is considerably enlarged, without any sensible increase of weight. Hist. Acad. Sc. an. 1693. p. 259, &c. 11. In the brain, which is different from that both of man and quadrupeds, being adapted rather to the exercise of the locomotive faculty, than for imagination and memory.

However, the sagacity of *birds* in building, and placing their nests out of the reach of enemies, and in avoiding noxious plants, is prodigious. It is said they will not so much as touch or perch on such plants, being warned of the danger by the smell or *effluvia* of the plant. Boyle's Phil. Works abr. tom. ii. p. 183, and p. 437.

12. In the bronchial ducts, which are extended to the very bottom of the cavity of the *abdomen*, that the air received into them, may the better fill and enlarge the *thorax*, whereby they are rendered much lighter; than if their bodies were solid, like other animals. Acad. des Sc. an. 1693. p. 259.

13. In the ovaries, which, in *birds*, are single, and only furnished with single tubes, whereby to convey the eggs to the *uterus*; the whole inverted to their back. Acad. des Scienc. 1693. 36.

Many methods have been used by naturalists for preserving dead *birds* from corruption, in their natural form and colour. Some have taken off the skin, with all the feathers upon it, from the body and thighs, leaving the legs and wings, with the whole neck with the bill, and filled it with some *succedaneum*, such as hay, wool, or flax. Others have put them into vessels full of spirit of wine, or strong brandy; against which it has been objected that spirituous liquors change the colours of the feathers; but M. Reaumur concludes from many experiments, that this objection is groundless; and he has given several minute directions for preserving and conveying them in this way. Others again, especially in countries where spices are cheap, have embalmed dead *birds*; Reaumur observes, that powdered alum or lime will serve the same purpose. Another method, which has been sometimes practised, is that of drying birds for preservation in a heated oven. The same ingenious naturalist informs us, that quadrupeds, fishes, reptiles, and insects, may be preserved in the same manner with birds. Phil. Transf. vol. xlv. p. 304, &c. See further on this subject, ibid. vol. xl. N° 16, and N° 26.

BIRDS, *footless*, *apodes*, a fabulous denomination given by some of the ancients to the *birds* of paradise, from a mistaken notion that they had no feet, and could not walk, but only fly.

These are placed in contradistinction to the *ephedrii*, which could only walk, not fly.

BIRDS, *fulvi ramum*, those which reside in caves and holes under ground; as some species of owls, bats, &c.

To this class may also be referred their vast quantities of *birds*, which break out of the caves adjoining to the Zirchnitzer lea in time of thunder, in such numbers as to cover the lake. Phil. Transf. N° 101. p. 420.

BIRDS, *singing*, are the *nightingale*, *blackbird*, *starling*, *thrush*, *linnet*, *lark*, *throstle*, *Canary-bird*, *bullfinch*, *goldfinch*, &c.

See some very curious experiments and observations on the singing of *birds*, Phil. Transf. vol. xlii. part ii. N° 31. Their first sound is called *chirp*, which is a single sound repeated at short intervals; the next *call*, which is a repetition of one and the same note; and the third sound is called *recordings*, which a young *bird* continues to do for ten or eleven months, till he is able to execute every part of his song; and when he is perfect in his lesson, he is said to *sing his song round*. Their notes are no more innate, than language in man; they all sing in the same key. The honourable author, Daines Barrington, has there attempted to reduce their comparative merits to a scale; and to explain how they first came to have particular notes. See SONG of *Birds*.

BIRDS, *migratory*, the same with *birds* of PASSAGE, and MIGRATION. Phil. Transf. vol. lxii. N° 20.

BIRDS, *decoy*, those trained up to call and allure others into the fowler's nets, *snares*, lime-twigs, or the like.

BIRDS, *messenger*, *epistolary*, those employed to convey letters or other dispatches, either for the sake of expedition or safety. See CARRIER-*pigeon*.

BIRD, *mocking*, in Virginia, a *bird* which imitates the voices of men, and the notes of all other *birds*, by way of disguise, and thus eludes and escapes the fowler. Trev. Dict. Univ. tom. iv. p. 264. See MOCK-*bird*.

We have one *mocking bird* in England, which is the *sky*-LARK.

BIRD, *humming*, the American *trochilus*, denominated from the noise it makes in flight. It is said to be the smallest of the whole species of *birds*. See HUMMING *Bird*, and Phil. Transf. N° 200. p. 760.

BIRDS, *anomalous*. It is disputed whether the BAT belong to the *bird* or quadruped kind. Later naturalists incline to the latter, and notwithstanding its wings, condemn it to be a mouse.

The like difficulty has been raised with respect to the *barnacle*, *solandgoose*, or *mergus cucullatus*. Some, notwithstanding its feathers, maintain it to be a fish. What shall we then say of the *penguin*, or *poenguin*, an eastern *bird*, denominated from the island of that name, which walks erect like a man, has no feathers, nor flies, nor associates with other *birds*; and which some will have to participate both of the human, the volatile, and the fishy kingdom. In reality, it is *animal biped*, and *implume*, and consequently a man, on the terms of Plato's definition.

Macer, among the ancients, and Willughby and Ray among the moderns, have written expressly on *birds*. This last author assigns, that the kinds of birds known and described, are about five-hundred. Boyle has given pneumatical experiments on *birds in vacuo*. Phil. Transf. N° 100. p. 280, &c.

Presciency, or knowledge of futurity, was supposed, among the ancients, a natural faculty of *birds*, owing, perhaps, to their nearer intercourse with heaven, or their breathing a purer and more celestial air than other animals. Hence it was, that divination by *birds* obtained among the ancient Greeks and Romans, being performed by observing, and interpreting the flight, chirping, and feeding of divers birds. See AUGURY and AUSPICIUM.

Birds, with regard to augury and divination, were of divers kinds, viz.

Aves Auspicatæ, or *felices*, those which naturally portended good: such were the *dove*, *swan*, &c.

Aves inauspicatæ, *tetræ*, *ominosæ*, those which boded some evil or mischief: such were the *kite*, *raven*, *crow*, and *owl*, every where, except at Athens.

Admissivæ, that which excites and encourages the consulter to execute what he has in view.

Arcentes or *arcuales*, that which forbad a thing to be done; otherwise called *cloacia*, *clamatoria*, and *prohibitoria*, *inhibitoria*, and *inhibia*.

Incendiariæ, that which gave omen of a fire, or other calamity; or which is seen carrying a fire-brand from the funeral-pile to a house.

Remoræ, that which stays, or delays an action.

Sinistræ, that on the left hand, denoted a happy or prosperous omen; and was also called *bonæ*, *prosperæ*.

Alites, those which gave omens by their wings and flight.

Oscines, those by their singing or chirping.

Pulli by their pecking.

Præpetes, those which by their flight, or perching, gave happy omens.

Inferæ, or *inclitæ*, those which in like manner gave ill omens.

BIRD, in *Falconry*, denotes a *hawk*, or FALCON.

BIRDS, *nidis*, *aves nidificatoriæ*, those taken while in the nest.

BIRDS, *ramages*, or *aves ramagiæ*, those only arrived at strength sufficient to fly from branch to branch.

BIRD, *haggard*, that which has lived at liberty, and is become more wild and unreclaimable.

BIRD *of the fist*, that which having been reclaimed, returns to, and perches on the hand, without the help of a lure.

BIRD *of lure*, that which comes to the lure, and by that means to the hand.

BIRD, *bastard*, a *hawk*, for instance, bred of a *hawk* and a *lanier*. Or a *falcon* bred of a *falcon* and a *lanier*.

BIRDS, *coward*, those which only put up their game for their own belly, and which are not to be reduced to full point.

Aves rapaces, *kites*, &c.

BIRDS, *storm*. See PROCELLARIA.

BIRDS, in *Medicine*, are chiefly the *goose*, *duck*, *hen*, *peacock*, and *pigeon*; of which the fat, eggs, and dung are in use.

Sextus Placidus treats at large concerning remedies from *birds*.

Birds, considered as food, are of a dry warm nature, as feeding chiefly on dry meats and drinking little. They are supposed to abound much in salt and sulphury, whence Kircher accounts for the bright colour of their feathers. Some have denied the existence of any volatile salt in *birds*. Borrichius establishes it.

The *peacock* has been called *avis medica*, or the *medicinal bird*, on account of its great efficacy in divers diseases.

BIRDS, in *Husbandry*, are to be guarded against as destructive. *Kites* and *buteos*, to chickens; *crows* and *pigeons*, to corn; *jays*, *sparrows*, and other small *birds*, to fruits, &c.

Writers in husbandry prescribe divers methods of scaring away, or destroying noxious *birds*. Some prevent *birds* from eating the seed when first sown, by liming, and mixing it with soot.

BIRD, in *Astronomy*, *avis Indica*. See APUS.

BIRD *of Phœbus*, the *Raven*, one of the fourteen constellations. See CORVUS.

BIRDS, in *Heraldry*, are figures frequently borne in arms. *Birds* are esteemed a more honourable bearing than fishes; and wild, ravenous *birds*, than tame ones. The terms *armed*, *beaked*, *crested*, *displayed*, *jessed*, *investopped*, *languid*, and *membered*, are applied to *birds*, which see.

BIRD *of the west*, among *Chemists*, is the philosophical mercury: and, in general, sublimations or substances spiritualized by the separation of their terrestrial part.

BIRD, *golden*, the hermetic matter partly matured.

BIRD, *green*, the philosopher's stone, at the time when its green colour appears.

BIRD-*call*, a little stick cleft at one end, in which is put a leaf of some plant, wherewith to counterfeit the cryer's CALL of several *birds*, and bring them to the net, or snare, or lime-twig, to be taken.

A laurel-leaf fitted on the *bird-call*, counterfeits the voice of *luscinia*: a leek, that of *ægithus*, &c.

BIRDS, *Cyprian*, *aves Cypriæ*, or *avicula Cypriæ*, is a denomination given to a kind of edacious candles, made of the matter of torches, and burnt for the sake of their fumes; called also, from their figure, *beads*, or *sticks*.

BIRD *of Hermes*, *avis*, or *avicula Hermetica*. All chemists speak much of that which flies in the night without wings. Some will have the *avicula Hermetica* to be an universal salt prepared from dew.—It also denotes red-lead.

BIRD *cherry*, in *Botany*, see PRUNUS.

BIRD's *eye*, in *Botany*, see PHEASANT's *eye*.

BIRD's *eye view*. See PERSPECTIVE.

BIRD's *foot*, *Ornithopus*, in *Botany*, a genus of the *decandria decagynia* class. Its characters are these: the empalement of the flower is permanent, of one leaf, tubulous, and indented in five equal segments at the brim; the flower is of the butterfly kind, the standard heart-shaped and entire, the wings oval, erect, and almost as large as the standard, and the keel is small and compressed: it has ten stamina, nine of which are joined and one standing separate, terminated by single summits; the germen is narrow, supporting a bristly ascending style, terminated by a punctured stigma. The germen becomes a taper incurved pod, having many joints connected together, which separate when ripe, each containing one oblong seed. Linnæus enumerates four, and Miller five species.

BIRD, or *bird-weed grass*, a species of grass, which has been lately cultivated with particular attention. It is a fine, forest, silky grass, with a durable verdure, throws out a great crop, and produces a large quantity of seed. One rood of ground yielded a hundred weight of seed, and a very large load of hay. It is most proper for upland meadow: the seed should be left uncovered on the ground.

BEAN's *nest*, in *Botany*, a name used by some for the *daucus*, or CARROT; and by others for ORIGANUM.

BIRD's *nest*, *purple*, see ORCHIS.

BIRD's *nests*, in *Cookery*, the nests of a small Indian swallow, very delicately tasted, and frequently mixed among soups. On the sea-coasts of China, at certain seasons of the year, there are seen vast numbers of these *birds*; they leave the inland country at their breeding time, and come to build in the rocks, and form their nests out of a gummous matter, which they find on the shore, washed thither by the waves. They are of a hemispheric figure, and of the size of a goose's *egg*, and in substance much resemble the *ichthyocolla*, or isinglass. The Chinese gather their nests, and sell them to all parts of the world; they dissolve in broths, &c. and make a kind of jelly, of a very delicious flavour.

BIRD's *pepper*, see CAPSICUM.

BIRDLIME, a viscid substance, prepared various ways, and from various materials, for the catching of birds, mice, and other vermin.

The *birdlime* ordinarily used among us, is made from holly-bark, boiled ten or twelve hours: when the green coat is separated from the other, it is covered up a fortnight in a moist place, then pounded into a tough pate, to that no fibres of the wood be left, and washed in a running stream till no motes appear, put up to ferment four or five days, skimmed as often as any thing arises, and laid up for use. To use it, a third part of nut oil, or any thin grease, is incorporated with it over the fire.

The mistletoe affords a juice, even superior to that of the holly; and if a young shoot of the common elder be cut through, a stringy juice will draw out in threads, and follow the knife like *birdlime*, or the juice of holly. It seems in this tree to be lodged, not in the bark, but in certain veins just within the circle of the wood. The roots of all the hyacinths also afford a tough and stringy juice of the same kind, and so do the asphodel, the Narcissus, and the black bryony root, in a surprising quantity.

The *birdlime* brought from Damascus is supposed to be made of Ichesthus, their berries being frequently found in it; but this does not endure either frost or wet. That brought from Spain is of an ill smell; that of the Italians is made of the berries of mistletoe, beaten, mixed with oil, as before; to make it bear the water, they add turpentine.—It is said, the bark of our white-thorn, or way-faring shrub, makes *birdlime* as good as the best.

Birdlime is a substance very apt to be congealed, and rendered unserviceable by frosts; to prevent which, it is proper, at the cold seasons, to incorporate some petroleum with it, before it is used. The method of using it is to make it hot, and dip the ends of a bundle of rods in it, then to turn them about and play them together till a sufficient quantity is extended over them all. If things, or cords are to be limed, they are to be dipped into the *birdlime*, while very hot. The cords may be put in cold, but the rods should be warmed a little. Straws are to be limed, while the matter is very hot: a large bundle of them should be put in at once, and washed about in it, till they are well impregnated. When things prepared, they should be preserved in a leather bag, till they are used. When the twigs, &c. are cold, are to be put in places subject to wet, the common *birdlime* is apt to have its force soon taken away. It is necessary, therefore, to have recourse to a particular sort which, from its property of hoarding water unhurt, is called *water-birdlime*; and is prepared thus.

Take a pound of strong and good *birdlime*, wash it thoroughly in spring-water, till the hardness is entirely removed: and then beat it well, that the water may be separated from it; then dry it well, and put it into an earthern pot; add to it, as much capon's grease as will make it run. Then add two spoonfuls of strong vinegar, one spoonful of oil, and a small quantity of Venice turpentine. Let the whole boil for some minutes over a moderate fire, stirring it all the time. Then take it off, and when there is occasion to use it, warm it, and cover the sticks well with it. This is the best sort of *birdlime* for snipes, and other birds that love wet places.

M. Barrera, physician at Perpignon, has discovered an animal *birdlime*, prepared of the bolls of a sort of caterpillars, by putrefying them in the earth, steeping them in water, and then pounding and mixing them with nine oil. Vonteuil Hist. Acad. Science. 1720, p. 12.

BIREMIS, from *bis*, *double*, and *remus*, an *oar*, in *Antiquity*, a vessel with one or more rows of oars, rowed, as some think, in two stages over each other; or a vessel having two ranks or rows of oars placed over, and abide of each other. But the particular fabric of these vessels seems far from being a settled point among the learned.

The Roman *biremis* is the same with what the Greeks called *δικρωτος*, and stands contradistinguished from *triremis*, *quadriremis*, &c.

BIRETUM, *see* BIRRETUM.

BIROTA, *Birotum*, from *bis* and *rota*, *wheel*, a kind of vehicle denominated from the two wheels whereon it moved.

The *birota*, by the constitution of Constantine, was drawn by three mules, and carried two hundred pound weight; by which it was distinguished from the *rheda*, which carried a thousand pounds and was drawn by eight, and in winter by ten mules.

BIRRETUM, in *Writers of the Middle and Lower Ages*, a thin black cap, or cover for the head, made of linen, fitted close to the head, and pointed by a pyramid, anciently worn by priests, soldiers, doctors, &c. Du Cange.

The word *birretum*, sometimes written *biretum* and *birum*, is also applied to a cap or coif of a judge, or serjeant at law.

The *birretum* also denotes the cap worn by the novices in the jesuits order, formerly of a square, now a round figure.

The *birret* was the ordinary cover of the head in France five hundred years ago. It took its denomination from *birrus* or *burrus*, the coat anciently used by ecclesiastics; with which the cap was then of a piece, and made part of it; so that the whole covered, not only the head, but the shoulders. Afterwards when they began to retrench the lower part, still retaining the upper, it was no longer called *birrus*, or *burrus*, but diminutively *birret*, or *birretum*.

BIRRUS, an ancient habit worn by the Christians in Africa.

The word is also written *byrrus*, supposed to be formed from *πυρρος*, on account of its red colour.

Some will have the *birrus* an episcopal habit. Others extend it to all the clergy. Others, on softer grounds, make it the common coat of all the Christians in that quarter.

BIRTH, the natural exclusion of a perfect FOETUS from the womb by the *vagina*. See DELIVERY, &c.

BIRTH, *an immature*, is called an ABORTION.

BIRTH, *seven months, partus septimestris*, that which happens on the hundred and eighth, or hundred and eighty-second day after impregnation.

This, phyſicians allow, may not only be a living, but a vital *birth*; though it does not often prove long lived. And the civil laws all own it as legitimate.

Hippocrates has written expreſly on the ſeven months birth, περὶ ὀκταμήνου, in two books, the firſt of which, as now extant, is held ſpurious. The ſecond is commented on by Galen, περὶ ὀκταμήνου δευτέρου.

A child born in the ſeventh month rarer lives than a child born in the eighth; perhaps becauſe the premature *birth* in the firſt caſe is owing to the ſtrength of the child, and in the ſecond to the weakneſs of the mother.

BIRTH, *eight months, partus octimestris*. Seldom if ever produces a living, or lively child. An eight month's *birth* is always weak and ſickly, and ſeldom ſurvives the fortieth day.

BIRTHS, *præternatural*, are thoſe made by way of the *anus*, navel, &c.

For the number of *births*, ſee MARRIAGE: under which the proportions of *births* to marriages, of *births* to burials, and of male *births* to females is computed. See alſo MORTALITY.

BIRTH, *after*, *ſee* AFTER-*birth*.

BIRTH, or BIRTHING, among *Seamen*, denotes the due diſtance obſerved between ſhips lying at an anchor, or under ſail. A convenient place aboard for a watch to put their cheſts, ſleep, &c. is alſo called a *birth*.—There is uſually one of theſe in ſhips of war between every two guns. And a proper place to moor a ſhip in is called by the ſame name, as is alſo the ſtation in which a ſhip rides at anchor.

BIRTH, *expoſition of*, among the *Ancients*, was where a new-born infant was expoſed or caſt away, and left to the mercy of the firſt-comer, who might either take and bring it up, or ſuffer it to periſh. See EXPOSING *of children*.

Ger. Noodt has a treatiſe expreſs on the ſubject. Julius Paulus, Sixt. de Partu Expoſitione & Nece apud Veteres. Lugd. Bat. 1716. 4to.

BIRTH, *ſuppoſition of, partus ſuppoſitio*, in the *Civil Law*, is a crime, for which accuſation may be intented by thoſe who have intereſt therein, and is puniſhed with death, like the *crimen falſi*, or forgery.

BIRTH, *ſuppreſſion of, partus ſuppreſſio*, is the crime of a woman, who endeavours, by medicines, to deſtroy or hinder the *birth* of a child: or, after its being born, hides, expoſes, or even ſtrangles it.

BIRTH-*day*, the anniverſary return of the day wherein a perſon was born.

This anſwers to what the ancients called *genethlia*, *genitalia*, *natalitia dies*, *natalitius dies*, *natalis*, and, in the middle age, *generalitia*.

The ancients made much of their religion to conſiſt in the celebration of *birth-days*, and took omens from thence of the proſperity of the coming year. We meet with *birth-days* of the gods, emperors, great men, poets, and even private perſons. What is more, the *birth-days* of cities, as Rome and Conſtantinople, were celebrated with great pomp by the inhabitants. Virgil's *birth-day* was held very ſtrictly by the wits and poets who ſucceeded him. Pliny aſſures us, that Silius kept it with more ſolemnity than he did his own. Epiſt. lib. iii. ep. 7.

The manner of celebrating *birth-days* was by a ſplendid dreſs; wearing a fort of rings peculiar to that day; offering ſacrifices, the men to their genius, of wine, frankincenſe; the women to Juno; giving ſupper, and treating their friends and clients; who, in return, made them preſents, wrote and ſung their panegyrics, and offered vows and good wiſhes for the frequent happy returns of the ſame day.

The *birth-days* of emperors were alſo celebrated with public ſports, feaſts, vows and medals ſtruck on the occaſion.

But the ancients, it is to be obſerved, had other ſorts of *birth-days* beſides the days on which they were born. The day of their adoption was always reputed as a *birth-day* and celebrated accordingly.

The emperor Adrian, we are told, obſerved three *birth-days*; viz. the day of his nativity, of his adoption, and of his inauguration. Fabr. Bib. Græc. tom. xii. lib. vi. cap. 6.

In thoſe times it was held, that men were not born only on thoſe days when they firſt came into the world, but on thoſe alſo when they arrived at their chief honours and command in the commonwealth, e. gr. the conſulate. Hence that of Cicero in his oration Ad Quirites, after his return from exile: *A parentibus id quod noſtis natus, parvus ſum procreatus, ſubito natus ſum conſularis.*

Beſides, thoſe who returned from baniſhment, were alſo conſidered as being born again, *renati*, and ever after called the day of their return their *birth-day*. Thus Cicero to Atticus: *Denique natalem reditus mei cura, ut in tuis ædibus amiciſſimis agam tecum, & cum meis.*

Cenſorinus has a treatiſe De Die *Natali*, addreſſed to Q. Cerellius, as a compliment on his *birth-day*.

BIRTH-*days of the ſaints and martyrs*, *natales ſanctorum*, denote the days of their deaths.

In reality, *natalis* among the ancients was not reſtrained to *birth-days*, but extended to all feaſt-days.

Hence it is we meet with *natalis ſolis*, *natalis calicis*, *natalis ſcalpræ*, *natalis reliquiarum*, &c.

BIRTH-*ſin*, the ſame with *original* SIN.

BIRTH-*wort*, in *Botany*, the Engliſh name of the plant ARISTOLOCHIA, a genus of the *gynandria hexandria* claſs.

Its characters are theſe: the flower is of one leaf, which is unequal, the baſe is ſwelling and globular; it is afterward extended in a cylindrical tube, which ſpreads open at the brim, where the lower part is ſtretched out like a tongue; the oblong angular germen ſits under the flower, which afterwards turns to a large ſeed-veſſel, differing in form, which opens in ſix cells, filled with ſeeds, for the moſt part compreſſed. There are nine ſpecies, one of which is the ſnake-root, which is greatly uſed in medicine; theſe roots are brought over from Virginia and Carolina. There are ſome of theſe plants preſerved in the gardens of thoſe who are curious; but as they are ſometimes killed by froſt in winter, ſo they are not very common in the Engliſh gardens.

BIS, in *Botany*, a name given by ſome old writers to the NAPELLUS, or monks-hood; and by others to the CICUTA or hemlock.

There is, however, another ſenſe of the word, very different from both theſe, in which it is uſed to expreſs an eſculent plant. The phraſe *bis at ſol* is frequent among the Arabian writers; and as *at ſol* ſignifies only of the river Nile, the whole name ſhould ſeem to expreſs the character of ſome poiſonous plant growing in the Nile. This, however, is by no means the ſenſe in which it is received; for we are told, that *bis at ſol* ſignifies a bulbous root of a ſweet taſte, growing on the mountains about Damaſcus, and in other parts of Syria, and eaten in the ſpring by the people of the adjacent country.

BIS-*annual*, a name given by botaniſts to thoſe plants, which ordinarily do not flower till the ſecond year.

BISA, or BIZA, a coin in Perſia, current there for half a ducat. The denomination is alſo given to a kind of weight uſed in the ſame country, equivalent to two Venetian pounds five ounces, or to three pounds nine ounces of the ſmaller weight of that city.

BISACUTA, in *Middle Age Writers*, an ax with two edges, or which cuts either way; or a mallive weapon, pointed at both ends.

Walſingham repreſents the *ſecuris biſacuta* as peculiar to the Scottiſh nation. See BATTLE-*ax*.

BISANT. See BEZANT.

BISARCA, in *Botany*, a name uſed by ſome authors for the herb TARRAGON.

BISBÆA, a feaſt celebrated by the *Meſſapii*, after the pruning of their vines, to obtain of the gods that they might grow again the better.

The word is formed from βὶς, uſed by ſome for a vine.

BISCAIAN *language* denotes the Cantabrian, or ancient language of Spain, being a branch of the Celtic, which firſt gave way to the Romanſe.

BISCIA, in *Ichthyology*, a name by which ſome have called the ACUS, or, as we call it in Engliſh, the tobacco-pipe-fiſh, the needle-fiſh, or trumpet-fiſh.

BISCUIT, ſee BISKET.

BISCUTELLA, in *Botany*, ſee MUSTARD.

BISECTION, ſee BISSECTION.

BISELLIARII, or BISELLIANI, in *Antiquity*, thoſe who enjoyed the honour or privilege of the BISELLIUM.

The word occurs in ancient inſcription. CN. FLAVIO VITIRO AUGUSTALI BISELLIARIO. Gruter. Inſcr. p. 1069.

The *honor biſellii* appears to have been much the ſame with what in France is called *droit de fauteuil*; and the *biſellarii* thoſe who, in public aſſemblies, enjoy this diſtinction of the *fauteuil*, while other perſons are obliged to ſtand, or ſit on benches, ſtools, or ordinary chairs. Scaliger in his index to Gruter, miſtook the *biſellarii* for artificers who made theſe ſeats.

BISELLIUM, from *bis* and *ſella*, a *chair*, in *Antiquity*, a kind of ſeat or chair, larger and richer than ordinary, big enough to hold two perſons, wherein to ſit in courts, theatres, and other public aſſemblies.

BISERRULA, in *Botany*, a genus of the *diadelphia decandria* claſs. We have no Engliſh name for this plant. Its characters are theſe: the flower is papilionaceous, having a large roundiſh ſtandard, whoſe edges are reflexed; the wings are oblong, and the keel is of the ſame length with the wings. It hath ten ſtamina, nine of which are joined, and the other ſingle: in the centre is ſituated an oblong compreſſed germen, which afterwards becomes a flat,

flat, narrow pod, indented on both edges like the saw of a sword-fish, having two cells filled with kidney-shaped seeds. We have but one species of this genus, which is an annual plant, growing naturally in Italy, Sicily, Spain, and the south of France.

BISETÆ, from *bis* and *seta*, *briſtle*, in *Natural Hiſtory*, a term uſed to expreſs a genus of flies of the claſs of the APTICAUDATA, diſtinguiſhed from the others by their having two hairs or briſtles growing out of the tail. There are many ſpecies of this genus, and they are uſually divided by authors into two principal kinds; ſuch as have ſharp ends, and ſuch as have blunt ones. There are ſeveral ſpecies of the former found in our hedges. See HEXOTHRIX.

BISHOP, a prelate, or perſon conſecrated for the ſpiritual government and direction of a dioceſe.

The word comes from the Saxon *biſchop*, and that from the Greek επισκοπος, an *overſeer*, or *inſpector*; which was a title the Athenians gave to thoſe whom they ſent into the provinces ſubject to them, to ſee whether every thing was kept in order; and the Romans gave the ſame title to thoſe who were inſpectors and viſitors of the bread and proviſion. It appears from a letter of Cicero, that he himſelf had a biſhopric; being *epiſcopus Cretæ & Cumparum*.

A *biſhop* differs from an archbiſhop in this, that an archbiſhop with *biſhops* conſecrate a *biſhop*, as a *biſhop* with prieſts ordain a prieſt; that the archbiſhop viſits a province, as the *biſhop* a dioceſe: that the archbiſhop convocates a provincial ſynod, as the *biſhop* a dioceſan one; and that the archbiſhop has canonical authority over all the *biſhops* of his province, as the *biſhop* over the prieſts in his dioceſe. It is a long time that *biſhops* have been diſtinguiſhed from mere prieſts or preſbyters; but whether that diſtinction be of divine or human right, whether it was inſtituted in the apoſtolical age, or introduced ſince, is much controverted. On the one ſide ſtands the *New Teſtament*, wherein it is certain the names *biſhop* and prieſt are uſed indifferently; on the other ſide are tradition, the fathers, and the Apoſtolical Conſtitutions.

There appear no footſteps of any inſtitution of *biſhops*, diſtinct from prieſts, in the Scriptures; nor do the oppoſers thereof pretend to ſhew any mark of any other form of church-government therein; ſo that it may ſeem probable, the apoſtles did not ſettle any thing of this kind at all; but either left the ſpiritual economy in the hands of the preſbyters, or of thoſe together with the people.

Accordingly, new occaſions requiring new meaſures, in a little time the functions of the prieſthood were divided, and the prieſts diſtinguiſhed into degrees; the political part of religion being aſſigned principally to *biſhops*, and the evangelical to the prieſts, &c. or rather, as ſome will have it, the functions of teaching and preaching were referred to the *biſhop*, and that of ordination ſuperadded; which was their principal diſtinction, and the mark of their ſovereignty in their dioceſe.

By the antient diſcipline, *biſhops* were to be married once and not to put away their wives on pretence of religion; but a ſecond marriage was a diſqualification for this order. If they lived chaſte, they were ranked as confeſſors.

Some *biſhops* in the middle age, on account of their *regalia*, or temporalities, were obliged to a military ſervice called *hoſtis*, by which they were to lead their vaſſals into the field and attend the king in his military expeditions. This Charlemagne executed, and even forbid; but the prohibition was little regarded, ſince we find the thing often practiſed afterwards. Du-Cange.

The election of *biſhops* was anciently placed in the clergy, and the people of the pariſh, province, or dioceſe; but afterwards, princes and magiſtrates, patriarchs and popes, uſurped the power. The election was to be within three months after the vacancy of the ſee; and the perſon to be choſen out of the clergy of that church. Formerly the *biſhop* claimed a right in the election of an archbiſhop; but this was firſt aſſiſted by the pope.

In England during the Saxon times, all eccleſiaſtical dignities were conferred by the king in parliament. At length, however, after ſeveral contents, eſpecially between archbiſhop Anſelm and Henry I. in conſequence of a grant of king John, recognized in Magna Charta, and eſtabliſhed by ſtat. 25 Edw. III. ſtat. 6. § 3. *biſhops* were elected by the chapters of monks or canons, ſome ſhadow of which ſtill remains in the preſent method of filling of biſhopricks. But by ſtat. 25 Hen VIII. cap. 20. the right of nomination was reſtored to the crown.

Ordinarily, at leaſt three *biſhops* are required in the ceremony of conſecrating a *biſhop*; but, in ſome caſes, a ſingle one might ſuffice. The Engliſh ſucceſſion of proteſtant *biſhops* ſtands on this laſt ground.

In England, the king being certified of the death of a *biſhop* by the dean and chapter, and his leave requeſted to elect another, the *congé d'elire* is ſent to them, with a letter miſſive, nominating the perſon whom he would have choſen. The election is to be within twelve days after the receipt of it, otherwiſe the king by letters patent appoints whom he pleaſes; and the chapter, in caſe of refuſing the perſon named by the king, incurs a *præmunire*.—After election, and its being accepted of by the *biſhop*, the king grants a mandate under the great ſeal for confirmation, which the archbiſhop conſigns to his vicar-general; conſiſting mainly in a ſolemn citation of ſuch as have any objections to the *biſhop* elect, a declaration of their contumacy in not appearing, and an adminiſtration of the oaths of allegiance and ſupremacy, of ſimony, and canonical obedience. Sentence being read by the vicar-general, the *biſhop* is inſtalled in the province of Canterbury by the archdeacon: the fact is recorded by a public notary; and the biſhop is inveſted with full powers to exerciſe all ſpiritual juriſdictions, though he cannot ſue for his temporalities till after conſecration.—Then follows the conſecration by the archbiſhop, or ſome other *biſhop* appointed by lawful commiſſion, and two aſſiſtant *biſhops*: the ceremony of which is much the ſame as in the Romiſh church, ſave that, having put on the epiſcopal robes, the archbiſhop and *biſhops* lay their hands on the new prelate's head, and conſecrate him with a certain form of words. The fees of the whole proceſs are ſaid to amount to about 600*l*.

The proceſs of the tranſlation of a *biſhop* to another biſhoprick only differs in this, that there is no conſecration. The age of a *biſhop* is to be at leaſt thirty years; and, by the ſocial diſcipline, none were to be choſen but thoſe who had paſſed through all the inferior orders; but, in ſome caſes of neceſſity, this was diſpenſed with, and deacons, nay laymen, were raiſed *per ſaltum* to the epiſcopal dignity.

The form of conſecrating a biſhop is different in different churches.—In the Greek church, the biſhop elect, being by the aſſiſtant biſhops preſented for conſecration, and the inſtrument of election put in his hands after ſeveral prayers, (the firſt called *dimiſſion*,) unſtanding conſecration, makes profeſſion of his faith; after which he receives a benediction. He is then interrogated as to the belief of the Trinity, to which he anſwers by a *long confeſſion of faith*, and receives a ſecond benediction. Laſtly, he is aſked what he thinks of the *communion*; to which he anſwers in a *third profeſſion of faith*; which is followed by a third benediction: after which the conſecrator gives him the paſtoral ſtaff: then he is led up to the altar; where, after certain prayers, and three croſſes on his head, he receives the *pallium*, if he be an archbiſhop or patriarch; he then receives the kiſs of peace, of his *conſecrator* and two aſſiſtants; and ſitting down, reads, prays, and gives the communion to his *conſecrator* and others.

In the Romiſh church, the *biſhop* elect being preſented by the elder aſſiſtant to the conſecrator, takes the oath: he is then examined as to his faith; and after, ſeveral prayers, the New Teſtament is drawn over his head, and he receives the chriſm or unction on his head. The paſtoral ſtaff, ring, and Goſpel, are then given him; and, after communion, the mitre is put on his head: each ceremony being accompanied with proper prayers, &c. the conſecration ends with Te Deum.

Theſe laſt mentioned ceremonies are laid aſide in the conſecration of Engliſh *biſhops*. Nevertheleſs, the book of conſecration, ſet forth in the time of Edward VI. and confirmed by act of parliament, in which ſome of them are enjoined, is declared to be the ſtandard for this purpoſe by the thirty-ſixth Article.

The function of a *biſhop* in England may be conſidered as two-fold; viz. what belongs to his *order*, and what belongs to his *juriſdiction*.—To the *epiſcopal order* belong the ceremonies of dedication, conſecration, and ordination; to the *epiſcopal juriſdiction*, by the ſtatute-law, belong the licenſing of phyſicians, chirurgeons, and ſchoolmaſters, the uniting ſmall parſhes (though this laſt privilege is now peculiar to the *biſhop* of Norwich), aſſiſting the civil magiſtrate in the execution of ſtatutes relating to eccleſiaſtical matters, and compelling the payment of tenths and ſubſidies due from the clergy.

By the common law, the *biſhop* is to certify the judges touching legitimate and illegitimate births and marriages; and by that and the eccleſiaſtical law, he is to take care of the probate of wills, and granting adminiſtrations; to collate to benefices, grant inſtitutions on the preſentation of other patrons, command induction, order the collecting and preſerving the profits of vacant benefices for the uſe of the ſucceſſors, defend the liberties of the church, and viſit his dioceſe once in three years. To the *biſhop* alſo belong ſuſpenſion, deprivation, depoſition, degradation, and EXCOMMUNICATION.

The *biſhops* of England are all barons. Barons in a two-

fold

fold manner; viz. *feudal*, in regard of lands and baronies annexed to their bishopricks: and by *writ*, as being summoned by writ to parliament.—They have the precedence of all other *barons*, and sit in the upper house as *barons*.—They are twenty-four in number, besides two archbishops.

With respect to the order of precedency among one another, the archbishop of Canterbury takes the lead; then the archbishop of York; next to him the *bishops* of London, of Durham, and of Winchester. The other *bishops* follow according to the seniority of their consecration; excepting only, that a *bishop* being a privy-counsellor, takes place after the *bishop* of Durham.

Bishops have two special privileges more than regal; the first, that in their courts they sit, and pass sentence, of themselves and by their own authority: the *bishops* courts being not like other courts, but writs are sent out in their own name, *viz.* the *bishop*, not in the king's name, as is done in the king's courts.—The second, that, like the king, they can depute their authority to another, as their suffragan, chancellor, commissary, &c.

They have also their advantage over lay-lords, that, in whatever Christian country they are, their episcopal degree and dignity are acknowledged; and they may, *pontificalibus indutus*, preach, &c.

They have several immunities, as from arrests, outlawries, *distress*, &c. liberty to hunt in the king's forests, &c. to have certain *tons of wine duty-free*, &c. Their persons may not be seized, as lay-peers may, upon contempt, but their temporalities alone. They may qualify as many chaplains as a duke, *viz.* six. But, as they have no right to be tried themselves in the court of the lord-high steward, as peers, they ought not to be judges there.

By law the crime of *episcopicide*, which a clergyman commits by killing *his bishop*, is petty-treason.

In Denmark there are six superintendents, who take it very kindly to be called *bishops*, and *my lords*.—They have no temporalities; keep no ecclesiastical courts; have no cathedrals, or prebends, &c. but are only *primi inter pares*, having the rank above the inferior clergy of the province, and inspection over their doctrine and manners. They are allowed two or three parishes each. Their habit is common with that of the other ministers. In Sweden are an archbishop, and ten *bishops*, with seven or eight superintendents under them.—They have also ecclesiastical courts, &c.

BISHOP-*abbot*, *episcopus abbas*, was an abbot invested with the episcopal order; of which we meet with several in the richer and more considerable monasteries.

BISHOP, *cardinal*, a *bishop* in chief, or *in capite*.

St. Gregory sometimes uses the term for a proper *bishop*. Anciently there were also *bishops*, who by a peculiar privilege from the holy See, were ranked, and had a seat among the cardinals.

BISHOP, *cathedral*, was also a title given to the proper *bishops*, by way of distinction from the *chorepiscopi*.

BISHOPS, *regular*, those without any diocese, sometimes attendant in camps, or in foreign countries, for the conversion of infidels.

The like *regular bishops* were sometimes also granted by popes to monasteries, exempt from the jurisdiction of the diocesan, where they performed all the episcopal functions. Du-Cange.

BISHOP *in partibus infidelium*, he who is dignified with the title of a bishoprick, whose district or diocese is in the possession of infidels or heretics.

By the canon law, a *bishop in partibus* is qualified hereby to be a COADJUTOR of another *bishop*.

The denomination took its rise from the expulsion of the *bishops* and clergy, out of the Holy Land by the Saracens; when flying into Italy for shelter, coadjutories were given them for their subsistence.

BISHOP, *archbishop*, he who is immediately subject to the papal see, without any metropolitan over him.

BISHOP-*elect*, is he who has the king's nomination, with the sanction of the chapter, but without consecration.

BISHOP *designed*, *episcopus designatus*, denoted a COADJUTOR of a *bishop*, who, virtue of his office, is to succeed at the incumbent's death.

BISHOPS, *suffragan*, are coadjutors or assistants of diocesan *bishops*, authorised by commission from him.

BISHOPS, *exempt*, those freed from the jurisdiction of the metropolitan, and immediately subject to the See of Rome alone.

BISHOP *of the palace*, *episcopus palatii*, was probably the same with *bishop* of the king's chapel, a title in the court of Bohemia. Du-Cange.

It was also a title given those *bishops*, who, by licence of the pope, dwelt in palaces of kings, to be in readiness for spiritual service and council in church-matters.

BISHOP *of the prime see*, denoted a PRIMATE, otherwise denominated a *senior bishop*.

BISHOPS, *commendatory*, or *bishops in* COMMENDAM, are cardinals not of the order of *bishops*, or other prelates, who yet hold bishopricks *in commendam*.

The appellation had its origin during the residence of the papal see at Avignon, whence hence any cardinal, priest, or deacon, was created, who held not one, two, three, or more *bishopricks in commendam*. Du-Cange.

BISHOP, *universal*, or *catholic*, is a title given to the patriarch of Armenia.

BISHOP *of the catholic or universal church*, a title sometimes assumed by the popes.

BISHOP *of bishops*, was a title anciently given to the prelates of some of the greater and more honoured sees, as Jerusalem and Rome.

The first who had the title was James *bishop* of Jerusalem. Some will have the appellation to have been common to all *bishops*.

BISHOPS, in the *Lutheran Church*, are those more usually called SUPERINTENDENTS.

The Calvinists allow of no other *bishops* besides presbyters; but the Lutherans make some distinction, and give a superiority or pre-eminence over the rest to their *bishops*, *superintendents*, or *overseers*.

BISHOP is also a quality sometimes attributed to secular princes, in respect of their SUPREMACY or jurisdiction in matters belonging to religion.

In this sense it is that the emperor Constantine, in a letter to the *bishops* in his dominions, calls himself *common bishop*, as being, in some respects, general *bishop* of the whole Roman world.

BISHOP *of the Jews*, the head of that people in England, chosen by themselves, to whom they submitted to be judged, and governed according to their law. Prideaux's Connect. part ii. lib. v. p. 428.

This officer, which subsisted under our Norman kings, and was licensed by them, answered to the RESHALGOTARCH in Babylon, and the ALABARCHS in Egypt.

BISHOPS *at chess*, a kind of pieces, the third in rank, below queens, but above knights, distinguished by their crown heads.

In Latin writers of the middle age, the *bishop* is called *alphinus*; and by the French *le fou*, the *fool* or *madman*. See CHESS.

BISHOP, in *Zoology*, a little spotted beetle, commonly called the lady-cow, or lady-bird.

BISHOP'S, *registrary*, see REGISTRARY.

BISHOP'S *Courts*, see COURT.

BISHOP'S *see*, or seat, originally denoted the throne or chair in the church where the *bishop* sat.

This was also denominated APSIS.

BISHOP'S *see* also denotes the city or place where the residence of the *bishop* is fixed.

Every *bishop's see* was anciently called *sedes apostolica*; though the appellation has since been restrained to the see of Rome.

Anciently *bishops* seem to have had a right in England to sit as judges in the hundred and county-courts. In after-times, they were forbid to sit in secular courts, and had separate courts erected for them; which proved an occasion of much dispute between the two jurisdictions. No church-tenant might be sued in any court but the *bishop's*. There are still traces of a separate court of the *bishops* much earlier, among our Saxon ancestors, in the eighth century.

The regard borne to the character of *bishops*, made them the common arbitrators even of secular causes: they had the cognizance of all causes concerning lands in *frankalmoign*; and for ecclesiastics, were judges even in capital causes.

BISHOP'S *weed*, *Ammi*, in *Botany*, a genus belonging to the *pentandria digynia* class of Linnæus. Its characters are these: it is an umbelliferous plant, with diffuse flowers, each having five heart-shaped petals; they have five slender stamina, and two reflexed styles, crowned with obtuse stigmas: the germen becomes a small, round, striated fruit, composed of two seeds. There are three species.

BISHOP, in *Ornithology*, is a name given to an excellent singing bird in Louisiana. His song continues for the space of a *minute*, in all which time he does not appear to breathe; he is then silent twice as long before he renews it; so that the alternative of song and rest continues two hours.

BISHOPING, in *Horsemanship*, a term denoting the art used by jockies for making old horses appear young, &c.

BISHOPRIC, the jurisdiction of a *bishop*: or the district within which it is comprised; called also *diocese*.

There are twenty-four *bishoprics*, and two archbishoprics, in England and Wales.—To the *old ones*, subsisting before the times of the Reformation, *Henry VIII.* by letters patent added five more *bishoprics*; viz. those of Chester, Gloucester, Peterborough, Bristol, and Oxford, stat. 34 & 35 Hen. VIII. cap. 17.

In Ireland, there are eighteen *bishoprics*, and four archbishoprics; in Scotland none.

BISK, or BISQUE, in *Cookery*, a rich sort of broth or soop, made of pigeons, chickens, force-meat, mutton-gravy, and other ingredients.

The word is French, formed, as some think, from *bis coctus*; because the *bisque*, consisting of a diversity of ingredients, needs several repeated coctions to bring it to perfection.

There is also a *demi-bisque*, made at a low expence, in which only half the ingredients are used; and *bisque* of fish, made of carps, minced with their roes and lobsters.

BISKET, or BISQUET, usually denotes a delicate kind of bread prepared by the confectioners, of fine flower, eggs, sugar, and rose or orange-water; or of flower, eggs, and sugar, with anise-seeds and citron-peel; baked in the oven in tin or paper moulds.

The word comes from the Latin *bis*, *twice*; and the French *cuit*, *coctus*, q. d. *baked*.

We find divers sorts of such *biskets*; as, seed-*biskets*, fruit-*biskets*, long-*biskets*, round-*biskets*, Naples-*biskets*, spunge-*biskets*, &c.

BISKET, *sea*, is a sort of bread much dried, by passing the oven twice, to make it keep for the service of the sea.—For long voyages they bake it four times, and prepare it six months before the embarkation. It will hold good a whole year.

To preserve sea-*biskets* from insects, Dr. Hales advises to make the fumes of burning brimstone pass through the casks full of bread.

Biskets may be likewise preserved a long time, by keeping it in casks well caked, and lined with tin.

The ancients had their *biskets* prepared after the like manner, and for the like use as the moderns. The Greeks called it *apton bizuyon*, q. d. *bread put twice to the fire*. The Romans gave it the name of *panis nauticus*, or *vasta*. Pliny denominates it *panis aut nauticus panis toties atque iterum coctus*. By which it appears, that, after the first baking, they ground or pounded it down again for a second. In some middle-age writers, it is called *paximus*, *paximus*, and *panis paximatus*.

Among the Romans, we also meet with a kind of land-*biskets* for the camp-service, called *buccellatum*, sometimes *expeditionalis annona*, which was baked much, both to make it lighter for carriage, and less liable to corrupt, the coction being continued till the bread was reduced one fourth of its former weight.

BISLINGUA, *double-tongue*, a name used by many authors for the narrow-leaved RUSCUS, or BUTCHER'S-BROOM; called by many others the Alexandrian bay, or *laurus Alexandria*.

BISMILLAH, in the *Mahometan Customs*, a solemn form, viz. *in the name of the most merciful God*, constantly placed at the beginning of their books and writings in general, as a peculiar mark, or distinguished characteristic, of their religion, it being counted an impiety to omit it.

The Jews, for the same purpose, make use of the form, *in the name of the Lord*, or, *in the name of the great God*. Sale.

BISMILLAH is also used among the Arabs, as a word of invitation to eat.

An Arab prince will frequently sit down to eat in the street before his own door, and call all that pass, even beggars, by this word, who do not fail to come and sit down to eat with him; for the Arabs are great levellers, and set every body upon a footing with themselves. Pococke's Egypt, &c. p. 283.

BISMUTH, a mineral body, of the semimetallic kind; by many supposed to be composed of the first matter of tin, while yet imperfect. It is found usually in tin-mines, sometimes also in silver-mines.

Its weight and colour discover it to be of a mercurial or metallic nature. In common menstruums, it undergoes much the same alterations, and assumes much the same forms as lead. Quincy says, there is always some silver in it.

Its substance is hard, ponderous, and brittle, of a large grain, glossy, white, and shining.—It is also called TIN-*glass*; because, when broken, it shews a vast number of little polished *lamina* like glass: it is also called MARCASITE, by way of excellence, because surpassing all other marcasites or semimetals in whiteness and beauty.

It appears to be composed of cubes, formed by the application of plates upon each other. Its colour is less white than that of the regulus of antimony, and has a reddish tinge, especially when exposed to the air. It is the heaviest of the semimetals, and loses in water about a ninth part of its weight: its specific gravity being from 9.600 to 9.700. Like the other semimetals it is semi-volatile; when exposed to the fire, flowers rise from it, it is calcined, and converted into a litharge and glass nearly as lead is, and, like it, may be employed to the purification of gold and silver by cupellation. It easily combines with sulphur, and amalgamates with mercury, and unites with all metallic matters, excepting, according to Mr. Grellett, zinc, and arsenic; their affinities with it are, according to him, in the following order; iron, copper, tin, lead, silver, and gold. *Bismuth*, like iron, is said to occupy, when fused, a less space than when solid; it is fusible with a heat of 600 degrees of Fahrenheit's thermometer; it greatly increases the fusibility of some other metals; a small portion of it increases the brightness, hardness, and sonorousness of tin, for making pewter, with which it is chiefly used; as it is also for soldering some metals, and for making printer's types; for solid fat mirrors; for anatomical injections; for imitating filigree upon wood; and for rendering some metals fitter for being cast into moulds.

Bismuth is found native. Its most usual appearance is in the state of ore, into which it is reduced by its particles being penetrated by, and intimately mixed with, a sulphur, and with a large quantity of arsenic, and with an earthy matter, which yields a blue colour, equal to the azure, or smalt produced from cobalt.

In the fusion of this ore, the sulphur and arsenic evaporate over the fire; and the regaline matter, being freed from its imprisoned state, runs off from the earthy substance, which being left fixed behind, may, with the addition of flints, and a fixed alkali, be run into a fine blue, glassy matter, no way differing from the smalt of cobalt.

Native *bismuth* is found in small compact masses, of a pale lead colour on the outside, and when broken, of a fine, glittering, silvery white, and composed of a multitude of foliaceous flakes or plates, laid evenly over one another, and disposed in several irregular directions in the mass. It is subject to fewer variations in its ores than most other minerals; but it is sometimes turned yellow by too great a proportion of sulphur and sometimes is very deeply tinged with the matter of the common marcasites, and, in this condition, so often mistaken for them in mineralogy, to the mortal loss of the proprietor of the mine.

It is very common in Germany and England. The tin-mines in Cornwall afford no considerable quantity worth shewing.

Mr. Boyle mentions a medicine prepared from *bismuth* by calcination, and the addition of spirit of vinegar and *cremor tartari*, which has been extolled in the dropsy. He also mentions a preparation of it with common sublimate into a white powder, a few grains of which purge gently. Works abr. p. 501.

Its medicinal virtue is much the same with that of the dross of lead, being seldom used except in external forms, as containing an arsenical salt, very dangerous to be taken inwardly; yet M. de Cloes made a purgative of it, to be used in the dropsy. Add, that *bismuth* being dissolved in spirit of nitre, yields a fume, which being precipitated with water, produces a white powder, called magistery of *bismuth*, and Spanish white, found a good diaphoretic in acute cases.

But its chief use among the ancients, as well as moderns, is as a cosmetic. Other menstrua, and other precipitates, have been used for producing this powder; but by whatever means it is prepared, it retains a corrosive quality, and injures the complexion.

Sig. Poli, by repeated distillations of *bismuth* with an equal quantity of corrosive sublimate, procured a running mercury, and a fine powder, of the colour of pearl, which might be of use in counterfeiting the oriental pearls. Hist. Acad. Sc. 1713.

To the same purpose, Neumann says, that by exposing a mixture of *bismuth* and corrosive sublimate to the fire in a retort, part of the quicksilver distilled, and was succeeded by a dark brown butter, which condensing, grew hard as a stone. By repeatedly rectifying the butter, it became clearer and browner, and harder; and an unctuous pearl-coloured matter remained after every distillation. Neumann's Works, p. 109.

Bismuth bears a near affinity to ZINC.

Lemeri says, that if the solution of *bismuth* be used as an ink to write with, the writing does not appear, but that it becomes very black, when moistened with the deliquiated liquor of the scoria of *regulus* of antimony. See INK *sympathetic*.

There is also an *artificial bismuth*, which is that ordinarily found in the shops, made by reducing tin into thin *lamina*, or plates, and cementing them by a mixture of white tartar, salt-petre, and arsenic, stratified in a crucible over a naked fire. The same is also by some made of a mineral called ZINC, using lead instead of tin, and a little calamine.

BISMUTH *granulum*, in *Mineralogy*, a name given by the Germans to a fixed earth contained in the ores of *bismuth*, which serves to make *smelt*, as well as the earth of *cobalt*. After the *bismuth* is melted from the ore, they take the *residuum*, or *granulum*, and mixing it with flints calcined

and powdered, they run it into a fine blue glass, which is no way inferior to the common *smalt*.

The *bismuth* ore is often mixed among the *cobalt*, and, in this case, the miners separate them with all the care they can; but often they are not able to do it perfectly, and the two minerals bear the fire together; in which case, there arises some difficulty in the working; for the *bismuth* mixing itself with some of the earth of the *cobalt*, in this case, subsides to the bottom of the vessel in form of reddish *regulus*; but this is to be separated by a second operation, and the *regulus* obtained pure and white; and its own earth, together with that of the *cobalt*, are separated from it, and wrought together into *smalt*.

BISNOW, or BISCHNOU, a sect among the Indian BANIANS, or call of merchants.

The banian sect consists of two lesser ones; that of *bisnow*, and that of *samarath*.

The followers of the former hold one God, whom they call *ram-ram*, and allow of no lieutenants or deputy-gods, as is done by those of the sect *samarath*; but they allow their god a wife, and have idols, which they dress up with gold chains, and collars of pearl and precious stones, and put them worship, by singing hymns in their temples, and dancing before them to the sound of a kettle and kettle-drums.

In this sect, the wives do not burn themselves after their husbands death, as is practised by those of the *samarath* sect; but content themselves with a perpetual widowhood.

BISOMUM, in *Antiquity*, a TOMB for two bodies, or the ashes of two.

The word is compounded of *bis*, *twice*, and the Greek σωμα, *body*, or *ashes of a body*. Some, with greater purity, write *disomum*.

The ancients frequently buried two, three, or four bodies in the same sepulchre, disposed aside of each other; for it was held an impiety to lay one atop of another. Hence the sepulchres of the primitive Christians had the words *bisomi*, *trisomi*, *quadrisomi*, &c. inscribed on them, to indicate the number of bodies depositied in them. Du-Cange.

BISON, in *Natural History*, the name of a species of wild-bull, which differs from all other species, by having a very shaggy mane, running down his neck quite to his shoulders, and a large hump on his back. In Mr. Ray's time, there was a bull of this kind kept in St. James's Park; but there was no account whence it was brought. This author supposes it to have been from Florida, where, according to Ambrose Paré, there are bulls called *bufferes* by the natives, which have horns of about a foot long, and a bunch in the middle of the back, like the camel. Thevet also mentions this creature; and Gesner describes it under the name of the BOS CAMELUS.

BISQUET. See BISKET.

BISSACRAMENTALES, a denomination given by some Romish writers to protestants, on account of their only holding two sacraments, viz. baptism and the supper.

BISSECTION, in *Geometry*, the division of any quantity into two equal parts, otherwise called BIPARTITION. See DIVISION, &c.

BISSELÆON, in the *Materia Medica*, a name that is found in many works of the most ancient Greek and Roman writers, and used to express the oil of pitch, or that fluid substance which swims on the surface of melted pitch, and was taken up by means of wool or cotton by the ancients, and used in many external disorders.

The common name of this oil was *pisselæum*; and this other name is only a corrupt way of spelling it. The old authors, in many other words as well as this, have changed the initial P into B.

BISSEXTIALIS, or BISSEXTILIS *olla*, an ancient measure or vessel, containing twelve ounces, or two SEXTARIES.

BISSEXTILE, or *Leap-year*, in *Chronology*, a YEAR consisting of 366 days, happening once each four years, by reason of the addition of a day in the month of February, to recover the six hours which the sun spends in his course each year, beyond the 365 days ordinarily allowed for it.

The day thus added, is also called *bissextile*; Cæsar having appointed it to be the day before the 24th of February, which among the Romans was the sixth of the calends of March, and was reckoned twice.

By the statute *de anno bissextili*, 21 Hen. III. to prevent misunderstandings, the intercalary day, and that next before it, are to be accounted as one day.

The astronomers concerned in reforming the calendar, by order of pope Gregory XIII. in 1582, observing, that the *bissextile* in four years added 44 minutes more than the sun spent in returning to the same point of the zodiac, and computing that these supernumerary minutes in 133 years would form a day; to prevent any changes being thus insensibly introduced in the seasons, directed, that, in the course of 400 years, there should be three *bissextiles* retrenched; so that every centesimal year, which, according to the Julian account, is *bissextile*, or leap-year, is a common year, in the Gregorian account, unless the number of centuries can be divided by 4, without a remainder. Thus 1600 and 2000 are *bissextiles*; but 1700, 1800, and 1900, are common.

The Gregorian computation was received in most foreign countries ever since the reforming of the calendar; and by act of parliament passed anno 1751, it commenced in all the dominions under the crown of Great Britain, in the year following, ordering that the natural day following the second of September, should be accounted the fourteenth; omitting the intermediate eleven days of the common calendar.

BISTER. See BISTRE.

BISTI, a species of Persian money, valued at sixteen or eighteen French *deniers*. Some represent the *bisti* as an ancient silver coin: others, as Chardin, make it only a money of account, and call it DINAR BISTI.

BISTORT, or SNAKEWEED, *Polygonum*, in *Botany*, the name of a genus of the *octandria trigynia* class of plants, the characters of which are these: the flower is of the apetalous kind, consisting of a number of stamina, which arise from a cup, divided into several segments at the edge: the pistil becomes afterwards a seed, usually of a triangular figure, and contained in a capsule, which was before the cup of the flower.

To this it is to be added, that the flowers are disposed in spikes; and the roots are large and fleshy, oddly twisted or contorted, and furnished with a number of small fibres, like hairs. There are also some species of *bistort*, in which, beside the common flowers and seeds, there are certain tubercles, which have their roots, and rudiments of leaves.

There are three different species of this plant which are found wild in England, but they are seldom planted in gardens, the common sort only is used in medicine. Phil. Transf. vol. xlix. part ii. N° 112. See KNOT-*grass*.

The common great *bistort*, or *snakeweed*, flowers in May, and if the season proves moist, will continue to produce new spikes of flowers until August: it may be propagated by planting the roots in a moist shady border, either in spring or autumn, which will soon furnish a garden with plants, for it greatly increases by its creeping roots.

The root of *bistort*, which is the only part that is used, is drying and binding, of service in all kind of fluxes and haemorrhages, either from the bowels, or any other part; they help the incontinence of urine, and the making of bloody water; they are also alexipharmic, and good in pestilential fevers, resist poison, and the bites and stings of venomous creatures.

BISTOURY, a kind of surgeon's cutting instrument, of the knife kind; much used in making incisions.—There are three kinds: the blade of the first turns backwards and forwards like a lancet for opening abscesses, and is sometimes used instead of it.—The *straight bistoury* does not turn, but stands straight in the handle like a common knife.—The *crooked bistoury* is shaped like a half moon, the keen edge being on the inside. See *Tab. Surgery, fig.* 4, 5, 6, 7, 8.

We have the description of a *bistoury*, and borrowed director, somewhat different from the common, by Mr. Munro, in the Medic. Ess. Edinb. vol. v. art. 41.

M. le Dran describes a *bistoury cachè*, for more safely performing the operation of *hernia*. The point of the *bistoury* slides in the furrow of the director, to keep down the guts, and thereby prevent their being cut.

BISTRE, a composition made of the most glossy and highest flying soot, calcined, and passed through a fine sieve, then baked in a little gum-water, and made into cakes.

The soot is prepared from the soot of dry beech-wood, by steeping it with urine or water, into a smooth paste, and then diluting it with more water; after the grosser substance has subsided, the liquor is poured off into another vessel, and left to settle three or four days; the fine matter that remains is *bistre*. That which is good is transparent, when moistened with water, and of a warm, deep, brown colour.

Instead of this, some use the hatches of a pen, with a little Indian ink, others red chalk, others black lead, &c. See WASHING.

BIT, or BITT, an essential part of a bridle; its form and use well known: its parts and kinds various.

The kinds of *bits* are, 1. The mustroll, snaffle, or watering-*bit*. 2. The cannon-mouth, jointed in the middle; preferred by Solleysel to all others. 3. The cannon with a full mouth all of a piece, only kneed in the middle, to form

form a liberty or ſpace for the tongue; fit for horſes too ſenſible or ticklish, and liable to be continually bearing on the hand. 4. The cannon-mouth, with the liberty in form of a pigeon's neck; proper where a horſe has too large a tongue. 5. The cannon with a port, mouth, and an upſet, or mounting liberty, uſed where a horſe has a good mouth but large tongue. 6. The ſcratch-mouth, with an upſet; ruder, but more ſecure than a cannon-mouth. 7. The cannon-mouth with a liberty, after M. Pignatel's manner; proper for a horſe with a large tongue and round bars. 8. The maſticadour, or ſlavering *bit*. 9. The cat's foot *bit*. 10. The baſtonet *bit*, &c.

The ſeveral parts of a ſnaffle or curb-*bit* are—the mouth-piece, the cheeks and eyes, guard of the cheek, head of the cheeks, the port, the wells, the campanel, or curb and hook, the boſſes, the boſſters and rabbets, the water-chains, the ſide-bolts, bolts and rings, kirbles of the *bit* or curb, trench, top-roll, flap, and jeive.

To BIT *a horſe*, is to give him ſuch a bridle as is moſt proper for gaining his conſent to thoſe actions, which are required of him.

All *bits* ought to be proportioned to the mouth of the horſe, according as it is more or leſs cloven or wide; or more or leſs ſenſible and tender: alſo according as the tongue and lips are higher and flatter; and as the palate is more or leſs fleſhy.

BIT is alſo uſed for a little tool, fitted to a ſtock or handle, to bore withal.

In this ſenſe we ſay, the *bit* of a piercer, an AUGRE, or the like; meaning that iron part of thoſe tools, wherewith the holes are bored.

BIT *of a key* is that part fitted at right angles to the ſhank of the KEY, wherein the wards are made. See LOCK, &c.

BIT is alſo uſed, in *Commerce*, for a piece of coin current in Jamaica, and valued at 7*d*. ½.

BITS, or *butts*, in a *ſhip*, are two great pieces of timber uſually placed abaft the manger in the ſhip's hoof, through which the croſs-piece goes, their lower parts being faſtened to the ruddiers; and their middle parts, in great ſhips, bolted to two large beams, croſs the hows. Their uſe is to belay the cable to, when the ſhip rides at anchor.

The word ſeems formed from the French *bitte*, which ſignifies the ſame; unleſs we ſuppoſe that the French word is formed from ours.

In great ſtorms, to ſtrengthen the *bits*, and ſecure the bows, the cable is faſtened to the main-maſt.

BITS, *fore-jeer*, thoſe to which the fore-jeer is faſtened and belayed.

BITS, *fore-top-ſail-ſheet*, thoſe to which the fore-top-ſail-ſheet is belayed.

BITE is defined to be a ſolution of the continuity of a ſoft part, cauſed by the impreſſion of an animal's teeth.

For the poiſonous, or venomous *bites* of VIPERS, the RATTLE-SNAKE, MAD-DOGS, the TARANTULA, &c. See VIPERS, &c.

SNAKE-STONE, SNAKE-WEED, *terra mellitenſis*, &c. are reputed ſpecifics againſt poiſonous *bites*.

The *bites* of ſpiders, at leaſt of ſome *ſpecies*, alſo appear to be poiſonous; which has perhaps been the occaſion of the common error, that this inſect is poiſonous, when eaten. See SPIDER.

Mr. Robie, a phyſician in New England, gives the hiſtory of a perſon bitten in the leg by a ſmall ſpider, accidentally enclaſped in his ſtocking; it was followed by an acute, erratic pain; firſt in the leg, then in the groin, and ſucceſſively paſſing into the ſmall of the back, the thigh, and the head, attended with a numbneſs, &c. It was cured with *ſp. vin. corv.* and *ſol vol. corn. cerv.* with *unum viperinum*, and onions or garlic applied to the wound. Phil. Tranſ. N° 388. p. 61.

Sig. Redi attributes the malignity of the *bite* of a VIPER, to a yellow juice lodged in a bag behind the gum, which is inſtilled through a pipe in the teeth, into the wound. M. Bourdelot, and Charas, aſcribe it to the irritated bilious ſpirits, and breath of the enraged animal. Phil. Tranſ. N° 83.

In ſupport of which it is alledged, that the viper's lungs are full of bilious ſpirits, which exhale with its breath; and that there is an immediate duct in this creature, from the gall-bladder to the throat; by means of which, a quicker, and more copious infuſion of the bile, is made into the wound. But much of this may be juſtly doubted. Phil. Tranſ. N° 77. p. 3015.

The beſt remedy for it is ſucking the wound; a kind of cure, for which the ancient Marſi and Pſilli are celebrated.

The beſt cure for the *bite* of the rattle-ſnake is an actual cautery; *c. gr.* a hot burning coal held on the wound. Phil. Tranſ. N° 210.

The *bites* of divers creatures, when mad, are poiſonous, which at other times are not ſo, as of dogs, cats, men, &c. See HYDROPHOBIA, MAD-*dog*, MADNESS, MANIA, &c.

BITE is alſo applied, in a leſs proper ſenſe, to the impreſſion of other ſharp, or pungent bodies. Thus a file is ſaid to *bite* the metal; *aqua fortis bites*, or eats into copper. An anchor is alſo ſaid to *bite*, when it holds faſt in the ground.

BITERLOGH, or BITHERLAGE, the ancient Daniſh military, or camp law.

The word is compounded from *bithe*, *mulct*; and *logh*, *law*; q. d. the law of *mulct*, or *mites*.

Among the laws of the Danes, there are two peculiarly eminent; viz. the *bit of ſtrand*, or *ſtrant-lone*; and the *biterlage traett*, made by Canute the Great, about the year 1035. Of which an edition has been given by Reſenius.

BITHYNIARCHIA, a ſort of ſuperior prieſthood in the province of Bithynia, to which belongs the ſuperintendency of the ſacred games, and which gave an exemption to him poſſeſſed of it, called *bithyniarcha*, from the care of tutorage.

BITTACLE, or BINACLE, a ſquare box, or frame of timber, placed in the ſteerage of a ſhip, wherein the COMPASS is placed.

The word is formed, by contraction, from the French *habitacle*, a *mean habitation*, which ſignifies the ſame.

Large veſſels have two *bittacles*, a leſſer placed before the pilot, and a greater before the ſteerſman.

In the ſmaller veſſels, the *bittacle* is divided into three ſpaces or apartments; in large veſſels into five. One for the hour-glaſſes; another for the lamp, or light; another for the compaſs, &c.

Great care is to be taken in the diſpoſition, framing, &c. of the *bittacle*, that it ſtand true, and that it be not faſtened together with iron nails, but with wooden pins, becauſe the former would affect the compaſs.

BITTACUS, in *Natural Hiſtory*, a name given by Cteſias, and ſome others of the Greek authors, to the parrot. The word *βίττακος* is ſo near this, that they are plainly only a corruption of one another. The Greeks called this bird indifferently *ψίττακος*, and *βίττακος*, as they did the fine ointment *ψῆγμα*, indifferently by that name, or *βῆγμα*; the *β* being only one letter with them; and that, and the ſingle S, very frequently uſed at pleaſure for one another.

BITTER *almonds*. See ALMOND.

BITTER *apple*. See COLOCYNTHIS.

BITTER *gourd*. See COLOCYNTHIS.

BITTER *waters*. See WATER.

BITTER *wine*. See WINE.

BITTER *ſweet*, in *Botany*. See NIGHTSHADE.

BITTER *vetch*. See VETCH.

BITTER *wort*. See GENTIAN.

BITTERN, in *Ornithology*, the name of a bird of the heron-kind, called by authors ARDEA *ſtellaris*; and by ſome *taurus*, *auratus*, *botaurus*, and *onocrotalus*: in Engliſh, the *butter-bump*, and *mire-drum*. It builds on the ground, and lays five or ſix eggs, which are roundiſh, and of a greeniſh white. When wounded, and going to be taken, it ſtrikes at the perſon's eye, and ought carefully to be guarded againſt.

BITTERN is alſo a name given to the brine ſwimming upon the firſt concreted ſalt in the ſalt-works; this liquor is ladled off, that the ſalt may be taken out of the veſſel, and is afterwards put in again, and affords more ſalt, which is to be ſeparated like the reſt, by ladling off the liquor a ſecond time, and ſo on.

The *bittern*, according to Mr. Boyle, is a very ſaline, bitter, ſharp, pungent liquor, which drains off in the making of ſalt from ſea-water; or which remains in the pans, after the coagulation, and granulation of the *purer*, and more ſaline part, by boiling.

A *bittern* alſo runs, or oozes, from the heaps of foſſile ſalt at Limington, and Portſea in Hampſhire. Phil. Tranſ. N° 377. p. 348.

Bittern makes the baſis of *ſal catharticum amarum*, or EPSOM-SALT.

Bittern is the mother-ley of SEA-*ſalt*, or the liquor which remains after the purification and cryſtallization. It is employed in this country for making a purging bitter ſalt, which proves ſimilar in quality to the ſalt obtained from the Epſom waters, and is commonly ſold under its name. The *ley* is boiled down to a certain pitch, then ſtrained and inſpiſſated, the dry matter is calcined, rectified, and cryſtallized. If the mother-ley be inſpiſſated and diſtilled with vitriolic additions, a ſpirit of ſalt is obtained. Neumann, p. 212.

BITTERNESS, a kind of ſavour or ſenſation, oppoſite to ſweetneſs.

According to Grew, *bitterneſs* is produced by a ſulphur well impregnated with a ſalt, either alcaline or acid, and ſhackled with earth.

Hence it is that the bitterſt plants uſually yield the greateſt quantity of lixivial ſalt; and that many diſtilled oils,

oils, digested with any ſtrong acid, acquire a bitter taſte. Add, that the leaves of all ſweet roots are bitter; the fig-tree, which bears a ſweet fruit, bleeds a bitter milk; and that the roots of plants, which bear a bitter ſtalk, are not bitter, but hot. That the earthy parts contribute conſiderably to the *bitterneſs* of bodies, appears hence, that moſt bodies of that kind are fixed; or, if they do emit fumes, do not loſe their bitter taſte therewith. Diſc. of Taſte of Plants, cap. iv. § 12.

Bitterneſs, Neumann obſerves, is extracted both by water and ſpirit: does not ariſe in diſtillation; is freed from its ſmell by boiling in water, and covered by acids. He has given the chemical hiſtory of *bitter* VEGETABLES. See his Works.

Mr. Boyle obſerves, that a ſubſtance bitter in the higheſt degree, may be divided into two ſubſtances, the one extremely four, and the other inſipid. This happens, when the cryſtals of Silver are diſtilled by a heat ſufficient to drive away all the ſpirits from the ſilver. What remains is inſipid, and what riſes is highly acid. Works abr. vol. i. p. 241.

The extinguiſhing, or removing of *bitterneſs*, is called DULCIFYING, ſweetning, &c.

M. Boin has given methods of removing, or diſcharging the *bitterneſs* of olives and Indian cheſnuts. Mem. Acad. Sc. 1720. p. 600.

The *bitterneſs* of SEA-water has been ſuppoſed to ariſe from the diſſolution of the beds, or ſtrata of BITUMEN; as its ſaltneſs does from a diſſolution of the ſtrata of ſalt. Ibid. 1710. p. 33.

The qualities of *bitter* bodies are ſuppoſed to be dry, warm, aſtringent, and earthy.

According to Grew, all plants which are bitter and pungent, either on the tongue, or in the throat, are good elſewhere, e. gr. daiſy, anagallis, &c. The ſame author adds, that moſt purgative and emetic plants, which have any ſenſible taſte, are *bitter*; either ſimply, as coloquintida; or *bitter* and aſtringent, as aloes, &c. *Bitter* things are generally reputed STOMACHIC; yet, according to Abercrombie, they are naturally the reverſe, and hurtful to the ſtomach; and only become beneficial to it, where their aſtringency renders them proper. Phil. Tranſ. N° 171. p. 1026.

Bitters are ſaid to reſiſt putrefaction and moderate fermentation: hence appears their uſe in putrid diſorders. *Bitters* likewiſe correct acidities, and aſſiſt digeſtion, by braſing the fibres of the ſtomach.

BITTER *purging ſalt*, *ſal cathartikum amarum*. See EPSOM *ſalt*.

BITTER *place*, *locus amarus*, a poor barren ſoil, by Pliny called *terra amara*, *ſive macra*.

BITTER, in the *Sea-language*, denotes a turn of the cable about the bitts, in order to its being veered out by little and little at pleaſure.

A ſhip is ſaid to be brought up to a *bitter*, when ſhe is ſtopped by her cable.

BITTER *end*, is that part of the cable which ſtays within board, wound about the bitts, when the ſhip is at anchor. When they would have that end bent to the anchor, they ſay, bend to the *bitter end*.

BITUMEN, in a general ſenſe, a fatty, tenacious, mineral juice, very inflammable; or a foſſil body, which readily takes fire, yields an oil, and is not ſoluble in water.

The origin of *bitumen* has not yet been aſcertained: ſome ſuppoſe that they belong to the mineral kingdom, and others that they proceed originally from vegetable ſubſtances. Macquer inclines to the latter opinion; though Dr. Lewis, the tranſlator of Neumann's works, diſtinguiſhes between mineral *bitumens* and vegetable reſins.

Naturaliſts diſtinguiſh three kinds of *bitumen*; *hard*, *ſoft*, and *liquid* or *oily*; each of which they ſubdivide into ſeveral ſpecies.

Among the *hard* or *ſolid bitumens* are ranked, yellow amber, ambergris, jet, aſphaltum, paſſaphaltum, pit-coal, and ſulphurs.—The *ſoft* are maltha, *bitumen* of Calao, and of Surinam.—Laſtly, the naphtha of Italy, and petroleum, are ranked among the *liquid bitumens*.

Of *bitumens*, ſome again are foſſil, others are found floating on the ſurface of certain lakes, and others ſpring from the earth like fountains; as at Pitchford in Shropſhire, &c.—Some *bitumens* are ſo hard, that they are uſed in forges, inſtead of coals; others ſo glutinous, that they ſerve inſtead of cement, or mortar, in buildings; of which kind was wherewith the famous walls of Babylon were built: and others ſo liquid, that they are burnt in lamps inſtead of oil.

The *bitumen* in moſt eſteem is that of Judea.

From the origin and inflammability of *bitumens*, it appears they bear a near affinity to ſulphurs, and are ſuppoſed both formed of the ſame principles or ingredients; only differing in this, that ſulphurs are harder and more brittle, *bitumens* more fatty and tenacious.

Bitumens are uſually divided into two ſpecies, *liquid* and *ſolid*. Though ſome diſtinguiſh three kinds, as before mentioned.

Dr. Woodward gives a different diviſion of the Engliſh *bitumens*, or bituminous foſſils. The firſt are thoſe of a more lax and coarſe conſtitution; and which, when wetted, yield a groſſer, or pitchy matter. Such are the *lapis piceus*, or pitch-ſtone, the *lapis ampelites*, *obſidianus* or canel, and the *lithanthrax* or coal. The ſecond is of a more denſe and fine conſtitution, and yields an oil: ſuch are the GAGATES, or jet; and SUCCINUM, or amber.

Bitumen is ſuppoſed the chief fuel of the ſubterranean fires.

Many have been fond of ſuppoſing all ſea water to contain a large quantity of *bitumen*, and that it owes its bitterneſs to this admixture; but this ſeems erroneous, ſince we find that all ſea-water contains a large quantity of bitter purging ſalt of the nature of what is ſold in our ſhops, under the name of *Epſom ſalt*; and its bitterneſs is of the very ſame kind with the taſte of that ſalt.

That there are, however, *bitumens* mixed in ſeveral places with the water of the ſea, is very certain. Barbadoes tar is found floating on the ſea, being waſhed in great quantities from the rocks, and count Marſigli obſerved ſpiral filaments ariſing from the ſurface of the ſea Marmora, near Conſtantinople, which concreted into *bitumen*, exactly of the ſame kind with that he obſerved at Zant, flowing from the ſides of a bituminous mountain.

On ſome of the coaſts of Italy they ſkim off a kind of liquid *bitumen*, or petroleum, from the ſurface of the ſea. Some think that ambergris is a *bitumen* of the ſea, and many travellers tell us of a fatty ſubſtance on the ſurface of it, that gives light in the night. Theſe various ſubſtances may impart various properties to the ſea-water, in ſuch parts where they are found to abound, and they may be common in many places, but they are certainly not found in all, nor is *bitumen* a neceſſary ingredient in ſea-water. Count Marſigli has indeed proved, that a ſpirit diſtils from the moſt common of all *bitumens*, Pit-coal will give water a bitter taſte, but ſea-water is not yet proved to be impregnated with ſuch a ſpirit. On the contrary, when diſtilled, it has no bitter taſte; therefore marine waters are not impregnated with ſuch a volatile *ſpirit*, but evidently owe their *bitterneſs* to a fixed principle; and it is very certain, that pit-coal cannot give this taſte, ſince the waters which iſſue out from among the ſtrata of ſea-coal are never found to be bitter, though often ſtrongly impregnated with iron.

All *bitumens* have this good quality in their burning, that they will do without a wick. Dr. Plot therefore conjectures, that the famous ſepulchral LAMPS of the ancients were contrived of theſe *bitumens*, particularly of the liquid kind, becauſe any thing that would require a wick, would be liable to its choaking up, and being deſtroyed.

BITUMEN, in a more particular ſenſe, is reſtrained to the ASPHALTOS, otherwiſe called *bitumen Judaicum*.

BITUMEN *Barbadenſe*; ſee BARBADOES *tar*.

BITUMEN *Hyblæum*, in *Mineralogy*, a name given by Boccone and others to a peculiar ſpecies of bituminous foſſil, which is flexile while in the earth, a property very ſingular in a foſſil not of the talcy kind, as this evidently is not. It is a ſtony ſubſtance, ſmelling like the common *bitument*, and compoſed of a very great number of thin plates, laid evenly and regularly on one another. It has its name from the place where it is found, which is the Hyblæan mountains of Sicily, near Milelli, neighbouring upon the town of Auguſta and the ancient Megara. When burnt in a candle, the bituminous ſmell is perceived very ſtrong; and the ſtone, though when firſt taken up it be flexible like paper, yet in time hardens, and becomes brittle like other foſſils of that lax conſiſtence. There are found whole hillocks covered with it. This does not prevent their bearing plants and herbage, the roots of the graſs, &c. inſinuating themſelves between the *lamina* of this ſtone, and getting good nouriſhment there. Phil. Tranſ. N° 200.

BITUMINOUS, ſomething that relates, or partakes of the nature and qualities of BITUMEN.

All *bituminous* bodies are offenſive to the head. Their ſmell or ſtench makes the EPILEPSY diſcover itſelf.

BIVALVE, or BIVALVULAR, a term uſed by the writers of natural hiſtory, for ſuch ſhell-fiſh as have two ſhells, e. gr. cockles, muſcles, oyſters, &c. which are ſaid to be of the *univalvular* kind.

Theſe are a leſs numerous claſs than the *univalves*, and have been arranged by an accurate French writer under ſix genera. Theſe are, 1. The OYSTERS. 2. The CHAMÆ. 3. The MYTULI, or MUSCLES. 4. The CARDIFORM ſhells. 5. The PECTINES, or ſcallops.

And,

And, 6. The solens, or razor-shells. For the characters and species of each of these, see their several heads, oysters, &c.

See a description of *bivalve* insects by Mr. Muller, in the Phil. Trans. vol. lxi. part i. N° 29.

Bivalve is also applied to the *siliqua*, or seed-pods, of such plants as open their whole length to discharge their seeds. Such are peas, beans, &c. which the botanists say, have *bivalve* or *bivalvular siliquæ*.

BIVENTER, from *bis*, and *venter*, *belly*, in *Anatomy*, a denomination given to the sixth muscle of the lower jaw; being the last of those serving to depress or open it: thus called, as having two bellies for its two extremities, and a tendon in the middle.—See *Tab. Anat. (Myol.) fig.* 2. n. 2.

The *biventer*, or *digastricus*, has its origin from a fissure between the occipital bone and the mastoidal *apophysis*; whence passing its tendon through a hole in the *stylohyoideus*, and an annular ligament of the *os hyoides*, there arise some fibres, which join its second belly: hence, growing fleshy, and returning upwards, it is inserted into the middle of the inferior part of the lower jaw.—By this contrivance it is enabled to draw the jaw downwards.

BIUMBRES, from *bis*, *double*, and *umbra*, *shadow*, in *Geography*, an appellation given to the inhabitants of the torrid zone, because, at two different seasons of the year, their shadows are projected two different ways.

The *biumbres* are the same with those otherwise denominated amphiscii.

BIXA, in *Botany*, a genus of the *polyandria monogynia* class; ANOTTA, by the French called rocou. Its characters are these: the flower hath a double series of petals, the outer consisting of five, which are large, the inner of the same number and shape, but narrower. It hath a great number of bristly stamina: in the centre is situated an oval *germen*, which afterward becomes an oval heart-shaped capsule, covered with sharp bristles, opening with two valves, with one cell, and filled with angular seeds. We have but one species of this genus; which must be constantly kept in a bark stove, or they will not thrive in England.

BIZARRE, Fr. denoting *capricious*, &c. a term used among *Florists* for a particular kind of carnation, which has its flowers striped or variegated with three or four colours.

BIZE, in *Ichthyology*, a name by which some call the Pelamys, a sea-fish, of the shape of the tunny, and resembling the young brood of that fish; but distinguishable by its wanting scales in most parts of its body.

BIZOCHI, or Biochi, a sect or branch of religious minorites, condemned by several popes.

The *Bizochi* were also called *fratricelli*, or *frères de pauvre vita*; sometimes *Bichini*, or *Bicchini*, and Beguini. The name is formed from *bisaccus*, on account of a double budget or wallet wherewith they begged their living. See Beghardi.

BIZARRO, or en Bizzaria, in the *Italian Music*, signifies *with capricious changes*; sometimes full, at others slow, soft, strong, &c. as the fancy of the composer.

BLACK, something opake and porous, that imbibes all the light falling on it, reflects none, and therefore exhibits no colour. See Blackness.

There are various kinds of *blacks*, which pass in commerce; *viz. blue black*, *dyers black*, *painters black*, *German black*, *ivory black*, *Spanish black*, *lamp black*, *Indian black*, &c.

Bodies of a *black* colour are found more inflammable, because the rays of light falling on them are not reflected outwards, but enter the body, and are often reflected and refracted within it, till they be stifled and lost. They are also found lighter, *cæteris paribus*, than white bodies, being more porous: it may be added, that cloths dyed of this colour wear out faster than those of any other, because their substance is more penetrated and corroded by the vitriol necessary to strike their dye, than other bodies are by the galls and alum which suffice for them.

The inflammability of *black* bodies, and their disposition to conceive heat beyond those of other colours, is easily evinced. Some appeal to the experiment of a white and a *black* glove worn in the same sun; the consequence will be, a very sensibly greater degree of heat in the one hand than the other. Others allege the phenomena of burning-glasses, by which *black bodies* are always found to kindle soonest. Mr. Boyle gives other proofs still more obvious: he took a large tile, and having whited over one half of its superficies, and blacked the other, exposed it to the summer sun; where having let it lie a convenient time, he found, that whilst the whited part remained still cool, the *black* part was grown very hot. For further satisfaction, the same author has sometimes left on the surface of the tile a part retaining its native red, and exposing all to the sun, has found the latter to have contracted a heat in comparison of the white part, but inferior to that of the *black*.

So also on his exposing two pieces of silk, one white, the other *black*, in the same window to the sun, he often found the latter considerably heated, when the former has remained cool. It is observable likewise, that rooms hung with *black* are not only darker, but warmer than others. Boyle's Works abridg. tom. i. p. 144. and tom. ii. p. 36.

To all which may be added, that a virtuoso of unsuspected credit assured Mr. Boyle, that, in a hot climate, he had, by carefully blackening the shells of eggs, and exposing them to the sun, seen them thereby well roasted in a short time.

Dr. Watson of Cambridge covered the bulb of a thermometer with a *black* coating of Indian ink; in consequence of which, the mercury role ten degrees. Phil. Trans. vol. lxiii. part i. p. 40.

Black cloaths heat more, and dry sooner in the sun than white cloaths. *Black* is a bad colour for cloaths in hot climates; but a fit colour for the linings of ladies summer hats. Dr. Franklin's Experiments, Observations, &c. 5th edit p. 483. & seq. He observes also, ibid. p. 382, that a chimney painted *black*, is less exposed to the sun, will draw more strongly.

Black, in matters of dress, is the distinguishing habit of church-men and mourners.

Some will have it, that the common people among the Romans were clothed in *black*; whence the denomination given them of *turba pullata*.

Black, in *Heraldry*, is properly called sable.

Black, in the *Manege*.—A horse of a deep, shining, and lively *black* is called a *black-mare*, or *coal-black*. Horses *black* all over are commonly reckoned dull and melancholy; but a white foot, or star in the forehead, gives them a degree of sprightliness. The Spanish gravity is said to be best pleased with those entirely *black*.

Black, *blue*, is the coal of some kind of *wood*, or other vegetable matter: the best sort is said to be made of vine-stalks and tendrils.

Black, *bone*, is made of the bones of bullocks, cows, &c. well burnt and ground. To be good, it must be soft and friable, of a gloffy cast. It is in considerable use, though inferior in goodness to *ivory black*.

The invention of *bone* or *ivory black* is attributed to Apelles. Plin. Hist. Nat. lib. xxxv. cap. 5.

Black, *dyers*, is one of the five simple and mother colours used in dying; and given differently, according to the different quality and value of the stuffs to be dyed.

Green vitriol ſtrikes a *black* colour with vegetable aſtringents, and hence it is the baſis of the *black* dye for cloth, feather, hats, &c. And as ſolutions of iron with galls, &c. produce the ſame colour, a method is derived from hence of diſtinguiſhing the minuteſt portions of iron in mineral waters, &c. Neumann.

For broad cloths, fine ſtuffs, and druggets, &c. they uſe woad and indigo; the goodneſs of the colour conſiſts in there not being above ſix pounds of indigo to a hall of woad, when the latter begins to call its blue flower; and, in its not being heated for uſe above twice.—Thus blued, the ſtuff is boiled with alum, or tartar, then maddered; and, laſtly, the black given with galls, copperas, and ſumac.—To bind it, and prevent its ſmearing in uſe, the ſtuffs are to be well ſcoured in the fulling-mill, when white, and well waſhed afterwards.

For ſtuffs of leſs value, it is ſufficient they be well blued with woad, *and blotched* with galls and copperas: but no ſtuff can be regularly dyed from white into *black*, without paſſing through the intermediate blue.

Yet there is a colour called a *dead black*, or *Jeſuit's black*, prepared of the ſame ingredients as the former, and ſufficient of itſelf without the blue-dye. Here the drugs are diſſolved in water: the cloth boiled *four hours*, and ſtood to cool till the hand would bear it; then the ſtuff is dipped in it, and again taken out ſix or eight times. Some even prefer this *black* to the other.—This method of dying *black* is ſaid to have been invented by the Jeſuits, and to have been practiſed in their houſes, where they retained numbers of dyers.

By 23 El. c. 9. nothing of the nature of cloth ſhall be maddered for a *black*, except it be firſt grounded with woad only, or with woad and anele [blue ind.] unleſs the madder be put in with ſumac or galls; on pain of forfeiting the value of the thing dyed: provided it ſhall be lawful to dye any manner of *gall black*, and *ſumac black* [*plain black*] wherein no madder ſhall be uſed.

Logwood ſtrikes a *black* with chalybeate ſolutions, and is employed with thoſe liquors for ſtaining wood *black*, as picture-frames, &c. With the addition of galls, it is uſed for dying cloth and hats *black*. Neumann's Works, p. 287. This *black* colour is not permanent, though beautiful, any more than the natural violet dye of the log-wood.

BLACK, *earth*, is a kind of coal found in the ground, which, well pounded, is used by painters in fresco.

There is also a kind of BLACK made of silver and lead, used to fill up the strokes and cavities of things engraved.

BLACK, *German* or *Frankfort*, is made of the lees of wine burnt, then washed in water, and ground in mills for that purpose, together with ivory or peach-stones burnt. This *black* makes the principal ingredient in the rolling-press-printers INK. It is ordinarily brought from Frankfort, Mentz, or Strasbourg, either in lumps or powder.

That made in France is more valued than that of Germany.

BLACK, *horn*, that which remains in the retort after extracting the spirit, salt, and oil of harthorn. This residue, being ground up with water, makes a *black* not much inferior to that of ivory.

BLACK, *ivory*, is made of ivory burnt or charred, ordinarily between two crucibles well luted; which, being thus rendered perfectly *black*, and in scales, is ground in water, and made into troches, or little cakes, used by the painters; as also by the jewellers to blacken the bottom or ground of the collets, wherein they set diamonds to give them their teint or foil. Some recommend striking the chips or shaving of ivory in hot linseed oil, before it is charred.

There are particular machines and contrivances for burning the ivory for these purposes, by which the colour is rendered more beautiful than that of the coal which remains in the distillation. Neumann.

The goodness of *ivory black* may be perceived by its fulness, without a blue-cast; and by the fineness of the powder.

BLACK, *lamp*, or *Lamp* BLACK, originally perhaps the soot collected from lamps, is generally prepared by melting and purifying resin or pitch in iron vessels; then setting fire to it under a chimney, or other place made for the purpose lined a-top with sheep skins, or thick linen cloth, to receive the vapour or smoke, which is the *black*: in which manner they prepare vast quantities of it at Paris. In England it is ordinarily prepared from the resinous and fatty parts of woods, burnt under a kind of tent, which receives it; but the greatest part is brought from Sweden and Norway, where it is frequently obtained not from pure resin or pitch, but from the dregs, and pieces of the bark of the tree, separated in preparing them. The dross left on straining the resin is burnt for *lamp black*, in a low oven, from which the smoke is conveyed by a long passage into a square chamber, having an aperture in the top, upon which is fastened a large sack. The soot concretes partly in the sack, and partly in the chamber and canal.

It is used on various occasions, particularly in the printers INK; for which it is mixed with oils of turpentine and linseed, all boiled together.

It must be observed that this black takes fire very readily, and when on fire, is very difficultly extinguished: the best method of putting it out is with wet linen, hay, or straw; for water alone will not do it.

There is a finer and brighter kind of *lamp* or *candle black* procured from the fumes of a lamp or candle, gathered by a proper receptacle placed in manner of a canopy over the luminary, and wiped or brushed off; but it is not procured in quantity sufficient for ordinary use.

A glass tube closely filled with *lamp black* has been found to conduct a considerable charge of electricity instantaneously, and with scarce any explosion. But a coating of this substance mixed with tar or oil is a perfect non-conductor, and has proved a preservative from lightning, by repelling the electric matter from those parts of the masts of ships which have been covered with it.

BLACK, *soot*, or *chimney*, is a poor colour; but ready for painting *black* draperies in oil. See SOOT.

BLACK, *Spanish*, so called, because first invented by the Spaniards, and most of it bought from them; is no other than burnt cork used in various works, particularly among painters.

BLACK, *Indian*; see *Indian* INK.

BLACK, *carriers*, signifies a teint or dye laid on tanned leather; of which there are usually two; the first made of galls, allegre, and old iron; the second of galls, copperas, and gum Arabic. See CURRYING.

BLACK *act*; the statute of 9 Geo. I. c. 22, is commonly called the Waltham *black act*, because it was occasioned by the devastations committed near Waltham in Essex, by persons in disguise, or with their faces *blacked*. By this statute it is enacted, that persons hunting armed and disguised, and killing or stealing deer, or robbing warrens, or stealing fish out of any river, &c. or any persons unlawfully hunting in his majesty's forests, &c. or breaking down the head of any fish-pond, or killing, &c. of cattle, or cutting down trees, or setting fire to house, barn, or wood, or shooting at any person, or sending letters, either anonymous or signed with a fictitious name, demanding money, &c. or rescuing such offenders, are guilty of felony, without benefit of clergy. This act is made perpetual by 31 Geo. II c. 42. See farther 6 Geo. II. c. 37. and 27 Geo. II. c. 15. Blackstone's Comm. vol. iv. p. 144. 208. 232. 244.

BLACK-*berry*, in *Botony*, a species of the RASP-*berry*.

BLACK-*bird*, *merula*, in *Ornithology*, a bird of the TURDUS or thrush kind, of which there are several species. 1. The common kind, well known in our hedges. 2. The kind called the PASSER *solitarius*, or solitary sparrow. 3. The *caruleus*, of which there are two kinds. 4. The Brasilian *black-bird*, remarkable for the shortness and crookedness of its beak, and for its remarkably beautiful colours. Its tail and wings are black, and the rest of its body of a fine beautiful deep red. Its legs and feet are black, or of a brownish grey. Its wing-feathers also have some slight variegations of red. 5. The MERULA *rosea*, or rose-coloured *black-bird*; this is smaller than the common kind, and its back, breast, and wings are of a pale red or damask rose-colour. Its wings and tail black. 6. The red-breasted Indian *black-bird*, called by the Brasilians JACAPU. 7. The *merula torquata*, or ring AMZELL. Beside these there is the MERULA *montana*, or common AMZELL: and the MERULA *bicolor*: and two other birds, called MERULÆ *congeneres*, described by Aldrovandus, but not now known. See *Tab.* III. *of Birds*, N° 29, 30.

The merit of the *black-bird* is not its only valuable quality: for it is a very delicate bird for the table. It builds its nest in woods, very early in the spring, often in March, while the snow is on the ground. It generally chooses the stumps of trees, or thick hedges, for the place. The outside of the nest is made of dry grass, sticks, and the fibres of roots of trees: the inside is lined with clay, and formed so round, that art cannot mend it. They build three or four times in the year, and even oftener than that, if their nests are taken early from them. The young ones may be easily raised with any kind of meat. It sings three or four months in the year; the note is loud, and not very agreeable; but may be much improved by teaching.

BLACK-*books*, a name given to those which treat of NECROMANCY, or, as some call it, NIGROMANCY.

The BLACK-*book* of the English monasteries was a detail of the scandalous enormities practised in religious houses, compiled by order of the visitors under king Henry VIII. to blacken them, and thus hasten their dissolution.

BLACK-*canons*, a name given to the regular canons of St. Augustine, who wore a *black* mantle over their surplice, by way of distinction from the *Præmonstratenses*.

BLACK-*cap*, in *Ornithology*, a name given by the common people of many counties of England to the PEWIT, a bird of the gull-kind.

BLACK-*cap*, is also the common English name for the *parus palustris*, or marsh TITMOUSE.

BLACK-*cap*, or *motacilla atricapilla* of Linnæus, is one of the smallest birds: the crown of the head in the male is black, but in the female of a dull dusk-colour; and they are thus distinguished. This is a bird of passage. It sings finely, with a full, sweet, deep, loud, wild pipe: its strains are short, and motions desultory. Its notes are superior to those of any of our feathered warblers, the nightingale excepted: and it is therefore called in Norfolk the mock-nightingale.

BLACK-*chalk*; see CHALK.

BLACK-*silver*, in *Ornithology*, a name given by many to a species of duck very common about the coasts of Lancashire, Yorkshire, and some other counties, and called more generally the SCOTER. It is all over *black*.

BLACK-*ears*, or black-eared cat; see SIGAH *gutt.*

BLACK-*earth*, *terra nigra*, denotes the natural mould or loam. See SOIL, &c.

BLACK-*eunuchi*, in the customs of Eastern nations, are Ethiopians castrated, to whom their princes commonly commit the care of their women. See EUNUCH.

BLACK-*eye*, *hypochyma*, in *Medicine*, a suffusion of blood on the *tunica adnata* turning livid, occasioned by a blow. See ECCHYMOSIS.

BLACK-*eye*, is also a name given to the GERM in BEANS, which the Romans called HILUS.

BLACK-*friers*, a name given to the DOMINICAN order, called also *Predicants* and *Preaching friers*; in France, *Jacobins*.

BLACK-*game*, in *Zoology*, a common English name for the *urogallus* or *tetrao major*, called also the OROUSE.

BLACK-*glass*; see GLASS.

BLACK-*grass*, a species of American grass growing in meadows which borders on tide rivers, well supplied also with fresh water; for a mixture both of fresh and salt water seems to be necessary for its prolific vegetation. Its seeds are small like those of tobacco; its colour a deep green; and it affords from three to four tons of hay by the acre. This kind of grass thrives best on a clay or strong loam; nor is the vicinity of salt-water absolutely

solutely neceſſary. The ſeeds have been lately brought over into England, and diſtributed for trial in proper ſoils.

BLACK-*jack*, or BLEND, is a mineral called alſo *falſe* GALENA, and BLINDE, &c.

BLACK-*land*, in *Agriculture*, a term by which the huſbandmen denote a particular ſort of clayey ſoil, which, however, they know more by its other properties than by its colour, which is rarely any thing like a true *black*, and often but a pale grey. This, however pale when dry, always blackens by means of rains; and when ploughed up at theſe ſeaſons, it ſticks to the plough-ſhares, and the more it is wrought, the muddier and duſkier-coloured it appears. This ſort of ſoil always contains a large quantity of ſand, and uſually a great number of ſmall white ſtones.

BLACK-*lead*; ſee LEAD.

BLACK-*leather*, is that which has paſſed the curriers hands, where from the ruſſet as it was left by the tanners, it is become *black*, by having been ſcoured and rubbed three times on the grain-ſide with copperas-water.

BLACK-*legs*, a name given in Leiceſterſhire to a diſeaſe frequent among calves and ſheep. It is a kind of jelly which ſettles in their legs, and often in the neck, between the ſkin and fleſh.

BLACK-*mail*, a certain rate of money, corn, cattle, or other matter, anciently paid by the inhabitants of towns in Weſtmoreland, Cumberland, Northumberland, and Durham, to divers perſons inhabiting on or near the borders, being men of name, and allied with others in thoſe parts, known to be great robbers and ſpoil-takers; in order to be by them freed and protected from any pillage. Prohibited by 43 El. c. 13.

The origin of this word is much conteſted, yet there is ground to hold the word *black* to be here a corruption of *blank* or white, and conſequently to ſignify a rent paid in a ſmall copper coin called *blanks*. This may receive ſome light from a phraſe ſtill uſed in Picardy, where ſpeaking of a perſon who has not a ſingle halfpenny, they ſay, *il n' a pas vne blanque maille*.

BLACK-*monks*, a denomination given to the BENEDICTINS, called in Latin *nigri monachi*, or *nigromonachi*; ſometimes *ordo nigrorum*, the order of *blacks*.

BLACK-*oats*; ſee OATS.

BLACK-*proceſſion*, in *Eccleſiaſtical Writers*, that which is made in *black* habits, and with *black* enſigns and ornaments. See PROCESSION.

Anciently at Malta there was a *black-proceſſion* every Friday, where the whole clergy walked with their faces covered with a *black* veil.

BLACK-*rents*, the ſame with BLACK-*mail*, ſuppoſed to be rents formerly paid in proviſions and fleſh, not in ſpecie.

BLACK-*rod.—Gentleman-uſher of the* BLACK-*rod*, is the chief gentleman-uſher to the king, called in the black-book, *Latus virgæ nigræ, & baſtiarius*; and elſewhere, *virgæ bajulus*.

His duty is to bear the rod before the king at the feaſt of St. George at Windſor; he has alſo the keeping of the chapter-houſe door, when a chapter of the order of the garter is ſitting; and, in time of parliament, attends the houſe of peers. His badge is a *black-rod*, with a lion in gold a-top. This rod has the authority of a mace; and to his cuſtody all peers queſtioned for any crime are firſt committed.

BLACK-*row grains*, a ſpecies of iron-ſtone or ore found in the mines about Dudley in Staffordſhire.

BLACK-*ſands*; ſee SANDS.

BLACK *ſealing-wax*; ſee WAX.

BLACK-*ſheep*, in the *Oriental Hiſtory*, the enſign or ſtandard of a race of Turkmans ſettled in Armenia and Meſopotamia; hence called the *dynaſty of the black-ſheep*.

BLACK-*ſtaining*; ſee STAINING.

BLACK-*ſtones* and gems, according to Dr. Woodward, owe their colour to a mixture of tin in their compoſition.

BLACK-*ſtrakes*, a range of planks immediately above the wales in a ſhip's ſides: they are always covered with a mixture of tar and lamp-*black*.

BLACK-*thorn*, in *Botany*, a ſpecies of the *prunus*. See PLUM-*tree*.

BLACK-*tin*, in *Mineralogy*, a denomination given to the tin-ore, when dreſſed, ſtamped, and waſhed ready for the blowing-houſe, or to be melted into metal. Phil. Tranſ. N° 40. p. 1116.

It is prepared into this ſtate by means of beating and waſhing; and when it has paſſed through ſeveral buddles or waſhing-troughs, it is taken up in form of a black powder, like fine ſand, called *black*-TIN.

BLACK-*varniſh*; ſee VARNISH.

BLACK *vegetable juice*; ſee ANACARDIUM.

BLACK-*whyſtle*, in our old writers, bread of a middle fineneſs betwixt white and brown, called in ſome parts *rowel bread*.

In religious houſes, it was the bread made for ordinary gueſts, and diſtinguiſhed from their houſhold loaf, or *panis conventualis*, which was pure manchet, or white bread.

BLACK-*work*, iron wrought by the black-ſmith; thus called by way of oppoſition to that wrought by white-ſmiths.

BLACK *of charcoal*; ſee CHARCOAL.

BLACK *Book of the Exchequer*, *Eagle*, *Heliborow Money*, *Order*, *Star*; ſee the ſeveral ſubſtantives.

BLACKING is ſometimes uſed for a factitious black, as lamp-black, ſhoe-BLACK, &c. A mixture of ivory or lamp-black with linſeed oil, makes the common oil *blacking*. For a ſhining *blacking*, ſmall-beer or water is uſed inſtead of oil, in the proportion of about a pint to an ounce of the ivory black, with the addition of half an ounce of brown ſugar and as much gum Arabic. The white of an egg, ſubſtituted for the gum, makes the black more ſhining; but is ſuppoſed to hurt the leather and make it apt to crack.

BLACKNESS, the quality of a black body; or a colour ariſing from ſuch a texture and ſituation of the ſuperficial parts of the body, as does, as it were, deaden, or rather abſorb the light falling on it, without reflecting any, or very little of it, to the eye.

In which ſenſe, *blackneſs* ſtands *directly* oppoſed to *whiteneſs*; which conſiſts in ſuch a texture of parts, as indifferently reflects all the rays thrown upon it, of what colour ſoever they be.

Deſcartes, ſays Dr. Prieſtley, though miſtaken with reſpect to the nature of light and colours, yet diſtinguiſhes juſtly between *black* and *white*, obſerving, that *black* ſuffocates and extinguiſhes the light that falls upon it; but that *white* reflects them. This, adds the hiſtorian of philoſophy, is the firſt diſtinct account I have met with of this ſenſible hypotheſis. *Hiſt. of Viſion*, p. 727 and 743, &c.

Sir Iſaac Newton, in his Optics, ſhews, that for the production of *black colour*, the corpuſcles muſt be leſs than thoſe which exhibit any other colours; becauſe, where the ſizes of the component particles are greater, there is too much light reflected to conſtitute this colour; but, if they be a little leſs than is requiſite to reflect the white, and very faint blue of the firſt order, they will reflect ſo little light, as to appear intenſely black; and yet may, perhaps, reflect it variouſly to and fro within them ſo long, till it happen to be ſtifled and loſt; by which means they will appear *black* in all poſitions of the eye, without any tranſparency.

And from hence it appears, why fire, and putrefaction, by dividing the particles of ſubſtances, turn them black; why ſmall quantities of *black* ſubſtances impart their colours very freely, and intenſely, to other ſubſtances, to which they are applied; the minute particles of theſe, by reaſon of their very great number, eaſily overſpreading the groſs particles of others. Hence alſo appears, why glaſs ground very elaborately with ſand, on a copper plate, till it be well poliſhed, makes the ſand, together with what by rubbing is worn off from the glaſs and copper, become very black; and why black ſubſtances do, ſooneſt of all others, become hot in the ſun's light, and burn, (which effect may proceed partly from the multitude of refractions in a little room, and partly from the eaſy commotions of ſuch very ſmall particles): alſo, why blacks are uſually a little inclined towards a bluiſh colour; for, that they are ſo, may be ſeen by illuminating white paper with light reflected from black ſubſtances, where the paper will uſually appear of a bluiſh white; and the reaſon is, that black borders on the obſcure blue of the firſt order of colours; and therefore reflects more rays of that colour than of any other.

BLACKS, *Negroes*: a people, ſo called from the colour of their ſkin.—For the reaſon of their colour, and the commerce of them, ſee NEGRO.

BLACKS is alſo a name given to an aſſociation of diſorderly, and ill-deſigning perſons, formerly herding chiefly about Waltham in Eſſex, who deſtroyed deer, robbed fiſh-ponds, ruined timber, &c.—See BLACK *act*.

BLADDER, in *Anatomy*, a thin expanded membranous body, found in ſeveral parts of an animal, ſerving as a receptacle of ſome juice, or of ſome liquid excrement; from whence it takes various denominations, as *urine-bladder*, *gall-bladder*, &c.

BLADDER, by way of eminence, is a large veſſel, which ſerves as a receptacle of the urine of animals, after its ſecretion from the blood in the kidneys.

This is ſometimes alſo called, by way of diſtinction, the *urinary bladder*, *veſica urinaria*.

The *bladder* is ſituated in the *pelvis* of the *abdomen*; in men immediately on the *rectum*; in women, on the *vagina uteri*: its figure in quadrupeds reſembles a pear, with the baſis upwards; but in human bodies the lower

part

part is almoſt on a level with the upper; and its orifice, or neck, placed ſideways, while the *fundus*, or bottom, which in a human bladder is very broad, reſts either on the *rectum*, or the *vagina uteri*—It is faſtened to the navel by the *urachus* degenerated into a ligament, its ſides to the umbilical arteries, and its neck to the *inteſtinum rectum* in women.

The *bladder* is compoſed of three coats; the firſt a covering of the *peritonæum*; the ſecond conſiſts of muſcular fibres, which run irregularly ſeveral ways; and the third, which is full of wrinkles for facilitating its dilatation, is both glandulous and nervous.—Its glands ſeparate a viſcous and ſlimy matter, which defends the *bladder* from the acrimony of the ſalts in the urine. Around its neck there goes a ſmall muſcle, called *ſphincter veſicæ*, which contracts the orifice of the *bladder*, to prevent the urine from dripping involuntarily, or till it thruſt open the paſſage by the contraction of the ſecond coat of the *bladder*, which is therefore called *detruſor urinæ*.

Though the urinary *bladder* be naturally ſingle, yet there have been inſtances of nature's varying from herſelf in this particular. The bladder of the famous Caſaubon, upon diſſecting his body after his death, was found to be double; and, in the Philoſophical Tranſactions, we have an account of a triple *bladder* found in the body of a gentleman who had long been ill, and no one could gueſs the cauſe.

As to the figure and ſituation of the human *bladder*, Mr. Weitbrecht has given a better deſcription of them than is to be met with in the common ſyſtems. Vide Med. Eſſ. Edinb. Phil. Tranſ. N° 280. p. 1211.

The diſeaſes to which the *bladder* is ſubject are ulcers, wounds, deſcents, or ruptures, preternatural contents, particularly ſtones and gravel, *ſuppreſſion*, palſies, inflammations of its neck, &c. To theſe diſeaſes may be added incontinence of urine.

The internal membrane of the *bladder* has been known to come away with the urine, without any great danger. Mr. Rohault gives an account, in the Memoirs of the Academy of ſciences, of a patient he had, who, after a very violent ſtoppage of urine, voided with ſome pain a piece of a membrane of an inch ſquare. Three or four days afterwards, the patient felt ſomething again obſtruct the paſſage: and as it came nearer the end of the *urethra*, he at length took hold of it, and drew out a larger piece of the ſame ſort of membrane. Some time after this, in ſtraining violently in diſcharging his urine, he voided three other ſuch pieces, which together, according to Mr. Rohault's judgment, could not make leſs than two thirds of the internal membrane of the whole *bladder*; and in effect it was plain, that, in the courſe of the diſeaſe, the whole internal membrane had gradually detached itſelf from the external one, and made its way out by the *urethra*. After the whole was thus diſcharged, the urine found no ſtoppage; and it is evident, that what had before ſtopped its paſſage, was no other than the pieces of this membrane falling before, or blocking up the *urethra*. The pieces of the membrane, when examined, appeared to have all their blood-veſſels in their natural ſize; and the urine, in the whole courſe of the diſeaſe, having never been tinged with blood, is a proof that the membrane detached itſelf naturally, not by violence. The patient, after this, was wholly quit of his complaint; but had a ſmall incontinence of urine attending him, which was plainly owing to the ſphincter's having been weakened, by being, as well as the *bladder*, diveſted of its membranes. Mem. Acad. Scienc. 1714.

The operations performed on the *bladder* are chiefly ſection, and extraction of the ſtone; to which may be added injection, dilatation, the application of lithontriptics, diuretics, &c. Phil. Tranſ. N° 236. p. 15, ſeq. where Hippocrates's aphoriſm, that the ſections of the *bladder* are always mortal, is decended; and the beſt method of extracting the STONE out of the *bladder*, eſpecially in women, is ſhewn to be by a gradual dilatation of the *urethra*. See alſo Hiſt. Acad. Scienc. ann. 1720. p. 33. where the great impediments to the diſſolution of the STONE in the *bladder* by lithontriptics, are repreſented to be the medicine's not continuing long enough in the *bladder*, and its being altered by the urine.

The urinary *bladders* of brutes are differently contrived from the human *bladder*, and from each other, according to the ſtructure, economy, and manners of living of each creature.

Birds are uſually ſaid to be without *bladders*, as being without urine; yet does not this hold univerſally; ſince, in an oſtrich diſſected by the French Academy, a *bladder* was found ſituate at the extremity of the *rectum*, big enough to hold both fiſts, and in it eight ounces of urine.

Many have alſo denied a *bladder* of urine to fiſhes; but the more exact obſervers find this part in all, at leaſt the greater part of the fiſhy kind. Phil. Tranſ. N° 178. Tortoiſes, Ariſtotle obſerves, have large *bladders*, and they need ſuch; ſince being covered with a thick ſhell, and having no pores or perſpirative veſſels whereby to carry off their moiſture, it is retained within them, and accumulated in the *bladder* of urine.

In the lion the *bladder* is ſmall, as is the kidney; for that creature rarely drinks; inſomuch that Albertus affirms the female does not ſuckle her young, as having no milk.

Bladders, when below a certain magnitude, are more uſually denominated by the diminutive, veſicles, *veſiculæ*. Of theſe we meet with many ſorts both in the animal and vegetable world; ſome natural, as in the lungs, eſpecially of frogs, and as ſome alſo imagine, in the muſcles; others morbid or preternatural, as the *hydatides*, and thoſe obſervable in the itch. Naturaliſts have alſo diſcovered *bladders* in the *thorax* and *abdomen* of birds, as well as others in the belly of fiſhes, called *air-bladders* and *ſwims*.

Vegetable *bladders* are found every-where, in the ſtructure of the bark, the fruit, pith, and *parenchyma*, or pulp; beſides thoſe morbid ones raiſed on the ſurface of leaves by the puncture of inſects.

BLADDER, *ſwimming*; *ſee* AIR-*bladder*.

BLADDERS, *oil*, in the anatomy of plants; *ſee* OIL-*bladders*.

BLADDER-*ſperma*; *ſee* PUCERON.

BLADDER-*nut*, *ſtaphylea*, in *botany*, a genus of the *pentandria trigynia* claſs. Its characters are theſe: the empalement is concave, colonated, and ſo large as to incloſe the flower, which has five oblong erect petals, and a pitcher-ſhaped concave *nectarium*, at the bottom of the flower, with five oblong erect ſtyles terminated by ſingle ſummits, and a thick *germen* divided in three parts ſupporting three ſtyles to which there are obtuſe ſtigmas contiguous. The *germen* afterward becomes two hard almoſt globular ſeeds, included in three bladders, joined by a longitudinal ſeam, with an acute point, opening within. There are two ſpecies; the *bladder-nut* with winged leaves; and the *bladder-nut* with trifoliate leaves, or three-leaved Virginian *bladder-nut*.

The firſt makes a pretty variety, when intermixed with others; though the flowers are not very beautiful. The nuts of this tree, being hard and ſmooth, are ſtrung for beads by the Roman catholics in ſome countries; and the children of the poor inhabitants eat the nuts, though they have a diſagreeable taſte.

It is ſaid that from the ſeeds is expreſſed an oil having a reſolvent virtue.

BLADDER-*nut*, *African*; *ſee* ROVENA.

BLADDER-*nut*, *laurel-leaved*; *ſee* HOLLY.

BLADDER-*ſena*; *ſee* SENA.

BLADE, in *Botany*, that part of the flower, or floral attire of a plant, which ariſes out of the concave of the ſheath, and, at the top, uſually divides into two parts, which are covered with globules of the ſame nature as thoſe of the *apices*, but not ſo copious.

The *blade* runs through the hollow of the ſheath and baſe, and is faſtened to the convex of the ſeed-caſe, having its head and ſides beſet with globules, which, through a glaſs, appear like turnip-ſeeds, and which, in ſome plants, grow cloſe to the *blade*, and in others adhere to it by little pedicles, or foot-ſtalks. Theſe globules, as the *blade* ſprings up from within the ſheath, are ſtill rubbed off, and ſo ſtand like a powder on both. In ſome plants, as knap-weed, they ſeem alſo to grow on the inſide of the ſheath, as appears on ſplitting it with a pin.

The head of a *blade* is divided uſually into two; but ſometimes, as in the cichory, into three parts, which, by degrees, curl outward, like ſcorpion-graſs. Grew's Anat. of Plants, lib. 1. c. 5. § 20. lib. 2. c. 4. § 5.

BLADE, in *Anatomy*; *ſee* SHOULDER-*blade*.

BLADE, in *Commerce*, a thin, broad piece of metal, either forged by the hammer, or run and caſt in moulds, to be afterwards ſharpened to a point, edge, or the like.

Sword-*blades*, are made by the armourers, knife-*blades* by the cutlers, &c.

The Engliſh and Damaſcus *blades* are moſt eſteemed. Among the French, thoſe of Vienne in Dauphiny have the preference.

The conditions of a good *blade* of a ſmall ſword are, that it be light and tough, apter to bend than break. When it will ſtand in the bend, it is called a *poor man's blade*.

BLADE *of a viſcid*, is the iron or ſteel part, as diſtinguiſhed from the wooden handle.

BLADE *of mace*, or cinnamon, among apothecaries, are little ſlips or ſhces of thoſe barks.

BLADE *of an oar*, is the flat part which is plunged into the water in rowing. On the length of this does the force and effect of the oar, in a great meaſure, depend.

BLADE *of a saw*, the thin part wherein the teeth are cut, which, to be good, must be stiff, yet bend equally into a regular bow all the way, without yielding more in one place than another.

BLADE-*mill*, is that contrived for grinding iron tools, as scythes, reaping-hooks, axes, chissels, and the like, to a bright edge.

BLADUM, in *Middle Age Writers*, is taken for all sort of standing corn in the blade and ear. The word is also written *bladum*, *bava*, and *blavum*.

In our old charters, the word *bladum* included the whole product of the ground, fruit, corn, flax, grass, &c. and whatever was opposed to living creatures.

The word *bladum* was sometimes also applied to all sorts of grain or corn threshed on the floor: *tria quarteria Frumenti, tria quarteria avenarum, & unum quarterium fabarum, omni quarto in feodirmo præditi* bladi *in perpetuum*.

But the word was more peculiarly appropriated to breadcorn, or wheat, called in French *bled*.

Thus the Knights Templars are said to have granted to Sir Wido de Mer-ton's wife *duos summas bl.* Kennet's Paroch. Ant. and Du-Cange.

BLATTARIA, in *Botany*, a genus of the *tetrandria monogynia* class of plants. Its characters are: that the calyx is quadripartite, the corolla quadrifid, the filaments inserted in the receptacle, and the fruit a capsule, of four cells, containing many seeds. There are two species.

BLÆSUS, among *Medicinal Writers*, the same with *balbus*. Dr. Holder calls the letters F and TH &c. on account of the difficulty multitudes find of pronouncing them. Elem. Speech, p. 52.

The word is also used to denote an irregularity in the figure of the limbs, especially the legs, when bent outwards.

BLAIN, a distemper incident to beasts, consisting in a bladder growing on the root of the tongue against the wind-pipe, which at length swelling does the beast in.

It comes by great heating, and heating of the stomach, whereby, as some judge, it full grows, and increases by more heat.

It is perceived, by the beast's gaping, holding out his tongue, and foaming at the mouth: to cure it, cut the beast, take forth his tongue, and then slitting the bladder, wash it gently with vinegar and a little salt.

BLAISE, a military order instituted by the kings of Armenia, in honour of St. Blaise, ancient bishop of Sebasta in that country, the patron saint of that nation.

Justinian calls them *Knights of St. Blaise* and *St. Mary*, and places them not only in Armenia, but in Palestine.

They made a particular vow to defend the religion of the church of Rome, and followed the rule of St. Basil.

The precise year of the institution of the *Knights of St. Blaise* is not known; but they appear to have commenced about the same time with the Knights Templars, and Hospitalers; to the former of which they bore a near affinity, the regulars being the same in both.

BLAKEA, in *Botany*, a genus of the class of *decandria monogynia*: with a calyx compsted of six leaves below, and entire above; six petals, and a six-celled polyspermous capsule. There is only one species.

BLANC, see BLANK.

BLANC-*manger*, Fr. q. d. *white food*, is a preparation of dissolved isinglass, milk, sugar, cinnamon, &c. boiled into a thick consistence, and garnished for the table with blanched almonds. It is cooling and strengthening.

BLANCS *mantteaux*, a name originally given to the *Servites*, or servants of the Blessed Virgin, on account of their white cloaks; but since applied to divers sorts of religious, who have successively inhabited the house of the *Servites*, and now to the BENEDICTINES at Paris, though habited in black.

BLANCH, in *Medicine*, denotes a lenitive composition, formerly much in use, so called either from its white colour, or because of its purging white, i. e. phlegmatic humours. There were three sorts, a great, middle, and small *blanch*.

BLANCA *mulierum*, among the *Chymists*, signifies CERUSS.

BLANCARD, a name given to certain linen cloth, thus called, because the cloth used to weave them, has been half bleached or bleached before it was used. They are manufactured in Normandy, particularly in the places which are in the district, or under the jurisdiction of Pont-Audemer, Bernay, and Lisieux.

BLANCH *ferme*, or BLANK *farm*, a *white farm*, that is, where the rent was to be paid in silver, not in cattle.

In ancient times, the crown rents were many times reserved to be paid in *alba alba*, called *blanche firmes*; for which cause the buyer was holden *duabarra firmam*, viz. his base money or coin, worse than standard, was melted down in the exchequer, and reduced to the fineness of standard silver; or instead thereof he paid to the king 12*d.* in the pound, by way of addition.

BLANCHE *carte*, see CARTE.

BLANCHERS, a name given to mechanics employed in BLANCHING, i. e. the art or manner of BLEACHING or WHITENING.

BLANCHING, in *Gardening*, is an operation performed on certain sallads, roots, &c. as of celery, and endives, to render them fairer and fitter for the table. See APIUM and ENDIVE.

BLANCHING also denotes the operation of covering iron plates with a thin coat or cruft of tin. See LATTEN.

BLANCHING *of copper* for sale, in imitation of silver; or mixing blanched copper with silver; or exposing the same to sale; or any malleable composition or mixture of metals or minerals heavier than silver, and which looks, and touches, and wears like gold, but is manifestly worse than standard, is made felony, 8 and 9 W. III. &c. 26.

BLANCHING *of wax*, see WAX.

BLANCHING, in *Coinage*, the operation of preparing the pieces before striking, to give them the requisite lustre and brightness.

The *blanching*, as now practised, is performed by heating or heating the pieces in a kind of pan or shovel, with a wood-fire, in manner of a reverberatory furnace; so that the flame passes over the shovel. The pieces being sufficiently heated, and cooled again, are put successively to boil in two copper pans, wherein are *aqua fortis*, common salt, and tartar of Montpelier; when they have been well drained of this first water in a copper sieve, they throw sand and fresh water over them; and when they are well rubbed.

The ancient method of *blanching* was, by putting the pieces, after heating, in a large vessel of common water, and some ounces of *aqua fortis*; but in diligent people's hands for gold and silver.—The method is now altered, partly by reason of its expensiveness, and partly because it diminishes the weight of the metal.

BLANK, or BLANC, in a general sense, signifies WHITE; and BLANCUS, or BLANCA, is more particularly used for a kind of white, or silver money, of base alloy, coined by Henry V. in those parts of France then subject to England, valued at 8*d.* sterling. They were forbidden by his successor to be current in this realm. In some ancient charters they are called *fellis blanci*, *white shillings*.

BLANK also denotes a small copper coin, formerly current in France, at the rate of five deniers Tournois.

They had also great *blanks*, or pieces of three *blanks*, and others of 6*s.* in respect whereof the single sort were called little *blanks*: but of late they are all became only monies of account.

BLANK, or BLANK-*ticket*, in LOTTERIES, that to which no prize is allotted.

The French have a game, under the denomination *blanque*, answering much LOTTERY.

BLANK, in *Coinage*, a plate, or piece of gold, or silver, cut and shaped for a coin, but not yet stamped. See COINING.

BLANK, in *Ichthyology*, a name given by authors to a species of the cod-fish, called *gade*, *kabeliau*, and *milles fourgeons*.

BLANK-*bar*, in *Law*, is used for the same with what we call a *common bar*, and is the name of a *plea in bar*, which in an action of trespass is put in to oblige the plaintiff to assign the certain place, where the trespass was committed.

BLANK, in judicial proceedings, certain void spaces sometimes left by mistake. A BLANK (of something material to be omitted) in a declaration, abates the same: and such a *blank* is a good cause of demurrer.

BLANK-*verse*, see VERSE and RHYME.

BLANK-*wind*, see POINT *blank*.

BLANKET, in *Commerce*, a warm woolly sort of fluff, light and loose weaven; chiefly used in bedding.

The manufacturing of *blankets* is chiefly confined to Witney in Oxfordshire, where it is advanced to that height, that no other place comes near it. Some attribute a great part of the excellency of the Witney *blankets* to the abstersive nitrous water of the river Windrush, wherewith they are scoured; others think they rather owe it to a peculiar way of loose spinning, which the people have thereabouts. Be this as it will, the place has ingrossed almost the whole trade of the nation for this commodity; insomuch, that the wool fit for it centres here, from the southern-wool parts of the kingdom. Plott, Hist. Oxf. chap. 9. § 103.

Blankets are made of felt wool, i. e. wool from off sheep-skins, which they divide into several sorts.

Of the best wool, and best wool, they make *blankets* of twelve, eleven, and ten quarters broad; of the ordinary and middle sort, *blankets* of eight and seven quarters broad; of the best tail wool, *blankets* of 5*x* quarters broad, commonly called *cots*, serving for seamen's hammocks. See HYKES.

BLANKET, *tossing in a*, a ludicrous kind of punishment, of which we find mention in the ancients, under the denomination *jactatio*. Martial describes it graphically enough. *Ibis ab excusso, missus ad astra, sago.*

A late writer represents it as one of Otho's imperial delights. But this is turning the tables; that emperor's diversion, as related by Suetonius, was not to be the subject, but the agent in the affair; it being his practice to stroll out in dark nights, and where he met with a helpless, or drunken man, to give him the discipline of the *blanket*.

BLANQUILLE, a small silver coin, equivalent to about 1½*d.* sterling, current in Morocco, and on the coasts of Barbary.

BLASIGONIA, a kind of *disease*, or defect in bees, when they neglect, or fail to produce young, being wholly employed in making honey.

The word is Greek, compounded of Βλαστη, *Ibori*, and γονη, *breed* or *issue*.

BLARE, a small copper coin, containing a little mixture of silver, struck at Bern, and valued at much the same with the BATZE in other places.

BLAS, a novel term, in the Helmontian philosophy, denoting the local, and alterative motion of the stars; from whose influence proceed changes of weather, seasons, storms, and the like.

In imitation of this *blas stellarum*, the same author framed another in animals, either natural, whereby each *viscus* is framed according to the model of its particular; or voluntary, which is directed to motion by the will.

BLASIA, in *Botany*, the name of a genus of plants belonging to the class of *cryptogamia zigiarum*, approaching to the nature of the *Bubons*: the characters of which are these: the male flower has a cup composed of one leaf, which is oval at the base, somewhat cylindric in the middle, and expanded and truncated at the top; in this are contained a number of loose granules, which seem to perform the office of *apices*, and contain the *farina fecundans*. The female flower has scarce any cup, but produces a single roundish fruit, usually immersed in the leaves; in this are contained certain round bodies, which appear to be seeds. Linnæus is much in doubt, whether these flowers are not to be understood a contrary way, and seems to suspect, that what are called female flowers are really male ones; and what are called male, female.

BLASPHEMY, *blasphemia*, or *blasphemium*, in *Middle Age Writers*, denotes simply the blaming, or condemning of a person, or thing.

The word is Greek, Βλασφημια, from Βλαπτω, *Ledo*.

Among the Greeks, *to blaspheme*, was to use words of evil omen; or that portended something ill, which the ancients were careful to avoid, substituting in lieu of them other words of softer and gentler import, sometimes the very reverse of the proper ones.

BLASPHEMY is more peculiarly restrained to evil or reproachful words spoken of the Deity. Augustin says, *Jam vulgo blasphemia non accipitur nisi mala verba de Deo dicere.*

According to Lindwood, *blasphemy* is an injury offered to God, by denying that which is due and belonging to him, or attributing to him what is not agreeable to his nature.

By the Mosaic law, *blasphemy* was punished with death. Levit. chap. xxiv. ver 13—16. As also by the civil law. Novel. 77. In Spain, Naples, France, and Italy, the pains of death are not now inflicted. In the empire, either amputation, or death, is made the punishment of this crime.

By the canon law, *blasphemy* was punished only by a solemn penance; and by custom, either by a pecuniary or corporal punishment. By the English law, *blasphemies of God*, as denying his being, or providence, and all contumelious reproaches of Jesus Christ, &c. are inflicted by the common law, and punishable by fine, imprisonment, and pillory. And, by the statute law, he that denies one of the persons in the Trinity, or affirms there are more than one, or denies Christianity to be true, for the first offence, is rendered incapable of any office; for the second, adjudged incapable of suing, being executor or guardian, receiving any gift or legacy, and to be imprisoned for three years. 9 and 10 W. III. c. 32.

According to the law of Scotland, the punishment of *blasphemy* is death. The first species thereof consists in railing at, or cursing God, and here the single act constitutes the crime. The second consists in denying the existence of the Supreme Being, or any of the persons of the Trinity; and therein obstinately persevering to the last. For reiterated denial does not fully constitute the crime, because the stat. of Charles II. 1661, admits of repentance before conviction, as a complete expiation.

This statute of 1661, is ratified by a statute of king William, whereby the calling in question the existence of God, or of any of the persons of the Trinity, or the authority of Scripture, or the Divine Providence, is made penal. For the first offence, imprisonment, till satisfaction given by public repentance in sack-cloth. For the second, a fine of a year's valued rent of the real estate, and twentieth part of the personal estate. And the trial in both these cases is competent to inferior judges. The trial of the third offence is death, to be tried only by the justices.

BLASPHEMY *against the Holy Ghost*. Divines are not agreed with respect to the nature of the crime thus denominated, Matthew, chap. xii. ver. 31. and the grounds of the extreme guilt ascribed to it. Dr. Tillotson maintains, that it consisted in maliciously attributing the miraculous operations which Christ performed by the power of the Holy Ghost to the devil. Vol. ii. serm. xxii. But Dr. Whitby, with greater probability, refers it to the dispensation of the Holy Ghost, which commenced after our Lord's resurrection and ascension; and those were guilty of the crime, who persisted in their unbelief and blasphemed the Holy Ghost, representing him as an evil spirit. The crime was unpardonable, because it implied a wilful opposition to the last and most powerful evidence which God would vouchsafe to mankind, and precluded the possibility of a recovery to faith and repentance. Whitby's Fourth Appendix to the Gospel of St. Matthew, in his Paraphrase. vol. i. p. 168.

BLAST, *flatus*, in the *Mystery Art*, a sudden compression of the air, caused by the discharge of the bullet out of a great gun.

The *blast* sometimes throws down part of the embrasures of the wall.

BLAST is also applied, in a more general sense, to any forcible stream of wind, or air; excited by the mouth, bellows, or the like.

BLAST is also used in *Agriculture* and *Gardening*, for what is otherwise called a BLIGHT.

Blasts differ from MILDEWS, *vide* MILDEW.

The SMUT of corn is a species of *blast*.

Blasts, or *blastings*, are by some supposed owing to cold; by others, to the want of due supply of sap; by others, to ascending fumes of the earth; by others, to sharp winds and frosts, immediately succeeding rains. Phil. Trans. N° 44.

That species, called *wedding*, or *fire blasts*, is supposed by Dr. Hales owing to the solar rays reflected from, or condensed in the clouds, or even collected by the dense steams in hop-gardens, and other places. Ibid. N° 309.

The effect of them is to wither, shrivel, scorch, turn black, and, as it were, burn up the leaves, blossoms, and fruits of trees, shrubs, herbs, grass, corn, even for whole tracts of grounds.

Physicians also speak of a kind of *blasts* affecting human bodies, and exciting ERYSIPELAS, PALSIES, &c.

BLASTS, among *Miners*, see DAMPS.

BLASTED, something struck with a BLAST.

Among the Romans, places *blasted* with lightning were to be consecrated to Jupiter, under the name of FIDENTALIA, and PUTRALIA.

It was also a ceremonial of religion to burn *blasted* bodies in the fire.

BLASTING, among *Miners*, a term for the tearing up of rocks, which they find in their way, by gun-powder. The method of doing which is this; they make a long hole, like the hollow of a large gun barrel, in the rock they would split; this they fill with gun-powder, then they firmly stop up the mouth of the whole with clay, except a touch-hole, at which they leave a match to fire it.

A small quantity of powder does great things this way.

BLASTOLOGY, from Βλαστος, *bud*, and λογος, *I gather*; the regular and natural method of pruning trees.

BLASTUM *myrinum*, in the *Materia Medica*, a term used by some writers to express the *tegula myrina*, or callis bark, when not peeled off from the branches, but kept with the wood within it; this was a common way of collecting and preserving, not only this bark, but the cinnamon, and many others.

BLATTA, in *Natural History*, a genus of insects of the order of *hemiptera* in the Linnæan system, the characters of which are, that the head is inclined, the *cornua* are setaceous, the wings are membranaceous, the *thorax* is flat, orbiculated, and marginated, the feet are formed for running, and there are two small horns above the tail. There are several species.

It is likewise the name of a species of beetle, called by Columna ICARAMUS *scabimanus*.

BLATTA, in *Middle Age Writers*, denotes a purple in the wool or silk, dyed with the liquor of the fish of the BLATTA.

This was otherwise denominated *blatta fartica*, or *blatta fartorum*; whence alſo *blattiarius*, uſed in ancient writers for a dyer in purple.

BLATTA, according to ſome writers, was alſo uſed for the CERABUS inſect; and, according to others, for the purple worm. But both of theſe acceptations are ſuſpicious.

We know that it was anciently uſed for a kind of moth, or fly, whoſe fat was reputed excellent for the ears. See BOOK-*worm*.

BLATTA, *byzantina*, in *Phyſicians* and *Pharmacy*, a teſtaceous body, being the *operculum*, or lid of a turbinated ſhell, whoſe fiſh yields a purple dye.

The *blatta* differs from the lid of the *buccinum*, or *purpura*, in figure, the firſt being oblong, the latter round: but in the ſhops they are ordinarily confounded, and ſold for each other. The *blatta byzantina* is alſo confounded by apothecaries with the UNGUIS ODORATUS, from which it ought to be diſtinguiſhed, as belonging to another kind of ſhell-fiſh.

Dr. Liſter takes the *blatta byzantina* to have ſucceeded the UNGUIS ODORATUS, and to have been brought into the ſhops in its place. In Dioſcorides's time, the beſt was brought from the Red Sea, viz. the paleſt and faireſt; the blacker and leſs from Babylon, or the Perſian gulf: but it ſeems, latter times took up with thoſe found about Conſtantinople; whence the preſent *byzantina* had its name.

The name *blatta* ſeems to have been given to this *operculum* from the colour; as being of a dark hair-colour, as the common *blatta ſeptentrionis*, or *bubalus foſſilis*, ſo frequent in London, &c.

The *blatta byzantina*, when exhibited internally, renders the body ſoluble, ſoftens the ſpleen, and diſcuſſes peccant humours. When uſed externally, by way of fumigation, it reſtores epileptic parents, and women labouring under a ſtrangulation of the *uterus*. In other diſorders its effects are the ſame with thoſe of moſt other teſtaceous ſubſtances.

BLATTARIA, in *Botany*, ſee MULLEIN.

BLAZE, in the *Manege*, ſee STAR.

BLAZING-*ſtar*, ſee COMET.

BLAZON, or BLAZONRY, in *Heraldry*, the art of deciphering the arms of noble houſes; or of naming all the parts in their proper and particular terms.

Various etymologies are given of the word *blazon*: the moſt probable is that which derives it from the German *blaſen, to blow a horn*; it being the cuſtom of thoſe who preſented themſelves at the liſts in the ancient tournaments to blow a horn, to notify their coming. After this the heralds ſounded their trompets, and then *blazoned* the arms of thoſe who preſented themſelves; deſcribed them aloud, and ſometimes expreſſed on the praiſes, and high exploits of the perſons who bore them.

There is this difference between *arms* and *blazon*; that the firſt are the device or figures borne on the coat, or ſhield; and *blazon* the deſcription thereof in words.

The rules of *blazon* are, 1. To name the metal or colour of the field firſt: as, *ar. argent*, or *gules*, &c. 2. To name the manner of the diviſion of the eſcutcheon by line, whether downright or bendwiſe, and alſo the difference of the line, whether it be indented, ingrailed, &c. in the next place. 3. Then to name the charge that is on the field. 4. Having thus expreſſed the field, the diviſion, and the charge, if there be more parts of the field occupied by the charge than one, you are to name the principal part of the field firſt. 5. If there be more than one kind of charge in the field, that in the chief part is to be named firſt. 6. To uſe no iteration or repetition of words, in *blazoning* a coat, eſpecially of any of theſe four words, *of, a, and, each*. 7. The three forms of *blazon* are by metals and colours, by precious ſtones, and by the celeſtial planets: the firſt for private gentlemens; the ſecond for perſons ennobled with titles, as dukes, earls, &c. and the third for emperors, kings, and princes. Though this variety of form is rejected by the French, from whom we had our heraldry, and by all other nations, who uſe none but metals and colours for all degrees. 8. That metal upon metal, and colour upon colour, in falſe heraldry: which admits of no exception, except in the arms of Jeruſalem, which are, argent, a croſs potent between four croſſets, or.—Add, that when lions ſtand upright in a coat, they are called *ramparit*, when walking forward, *paſſant*; when they look you in the face, *paſſant guardant*; in other poſtures they have other terms, as *ſaliant, regardant*, &c. Wolves and bears are termed after the manner of lions; griffins (inſtead of *rampant* and *ſaliant*) are termed *ſegreant*; lions, griffins, and eagles, are alſo ſaid to be *langued* and *armed*; ſwans, *membered*; hawks, *jeſſed* and *belled*; cocks, *combed, creſted*, and *jewelled*: that is, when the tongues, bills, and claws of ſuch creatures are found of different colours from the body.—When an animal proceeds from the bottom of the ordinary, it is termed *iſſuant*; when over ſome ordinary, *iſſuant*; and if it proceed from the middle of any ordinary, or common charge, *naiſſant*.

BLEA, in vegetables, is that part of a tree, which lies immediately under the bark, and between that and the hard wood, and is the firſt progreſs of the alteration of the bark into wood by the natural growth and ſtrengthening of the fibres.

While the *blea* remains yet ſoft, and retains ſomething of the nature of bark, it may maintain a feeble vegetation; but when it is grown abſolutely hard and woody, it can contribute nothing to the growth of the tree. The vegetation of the young branches of trees is the moſt freely and vigorous, and the only one that goes as far as the flowers and fruit, becauſe theſe branches are little elſe but bark.

BLEACHING, or BLANCHING, the art of whitening linens, ſtuffs, ſilks, and other matters.

BLEACHING *of ſilk*. While it is yet raw, it is put into a thin linen bag, and thrown into a veſſel of boiling river-water, wherein ſoap has been diſſolved, then boiled two or three hours, and the bag being turned ſeveral times, it is taken out beaten and waſhed in cold water, ſlightly wrung out, and thrown into a veſſel of *cold* water, mixed with ſoap and a little indigo: the indigo gives it the bluiſh call always obſerved in white ſilks. After taking it out of the ſecond veſſel, it is wrung out, and all the water and ſoap expreſſed, ſtuck out to dry on pegs, and ſtraining the thread, and hung up in the air, in a kind of cloſet made on purpoſe, wherein is burned ſulphur; the vapour whereof gives the laſt degree of whiteneſs to the ſilk.

BLEACHING *or ſcouring of woollen ſtuff*. There are three ways of whitening woollens; the firſt with water and ſoap; the ſecond with vapour of ſulphur; the third with chalk, indigo, and vapour of ſulphur.

For the firſt, the ſtuffs being taken from the fulling-mill, are put into ſoaped water a little warm, and worked afreſh by force of arms over a bench, which finiſhes the whitening the fulling-mill had begun; and laſtly, waſhed out in clear water and dried; this is called *the natural way of bleaching*.

In the ſecond method, they begin with waſhing the ſtuff in river-water; it is then laid to dry on poles, and, when half dry, ſpread out in a kind of ſtove well cloſed, wherein is burnt ſulphur: the vapour whereof diffuſing itſelf, ſticks by little and little over all the ſtuff, and gives it a fine whitening; this is commonly called *bleaching by the ſtove*.

In the third method, after the ſtuffs have been waſhed, they are thrown into cold water impregnated with chalk and indigo; after they have been well agitated here, they are waſhed afreſh in clear water, half dried on poles, and ſpread in a ſtove to receive the vapour of the ſulphur: which finiſhes the operation. This is not eſteemed the beſt method of *bleaching*, though agreeable enough to the ſight.

It may be here obſerved, that when a ſtuff has once received the ſteam of ſulphur, it will ſcarce receive any beautiful dye but black or blue.

BLEACHING *of Hollands or fine linens*. After taking them from the loom, they are ſteeped a day in fair water, waſhed out and cleared of their filth, and thrown into a bucking-tub filled with a cold *lixivium*, or ley of wood-aſhes and water. When taken out of the ley, they are waſhed in clear water, ſpread in a meadow, and watered, from time to time, with water from little dikes, or canals, along the ground, by means of ſcoops, or hollow peels of wood, called by the Dutch, who pretend to be the inventors of them, *gieters*. After lying a certain time on the ground, they are paſſed through a new ley, poured on hot, and again waſhed in clear water, and laid a ſecond time on the ground, and every thing repeated as before; then paſſed through a ſoft gentle ley, to diſſolve them to reſume the ſcorings which the other harſher leys have taken from them, waſhed in clear water, ſoaped with black ſoap, and that ſoap again waſhed out in clear water: they are then ſteeped in cow's milk, the cream being firſt ſkimmed off, which finiſhes their whitening and ſcouring, gives them a ſoftneſs, and makes them call a little knap: when taken out of the milk, they are waſhed in clear water for the laſt time. After all this proceſs they give the linen its firſt blue, by paſſing it through a water, wherein a little ſtarch, and ſmalt, or Dutch *lapis lazuli*, have been ſteeped. Laſtly, the proper ſtiffneſs and luſtre are given with ſtarch, pale ſmalt, and gums, the quantity and quality whereof may be adjuſted according to occaſion.

In fine weather, the whole proceſs of *bleaching* is completed in a month's time; in bad weather it takes up ſix weeks or more.

In some parts of France, ARGUM, or WAKE-robin, is used in *bleaching*, being supposed by its corrosive quality to dissolve unctuosities, and make the linen white. It was used also for STARCH before the discovery of that from wheat; and was said to cause sorenels of the hands hardly relievable by ointments. Neumann.

BLEACHING *of coarse linens*. They are taken from the loom, and laid in wooden frames, full of cold water; where, by means of wooden hammers, worked by a water-mill, they are beat fo as to wash and purge them of their filth; then spread on the ground, where the dew, which they receive for eight days, takes off more of their impurity; then put into a kind of wooden tube or pans, with a hot ley over them. Thus lixiviated, they are again purged in the mill, laid afresh on the ground, and after eight days more, paffed through a fecond ley, and all things repeated, till fuch time as they have acquired their juft degree of whitenefs.

The procefs of *bleaching* in Scotland differs in fome particulars from that above defcribed, and ufed in France, &c. The following is an abftract. The linens are folded up in diftinct pieces, depofited in a wooden veffel, and covered with warm water, or equal parts of water and ley: a wooden cover is laid over them to preft them down when the fermentation begins, bubbles of air rife to the furface of the liquor and there form a kind of pellicle or fcum; when this begins to fubfide, which generally happens in the fpace of thirty-fix or forty-eight hours, the linen is taken out, well rinfed, waihed in a mill, and fpread on a field to dry. As foon as it is thoroughly dry, it is fit for bucking. For this purpofe a mother ley is prepared of 30lb. of blue, and as much white pearl afhes, 200lb. of Marcoft afhes, or 300lb. of caffhub, and 200lb. of Mufcovy afhes, all well pounded, and boiled for a quarter of an hour in a large copper, containing about 220 Scotch gallons of water. This liquor is left to fettle and is then ufed for preparing the bucking-ley: two gallons of this, with 2lb. of foft foap, are mixed with thirty-eight gallons of water: this ley, made blood-warm, is poured on the linens, previoufly difpofed in a large wooden veffel: after a fhort interval, the liquor is drawn off and heated again to a greater degree, and poured on the linen as before; which procefs is repeated feveral times, till at laft the ley is thrown on boiling hot. When this is done, the linens are fpread on the grafs, and watered feveral times in the courfe of forty-eight hours: this procefs of bucking and watering is repeated from ten to fixteen times or more, and the ley is gradually made ftronger from the firft to the middle bucking, and weakened in the fame manner to the laft. The next operation is that of fouring, which is performed by pouring fuch a quantity of butter milk or four milk, or inftead of this, four liquor made with bran or rye meal and water, as is fufficient to cover and well moiften the linen, which is put in rows into a large veffel, and kept down by a lid full of holes, and prevented from rifing. A fermentation takes place in this part of the procefs, which lafts five or fix days, and when the fcum formed by the afcending air bubbles begins to fubfide, the linens fhould be taken out, rinfed, mill-waihed, and then waihed with foap and water. Thefe feveral operations are repeated in fucceffion, till the linen is fufficiently whitened; after which it is blued, ftarched, and dried. In *bleaching* coarfe cloths, boiling is ufed inftead of bucking; and they are foured with warm water and bran.

Inftead of the acid of milk, Dr. Home recommends for this purpofe water acidulated with fpirit of vitriol, in the proportion of half an ounce, or at moft three quarters of an ounce to a gallon. This procefs is much quicker than the other, requiring only as many hours as the other requires days. Home's Exper. on Bleaching.

The method ufed for *bleaching* coarfe cloths in Scotland, is like that practifed in Ireland for both fine and coarfe. Perfons appointed by the truftees for improving the hempen and flaxen manufactures in Scotland, may enter into any bleach-yard, back-houfe, &c. and fearch all rooms, and the boilers therein, and view the lees, and refufe and dregs thereof, to fee whether there have been any lime, pigeons-dung, or foap-dregs, ufed in the *bleaching* of linen cloth or yarn, contrary to the ftatute. 13 Geo. I. c. 26. § 10.

Lime, or pigeons-dung, are not to be ufed in *bleaching* and whitening of linen, 10 Ann, c. 21.

Lime-water prohibited in *bleaching* is made either of fhell-lime, or of ftone-lime: the former is ftronger than the latter, and more powerful on the human *calculus*; and Dr. Home difcovered by experiment, that it was likewife more efficacious in *bleaching* linen. It whitens more, but weakens more, and extracts more out of the cloth. He concluded from his experiments, that it ought to be conlidered as the moft expeditious, but at the fame time as the moft dangerous material for *bleaching* yet known. In the courfe of his experiments, this remarkable phenomenon occurred, that though LIME and LIME-water preferve many animal fubftances in a found ftate; yet mixed with alkalies, it produces a ley corrofive with refpect to animals: but the effects on linen were juft the reverfe. LIME-water was corrofive, and alkalies in proportion to their quantity weakened its corrofive power: infomuch that he judged that a mixture of one part of lime with four of pure alkali, might be fafely ufed in *bleaching*.

For BLEACHING *of hair*, *fee* HAIR.

For BLEACHING *of wax*, *fee* WAX.

BLEAK, in *Ichthyology*, a name given by us to the fifh called by authors the ALBURNUS and *alburnus*. According to the new fyftem of Artedi, it is a fpecies of the CYPRINUS. The French call it the ABLETTE.

BLEB, a fmall biftor or BUBBLE.

Naturalifts have obferved fmall purple *blebs* on all the parts of the *fepiarium* kind. Phil. Tranf. N° 224.

Thick pieces of glafs, fit for large optic glaffes, are rarely to be had without *blebs*. Ibid. N° 4.

LECTINUM, in *Botany*, a genus of plants of the claft of the *cryptogamia filices*; the fructifications of which are difpofed in parallel lines on the fides of the leaves.

BLEEDING, PHLEBOTOMY, an operation in chirurgery; being the opening of a vein with a lancet, for the evacuation of corrupt, or redundant blood.

Some phyficians extol *bleeding* as the fureft, and moft effectual fpecies of evacuants. Yet it was very rare among the ancients, however frequent among the moderns. Celfus has obferved, that at Rome perfons of quality are not allowed to be let blood, even in the moft dangerous difeafes, without leave from the pope.

The *hippopotamus* is faid to have firft taught men the ufe of *bleeding*: for that animal, being overcharged with blood, rubs itfelf againft a pointed bulrufh, and opens a vein; till finding its plenitude difcharged, it wallers in the mire to ftanch the blood again.

Bleeding is a fpecies of evacuation of the utmoft importance in medicine; an idea of its effects, with the reafon of its ufe, may be conceived from what follows.

It is evident the blood thrown out of the heart, while it ftrikes upon the antecedent blood, and drives it forwards, transfers to it part of its own motion; and it is therefore fo much retarded in its own motion. Hence, if blood be drawn out of the bafilic vein of the right arm; the fucceeding blood, or that carried by the axillary artery, or right fubclavian, will be lefs hindered in its motion than it was before that vein was opened; for part of the blood being taken away by the opening of that vein, there remains behind a leffer quantity in the axillary vein, or lefs is contained between the farther extremity of the axillary artery and the heart, than was before: therefore the blood being let out by the vein, the remainder in the artery will be lefs impeded in its motion than before.

Hence the blood of that artery, which communicates with the vein that is opened, will flow with a greater velocity after the aperture is made than before. Conlequently, while the blood is flowing out of the vein in the arm, that thrown out of the heart into the *aorta*, will find lefs refiftance in the afcending trunk than in the defcending; and will therefore flow falter in the afcending than in the defcending trunks: and thence too it will find lefs refiftance in the right fubclavian artery than in the left.

Laftly, it hence appears, that the blood being let out of a vein in the right arm, the remaining blood in the right axillary artery runs with a greater velocity into the artery of that arm that is contiguous to it, than through the thoracic artery, or the right fcapulary, which is likewife contiguous to it; becaufe, when the blood is not fuppofed to be drawn out from any vein corresponding to the thoracic artery, or into which this diftributary itfelf, there is proportionable a greater impediment to the motion of the blood in the thoracic artery, than is that of the arm. But becaufe the velocity of the blood in the fubclavian artery, or the right axillary, is greater than in the left; the velocity in the right thoracic will alfo be greater than in the left thoracic artery. Hence it is manifeft, that the blood being let out of a vein in the right arm, the greateft velocity of the remaining blood will be in the artery of that arm, becaufe it immediately empties its blood into the vein that is opened; and the next greateft velocity will be in the thoracic artery, or fcapulary of the fame fide, going out from the axillary artery. But the velocity of the blood will be leaft in the brachial, axillary, and thoracic arteries on the left and oppofite fide; and leaft of all in the arteries arifing from the defcending trunk of the *aorta*.

On this view it may eafily be gathered, what is to be done in the leveral circumftances of blood-letting: for inftance, if we would prevent the increafe of any humour

more from the blood stagnating in the left leg, or bring it about, that as little blood as poſſible ſhould flow to that leg in any given ſpace of time; firſt, blood is to be taken from the arm or leg of the right ſide: becauſe this is truly making what is called a *revulſion*.

Again, if blood be drawn away on the ſame ſide, and from ſome vein that receives the blood from a branch of that trunk which tranſmits it to the vitiated part; it will occaſion a great derivation of blood to that limb for a few moments: and this is all that can make any difference between the diſtinct parts from which the blood is drawn.

As to what relates to the whole habit; in all leuture and vicidities, if there be a due ſtrength and chaſtity remaining in the ſolids, PHLEBOTOMY will make the remaining blood circulate the ſafter, and become thinner and warmer, but in a *plethora*, from a debauch, or too large quantities of ſpirituous nouriſhment, or from a diminution of perſpiration, where the blood yet retains its natural fluxility, PHLEBOTOMY will make the remaining maſs circulate ſlower, and become cooler.

In the former caſe, a diminution of the reſiſtance in the blood-veſſels will increaſe the contractile powers of thoſe veſſels, and make them beat ſafter, and circulate their contents with greater velocity; but in the latter caſe a diminution of the quantity of ſpirituous blood will leſſen the quantity of ſpirit ſecreted in the brain, the conſequence of which will be, that the heart and arteries will not contract ſo often and ſo ſtrongly as before, and therefore the blood will move ſlower, and become cooler. And on theſe things depends the whole doctrine of blood-letting.

Bleeding, according to Dr. *Pringle*, is the moſt indiſpenſible of all remedies in inflammatory diſeaſes; to the delaying of which too long, or not repeating it, are chiefly owing the bad conſequences of colds, as dangerous fevers, rheumatiſms, and conſumptions. He obſerves farther, that, in general, young practitioners are apt to be too ſparing in having blood, by which means many lives are loſt: for a ſurgeon may be aſſured a ſoldier will never complain of a cough, or pains with inflammatory ſymptoms, whereby *bleeding* is not neceſſary; and from the frankneſs of the bloody and continuance of the complaints, he is to judge of the neceſſity of repeating it, which, in caſe of a quick or difficult breathing, is never to be delayed. In inflammatory caſes, from twelve to fifteen ounces may be taken for the firſt *bleeding*, and ſomewhat leſs for all the reſt: and when it is neceſſary to exceed this quantity, it may be proper to follow Celſus's rule, in minding the colour of the blood whilſt it flows, and when it is of a blackiſh caſt, which is always the caſe in difficult breathing and great inflammations, to let it run till it becomes more florid. In all caſes, where plentiful *bleeding* is indicated, it is beſt to do it in bed, to prevent fainting; and we may obſerve, that a perſon will bear the loſs of a much greater quantity of blood if the ſtream is ſmall, than by a large orifice, which ſome have thought neceſſary for making a more ſpeedy revulſion.

Bleeding is highly neceſſary in the *phrenitis*, *ophthalmia*, quinſey, rheumatiſm, *cough*, hectic fits, and in general, in all inflammatory caſes. See Pringle's Obſervations on the Diſeaſes of the Army, paſſim.

It is to be obſerved, however, that, in malignant and putrid diſorders, *bleeding* frequently renders them more malignant; it is therefore to be committed, or at leaſt not repeated, unleſs there appear evident marks of inflammation. See MALIGNANT BILIOUS *fever*, DYSENTERY, &c.

As to the method of the operation, the puncture ſhould neither be too ſmall nor too large. Different ſurgeons open the vein in three different manners: ſome make the orifice in a ſtraight line with the courſe of the vein; others tranſverſely; but moſt make it obliquely: and if the patient is to be bled ſtanding in the left arm, the ſurgeon ſhould be able to uſe his left hand, inſtead of his right.

If the blood ſtop after a ſmall time, looſen the BANDAGE a little, to give way to more blood's deſcending by the artery, and it will bleed freſhly again; and if the orifice be obſtructed by too great a tenſion of the ſkin, or an inteuſion of the *membrana adipoſa*, the piece of fat ſhould be removed by preſſing of the finger, or a bit of ſponge, and the ſkin relaxed by bending the arm: and, laſtly, if the orifice be obſtructed by thick grumous blood, that impediment may be removed by wiping with a ſponge, dipped in warm water.

When a ſufficient quantity of blood is diſcharged, the ligature muſt be immediately taken off, and the ſkin about the orifice gently ſtroaked or preſſed together by the two fore-fingers of the left hand; by which means, the lips of the divided vein are cloſed: then the ſmaller of the two compreſſes is to be applied, firſt letting what little blood there may be between the orifice and the vein be diſcharged; the larger compreſs ſhould then be laid on the ſmaller, and preſſed ſlightly down with the thumb; then wiping the blood from the arm, the bandage is to be applied. Some wet the compreſſes in vinegar, water, or ſpirit of wine; but it is not neceſſary, and they ſit cafieſt when applied dry.

In *bleeding* it ſometimes happens that an artery is opened either inſtead of, or together with, the vein: an accident of this kind is attended with the utmoſt danger. An artery is known to be wounded when the blood ſpins out very forcibly from the orifice, and that by ſtarts or leaps, not in an even ſtream, and extends itſelf in a greater arch from the orifice to the baſon. The colour of the blood from an artery is alſo much more florid than from a vein; to which add, that on preſſing the finger on the veſſel below the orifice, the blood ſtarts out more violently than before; and ſtops, or at leaſt abates, on preſſing above the orifice; quite the contrary of what happens on the opening of a vein.

In an accident of this kind, the ſurgeon ſhould have preſence of mind not to betray the caſe, by his fears, to the patient, or attendants: he ſhould obſerve whether the blood flows freely from the orifice, or whether it infiltrates itſelf in any conſiderable quantity between the integuments. If the firſt is the caſe, he muſt take a large quantity of blood away, even till the patient faints, perſuading the attendants that the heat of the blood requires it; and while the patient is in his fainting fit, as the fits then ceaſes, he may commodiouſly dreſs and bind up the wound; and by this precaution hinder a freſh haemorrhage or an aneuriſm. The ſurgeon muſt place ſome firm piece of money between the folds of the firſt compreſs, and on this place two, three, or more compreſſes, each larger than the other: and then, bending the *cubitus*, apply two bandages in this manner, as after bleeding in the vein, only a little tighter; and lay a thick, long, and narrow compreſs over the artery, from the *axilla* to the *cubitus*: and the patient muſt be warned to wear his arm in a ſling, pinned to his cloaths, for a fortnight, and refrain from all uſe of it.

If the blood from the wounded artery is found to infiltrate itſelf between the integuments, the orifice muſt be immediately compreſſed, and tied up as before directed; and the arm often inſpected, to ſee whether a bleeding within the integuments does not yet continue. The patient muſt be frequently bled in the other arm, and, if a large quantity of blood ſhould be lodged from the wounded artery under the integuments, it will be neceſſary to open the integuments to diſcharge it.

It is too common an accident to find a nerve or tendon punctured in *bleeding*; and this is generally known to be the caſe by the patient's making a ſevere outcry at the time; and eſpecially if he complains afterwards of acute pains, and the limb begins to ſwell and be inflamed, convulſed, ſtiff, and extended as in the cramp: which ſymptoms, if not timely relieved, threaten convulſions of the whole body, a gangrene of the part, and even death in a ſhort time.

The beſt method to be taken in theſe accidents is, to firſt bathe the part with a mixture of oil of turpentine and ſpirit of wine, and then inveſt the whole arm with the diachalcitis plaſter, melted down in oil of vinegar and roſes, retaining it on by the expulſive bandage; which, beginning upon the hand, aſcends gradually by ſpiral turns to the top of the ſhoulder; by which means the impulſe of the blood on the part is not only much abated, but alſo the pain and inflammation much diminiſhed: and, laſtly, the following cataplaſm ſhould be applied to the arm, to complete the cure: take of flour of barley and of bitter vetch, of each two ounces; chamomile flowers and melilot flowers, of each two handfuls; freſh butter, an ounce and half: boil theſe into a cataplaſm with ſoap ſuds, and apply them to the arm till the pain and other bad ſymptoms are removed. Heiſter.

BLEEDING *in the hand*.—There are two principal veins in the hand, which are ſometimes opened to bleed the patient: the one is the *baſilica*, which runs on the outſide of the back of the hand towards the little finger. This was called *ſphyrica* by the antients, and they eſteemed the opening of it particularly ſerviceable in melancholy, and diſeaſes of the ſpleen. The other is the *cephalica*, which runs betwixt the thumb and fore-finger, and was ſo denominated from an opinion, that the *bleeding* from it was particularly ſerviceable in diſeaſes of the head; but theſe opinions were all without foundation; and though the patient is bled more difficultly and ſlowly in theſe veins, the effect is the ſame as if bled in the arm. It is ſometimes, however, neceſſary for a ſurgeon to open them, either at the particular deſire of the patient, or when the veins of the arm are very obſcurely ſituated, or lie deep, while theſe lie fair and conſpicuous.

When any one is to be bleeded in the hand, it muſt firſt be held for a conſiderable time in warm water, and well

rubbed there with the other hand, in order to make the small veins become turgid and conspicuous; then a ligature is to be fixed on the wrist, that the veins may continue thus distended, and wiping the hand dry with a napkin, an orifice is to be made in the most convenient part of the vein, as in *bleeding* in the arm. If the blood does not flow freely from the orifice, the hand must be again plunged into warm water, and kept there till the quantity taken away is judged sufficient: then the hand is to be wiped dry, and the orifice covered with a compress, defended by a proper BANDAGE. Heister.

BLEEDING *in the head*.—Many physicians have been of opinion, that bleeding from the veins of the forehead and temples is more expeditious in giving relief in disorders of the head, than the like discharge by veins more remote from the part affected. There seems, however, to be but little foundation for this, and that the *bleeding* by the jugular vein would much more expeditiously answer the end proposed. If the surgeon, however, is called upon to perform this operation, he must first draw a handkerchief or neck-cloth as tight round the neck as can conveniently be borne, that by compressing the jugular vein, those branches of it may become more turgid and conspicuous. The vein being opened, the patient must hold down his head, that the blood may not trickle down into his eyes or mouth, when the stream does not spin out with sufficient force. If the blood does not stop of itself, after a sufficient quantity is discharged, you must compress the orifice with a finger, and, after wiping the forehead and face, apply a compress or two, with the proper bandage.

BLEEDING *in the eyes*.—There are several ways of performing this operation, but the best seems to be this. The patient being seated on a chair, and his head held in a proper posture, a transverse incision is to be made, with a fine lancet, upon the turgid small veins in the corners of the eye, so as to open them or cut them quite asunder. The eye-lids must be held apart with one hand, whilst the veins are opened with the other; and some use a pair of fine scissars for this purpose, instead of a lancet, and others elevate the veins with a crooked needle before they divide them: but in this operation the better way would be to make the needles with edges, that when the veins were thus elevated, they might divide them without the help of any other instrument. When the incision is made, the discharge of blood must be promoted by means of fomentation with a sponge dipped in warm water; and if the discharge is not sufficient, the incision may be repeated two or three times; but few patients can be brought to suffer this, and there is no practising it at all upon infants, because they will not keep the eye steady. Heister.

BLEEDING *in the neck*.—It has been a very ancient practice to bleed in the external jugular veins of the neck for most inflammatory disorders of the adjacent parts. The accumulated blood and humours may certainly be thus discharged from the parts, and the operation is no way difficult or dangerous; since the jugular veins run on each side of the neck, from the head to the clavicles, just under the skin. They are very large, and easily opened; but a stricture is first to be made on the lower part of the neck with a handkerchief or the like ligature. The best method of raising this vein is, however, by a loose ligature thrown over the neck, which the patient, or an assistant, must pull downward over the breast; and by this means the jugular veins will be compressed on each side, and become turgid, without occluding the *trachea*, or obstructing perspiration. When the veins are thus made turgid, whichever of them lies the fairest, may be secured by the finger for incision, if the disorder affects the whole head; but if only one side be affected, it is best to open the jugular on that side.

When the proper quantity of blood is taken, close the orifice, and apply a proper compress and bandage. The common fear of this vein's bleeding afterwards is ill-grounded, and there seldom is any difficulty of stopping the blood. The patient commonly faints away in *bleeding*; but this occasions no harm. Heister.

BLEEDING *in the ranula*.—It is often found of service in quinsies and other inflammatory disorders of the neck, to bleed in two small veins, which run under the tip or end of the tongue, especially if a larger vein has been before opened in the neck or arm. To bleed in these veins, a stricture must be made upon the neck; the *apex* of the tongue must be then elevated with the left hand, while with the other the veins are both opened, first one, and then the other, by the lancet. When they have bled sufficiently, remove the stricture from the neck, on which the *bleeding* usually stops of itself; but, if it does not, let the patient take a little vinegar, or red wine, in his mouth, or else apply a bit of vitriol, or alum, or a compress dipped in some styptic liquor, till the hæmorrhage ceases. But there is no need of being too busy with these topics; for the blood never flows violently or long, without them; and if there be not a good quantity of blood discharged by these veins on the occasions for which they are usually opened, the operation is of no use. Heister.

The Bramins never bleed, but, in lieu thereof, fast.

BLEEDING *at an artery* is called ARTERIOTOMY.

BLEEDING *by measure*, is where account is taken of the quantity as it flows from the vein, in order to put a stop to the flux when the requisite portion is had.

BLEEDING *at large*, where the flux is continued without regard to the quantity, till such time as some expected effect is perceived. This method is sometimes used in cases of apoplexies, comata, &c.

BLEEDING *of a corpse, cruentatio cadaveris*, is a phenomenon said to have frequently happened in the bodies of persons murdered, which, on the touch, or even approach of the murderer, began to bleed at the nose, ears, and other parts; so as formerly to be admitted in England, and still allowed in some other parts, as a sort of detection of the criminal, and proof of the fact. Phil. Trans. N° 77. p. 3012. But this kind of evidence derives its weight merely from superstition and credulity.

Numerous instances of these posthumous hæmorrhages are given by Wechter, Lemnius, Libavius, and especially Horstius, who has a discourse express on the point, under this title, De Cruentatione Cadaverum.

BLEEDING is also applied, in a less proper sense, to a flux of sap out of the wounded vessels of plants, either spontaneously at certain seasons, or by art, and the help of incision.

BLEMISH, a term in *Hunting*, used when the hounds, or beagles, finding where the chace has been, make a proffer to enter, but return.

BLEMMYES, or BLEMYES, among the *Ancient Geographers*, a fabulous sort of people, supposed without heads; having eyes and mouths on their breasts, &c.; said to have inhabited part of Æthiopia.

Bochart derives the word *Blemmyes* from בלם, which implies a *negation*, and מים, *aqua*; in which sense the *Blemmyes* should have been people without brains.

BLENCH, a sort of tenure of land; as to hold land in *blench* is by payment of a sugar-loaf, a couple of capons, a beaver-hat, &c. if the same be demanded in the name of *blench* i. e. *nomine albæ firmæ*.

BLEND, BLENDE, or BLACK-*Jack*, is a mineral called also *false galena*. See BLIND and ZINC.

BLEND-*metal iron*, a coarse sort of iron from the Staffordshire mines, used for making nails and heavy ware; in some places also for horse-shoes.

BLEND-*water*, a distemper incident to black cattle, which comes several ways, 1. From blood. 2. From the yellows, which is a ringleader of all diseases. And 3. From the change of ground: for being hard, it is apt to breed this evil, which if not remedied in six days, will be past help.

BLENNA, BLENNA, βλεννα, μυξα, πτυελα, in Hippocrates, is a thick phlegm and mucus flowing from the brain through the nostrils, and the like spittle of a beginning concoction; as Galen explains him in several parts of his works.

BLENNIUS, in *Ichthyology*, the name of a genus of fish of the general order of the ACANTHOPTERYGII, according to the distribution of Artedi, and of the *jugulares* in the Linnæan system. The name is derived from the word βλεννα, which signifies a tough and mucous matter, such as that which the body of this fish is covered with. The characters of this genus are, that the membrane of the gills has six bones; the fore-part of the head is very flanting; the body is prickly; and the belly-fins have two bones. Of this genus there are several species, as the crested *blennius*, or *galerita*, with a triangular lobe red at the edges, and situated between the eyes, and a cuticular creft running transversely over the head; the *gattorugine*, or *blennius* with two little fins at the eyes, and twenty-three bones in the *pinna ani*; the *gunnellus Cornubiensium*, *lipatis*, or *butter-fish*, with about ten black spots, and a white border on each side of the back-fin; the *phicis*, or smooth-headed *blennius*, called in Cornwall *mulgrume*, and *bulcard*; the viviparous *blennius*, &c. But the name *blennius*, and *blenna*, is usually appropriated to that with a furrow between the eyes, and a large beautiful spot, black in the middle, and edged with white, in the back-fin; and on this account called in English the *butter-fish*. It is common in the Mediterranean, and is sold to Venice and elsewhere for the FABER. The flesh is very *soft*. See *Tab. of Fish*, N° 16. Willoughby, p. 131.

Blennus is also a name given by some authors, particularly Schonfelt, to the SYNGNATHUS *corpore hexagono, cauda hexagona*; the ACUS of Aristotle; and *cum secunda* of other writers; called also by Gesner and Bellonius,

TYPHLE *morina*. It is a name uſed alſo by ſome for the tobacco-pipe fiſh.

BLESENSIS *bolus*, *bole of Blois*, in the *Materia Medica*, a very valuable medicinal earth dug about Saumur, Blois, and Burgoyne in France, and ſeeming to poſſeſs all the virtues of the Armenian bole of Galen, which it alſo much reſembles in external appearance.

It is a very valuable medicine in fluxes and many other caſes, and might be had in any quantities, at a ſmall price; but the common red French bole, or a counterfeit of it, or the ſubſtance called BOLE *Armoniac*, is generally ſold for it.

BLESTRISMUS, from βλαισσω, *I ſtiſle*, derived from βλαω, in the *Ancient Phyſic*, a continual toſſing and inquietude of the body, occaſioned by a tumultuary effervescence of the blood, eſpecially in acute fevers.

BLETA *alba*, an epithet given by ſome to the milky urine voided in ſome diſorders of the kidneys, ranked by Paracelſus among the cauſes of the *phthiſis*.

BLETUS, βλητος from βλαω, *I ſtrike*, in the *Ancient Phyſic*, a perſon whoſe ſide, by reaſon of ſome internal inflammation, as a pleuriſy or peripneumony, turns black or livid-ſpotted, chiefly preſently after death.

BLEW-CAP, or *Blue-cap*, an Engliſh name for a peculiar ſpecies of fiſh of the ſalmon kind, diſtinguiſhed by a broad blue ſpot on the head, from whence they have their name. Theſe ſeem not to breed with us; but appear in our rivers only at certain ſeaſons, when there have been very violent north winds. This fiſh is ſeldom found ſingle; ſo that the fiſhermen rejoice at the taking one of them, expecting a large ſhoal of them near.

BLEYME, in *Farriery*, an inflammation in a horſe's hoof, occaſioned by blood putrefied in the inner part of the coffin towards the heel, between the ſole and the coffin-bone.

Some write the word corruptly *bleine*. It is originally French, *bleyme*, which ſignifies the ſame.

There are three ſorts of *bleymes*, the firſt, bred in ſpoiled wrinkled feet with narrow heels, are uſually ſeated in the inward or weaker quarter: the ſecond, beſides the uſual ſymptoms of the firſt, infects the griſtle, and muſt be extirpated, as in the cure of a quitter-bone: the third is occaſioned by ſmall ſtones and gravel between the ſhoe and the ſole.—For a cure, they pare the foot, let out the matter, if any, and dreſs the ſore, like the prick of a nail.

BLICEA, in *Ichthyology*, the name of a ſmall fiſh of the harengiform kind, caught in the German and other ſeas, and ſuppoſed by many to be the ſame with what in England we call the ſprat, which to ſome ſeems to be no other than a young herring.

It is likewiſe the name of a freſh-water fiſh of the *malacoſtomous*, or as we call it in Engliſh, the leather-mouthed kind, ſeeming to be the ſame with the more common kind of *cariuſſus*. It is alſo the name of an Eaſt-Indian fiſh, which might be more properly called *harengus minor Indicus*, or the ſmall Indian herring. It is of the ſhape of the herring but ſomewhat broader and thinner, and is of the ſame colour. Its tail alſo is forked; but its head is of an odd figure, its eyes and the end of its ſnout being extremely large. This fiſh ſwims uſually in veſt ſhoals, and is caught principally on the coaſt of Malabar. It is a well taſted fiſh; but has not at all the taſte of a herring. It takes ſalt, which ſcarce any other of the Eaſt-India fiſh will do, and is therefore very much valued, and ſent into all the neighbouring parts of the country in pickle. There is alſo another very conſiderable uſe it is put to by the natives, which is the manuring of the lands whereon they ſow their rice: they uſe this fiſh, which is caught in prodigious plenty, inſtead of dung on this occaſion. Willoughby and Ray.

BLIEGG, in *Ichthyology*, a name given by the Germans to the fiſh we call the BLEAKE, and authors in general the ALBURA and ALBURNA.

BLIGHT, in *Huſbandry*, a diſeaſe incident to plants, and affecting them variouſly; the whole plant ſometimes periſhing by it, and ſometimes only the leaves and bloſſoms, which will be ſcorched and ſhrivelled up, the reſt remaining green and flouriſhing.

This diſorder ſeldom happens but upon the blowing of ſharp eaſterly winds, which are moſt frequent with us about March; whence that month proves, of all others, the moſt fatal to plants.—From this circumſtance, ſome imagine the colds that then reign, being exaſperated by the eaſtern winds, effect *blights*; but Mr. Bradley furniſhes a more plauſible account: for on this principle, it were hard to ſay why one plant, or one part of a plant, ſhould be *blighted* more than another. He obſerves then, that caterpillars and other inſects generally attend thoſe winds; and that they infect ſome one kind of tree more than another, and even ſome particular branch more than others; and thence infers, either that the eggs of thoſe inſects, or the inſects themſelves, are brought to us by the eaſterly winds; or that the temperature of the air, when the eaſtern winds blow, is neceſſary to hatch thoſe creatures, ſuppoſing the eggs to have been already laid on the infected parts. Now each of theſe cauſes ſeems to have its effect: thoſe *blights* attended with large worms, or caterpillars, ſeem hatched by the eaſtern winds; and thoſe others, which only produce the ſmall inſects, that occaſion the curling of the leaves of trees, may proceed from ſwarms of them, either ready hatched, or in the egg, brought with the wind.

The coldneſs of thoſe winds he ſhews to be no objection againſt their being fitted to hatch inſects; different inſects requiring vaſtly different degrees of heat. To this he adds, that every inſect has its proper plant, or tribe of plants, which it naturally requires for its nouriſhment, and will feed on no other; and in which, therefore, it lays its eggs: it is no wonder then, that one kind of tree ſhould be infected, and all the reſt eſcape. That wind, v. gr. which brings or hatches the caterpillars on the apple-tree, will not infect the pear, plum, or cherry; becauſe, were the ſhoals of inſects natural to the apple to light on thoſe other trees mentioned, they would either want their proper matrix to hatch in; or, were they ready hatched, would periſh for want of proper food. So that it is morally impoſſible all kinds of plants ſhould be *blighted* at the ſame time, unleſs the eggs of every kind of inſect natural to each tree could be brought at one time with the wind; or, that an eaſterly wind could contain in it, at once, as many different degrees of cold, or heat, as would be required to hatch and maintain each different claſs of inſects. Nor is it any objection, that in *blights* there are not frequently any animals immediately perceivable. By the microſcope, we diſcover animalcules a million of times leſs than the ſmalleſt which come under ordinary notice; theſe, the genteſt air may be conceived capable of blowing from place to place; ſo that it is no wonder if they be brought to us from the ſeptentrional regions, eſpecially the north-eaſt part of Great Tartary, &c. where the cold is intenſe enough, to give them life; and from whence there is not ſea enough, by the warmth and fulneſs of whoſe vapours they might be ſuffocated. Thoſe brought from the north-eaſt parts of America are probably deſtroyed by paſſing the vaſt Atlantic ocean, which may be the reaſon why the north-weſt wind is not ſo infectious.

But that *blights* are frequently no more than an inward weakneſs or diſtemper in trees, evidently appears, if we conſider how often it happens, that trees againſt the ſame wall, expoſed to the ſame aſpect, and equally enjoying the advantages of ſun and air, with every other circumſtance which might render them equally healthy, are often obſerved to differ greatly in ſtrength and vigour; and as often do we obſerve the weak trees to be conſtantly *blighted*, when the vigorous ones in the ſame ſituation eſcape. Dr. Hales aſcribes *blights* to the obſtruction of perſpiration in bloſſoms and leaves, occaſioned by a continued dry eaſterly wind, without ſhowers or dew; in conſequence of which the perſpirable matter becomes glutinous, and adheres to the ſurfaces of leaves, hereby affording a proper nutriment for inſects, which prey on the leaves and tender branches of fruit-trees, when the *blight* happens, though they are not the firſt cauſe of it.

To prevent *blights*, the more knowing among country-people, while the eaſterly winds blow, are accuſtomed to guard againſt them by burning heaps of weeds, chaff, and other combuſtibles, on the wind-ſide of their orchards, that the ſmoke may either poiſon the inſects or their eggs, as they paſs along. It may be added, that theſe fires are often made with good ſucceſs, to deſtroy the caterpillars, even after they are hatched, and have begun to devour the trees.—Another method of preſerving trees from *blights* is, by ſprinkling tobacco-duſt, or pepper-duſt, or waſhing the leaves with water wherein tobacco-ſtalks have been infuſed; which, it is ſaid, is preſent death to all inſects and animalcules.—Another is by pulling off the leaves when withered, and cutting off the ſmaller branches, when they produce crooked and unnatural ſhoots. Dr. Hales recommends waſhing and ſprinkling the trees occaſionally with fair water: and if their ſhoots ſeem to be much infected, waſhing them with a woollen cloth, ſo that their perſpiration may not be obſtructed.

But there is another ſort of *blight*, againſt which it is more difficult to guard fruit-trees; that is occaſioned by ſharp, pinching, froſty mornings, which often happen at a time when the trees are in flower, or while the fruit is very young, and occaſion the bloſſoms or fruit to drop off; and ſometimes the tender parts of the ſhoots and leaves are greatly injured thereby. The only method yet found out to prevent this miſchief is, by carefully covering the walls, either with mats, canvas, &c. Which being faſtened ſo as not to be diſturbed with the wind, and ſuffered to remain on during the night

night, are to be taken off every day, if the weather permits.

Another sort of *blight*, which sometimes happens in April or May, and which is often very destructive to orchards and open plantations, and against which we know of no remedy, is what is called a *fire-blight*, which in a few hours hath not only destroyed the fruit and leaves, but many times parts of the trees, and sometimes whole ones have been killed by it. This more frequently happens in close plantations, where the stagnating vapours from the earth, and the plentiful perspirations from the trees, are pent in, for want of a free air to dissipate and dispel them; than in those planted at a greater distance, or surrounded with hills or woods. See RUST.

Corn is liable to *blights*, like other sorts of grain.

BLIGHT *of corn* is called SMUT.

BLIKE, in *Ichthyology*, a name given by some to an unadromous fish, somewhat resembling our river chub, and called by Gesner *esox anadromus*; but more generally known by the name of ZERTA, or the ZERTE.

BLIND.—*Pore or Pus*-BLIND, denotes only a great degree of short-sightedness. Phil. Trans. N° 37. p. 731.

BLIND, *Moon*, is used in speaking of horses, which according to the vulgar, but very absurd opinion, lose their sight only under certain states of the moon, and see at every other time. This disease is the forerunner of cataracts, and generally ends in total blindness.

In some cases of this distemper, a thin vitcid corrosive water runs from the diseased eye, more or less in proportion to the degree in which the eye and eye-lids are swelled and inflamed. In other cases, the diseased eye discharges no humour; but looks thick and troubled; and the horse sees little, or very indistinctly. The causes of this distemper are various: it sometimes proceeds from a natural defection of the eyes, and often from some accidental malady. When the humour attaches one eye without changing to the other, there is hope of a cure; at least of preserving one eye. But when the eyes look deperished, and gradually decay, total blindness commonly ensues. If the eyes are full and inflamed, bleeding is proper; but if they appear sunk and perishing, it is often pernicious. In the former case, when the eyes discharge a sharp water, they should be washed twice a day with a strong tincture of roses, made by steeping two drams of rose buds in half a pint of boiling water, and dissolving half a dram of sugar of lead in the quantity of four ounces of it. If the matter digests, two drams of honey should be added to the above quantity. At the same time purges should likewise be administered twice a week. Lenitive electary and cream of tartar, of each four ounces; Glauber's purging salts, three ounces; the solutive syrup of roses, two ounces, mixed with white wine and water, or warm water-gruel, are very proper for this purpose. Cutting out the haw is also an operation which is usually performed on *moon-blind* horses. Gibbon.

BLIND is also used for occult, or imperceptible. Hence *blind* rampart, *caecum vallum*, among the ancients, was that belief with sharp stakes, concealed by grass or leaves growing over them.

BLIND *testimonies*, *caeca testimonia*, those given by absent persons in writing.

BLIND is also used in speaking of bodies without apertures. Hence,

BLIND *wall*, *caecus paries*, that without windows. In a like sense we meet with *blind* chamber, *cubiculum caecum*.

BLIND is also used in speaking of vessels which are not perforated.

In this sense, the chemists say a *blind* alembic. A tube is said to be *blind*, when it is closed at top.

Some anatomists also call the third cavity of the ear CONCHUM, as having no issue; but it is more usually denominated LABYRINTH.

BLIND *grounds*, that which does not light or take fire.

BLIND, in *Ichthyology*, a local name for a fish, called by authors the ASELLUS *fuscus*, and more universally in English the *bib*. It is a fish of the cod kind, but never growing to any great size. The word *blind* is used in Cornwall.

BLIND, or BLINDE, among *Mineralists*, a species of lead-MARCASITE, by our miners called *mock-ore*, *mock-lead*, and *worthless*, &c.

Blinde is a mineral mass, flaky, glossy, and breaking in angles, much like the potters lead-ore, only of a colour more dusky, and approaching to black. In it are veins of a yellow shining MARCASITE, with a little white spar, and on one side a greenish arsenious matter. On a trial by the fire, it yielded very little copper, less lead, and no tin. It is very obstinate, several attempts having been made with the alkaline fluxes to run it, in vain.

The German mineralists call it BLENDE, whence our denomination *blende*. It answers to what in Agricola is called GALENA *ironii*.

It usually lies immediately over the veins of lead-ore in the mines which produce it, for it is not found in all. When the miners see this, they know the vein of ore is very near. See *Ores of* ZINC.

BLIND *faith*, see FAITH.

BLIND *gut*, see COECUM.

BLIND *worm*, see SLOW-*worm*.

BLINDS, or BLINDES, in the *Military Art*, denote every thing serving to cover the besiegers from the enemy, as wool-sacks, earth-baskets, fand-bags, and the like.

Blinds are sometimes only canvas stretched to take away the sight of the enemy; sometimes they are planks set up, properly called mantlets; others are of baskets, others of barrels.

BLINDS more peculiarly denote wooden frames of four pieces, round or flat, two of which are fix feet long, and pointed at the ends, and the others three or four feet, which serve as spars to fasten the two first together. They are fixed upright in the ground, against the sides of the saps to sustain the earth, and to fasten faslines on the upper part, or to cover the saps, and to lay faslines over them, to secure the troops from stones and grenades. They are chiefly used, where the trenches are carried on in the face of the place, in a right line, so as the enemy might scour them with their guns from the walls. See *Tab. of Fortification, fig. 1.*

BLIND is sometimes also used for GRILLON.

BLINDING, a species of corporal punishment anciently inflicted on thieves, adulterers, perjurers, and others: and from which the ancient Christians were not exempt. Sometimes lime and vinegar, or hastily scalding vinegar, was poured into the eyes, till their balls were consumed; sometimes a rope was twisted round the head till the eyes started out. Stolin. Polyhist. c. 4. Lamprid. in Alex. Sev. c. 17. Val. Max. lib. vi. c. 5. Lactant. de Mort. Persec. c. 36.

In the middle age, they changed total *blindness* for a great darkness, or diminution of sight, which they produced by holding a red hot iron cask or bason before the eyes, till their humours were dried, and their coats shrivelled up.

The inhabitants of the city Apollonia executed it on their watch whom they found asleep. Democritus, according to Plutarch, Cicero, and Aurelius, put out his own eyes, that he might be less disturbed in his mental contemplations, when thus freed from the distraction of the objects of sight. Herodot. lib. vi. c. 92. Aul. Gell. Noct. Att. lib x. c. 71. Cicero Tusc. Qu. 5.

BLINDING, *chromatic*, in the *Black Art*, denotes a species of NECROMANCY, whereby a visible body may be concealed, or hidden by an invisible power.

BLINDING *of a commune*, signifies erecting a battery against it, in order to dismount its cannon, and render them useless.

BLINDNESS, a privation of the sense of sight, arising from a total destruction of its organs, or an involuntary obstruction of their functions.

Blindness is of divers kinds. Natural *blindness* is that happening according to the ordinary course of things; thus that of certain insects formed without eyes, though it is not easy to fix which these are, since divers animals have been erroneously supposed to, on account of their smallness or imperceptibility; as the CAECILIA, commonly called the blind-worm, the mole, &c.

Preternatural, or morbid *blindness*, is that owing to disease or accident.

Total *blindness*, is that wherein all light or perception, even of light, is wanting, as in the case of those who are said to be *stone-blind*.

A *blind* man, by the civil law, cannot make a testament, except under certain modifications; but in every case he is disabled from being a witness to a testament, on account of his *blindness*.

Partial *blindness*, is that wherein some faint glimmering is left, as is always the case in people who have ripe cataracts, who are never so blind, but they can discern clay from night; and, for the most part, in a strong light, distinguish black, white, and scarlet, though they cannot perceive the shape of any thing. The reason is, that the light by which those perceptions are made, being let in obliquely through the aqueous humour, or the anterior surface of the crystalline (by which the rays cannot be brought into a focus upon the *retina*), they can discern in no other manner than a found eye can through a glass of broken jelly, where a great variety of surfaces so differently refract the light, that the several distinct pencils of rays cannot be collected by the eye into their proper foci; wherefore the shape of an object in such a case cannot be at all discerned, though the colour may. Phil. Trans. N° 402. p. 447.

Perpetual *blindness*, is that which remains alike under all the diversity of seasons, times, ages, &c.

Transient *blindness*, is that which gives way of itself in due time,

blisse, as that of whelps, which continues for several days, sometimes nine, rarely twelve, after they are littered.

The Nogais Tartars, according to father Du Ban the Jesuit, who lived among them, are born *blind*, and open not their eyes, till several days.

Periodical *blindness* is that which comes and goes by turns, according to the season of the moon, time of day, and the like. Phil. Trans. N° 233. p. 728.

Diurnal *blindness* is called *hemera copia*.

Nocturnal *blindness*, called also *nyctalopia*, that which ensues on the setting of the sun in persons who see perfectly in the day, but become quite blind as soon as night comes on. Brigg. in Phil. Trans. N° 159. p. 560. where an instance of it is given. See a singular case of this kind, related by Dr. Samuel Pye, in the Medic. Observ. and Inquir. vol. i. p. 211. See also the Col. Acad. tom. vi. p. 507.

The causes of *blindness* are either ordinary, as a decay of the optic nerve (an instance whereof we have in the Academy of Sciences, where, upon opening the eye of a person long blind, the optic nerve was found extremely shrunk and decayed, and having no medulla in it); or some external violence, vicious conformation, growth of a cataract, *gutta serena*, small-pox, or the like. Hist. Acad. Scienc. ann. 1713 and 1721.

Extraordinary causes of *blindness* are malignant fleshes, poisonous juices dropped into the eye, baneful vermin, long confinement in the dark, or the like.

The docks, which breed under ground, and break out into the Zuchnitzer sea, in Carniola, after all great storms, are blind at their first irruption; but in some time, come to their sight.

The author of the embassy of D. Garcina de Silva Figueroa into Persia tells us, that in several parts of that kingdom are found vast numbers of blind people of all ages, sexes, and conditions; by reason of a species of little flies which prick the eyes and lips, and enter the nostrils, carrying certain *blindness* with them when they light on the eyes.

The miseries of *blindness* are feelingly painted by Milton, and may be also partly guessed at by the evasives into which persons have fallen on their recovery from it. Mr. Boyle mentions a gentleman, who having been blind, and brought to sight at eighteen, was very near going distracted with the joy. See a remarkable case of this kind, Tatler, N° 55 vol. i. Parad. Lost, lib. iii. init. Boyle's Works abr. tom. i. p. 4.

We find various recompenses for *blindness*, or substitutes for the use of the eyes, in the wonderful sagacity of many blind persons recited by Zahnius in his *Oculus Artificialis*, and others. In some, the defect has been supplied by a most excellent gift of remembering what they had seen; in others by a delicate nose, or the sense of smelling; in others by an exquisite touch, or sense of feeling, which they have had in such perfection, that, as it has been said of some, they learned to hear with their eyes; as it may be said of these, that they taught themselves to see with their hands.

Some have been enabled to perform all sorts of curious and subtle works in the nicest and most dextrous manner. Aldrovandus speaks of a sculptor who became *blind* at twenty years of age, and yet ten years after made a perfect marble statue of Cosmo II. de Medicis; and another of clay like Urban VIII. Bartholin tells us of a *blind* sculptor in Denmark, who distinguished perfectly well, by mere touch, not only all kinds of wood, but all the colours; and F. Grimaldi gives an instance of the like kind; beside the *blind* organist lately living in Paris, who is said to have done the same.

The most extraordinary of all is a blind guide, who, according to the report of good writers, used to conduct the merchants through the sands and deserts of Arabia. James Bernouilli contrived a method of teaching blind persons to write. Leo Afr. Descr. Afr. lib. vi. p. 246. Casaub. Treat. of Enthus. chap. ii. p. 45. Fontan. Elog. des Acad. p. 114.

Yet have not blind persons any idea of visible objects, though they can distinguish them by the touch: thus the gentleman couched by Mr. Cheselden, though he knew the colours asunder in a good light during his blind state; yet when he saw them after couching, the faint ideas he had of them before, were not sufficient for him to know them by afterwards. Phil. Trans. N° 403. p. 447.

It was even a considerable time before he could remember which was the cat, and which the dog, though often informed, without feeling them. Add, that he had no idea of distance; but thought that all the objects he saw touched his eyes, as what he felt did his skin.

BLINDNESS, in *Farriery*, is a disease incident to horses, especially those of an iron-grey or dapple-grey colour, when ridden too hard, or backed too young. Phil. Trans. N° 37.

It may be discovered by the walk or step, which, in a blind horse, is always uncertain and unequal, because he does not set down his feet boldly when led in one's hand; though, if the same horse be mounted by an expert horseman, and the horse himself be mettled, the fear of the spur will make him go more freely; so that his *blindness* can hardly be perceived. Another mark whereby a horse may be known to have lost his sight, is, that upon hearing any body enter the stable, he will prick up his ears, and move them backwards and forwards, as mistrusting every thing, and being in continual alarm by the least noise.

D. Lower first shewed the cause of the ordinary *blindness* in horses, which is a spungy excrescence, growing in one, sometimes in two or three places of the *uvea*, which being at length overgrown, covers the pupil when the horse is brought into the light, though in a dark stable it dilates again.

BLINKS, in *Botany*, *see* MONTIA.

BLINKS, among *ancient Sportsmen* denoted boughs broken down from trees, and thrown in the way where deer are likely to pass, to hinder their running, or rather to mark which way a deer runs, in order to guide the hunter.

BLINKING *of beer*, in Lincolnshire, signifies letting the wort stand for some time in the vat, till it hath acquired some degree of acidity, in order to dispose it to fine, and be the sooner ready for drinking.

BLISSOM, among *Husbandmen*, corruptly called *blossom*, is the act of a ram when coupling with an ewe.

BLISTER, EPISPASTIC, or VESICATORY, an external medicine serving to raise a blister; whence also it is itself, though improperly, called a *blister*.

Of *blisters* there are some which act very gently, and others with great violence.

Blisters are unguents, cataplasms, or plasters made of sharp, irritating medicaments, which have a faculty of drawing the humours from within, outwards; inflaming and ulcerating the skin, and raising *vesicæ*, or bladders; whence their denomination, *vesicatory*.

We have *vesicatories* made of CANTHARIDES, of EUPHORBIUM, FICA, SUBLIMATE of MERCURY, LAPIS INFERNALIS, MUSTARD, ANACARDIUM, SQUILLS, BRIONY, VINEGAR, PEPPER, LEAVEN, *Issue* SPUNGE, &c. which are incorporated and made up with honey, gum, resina, &c. to bring them to the consistence required.

Blistering chiefly takes place in the dropsy, delirious and feverish disorders, apoplexies, phrenitics, and the like. Some also prescribe it in the *hydrocephalus*, *ophthalmia*, suffocative catarrhs, *orthopnœa*, &c. Some say, that *blistering* is generally found useful in dropsies.

In the Phil. Trans. vol. l. part ii. N° 75. an. 1758, there is a paper by Dr. Whytt, containing cases of the remarkable effects of *blisters* in lessening the quickness of the pulse in coughs, attended with inflection of the lungs, and fever. See also several papers concerning *blisters* in the Land. Medic. Observ. &c. vol. ii. p. 311. ibid. p. 382. and vol. iii. p. 102. where they are recommended as efficacious in curing an incontinence of urine.

The operation and effect of *blisters* in curing fevers are by some resolved into the pain which they excite; by others into the ingress of the particles of the CANTHARIDES into the blood; by others, into the quantity of hot, sharp, and salt lymph discharged; by others, into the condensation of the blood, and stoppage of the rarefaction, whereby the spirits are disposed to be plentifully separated. Dr. Cockburn, who refutes all these systems, accounts for it from the CANTHARIDES wounding the nerves or canal whereby the spirits are conveyed to the heart; Dr. Morgan from the subtile, hot, active salts of the flies, strongly attracted by the *serum*, and carried with it through the several glands and secretory ducts of the body where they act by dissolving, attenuating, and rarefying the viscid cohesions of the lymph and *serum*, and stimulating the nervous coats of the vessels, whereby they are induced to throw off their stagnating viscidities, and restore the free drain of the lymph from the arteries to the veins; and at the same time, by scouring and cleansing the expurgatory glands, bring on critical sweats and urines. Phil. Trans. N° 252. p. 173.

Dr. Morgan endeavours to discard the method of dressing *blisters*, by which nothing is gained but the plaguing

and tormenting of the patient, and depriving him of the benefit of a much greater discharge, which would be at least three to one, were the same plaister left on for four or five days, or as long as it will draw off any thing; and then, when it has done running, taking it off and applying a plaister of mellot, or rather of diachylon, once, for all, till the part is quite well and healed. Indeed when a *blister* is first raised, if it doth not break and run of itself, it may be proper to raise the lower end of the plaister a little, to snip the bladder, and let out the water; but if the surgeon has made the plaister strong enough, this is commonly done of itself, without help. It is usually objected, that a strong epispastic left on five or six days, must deeply corrode the flesh under it, and thereby endanger a mortification. But this, according to the author last cited, is so far from being true, that on the contrary, it prevents the worst accidents usually happening in *blistering*, which are what they call *sloughs*, or deep strong incrustations of a sharp fait and adhesive matter, covering the whole surface of the flesh where the plaister had been applied. Now this is always occasioned by an unseasonable removal of the epispastic, while the humour is in full flow, and strongly feeding to the part; and the humour, thus suddenly checked and thrown back for want of a sufficient drain, forms this slough. Mem. Mech. Pract. of Phys. p. 176.

BLISTERING, in *Farriery*, is used in cases of straitt and shrunk sinews in horses, as some maintain, with good effect; but others lay with none.

BLITE, *strawberry spinage*, *bitum*, in *Botany*, a genus of the *monoecia digynia* class of plants; the characters of which are these: the flower hath no petals, but one briefly flamen, of the length of the empalement. In the centre is situated an oval pointed germen; the empalement afterward becomes an oval compressed capsule, including one globular compressed seed, of the size of the capsule. There are two species.

Blite is esteemed cooling and emollient, and therefore good in dysenteries and spitting of blood.

BLOATED *fish* or *herring*, in our *Statutes*, are those which are half-dried. Vide Stat. ann. 18. Car. II. c. 2.

Bloated herrings are made by steeping them in a peculiar brine, and then hanging them in a chimney to dry.

BLOATING, a puffing up or inflation of the exterior habit of the body, lodged chiefly in the adipose cells. It is the same with what physicians callan *anasarca*.

BLOCK is used for a piece of marble as it comes out of the quarry, before it has assumed any form from the hand of a workman.

BLOCK, in the *Mechanic Arts*, a large piece of solid wood whereon to fashion work, or to fashion it; strength and stability being the requisite properties.

In this sense we say a chopping *block*; a sugar-finer's *block*; a smith's *block*, on which his anvil is fastened; an executioner's *block*, on which the criminal's head is laid to be struck off.

BLOCK, *mourning*, *see* ANAESTHESIA.

BLOCK, among *Cutters in Wood*, is a form made of pear-tree, box, or other hard and close-grained wood, free from knots, on which they cut their figures in relievo with knives, chissels, &c.

The like *blocks* are in use for card-making; and from the same first arose the modern art of printing. Phil. Trans. N° 310. p. 2398.

BLOCK, among *Bowlers*, the mark which is aimed at, being a small sized bowl laid on the green for this purpose: it is called also the *jack*.

BLOCK, in *Falconry*, denotes the perch whereon a bird of prey is kept. This is to be covered with cloth.

BLOCKS, in *Sea-language*, are pieces of wood belonging to *ships*, in which the shivers of pullies are placed, and wherein the running ropes go. Of these, some are single, some double, and some have three, four, or five shivers in them. They are named and distinguished by the ropes they carry, and the uses they serve for. See *Tab. Ship*.

The *cat-block* is employed to draw the anchor up at the cat-head.

The *clue-garnet-blocks* serve to draw the clues or lower corners of the courses up to the yard, and are fastened to the clues of those sails.

The *fish-block* is hung in a notch at the end of the davit, serving to haul up the flooks of the anchor to the ship's bow.

The *foarch-block* is a large *block* with a shiver in it, and a notch cut through one of its cheeks, for the more ready receiving a rope, since, by means of this notch, the middle part of the rope may be received into the *block*, without passing it endwise. It is commonly fastened with a strap about the main-mast close to the upper deck, and is chiefly used for the fall of the winding tackle, which is reeved into this *block*, and then brought to the capstan.

The *top-block* is used to hoist up or lower down the top-mast, and is hooked in an eye-bolt driven into the cap. *Back and Block*, is a phrase used, when on hauling on any tackle, halyard, or the like, to which two *blocks* belong, the two meet and touch; so that they can haul no farther.

BLOCK, *royal*, *see* ROYAL.

BLOCKS, *wind-tackle*, *see* WIND.

BLOCK-*wood*, is a name sometimes given in our laws to LOGWOOD. 23 Eliz. c. 9.

BLOCKADE, a sort of siege of a place, intended to be taken by famine, wherein all the passages and avenues are seized, and that so, as that no supplies of provision can be brought in.

It comes from the German *blochen* or *blockhaus*, *a bulwark*, *or house of wood*; or from the Gaulish *bloch*, *barricade*: though others derive it from the Latin *incursare*, *to stop a passage*.

A *blockade* is no regular siege; inasmuch as there are no trenches or attacks. *Blockades* are formed by the cavalry.

The word *blockade* is sometimes also used in speaking of the beginning of a siege, when forces are sent to seize the principal avenues where the besiegers intend to fix their quarters.

There are two ways of forming *blockades*. The first is simply by fortifying or seizing posts at some distance from the place, chiefly on the banks of rivers both above and below, and on the great roads and inlets, where bodies of foot and horse are placed, communicating with each other, till the distress of the place, for want of necessaries, occasions defections of the garrison, and murmurings or insurrection of the townsmen, whereby the governor is frequently forced to capitulate.

The other sort is made nearer the place, by lines of circumvallation, wherein an army is pelted, being chiefly used, when, after a battle, the vanquished party have shut themselves up in some town ill provided, and thereby capable of being starved in a short time.

BLOCK-*batteries*, in the *Military Art*, denotes a wooden battery on four wheels, movable from place to place, where-by to fire *en barbe*, or over the parapet; sometimes also used in galleries and casemates, where room is wanted.

BLOCK-*boats*, a kind of wooden fort or battery, either mounted on rollers, or on a vessel, and serving either on the water, or in some counter-scarpe and counter-approaches.

The name is sometimes also given to a brick or stone fort built on a bridge, or the brink of a river, serving not only for its defence, but for the command of the river both above and below. Such was that noted *London-house* formerly on the bridge of Dunstan, since demolished on enlarging the bridge.

BLOCKING, in *Middle Age writers*, denotes a kind of burial used for persons dying excommunicated.

BLOCKINGS, *turrets*, in *Architecture*, are bases to the dome represented in *Tom. of Archit. fig.* 20. (QQQ); which by their aquatick solidity seem to strengthen the dome, and at the same time taking from its height, add a peculiar gracefulness to its appearance.

BLOCKINGS, *figures*, are represented at S. *fig.* 40. in *Tom. Archit.* These, when enriched with bale and cap, obtain the appellation of PEDESTALS.

BLOCKING-*course*, *see* COURSE.

BLOCKY, among *Farriers*, a name given to a diamond when its sides are too upright, by its TABLE and COLLAR being larger than they ought to be.

BLOD, *bale of*, *see* BLEEDING *below*.

BLOMARY, or BLOOMARY, the first forge in an iron-work, through which the metal passes after it is melted out of the ore. *See* IRON. They are also called *blomary-hearths*.

BLOOD, a warm, red liquor in most animals, circulating, by means of arteries and veins, through every part of the body, during their life, and the common source whence all the necessary and superfluous animal liquids are derived.

BLOOD, *microscopically examined*. By the microscope, the *blood* appears to consist of little red globules, swimming in an aqueous liquor, supposed to be the *serum* and *serum* that appear distinct when set rest. Mr. Leeuwenhoeck computes these globules to be twenty-five thousand times smaller than the smallest grain of sand; and Dr. Jurin makes them still less. Upon an accurate mensuration, he found the diameter of one equal to $\frac{1}{1000}$ of an inch, or less than $\frac{1}{50}$ of an ordinary hair of the head.

Blood makes a very common object for microscopical observations. The method of examining it is this: take a small drop of warm *blood* immediately from the vein, with the nib of a pen, or hair-pencil, and spread it as thin as possible on a plate of glass; and applying this to the microscope with the second, or first magnifier, the globules will all be seen very distinctly, and a little

practice

practice will enable us to form a judgment on the alterations that may happen in the size, figure, or colour of them. If a little warm water be applied to the *blood*, the globules will be divided, and many of them break into a number of smaller globules. If warm milk be added instead of water, the larger globules will be seen very diſtinct; but the ſmaller will be blended with, and loſt in the milk, which is itſelf no other than a congeries of ſuch globules.

Late writers have induſtriouſly purſued the examination of the globules of the *blood*; and found divers orders of them: thoſe large ones viſible to the eye conſtitute the *globules of the firſt order*; each of which, according to Leewenhoeck, is compoſed of ſix ſmaller ſpheres, cloſtered together in a very regular way; and that ſo nicely, in a perfect globule, that the compoſition comes to be imperceptible. But ſometimes the ſame perſon has ſeen a red globule looſening and breaking into theſe compounding ſpherules; and ſometimes has had the good fortune to perceive theſe running together, and beginning the compoſition of a new red globule. Theſe ſmaller ſpherules are called *globules of the ſecond order*. But Leewenhoeck did not ſtop here; he ſaw in the chyle and *blood* a great many particles ſix times leſs than theſe globules of the ſecond order, and thirty-ſix times leſs than the great red globules. So that the globules of the ſecond order are to be looked on as compounded of theſe ſmaller ones; which therefore are juſtly to be reckoned as another claſs, or *globules of the third order*. Farther, the moſt innumerable *blood*-veſſels in the body of ſuch animals, that none of thoſe hitherto mentioned globules could paſs through them; ſo that it ſeems neceſſary to ſuppoſe inferior claſſes of *globules of the fourth, fifth, ſixth, &c. orders*. He even ſaw veſſels, the wideneſs of which was leſs than the eighth part of the diameter of a red globule; ſo that the particles, paſſing through them, ſhould be upwards of five hundred times leſs than ſuch globules, and conſequently ſmaller than thoſe of the fourth order. Beſides, upon a careful examination, he could perceive ſtill ſmaller veſſels, narrower than the tenth part of the diameter of a red globule, and conſequently not capable of tranſmitting ſpherules greater than if a red globule were broken into a thouſand parts. On the whole then, the globules of the firſt order are made up of ſix globules of the ſecond, thoſe of ſix of the third, thoſe of ſix of the fourth, thoſe of ſix of the fifth order, and ſo on. And accordingly we find the globules of the higher orders may be broken down into their compounded particles. That the *blood*, in ſome caſes, might be turned into *ſerum*, was obſerved by Ariſtotle. Nor did ſuch a change of the *blood* eſcape the obſervation of the accurate Dr. Harvey. Phil. Tranſ. N° 104. N° 106. N° 109. N° 165. N° 263 N° 380. Med. Eſſ. Edinb. tom. ii. *paſſim*.

Dr. Martine has alſo given us ſome computations of the diameters, magnitudes, weights, &c. of the globules of the *blood*. The doctor's computation of the diameter of a red globule agrees with Leewenhoeck's and Dr. Jurin's, being about $\frac{1}{125}$ of an inch.

The *blood*, as already obſerved, is compoſed of globules of different orders and magnitudes. The diameters of thoſe of the tenth order are eſtimated at leſs than $\frac{1}{1000000}$ of an inch.

The particles of *blood* have, ever ſince the time of Leewenhoeck, been generally deemed ſpherical, and therefore called globules; though ſome accurate obſervers have at different times expreſſed their doubts concerning their figure. Leewenhoeck acknowledges, that in fiſh and in the *amphibia* they are flat and elliptical; but thoſe of the human blood, and of the blood of quadrupeds, have generally been reckoned ſpherical. Father de la Torre, by obſerving them with glaſs ſpherules of a very conſiderable magnifying power, was led to apprehend, that they were flat and annular. Mr. Hewſon has proſecuted the inquiry both into their ſize and ſhape; and he concludes, that ſo far from being of the ſame ſize in all animals, as ſome have ſuppoſed, they differ much in this reſpect; and that this difference bears no regular proportion to the ſize of the animal to which they belong; thoſe of an ox's *blood* not being ſo large as thoſe of the human *blood*, and thoſe of a porpoiſe not being larger than thoſe of ſmaller fiſh: nor are they all of the ſame ſize in the ſame animal. With reſpect to their figure, he obſerves, that they are flat in all animals, the human ſubject not excepted; that a dark ſpot may be ſeen in the middle of one of theſe particles, which F. de la Torre ſuppoſed to be a perforation; but which Mr. Hewſon ſuppoſes to be a ſolid particle contained in a flat veſicle, and filling only the middle of it, whilſt the edges of this veſicle are hollow and either empty, or filled with a fubtile fluid. He ſuppoſes farther, that they are ſolid particles, and not fluid, as has been commonly believed: and he adds, that the uſe of thoſe ſalts which *enter* into the compoſition of the *blood*, is probably to preſerve the red veſicles in their flat form. See an account of the experiments on which theſe concluſions are founded, in the Phil. Tranſ. vol. lxiii. part ii. p. 393.

Blood, *analyſis of the*. The *blood*, while in its veſſels, appears to the naked eye uniform and homogeneous; but, when let out and cold, it ſeparates ſpontaneouſly into two different parts: the one red and ſirmous, which coheres into a maſs, and is called the *crur*; the other thin and tranſparent, which retains its fluidity when cold, and, being ſuppoſed ſpecifically heavier than the other, ſuſtains and bears it up, and is called the *ſerum*. The proportion of the *ſerum* to the *crur*, Dr. Drake makes as a medium, as one and a half to one: but Mr. Boyle, more accurately, makes the *ſerum* $\frac{3}{5}$ of the whole *blood*; and Dr. Jurin, $\frac{5}{9}$ of the whole weight, or $\frac{5}{8}$ of the bulk.

Experience extends the proportion of the *ſerum* of *blood* to $\frac{7}{8}$ parts of the whole mass; yet Dr. Morgan ſeems not to depart from this, and makes the *crur* and *ſerum* equal to each other. Incited in cold, and ſufficiently congulated *blood*, the tough or *gelatinous* and the ſurrounding fluid, *ſerum*, are ordinarily found in the eye pretty nearly equal to one another.

If the red part of the *blood* bears too great a proportion to the *ſerum*, which is the caſe of athletic perſons, and others who do not take a ſufficient quantity of drink with their meat, the faults may be corrected by diluting the mass, or by increaſing their drink. The learned Boerhaave tells us of a young man, who, not having for a conſiderable time drank with his meat, had a very foul complexion and ſcorbutic eruption all over his body, which indicated too great a proportion of the red part of the *blood* to the *ſerum*; he was freed from his diſorder by drinking with his meat, without any farther remedy.

In the beginning of fevers, the proportion of the red part of the *blood* to the *ſerum* is greater, and at the end of them leſs, than it is in health. The change of this proportion is owing to perſons under this diſorder living wholly on drink and liquid nourishment. And bodies loaded with ſerous matters, an agreement of too ſmall a proportion of the red part of the *blood* to the *ſerum*, have been freed from their load by abſtaining wholly from drink.

There are other cauſes beſides the large quantities of meat and drink, which vary the proportion of the red part of the *blood* to the *ſerum*; for this proportion is greater in country people than in citizens, in perſons who uſe exerciſe than in perſons who are inactive, and in perſons who live upon fleſh meats and fermented liquors, than in perſons who live upon vegetables and water. In theſe, this proportion is increaſed by things which dry the body and ſtrengthen the fibres; and leſſened by things of a contrary nature.

Too great a proportion of the red part of the *blood* to the *ſerum* renders bodies ſubject to inflammatory fevers on taking cold.

When extravaſated *blood* is left to ſtand, the red globules run ſwiftly together, and ſqueeze out the intervening *ſerum* in ſome animals with a great, in others with a leſs force; which is a proof, that their globules are endowed with an attractive power. This force in deer's *blood* is ſo weak, that it ſcarcely congulates into a firm *craſſamentum*. On the contrary in ſome great and ſtrong beaſts, it becomes a tough, and almoſt indiſſoluble maſs; ſo that the *blood* of bulls was frequently uſed by the ancients, as a moſt effectual poiſon.

Mr. Le Cat thinks, that the *blood* is detained in its fluid ſtate by a caſeous fluid, and that this forms the red globules. But this it needs the abſtinence of the animal fluid, which is the principle that preſerves all from corruption, and to which we owe our ſenſation and motion. See Coagulation, Crassamentum, and Sensitive *fluid*.

The *blood* is found to conſiſt chiefly of phlegm, as the laſis or vehicle of volatile *ſalts*, of *oil*, which, by ſome nice examiners, has been found of two kinds; and of *caput mortuum*, or earth, which, though it may conſiſt of divers ſubſtances, eſſentially different from each other, yields only a little fixed ſalt. From the beſt experiments of this kind it appears, that in ſeven ounces of human *blood*, there are five ounces two drachms of phlegm, three drachms of a ſubtile ſulphurous oil, a ſmall quantity of a thicker oil, two drachms of ſalt, and about two of earth.

The *blood*, and other parts of animals, all contain more or leſs of an acid; and this ſeems wholly owing to the effects of their organs of digeſtion upon the aliments they take in, which, in time, become aſſimilated to, and make part of their fluids and ſolids.

It might be ſuppoſed, that this acid, however, ſhould be only found in ſuch animals as eat vegetables, not in ſuch as feed on other creatures; but this doubt will va-

ſuch when we conſider, that the carnivorous animals ſubſiſt on thoſe acids, at leaſt, at ſecond-hand, in the fleſh of thoſe animals which had fed on vegetables. This, though a very fair way of reaſoning, did not content Mr. Homberg, but he tried the *facts* themſelves by a number of experiments; by which he was convinced, that in carnivorous and fruchivorous animals, and in ſuch as eat vegetables alone, the acids of thoſe vegetables remained acids in the parts of the animal. Mr. Homberg tried the ſame experiments on the fleſh and *blood* of creatures that eat only fleſh, as well as on thoſe which eat indifcriminately every ſort of food, and the event proved the ſame in all. All contained a real acid liquor, which had the properties before deſcribed, and in which the alkali and acid were ſo blended together, that they deſtroyed not one another, but each was ready to exert itſelf on occaſion. *Mem. Acad. Scienc.* 1712.

Dr. Jurin adds, that the *ſerum*, upon a chemical analyſis, exhibits a great deal of phlegm, and of the other principles a ſmall quantity; and, on the contrary, the *crur* yields leſs phlegm, but the other principles much more copiouſly than the *ſerum*. From which data he concludes, that the globules conſiſt of ſome phlegm united with the oil and ſalts, and a ſmall quantity of earth; but in what proportion, and how, and in what parts they are formed, &c. is not determined. Indeed, it muſt be conſidered, that the principles which the chemiſts thus produce ſeparate, may poſſibly be much altered by the fire. Thus, it is paſt doubt, the oils drawn from the *blood* by fire, are vaſtly different from the natural oil, which circulates with the *blood*. To which may be added, that the *caput mortuum* remaining after diſtillation may, poſſibly, be a new production, which had no exiſtence under any form reſembling that in the *blood*.

The origin of the *blood* is in the chyle, which, paſſing the lacteals, is delivered into the ſubclavian; where, mixing with the *blood*, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body; till, after ſeveral circulations and ſecretions at the ſeveral ſtructures of the body, they are aſſimilated, ſo as to make one uniform compound maſs, which appears to be nothing elſe but chyle altered by the artifice of nature, and exalted into *blood*; there being no appearance of any thing extraneous mixed with the liquor circulating in the *blood*-veſſels, but chyle; excepting what had been before ſeparated from it, for ſome particular purpoſes, which being once ſerved, it is returned to it again: unleſs, perhaps, it may receive ſome portion of air in the lungs.

That there is *air mixed* in the *blood*, and circulating with it, is paſt doubt; but, whether any more than was at firſt contained in the food whereof the chyle is formed, is a queſtion not yet decided. The principal arguments urged for it are, the neceſſity of reſpiration; which may be accounted for on another principle: and the florid colour the *blood* receives in the lungs, and firſt ſhews in the *vena pulmonalis*; which is countenanced by an experiment made with the red grumous part of the *blood* after coagulation on *blood*-letting; for, upon turning the no-ther ſurface, which was before black, upwards, and expoſing it to the air, by its contact wherewith it acquires a florid colour. Like that of the *blood* in the *vena pulmonalis*. But this effect others account for from the extraordinary agitation and comminution of the *blood* in the lungs. Dr. Lower has confuted this notion, by obſerving that the nutrition of the *blood* is greater in the muſcles, *from* which, however, it always returns black.

Indeed, Dr. Keil, Borelius, Bernouilli, and ſome other mathematical phyſiologiſts, go farther. Mr. Boyle having examined the ſpecific gravity of *blood*, and found that of the *ſerum* to be greater than that of *blood*, in the proportion of 1190 to 1040, i. e. nearly as 8 to 7, it followed, that the *crur*, or *blood-globules*, were ſpecifically lighter than the *ſerum*, and that in a conſiderable degree; which was farther confirmed by the globules being ſuſtained in the *ſerum*, both while circulating, and when let out.—Hence it was conjectured, that theſe globules were nothing elſe but thin veſicles filled with a ſubtile aerial ſubſtance: and this opinion was confirmed from its being obſerved, in viewing the circulation by a microſcope, that a *blood*-globule, in paſſing through a very narrow veſſel, would change its ſhape from a globular, to an oval form, and would again recover its former figure, as ſoon as it was got through its narrow paſſage; which appearance was naturally enough aſcribed to the elaſticity of the included air: and, from this conjecture were accounted for a great number of the phenomena of the animal œconomy, particularly Dr. Keil's theory of muſcular motion.

But this principle Dr. Jurin has examined, and appears to have overthrown. He made ſeveral experiments, in ſome of which the *crur* before ſuſpended at the ſurface of the *ſerum*, immediately ſunk, when its adheſion to the ſides of the pureinger was cut off, and it was removed to another veſſel of *ſerum*. In others where the *crur*, buoyed up in the *ſerum*, even without any adheſion to the ſides of the glaſs, and merely by the bubbles of air adhering to its ſurface, upon being included in a receiver, and exhauſting the air, ſo that the bubbles burſt, would ſink: whence he concludes the globular part of the *blood* to be heavier than the ſerous: and, from other experiments, he aſcertains the proportion of the gravity of *blood* to that of *ſerum*, to be as 1054 to 1030; whence the quantity of the globules being before fixed at $\frac{1}{2}$ of the whole, the precie gravity of the globules beyond that of the *ſerum* is eaſily determined. The *blood*-globules therefore are not veſicles filled with air, or any other fluid ſubſtance lighter than *ſerum*: which is farther confirmed from this, that *blood*-globules are not found to dilate, or undergo any alteration, in an exhauſted receiver, when viewed through a microſcope; whereas, were they filled with any elaſtic fluid, they would either burſt, or at leaſt dilate into 50 or 60 times the ſpace.

As to the *uſes* of the *blood*, authors are exceedingly divided about the cauſe thereof: the ancients aſcribe it to a vital flame, or ſomate heat lodged in the heart, and thence communicated to the *blood*. Dr. Willis imagines a kind of acceſſion to the *blood*, and thinks its heat reſults from its being, as it were, fet on fire, and periſhering in that ſtate. Dr. Henſhaw ſolves it from an ebullition conſequent on the mixture of two fluids, ſo diſſimilar as the chyle and *blood*. Others have recourſe to the chemical principles of alkali and acid; others to the mutual action of the principles, or component parts of the *blood*, by means whereof an inteſtine motion, and by that means an inteſtine heat, or incalefcence, is effected.

Dr. Drake, with more reaſon, attributes the heat of the *blood* to the *ſpring* of the air incloſed together with it in the veſſels: for, air being included in the *blood*-veſſels, will endeavour to expand itſelf; and, conſequently, if it have force enough, will drive outwards the parts of the body that incloſe it; by which means it cauſes the *blood* to beat againſt the ſides of the veſſels; which, having muſculous, contractile coats, do in their turns compreſs it again, and ſo cauſe a reciprocal reſiſt in the *blood*, greater than the mere circulatory motion could; whence the parts of the ſolids, or containing veſſels, being put into a conſtant agitation, a heat is produced in both, which they mutually impart to each other. See ATTRITION, &c.

Laſtly, Dr. Boerhaave accounts for the heat of the *blood* from the action of the heart, and the reaction of the *aorta*: for the *blood*, driven by the heart obliquely againſt the ſides of the *aorta*, preſſes them, and ſpends almoſt its whole endeavour againſt the exterior thereof, and is, by the figure and elaſticity of this veſſel, preſſed back again. Every moment of time, therefore, each particle of *blood* acquires a new motion, a new mixt and rotation: hence follows a perpetual attrition, attenuation, rubbing off of angles, and a ſemifimilar and homogeneous of all the parts; and hence the maſs derives its fluidity, heat, diviſion into particles accommodated to all veſſels, preſſure into the lateral tubes, &c.

Nor is the cauſe of the *redneſs* of the *blood* leſs obſcure: the chemiſts account for it from the exaltation of its ſulphur; others from the mixture of ſaline and ſubacid juices with ſulphureous ones; and others from the colour of the heart. The French philoſophers attribute the redneſs to the ſmallneſs of the fize, and roundneſs of the figure, of the particles that compoſe the *crur*; notwithſtanding that red, being the colour of all others leaſt refrangible, and the globular figure of all others the moſt refrangible, that figure ſecms, of all others, leaſt apt to produce this colour. Others aſcribe the colour of the *blood* to the impregnation of the air in the lungs; but, that air is diſpoſed to produce ſuch an effect, appears from the experiment above.

But others, more reſerved, extend this *effect* of the air no further than to account for the difference of redneſs between the venal and arterial *blood*; ſuppoſing, that after its colour has been heightened, and rendered more florid, by the mixture of the air in the lungs, it retains it pretty well in the arteries; but that, circulating in the body, and carried through the veins, the air tranſpires by degrees, through the pores of the veſſels, and leaves the liquor of a paler dye.

There is now little doubt that the redneſs of the *blood* is owing to its contact with air: M. Cigna of Turin found, by putting a little oil on a quantity of *blood*, that it remained black throughout; but that when he took away the red part, and expoſed to the air the *lower lamina* which were black, they alſo became ſucceſſively red, till the whole maſs acquired that colour. Boccaris, at his requeſt, expoſed *blood in vacuo*, and found that it always

continued black; but when he brought it into contact with the air, it became red.

M. Cigna, in his firſt Memoir, publiſhed in the Miſcellanea Taurinenſia, expreſſes this opinion, that the air which is introduced into the *blood* by means of the chyle, continues to preſerve its redneſs: but in a ſecond Memoir on the ſame ſubject, he doubts whether the change of colour takes place in the lungs: and if it does, he inclines to aſcribe it to the evaporation from the *blood* in the lungs. The ingenious Mr. Hewſon is fully convinced, that the air in the lungs is the immediate cauſe of this change of colour; and to this purpoſe he obſerves, that he has diſtinctly ſeen the *blood* of a more florid red in the left auricle of the heart than it was in the right: and though ſome have attributed the effect to nitre abſorbed from the air, he conſiders this as a mere hypotheſis, adding, rather too haſtily, that air contains no nitre; and that moſt of the neutral ſalts produce the ſame effect in ſome degree.

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Dr. Prieſtley proceeded to examine, whether the quality of the air, to which pieces of *blood* had been expoſed, and in which their colour was changed, was at all affected or altered, during the operation. In this experiment he made uſe of dephlogiſticated air, as its quality is more ſuſceptible of alteration than common air; and he found, that a piece of *craſſamentum*, about the ſize of a walnut, put into the quantity of about five ounce meaſures of this air, and changed about ten or twelve times in the ſpace of twenty-four hours, ſo depraved the air, that a mixture of one meaſure of this, and two of nitrous air, which, at the beginning of the experiment, occupied the ſpace of no more than half a meaſure, afterwards occupied the ſpace of a meaſure and a half. See AIR, *nitrous*. Whence he infers, that the black *blood* muſt have communicated phlogiſton to the air; and that its change of colour from black to florid red, muſt have been occaſioned by the ſeparation of phlogiſton from it. He afterwards ſatisfied himſelf, that *blood* has likewiſe a power of taking phlogiſton from air; for by expoſing *blood* of a very beautiful florid colour to nitrous and to inflammable air, both were conſiderably diminiſhed by the proceſs. And he concludes, upon the whole, that the air becomes phlogiſticated in paſſing through the lungs, by means of the *blood*. Dr. Prieſtley anticipates an objection, which may be urged againſt this concluſion; viz. that the *blood* never comes into actual contact with the air in the lungs, but is ſeparated from it, according to Dr. Hales, at the diſtance of no more than a thouſandth part of an inch; and that the red globules remain in a large quantity of *ſerum*, which is a fluid of a very different nature. In order to reſolve this difficulty, he put a large quantity of black *blood* into a bladder, moiſtened with a little *ſerum*, and tying it very cloſe, hung it in a free expoſure to the air; and the next day he found, that all the lower ſurface of the *blood*, which had been ſeparated from the common air by the intervention of the bladder, and a ſmall quantity of *ſerum*, had acquired a coating of a florid red colour, as thick, in his opinion, as it would have acquired, had it been expoſed to the open air. He alſo found that a deep covering of *ſerum* did not obſtruct the mutual action of the *blood* and air any more than the bladder had done. From both experiments he infers, that the change of colour cannot be owing, as M. Cigna imagined, to evaporation; nor is the change of colour in the laſt experiment owing to the *ſerum*, but to the air; for two equal portions of black *blood* were put into equal cups, containing equal quantities of *ſerum*, covering them to the depth of half an inch; one cup was expoſed to the open air, and the other placed in an exhauſted receiver: the *blood* in the former preſently acquired a florid colour, but the other continued after twelve hours as black as at firſt. Dr. Prieſtley infers, from another experiment, that the moſt florid *blood* contains a conſiderable quantity of phlogiſton; and he obſerves that there is a great difference in the conſtitution of *blood*, with reſpect to its property of being affected by the air. See on this curious ſubject, Hewſon's Experimental Inquiry into the Properties of Blood, or Phil. Tranſ. vol. lx. p. 368, &c. Prieſtley's Exp. and Obſ. on Air, vol. iii. p. 55. or Phil. Tranſ. vol. lxvi. p. 226, &c.

Boerhaave accounts for the colour of the *blood* from the ſame cauſe as for its heat, viz. from the action of the heart, and re-action of the fibres of the *aorta*. Borelli, to aſcertain the cauſe of the redneſs, took a parcel of the *ova*, after it had ſeparated itſelf as far as ſpontaneouſly it would from the *ſerum*, and, waſhing it frequently in water, found it ſeparable into a viſcous, ſlippery ſubſtance, conſiſting of white or colourleſs fibres (which roſe to the ſurface of the water, and there gathered into a ſkin, or coherent pellicle of a reticular texture), and a deep red powder, which precipitated partly plentifully to the bottom. Hence it appears, that the red colour of the *blood* is imparted to it by red tinging particles, as in the common caſe of dyers. By examining the red precipitate apart, and finding which of the elements it conſiſted chiefly of, a man who would reaſon about the colour of the *blood* from principles of the chemiſts, might carry that matter nearer an iſſue.

However, this red colour, though generally found in all terreſtrial animals, is not yet abſolutely neceſſary and eſſential: there being whole ſpecies which have their circulating liquor, or *blood*, white and limpid; to which Dr. Drake adds an inſtance of a pure white *blood*, like milk, which he let out of the median vein of a man, and which, when *cold*, did not ſeparate into a *craſſamentum*, as the red uſually does; nor yield a ſkim of cream, or turn ſour upon keeping, as milk does. Dr. Beal gives us another inſtance of the like kind; and Dr. Lower adds a third, of a perſon who bled ſo long at the noſe, till at laſt the broth he drank flowed, little altered, that way, as *blood*.

BLOOD, *changes and diſorders of the*. From the principles, or conſtituent parts of the *blood* above recited, variouſly combined and diſtributed by the circulatory motion impreſſed by the heart, and by the oſcillatory expanſive motion of the interſperſed air, and the re-action of the contractile veſſels, flow all the properties and operations of the *blood*. From this mixture of elements, and their fix compoſition, it becomes ſuſceptible of various alterations and impreſſions; the principal whereof are, *coagulation*, which uſually attends it out of the body, ſometimes in it, and ſcarce ever without an artificial procurement, but always mortal: and *diſſolution*, which is juſt oppoſite to the former, and conſiſts in ſuch a comminution of the fibrous parts of the *blood*, as indiſpoſes it for a ſeparation of the *ſerum* from the *ſerum*. This is frequently the conſequence of malignant and peſtilential fevers, &c. and is likewiſe occaſioned by ſome kinds of poiſon.

Their two contrary affections of the *blood*, Dr. Drake aſcribes to the oppoſite kinds of ſalts, acids, and volatile alkalis. For though, adds he, in a human body, no pure acid is found, nor could it, indeed, be conſiſtent with life; yet it may, and does often, enter the *blood*, ſo compounded as to bridle the volatile, alkalious ſalt of the *blood*, and ſo hinder the due attenuation and mixture of the ſeveral parts; as is the caſe in a *diabetes*, and perhaps in a *chloroſis*, where the *blood* is thick and torpid: on the other hand, where the alkalious ſalts are too redundant, the *blood* is rendered too thin and fluid, ſo that the difference of its conſtituent parts is loſt.

Another affection frequent in the *blood* is, a too great abundance of oils, or oily particles, by means whereof the active parts of the *blood* are too much clogged, and thoſe parts which ſhould be ſecreted, for peculiar uſes in the body, are detained; and perhaps the ſolids, through which it paſſes, too much lubricated, their tone relaxed, ſhrunk, reduced, &c. whence the ſluggiſhneſs and inactivity of very fat people.

The contrary affection to this is, the defect of oil in the *blood*, which, being, as it were, its baſſam, lines

ruth when we conſider, that the carnivorous animals ſo follow theſe acids, at leaſt, at ſecond-hand, in the fleſh of thoſe animals which had fed on vegetables. This, though a very fair way of reaſoning, did not content Mr. Homberg, but he tried the facts themſelves by a number of experiments; by which he was convinced, that in carnivorous and fruchivorous animals, and in ſuch as eat vegetables alone, the acids of thoſe vegetables remained acids in the parts of the animal. Mr. Homberg tried the ſame experiments on the fleſh and *blood* of creatures that eat only fleſh, as well as on thoſe which eat indiſcriminately every ſort of food, and the event proved the ſame in all. All contained a red acid liquor, which had the properties before deſcribed, and in which the alkali and acid were ſo blended together, that they deſtroyed not one another, but each was ready to exert itſelf on occaſion. Mem. Acad. Scienc. 1712.

Dr. Jurin adds, that the *ſerum*, upon a chemical analyſis, exhibits a great deal of phlegm, and of the other principles a ſmall quantity; and, on the contrary, the *crore* yields leſs phlegm, but the other principles much more copiouſly than the *ſerum*. From which data he concludes, that the globules conſiſt of ſome phlegm united with the oil and ſalts, and a ſmall quantity of earth; but in what proportion, and how, and in what parts they are *formed*, *&c.* is not determined. Indeed, it muſt be conſidered, that the principles which the chemiſts thus produce ſeparate, may poſſibly be much altered by the fire. Thus, it is paſt doubt, the oils drawn from the *blood* by fire, are vaſtly different from the natural oil, which circulates with the *blood*. To which may be added, that the *caput mortuum* remaining after diſtillation may, poſſibly, be a new production, which had no exiſtence under any form reſembling that in the *blood*.

The *ſerum* of the *blood* is in the chyle, which, paſſing the lacteals, is delivered into the ſubclavian; where, mixing with the *blood*, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body; till, after ſeveral circulations, and ſecretions at the ſeveral ſtrainers of the body, they are aſſimilated, ſo as to make one uniform compound maſs, which appears to be nothing elſe but chyle altered by the artifice of nature, and exalted into *blood*; there being no appearance of any thing extraneous mixed with the liquor circulating in the *blood*-veſſels, but chyle; excepting what had been before ſeparated from it, for ſome particular purpoſes, which being once ſerved, it is returned to it again: unleſs, perhaps, it may receive ſome portion of air in the lungs.

That there is *air mixed* in the *blood*, and circulating with it, is paſt doubt; but, whether any more than was at firſt contained in the food whereof the chyle is formed, is a queſtion not yet decided. The principal arguments urged for it are, the neceſſity of reſpiration; which may be accounted for on another principle: and the florid colour the *blood* receives in the lungs, and firſt ſhews in the *vena pulmonalis*; which is countenanced by an experiment made with the red grumous part of the *blood* after congulation on *blood*-letting; for, upon turning the under ſurface of it outwards, before black, towards, expoſing it to the air, by its contact wherewith it acquires a florid colour, like that of the *blood* in the *vena pulmonalis*. But this effect others account for from the extraordinary agitation and comminution of the *blood* in the lungs. Dr. Lower has conſuted this notion, by obſerving that the attrition of the *blood* is greater in the muſcles, from which, however, it always returns black.

Indeed, Dr. Keil, Bohnius, Bernouilli, and ſome other mathematical phyſiologiſts, go further. Mr. Boyle having examined the ſpecific gravity of *blood*, and found that of the *ſerum* to be greater than that of *blood*, in the proportion of 1190 to 1040, i. e. nearly as 8 to 7, it followed, that the *crore*, or *blood*-globules, were ſpecifically lighter than the *ſerum*, and that in a conſiderable degree; which was further confirmed by the globules being ſuſtained in the *ſerum*, both while circulating, and when let out.—Hence it was conjectured, that theſe globules were nothing elſe but thin veſicles filled with a ſubtile aerial ſubſtance: and this opinion was confirmed from its being obſerved, in viewing the circulation by a microſcope, that a *blood*-globule, in paſſing through a very narrow veſſel, would change its ſhape from a globular, to an oval form, and would again recover its former figure, as ſoon as it was got through its narrow paſſage; which appearance was naturally enough aſcribed to the elaſticity of the included air: and, from this conjecture were accounted for a great number of the phenomena of the animal œconomy, particularly Dr. Keil's theory of muſcular motion.

But this principle Dr. Jurin has examined, and appears to have overthrown. He made ſeveral experiments, in ſome of which the *crore* before ſuſpended at the ſurface of the *ſerum*, immediately ſunk, when its adheſion to the ſides of the porringer was cut off, and it was removed to another veſſel of *ſerum*. In others where the *crore*, buoyed up in the *ſerum*, even without any adheſion to the ſides of the glaſs, and merely by the bubbles of air adhering to its ſurface, upon being included in a receiver, and exhauſting the air, ſo that the bubbles burſt, would ſink: whence he concludes the globular part of the *blood* to be heavier than the *ſerous*: and, from other experiments, he aſcertains the proportion of the gravity of *blood* to that of *ſerum*, to be as 1054 to 1030; whence the quantity of the globules being before fixed at $\frac{1}{13}$ of the whole, the preciſe gravity of the globules beyond that of the *ſerum* is eaſily determined. The *blood*-globules therefore are not veſicles filled with air, or any other fluid ſubſtance lighter than *ſerum*; which is farther confirmed from this, that *blood*-globules are not found to dilate, or undergo any alteration, in an exhauſted receiver, when viewed through a microſcope; whereas, were they filled with any elaſtic fluid, they would either burſt, or at leaſt dilate into 90 or 80 times the ſpace.

As to the *uſes* of the *blood*, authors are exceedingly divided about the cauſe thereof: the ancients aſcribe it to a vital flame, or innate heat lodged in the heart, and thence communicated to the *blood*. Dr. Willis imagines a kind of effervition in the *blood*, and thinks its heat reſults from its being, as it were, ſet on fire, and perſevering in that ſtate. Dr. Heathaw ſolves it from an ebullition conſequent on the mixture of two fluids, ſo diſſimilar as the chyle and *blood*. Others have recourſe to the chemical principles of alkali and acid; others to the mutual action of the principles, or component parts of the *blood*, by means whereof an inteſtine motion, and by that means an inteſtine heat, or incalefcence, is effected.

Dr. Drake, with more reaſon, attributes the heat of the *blood* to the ſpring of the air incloſed together with it in the veſſels: for, air being inclined in the *blood*-veſſels, will endeavour to expand itſelf; and, conſequently, if it have force enough, will drive outwards the parts of the body that incloſe it; by which means it cauſes the *blood* to beat againſt the ſides of the veſſels; which, having muſculous, contractile coats, do in their turns compreſs it again, and ſo cauſe a reciprocal reſiſt in the *blood*, greater than the mere circulatory motion could; whence the parts of the ſolids, or containing veſſels, being put into a conſtant agitation, a heat is produced in both, which they mutually impart to each other. See ATTRITION, *&c.*

Laſtly, Dr. Boerhaave accounts for the heat of the *blood* from the action of the heart, and the re-action of the *aorta*: for the *blood*, driven by the heart obliquely againſt the ſides of the *aorta*, preſſes them, and ſpends almoſt its whole *momentum* againſt the curricy thereof, and is, by the figure and ductility of this veſſel, preſſed back again. Every moment of time, therefore, each particle of *blood* acquires a new motion, a new *veſis* and rotation: hence follows a perpetual friction, attenuation, rubbing off of angles, and a diminution and homogeneity of all the parts; and hence the maſs derives its fluidity, heat, diviſion into particles accommodated to all veſſels, preſſure into the lateral tubes, *&c.*

Now is the cauſe of the *redneſs* of the *blood* leſs obſcure: the chemiſts account for it from the exaltation of its ſulphur; others from the mixture of ſaline and ſubacid juices with ſulphureous ones; and others from the colour of the heart. The French philoſophers attribute the redneſs to the ſmallneſs of the ſize, and roundneſs of the figure, of the particles that compoſe the *crore*; notwithſtanding that red, being the colour of all others leaſt refrangible, and the globular figure of all the moſt refrangible, that figure ſeems, of all others, leaſt apt to produce this colour. Others aſcribe the colour of the *blood* to the impregnation of the air in the lungs; for, that air is diſpoſed to produce ſuch an effect, appears from the experiment above.

But others, more reſerved, extend this effect of the air no farther than to account for the difference of redneſs between the venal and arterial *blood*; ſuppoſing, that after its colour has been heightened, and rendered more florid, by the mixture of the air in the lungs, it retains it pretty well in the arteries; but that, circulating in the body, and carried through the veins, the air ſtaniſhes by degrees, through the pores of the veſſels, and leaves the liquor of a paler dye.

There is alſo little doubt that the redneſs of the *blood* is owing to its contact with air: M. Cigna of Turin found, by putting a little oil on a quantity of *blood*, that it remained black throughout; but that when he took away the red part, and expoſed to the air the *lower lamina* which were black, they alſo became ſucceſſively red, till the whole maſs acquired that colour. Boccaris, at his requeſt, expoſed *blood* in *vacuo*, and found that it always

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M. Cigna, in his firſt Memoir, publiſhed in the Miſcellanea Taurinenſia, expreſſes his opinion, that the air which is introduced into the *blood* by means of the chyle, continues to preſerve its redneſs: but in a ſecond Memoir on the ſame ſubject, he doubts whether the change of colour takes place in the lungs: and if it does, he inclines to aſcribe it to the evaporation from the *blood* in the lungs. The ingenious Mr. Hewſon is fully convinced, that the air in the lungs is the immediate cauſe of this change of colour; and to this purpoſe he obſerves, that he has diſtinctly ſeen the *blood* of a more ſhrill red in the left auricle of the heart than it was in the right: and though ſome have attributed the effect to nitre abſorbed from the air, he conſiders this as a mere hypotheſis, adding, rather too haſtily, that air contains no nitre; and that moſt of the neutral ſalts produce the ſame effect in ſome degree.

Dr. Prieſtley, who has purſued his enquiries on the ſubject of RESPIRATION with very conſiderable ſucceſs, apprehends, that the air we breathe may be ſo far decompoſed, as to communicate a nitrous quality to the *blood*, in its paſſage to the lungs: and this opinion is confirmed by his analyſis of atmoſpherical air, which he has proved to conſiſt of earth and ſpirit of nitre. He has further demonſtrated, by the moſt accurate and concluſive experiments, that the ſhrill red colour of the *blood* is owing to the effect which the air has upon it: for the blackeſt parts of the *craſſamentum* of coagulated *blood*, ſeparated from the *ſerum*, aſſumed a ſhrill red colour in common air: and the colour was more ſhrill, and the change produced in leſs time in dephlogiſticated air, which is purer and more fit for reſpiration than common air: on the contrary, the brighteſt red *blood* became black in any kind of air, that was unfit for reſpiration, as in fixed air, inflammable air, nitrous air, or phlogiſticated air; but upon expoſing the *blood*, which became black in the phlogiſticated air, to common or dephlogiſticated air, it regained its red colour: and the ſame pieces became alternately black and red by being tranſferred from phlogiſticated to dephlogiſticated air; and *vice verſa*. The *blood*, in theſe experiments, he ſays, muſt have parted with its phlogiſton to the common air or dephlogiſticated air; and have imbibed it and have become ſaturated with it, when expoſed to phlogiſticated, nitrous, inflammable, or fixed air. There are, however, he acknowledges, other cauſes to which the blackneſs of the *blood* may ſometimes be owing, beſides its acquiring phlogiſton: nor can it be expected, that, when *blood* has become black without having received phlogiſton *ab extra*, it will generally recover its ſhrill colour by being expoſed to the air.

Dr. Prieſtley proceeded to examine, whether the quality of the air, to which pieces of *blood* had been expoſed, and in which their colour was changed, was at all affected or altered, during the operation. In this experiment he made uſe of dephlogiſticated air, as its quality is more ſuſceptible of alteration than common air; and he found, that a piece of *craſſamentum*, about the ſize of a walnut, put into the quantity of about five ounce meaſures of this air, and changed about ten or twelve times in the ſpace of twenty-four hours, ſo depraved the air, that a mixture of one meaſure of this, and two of nitrous air, which, at the beginning of the experiment, occupied the ſpace of no more than half a meaſure, afterwards occupied the ſpace of a meaſure and a half. See AIR, *nitrous*. Whence he infers, that the black *blood* muſt have communicated phlogiſton to the air; and that its change of colour from black to ſhrill red, muſt have been occaſioned by the ſeparation of phlogiſton from it. He afterwards ſatisfied himſelf, that *blood* has likewiſe a power of taking phlogiſton from air; for by expoſing *blood* of a very beautiful ſhrill colour to nitrous and to inflammable air, both were conſiderably diminiſhed by the proceſs. And he concludes, upon the whole, that the air becomes phlogiſticated in paſſing through the lungs, by means of the *blood*. Dr. Prieſtley anticipates an objection, which may be urged againſt this concluſion; viz. that the *blood* never comes into actual contact with the air in the lungs, but is ſeparated from it, according to Dr. Hales, at the diſtance of no more than a thouſandth part of an inch; and that the red globules remain in a large quantity of *ſerum*, which is a fluid of a very different nature. In order to reſolve this difficulty, he put a large quantity of black *blood* into a bladder, moiſtened with a little *ſerum*, and tying it very cloſe, hung it in a free expoſure to the air; and the next day he found, that all the lower ſurface of the *blood*, which had been ſeparated from the common air by the intervention of the bladder, and a ſmall quantity of *ſerum*, had acquired a coating of a ſhrill red colour, as thick, in his opinion, as it would have acquired, had it been expoſed to the open air. He alſo found that a deep covering of *ſerum* did not obſtruct the mutual action of the *blood* and air any more than the bladder had done. From both experiments he infers, that the change of colour cannot be owing, as M. Cigna imagined, to evaporation: nor is the change of colour in the laſt experiment owing to the *ſerum*, but to the air; for two equal portions of black *blood* were put into equal cups, containing equal quantities of *ſerum*, covering them to the depth of half an inch; one cup was expoſed to the open air, and the other placed in an exhauſted receiver; the *blood* in the former preſently acquired a ſhrill colour, but the other continued after twelve hours as black as at firſt. Dr. Prieſtley infers, from another experiment, that the moſt florid *blood* contains a conſiderable quantity of phlogiſton; and he obſerves that there is a great difference in the conſtitution of *blood*, with reſpect to its property of being affected by the air. See on this curious ſubject, Hewſon's Experimental Inquiry into the Properties of Blood, or Phil. Tranſ. vol lx. p. 368, &c. Prieſtley's Exp. and Obſ. on Air, vol. iii. p. 55. or Phil. Tranſ. vol. lxvi. p. 226, &c.

Boerhaave accounts for the colour of the *blood* from the ſame cauſe as for its heat, viz. from the action of the heart, and re-action of the ſides of the *aorta*. Borelli, to aſcertain the cauſe of the redneſs, took a parcel of the *crura*, after it had ſeparated itſelf as far as ſpontaneouſly it would from the *ſerum*, and, waſhing it frequently in water, found it ſeparable into a viſcous, ſlippery ſubſtance, conſiſting of white or colourleſs fibres (which roſe to the ſurface of the water, and there gathered into a ſkin, or coherent pellicle of a reticular texture), and a deep red powder, which precipitated pretty plentifully to the bottom. Hence it appears, that the red colour of the *blood* is imparted to it by red tinging particles, as in the common caſe of dyers. By examining the red precipitate apart, and finding which of the elements it conſiſted chiefly of, a man who would reaſon about the colour of the *blood* from principles of the chemiſts, might carry that matter nearer an iſſue.

However, this red colour, though generally found in all terreſtrial animals, is not yet abſolutely neceſſary and eſſential: there being whole ſpecies which have their circulating liquor, or *blood*, white and limpid; to which Dr. Drake adds an inſtance of a pure white *blood*, like milk, which he let out of the median vein of a man, and which, when cold, did not ſeparate into a *craſſamentum*, as the red uſually does; nor yield a ſkim of cream, or turn four upon keeping, as milk does. Dr. Boal gives us another inſtance of the like kind; and Dr. Lower adds a third, of a perſon who bled ſo long at the noſe, till at laſt the broth he drank flowed, little altered, that way, as *blood*.

BLOOD, *changes and diſorders of the*. From the principles, or conſtituent parts of the *blood* above recited, variouſly combined and diſtributed by the circulatory motion impreſſed by the heart, and by the oſcillatory expanſive motion of the interſperſed air, and the re-action of the contractile veſſels, flow all the properties and operations of the *blood*. From this mixture of elements, and their laſt compoſition, it becomes ſuſceptible of various alterations and impreſſions; the principal whereof are, *coagulation*, which uſually attends it out of the body, ſometimes in it, and ſcarce ever without an artificial procurement, but always mortal: and *diſſolution*, which is juſt oppoſite to the former, and conſiſts in ſuch a comminution of the fibrous parts of the *blood*, as multiplotes it for a ſeparation of the *crura* from the *ſerum*. This is frequently the conſequence of malignant and peſtilential fevers, &c. and is likewiſe occaſioned by ſome kinds of poiſons.

Theſe two contrary affections of the *blood*, Dr. Drake aſcribes to the oppoſite kinds of ſalts, acids, and volatile alkalis. For though, adds he, in a human body, no pure acid is found, nor could it, indeed, be conſiſtent with life; yet it may, and does often, enter the *blood*, ſo compounded as to bridle the volatile, alkalious ſalt of the *blood*, and ſo hinder the due attenuation and mixture of the ſeveral parts; as is the caſe in a *diabetes*, and perhaps in a *chloroſis*, where the *blood* is thick and torpid: on the other hand, where the alkalious ſalts are too redundant, the *blood* is rendered too thin and fluid, ſo that the difference of its conſtituent parts is loſt.

Another affection frequent in the *blood* is, a too great abundance of oils, or oily particles, by means whereof the active parts of the *blood* are too much clogged, and thoſe parts which ſhould be ſecreted, for peculiar uſes in the body, are detained; and perhaps the ſolids, through which it paſſes, too much lubricated, their tone relaxed, ſhrunk, relaxed, &c. whence the ſluggiſhneſs and inactivity of very fat people.

The contrary affection to this is, the defect of oil in the *blood*, which, being, as it were, its ballaſt, lines

and preserves the parts from being fretted and corroded by the salts, whose *spicula* or edges are, as it were, sheathed in this soft balsamic matter, and their attrition against the solid parts prevented: this state of the *blood* is usually attended with a general atrophy, and a fretting and corrosion of some particular parts; whence scrofous defluxions, apothemations, and ulcers, especially in the lungs; whose tender viscidous substance is more easily incorporated than any other, by the acrimony of the saline *serum*. See CATARRH, CORPULENCY, &c.

There are other affections of the *blood*, resulting from its inordinate temperature and nature, with regard to the earthy parts; the consequences of which are, the stone, &c. and others that do not originally spring from any diversity, or undue mixture of the elements, but from an alteration in its motion; such as an augmentation or diminution of its progressive motion, or the like changes in its intestine motion; whence supernatural fermentations, are induced. The occasions here may be various; sometimes fevers, and other disorders occasioned by surfeits, debauches, catching cold, violent exercise, &c. whence stones; at other times some latent malignity of the air, whence epidemical diseases.

To which may be added divers other morbific constitutions depending on the different states and dispositions of the *blood*, in respect of quantity, velocity, fluidity, density, tenacity, &c. An excess in the quantity of *blood* constitutes what we call a *plenitude*, or *plethora*; a defect or want of a competent quantity, a *inopsemia*.

The symptoms of excess or defect, of an over-repletion or depletion, in the *blood*-vessels, are obvious; but caution must be used not to mistake every occasional flushing or ebb of the *blood* to the head for a general *plethora* of the *blood*-vessels, such ebbs and flushings being very common in cases where there is yet no *blood* to spare.

The *equilibrium* of the *blood* is an uniform and proportional diffusion of it through all the parts of the body.

Any considerable *stimulus*, it is known, will drive the *blood* in large quantities to the stimulated part, which must necessarily break the *equilibrium* and uniformity of its circulation; whence congestions, stagnations, concretions, &c. of the *blood*; and hence it is that a great part of regular practice consists in driving, revulling, discussing, and variously directing, and determining the *blood*, in order to recover its *equilibrium*.

The *equilibrium* of the *blood* against any occasional afluxes and refluxes of this fluid, is preserved or restored, either by raising and diffusing it when too weak and languid by cardiacs; as saffron, opium, Virginia snake root, &c. or by depressing and repelling it when too much raised and diffused; which is done by the abforbents, coolers, purgatives, acids of all forts, especially apples.

The morbific excess or defect of the *blood's velocity* is as remarkable as that of its quantity; but this cannot be judged from the natural state of the pulse in health, which is different in different constitutions. The ordinary number of pulsations in a minute is from 70 to 80 under a state of walking and moderate heat, and from 80 to 96 during the time of sleep. See PULSE.

The too great *heat* and *fluidity of the blood* are some of its most generally prevailing morbific constitutions, especially in a country, as ours, abounding with all the temptations to, and provisions for, ease and luxury. This state of the *blood* is brought on generally by drinking too freely hot, spirituous, inflammable liquors, and feeding plentifully on things, which contain a large proportion of volatile oily salts; as flesh-meats half-boiled or roasted, eaten in their bloody gravy, and all hot, spicy, and high-seasoned broths, sauces and the like. The *blood* being by these over-heated and rarefied, the *serum* is, in consequence, thickened into a sort of jelly, by which means it is rendered unfit for motion, coheres too strongly with the *crassamentum*, and passes but slowly through the lymphatics and secretory glands. In this state, the thicker and more viscid parts of the *serum*, lodging on the lymphatics and receptacles of the glands, gradually obstruct or fill them up. From which obstruction and diminished or intercepted circulation of the animal fluids, the heat and viscidity of the *blood* still increase, till a vital flame, raised too high, produces a fever. This state of the *blood*, and its symptoms, are aggravated by a sedentary life, or the want of due motion or exercise; for while the natural motion of the muscular *fibrilla* is either not at all, or but little promoted by voluntary action, the glands, and their receptacles, must be the sooner stuffed up, and the circulation of the lymph, that powerful means by which nature continually cools and dilutes the *blood*, sooner be suspended.

The blood is cooled, diluted, and attenuated by temperance, exercise, the use of water as beverage, and otherwise, and by deobstruents, especially mercury, in the gentler preparations of it; as *ethiops* or cinnabar given in moderate doses, so as not sensibly to affect the stomach; not excite salivation, for a long time.

As to the greater or less degree of fluidity and viscidity of the *blood*, it is manifest, that this humour may either have its parts too intimately divided and attenuated, or, on the contrary, there may be too close a cohesion between its parts, so as to render the mass too thick and viscous. The first of these states disposes the *blood* to a too quick, easy, and rapid motion, and sometimes dissolves and fuses it to such a degree, that the globules or *crassamentum* pass, together with the *serum*, through the glandular strainers, and occasions bloody serruses; as in malignant and pestilential fevers, bloody sweats, and other preternatural hæmorrhages. The latter or viscid state renders the *blood* unapt for motion, and disposes it to stick and lodge in the capillaries and lymphatics. Phil. Trans. N° 44. p. 891.

The *specific gravity* of the *blood*, or the various degrees of its rarefaction and condensation, depend on the degrees of heat as the natural heat either rises too high, or sinks too low; the *blood* will, of consequence, be either too much rarefied, or too much condensed. In the former case, where the *blood* is overheated and rarefied, the expansive force of the elementary fire and air contained in the mass, prevails over the corpuscular attraction; and thus, by the coagulating power of heat upon the *serum*, and its too intimate mixture and cohesion with the *crassamentum*, the lymph, which should form the secretions, cannot be separated, but the *serum* is, as it were, absorbed in the *crassamentum*, in consequence of which, the secretions must be diminished, or quite suspended, and a fever ensue, more or less inflammatory, according to the degrees of heat in the *blood*, and the consequent suspension or interruption of the lymphatic secretions. See FEVER and BURN.

On the other hand, when the *blood* is immoderately cooled and condensed, the corpuscular attraction prevailing over the expansive forces the *serum* will be overthinned and diluted, and consequently separated too fast, and thrown off too plentifully on the glands and lymphatics; so that if the urinary drains happen to be obstructed, a surcharge of *serum* must ensue, and in consequence of this a dropsy: and in case the fluid parts of the urine pass freely enough, and only the grosser excrements, salts, and *feculæ*, or fine fæces, be kept back, these being thrown on the several organs, will produce the symptoms of the scurvy.

In order to ascertain the colour of the different parts of corrupted *blood*, Dr. Pringle made the following experiment. He took a fresh quantity without any inflammatory crust, and divided it into the *crassamentum*, the *serum* with a few red globules in it, and the pure *serum*. The phials containing these several liquors were put into a furnace, where they stood some days, till they became thoroughly putrid.

The *crassamentum* was changed from a deep crimson to a dark livid colour; so that when any portion of it was diluted with water, it appeared of a livid hue. Of the same colour was the *serum* in which the red globules remained. But the pure *serum*, after becoming turbid, dropped a white purulent sediment, and changed into a faint olive green.

From this experiment he concludes, that the *color* of *fordes* and that of a splenetic flatus, consists of the *serum* tinged with a small quantity of red *blood* putrefied; and that when the serum recedes more to a tawny call, we are not to refer that colour to inflammation, but to a sudden solution of some of the red globules mixed with the *serum*.

A few drops of this putrid *crassamentum* were mixed with the recent urine of a healthy person, which they immediately changed into a flame-coloured watery, common in fevers and in the scurvy. After standing an hour or two, the same gathered a cloud, resembling what is seen in the crude urine of persons in acute distempers.

As to a green *serum*, it is perhaps never to be seen in the vessels of a living body, since it is not to be supposed that a person could survive so great a change of the *blood*. In foul ulcers, indeed, and in other cases, where the *serum* is left to stagnate long, the matter is found of a greenish colour, and is then always acrimonious. But the effects of a green *serum* are, in no case, to be so much dreaded as in the case of an *ascites*, where it is collected in so large a quantity, of which we had, some time since, almost a fatal instance in Mr. Cox, surgeon at Peterborough; who upon tapping a woman but a few hours after death, was so affected with the poisonous fleams of a green *serum*, that he was presently seized with a pestilential fever, and narrowly escaped with his life.

In regard to the sediment which the *serum* dropped on becoming putrid, and which resembled well digested matter, the doctor thinks it a terrestrial substance, intended for the nourishment or reparation of the solids; in which opinion he was the more confirmed by observ-

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ing a like ſediment in the urine of men in perfect health: and therefore concludes that the *pus*, or digeſted matter of ſores, is nothing but this ſubſtance ſeparated from the *ſerum* of blood. And hence it is that all large ulcers are extremely weakening, from the great expence of *blood* in furniſhing this ſubſtance. Hence alſo it is, that iſſues are of more conſequence for making drains, than one would expect from the viſible evacuation: as near as the doctor could gueſs, an ounce of *ſerum*, after ſtanding ſome days, not furniſhing more of this matter than what might be produced in the daily diſcharge of a large pea-iſſue, or from a ſeton.

There are frequent inſtances of the tawney colour of the *ſerum*, the reſolution of the *craſſamentum*, and even of the offenſive ſmell of *blood* recently drawn. And, indeed, if we reflect how putrefcent *blood* is in a heat equal to that of the human body, we may be convinced, that no ſooner is the perſpiration of the lungs impeded, than a corruption begins in the whole maſs; which, if not timely prevented, brings on ſome putrid diſeaſes. If the acrimony is great and ſudden, a fever or flux will enſue; but if the accumulation is ſo ſlow that the body grows habituated to the putrefaction, a leuroy prevails. This is the caſe in long voyages, or board unventilated ſhips; in marſhy countries; and, in a leſſer degree, in all northerly climates, in moiſt ſituations.

BLOOD, *obſtruction of the*, is alſo a preternatural coagretion, following on a *ſtoppage*, or diminution of its motion, from which ſtagnations and other diſorders draw their riſe. This is either general throughout the whole body; or ſpecial, confined to ſome particular part; as in hypochondriac and hyſteric caſes, where the *blood*, by reaſon of the ſlowneſs of its progreſſion, acquires a *lentor* in the region of the *abdomen*. To the ſame cauſe are alſo owing polypuſes, apoplexies, pleuriſies, inſarctions of the *viſcera*, palpitations of the heart, ſuppreſſions of the menſes, &c.

BLOOD, *ſolubility of the*, is that tendency in the *ſerum* and *craſſamentum*, by which they are diſpoſed to ſeparate and diſengage from each other, when the *blood* comes to cool, and ſtand in a baſon. When *blood* is taken off, it muſt frequently ſtand a long time at reſt, and in a cold place, before its principles can diſunite, ſo as to effect a perfect ſeparation of the *ſerum* from the *craſſamentum*; and yet at laſt, when the ſeparation is made, there may be a ſufficient quantity of *ſerum*, and perhaps a greater proportion than ordinary; whereas, at other times, this ſeparation ſhall be quickly made, and the ſolution effected after a ſhort time of ſtanding in a warmer air. Phil. Tranſ. N° 44. p. 80.

The red part of the *blood* is readily ſoluble in water, but not in *ſerum*, nor in a ſaturated ſolution of neutral ſalts. See an account of ſome experiments on the *blood* by Dr. Lewis, in Neumann's Works, p. 552. n.

BLOOD, *ſweetening, purifying, or cleanſing the*, are terms which ſeems to have riſen from a miſtake, as if the *blood* were an impure fluid, or capable of receiving impurities with the chyle; which ſeems to be overturned by the extreme fineneſs of the orifices of the lacteals, which will hardly allow any thing impure to paſs.

BLOOD, *excretions or evacuations of the*, are either ſpontaneous, as in the haemorrhoids, *hæmptoe*, hæmorrhages at the noſe, the *lochia*, and menſtrual flux; or artificially produced by medicines, emmenagogues, venæſections, ſcarifications, leeches, &c.

The want of due evacuations of the *blood* produces plethoras. In hypochondriacal caſes, the natural excretions by the *anus*, menſtrual flux, &c. are by all means to be promoted, as the fureſt means of cure.

BLOOD, *tranſfuſion of*, ſee TRANSFUSION.

BLOOD, *injecting liquors into*, ſee INJECTION.

BLOOD, *ſpitting of*. Spirit of plantain-juice, comfrey-roots, and fine ſugar, are recommended by Mr. Boyle as an approved remedy againſt ſpitting and vomiting of *blood*.

TAR-WATER is ſaid to be a very good remedy in this caſe.

BLOOD, *orgaſm of the*, denotes an extraordinary *effatus* or ebullition, obſerved in fevers, phrenzies, *hæmptoes*, palpitations of the heart, and even by ſome ſuppoſed in cephalalgias, ſcurvies, arthritic pains, &c. It is to be compoſed or allayed by calmecs, nitrofe preparations, &c. rather than by opiates.

BLOOD, *cooling of the*, recommended by lord Bacon as a means of longevity, is to be effected by clyſters, baths, unctions, refrigerating decoctions applied to the belly, &c. Some have vainly imagined the chief office of reſpiration to be, to cool the kindled *blood*, and prevent too great a deflagration. See RESPIRATION.

BLOOD, *depuration of*, ſee SECRETION.

BLOOD, *flux of*, is called an HAEMORRHAGE. The periodical ones of women, MENSES. Thoſe after child-birth, LOCHIA. That ordinarily happening on the firſt ciction is by ſome called and conſidered as the teſt of virginity.

In the Philoſophical Tranſactions we have ſeveral very uncommon inſtances of ſpontaneous hæmorrhages or effuſions of *blood*, particularly of a child that bled at the noſe, ears, and hind part of the head, for three days; from that to the ſixth, the ſweat blood from the head; on the ſixth, bled at the head, ſhoulders, and waiſt; and for three days more continued to bleed at the two bend of the arms, joints of the fingers of each hand, and at the fingers ends, till the died: after death were found, in the places whence the *blood* iſſued, little holes like the prickings of a needle.

About the matter of nutrition, or the ſource whence the nouriſhment is derived, great conteſts have ariſen among phyſicians and anatomiſts; ſome contending for a nutritious juice conveyed through the lungs; ſome ſetting up the lymph, others the chyle, ſome the *ſerum* of the *blood*, ſome the *cruor*, as the univerſal *ſuccus alibilis*, &c. However, all theſe, except they who bring the nutriment through the nerves, make the *blood* the vehicle, that conveys the alimentary parts through the body, whatever they be, and whencefoever derived: but perhaps it was on the ſcore of its heterogeneity, or compoſition of different elements, that they did not make itſelf the nutritious fluid; without reſtraining that faculty to ſome particular parts of it. But Dr. Drake makes no ſcruple to ſay, that the *blood*, in its largeſt acceptation, as conſiſting of all the parts before deſcribed, is ſimple and homogeneous enough for the purpoſes of nutrition; and that every part thereof contributes ſomething, either materially or inſtrumentally, to the augmentation, or reparation of the parts through which it paſſes. See NUTRITION.

For the manner in which the *blood* is formed, and how the chyle is aſſimilated into *blood*, ſee SANGUIFICATION.

BLOOD, *the quantity of*, in a human body, has been variouſly eſtimated by various authors: Dr. Lower computes it in an ordinary man, at about twenty pounds; Dr. Moulin by obſerving the proportion of the weight of ſeveral animals to their *blood*, eſtimates it at about $\frac{1}{13}$ of the weight of the whole man, which may amount to eight or ten pounds. Dr. Keil, from a calculation founded on the proportion of the coats to the diameters of the veſſels, ſhews, that in a body weighing 160 pounds, 160 pounds thereof are *blood*; but then under *blood* he includes the juices of the lymphæductis, nerves, and other veſſels which are ſecreted from it.

In reality, it is very difficult to determine the quantity of *blood* in the body. Bleeding to death, the method uſed by Doctor Moulin and others, can never give the eſtimate of its true quantity; becauſe no animal can bleed longer than while the great artery is full, the continuance of which will be longer or ſhorter as the wounded artery is ſmaller or greater; and the *aorta* muſt always be the firſt veſſel that empties. The moſt certain way, in Dr. Keil's opinion, is, by finding what proportion the cavities of the veſſels of which the whole body is compoſed, bear to the thickneſs of the coat. This, in the veins and arteries, may be exactly found; but, in other veſſels, we only know the quantity of fluid they contain, by carefully evaporating as much as poſſible.

Some think it probable, that at leaſt two-thirds of the quantity of *blood* contained in an animal body, is continually paſſing the capillaries and ſmall veſſels in the glandular and muſcular parts, which can never be drawn off by any thick diſcharge from cutting the large veſſels; ſince, in that caſe, the larger veſſels being emptied much faſter than they can be ſupplied again from the capillaries, a defect of *blood* will ſoon enſue at the heart, upon which the animal falls into convulſions, and the circulation ſtops, while far the greater part of the *blood* muſt be ſuppoſed ſtagnating in the ſmaller and remoter veſſels.

BLOOD, *for the ſtanching of*, ſee STYPTIC.

BLOOD, *circulation of the*, denotes a natural motion of the *blood* in every living animal; whereby that fluid is alternately conveyed from the heart to every part of the body, by the arteries, and returned from the ſame parts to the heart by the veins.

The *circulation of the blood* has been generally allowed to have been firſt diſcovered in England, in the year 1628, by Harvey, a phyſicism of our own country; though there are ſeveral authors who diſpute it with him.

Janſſon ab Almeloveen, in a treatiſe of New Inventions, printed in 1685, quotes ſeveral paſſages from Hippocrates to prove that the *circulation* was known to him. Wallæus, ep. ad Barthol. pretends it was known not only to Hippocrates, but alſo to Plato and Ariſtotle. It is added, that the Chineſe phyſicians taught it 400 years before it was ſpoke of in Europe.

Some go back as far as Solomon, and imagine they ſee ſome traces of it in Eccleſiaſtes, chap. xii. Bern. Genga, in an Italian treatiſe of Anatomy, quotes ſeveral paſſages from Realdus Columbus, and And. Cæſalpinus, where

by

by he endeavours to prove that they admitted a *circulation*, long enough before Harvey.

He adds, that Fra. Paolo Sarpi, the famous Venetian, from a consideration of the structure of the valves of the veins, and other experiments, concluded a *circulation*. See also Dutens's Recherches sur l'Origine des Decouvertes attribuées aux Modernes. Paris, 1766.

Leonicenus adds, that F. Paolo durst not make known his discovery, for fear of the inquisition; that he therefore only communicated the secret to Fabr. ab Aquapendente; who, after his death, deposited the book he had composed on it in the library of St. Mark; where it lay hid a long time, till Aquapendente discovered the secret to Harvey, who then studied under him at Padua; and who, upon his return to England, a country of liberty, published it as his own. But much of this is fable.

Sir Geo. Ent has shewn that Father Paul received the first notice of the circulation of the *blood* from Harvey's book on the subject, which was carried to Venice by the ambassador of the republic at the court of England, who showed it to F. Paul, by whom some extracts were made from it, which coming afterwards into the hands of his heirs, gave rise to an opinion in several persons that he was the author of the papers and of the invention.

Servetus first announced the *minor circuitus*, or the lesser *circulation* of the *blood* through the lungs, but the *major circuitus* was undoubtedly the discovery of Harvey. Many of the ancients had some knowledge of the *motion* of the *blood*; but they were ignorant of its regular *circulation*.

The *circulation* of the *blood* is evinced, from the following considerations. 1. All the *blood* of a living animal, upon wounding any one of the larger arteries, is in a little time, evacuated, and that with a considerable force: as appears from the operation of butchers, &c.

Hence, it follows that the *blood* has a paſſage from every part of the animal body into every artery; and if the whole mass of *blood* be found to move in this occasion, it is evident it must have moved before.

2. The great quantity of *blood* driven out of the heart into the arteries at every pulse, makes a *circulation* neceſſary; since, without it, an infinitely greater ſtock of *blood* must be ſuppoſed in the body of a man, than any obſervation or experiment will allow of.

For though the ancients, who knew not this *circulation*, imagined that only a drop or two was expelled at each *pulſe*; which they were neceſſitated to ſuppoſe, to avoid the too great diſtenſion of the arteries, from a more conſiderable influx: yet it is certain, and even demonſtrable, that theſe muſt needs be an ounce, or more driven into them at each time; and yet ſome compute that there are five or ſix thouſand pulſations in an hour.

3. Any of the arteries, being tied with a thread, ſwell, and beat, between the bandage and the heart; but they grow flaccid between the bandage and the extremities of the body. If now the artery be cut between the bandage and the heart, blood ſtreams out, even to death; if it be cut between the bandage and the extremities of the body, the quantity of *blood* it yields is very ſmall.

The *vital blood*, therefore, flows through the arteries; and its courſe is from the heart towards the extremes of the body: and this it does in *every* part of the body, internal and external: the veſſel of a wider part into a narrower; out of the trunk into the branches. And it is on this principle alone, that all the *blood* may be derived into any artery, and evacuated at it.

4. Any one of the larger veins being bound up with a thread, ſwells between the extremes of the body and the bandage, but without beating; and between the bandage and the heart it becomes flaccid.

If opened in the former part, it bleeds largely; if in the latter it ſcarce bleeds at all. The *blood*, therefore, flows briſkly from every part of the body into this vein; and its courſe is from the extremes of the body towards the heart; from the narrower parts of the vein towards the wider parts; from the branches to the trunk.

From the whole, it is evident, that all the arteries of the body are continually bringing the *blood* from the left part of the heart, through the trunks of the arteries, into the branches; and from thoſe to all parts of the body, internal and external; and on the contrary, that all the veins, excepting the *porta*, are perpetually bringing back the *blood* from the *extreme* parts into the ſmaller branches, from thoſe it paſſes into the larger, at length into the trunks, and thence into the *cava*; and through the *ſinus venoſus*, or trunk of that vein (which ends in the cavity of the right auricle) into the heart.

The *blood* being arrived here, its motion, or *circulation* is, continued as follows.

The auricles of the heart being large hollow muſcles, are furniſhed with a double ſeries of ſtrong fibres proceeding with a contrary direction to two oppoſite tendons, the one adhering to the right ventricle, the *other* to the *ſinus venoſus*; as alſo with innumerable veins and arteries; by the contractile force of theſe auricles, the *blood* will be vigorouſly expreſſed, and drove into the right ventricle; which, upon this contraction, is rendered flaccid, empty, and diſpoſed to admit it.

If now the right ventricle, thus full of *blood*, by the contraction of its fibres preſs the *blood* towards the aperture again, venous blood at the ſame time pouring in, will drive it back again into the cavity and mix it more intimately; till riſing up againſt the *parietes*, it raiſes the *valvulæ triſcuſpides*, which are ſo connected to the fleſhy columns extended on the oppoſite ſide, as that when laid quite down they cannot cloſe the *parietes* of the right ventricle: theſe it thruſts towards the right auricle, till being there joined they ſtop the paſſage very cloſely, and prevent any return.

By the ſame means, the ſame *blood* riſes up into the three ſemilunar valves, placed in the extremity of the other mouth, and lying open to the pulmonary artery: theſe it ſhuts cloſe againſt the ſides of the artery, and leaves a paſſage into the artery alone. The venous *blood*, therefore, that is, the *blood* of the whole body, continually moves out of the *ſinus*, or trunk of the *vena cava*, through the right auricle, and right ventricle, into the pulmonary artery, in a continued and forcible ſtream.

The *blood* carried by this artery into the lungs, and diſtributed by its branches through the whole ſubſtance thereof, is firſt admitted into the extremities of the pulmonary vein, called *arteria venoſa*; whence paſſing into four large veſſels, which unite together, it is brought to the laſt *ſinus communis*, or trunk of the pulmonary vein; by the force of whoſe muſculous ſtructure it is driven into the left ventricle, which, on this occaſion, is relaxed, and by that means prepared to receive it.

Hence, as before, it is driven into the left ventricle, which is relaxed by the ſame means; and the *valvulæ mitrales* opening, admit it into the left ventricle, and hinder its reflux into the pulmonary vein.

From hence it is forced into the *aorta*; at whoſe orifice there are three ſemilunar valves, which alſo prevent a reflux by cloſing the ſame.

And thus is *circulation* effected: all the *blood* ſent into the lungs, and received in the *arteria venoſa*, *ſinus venoſus*, left auricle and ventricle, being here continually propelled into the *aorta*, whoſe ramifications are ſpread throughout all the reſt of the body, with a violent motion.

This motion, in living animals, is attended with the following *phænomena*.

1. Both the venous ſinuſes are filled, and grow turgid at the ſame time. 2. Both auricles grow flaccid at the ſame time, and both are filled at the ſame time, with *blood* impelled by the contractile force of its correſpondent muſcular venous ſinus. 3. Each ventricle contracts, and empties itſelf of *blood* at the ſame time; and the two great arteries are filled and dilated at the ſame time. 4. As ſoon as the *blood*, by this contraction, is expelled, both ventricles being emptied, the heart grows longer and broader; and conſequently more flaccid and capacious. 5. Upon which, the muſcular fibres of both venous ſinuſes contract, and expreſs the *blood* contained in them into the ventricles of the heart. 6. In the mean time, the venous ſinuſes are again filled, as before; and the auricles, &c. return into their former habitude. 7. And this alternation continues till the animal begins to languiſh, under the approach of death; at which time the auricles and venous ſinuſes make ſeveral palpitations, for one contraction of the ventricle.

Thus is all the *blood*, in its return from every part of the body, internal and external, and from every part of the heart and its auricles, impelled into the right ventricle; out of that into the lungs; thence into the left ventricle; and thence through the whole extent of the body; and thence again brought back to the heart.

As to the manner of the *blood's* paſſing out of the arteries into the veins, in order to its being returned to the heart, there are two opinions.

In the firſt, the veins and arteries are ſuppoſed to open into each other, or to be continued from each other, by ANASTOMOSES, or inoculations of their extremities.

In the latter, the extreme capillary arteries are ſuppoſed to let out their *blood* into the pores of the ſubſtances of the parts; on whoſe nutrition part is ſpent, and the reſt is received in at the mouths of the capillary veins.

Each of theſe opinions muſt be allowed to have its reaſon: for without the firſt, it were difficult to account for ſo quick a return of the *blood* to the heart, as in effect we find; beſides, that in ſome of the larger veſſels, there is a manifeſted anaſtomoſis, viz. in the ſplenic artery with the ſplenic vein, &c. whence authors conclude the ſame contrivance to hold in the leſſer veſſels; even in the ſmalleſt twigs in the extreme parts of the body, though not diſcovered by the eye; nature being ordinarily found very uniform, and conſiſtent with herſelf.

Bjolanus, however, who will allow of no *circulation* but

by anaſtomaſes, allows of none, neither, but by the larger veſſels.

The reaſon of the latter opinion is deduced hence, that if part of the arterial *blood* did not ooze out into the ſubſtance of the parts, they could not be nouriſhed thereby: for the *blood*, while contained in the veſſels, may indeed convey warmth thereto, but no nutriment; the very veſſels themſelves being not nouriſhed by the fluid running in their cavity, but by capillaries paſſing their coats.

If then the *blood* be driven out of the veſſels in a greater quantity than is required for NUTRITION, the redundancy muſt be imbibed by the capillary veins.

M. Leewenhoeck ſeemed to have put this matter out of doubt by his microſcopes, with which he diſcovered the inoculations, or continuations of the extremities of the veins and arteries in fiſhes, frogs, &c. See ANASTOMASIS.

But doubts ariſing, whether the veins and arteries in human bodies and quadrupeds were of ſimilar ſtructure, Mr. Cowper made experiments, which evinced the inoculations in the *omentum* of a cat, and alſo in the meſentery of a dog. He found, that the extremities of the veſſels are not equally leſſened, in the inoculations in different animals.

In the tail of the tadpole, he frequently obſerved ſeveral communications between the veins and the arteries; through each of which two globules of *blood* might paſs together. In young fiſh, particularly *frigi*, the communicant branch is ſo ſmall, that one globule of *blood* can ſcarce paſs in the ſpace of three ſeconds.

The tail of a newt, or water-lizard, affords alſo a very entertaining proſpect of the *circulation* of the *blood* through almoſt numberleſs ſmall veſſels; but no object ſhews it ſo agreeably as one of theſe animals while ſo young as not to be above an inch long; for then the whole body is ſo very tranſparent, that the *circulation* may be ſeen in every part of it, as well as in the tail; and, in theſe objects, nothing is more beautiful than the courſe of the *blood* into the heart, and back again, where it may be traced all the way with great eaſe. Near the head there are alſo found three ſmall ſins, which afford a very delightful proſpect: theſe are all divided like the leaves of polypody, and, in every one of the branches of theſe, the *blood* may be very accurately traced, running to the end through the artery, and there returning back again by a vein of the ſame ſize, and laid in the ſame direction; and as the veſſels are very numerous and large in this part, and the third or fourth magnifier may be uſed, there are ſometimes ſeen thirty or forty channels of the running *blood* at once; and this the more as the globules of *blood* in the newt are large, and are fewer in number, in proportion to the quantity of *ſerum*, than in any other animal, and their figure, as they are protruded through the veſſels, changes in a very ſurpriſing manner.

In a *fœtus*, the *apparatus* for the *circulation* is ſomewhat different from that above deſcribed. The *ſeptum*, which ſeparates the two auricles of the heart, is pierced through with an aperture, called the FORAMEN *ovale*; and the trunk of the pulmonary artery, a little after it has left the heart, ſends out a tube in the deſcending aorta, called the *communicating canal*.

The *fœtus* being born, the *foramen ovale* cloſes, by degrees, and the canal of communication dries up, and becomes a ſimple ligament. Though in ſome inſtances it has been known to remain open.

This mechaniſm once known, it was eaſy to perceive its uſe. For while the *fœtus* is incloſed in the *uterus*, it receives no air, but that little furniſhed by the umbilical vein: its lungs, therefore, cannot ſwell and ſubſide as they do after the birth, and after the free admiſſion of the air. They continue almoſt at reſt, and without any motion; their veſſels are, as it were, full of themſelves, and do not allow the *blood* to circulate, either in abundance, or with eaſe.

Nature, therefore, has excuſed the lungs from the paſſage of the greateſt part of the *blood*; and has contrived the *foramen ovale*, by which part of the *blood* of the *vena cava*, received into the right auricle, paſſes into the left auricle, as the mouth of the pulmonary veins; and by this means it is found as far in its journey as if it had paſſed the lungs.

But this is not all: for the *blood* of the *cava*, which, miſſing the *foramen ovale*, paſſes from the right auricle into the right ventricle; being ſtill in too great quantity to paſs by the lungs, whither it is driven through the pulmonary artery; is, partly, intercepted in the way by the communicant canal, and poured immediately into the deſcending aorta.

This is the doctrine of Harvey, Lower, and moſt other anatomiſts; but M. Mery, of the Royal Academy, has made an innovation in it.

He aſſigns another uſe for the *foramen ovale*; and maintains, that the whole maſs of *blood* brought from the *cava* to the right ventricle, paſſes, as in adults, into the pulmonary artery; whence part of it is conveyed by the communicant canal into the aorta; and the reſt brought from the lungs by the pulmonary vein into the left auricle, where it is divided into two parts; the one paſſing through the *foramen ovale* into the right ventricle, without circulating through the aorta, and the reſt of the body; the other part puſhed, as in adults, by the contraction of the left ventricle, into the aorta, and the whole body of the *fœtus*.

The whole queſtion, then, turns upon this, viz. whether the *blood* paſs through the *foramen ovale* from the right to the left ventricle, or from the left to the right?

M. du Verney aſſerts the ancient opinion, againſt M. Mery; and maintains, that the *foramen ovale* has a valve ſo diſpoſed, as to be opened by the *blood* driving into the right ventricle; but ſhut the more firmly, by its puſhing towards the left. But M. Mery denies the exiſtence of any ſuch valve.

Again, in an adult, the aorta, being to receive all the *blood* of the pulmonary artery, is found of the ſame bigneſs. In a *fœtus*, the two arteries are to receive unequal quantities, which of the two ſyſtems ſoever be followed. According to the common opinion, the aorta, receiving more *blood* than the pulmonary, ſhould be bigger: according to the opinion of M. Mery, the pulmonary artery ſhould be the bigger, as being allotted to receive a greater quantity of *blood*.

To judge of the two ſyſtems, therefore, it ſhould ſeem, there needed nothing but to determine which of the two veſſels were biggeſt in a *fœtus*.

M. Mery always found the pulmonary artery half as big again as the aorta; and, on the other hand, M. Tauvry, who ſeconded M. Du Verney, produces caſes where the pulmonary is leſs than the aorta: the facts on both ſides being examined by the French Royal Academy.

M. Tauvry adds, that though the pulmonary artery ſhould be greater than the aorta, yet this does not prove, that more *blood* paſſes the firſt than the ſecond; ſince it may be accounted for from the *blood*'s paſſing more ſlowly towards the lungs, which it finds ſome difficulty to penetrate, and accordingly ſwells, and is driven back.

M. Littre, upon diſſecting an adult, in whom the *foramen ovale* was ſtill open, and meaſuring the capacities of the veſſels on each ſide, declares for M. Mery.

As to the force of the *circulation* in the *fœtus*, anatomiſts are again divided. The popular opinion is, that, during geſtation, the arteries of the *uterus* convey their *blood* into the *placenta*, which is nouriſhed by it, and that the ſurplus is conveyed into the roots of the umbilical vein, which makes part of the navel ſtring: thence it is carried to the liver of the *fœtus*, where it enters the *vena cava*, and ſo thence conveyed to the right ventricle of the heart, and diſtributed as before.

Again, the *blood*, brought from the iliac arteries of the *fœtus*, enters the navel-ſtring by the umbilical arteries; then paſſes into the *placenta*, where it is reſumed by the veins of the *uterus*, which carry it back again to the mother; and perhaps, alſo, by the roots of the umbilical vein, which mix it afreſh with the *blood* of the mother. According to this ſyſtem, therefore, it is the *blood* of the mother that ſupplies the child; which is here only regarded as a diſtinct member, or part, of her frame.

The beating of her heart ſends to it a portion of her *blood*; and ſo much of the impulſe is preſerved, as ſuffices to maintain that languid *circulation* which a *fœtus* enjoys; and, in all probability, gives that feeble pulſation obſerved in the heart.

Other anatomiſts maintain, that the *fœtus* is only ſupplied with chyle from the glands of the *uterus*; which is farther elaboraſed, and turned into *blood*, in the veſſels of the *fœtus*; and *circulates* therein, without any farther communication with the mother. Theſe allow of no reciprocal *circulation*, excepting between the *placenta* and the *fœtus*.

But the former opinion ſeems beſt ſupported: for the *placenta*, being ſeparated from the *uterus*, during the time of geſtation, neither yields any chyle, nor any other thing but *blood*. Beſides, M. Mery has ſhewn, that the *uterus* has no glands to furniſh any chyle.

Two other obſervations of the ſame author confirm the popular ſyſtem: the inner ſurface of the *uterus* is lined with veins; and the outer ſurface of the *placenta* is not lined with any membrane: now as it is by theſe two ſurfaces that the two ſeem, in ſome meaſure, glued together, it looks as if they were only left without membranes, for an immediate communication between their blood-veſſels.

Add to theſe a fact, whereof M. Mery was an eye-witneſs: a woman, big with child, was killed by a fall; in the cavity of her belly was found ſeven or eight pints

of *blood*; all the *blood-vessels* being emptied: the child, too, was found dead; but without the least appearance of any wound, or contusion; all its *blood*-vessels being empty of *blood* like those of the mother. The body of the *placenta* still adhered to the whole inner surface of the *uterus*: nor was there any extravasated *blood* there.

Now the *blood* here had no other way to discharge itself but by the veins of the *uterus*: whence it follows, that those veins bring back to the mother the *blood* of the *fœtus*; which, alone, establishes the whole system. If the *circulation* were only from the *fœtus* to the *placenta*, and not also to the mother, the dead child would have had all its *blood*.

Upon the whole, the *blood* in the lungs of the *fœtus* has none of the advantages of *air*, or respiration; which yet being necessary, nature, it is supposed, takes care that it receives a portion of air, mixed together with its mother's *blood*, and transmitted to it by the umbilical vessels, to be diffused through the body.

This is confirmed hence; that, by constringing the navel-string very tight, the child dies like a man strangled: which appears to be owing to nothing but the want of air.

Add to this, that as soon as the mother ceases to respire, the *fœtus* expires.

As to the velocity of the circulating *blood*, and the time wherein a circulation is completed, several computations have been made. By Dr. Keil's account, the *blood* is driven out of the heart into the aorta, with a velocity which would carry it 32 feet in a minute; but this velocity is continually abated in the progress of the *blood* through the numerous sections, or branches, of the arteries: so that before it arrives at the extremities of the body, its motion is infinitely diminished.

But Dr. Jurin shews, that in any two arteries transmitting equal quantities of *blood*, the *momentum* of the *blood* is greater in the artery more remote from the heart than in that nearer; and that its *momentum* is greater in all the capillary arteries together, than in the aorta; and that the *momentum* of the *blood* is greater in any of the veins than in the artery corresponding to it; and therefore greater in the vena cava than in the aorta. Lastly, he shews, that the *momentum* of the *blood* in the vena cava is equal to that of the quantity of *blood* thrown out into the aorta at each systole, whose velocity is such as would pass the whole length of the arteries and veins in the interval of time between two pulses, and that the absolute *momentum* of *blood* in the *aorta*, without any regard to the resistance, is equal to the *momentum* of the weight of thirty pounds falling over the space of an inch in a second. He supposes the motion of the *blood* to be equable, which in reality it is not.

Dr. Keil upon a moderate *ratio* of the branches of the arteries to the trunks, shews, that the greatest velocity of the *blood* is to the least, in a greater proportion than that of 10000,00000,00000,00000,00000,00000,00000, to 1.

The space of time wherein the whole mass of *blood* may ordinarily circulate, is variously determined. Some of the latest writers state it thus: supposing the heart to make 2000 pulses in an hour, and that at every pulse there is expelled an ounce of *blood*; as the whole mass is not ordinarily computed to exceed 24 pounds, it must be circulated seven or eight times over, in the space of an hour. See HEART.

The *impetus*, occasioning the *circulation*, is great enough in some animals to raise the *blood* six, seven, or eight feet high from the orifice it springs out at; which, however, is far exceeded by that of the sap of a vine in bleeding-time, which will sometimes rise upwards of forty feet high. Phil. Trans. N° 398. p. 274.

The heat and motion of the *blood* are always greater from a greater activity in the soul, in the day than in the night; and they are likewise ever greater from the food taken in the day-time, for the pulse is always quicker after eating than before it; after a full meal, than after a spare one; and after a meal of drier and stronger food, than after a meal of food that is moister and weaker.

BLOOD, *vitality and accretion of the*.—Dr. Willis endeavours to shew that the *blood* being animate, this animation or life depends on its being kindled; insomuch as the common affections of fire and flame belong to the *blood*, though this vital flame doth not appear to sight, because its form is subordinate to another superior form, *viz.* the soul of the animal. Phil. Trans. N° 57. p. 1178. See BOLVCHIUM.

BLOOD, *inflammability of the*.—Mr. Boyle having held a piece of human *blood*, dried till it was almost pulverable, in the flame of a candle, found it would take fire, and afford a flame much like that which excited it, burning with a crackling noise, and here and there melting. But this inflammability much better appeared, when putting together four or five thoroughly kindled coals, he laid on them a piece of dried *blood* of the bigness of a small nutmeg; for this yielded a large and very yellow flame, and if it were seasonably and warily blown from time to time as the *caput mortuum* degenerated into smoak, it would long continue to yield clear and yellow flames. The same author having caused some *blood* to be dried till it was reducible to fine powder, took part of the powder, which had passed a fine fearce, and casting it on the flame of a good candle, the grains, in their quick passage through it, took fire; and the powder flashed not without noise, as if it had been rosin.

BLOOD, *uses of the*, are either in the animal œconomy, or in medicine, religion, diet, arts, manufactures, &c.

In the animal œconomy, the *blood* serves as the source or fund from which all the humours of the body are secerned, whether necessary for nutrition, digestion, muscular motion, sensation, or the like. Some also make it the principle of life and heat. And others hold it to do the office of a *vehicle* in the alternate motion of the heart. Phil. Trans. N° 281.

Dr. Priestley has shewn, that one great use of the *blood* must be to discharge the phlogiston with which the animal system abounds; imbibing it in the course of its circulation, and imparting it to the air, with which it is nearly brought into contact, in the lungs: the air thus acting as the great menstruum for this purpose. Exp. and Obs. on Air, vol. iii. p. 72.

BLOOD, *medicinal and commercial uses of*, are chiefly in agriculture, where it is found an excellent manure for fruit-trees; among lapidaries, among whom, it is pretended, rubbies *blood* will soften glass and flint; and goats *blood* dissolves diamonds; in building, boards are sometimes rubbed with *blood* to turn them brown. Some also pretend it has anciently been used in the mortar of old walls. *Blood* is the basis of that noble colour, called by painters PRUSSIAN BLUE; and it is to vitriol, that is, to iron dissolved, and formed into a salt, that it owes its change into that colour.

On this principle, Mr. Brown, an excellent chemist among us, tried the effects of solutions of other metals mixed with *blood*, the result of which may be a *basis* for many valuable discoveries. The *blood*, in all these experiments, was prepared into a *lixivium*, in the same manner as in the making of the PRUSSIAN BLUE, that is, by calcining it with an equal weight of salt of tartar, and then dissolving it in boiling water.

This *lixivium* of *blood*, being poured into a solution of silver in *aqua fortis*, produces a *coagulum* of a pure flesh-colour. The like *lixivium*, made with flesh instead of *blood*, produces, in this case, a white *coagulum*; and simple oil of tartar being used in the same experiment, by way of comparison with these *lixivia*, afforded a much whiter sediment. Spirit of salt being added severally to all the three mixtures, the bloom of the flesh-colour was taken off in the first; but it suffered no other change. In the second, the *coagulum* was tinged a little blue; and in the third, the whiteness was evidently improved. The bluish tinge, in the second case, is not wholly to be attributed to the flesh, but perhaps might be owing to an alloy of copper in the silver, from which it is seldom entirely freed.

The same liquors were made use of to form a precipitate from corrosive sublimate of mercury dissolved in water, the consequence of which was, that the *lixivium* with the *blood* produced a pure yellow; that with flesh, an orange colour; and the simple oil of tartar, a dingy red. The addition of spirit of salt afterwards to these made some very odd alterations; for the first changed its yellow into an orange colour; and the second, its orange colour to a blue; while the third became without any colour. The blue colour in the *lixivium* with the flesh, when mixed with this solution, may be accounted for from the vitriol in this preparation; but it is not so easy to say, why the same vitriol should not have produced also a blue in a *lixivium* with *blood*.

Copper, when dissolved in *aqua fortis*, makes the water of a green colour; and, on pouring to this the two *lixivia* of *blood*, and of flesh, the *coagula* are much alike; that is, they are white, tinged with green; but, on adding spirit of salt to them, they become of a colour not unlike that of copper before the solution. Oil of tartar gives a pale green solution, and the spirit of salt clears up the liquor, and restores it to its former colour.

Bismuth dissolved in *aqua fortis*, and mixed with a *lixivium* of *blood*, produces a milky *coagulum*, which, after a small time standing, with the addition of some spirit of salt, becomes of a pale blue. The *lixivia* of flesh, and of crude salt of tartar, produced both white *coagula*, which the spirit of salt made no alteration in. From these experiments it appears, that not any of these metallic bodies would produce a fine blue colour, with the *lixivium* of the *blood*; but a solution of iron answers all

the experiments that are made with the solution of vitriol, and produces as fine a blue colour, as that made in the common way. Phil. Trans. N° 384. p. 25.

BLOOD, *medicinal uses of.* We find a great number of these enumerated by ancient and modern writers; but most of them, we doubt, on falſe and inſufficient grounds.

BLOOD, *eating of.* This practice appears to have been prohibited to Noah, which prohibition was renewed by Moſes, and obſerved by the Jews, principally with a view to the uſe of ſacrifices in divine worſhip, and as a token of reſpect to the altar, at which the *blood* of every victim was preſented before God. The prohibition was repeated by the apoſtles at the council of Jeruſalem, confirmed and defended by all the fathers, except St. Auguſtin, and the univerſal practice, both of the eaſtern and weſtern church, till his time; and, in many churches, even of the Weſt, much longer, as low as the middle of the tenth, ſome ſay the eleventh century. The queſtion is, whether the apoſtolical precept to abſtain from *blood*, be to be conſidered as only temporal and occaſional, a ſort of accommodation to the weakneſs of the Jewiſh converts; or perpetual, founded on moral principles, and conſequently ſtill obligatory.

The former opinion ſeems the more probable: though the advocates of the latter urge, that *blood* is prohibited, becauſe it tends to make men ſavage; that prohibition is joined with that of fornication, which is an immorality; and that God has enjoined abſtinence from *blood* on all Chriſtians, in order to manifeſt his ſupreme power over all their enjoyments.

BLOOD, *religious uſes of.* Among the Ancients, *blood* was uſed for the ſealing and ratifying of covenants and alliances, which was done by the contracting parties drinking a little of each other's *blood*; for appeaſing the *manes* of the dead, in order to which *blood* was offered on their tombs, as part of the funeral ceremony. Thus we read, that twelve youths were ſacrificed at the funeral of Patroclus; and eight at that of Pallas. Homer Il. φ ver. 27. Virgil Æn. lib. x. ver. 518.

The *blood* of victims was the portion of the gods, both among Jews and heathens; and accordingly was poured, or ſprinkled on the altars in oblation to them.

Some have aſſerted, that the Romans offered human *blood* to appeaſe their deities, which is denied by others.

The prieſts made another uſe of *blood*, viz. for divination: the ſtreaming of *blood* from the earth, fire, and the like, was held a prodigy, or omen of evil.

The Roman prieſts were not unacquainted with the uſe of *blood* in miracles; they had their ſtatues of *blood* from images, ready to ſerve a turn; witneſs that ſaid to have ſtreamed from the ſtatue of Minerva at Modena, before the battle at that place. But in this their ſucceſſors have gone beyond them. How many relations in eccleſiaſtical writers of madonas, crucifixes, and wafers bleeding? At leaſt the liquefaction of the *blood* of St. Januarius at Naples, repeated annually for ſo many ages, ſeems to tranſcend by far all the frauds of the Grecian or Roman prieſthood. But the chemiſts are got into the ſecret, and we find M. Neumann at Berlin performed the miracle of the liquefaction of dried *blood*, with all the circumſtances of the Neapolitan experiment.

BLOOD, in the *Romiſh Church*, is uſed in ſpeaking of the wine in the EUCHARIST; which they ſuppoſe miraculouſly converted, by the prieſt's conſecration, into the real *blood* of Chriſt. See TRANSUBSTANTIATION, &c.

BLOOD is alſo uſed abuſively for the SAP of plants; as having much the ſame office in the vegetable, as the other in the animal œconomy.

In a ſenſe, but unlike this, wine is ſometimes alſo denominated the *blood of the grape*.

BLOOD is alſo applied, in *Pharmacy*, to certain vegetable juices, tears, &c. as DRAGONS *blood*, a ſort of caſſeria gum.

BLOOD, *dragon's, ſanguis draconis*, is alſo uſed by the Arabs for the juice of the ANCHUSA.

BLOOD, *ſatyrion*, a ruddy liquor produced from the roots of *ſatyrium*, baked with bread; and liquefied as it were, into *blood*, by a long digeſtion.

BLOOD, in *Chemiſtry* and *Alchemy*, is a denomination given to ſeveral artificial compoſitions, chiefly on account of their red colour.

BLOOD is more peculiarly uſed by the alchemiſts for the tincture of a thing.

In which ſenſe we meet with *blood of mercury*, denoting the tincture of it; *dragons blood*, denoting the tincture of ANTIMONY.

BLOOD, or *ſanguis veri ruffi*, denotes the ſulphur of MARCASITE.

BLOOD is alſo uſed, in *Middle Age Writers*, for ſupreme juriſdiction, exerciſed by the lord of the fee, in caſes where *blood* is ſpilt.

This is alſo called *judgement of blood*, *juſtice of blood*, ſometimes *juriſdiction of blood*.

BLOOD, *avenger of*, among the Jews, was the next of kin to the perſon murdered, who was to proſecute the murderer.

Eccleſiaſtical judges retire, when judgment is to be given in *caſes of blood*, becauſe the church is ſuppoſed to abhor *blood*: it condemns no perſon to death; and its members become irregular, or diſabled from their functions, by the effuſion of *blood*.

BLOOD *of Chriſt* is the denomination of a military order inſtituted at Mantua in 1608, by Vinc. Gonzaga IV. Its device was, *Domine probaſti me*; or, *Nihil hoc triſte recepit*.

Hermant ſpeaks of this order, and obſerves that it took its name from ſome drops of the *blood of Chriſt* ſaid to have been preſerved in the cathedral church of Mantua.

The number of knights was reſtrained to twenty, beſides the grand-maſter; the office whereof was annexed to himſelf, and his ſucceſſors.

BLOOD, in *Farriery*, denotes a diſtemper in cattle's backs, which makes them in going draw their heads aſide, or after them: the cure is by ſlitting the length of two joints under the tail, and thus letting the beaſt bleed plentifully. If he bleed too much, the farriers knit his tail next the body, and then bind ſalt and nettles bruiſed on the part.

BLOOD-*running itch*, is a ſpecies of itch in a *horſe*, proceeding from an inflammation of the *blood* by overdoing, hard riding, or other ſore labour; which, getting between the ſkin and fleſh, makes the beaſt rub and bite himſelf; and, if let alone, ſometimes turns to a gnarous mange, highly infectious to all nigh him.

BLOOD, *field of*, in Syriac *aceldama*, was a field purchaſed by the Jews, with the thirty pieces of ſilver, which had been given to Judas for betraying his maſter, and which he had reſtored.

It ſtill ſerves for a burial-ground, in which all pilgrims, who die in their pilgrimage at Jeruſalem, are interred.

BLOOD-*flower*, *Haemanthus*, in *Botany*, a genus of the *hexandria monogynia* claſs: its characters are theſe: the flower has a permanent empalement of ſix leaves, ſhaped like an umbel; it hath one erect petal, cut into ſix parts; and ſix awl-ſhaped ſtamina, which are inſerted in the petal. The germen is ſituated under the flower, and afterward becomes a roundiſh berry with three cells, each containing one triangular ſeed. There are four ſpecies.

The ſeaſon for tranſplanting the bulbs of this plant is in May or June, when the leaves are decayed; they may be kept out of the earth at this ſeaſon three or four months, but it is more adviſable to plant them ſooner, as they always flower the ſtronger for it. Their ſoil is half a fine hazel-earth, and half old rotten dung; in September they muſt be removed into a moderate ſtove, and watered gently at times. They flower in the depth of winter.

BLOOD-*hound*. See HOUND.

BLOOD *letting*. See BLEEDING.

BLOOD *of the philoſophers*, in the *Hermetic Art*, denotes a mercurial ſpirit, inherent in all metals, but chiefly in gold and ſilver.

BLOOD, *penitents*, a denomination given to a reformed congregation of Bernardine nuns at Paris, firſt eſtabliſhed under that name in 1661.

BLOOD, *princes of the*, in France, are thoſe deſcended from the *blood* royal.

BLOOD, *ſalamander's*, ſignifies the redneſs remaining in the receiver, after diſtilling the ſpirit of nitre.

BLOOD-*ſhotten*, a diſtemper of the eyes, wherein the blood-veſſels are greatly diſtended, ſo as to make the eyes appear red. See OPHTHALMIA.

BLOOD-*ſtone*. See HEMATITES and SANGUINE.

BLOOD *of ſulphur*, *ſanguis ſulphuris*, is a preparation of liver of ſulphur, ground with oil of tartar *per deliquium*, then digeſted with dulcified ſpirit of nitre. It is reputed a good pectoral and diuretic, but rarely preſcribed.

BLOOD-*veſſels*, in *Anatomy*, uſually include only the veins and arteries; though in a larger ſenſe, all the veſſels in the body; as the nerves, lymphatics, &c. to the very hair, may be comprehended under the denomination.

Mr. Boyle obſerved an actual *blood*-veſſel, and full of red *blood* in the middle of a NERVE.

In the PLICA POLONICA, each hair is ſenſibly a *blood*-veſſel; and when cut, will bleed like a ſmall vein. Boyle's Phil. Works abr. tom. i. p. 173. 449.

BLOOD-*ſnake*. See *Blood*-SNAKE.

BLOOD-*wite*, in *Ancient Law Writers*, ſignifies *blood*, and a cuſtomary amercement paid as a compoſition for the ſhedding or drawing of *blood*.

The word is alſo written *bloduite*, *bloduita*, *bloduyta*, *bludwit*, *bludwi*, *bludwut*, and *bludwti*.

It is formed from the ancient Saxon *blud*, *blood*, and *wite*, or *wite*, a *fine* or *penalty*.

The word alſo denotes an exemption from this penalty, granted by the king to certain perſons and communities, as a ſpecial favour.

King Henry II. granted to all tenants within the honour of Wallingford—*Ut quieti ſint de hidagio & blodwite & hundredum*.

BLOOD-*wood*, *Haematoxylon*. See LOG-*wood*.

BLOOD-*wort*, in *Botany*. See SANGUINARIA and DOCK.

BLOOD, *corruption of*, in *Law*. See CORRUPTION *of Blood*.

BLOOD, *inheritable*, denotes ſuch a regular deſcent, as gives a perſon legal right to inherit the eſtate of an anceſtor. See ATTAINDER, ESCHEAT, INHERITANCE, &c.

BLOOD *royal*, is applied to the regular deſcendants, of the royal family.

BLOOD, *whole* and *half*, a Linſman of the *whole blood* is he that is derived from the ſame couple of anceſtors; whereas a perſon of *half blood* deſcends from either of them ſingly by a ſecond marriage. Blackſt. Com. vol. ii. p. 227.

BLOODY *crime*, *ſanguinum crimen*, in *Writers of the Middle and Barbarous Ages*, that which is puniſhed with the *blood*, or life of the offender.

BLOODY *hand*, one of the four kinds of treſpaſſes in the king's foreſt, by which the offender, being taken with his hands or other part bloody, is judged to have killed the deer, though he be not found either hunting or chaſing.

BLOODY *hell-wech*. See HELLER.

BLOODY *rain*. See RAIN.

BLOODY *ſweat*. Many inſtances of this are recorded, in which it has been owing to bodily diſorder, or extreme mental agitation and agony. See particularly Ariſtotle's Hiſt. Animal. lib. iii. cap. 19. apud Oper. tom. ii. Timanus Hiſt. Temp. &c. lib. ii. apud. Oper. tom. i. Melanges d'Hiſtoire & de Literature, &c. par M. V. Mareille, tom. iii. p. 149. Acta Phyſico-Med. Norimbergæ, vol. i. p. 84. and vol. viii. p. 428.

BLOODY *flux*. See FLUX and DYSENTERY.

BLOODY *urine*, a diſorder wherein the URINE comes away mixed with blood, in greater or leſſer quantity.

The blood here voided uſually comes from the kidneys, though ſometimes from the bladder or ureters. It is ſometimes occaſioned by violent motion, or a fall on the back, cauſing a rupture of ſome of the *blood* veſſels of the urinary parts; ſometimes it ſucceeds ſudden ſuppreſſions of the hæmorrhoids or *menſes*. The ſtone, eſpecially in the kidneys, will alſo occaſion frequent paroxyſms of this diſeaſe: and *cantharides* taken internally, or even applied externally without acids, will ſometimes have the ſame effect. *Bloody urine* is a terrible ſymptom in the ſmall-pox, and malignant fevers; though on ſome occaſions it has proved critical, and carried off the diſtemper.

BLOOM, in the *Iron Works*, a term uſed by the miners for a four-ſquare maſs of hammered iron, of about two feet long, and three quarters of a hundred weight, made from part of a pow of caſt iron. The *bloom*, however, is not yet become iron fit for the ſmith's uſe, but muſt undergo many hammerings, and be firſt made what they call the ANCONY.

BLOOM, *half*, a round maſs of metal, which comes out of the finery of an IRON-*work*. See BLOOMARY.

BLOSSOM, in a general ſenſe, denotes the FLOWER of any plant.

In a more proper ſenſe, the wood is reſtrained to the flowers of trees, which they put forth in the ſpring, as the forerunners of their fruit, otherwiſe called their *bloom*.

The office of the *bloſſom* is partly to protect, and partly to draw nouriſhment to the embryo fruit, or ſeed. Phil. Trant. N° 309. p. 329.

As eſſential as *bloſſoms* may ſeem to be to fruits, being, according to Malpighi, both the *uterus*, and the egg, or *foetus* of the plant; yet we are told of trees bearing fine fruit without *bloſſoms*, as was done by the maple-tree in New-England, mentioned by Mr. Dudley, and is always done by the peſonic tree in China, which, according to Kircher's relation, produces its fruit immediately from the ſtock, without the intervention of any *bloſſoms*. Phil. Trant. N° 117. N° 385 p. 199. N° 26. p. 486.

In ſome plants the male and female parts of generation are remote from each other; e. gr. in the *gourd*, *pumkin*, *melon*, *cucumber*, and all of that race; to which may be added the nut-bearing, and perhaps moſt bearing trees, which have all *bloſſoms* diſtinctly, male and female, on the ſame plant.

The *male bloſſoms*, called alſo CATKINS, may be diſtinguiſhed from the others, in that they have not any piſtil, or rudiment of fruit about them, but have only a large thrum, covered with duſt in their middle.

The *female bloſſom* has a piſtil within the *petala*, or flower-leaves, and the rudiment of their fruit is always apparent at the bottom of the flower before it opens.

Some ſorts of willows appear to change their ſex every year, and produce only male *bloſſoms*, or catkins, one year; and the year following ſtrings of female *bloſſoms*, which if they happen to be near enough ſome flowering male, will produce ſeed, not much unlike thoſe of an *apocynum*.

BLOSSOM is alſo uſed in the *Manege* for the colour of a horſe, which has his hair white, but intermixed all over with ſorrel and bay hairs, called alſo *peach-blowed*.

Horſes of this colour generally are hard and inſenſible, both in the mouth and the flanks; ſo that they are little valued; beſides they are apt to turn blind.

BLOSSOM, in reſpect of ſheep. See BLISSOM.

BLOTED *china ware*, a name given by ſome to a ſort of china that is loaded with colours in an irregular manner. This pleaſes ſome people, but it is a defective ſort of ware, the large blotches of colours having been only laid on to cover the blemiſhes or faults in the firſt baking.

BLOTTING *paper*, a ſpecies of *paper* made without ſize or ſtiffening, ſerving to imbibe the wet ink in books of accounts, and prevent its ſetting off, or blotting the oppoſite page.

BLOTTING *book*, a ſort of minute book, or memorandum book, uſed by ſome merchants, for making imperfect entries in a preſent hurry, which are to be copied out fairer and fuller at night into the journal.

BLOW, in a general ſenſe, denotes a ſtroke given either with the hand, a weapon or inſtrument.

In fencing, *blows* differ from thruſts, as the former are given by ſtriking, the latter by puſhing.

We ſay to give, to return, to parry a *blow*. See PARRYING.

Blows on the ſword make a ſpecies of purſuit, called BEATING.

BLOW, *blind*, *illus orbus*, or *cæcus*, is that which does not appear, or is not attended with effuſion of blood; in contradiſtinction from that followed by a wound, diſcolouring, *tumor*, or the like, called *ictus apertus* or *apparens*, an open *blow*.

In the ancient laws, we find *blows* for remembrance, given to make perſons remember ſome tranſaction, and enable them to become better witneſſes of it in future times.

BLOW, *military*, *ictus militaris*, that given with the ſword, on the neck or ſhoulder of a candidate for knighthood in the ceremony of dubbing him.

The cuſtom ſeems to have taken its riſe from the ancient ceremony of manumiſſion.

In giving the *blow*, the prince uſed this form, *ſis bonus miles*; upon which the party roſe a complete knight, and qualified to bear arms in his own right. Sometimes a double or even triple *blow* was given, called *trina percuſſio*.

BLOW, in *Common Law*. See BATTERY.

Blows and contuſions on the head, and about the *larynx*, are dangerous; thoſe in the epigaſtric region, eſpecially about the *ſcrobiculus cordis*, are frequently mortal.

BLOWS, *fly*, the *ova* of flies depoſited on fleſh, or other bodies proper for hatching them.

BLOW-*pipe*, among jewellers and other artificers, is a glaſs-tube, of a length and thickneſs at diſcretion, wherewith they quicken the flame of their lamp, by blowing through it with their mouth. It is uſed in works of quicker diſpatch, which do not need the bellows, for concentrating flame and various uſes.

Though the wind blown out at a ſmall bent tube of glaſs, called a *blow-pipe*, ſeems not to have any great celerity, in compariſon of the parts of flame, and is itſelf of little force; yet when the flame of a lamp or candle is directed by it, ſo as to beat upon a body at a convenient diſtance, it may be made to melt ſilver, or even copper itſelf, which yet may be kept, for many hours, unmelted in a red-hot crucible, or the flame of the lamp or candle unaſſiſted by the blaſt.

The enamellers have alſo tubes of divers ſizes, wherewith to *blow* their enamel, anſwering to the ſame purpoſe as the *pouzzolle*, or *blow-pipe*, of glaſſmen.

BLOWER, *ſnuffer*, an appellation of contempt ſometimes given to an ALCHEMIST.

In the French king's kitchen, there was anciently an officer under the denomination of *ſuffator*, or *fire-blower*.

The Roman mint-men were diſtinguiſhed by the appellation of *blowers* of gold, ſilver, and braſs, &c. *flatores auri, argenti*.

BLOWER, among dealers in horſes, a term uſed for ſuch horſes as wheeze much, without wanting wind. See WHEEZING.

BLOWING *of glaſs*, one of the methods of forming the divers kinds of works in the glaſs manufacture. It is performed by dipping the end of an iron ponteglo, or blowing-pipe, in the melted glaſs, and *blowing* through it

with the mouth, according to the circumſtances of the glaſs to be blown.

BLOWING *machines*, ſee BELLOWS.

BLOWING, in *Medicine*. One method of adminiſtering medicines is by inflation, or *blowing* them into the part by a tube: thus it is they ſometimes convey powders into the eye, and ſometimes up the noſe, for the cure of a POLYPUS.

BLOWING, *exſufflatio*, was alſo a ceremony in the ancient adminiſtration of baptiſm, whereby the *catechumen*, upon rehearſing the renunciation, blew three blaſts with his mouth, to ſignify that he rejected or caſt the devil abſolutely off.

Something like this is ſtill retained in the Ruſſian church. In the ſacramentary of St. Gregory, the prieſt who adminiſters baptiſm, is enjoined to *blow* thrice on the child's face, making the ſign of the croſs with his head, and pronouncing the words *exi ab eo ſpiritus*. Juſtin Martyr, Tertullian, St. Cyril, and St. Auguſtin ſpeak of this ceremony as uſed in their times.

BLOWING *of tin*, the running or melting of ore, after firſt burning it in a kiln, to deſtroy the mundic. Phil. Tranſ. N° 69 p. 2113, &c. See TIN.

BLOWING *of a fire arm*, is when the touch-hole is gulled, ſo that the powder will ſtame out.

BLOWING is alſo uſed in ſpeaking of the natural motion or courſe of the wind.

In the ſea-language, the wind is ſaid to *blow home*, or *blow through*, when it does not ceaſe, or grow leſs, till it comes paſt the place where the ſpeaker is. To *blow through* is ſometimes alſo uſed to denote, that the wind will be ſo great as to *blow* aſunder the ſails. When a wind increaſes ſo much that they cannot bear any top-ſails, they ſay, they were *blown into their courſe*, i. e. they could only have out the ſails ſo called. To expreſs an extraordinary great wind, they ſometimes ſay, it will *blow the ſail* out of the bolt-ropes.

BLOWING is alſo uſed in ſpeaking of the force and effect of kindled GUN-*powder*, on bodies which happen to be over it.

In this ſenſe we ſay to *blow* up a houſe. Engineers at ſieges make MINES wherewith to *blow* up walls, baſtions, and other defences.

Powder-mills are apt to *blow* up by the iron-gudgeon's growing hot, and ſetting fire to the powder-duſt flying about.

BLOWING, among *Gardeners*, denotes the action of flowers, whereby they open and diſplay their leaves.

In which ſenſe, *blowing* amounts to much the ſame with FLOWERING and BLOSSOMING.

BLOWING *of a ſtraw*, among *Fluriſts*, an artificial proceſs, in order to bring a flower to diſplay itſelf with greater perfection and beauty than it would arrive to in the natural way of *blowing*. The uſual method is thus: about April, when the flower-ſtems begin to put forth, or *ſpindle*, as the gardeners call it, they place by each flower a ſtraight ſtick four feet long, and tie the ſpindles to it as they ſhoot. As ſoon as the flower-buds appear, they leave only one of the largeſt on each flower-ſtem to bloſſom. About ten days before the flowers open themſelves, the round-podded kinds will begin to crack their huſks on one ſide, when the careful gardener, with a fine needle, ſplits or opens the huſk on the oppoſite ſide to the natural fraction; and about three or four days before the complete opening of the flower, cuts off with a pair of ſciſſars the points on the top of the flower pod, and ſupplies the vacancies or openings on each ſide the huſk with two ſmall pieces of vellum, or oil-cloth, ſlipped in between the flower-leaves and the inſide of the huſk; by ſuch means, the bloſſom will diſplay its parts equally on all ſides, and be of a regular figure. Beſides this care, when the bloſſom begins to ſhew its colours, they uſe to ſhade it from the extreme heat of the ſun with a trencher-like board, or other device of the like nature, faſtened to the ſtick which ſupports it; for the flowers, as well as fruits, grow larger in the ſhade, and ripen and decay ſooneſt in the ſun.

In *Heraldry*, a *fleur de lys* is ſaid to be *blown*, *ſpanned*, when its leaves are opened, ſo that buds appear among the *flowers*. The arms of the city of Florence are *argent*, a *fleur de lys blown*, *gules*.

BLOWING-*ſnake*, in *Zoology*, a name given by the people of Virginia to a ſpecies of ſerpent much reſembling the European viper, but conſiderably larger, and very remarkable for its inflating and extending the ſurface of its head before it bites. Its wound is very fatal.

BLOWN-*red*, in the manufacture of porcelane. See RED.

BLUBBER, in *Phyſiology*, and *Trade*, the fat which inveſts the bodies of all large cetaceous fiſh, ſerving to furniſh an oil.

The *blubber* is properly the *adeps* of the animal: it lies immediately under the ſkin, and over the muſcular fleſh. In the porpoiſe, it is firm and full of fibres, and inveſts the body about an inch thick. In the whale, its thickneſs is ordinarily ſix inches; but about the under lip, it is found two or three feet thick. The whole quantity yielded by one of theſe animals ordinarily amounts to forty or fifty, ſometimes to eighty or more, hundred weight. Phil. Tranſ. N° 77. p. 2275.

The uſe of *blubber* to the animal ſeems to be partly to poiſe the body, and render it equiponderant to the water; partly to keep off the water at ſome diſtance from the blood, the immediate contact whereof would be apt to chill it; and partly alſo for the ſame uſe that cloaths ſerve us, to keep the fiſh warm, by reflecting or reverberating the hot ſteams of the body, and ſo redoubling the heat; ſince all fat bodies are, by experience, found leſs ſenſible of the impreſſions of cold than lean ones.

The uſe in trade and manufactures is to furniſh train-oil, which is done by boiling down. Formerly this was performed alſhore in the countries where the whales were caught; but of late the fiſhers do not go alſhore, they bring the *blubber* home, ſtowed in caſks, and boil it down there.

BLUBBER-*livers*. The livers of cods, which having been barrelled, yield ſpontaneouſly a conſiderable quantity of oil, which being ſkimmed off, the reſidue are called *blubber-livers*, to be boiled down for more oil.

BLUBBER, *ſea*, a denomination given by our navigators to the MEDUSA MARINA, or ſea-nettle. Phil. Tranſ. N° 349.

BLUE, one of the primitive colours of the rays of light.

Anciently, *blue* was the ſymbol of the ſea; for which reaſon, in the Circenſian games the combatants who reſpreſented the ſea were clad in *blue*; and thoſe who had diſtinguiſhed themſelves by any notable exploit at ſea, were rewarded with a *blue* enſign.

Mr. Boyle has given us the following method of making tranſparent *blue*, nearly equal to ultramarine. The principal ingredient of this beautiful colour is the *cyanus*, or *blue* corn-bottle-flower, which abounds almoſt in every corn-field, and may eaſily be had during four of the ſummer months. It may be gathered by children about the verges of corn-fields, without doing any damage to the corn.

This flower has two *blues* in it, one of a pale colour in the large outer leaves; and the other of a deeper *blue*, that lies in the middle of the flower. Both theſe will do, being ſeparated from the buttons or cales in which they grow; but the deep *blue* leaves in the middle produce much the beſt colour: this may be obſerved by rubbing the leaves while they are freſh upon a piece of writing paper, ſo hard as to expreſs the juice, which will yield an excellent colour, that by the experience of two or three years has not been found to fade.

A ſufficient quantity of theſe middle leaves being procured, let the juice be preſſed from them; to which a little alum being added, will give a laſting tranſparent *blue*, ſcarcely inferior in brightneſs to ultramarine.

It is very probable, that if the chives of theſe flowers were cured in the ſame manner with ſaffron, they would produce a much greater body of colour, from which a tincture might be drawn with more eaſe than when preſſed freſh from the field.

Mr. Boyle alſo recommends another fine *blue*, produced from the *blue* leaves of rue beaten in a ſtone mortar with a wooden peſtle, and then put in water for fourteen days or more, waſhing them every day until they are rotten. Theſe beaten up at laſt, water and all, until they become a pulp, and then dried in the ſun, will make a fine *blue* for ſhading.

BLUE *aſhes*, *Cendres bleu*, and by corruption from the French *Saunders blue*. Theſe are very much uſed in water-colours, and ſome are very lively; but in oil they grow dull and greeniſh, being ſomewhat of the nature of verdigriſe; and the more oil is put to them, the weaker they become. They are found in the form of a ſoft ſtone, in places where there are copper mines, and water only is made uſe of in levigating them, to reduce them to a fine powder. This kind of *blue* ought to be uſed in works to be ſeen by candle light, as in ſcene painting; for though a great deal of white be mixed with it, it appears very beautiful, notwithſtanding it has a greeniſh caſt; quite contrary to enamel, which looks bright by day, and dull by candle light.

Some of theſe *blue aſhes* look as beautiful as ultramarine, but by mixing them with a little oil, the difference is eaſily diſcovered: for whereas ultramarine becomes much higher on being mixed with oil, theſe acquire no body of colour from the mixture.

There is nothing to be found in the ſhops under this name but common *verditer*, or ſome ſpecies of it. See VERDITER.

BLUE, *blue*, is a colour of good brightness, next to *Prussian blue*; it is also a colour of a body, and flows well from the pencil. See BICE.

BLUE, *azure*, in *Painting*. This colour may be drawn from silver; but Boyle and Hankoo justly observe, that this happens only according to the proportion of copper found mixed in the metal. The following is the best method for making it. Dissolve 6l gum, 6l of tartar, and one ounce alone, in the strongest double distilled vinegar; suspend over the vinegar is prepared, thin plates of silver; and bury the vessel in the hot dung of goats. Every three days remove the plates, and wipe off the *blue* which will be formed on them. Otherwise, put *lamina* of silver as thin as paper into a pint of the strongest vinegar, add to it two ounces of *sal ammoniac* well pulverised; put this into a glazed earthen pot carefully stopped; bury this in horse-dung for fifteen or twenty days, at the end of which time you will find the plates covered with a fine *azure blue*.

BLUE, *dyers*, is one of their simple or mother colours, used in the composition of others; it is given chiefly with woad, and indigo. Some dyers heighten their *blue*, by adding madder, brasil, and other woods. The way of brightening *blue* is by passing the stuff, when dyed and well washed, through lukewarm water; or, which is much better, by working and fulling the dyed stuff with melted soap, and then scouring it well.—*Blues* are dyed immediately from the whites, without any other preparation than scouring. See DYING.

Blue and yellow compose green when blended together. Hellot suspects that such a *blue* green as is procured from INDIGO and WOAD is procurable from any other vegetables. He supposes the natural greens of vegetables to be compounded in like manner of those two colours, *blue* and yellow; and that the *blue* is oftentimes the most permanent, so as to remain entire after the putrefaction or destruction of the yellow. The theory is specious, and perhaps just. Neumann.

BLUE *black*. See BLACK.

BLUE *smalt*. See *smalt* ENAMEL.

BLUE, *Flanders*, is a colour seldom used but in landskapes, as being apt to turn green. The French call it *cendre verte*, or green ashes.

BLUE *for painting on glasses, cloths*. See GLASS.

BLUE *paper*, &c. JAPANNING.

BLUE, *indigo*, see INDIGO.

BLUE *Lincoln*, or *Lumen*, see LITMUS.

BLUE, *painters*, is made differently, according to the different kinds of paintings. In limning, fresco, and miniature, they use indifferently ultramarine, *blue* ashes, and smalt; these are the natural *blues*, excepting the last, which is partly natural, partly artificial. See each under its proper head.

In oil and miniature they use indigo, *blue* bice, *blue* verditer, *lapis armenus*, smalt, and litmus; also a counterfeit ultramarine.

Enamellers and painters on glass have *blues* peculiar to themselves; each preparing them after his own manner. See ENAMELLING: *Painting on* GLASS, and Neumann's Chem. Works, by Dr. Lewis.

BLUE, *Prussian*, or *Berlin* BLUE, is a modern invention, considerably in use among painters, though inferior to the ultramarine *blue*. It was discovered by accident, about the beginning of this century. A chemist of Berlin, having successively thrown upon the ground several liquors from his laboratory, was surprised to see it suddenly stained with a most beautiful colour. Recollecting the liquors he had thrown on each other, he made a similar mixture in a vessel, and produced the same colour. He did not publish his process, but prepared and sold his BLUE, which was substituted for ULTRAMARINE. The account of it was first published in the Berlin Memoirs, 1710; but without the description of its process.

In a paper of Dr. Woodward's, communicated to the Royal Society in the year 1724, there is given a short way of making the *Prussian blue*, which when tried over again by Mr. Brown the chemist, was found to answer perfectly well; and gave hints and occasions to several experiments, which gave great light into the true nature of the bodies used in that preparation.

The method was this. Four ounces of bullock's blood dried, and four ounces of salt of tartar prepared from four ounces of crude tartar and as much nitre, were calcined together; two hours after which, a black spungy substance remained in the crucible, weighing four ounces; a solution of which being made in boiling water, and afterwards filtered, left a remainder which when dried weighed nine drams. An ounce of English vitriol was dissolved in six ounces of rain water, and eight ounces of crude alum in two quarts of water. These being mixed hot with the blood, became green; and on adding two or three ounces of spirit of salt, they become of a fine *blue*, which will subside, and leave the water clear at top. Mr. Brown found the process exactly answer, and the product was an ounce of a very fine colour, and perfectly fit for the painter's use.

Among the several experiments which were made by mixing, in different manners and proportions, the several liquors of which this colour was to be prepared, all produced a *blue*; but that in different degrees, some being deeper, and others much paler. In one experiment the alum was wholly left out, and a very pale *blue* was produced; in another, the alum and vitriol were used in equal quantities, and then the product was an extremely deep *blue*.

Upon the whole, the prescription seems to be given after repeated trials, and appears to be that very combination of the several ingredients, which must give the very finest colour they are capable of giving.

It is curious to know what gave the first hint for the production of so fine a colour from a combination of such materials, especially when we come to consider, that the blood has the principal share in this surprising change. Blood of any kind, or flesh of any kind, would produce the same effects; but it is probable that flesh would not yield so strong or fine a colour. Both have been tried, and found to yield a *blue*, but not so fine as the blood. Phil. Trans. abr. vol. vii. p. 747, &c.

In all the recipes which have been given for making the *Prussian blue*, the liquors are ordered to be mixed together boiling hot, except the spirit of salt; and experience shews, that the colour is most readily and beautifully made that way: but in experiments made with all the liquors cold, the colour have been very well produced, only in less beauty; and they have required nothing several times in fresh water, to bring them to their beauty.

Mr. Brown thinks, that this *blue* is the phlogistic part of iron, disengaged by the lixivium of bullock's blood, and applied to the earth of alum: and this opinion has been adopted by M. Geoffroy. The abbé Menon supposes that *Prussian blue* is nothing but iron entirely freed from all saline matter by the phlogiston of the alkaline lixivium, and precipitated with its natural colour, which, he says, is *blue*: the alum serving to diminish the intensity of the colour, by the whiteness of its earth. M. Macquer concludes, from many experiments, that it is nothing but iron impregnated with a superabundant quantity of phlogiston, which it receives from the phlogisticated alkaline precipitant. He has likewise applied the preparation of this pigment to the dying of wool and silk, and found means of fixing the colour. The cloth must first be dipped in a diluted solution of vitriol and alum, then in the dye diluted, and afterwards in water acidulated with spirit of vitriol; it acquires hereby a light *blue* colour, which becomes deeper and deeper by repeating the dippings as before, and adding to the liquors each time a little more of the respective saline matters. M. Macquer observes, that this *blue* dye exceeds in beauty and lustre that of indigo and woad; that it penetrates the whole substance of felled cloth, without weakening it; that it is durable in the air, and bears boiling in alum water, but is discharged by soap. Phil. Trans. abr. vol. vii. p. 747, &c. Mem. Acad. Scienc. for the years 1725, 1749, 1752.

The method of making this *Prussian blue* in perfection, has been purchased at a very valuable secret. Its process is very extraordinary, and could scarce be derived *a priori* from any reasoning about the nature of colours. It is allowed to be an excellent *blue* pigment, and is by some preferred to ULTRAMARINE, though its durability might have been suspected, from the vegetable and animal matters used in its preparation, if the colour did not seem extraordinarily fixed by the operation.

The goodness of *Prussian blue* must be distinguished by its brightness, deepness, and coolness.

There are four different processes given for making the finest sort of *Prussian blue* with quick-lime, given in the Hist. of the Acad. of Science, at Paris, for the year 1756. Process I. Take 3 lb. of ox's blood, dried and reduced into a kind of small scales; an equal quantity of quick-lime newly baked; 2 lb. of red tartar; and 1 lb. 8 oz. of salt-petre; pulverise the whole grossly, and put it into a crucible, placed in the midst of a great furnace, and give it a gradual fire. After four hours, when the matter is reduced into a kind of paste which emits no more smoke, and is equally red, throw it by spoonfuls into two pails of boiling water; and, having filtrated the lixivium, mix it with a solution of 9 lb. of alum, and 1 lb. 8 oz. of green vitriol. This operation will yield but 7 oz. of *fecula*; but its beauty will make sufficient amends for the small

small quantity, as it will surpass in this respect all the *blues* of Prussia, which are prepared by other methods.

It has also as good an effect as the finest *azure-marine*; and has, besides, the advantage of resisting the impression of the air.

Process II. Take 3lb. of dried ox's blood, an equal quantity of quick-lime, 2lb. of red tartar, and 2lb. of nitre; let them be calcined and lixiviated, as in the former process: pour the lixivium into a solution of 4lb. of alum, and 1lb. of green vitriol. This operation will yield more of the *blue frosts* than the other, but the colour will be less beautiful.

Process III. Take 3lb. of dried ox's blood, 4lb. 8 oz. of quick-lime, 2lb. of red tartar, 2lb. 8 oz. of salt-petre. Proceed as before. This operation will produce the most beautiful *blues*; but the quantity will be only about 8 oz. and 4 drams.

Process IV. Take 3lb. of dried ox's blood, 6 lb. of quick-lime, 2lb. of red tartar, and 1 lb. 8 oz. of nitre. Calcine and lixiviate as before; pour the warm lixivium into a solution of 4lb. of alum, and 1 lb. of green vitriol; the *frosts* precipitated in this way will be as beautiful as those of the first process, and the quantity 36 ounces.

BLUE, *Saxon*. This dye has been known for some time, and is made by digesting indigo in oil of vitriol, by which the indigo becomes of a much more lively colour, and is extended to such a degree, that it will go very far in dying. The following receipt for making it, produces a very fine colour, and never fails of success.

Mix 1 oz. of the best powdered indigo with 4 oz. of oil of vitriol, in a glass body or matrass; digest it an hour with the heat of boiling water, shaking the mixture at different times. Add 12 ozs. of the water to it, stir the whole well, and when cold filter it; a very rich deep colour will be produced: and if a paler *blue* be required, it may be had by the addition of water. The heat of boiling water is sufficient for this operation, and can never spoil the colour. A fand heat, not uncommonly used for this purpose, is often found to damage the colour.

Indigo digested with a large quantity of spirit of wine, and dried, will produce a finer colour than the former, if treated in the same manner with oil of vitriol.

For an account of the processes for obtaining BLUE *liquors* from oak-duft and vitriol, from log-wood and verdigrise, from log-wood and blue vitriol, from an essential oil and volatile spirit; see Dr. Lewis's Commercium Philosophico-Technicum, ed. 4to. ann. 1773. p. 382. 407. 436.

BLUE, *stone* or *powder*, used in washing of linen, is the same with SMALT, either in the lump, or powdered.

When the SMALT is taken from the pot, it is thrown into a large vessel of cold water: this makes it more tractable and easily powdered. Afterwards, when examined after cooling, it is found to be mixed with a greyish matter resembling ashes, which they call *efted*. This grey matter is separated by washing, and then the *blue* substance is powdered and sifted through fine sieves, to bring it to what we call *powder-blue*. Phil. Trans. N° 396.

BLUE, *turnsol*, is a *blue* used in painting on wood, made of the seed of that plant. It is prepared by boiling four ounces of turnsol in a pint and a half of water wherein lime has been slacked. See TURNESOLE.

BLUE, *ultramarine*, a beautiful blue colour, used by the painters, prepared from *lapis* LAZULI.

Some derive its name *ultramarine*, q. d. *beyond sea*, from its being first brought into Europe out of India, and Persia. Others say, it is because its colour is deeper than that of the sea.

This *blue* is one of the richest and most valuable colours, used in painting. The preparation consists in first calcining the stone in an iron pot or crucible, then grinding it very fine on a porphyry; then mixing it up with a paste made of wax, pitch, mastich, turpentine, and oil; and at last washing the paste well in clear water, to separate the colouring part from the rest, which precipitates to the bottom, in form of a subtile, beautiful, *blue* powder. The water is then poured off, and the powder at bottom is dried in the sun; and is the true *ultramarine*.

Those who prepare this colour, make usually four kinds, which they procure by so many different lotions: the first is always the best; and the rest worse and worse to the last. There is *ultramarine* of the first kind, sold for 11*l.* sterling *per* ounce; and of the last, for about 12 or 15*s.*

The common opinion concerning its origin is, that the method of making it was first discovered in England; and that a member of the East India company, having a quarrel with his associates, to be revenged of them, made the secret public.

Ultramarine must be chosen of a high colour, and well ground, which is known by putting it between the teeth where if it feel gritty, it is a sign the triture is not sufficient.

To know whether it be pure and unmixed, put a little of it in a crucible, and heating it red hot, if the powder has not changed as colour after this trial, it is certainly pure: on the contrary, if you perceive any change, or any black specks on it, it is falsified.

Besides this, there is another kind called common or *Dutch ultramarine*; which is only the crude *lapis armenus* and smalt well ground, and pulverised; the colour whereof, when used by the painters, is something like that of the true *ultramarine*, though much less valued.

Ultramarine, on account of its high price, is frequently adulterated, either by a precipitation or mugillery of copper made by alkaline salt, or by fine smalt. The adulteration in the former way may be discovered by pouring some diluted spirit of nitre on a small quantity of the *ultramarine*; which, if there be any copper, will soon dissolve, and form a greenish *blue* solution. The other kind of adulteration may be detected by washing the substance in water; the particles of the smalt being much grosser than those of the *ultramarine*; besides, smalt will not mix so readily with oil, and in enamel painting they may be easily distinguished, because smalt will flux without any addition, whereas the other requires the addition of some vitreous body.

There is a *blue fossil substance*, something like what Kentman mentions under the name of *cæruleum fatonicum*. It was discovered in a peat-moss in Scotland. This earth is at first of a white colour, and only grows *blue* by being exposed to the air. It has also some resemblance to what Mr. Da Costa in his Nat. Hist. of Foss. p. 103, calls *ochra friabilis cærulea*. It is described very minutely by Mr. Douglas, who gives an account of his various experiments upon it, and recommends it as a cheap paint in gum-water, particularly as it is levigated and prepared by nature. See Phil. Trans. vol. lviii. N° 27. an. 1768.

Many similar specimens of *blue* earth have been discovered in England and Ireland, and several parts of the continent.

BLUE-*bell*, a name given in some countries to the *Corn*-WHEAT.

BLUE-*bottle*, in *Botany*, is the English name of the CYANUS. It is a small plant, with beautiful blue-flowers, common in our corn-fields, and of which many beautiful species are kept in gardens. See CENTAURY.

The common wild *blue-bottle* of our corn-fields, is esteemed a cardiac and alexipharmic. Conserves and syrups are prepared from it in some places, and have very properly for the making of other more efficacious medicines of the same intention into form. Schroder and some others have greatly extolled the distilled water of the flowers in inflammations, and many other disorders of the eyes; but this seems a less warranted matter. The flowers of the large garden kind, are said to be particularly good in disorders of the womb, and the leaves of either in infusion in dropsies.

There are several species of this plant, commonly cultivated in gardens, for the beauty of their flowers. They are almost all annuals, perishing as soon as they have ripened their seed. In order to have them flower early, their seeds should be sown in July, or the beginning of August, and when the plants have once got strength, they should be transplanted into warm borders, and will endure the cold very well, and will flower very early the next summer.

BLUE-*cap*, in *Ichthyology*, see BLUE-*cop*.

BLUE-*mantle*, in *Heraldry*, the title of a pursuivant at arms.

BLUE-*nuns*, *filles bleus*, those of the order of the Annunciation.

BLUENESS, that quality which denominates a body *blue*; or such a size and texture of the parts that compose the surface of a body, as disposes them to reflect the blue or azure rays of light, and those only, to the eye.

With respect to the *blueness* of the sky, M. de la Hire, after Leonardo da Vinci, observes, that any black body, viewed through a thin white one, gives the sensation of blue; and this he assigns as the reason of the *blueness* of the sky, the immense depth whereof being wholly devoid of light, is viewed through the air illuminated and whitened by the sun. For the same reason he adds, it is, that soot mixed with white makes a blue; for white bodies, being always a little transparent, and mixing themselves with a black behind, give the perception of blue. From the same principle he accounts for the *blueness* of the veins on the surface of the skin, though the blood they are filled with be a deep red; for red, he observes, unless viewed in a clear, strong light, appears a dark brown, bordering on black; being then in a kind of obscurity in the veins, it must

have the effect of a black; and this, viewed through the membrane of the vein, and the white skin, will produce the perception of *blueness*.

In the same way did many of the early writers account for the phenomenon of a *blue sky*; such as Fromondus, Funccius, Otto Guericke, and many others: their opinion long prevailed, and has been adopted by some of more modern times, especially by Wolf, and Muschenbroek. But in the explanation of this phenomenon, sir Isaac Newton observes, that all the vapours, when they begin to condense and coalesce into natural particles, become first of such a bigness as to reflect the violet rays, before they can constitute clouds of any other colour. This, therefore, being the first colour they begin to reflect, must be that of the finest and most transparent skies, in which the vapours are not arrived to a grossness sufficient to reflect other colours.

M. Bouguer, without having recourse to the vapours diffused through the atmosphere, in order to account for the reflection of the *blue*-making rays, attributes it to the constitution of the air itself, whereby those faint-coloured rays are incapable of making their way through any considerable tract of it. And he accounts for those *blue* shadows, which were first observed by M. Buffon in the year 1742, by the aerial colour of the atmosphere, which enlightens these shadows, and in which the *blue* rays prevail; whilst the red rays are not reflected so soon, but pass on to the remoter regions of the atmosphere. The abbé Nollet accounts for the phenomenon of *blue* shadows by the diminution of light; having observed that, of two shadows which were cast upon a white wall from an opaque body illuminated by the moon, and by a candle at the same time, that which was enlightened by a candle was reddish, and that which was enlightened by the moon was *blue*. However, the true cause of this appearance seems to be that assigned by M. Bouguer, which agrees with the solution given of it about the same time by Mr. Melville. But indeed of attributing the different colours of the clouds, as sir Isaac Newton does, to the different size of those globules into which the vapours are condensed, Mr. Melville supposes, that the clouds only reflect and transmit the sun's light; and that, according to their different altitudes, they may assume all the variety of colours at sun-rising and setting, by partly reflecting the sun's incident light, as they receive it through a shorter or longer track of air; and the change produced in the sun's rays by the quantity of air through which they pass, from white to yellow, from yellow to orange, and lastly to red, may be understood agreeably to this hypothesis, by applying to the atmosphere what sir Isaac Newton says concerning the colour of transparent liquors in general, and that of the infusion of *guaiacum* in particular. Edinb. Ess. vol. ii. p. 75. *Bouguer Traité d'Optique*, p. 368. Newton's Opticks, p. 228; or Priestley's Hist. of Vision, &c. p. 436.—449.

BLUFF-*head*, or BLUFF-*bowed*, in the *sea-language*, is when a ship has but a small rake forward on, being built with her form too straight up.

Bluff-headed ships are opposed to those that are sharp-headed. They are shorter less masted, and sail cheaper.

BLUING *of iron*, a method of beautifying that metal sometimes practised as for mourning buckles, swords, or the like. The manner is thus: take a piece of grind-stone, and whet-stone, and rub hard on the work, to take off the black scurf from it; then heat it in the fire, and as it grows hot, the colour changes by degrees, coming first to a light, then to a dark gold colour, and lastly to a blue. Sometimes they grind also indigo and sallad-oil together; and rub the mixture on the work with a woollen rag, while it is heating, leaving it to cool of itself.

Among sculptors we also find mention of *bluing* a figure of bronze, by which is meant the heating of it, to prepare it for the application of gold-leaf, because of the bluish cast it acquires in the operation.

BLUNDERBUSS, in the *Military Art*, a short sort of fire-arm, with a large bore, contrived to carry a number of musket or pistol bullets at once.

The *blunderbuss* is proper to do execution in a crowd, or to make good a narrow passage, as the door of a house, stair-case, or the like.

BLUNT, in *Fencing*. To fight with *blunts*, is to exercise or parade with weapons without points or edges.

BLUNTING *the angles of a battalion*, in the *Military Art*, signifies to retrench the four corners, and turn the square into an octagon.

This is done in order to give an opportunity for presenting the pikes, or firing on all sides, and was a military evolution formerly much in use; but now disused.

BLUSHING, a suffusion or redness of the cheeks, excited by a sense of shame, on account of consciousness of some failing or imperfection.

Blushing is supposed to be produced from a kind of consent or sympathy, between several parts of the body, occasioned by the same nerve being extended to them all. Thus the fifth pair of nerves being branched from the brain to the eye, ear, muscles of the lips, cheeks, palate, tongues, and nose; a sting from or bestial that immediately affects the cheeks with *blushes*, driving the blood into the minute vessels thereof; or the same sting that affects the eye, and ear. For the same reason it is, as Dr. Darwin observes, that a savoury thing from or smell affects the glands and parts of the mouth: if a thing hateful be pleasing, it affects the muscles of the face with laughter; and unhappily, it exerts itself on the glands of the eyes, and occasions weeping, &c. And to the same cause Dr. Willis ascribes the pleasure of killing.

BMI, in *Botany*, see GRAMEN.

BOA, in *Natural History*, a monstrous serpent of prodigious size, which devours whole beasts at once, from which it takes its name. It sucks the cows' teats, and is found sometimes in Calabria. One of these was killed in the reign of the emperor Claudius, in the belly of which they found a child, which had been swallowed whole. The bite causes an inflammation of the part bitten.

BOA is a genus of serpents in the Linnæan system, with abdominal and subcaudal scuta, and without a rattle.

BOADODA *Bassaw*, in the *Turkish Military Affairs*, an officer of the janizaries, whose business it is to walk every day about the principal parts of the city, with a number of janizaries, to attend him, to keep order, and see that all things are regular, even to the streets. This office is for three months, and from this the person is usually advanced to be a *sanzack*.

BOAH, in *Zoology*, see CERVUS.

BOAR, in *Zoology*, the *wild hog*. This creature differs from the common domestic *hog*, in that the grown animal is not different in colour in the different individuals of the same species, but is always of a sadly tawny-grey. His head is much longer also than that of the other; his ears shorter and rounder; and both these, and his tail and feet, are always black. It differs also in that it is covered with a coat of hairs, the one kind long, the other short: these last serve the creature to the same purposes as the downy fur which the beaver and other have under their long hair. It is very commonly wild in Italy, and its flesh frequently brought to market. Ray.

The *wild boar*, among the *Huntsmen*, has several names, according to its different ages: the first year it is called *a pig of the sounder*; the second, it is called *a hog*; the third, *a hog-sterone*; and the fourth, *boar*; when leaving the sounder, he is called *a jangler or jangler*.

The *boar* generally lives to twenty-five or thirty years, if he escapes accidents. The time of going to rut is in December, and lasts about three weeks. They feed on all sorts of fruits, and on the roots of many plants: the root of fern in particular forms a great favourite with them: and when they frequent places near the sea coasts, they will descend to the shores, and demolish the tenderer shell-fish in very great numbers. Their general places of rest are among the thickest bushes that can be found, and they are not easily put up out of them, but will stand the bay a long time. In April and May they sleep more found than at any other time of the year, and this is therefore the successful time for taking them in the toils. When a *boar* is roused out of the thicket, he always goes from it, if possible, the same way by which he came to it; and when he is once up, he will never stop till he comes to some place of greater security. If it happens that a *sounder* of them are found together, when any one breaks away, the rest all follow the same way. When the *boar* is hunted into the wood, where he was bred, he will scarce ever be brought to quit it; he will sometimes make towards the sides to bite: to the noise of the dogs, but retires into the middle again, and usually dies or escapes there. When it happens that a *boar* runs a-head, he will not be stopt, or put out of his way by man or beast, so long as he has any strength left. He makes no doubles or crossings when chased; and when killed makes no noise, if an old *boar*; but the sows and pigs will squeak, when wounded.

The season for hunting the wild *boar* begins in September, and ends in December, when they go to rut. If it be a large *boar*, and one that has lain long at rest, he must be hunted with a great number of dogs, and those such as will keep close to him; and the huntsman, with his spear, should always be riding in among them, and charging the *boar* as often as he can, to discourage him: such a *boar* as this, with five or six couple of dogs, will run to the first convenient place of shelter, and there stand

ſtand at bay, and make at them as they attempt to come up with him.

There ought always to be relays alſo ſet for the beſt and ſtaunchest hounds in the kennel; for if they are of young eager dogs, they will be apt to ſeize him, and be killed or ſpoiled before the reſt come up. The putting of collars with bells about the dogs necks is a great ſecurity for them: for the *boar* will not to ſoon ſtrike at them when they have theſe, but will rather run before them. The huntſmen generally kill the *boar* with their ſwords or ſpears; but great caution is neceſſary in making the blow, for he is very apt to catch them upon his ſnout or tuſks, and if wounded and not killed, he will attack the huntſman in the moſt furious manner. The places in which the wound is to be given with the ſpear, are either between the eyes in the middle of the forehead, or in the ſhoulders; both theſe places make the wound mortal. When this creature makes at the hunter, his ſafety conſiſts merely in courage and activity; if he flies for it, he is ſurely overtaken and killed: if the *boar* comes ſtraight up, he is to be received at the point of the ſpear; but if he makes doubles and windings, he is to be watched very cautiouſly, for he will attempt getting hold of the ſpear in his mouth, and if he does ſo, nothing can ſave the huntſman but another perſon's attacking him behind; he will on this attack the ſecond perſon, and the firſt muſt then attack him again; two people will thus have enough to do with him, and were it not for the folks of the *boar*-ſpears that make it impoſſible to proſs forward upon them, the huntſman who gives the creature his death's wound, would ſeldom eſcape falling a ſacrifice to his revenge for it.

The modern way of *boar*-hunting is generally to diſpatch the creature by all the huntſmen ſtriking him at once; but the antient Roman way was, for a perſon on foot, armed with a ſpear to keep the creature at bay, and in this caſe the *boar* would run of himſelf upon the ſpear to come at the huntſman, and puſh forward till the ſpear pierced him through.

The wild *boar* was formerly a native of Britain, as appears from the laws of Hoel Dha, Leges Wallicæ, 41. William the Conqueror puniſhed with the loſs of their eyes, any that were convicted of killing him: Charles I. turned out wild *boars* in the New Foreſt, but they were deſtroyed in the civil wars.

The hinder claws of a *boar* are called *gwards*.

In the corn he is ſaid to *feed*; in the meadows or fallow fields, to *root*, *worm*, or *feed* in a cloſe to *graze*.

The *boar* is farrowed with as many teeth as he will ever have, his teeth increaſing only in bigneſs, not in number; among theſe there are four called *tuſhes* or *tuſks*, the two biggeſt of which do not hurt when he ſtrikes, but ſerve only to whet the other two loweſt, with which the beaſt defends himſelf, and frequently kills, as being greater and longer than the reſt.

It is very remarkable, that theſe creatures in the Weſt Indies are ſubject to the ſtone: few of them are abſolutely free from it, yet ſcarce any have the ſtones of any conſiderable ſize. It is common to find a great number in the ſame bladder, and they are uſually of about a ſcruple weight, and are angular, and that with great regularity, each having five angles. Phil. Tranſ. N° 36.

Among the antient Romans, *boar*'s fleſh was a delicacy; a *boar* ſerved up whole was a diſh of ſtate.

The *boar* was ſometimes alſo a military enſign borne by the Roman armies, inſtead of the eagle.

Among phyſicians, a *boar*'s bladder has been reputed a ſpecific for the epilepſy.

The tuſh of the wild *boar* ſtill paſſes with ſome as of great efficacy in quinſies and pleuriſies. See an analyſis of it in Dr. Lewis's edition of Neumann's Works, p. 521.

BOAR, in the *Manege*. A horſe is ſaid to *boar* when he ſhoots out his noſe as high as his ears, and toſſes in the wind.

BOARD, a piece of timber ſawed thin, for the purpoſes of building. See TIMBER.

We ſay, a *deal-board*, an *oak-board*, &c. *Boards* thicker than ordinary are called *plank*. *Boards* formed ready for the coopers uſe are called *clap-boards*. We have alſo *mill-board*, and *ſcale-board*, ſhaved very thin, for caſes, band-boxes, &c.

Deal-*boards* are generally imported into England ready ſawed, becauſe they are prepared cheaper abroad, by means of ſaw-mills.

Clap-*boards* are imported from Sweden and Dantzic.

Oak-*boards* chiefly from Sweden and Holland; ſome from Dantzick.

Pipe-*boards* are brought from Dantzic. We alſo import white *boards* for ſhoe-makers: mill and ſcale-*boards*, paſte-*boards*, &c. for divers artificers.

Scale-*board* is a thinner ſort, uſed for the covers of primers, thin boxes, and the like. It is ſawed with mills, and imported from Hamburgh.

BOARD, *feather-edged*, *grooving*, *lap*, *poſt*, *ſound*, *truſs*, *warp*, *together*. See the ſeveral adjectives.

BOARD, is alſo uſed for a kind of table or bench, whereon ſeveral artificers perform their work.

In this ſenſe, we ſay a *work-board*, a *ſhop-board*, a *tryſel-board*, &c.

BOARD, is alſo uſed for a flat machine, or frame, uſed in certain games, and the like.

In this ſenſe, we ſay a *draught-board*, a *cheſs-board*, a *ſhovel-board* and the like.

BOARDS, in *Book-binding*. See BOOK-BINDING.

BOARD, *bureau*, is alſo uſed for an office where accounts are taken, payments ordered, and the like.

In this ſenſe, we ſay the *board* of works, *board* of ordnance, *board* of treaſury, and the like.

BOARD *of green cloth*. See GREEN-CLOTH.

BOARD *of trade and plantations*, was eſtabliſhed in its preſent form by king William, in the year 1696. Commercial matters had before this time been generally referred to a fluctuating committee of the privy council: the obvious inconveniences attending this mode of management, induced king Charles II. to erect a ſpecial council of trade in the year 1668, which was ſoon after laid aſide: it was renewed again in 1672, but ſoon diſcontinued, and the former method of reference to committees of the privy council revived. In 1696, a regular and permanent *board* was eſtabliſhed, for ſettling all diſputes and regulations relating to commerce and colonies.

This *board*, beſide ſuch of our miniſters of ſtate, who only attend on extraordinary occaſions, conſiſts of a firſt lord commiſſioner, and of ſeven other commiſſioners, with an annual ſalary of one thouſand pounds each. This *board* was abolihed in 1782.

BOARD *of trade, bureau de commerce*, an office in the French polity, eſtabliſhed in 1723, compoſed of eight perſons of experience in commerce and navigation, where all papers and propoſals relating to the improvement of trade are examined, and all difficulties which occur in affairs of navigation and commerce, either within or without the realm, are diſcuſſed.

BOARD-*wages*, denotes a certain annual ſum allowed to houſhold ſervants for maintenance. *Board-wages*, granted to the menial officers and ſervants of the crown, commenced in 1619, when the neceſſities of king Charles obliged him to retrench the expence of his houſhold, by aboliſhing the greateſt part of the daily tables in his palace, which were eighty in number, and ſubſtituting this annual allowance in their room.

BOARD, or ABOARD, in the *Sea-language*, is uſed in ſpeaking of things within a ſhip, or other veſſel.

Hence, to go *aboard* ſignifies to go into the ſhip; to leave over *board*, is to throw a thing out of the veſſel into the ſea: to ſlip by the *board*, is to ſlip down by the ſhip's ſide; *board* and *board*, is when two ſhips come ſo near as to touch one another; or when they lie ſide by ſide.

Weather-board, is that ſide of a ſhip which is to windward.

To board a ſhip, is to enter an enemy's ſhip in a fight. See BOARDING, *infra*.

To *make aboard*, or, as it is otherwiſe expreſſed, to *board it up* to a place, is to turn to windward; and to beat ſometimes upon one tack, and ſometimes upon another; in which it is to be noted, that the farther you ſtand off to one point of the compaſs, the better *board* you will make; and that it is better making *long boards* than ſhort ones, if you have ſea-room. A *long board* is when you ſtand a great way off before you tack or turn; a *ſhort board* is when you ſtand off a little: a *good board* is when we have got up much to windward, or when a ſhip advances much at one tack, and falls upon a ſtraight line. To leave a land on *back-board*, is to leave it aſtern or behind; the *back-board* being that which, in boats or ſhips, we lean our backs againſt.

BOARDED *floor*. See FLOOR.

BOARDING *of a ſhip*, an attack made to take her, by entering her decks with a detachment of armed men.

In order to *board a ſhip*, it is beſt to bear directly up with her, and cauſe all your ports to leeward to be beat open, and bring as many guns from the weather-ſide thither as you have ports for; and then lay the enemy's ſhip on board looſ for looſ, and order your tops and yards to be manned and furniſhed with neceſſaries, and let all your ſmall ſhot be in readineſs; then charge at once with both ſmall and great, and at the ſame time enter your men in the ſmoke, occaſioned by the firing, or by lighted powder-flaſks and an earthen ſhell, called a ſtink-pot, thrown on the enemy's deck, either on the bow of the ſhip, or bring your mid-ſhip cloſe up with her quarter, and to enter your men by the ſhrouds, or, if you would uſe your ordnance, it is beſt to board the enemy's ſhip athwart her bawſe, for then you uſe moſt of your great guns, and the only thoſe of the prow. Let ſome of your men endeavour to cut down the enemy's yards and tackle, whilſt others clear the decks, and beat the

the enemy from aloft; then let the feuttles and hatches be broke open with all speed, to wind trains, and the danger of being blown up by barrels of powder, placed under the decks. Thus, your men bring in poſſeſſion of the tails and helm, and the enemy every way ſtow'd below the decks, the ſhip is taken, and all lies at your diſcretion.

BOARIA *Caſtra*, a name given by the ancient Romans to the finall or rough balls of common pumice we cleavens. Pliny calls this plant ſometimes *aſpa*, ſometimes *longoris*; and the fruit by the names of *aſparagorum*, or *aſparagarum*, and ſometimes *uvaria*.

BOAROLA *boarina*, in *Ornithology*, the name of a very ſmall bird, deſcribed by Aldrovandus, and ſome others, and ſeemingly the ſame ſpecies with the REX-AURIS, or REGICAPA.

BOAT, a ſmall, open, floating veſſel, commonly wrought or moved only by rowing; intended chiefly for the navigation of rivers, lakes, and the like.

The *boat* acquires various names, according to its various ſtructure, and the various uſes it is appointed for, and the places where it is to be uſed. The ſeveral *boats*, and their names are,

A jolly boat, a long-boat, a biſſe, a pinnace, a cutter, a lanch, a water-boat, a punt, which are *boats for ſhips*; *a gondola, a Greenland's boat, a Hermaphrodite, a bulloon of Siam, a ſcrip-boat, a periagua, a phaſel-boat, a paton, a canoe, a trunckle, a ſurveyary, a dunk-boat, a filuca, a ferry-boat, a pram, a punt, a ſhallop, a Biſcay, a till-boat, a cod-boat, a hull-boat, a wherry, a flat bottomed-boat*, &c.

The *boats* or wherries, allowed to ply about London, are either *ſcullers*, wrought by a ſingle perſon with two oars; or *oars*, wrought by two perſons, with each an oar.

De Chales propoſes the conſtruction of a *boat*, which, what burden ſoever it bear, ſhall not only move againſt the current, without either ſails or oars, but alſo advance to much the ſwifter, as the rapidity of the water is greater. He makes it the ſame with that of the others, excepting only a wheel added to its ſide, with a cord, which winds round a roller as faſt as the wheel moves. Something of the like kind has alſo been ſince done by M. Pitot. Vide Mem. Acad. R. Scienc. an. 1719. p. 350, and p. 510.

A new attempt, and with great ſucceſs, is alſo ſaid to have been lately made at Vienna.

M. de la Hire has given an examination of the force neceſſary to move any boat in ſtagnant and running waters, either with ropes faſtened to them, or with oars, or with any other machine; wherein, he ſhews, that the larger the ſurface of the oars plunged in the water, and the ſmaller that of the *boat* preſented to the water, is; and again, the longer that part of the oar between the hand and the place where the oar reſts on the *boat*, and the ſhorter that between this laſt point and the water; the freer will the *boat* move, and the greater effect will the oar have. See OAR.

Hence it is eaſy to calculate the force of any machine that ſhall be applied to rowing; *v. gr.* if we know the abſolute force of all the men who row, it muſt be changed into a relative force, according to the proportion of the two parts of the oar; *i. e.* if the part out of the veſſel be double the other, and all the men together can act with the force of 900 pounds, we compute firſt, that they will exert 300; which 300, multiplied by the ſurface which the veſſel preſents to the water, gives a ſolid water of a certain weight; which weight may be found, and of conſequence the velocity impreſſed on the veſſel by the oars. Or, the velocity of the oars may be found in the ſame manner, by multiplying the 300 pounds by the ſurface of all the parts of the oars plunged in the water. Nor would there be any difficulty in finding firſt the relative forces, then the abſolute ones; the velocities either of the oars, or of the veſſel, being given, or the proportion of the two parts of the oar.

Boats ſail more ſlowly and heavily over ſhallow, than over deep waters. See an account of experiments for explaining this, in Dr. Franklin's Letter to Sir John Pringle. Experiments, &c. 4to. 5th ed. p. 510.

BOAT, *long*, called alſo the *ſhip's boat*, is the largeſt and ſtrongeſt *boat* belonging to a ſhip that can be hoiſted aboard of her. It has a maſt, ſail, and oars, as other *boats*, alſo a tiller to the rudder, which anſwers to the helm of a ſhip.

Her thwarts are the ſeats where the rowers ſit; and her thowls the ſmall pins between which the oars are put when they row.

Inſtead of a *long-boat*, merchant-ſhips in the Mediterranean uſe a LANCH.

A ſhip's *boat* is the very model of a ſhip, and is built in parts in all things anſwerable to thoſe which a ſhip requires, both for ſailing and bearing a ſail: and they bear the ſame names as to all the parts of a ſhip under water, as rake, run, ſtern, ſtern, bow, bilge, &c.

Its uſe is to weigh the anchor, bring goods, proviſion, &c. to or from the ſhips; and other ſervices, as occaſion requires. The *long-boat* of a man of war may be decked, armed, and equipped for ſtalking ſhort diſtances againſt merchant ſhips of the enemy, or ſmugglers, or for impreſſing ſeamen, &c.

The terms uſed in navigating a *boat*, are, to *trim the boat*, that is to keep her even; to *row the boat*, *i. e.* to bring her head the other way; *to ſet the boat*, *i. e.* to bring out the water: *to row the boat*, *i. e.* let ſome men go to row the *boat*; *to row the boat*, *i. e.* to follow it with two ropes, ſo that one ſhall counteract the other; *double oars*, *i. e.* two lies from bearing againſt the ſhip's ſides. The *boat's* gang includes thoſe who uſe to row in the *boat*, which are the ſix ſtream and ſix yoing, to whom the charge of the *boat* immediately belongs.

A *ſea-boat* is that which endures a rough ſea well.

A *good long boat* will row in any crown ſea, if the water be ſmooth and ſtill, though the ſea break very much. The rope by which a *boat* is towed at the ſhip's ſtern, is called the *boat-rope*, or *tow-line*, in order to keep the *boat* from cheering, they add another called a *cheering*.

To ſave the bows of the *boat*, which would be worn out with the twiſting about the ſhip under her, they give it, they ſay, a *turn*, that is, a rope round by the gunwale, and ſo that ſurrounds the *boat*.

BOATS, *train of*, a number of ſmall veſſels faſtened to each other, plying up the Loire in France, by ſide when the wind ſerves, otherwiſe towed by men. Generally to the number of ſeventy or eighty to a ſingle rope.

Boat-Boat. *See* Drive *boat*.

BOAT, *coach*, *becauſe turkey*, more frequently called *water-coaches*, are large covered *boats*, uſed chiefly on the river Seine, for the convenience of paſſengers, and conveyance of all ſorts of goods.

BOAT, *ſurgeon's*, in *Surgery*, a ſpecies of BANDAGE, uſed when the crown of the head and the part between that and the forehead are to be bound. It is likewiſe called *thalus dividuus*.

BOAT-*fly*, a water-inſect, whoſe back is ſhaped much like the bottom of a *boat*; the hind legs, which are thrice as long as the reſt, aptly enough reſembling a pair of oars. Accordingly, contrary to all other creatures, he ſwims, ſays Monfet, on his back.

BOAT-*hook*, an iron hook, with a ſharp point on the under part of it, fixed on a long pole, uſed in hinging it to, or puſhing it from any other *boat*, ſhips, &c.

BOATING, a kind of puniſhment in uſe among the ancient Perſians for capital offenders.

The manner of *boating* was thus: the perſon condemned to it being laid on his back in a *boat*, and having his hands ſtretched out, and tied faſt on each ſide of it, had another *boat* put over him, his head being left out through a place fit for it. In this poſture they fed him, till the worms, which were bred in the excrements he voided as he thus lay, eat out his bowels, and ſo cauſed his death, which was uſually twenty days in effecting, the criminal lying all this while in moſt exquiſite torments. Prid. Connect. tom. ii. p. 368.

BOATSWAIN, an officer on board a ſhip, who has charge of her rigging, ropes, cables, anchors, ſails, flags, colours, and pendants; and is alſo to take care of the long-boat, and its furniture, and to ſteer her, either by himſelf or his mate.

He calls out the ſeveral gangs aboard, to the due execution of their watches, works, &c. He is likewiſe a kind of a PROVOST-marſhal, who ſees and puniſhes all offenders ſentenced by the captain, or a court-martial of the fleet.

BOATSWAIN'S-*mate* is an aſſiſtant of that officer, who has the peculiar command of the long-boat, for the ſetting forth of anchors, weighing or fetching home an anchor, warping, towing, or mooring. He is alſo to give an account of this ſtore.

This officer is the ſame with what the Dutch called *boots-man maet*; the Germans, *unter boots-mann*; and the French *lafleman*, or *ſecond contre-maitre*.

BOB *of a pendulum*, the ſame with its ball; except that the former is uſed in ſpeaking of ſhort PENDULUMS, the latter of long ones.

BOB, *in Ringing*, denotes a peal conſiſting of ſeveral courſes, or ſets of changes.

BOB-*ſtay*, in *Sea-language*, a rope uſed to confine the bowſprit of a ſhip downward to the ſtem.

BOBARTIA, in *Botany*, a genus of the *triandria digynia* claſs of plants, the *calyx* of which is imbricated, and contains only a ſingle flower; the corolla is a glume, bivalve, and placed on the germen; the ſeed is ſingle, of an oval figure, and contained in the cup. There is one ſpecies.

BOBBING, or BOBBIN, a little piece of wood turned into a cylindric form, whereon thread is wound, to be uſed in the weaving of bone-lace.

The French alſo give the denomination *bobine* to what among us is more properly called a *ſpool* or *quill*. In which they are alſo followed by ſeveral Engliſh.

In this general ſenſe, *bobbins* are uſed to wind thread, worſted, hair, cotton, ſilk, gold, and ſilver; and they are of different lengths and ſizes, according to the materials which are to be wound.

BOBBING, among *fiſhermen*, a particular manner of FISHING for eels, different from *jagging*.

Bobbing for eels is thus performed: they ſcour well ſome large lobe, and with a needle run a twiſted line through them from end to end, taking as many ſtraw-ſhoes as will keep them about a board's diſtance at leaſt: when they ſo ſtem all to a ſtrong cord, and, pinch an hard lead and an half above the worms, to a plummet three quarters of a pound weight, and make the cord faſt to a long pole. With this apparatus ſilling in muddy water, they feel the eeling luſtily at the bait; when they think they have ſwallowed it ſufficiently, gently draw up the rope to the top and bring them aſhore.

BOBISATIO, or BOCEDISATIO, in *Muſic*, denotes the uſing of the ſeven ſyllables *bo, re, mi, fa, ſol, la, ſon, ni*, to expreſs the ſeven muſical notes, in lieu of the ſix uſual ones introduced by Arezine. *ut, re, mi, fa, ſol, la*, as has been ſometimes done by the Netherland and German muſicians ſince the beginning of the ſeventeenth century, to avoid the imitation neceſſary in the uſe of theſe latter.

BOCA, in *Ichthyology*, the name given by Paulus Jovius to the *box* of Ariſtotle, called the *bogue*, from the largeneſs of its eyes. It is a ſpecies of the SPARUS, and is diſtinguiſhed by having four parallel longitudinal gold and ſilver coloured lines on each ſide. Gesz and ſome others call it WEGE, and the Italians, *bega*.

BOCAMOLLE, in *Ichthyology*, a name given by ſome to a very large and long Braſilian fiſh, more uſually called by its Braſilian name, *ſurmulet-monſtrous*.

BOCARDO, in *Logic*, the fifth mode of the firſt figure of ſyllogiſm, wherein the firſt propoſition is particular and negative; the ſecond, univerſal and affirmative; and the third, or concluſion, particular and negative. Thus:

BOC *Some animal is not man.*
AR *Every animal has a principle of ſenſation.*
DO *Therefore ſomething has a principle of ſenſation, that is not man.*

BOCCA, in *Zoology*, a name by which ſome authors have called the fiſh, more commonly known by the name of the URANOSCOPUS, or STAR-*gazer*.

It is a ſpecies of the TRACHINUS, diſtinguiſhed from the other kinds by having a great number of beards on the lower jaw.

BOCCA, in *Glaſs-making*, the round hole in the working furnace, by which the metal is taken out of the great pots, and by which the pots are put into the furnace. This is to be ſtopped with a cover made of earth and brick, and removeable at pleaſure, to preſerve the eyes of the workmen from the violence of the heat.

BOCCALE, or BOCAL, a liquid meaſure uſed at Rome, anſwering to what among us is called a bottle, being equivalent to about an Engliſh quart. Seven *boccales* and an half make the *rubbio*.

BOCCARELLA, in the *Glaſs-manufacture*, a ſmall hole or aperture of the furnace, one of which is placed on each ſide of the BOCCA, almoſt horizontally with it. Out of them the furniture take coloured or finer metal from the piling pot.

BOCCONIA, in *Botany*, ſo called after Paul Boccone, a conſiderable botanical writer in Sicily; the name of a genus of the *dodecandria monogynia* claſs of plants; the characters of which are theſe: the flower hath four narrow petals, with a great number of very ſhort ſtamina; in the centre is ſituated a roundiſh germen, contracted at both ends, which afterward becomes an oval fruit, contracted at both ends, having one cell, full of pulp, including a ſingle round ſeed. There is but one ſpecies of this genus known at preſent, which is the branching *bocconia*, with a woolly cow-parſnip leaf; or as it is called by Sir Hans Sloane, the greater tree-celandine, with oak leaves.

It is very common in Jamaica, and ſeveral other parts of America, where it grows to the height of ten or twelve feet; having a ſtraight trunk, as large as a man's arm which is covered with a white ſmooth bark. The whole plant abounds with a yellow juice, like the greater celandine, which is of an acrid nature; ſo that it is uſed by the Americans to take off warts, and ſpots from the eyes. The ſingular beauty of this plant renders it worthy a place in every curious collection; and the Indians are very fond of it, for Hernandez tells us, their kings planted it in their gardens.

BOCE, in *Ichthyology*, ſee BOCA.

BOCKING *herrings*, in the *Dutch trade*, ſignifies the ſame with BLOATED herring among us.

BOCK-LAND, or BOOK-LAND, formerly denoted that which we now call FREEHOLD-*land*, or CHARTER-*land*; and it was by that name diſtinguiſhed from FOLK-*land*, which was COPYHOLD-*land*.

In *ancient law-writers*, it denotes a poſſeſſion or inheritance held by evidence in writing.

The word was doubtleſs written *bockland*, quaſi *bookland*, anſwering to the Latin *terra libellaria*, which was that held without writing.

BOLIANO, in *Ichthyology*, the name of an American fiſh, of the ſize of a perch, with a purple back, and yellow belly. It is more uſually known among authors by the name of DORADO.

BODLEIAN *Library*. See LIBRARY.

BODY, in *Zoology*, the name of a ſpecies of American ſnake of the *amphiſbæna* kind, called alſo IBIJARA.

BODY, in *Phyſics*, a ſolid, extended, paſſable ſubſtance; or ſuch merely paſſive, and indifferent either to motion or reſt, but capable of any ſort of motion, and of all figures and forms.

The word alludes to the Saxon *bodiȝ*, *ſtature*; and to the Belgic *body*, *a cover*, q. d. *the tabernacle of the ſoul*.

Body is compoſed, according to the Peripatetics, of *matter*, *form*, and *privation*; according to the Epicureans and Corpuſculariens, of an aſſemblage of ſolid, heavy *atoms*; according to the Cartheſians, of a certain quantity of *extenſion*; according to the Newtonians, of a ſyſtem or aſſemblage of ſolid, maſſy, hard, impenetrable, moveable *particles*, ranged or diſpoſed in this or that manner; whence reſult *bodies* of this or that form; diſtinguiſhed by this or that name.

Theſe elementary or component particles of *bodies* muſt be infinitely hard; vaſtly harder than the *bodies* compounded of them; nay, ſo hard as never to wear, or break in pieces. "Thus, Sir Iſaac Newton obſerves, it "neceſſary in order to the world's laſting in the ſame "ſtate, and *bodies* continuing of the ſame nature and "texture in ſeveral ages."

BODIES, *motion of*. See MOTION.

BODY, *affections of*. See AFFECTION.

BODY, *ends of*. See MARK.

BODY, *element of*. See ELEMENT.

BODIES, *the exiſtence of*, is a thing incapable of being demonſtrated in the order in which we arrive at the knowledge of their exiſtence ſeems to be this.—We firſt find we have ſenſations; we then obſerve we have ſuch thoſe ſenſations when we pleaſe; and theſe conclude, we are not the abſolute cauſe thereof, but that there is required ſome other cauſe for their production. Thus we begin to know, that we do not exiſt alone, but that there are ſeveral other things in the world together with us.—But this, Dr. Clarke owns, comes far ſhort of a demonſtration of the exiſtence of a corporeal world: he adds that all the proof we have of it is this; that God would not create us ſuch, as that all the judgments we make about things exiſting without us, muſt neceſſarily be falſe. If there be no external bodies, it follows, that it is God who repreſents the appearance of *bodies* to us; and that he does in ſuch a manner as to deceive us.—Some think this has the force of a demonſtration: "It "is evident God cannot deceive us; it is evident he "does deceive and delude us every moment, if there be "no *bodies*; it is evident, therefore, there muſt be *bo-* "*dies*."—But the minor of this argument may be denied without any ſuſpicion of abſurdity.

"In effect, were it poſſible for *bodies*, i. e. ſolid figured, &c. ſubſtances to exiſt without the mind, "correſponding to thoſe ideas we have of external ob"jects, yet how were it poſſible for us to know it? "Either we muſt know it by ſenſe, or reaſon; as for "our ſenſes, by them we have only the knowledge of "our ſenſations or ideas: they do not inform us, that "things exiſt without the mind, or unperceived, like "thoſe which are perceived. It remains, therefore, that "if we have any knowledge at all of external things, it "muſt be by reaſon inferring their exiſtence from what "is immediately perceived by ſenſe. But how ſhall "reaſon induce us to believe the exiſtence of *bodies* "without the mind, when the patrons of matter themſelves deny, that there is any neceſſary connection be"twixt them and our ideas? In effect, it is granted "on all hands, and what happens in dreams, phrenſies, "deliriums, extaſies, &c. puts it beyond diſpute, that "we might be affected with all the ideas we have now, "though there were no *bodies* exiſting without, reſembling them. Hence, it is evident, the ſuppoſition of "external *bodies* is not neceſſary for the production of "our ideas." Berkley's Princ. of Human Knowledge, p. 59. See ABSTRACTION and EXISTENCE.

Body generally ſtands contradiſtinguiſhed from *ſpirit*; though

though in Spinoſa's and the Chineſe ſyſtem, this difference is ſet aſide, and *body* and *ſpirit* ſuppoſed to be the ſame ſubſtance under different modifications. Mr. Hobbes likewiſe affirms *ſpirits* to be *bodies*, the evidences of any ſubſtance not corporeal being rejected by him. *See* alſo Dr. Priſtley on Matter and Spirit.

The Chineſe philoſophers reſolve all things among an infinite number of properties, all equally contained in the nature of beings, we are ſometimes affected with its extenſion, mobility, ſolidity, figure, and colour; to which we call a thing *body*, or material. Sometimes what we call a being being ſenſitiveneſs, ſpeech, we ſing; in which caſe we allow it a ſoul, mind, or ſpirit. On this footing, the ſeveral properties of being, however different from each other in the impreſſions they make on us, are no ways different as to their real nature; ſince they all exiſt peculiarly with an infinity of others, and partake alike of one and the ſame infinite and unalterable exiſtence. Semm. Acad. Inſcript. tome. ii. p. 364.

The true notion of *body* is hard to frame, and philoſophers are not yet agreed on it; the ſubject leads to the perplexing controverſy, *de compoſitione continuorum*. Some place the eſſence of *body* in ſolidity, or impenetrability; others in weight or gravity; others in both; others in mobility. According to the laſt, bodies in extenſion. It is deſired as ſomewhat that perfectly fills a determinate quantity of ſpace or extenſion, to as neceſſarily to exclude all other *bodies* from being comprehended within the ſame dimenſions. According to the ſecond, *body* is defined to be a thing which is receptive and communicative of motion or progreſſion. So W. Petty repreſents *body* as matter under ſome figure. The Carteſians define it any thing extended every way, or to conſiſt in all ſides. According to Wolfius, the eſſence of *body* conſiſts in its compoſition, or mechaniſm of parts, from which all its other properties reſult, even extenſion itſelf, ſince we cannot conceive a compounded *body* otherwiſe than as extended, or conſiſting of parts, at leaſt poſſible if not actual ones.

The laſt or internal PRINCIPLES of *bodies*, which are not reſolvable into others, are called ELEMENTS.

LIGHT or FIRE is found an ingredient in all *bodies*; which ſome indeed, eſpecially among the chemiſts, make to be the ſame with the principle of HEAT.

The Peripatetics maintain, that beſides the common matter of all *bodies*, there is ſomething in every ſpecies, which diſcriminates it from every other, and makes it what it is: this they call *form*; which, becauſe all the qualities, and other accidents of the *body*, muſt depend on it, they alſo imagine to be a ſubſtance, and indeed a kind of ſoul, that, united to the groſs matter, with it compoſes a natural *body*.

The motion of *bodies* is either *local* or *inteſtine*. The latter is not ſenſible; but may be inferred from a great number of operations. Dr. Hooke does not deſpair, but that, under farther helps and improvements of the organ of hearing, we may come at length to diſcern the inteſtine motions of *bodies* by the ear.

As to the *colours* of *bodies*, Sir Iſaac Newton ſhews, that *bodies* appear of this or that colour, as they are diſpoſed to reflect moſt copiouſly the rays of light originally endued with ſuch colours. But the particular conſtitutions, whereby they reflect ſome rays more copiouſly than others, remain yet to be diſcovered. However, ſome of the laws and circumſtances thereof he delivers in the following propoſitions.

1. Thoſe ſurfaces of tranſparent *bodies* reflect the greateſt quantity of light, which have the greateſt refracting power; i. e. which intercede mediums, that differ moſt in their refractive denſities: and in the confines of equally refracting mediums, there is no reflexion. 2. The leaſt parts of almoſt all natural *bodies* are in ſome meaſure tranſparent; and the opacity of thoſe *bodies* ariſes from the multitude of reflexions cauſed in their internal parts. 3. Between the parts of opake and coloured *bodies* are many ſpaces, either empty, or replete with mediums of different denſities; as water between the tinging corpuſcles wherewith a liquor is impregnated, air between the aqueous globules that conſtitute clouds or miſts: and even ſpaces void both of air and water, between the parts of hard *bodies*, are not wholly void of all ſubſtance. 4. The parts of the *bodies*, and their interſtices, muſt be leſs than of ſome definite bigneſs, to render them opake and coloured. 5. The tranſparent parts of *bodies*, according to their ſeveral ſizes, reflect rays of one colour, and tranſmit thoſe of another, for the ſame reaſon that thin plates or bubbles do reflect or tranſmit thoſe rays: and this appears to be the ground of all their colour. 6. The parts of *bodies*, on which their colours depend, are denſer than the medium which pervades their interſtices. 7. The bigneſs of the component parts of natural *bodies*, may be conjectured from their colours: on this principle, that tranſparent corpuſcles, of the ſame thickneſs and denſity with a plate, do exhibit the ſame colour. 8. The cauſe of reflexion is not the impinging of light on the ſolid or impervious parts of *bodies*, as commonly believed. 9. *Bodies* reflect and refract light, by one and the ſame power variouſly exerciſed, in various circumſtances. See COLOUR.

BODY, *fluid*, that whoſe particles cohere, or are ſome way connected to each other. See SOLID.

BODY, *fluid*, that whoſe particles eaſily ſlide over each other, and are of a ſo fine a conſiſtence as to be agitated by heat, or the leaſt force. 2. The cauſe of fluidity is not that whoſe particles do not cohere, but are eaſily put in motion by the ſmalleſt force.

BODY, *hard*, that whoſe ſurface is leſs alternately with eminences and cavities, in contradiſtinction from a *fluid body*.

BODIES, *ductile*, thoſe which being ſtretched, do not break, but extend one way as much as they ſhrink another. Of this ſome are hard and malleable, as metals; others, ſoft or viſcid, as glues, gums, &c. Mem. Acad. Scien. an. 1715. p. 228.

BODIES, *flexible*, thoſe which admit of being bent without breaking; ſuch are threads, wires, fibres, and even glaſs, when ſpun very fine. Theſe are contradiſtinguiſhed from brittle *bodies*.

BODIES, *ſpecific gravity of*. See GRAVITY, and WEIGHT.

BODY, *ſurd*. See DEAFNESS.

BODY, *rare*. See RARE.

BODY, *luminous or lucid*, that which emits its own rays, or ſhines by its own light.

BODY, *illuminated*, that which diffuſes the light of another by reflection, or which ſhines by borrowed light.

BODY, *opake*, that which intercepts the rays of light, or prevents their paſſage through it.

BODIES, *tranſparent, diaphanous, or pellucid*, that which tranſmits the rays of light. See TRANSPARENCY.

BODY, *the inertia of*, denotes that power whereby it reſiſts motion. See VIS inertiæ.

The mutual ACTION of *bodies* on each other is by Bacon reſolved into a principle of aſſimilation; by Hooke, into congruity and incongruity; by Newton, into that of attraction and repulſion; and by others, into that of affinity, or ſimilarity and diſſimilarity, &c. See Mem. Acad. des Scien. an. 1718. p. 256o.

BODIES, *ſimple*, thoſe which are not compounded of others: ſuch are the four elements, and the celeſtial *bodies*, ſuppoſed to be.

BODIES, *mixt*, thoſe formed of a mixture of the ELEMENTS. Theſe are divided by philoſophers into perfectly and imperfectly *mixed*.

Others divide mixt *bodies* into *ſimple* and *organical* MIXTS.

BODIES, *inorganical or ſimply mixt*, are thoſe, whoſe properties, powers, and actions depend ſolely on the temperature of the elements they are compoſed of: ſuch are minerals.

BODIES, *organical mixt*, thoſe whoſe functions are performed by means of the mechaniſcal ſtructure of the parts: ſuch are vegetables and animals.

BODY, *ſimple organical*, that which is not compoſed of any other organical *bodies* or parts.

BODY, *compound organical*, that whoſe component parts are organical *bodies*, being compound beings; and every compound being a machine, it follows, that every body is a machine. On which principle is founded the modern mechaniſcal philoſophy.

We may add, that what the Peripatetics call *mixt bodies*, ſome late writers, after Becker and Stahl, call *compound bodies*; which they ſubdivide into *aggregate*, *mixt*, and *compound* properly ſo called.

Thus, *mixed bodies*, according to theſe writers, are thoſe compoſed merely of principles; *compound bodies*, thoſe formed immediately of mixts into any determinate ſingle things; *aggregate bodies*, thoſe formed of ſeveral compounds into any entire parcel or ſyſtem. See AGGREGATE.

BODIES, *homogeneous*. See HOMOGENEOUS.

BODIES, *congruous*, thoſe whoſe particles have the ſame magnitude and velocity, or at leaſt harmonical proportions of magnitude and velocity.

BODIES, *incongruous*, thoſe which have neither the ſame magnitude, nor the ſame degree of velocity, nor an harmonical proportion of magnitude and velocity.

BODY, *hard*. See HARD.

BODY, *volatile*, that which riſes by the force of heat. See VOLATILE.

BODIES are divided into *animate* and *inanimate*; i. e. into thoſe informed by a ſoul, and thoſe which are not; or thoſe that have life and thoſe that have none.

Some conſider *bodies*, either as *natural* and *ſenſible*; viz. as formed by phyſical cauſes, and clothed by phyſical qualities (in which ſenſe, *body* makes the object of PHYSICS

PHYSICK): or, as *intellectual* or *quantitative*, in the general or abſtract; and according to three dimenſions: in which ſenſe, *body* makes the ſubject of geometry.

BODIES, *ſolidities, conſiſtences, ſolities, ſolids, heterogeneous, atmoſpheres of, deſcent of, mercury of.* See the ſeveral articles.

BODY, with regard to animals, is uſed in oppoſition to *ſpirit*, viz. for that part of an animal, compoſed of bones, muſcles, canals, juices, nerves, &c.

In which ſenſe, *body* makes the ſubject of comparative anatomy.

BODY, *the human*, conſidered with regard to the various voluntary motions it is capable of performing, is an aſſemblage of an infinite number of levers, drawn by cords if conſidered with regard to the motions of the parts it contains, it is another aſſemblage of an infinity of tubes, and hydraulic machines. Laſtly, if conſidered with regard to the generation of theſe ſame fluids, it is another infinite aſſemblage of chemical inſtruments and veſſels; as, phiſters, alembics, retaparets, ſerpentines, &c. and the whole is a compound which we can only admire, and wherein the greateſt part eſcapes our admiration itſelf. The principal chemical apparatus in the whole *body*, is that wonderful laboratory the brain: it is in this, the precious extract, called animal ſpirits, the only material inſtrument of the whole fabric, is ſecreted from the bloud.

In the machine of the animal *body*, the retainers to the doctrine of trituration maintain the *brain* to do the office of the beam of a preſs; the heart, of a piſton; the lungs, of a bellows; the mouth, of a mill-ſtone; and the teeth, of peſtles; the ſtomach, of a preſs; the inteſtines, of a refrigeratory; the veſſels, of ſieves or ſtrainers; and the air, of a *ſpring*, or ſpring, that ſets the machine a going.

The ſoul, Rohault obſerves, is not the form of the human *body*, as the Peripatetics aſſert. So far is animal life from depending on the ſoul, becauſe of its ceaſing when the ſoul is departed, that, on the contrary, the continuance of the ſoul depends entirely on the ſtate of the *body*; the former never quitting the latter, till its œconomy or order is interrupted.

The Carteſians maintain the ſoul and *body* to be too diſproportionate, for thoughts or ideas of the ſoul to be cauſed by the motions of the *body*, and *vice verſa*: thus their reciprocal motions, not being able to be the direct cauſe of the one and the other, are only deemed the occaſion, or occaſional cauſe. God, on occaſion of the motion of a *body*, impreſſes an idea or ſenſation on the ſoul; and again, on occaſion of an idea of the ſoul, communicates a motion to the *body*: of conſequence, God is the only agent in the whole intercourſe between ſoul and *body*.

According to Mr. Locke, there is no contradiction in ſuppoſing, that the firſt eternal thinking Being, ſhould, if he pleaſed, give to certain ſyſtems of created ſenſeleſs matter, put together as he thinks fit, ſome degree of ſenſe, perception, and thought: though it is no leſs than a contradiction, to ſuppoſe that matter (which is evidently in its own nature void of ſenſe and thought), ſhould be that eternal firſt thinking Being. Eſſay of Hum. Underſtand. book iv. chap. 3. § 6.

Phyſicians divide the *body* into ſolids and fluids. Alſo into *venters*, or cavities, the head, *thorax*, and lower venter.

The reſt of the *body* they call members, or extremities.

It appears that both the height and the breadth of the human *body* are actually different in different parts of the day; ordinarily it is an inch more in the morning than at night. The *body* ceaſes to grow in height, when the bones are arrived at a degree of firmneſs and rigidity, which will not allow of farther extenſion by the effort of the heart, and motion of the bloud. Phil. Tranſ. abr. vol. vii. N° 383.

This alternate increaſe and decreaſe of our *bodies* depends very much upon ſleep, meals, exerciſe, &c. and is greatly *involuntary*; but M. L'Abbé de Fontenu diſcovered by attention, that there are alſo alternate increaſes and diminutions both of the height and breadth of our *bodies*, that may be ſaid to be *voluntary*, becauſe they do not depend ſo much on ſleep, eating, &c. but only on the different poſtures into which we put ourſelves. V. *ut ſupra*; and Mem. of the A. D. S. an. 1725. H. 16.

BODY, *faculties of the*, ſee FACULTY.

BODY is alſo applied by anatomiſts to ſeveral particular parts of the animal fabric. As, the callous *body* of the brain, the cavernous or ſpongeous *bodies* of the *penis*, &c. See CORPUS *calloſum*, CORDORA *cavernoſa*, &c.

BODY, *reticular*. See RETICULAR.

BODY, in ſpeaking of a *horſe*, denotes the cheſt, but chiefly the *flanks*.

A horſe is ſaid to have a good *body*, when he is full in the flank; a light *body*, when he is thin or ſlender in the flank. If the laſt of the ſhort ribs be at a conſiderable diſtance from the haunch-bone, though ſuch a horſe may have a tolerable *body* for a time, if he be much labboured, he will loſe it. It is a general rule never to buy a horſe that is light-bodied and hoty, becauſe he will preſently deſtroy himſelf.

BODY *of a piece of ordnance*, that part comprehended between the centre of the trunnions and the eſcheals: ſtraight therein is to be more fortified than the reſt. See CANNON.

BODY *of a pump*, the thick eſt part of the barrel or pipe of a pump, within which the piſton moves.

BODY, in *Geometry*, denotes the ſame with SOLID.

BODIES, *regular or platonic*, are thoſe which have all their ſides, angles, and planes, ſimilar and equal. See REGULAR *bodies*.

Of theſe there are only five; viz. the *tetrahedron*, conſiſting of four angles; the *octahedron*, of eight; the *icoſahedron*, of twenty; the *dodecahedron*, of twelve pentagons; and the cuboe of ſix ſquares. See TETRAHEDRON, &c.

BODIES, *celeſtial*, are by ſome divided into two kinds, *ſolid* and *fluid*. See obſervations on their figures, by M. Maupertuis, in the Mem. of the A. D. S. an. 1734. p. 56.

Celeſtial ſolid bodies, are thoſe which appear or are ſenſible to us, either by their own light, or the light of others reflected from them.

Celeſtial fluid bodies, are only different kinds of ÆTHER, of which Hooke makes ſeveral, ſome more fluid and ſubtile than others.

BODY, *ſpiritual or pneumatic*, that which is not palpable or groſs enough for our feelings, as the air, light, &c.

BODY, in *Law*. A man is ſaid to be bound or held in *body and goods*: that is, he is liable to remain in priſon, in default of payment.

In France, by an ordonnance of 1667, all reſtraints of the *body*, for civil debts, are null after four months, unleſs the ſums exceed two hundred livres.

A woman, though in other reſpects ſhe cannot engage her perſon but to her huſband, may be *taken by the body*, when ſhe carries on a ſeparate trade.

BODY *of the place*, in *Fortification*, denotes either the buildings included, or more generally the incloſure itſelf.

Thus, to conſtruct the *body* of the place, is to fortify or incloſe the place with baſtions and curtains.

BODY is alſo uſed for an aſſemblage of ſeveral different things collected into one; more particularly a number of perſons united into a company or college.

A ſtate or nation, under the adminiſtration of one ſovereign, is called a *body politic*. All large empires are unnatural, becauſe the relation between the head and limbs is here too remote. No *body*, either natural or politic, can long remain ſound without exerciſe. See CORPORATION.

BODY, *corps*, in *War*, is an aggregate or aſſemblage of forces, horſe and foot, united and marching under ſome chief.

An army, ranged in form of battle, is divided into three *bodies*; the van-guard, the rear-guard, and the main *body*; which laſt is ordinarily the general's poſt.

BODY *of reſerve*, in the *Military art*, a draught or detachment of a number of forces out of an army, who are only to engage in caſe of neceſſity.

BODY, in matters of *Literature*, a name given to a collection of whatever relates to any particular ſcience: thus we ſay, the *body* of the canon law; the *body* of the Saxon law. King James I. had a deſign to compile a *body* of the Engliſh law.

The *body* of the civil law conſiſts chiefly of the Inſtitutes, Pandects, Code, and Novels. A *glоſſated* BODY, is that to which gloſſes are added in the margin, compoſed by ſeveral lawyers.

BODY is alſo uſed figuratively for conſiſtence, ſolidity, and ſtrength. In this ſenſe, we ſay the *body* of a cloth, wine, &c.

Vintners have divers arts of increaſing or diminiſhing the *body* of wine.

BODY, among *Painters*.—A COLOUR is ſaid to *bear a body*, when it is capable of being ground ſo fine, and mixing with the oil ſo entirely, as to ſeem only a thick oil of that colour; as white lead, lamp black, vermilion, lake, indigo, &c. But verditers, ſmalts, &c. will not embody with the oil, but are ſtill apt to ſeparate from it in working.

BOEDROMIA, in *Antiquity*, from *βοηδρομεω*, *helper*, derived from *βοαω*, *I cry*, and *δρομος*, *I run*; ſolemn feaſts held at Athens, in memory of the ſuccour brought by Ion to the Athenians, when invaded by Eumolpus ſon of Neptune, in the reign of Erectheus.

Plutarch gives another account of the *Boedromia*, which

according to him, were celebrated in memory of the victory obtained by Theseus over the Amazons, in the month *Boedromion*; which was, in the antient chronology, the third month of the Athenian year. It consisted of thirty days, and answered to the latter part of our August and beginning of September.

BOERHAAVIA, in *Botany*, See HOG-*weed*.

BOG, a moist, rotten spot of earth, which sinks and gives way to the weight of the body, formed of grass and plants putrefied by some spring, frequent, especially in Ireland.

The word may be derived from the Italian *bocca*, a *hollow*, or rather from the Belgic *boegen*, to *bend*, on account of its giving way when trod upon.

In this *sense*, *bog* amounts to much the same with what in other places are called *moffy*, *fourfy*, *fenny*, &c.

In Ireland they diftinguifh between a *curf-bog*, called alſo *red-bog*, out of which turf or peat is dug; and a *quaking-bog*, which will ſink under a man in the place where he ſtands to a conſiderable depth, and rife before and behind proportionably: underneath, is frequently clear water, into which a perſon often falls to the middle, upon breaking the ſurface. *Quaking-bogs* frequently turn into *caſtlebogs*.

Every *red-bog* is encompaſſed with a deep marſhy ſloughy ground, called the *bounds of the bog*. Horns and ſkeletons of moofe-deer are ſometimes found in *bogs* fourteen feet deep.

The inconveniences of *bogs* are, that a conſiderable part of the kingdom is rendered uſeleſs by them: they alſo keep people at a diſtance from each other, and thus hinder buſineſs from going forward. They occaſion the roads to be crooked and circuitous to avoid them: they are a great deſtruction to cattle, the chief commodity of Ireland; which are encouraged by the graſs growing on the ſides of the *bogs*, to venture in, where they are loſt. The ſmell and vapour ariſing from them are accounted unwholeſome, and the logs putrid and ſtinking. Add, that they corrupt the water, both as to its colour and taſte.

Bogs have alſo their uſes: moſt of the people in Ireland have their living from them; the wood being immediately adjoyned, and little procured yet different. The Iriſh could hardly do without ſome *bogs*. The natives had anciently another advantage from *bogs*; viz. that by means of them they were preſerved from the conqueſt of the Engliſh: and it ſeems to be from the remembrance of this that they ſtill chooſe to build near *bogs*.

As to the origin and formation of *bogs*, it is to be obſerved, that there are few places, in the northern world, which have not formerly been as famous for them as Ireland now is: every wild, ill-inhabited country has them: the *loca paluſtria*, or *paluſtres*, to which the ancient Gauls, Germans, and Britons retired when beaten, appear to be no other than what we now call *bogs*. The like may even ſtill be found in the barren parts of Italy, as Liguria.

Boggy lands upon levels are generally called *fens* with us; and what our farmers particularly underſtand by the term *bog-land*, is that ſort of *bog* which lies among hills, or between two eminences, and has deſcent enough to drain it, if the water could get off.

The true cauſe of *bogs*, then, ſeems to be the want of induſtry; at leaſt it is certain induſtry may remove, and much more prevent them. There are many *bogs* of late ſtanding in Ireland, formed through the miſeries of the times, and the deſolation of civil war. It is no wonder if a country remarkable for lazineſs ſhould abound with them.

To ſhew how want of induſtry cauſes *bogs* it muſt be remembered, that Ireland abounds with ſprings; that theſe ſprings are dry, or nearly ſo, in the ſummer time; and that the graſs and weeds grow thick about the places where they burſt out: in the winter the ſame ſprings ſwell again, and run, and ſoften and looſen the earth about them: and the *ſword*, or ſcurf of the earth, which conſiſts of the roots of graſs, being lifted up and made fuzzy by the water, becomes dried againſt the ſpring: and does not fall together, but withers in a tuft, and new graſs ſprings through it; which, the next winter, is again lifted up: thus the ſpring is more and more ſtopt, and the ſcurf grows thicker and thicker, till it firſt makes what we call a *quaking-bog*: and as it grows higher and drier, and the graſs-roots and other vegetables become more putrid, together with the mud and ſlime of the water, it acquires a blackneſs, and grows into what we call a *turf-bog*.

What confirms this account is, that *bogs* are generally found higher than the land about them, and the higheſt in the middle; the chief ſprings which cauſe them being commonly about the middle; from whence they dilate themſelves by degrees, as one would blow a bladder; but not always equally, becauſe they ſometimes meet with greater obſtacles on one ſide, than on the other.—Add, that if a deep trench be cut through a *bog*, you will find the bottom ſtone, and vaſt quantities of water will run from it, and the *bog* will ſubſide; ſometimes a dozen, or fifteen, ſome even forty, thirty feet. Laſtly, thoſe hills which have no ſprings, have no *bogs*; and thoſe which have ſprings, and want culture, are never without them. In brief, wherever *bogs* are, there are great ſprings: the turf generally diſcovers a vegetable fatneſs, and fuperfluous moiſture; and ſuperficial water, where the ground admits it to ſtay perviouſly.

If it ſhould happen that ſome pool or lake caſted other ſoils, as, when a ſtream or ſpring runs through a *bog*; the paſſage is not ſtopped, it is filled with weeds in ſummer, green ſoft aſhes, &c. and dam it up: then, in winter, the water ſtagnates farther and farther every year, till the whole *bog* be overgrown: next, there ariſes a coarſe kind of graſs peculiar to theſe places, it grows in tufts, and the roots conſolidate vegetables and yearly grow higher, inſomuch as ſome ſhoots to reach the height of a man: this graſs lies in winter, and falls on the tufts, and the ſeed with it, which ſprings up next year, and then comes a new addition: ſometimes the tops of flags and graſs are interwoven on the ſurface of the water, and become by degrees thicker and thicker like a cover on the water; other herbs take root in it, and by a plexus of their roots it becomes ſtrong enough to bear the weight of a man.

Another cauſe of *bogs* is moſs, with which Ireland abounds extremely. That which grows in *bogs* is remarkable; the higheſt and more mentioned being nothing but a congeries of the threads of this moſs, which is ſometimes in ſuch quantities, and ſo rough, that the turf-ſpades cannot cut it. In the north of Ireland they call it mid-wives moſs, not being much unlike flax. The turf-holes in time grow up with it again, and all the little gutters in *bogs* are generally filled with it. In reality, to this the red or *turf-bogs* ſeem to be chiefly owing.

For the draining of *bogs*, to render them fit for paſture or arable, it is not impoſſible; the ſame having been performed in England, France, Germany, &c. People commonly diſtinguiſh between *bogs* which have no fall to carry away the water from them, and thoſe which have: the laſt are reputed drainable, the former not. But Mr. King aſſures us, he never obſerved one *bog* without a fall ſufficient to drain it, nor does he believe there is any. In reality, the great objection againſt draining is the charge; which, it is commonly reckoned, will amount to much more than would purchaſe an equal quantity of good ground: for an acre of this laſt, in moſt parts of Ireland, is not worth above *ſix pence*, and fourteen or fifteen years purchaſe; ſo that three pounds will buy an acre of good land: and it is very doubtful with moſt, whether that ſum will reduce a *bog*: this reaſoning paſſes current, and is the great impediment of this work.

To this it is anſwered, that *quaking-bogs*, though land be ever ſo cheap, never fail to be worth draining: one trench will drain many acres; and when dry, it is generally meadow, or the beſt grazing ground. Again, the bounds of a *red bog* never fail to be worth the draining; being done by one deep trench drawn round the *bog*: by this, cattle are kept out of the *bog*, and the bounds turned into meadow. Add, that *even red-bogs* might be made fit for grazing at a much cheaper rate than has hitherto been done, by a proper conduct in the digging of trenches, particularly deſcribed by Mr. King, Phil. Tranſ. N° 170. p. 928. See alſo N° 330. p. 305. and N° 344. p. 59. Plot's Hiſt. Oxf. chap. ix. § 81, &c.

In ruſhy grounds, the ſprings are commonly found to lie within a foot or two of the ſurface, when any thing of ſtony-nets or ſmall gravel is to be found, and ſometimes conſiderably lower in a hungry gravel; but it is always lower in *boggy* ground than in ruſhy, and is deep, according to the weight of earth that pens it in. The beſt way is to begin the drain at the loweſt place, and ſo carry it in towards the ſpring-head, where three muſt be made ſuch trenches, either round or croſs the *bog*, as ſhall be found neceſſary to the draining of it thoroughly.

If it be neceſſary to make ſuch large and deep drains, that there is danger of the cattle's falling into them, they may be filled up with ſtones or brick-bats, and theſe covered with boards, and the turf laid over them. The cavities among the ſtones will give paſſage to the water, and the turf will grow at top, as if nothing had been done.

It

It is a common practice to make a bank with the earth dug out of the trench, laying it on the side; but this is extremely wrong. If the trench be small, the earth dug out of it should be carried away in wheel-barrows; and if large, it should be spread upon the lowest places of the *bog*, where there is room for it.

Another excellent method is to make the trenches about a yard deep, and two feet wide, laying at the bottom of them green black-thorn bushes, and over these a stratum of large and round stones, or at least of such as cannot lie close; over these lay another *stratum* of thorn bushes, and then place a quantity of straw, to keep the dirt from falling in and filling them up. By this means the trench will be kept open, which otherwise will naturally swell, and fill up of itself.

BOG, *moving* or *wagging*. These soft masses of earth have been sometimes known to move out of their place. An instance of this there was in Ireland, in the year 1697, about Charleville in the county of Limerick. There was heard for some time a noise under ground like that of thunder at a great distance, or almost spent; and soon after this the earth of a large *bog* in the neighbours hood began to move, and still all resting situated in the middle of it stood no longer above the level of the full, but sunk flat.

The *bog* not only moved itself, but moved with the neighbouring pasture lands, though separated by a large and deep ditch; the motion continued a considerable time, and the surface of the moving earth rose into a sort of waves, but without breaking up or bursting any where. The pasture-land rose very high, and was carried on in the same motion till it rested upon a neighbouring meadow, the whole surface of which it covered, remaining fifteen feet deep upon its surface. The whole quantity of the *bog* was risen from its former seat, and left great gaps in the earth *where it had joined*, which threw in *fresh water, and very stinking vapours*. Phil. Trans. N° 232.

All the country came in to see so strange a sight as this, for it continued moving a long time; but few guessed the true cause of it, which was this: a more than ordinary wet spring occasioned the rising of the *bog* to a great height in one part, and thence propagated itself through the whole *bog*; so that the hill in the midst was undermined, and naturally sunk flat; this and the more than ordinary weight of this large *bog* pressing upon the adjoining pasture land, forced up its foundations, which were only a loose sand. This was pushed on sideways where there was a descent from the *bog*, and at length having given the *bog* more room, all was quiet and remained in that state. The *bog* was more than forty acres of ground.

BOG-*bean*, see *Bog*-BEAN.

BOG-*berry*, see WHORTLE-*berry*.

BOG-*wood*, see WOOD, *subterraneous*.

BOGA, in *Ichthyology*, a name given by many to a fish caught in the Mediterranean, and sold at Naples and Messina, called among authors BOOPS. It is a species of the SPARUS.

BOGOMILI, or BOGARMITE, a sect sprung from the Manichees, or rather from the Massalians, toward the close of the twelfth century; whose chief, Basil, was burnt alive by order of the emperor Alexius Comnenus.

Du-Cange derives the name from two words in the Bulgarian language; *Bog*, *Deus*, and *milui*, *misereri*, *have mercy*.

The *Bogomili* denied the Trinity; maintaining that God had a human form; that the world was created by evil angels; and that it was the archangel Gabriel that became incarnate. They rejected the books of Moses, and only admitted seven books of scripture: they maintained the Lord's Prayer to be the only eucharist; that the baptism of the Catholics was only that of John, and theirs that of Jesus Christ; and that all those of their sect conceived the Word, or *Logos*, as much as the Virgin, denying the reality of Christ's body. Lastly, that there was no other resurrection but repentance.

BOHEA, see TEA.

BOHEMIAN *Brethren*, is an appellation anciently given to the protestants of Bohemia.

Lutrius has a treatise De Gestis Fratrum Bohemicorum. Camerarius has also given the history of the *Bohemian Brethren*, from whom ecclesiastical historians have derived a large train of sects, as the Hussites, Adamites, Taborites, Calixtins, &c.

BOHEMIAN *chatterer*, in *Ornithology*, a bird that visits this island perhaps once in twenty years. See Phil. Trans. vol. lxii. N° 20. p. 312. an. 1772.

It is also called AMPELIS, GARRULUS, and ROLLER.

BOJA, in *Antiquity*, a collar or chain fastened about the necks of criminals, to prevent their escape.

The word is also written *boye*, *boia*, and *boge*.

BOICININGA, in *Zoology*, a name by which the Brasilians call the RATTLE-SNAKE.

BOIGUACU, in *Zoology*, the name of a species of serpent, called also *boa*, and by the Portuguese *cobra de vonte*.

This is the largest of all serpents, growing to twenty-four feet long and more, and preying on large animals. It is very thick in the middle of the body, and smaller both at the head and tail. It is of a very beautiful variegated colour. Down the middle of the back runs a chain of black spots, about a handsbreadth distant from one another, each having a spot of white in its middle; and below these are two other rows of smaller black spots towards the belly. It has in each jaw two rows of very sharp teeth white as pearl. Its head is very broad, over the eyes it rises into two protuberances; and in some of this species there are two claws, like those of birds, behind the anus towards the tail.

This is a very terrible creature, and will seize on a man, and either lies in ambush in thickets or on the branches of large trees, from which it throws itself on its prey. It has no venom in its bite; and its flesh is eaten, and esteemed a great delicacy.

This serpent is common in the Brasils. Authors give surprising accounts of its size: Bontius preferved the skin of one which himself had killed, which was twelve yards long; and relates, that there was once a serpent of this kind killed in Java, which was thirteen yards and a half long, and had, when killed, a boy in its belly. And De Laet relates, that in the Rio de la Plata, there are some of them to large, that they will swallow a stag whole, horns and all. The natives and Hollanders make them a part of their food.

BOIL, or FURUNCLE, in *Medicine*, is a small swelling preceded with inflammation, redness, and great pain arising in the *membrana adiposa* under the skin. As there is no part of the body free from being the subject of this TUMOUR, so the whole body is sometimes so miserably infested with them, that the patient knows not how to stir, or on what part to lie. Young infants and adults are equally liable to this disorder; and though in adults there is seldom any great danger in it, yet it sometimes happens when they are very numerous in tender infants, that they not only excite violent pains, restlessness, and vomings, with great weakness, convulsions, and epilepsies, but death itself sometimes follows them.

The principal cause of *boils*, is a too plethoric and inspissated state of the blood, and the cure of them principally depends upon the restoring of the blood to its due consistence and proper circulation. People who are very subject to these tumors should bleed and take purging medicines at proper intervals, and drink plentifully of warm and weak liquors, abstaining from wine, strong spirituous liquors, and from the use of tobacco.

When the disorder is recent or not habitual, external remedies alone are sufficient for the cure: honey mixed to a proper consistence with spirit of vitriol is a very good external application. The touching of the *boils* with spirit of vitriol alone, is often also of great service; and sometimes the discutient plasters are to be applied, as the diachylon, spermaceti, and soap plaster. If these applications, however, do not prove successful in the dispersing of a *boil*, the only method to be taken, is that of bringing it to suppuration. This, however, in some cases is no easy talk, but the tumor remains sometimes very hard and troublesome, even after a proper treatment of many weeks, and sometimes the humour that occasions it becomes so acrimonious, by its long tension, and great inspissation, that it produces ulcers, which grow gradually worse and worse, till at length they end in incurable *fistulæ*. To promote and quicken the suppuration, it is generally found of great service to apply plasters of diachylon with the gums, and of honey and flour mixed, and made to a proper consistence; and where these prove insufficient, maturating cataplasms are to be applied, and very frequently repeated. When the *boil* is sufficiently matured by one or other means, which will be known from the softness and yellowness of its head, it must be opened by incision, and when the matter it contained is discharged, the ulcer must be daily cleansed, till perfectly freed from all malignity, and then healed with the vulnerary balsams.

When infants which suck are afflicted with *boils*, the proper method is to give cooling medicines and purges to the nurse, and enjoin her a due regimen in diet; and the infant should at the same time be got to take some gentle laxative, and the absorbent powders, as those of crabs-eyes and the like, to allay the acrimony of its juices.

BOLE, *gum*, see GUM.

BOILED, or BOYLED *fish*, those which have been put, while in the balls, into hot water, to make them wind the better.

In which ſenſe, *boiled fiſh* ſtands oppoſed to *raw*.

BOILER, or BOYLER, a large copper veſſel, wherein things are expoſed over the fire to be boiled.

The *boiler* in the alum-works is a veſſel, in which the liquor is evaporated to a conſiſtence, and is made of lead. The general ſize is about eight feet ſquare, and they contain about twelve tuns each.

They make them in this manner: firſt they lay long pieces of caſt iron, twelve inches ſquare, as long as the breadth of the *boiler*, and about twelve inches diſtance from one another. Theſe are placed twenty four inches above the *ſurface* of the *fire*. On theſe ſmall bars of iron they lay, croſs-wiſe, the common flat bars of iron, as cloſe as they can lie together, and theſe make up the ſides with brick-work. In the middle of the bottom of this *boiler* is laid a trough of lead, wherein they put at firſt about a hundred pound weight of the rock. They uſe Newcaſtle coals in the BOILING; and if they find the liquor not ſtrong enough, they add more of the rock at times, as it boils. Phil. Tranſ. N° 142.

The *boiler* for making colours, &c. muſt be made of pewter; becauſe iron and copper will be corroded by the ſaline ſubſtances uſed in the manufacture of them.

BOILERY, or BOILARY, in the *Salt Works*, denotes a ſalt-houſe, pit, or other place, where SALT is made.

BOILING, or BOYLING, *ebullition*, in *Phyſics*, the agitation of a fluid body, ariſing from the application of fire, &c.

The *phenomenon* of *boiling* may be thus accounted for: the minute particles of the fuel being detached from each other, and impelled in theſe, with a great velocity (i. e. being converted into fire), paſs the pores of the containing veſſel, and mix with the liquid. By the reſiſtance they here meet with, their motion is deſtroyed; i. e. they communicate it wholly to the quieſcent water; hence ariſes, at firſt, a ſmall inteſtine motion in the waters, and from the continued action of the firſt cauſe, the effect is increaſed, and the motion of the water continually accelerated: ſo that this water, by degrees, becomes ſlightly agitated. But now the particles of the fire ſtriking on theſe in the lower ſurface of the water, will not only give them an impulſe upwards, contrary to the laws of *equilibrium*, but will likewiſe render them ſpecifically lighter than before, ſo as to determine them to aſcend according to the laws of *equilibrium*; and this either by inflating them into little veſicles, by the attraction of the particles of water around them; or by breaking and ſeparating the little ſpherules of water, and ſo increaſing the *rare* of their ſurface to their ſolid content. There will therefore be a conſtant flux of water from the bottom of the veſſel to the top, and conſequently a reciprocal flux from the top to the bottom; i. e. the upper and under water will change places; and hence we have the reaſon of that *phenomenon*, of the water's being hot at top ſooner than at bottom.

Again, an intenſe heat will diminiſh the ſpecific gravity of water, ſo as not only to make it mount in water, but alſo in air; whence ariſe the *phenomena* of vapour and ſmoak; though the air incloſed in the interſtices of the water muſt be allowed a good ſhare in this appearance: for that air being dilated, and its ſpring ſtrengthened by the action of the fire, breaks its priſon, and aſcends through the water into the air; carrying with it ſome of the contiguous ſpherules of water, ſo many as ſhall hang in its *wake*, or can adhere immediately to it.

The particles of air in the ſeveral interſtices of the fluid ma's thus expanded, and moving upwards, will meet and coaleſce in their paſſage; by which means great quantities of the water will be heaved up, and fall again alternately, as the air riſes up, and again paſſes from the water: for the air, after coalition, though it may buoy up a great heap of water, by its elaſticity while in the water; yet cannot carry it up, together with itſelf, into the atmoſphere; ſince, when once got free from the upper ſurface of the water in the veſſel, it will unbend itſelf in the atmoſphere, and ſo its ſpring and force will become juſt equal to that of the common unheated air. Add to this, that were the ſpring and motion of the air ſufficient to carry up the water with it, yet it would not have that effect; but the water would run off at the extremities of the air; all, except ſo much as ſhould be either entangled in its *wake*, or immediately adhere to its ſurface by attraction: and hence we ſee the reaſon of the principal *phenomena* of *boiling*, viz. the fluctuating of the ſurface of the water. Boiling water diſpoſes it to freeze more readily. See WATER.

We generally annex the idea of a certain very great degree of heat to the *boiling* of liquids; but this does not ſeem to be a connection of nature's making, but of our own. It is reported by many, that a veſſel of tar being ſet over the fire till it *boils*, a perſon may, while it is *boiling*, put his hand into it without any injury; and that the artificers who uſe and prepare this commodity, know this property of it ſo well, that they uſually take the ſcum from their pots off it, while *boiling*, with their naked hands.

Water, in the receiver of an air-pump, when exhauſted, will *boil* without any great heat. The receiver ſhould, for this experiment, be one part full of water, and three empty; in this caſe, the flame of a candle being placed under the veſſel, the water will *boil* violently, inſomuch the glaſs itſelf is ſcarce warm; and when the water has been thus kept *boiling* a quarter of an hour, the glaſs will ſcarce be any thing the hotter for it. When the candle is taken away, the water will ſtill continue a great while *boiling*, and when it ceaſes firſt, will renew itſelf again from time to time to a very great ebullition. All the bubbles that riſe out of the water on this occaſion, do not raiſe the mercury in a gage to any ſenſible height. Spirit of wine, in the ſame manner, *boils* much ſooner *in vacuo* than the water, and in this ſtate will raiſe the mercury in the gage to an inch higher than its former ſtand. If the receiver containing it in this *boiling* ſtate, be plunged into cold water, the liquor inſtead of becoming calm, *boils* more ſtrongly than before. It might be ſuppoſed that this *phenomenon* was owing to a *freezing*; but we have more ground to ſay it came from hence, that the vapours of the ſpirit were more condenſed, and ſo made the receiver more empty, which is ſufficient to make the ſpirit of wine *boil*, though it were not hot, as liquors uſually do when put into the engine, and the air exhauſted. In all theſe, and many other caſes, *boiling* is induced without that heat, which is ſuppoſed a neceſſary concomitant of it. Phil. Tranſ. N° 152.

ALABASTER, in *boiling*, will ſwell a ſixth or eighth part above the top of the pot.

Different fluids require different degrees of heat to make them *boil*. Dr. Freind gives a table of the different times required to make ſeveral fluids *boil* by the ſame heat.

WATER, when once brought to *boil*, is not ſuſceptible of any further degree of heat, however the fire be increaſed; but this differs according to the weight of the atmoſphere, and the purity of the water.

BOILING *of ſilk with ſoap* is the firſt preparation in order to dying it. Thread is alſo *boiled* in a ſtrong *leyſium* of aſhes, to prepare it for DYEING.

Boiling is alſo part of the proceſs of BLEACHING warp linens.

BOILING *to death*, *cadendæ decoquere*, in the *Middle Age*, a kind of puniſhment inflicted on falſe coiners, thieves, and ſome other criminals.

This puniſhment was inflicted on thoſe who were guilty of murder by poiſon, 22 Hen. VIII. cap. 29. but this act was repealed by 1 Edw. VI. cap. 12.

BOILING is alſo a method of trying or aſſaying the goodneſs or falſeneſs of a colour or a dye, by *boiling* the ſtuff in water with certain drugs, different according to the kind or quality of the colour, to try whether or no it will diſcharge, and give a tincture to the water.

With this intention, red crimſon ſilks are *boiled* with alum, and ſcarlets with ſoap, in quantity equal to the weight of the ſilk.

BOILING *waters*, in *Natural Hiſtory*. See SPRING, and WATER.

BOIOBI, in *Zoology*, the name of a ſpecies of ſerpent found in America, and called by the Portugueſe *cobra de vaad*. It is about an *ell* in length, and of the thickneſs of a man's thumb, and is all over of a very beautiful and ſhining green. Its mouth is very large, and its tongue black. It loves to be about houſes, and never injures any creature unleſs provoked or hurt; but it will then bite, and its poiſon is very fatal. The natives take, as a remedy againſt its poiſon, the root CAA-APIA bruiſed and taken in water.

BOIQUIRA, in *Zoology*, a name by which the natives of ſome parts of America call the RATTLE-SNAKE.

BOITIAPO, in *Zoology*, is a ſerpent of Braſil, called by the Portugueſe *cobra de cipo*. It is ſeven or eight feet long, as thick as a man's arm, round and pointed toward the tail, like a ſhoemaker's awl. It is covered with fine, and as it were, triangular ſcales; and is of an olive colour, and yellowiſh. It lives upon frogs, &c. and its bite is dangerous, like that of many other ſerpents.

Its fleſh might be as effectually uſed as that of the viper for purifying the blood; and as an alexipharmic.

BOLBONACH, in *Botany*. See HONEWORT.

BOLE, in *Medicine*, is applied to ſeveral kinds of earth that enter ſome of the Galenical compoſitions.

Boles are native foſſile earths, uſually ſomewhat unctuous ſo that when mixed up with water they may be wrought into a paſte; but are not ſoluble either by water or fire. Such are argill, or white clay, *cacunpia terræ*, or *cimolia*, *lunæ*, *cimolia*, fuller's earth, *boles* white and Armenia

the Chian, Eretrian, Lemnian, and Maltese earths, ruddle, Samian, Silesian, Tocravian, Bohemian, French, and all the fealed earths. But these are others of a drier and leaner kind, as chalk, ochre, and marle.

The *boles* are flightly ductile, but not viscid, nor do they burn to fuch a ftony fubftance as the clays, which are the diftinguifhing characteriftics between the *boles* and the CLAYS. Mr. De Coſta diſtributes them according to their colour, into the white, the aſh-coloured, the red, the yellow, the brown, and the green; and he again ſubdivides each ſort into ſuch as are not acted upon by acids and the alkaline *boles*.

The chief medicinal uſes of *boles* are as aſtringents to ſtop bleedings. They are generally hurtful in fevers, eſpecially epidemical ones, and externally in the hæmorrhoids, &c. *Bole* earths ſeem diviſible into two ſpecies, according as they are more or leſs tenacious; in which view loam and clay may repreſent them all. Even theſe two ſeem only to differ in reſpect of the fineneſs or coarſeneſs of their component parts, which renders them more or leſs tenacious, clinging or adhering. To make a true judgment of the quality of this kind of earth, the following experiment may be uſeful.

Common loam was mixed into a maſs with water, and then dried, to ſhew that compared with clay, it would eaſily break, crumble, and fall to powder; but beating ſome loam fine in a mortar, and mixing it well with water, it clung like clay; and when dried, adhered more tenaciouſly than before.

This ſhews that not only loam and clay, or all the *bolar* earths, are partly the ſame things, when their component parts, or gravelly and ſandy matters, are reduced to the ſame degree of fineneſs: but alſo ſupplies us with a plain and ſimple rule for the improvement of the art of pottery, and the imitation of China ware; and perhaps certain curious *boles* may afford very delicate matters for pottery wares; and that of variety of colours not leſs curious than the whites: nor is it altogether clear, why that colour called the yellow, muſt be the chief *baſis* of the art. The rule is, to grind or beat the earths employed, to an extreme degree of fineneſs; and accordingly porcelane has been imitated in Europe by tobacco-pipe clay, and other earths, exceedingly fine ground, mixed into a paſte with water, and properly baked and burnt.

Marles, or *boles*, alſo afford a fit matter for the making of crucibles, retorts, &c. They likewiſe ſerve to procure the diſcontinuation and diviſion of certain ſalts, and other materials, that would otherwiſe riſe, and boil over in the operation. Theſe are therefore employed in the diſtillation of NITRE, TURPENTINE, WAX, &c.

They contribute likewiſe more materially, more intimately, and eſſentially as to quantity, in the fixation of certain bodies in chemiſtry; as of oils, for example, of common ſulphur, and even of mercury: for which, ſee Becher's firſt Supplement to his Phyſica Subterranea.

There are chiefly two ſorts of *bole* uſed in medicine, the *Armenian*, and the *common*.

BOLE *Armeniac*, or the *Armenian* BOLE, is a ſoft, friable, fatty earth, uſually of a pale red colour; though there are two other kinds, a yellow and a white. They are all eaſily pulverized, and adhere to the tongue.

This, popularly, though corruptly, called in Engliſh, *bole Armoniac*, is called, by the naturaliſts, *Armenia terra*, or *Armenian clay*.

The true hiſtory of this ſubſtance is this: there are three kinds of it, the *white*, the *yellow*, and the *red*, which have been all in repute in different ages of medicine, but of which the laſt only is now thought of. The firſt or *white* BOLE *Armoniac* was in uſe very early in the world, though under a different name, the ancients calling it the *white Eretrian* EARTH. This was uſed in the days of Dioſcorides. The ſecond, or *yellow*, was introduced by Galen, and given in the great plague at Rome in his time. The third, or *red* kind, is the BOLE *Armoniac* of Avicenna, which we alſo pretend at this time to uſe; but very little of it is to be found genuine among us.

The *white* BOLE *Armoniac*, called *white Eretrian* EARTH by Dioſcorides, to diſtinguiſh it from the grey earth of the ſame place which was recommended as a noble aſtringent and ſudorific, and highly valued on account of its peculiar alkaline quality, is a fine, ſoft, and pure earth, moderately heavy, and of a cloſe, compact texture, of a clear, bright white colour, adhering ſtrongly to the tongue, inſipid to the taſte, and melting like butter in the mouth. It burns to a ſtony hardneſs, without changing colour, and makes no effervescence with acid menſtrua. This ſeems of all foſſile ſubſtances, to approach the neareſt to the nature of pure earth. This *bole* was in high eſteem among the Greek and Roman painters: it is now dug in the eaſtern part of Armenia; but is found in no great plenty, there being only one *ſtratum* known of it, and that not very thick. It is now chiefly ſupplied from Norway, and places nearer of acceſs.

This is eſteemed a ſudorific, and by ſome aſtringent, but without foundation; for, as it appears from Neumann's experiments, that it differs from the two other kinds, in containing no ſtrong matters, it muſt want alſo their aſtringency; and from the ſame experiments it appears, that it can be no more abſorbent than the other *boles*; and laſt as little preſence have any of them all to the antipeſtilential and alexipharmic qualities, for which they have been celebrated. See an account of their examination, both by acids and diſtillation, in Neumann's Works, p. 22, & ſeq.

Some have a method of recovering the luſtre of pearls, eſpecially the Scotch ones, by warming them a little over the fire, and rubbing them with powdered *white* BOLE, Neumann.

The *yellow* BOLE *of Armenia*, or the BOLE *Armenic* of Galen, is a very fine and beautiful earth, of a cloſe, compact texture, naturally of a ſmooth ſurface, and very hard. It is heavier than any other of the yellow earths, and is very ſoft to the touch. It is readily diſſuſible in water, and remains long ſuſpended in it; adheres ſtrongly to the tongue, melts ſlowly in the mouth, and is of a very manifeſtly aſtringent taſte. It ferments very briſkly with acid menſtrua, and does not become red or burning. There have been many diſputes about the place whence this excellent drug was brought: Aetius will have it to be from the mountain Hagiouſa in Armenia; Cardan, only from the iſland of Samos; and others, from other places; but it is found to this day in Armenia; to the north-eaſt of Erzeron, in vaſt abundance. It ſeems the moſt valuable of all the medicinal earths. Experience proves it to be a very noble aſtringent. Many authors extol it highly as a ſudorific and alexipharmic; and Galen reports of it, that it often ſuddenly cured the plague, and that thoſe whom it did not cure, were relieved by no other medicines. It would be extremely worth while to encourage the uſe of this drug as it may be had in any quantities; for much of it is carried to Germany every year, and ſometimes a little of it is brought to us: and, when this is the caſe, our druggiſts, not being uſed to a *pale* earth, *Armenic*, ſell it under the name of red to *Eſpec*.

The *red* BOLE of *Armenia*, or BOLE *Armenic* of Avicenna and of moſt authors ſince his time, is the hardeſt of all the earths of this kind. It is very pure and fine, and in colour is of a ſtrong, but ſomewhat yellowiſh red, much approaching to that of ſaffron in the cake. It is of a ſurface the leaſt ſmooth and gloſſy of all the *boles*. It ſtains the fingers in handling, and is not readily diſſuſible in water. It adheres firmly to the tongue, melts readily in the mouth, and is of a very manifeſtly aſtringent taſte. It does not ferment with acids, and becomes harder and of a brighter colour in burning. Theſe are the ſeveral characters, by which the *Armenian* BOLE may be diſtinguiſhed from all other earths of the ſame colours. This laſt ſpecies is what we now pretend to uſe. It is found in vaſt plenty in the north-eaſt parts of Armenia, and is ſometimes uſed in Germany, but ſcarce ever ſeen in England. What is called *bole Armenic* in our ſhops being no other than a bad compoſition of no better materials than common tobacco-pipe clay, and an ochre known among painters by the name of Spaniſh brown.

BOLE, *Armenian*, is uſed in diarrhœas, dyſenteries, catarrhs, &c. Some alſo give it as alexipharmic virtues, efficacious in peſtilential diſeaſes; but its uſe, in this intention, is at beſt dubious. See above.

The Germans, for the *Armenian* BOLE, uſe that of Tockay, in Upper Hungary, which Crato holds preferable to it. The French uſe a like clay, found in divers provinces of that kingdom; and the Engliſh, *Fuller's* EARTH.

BOLE, *common*. This is a ponderous brittle earth, of a colour between yellow and red, of an aſtringent taſte, and is found in many parts of France. It has the ſame virtues with the former, and is to be met with in the ſhops. As both theſe *boles* are frequently mixed with ſand and grit, the apothecaries prepare them in the following manner. They diſſolve them in water; and after the ſand is ſubſided, they pour the turbid ſolution into another veſſel, where it remains till the water is clear; being poured off, the ſediment is dried in little cakes, and kept for uſe.

They may be preſcribed to be taken inwardly, either alone, or mixed with the ſealed earths.

BOLE *of the Levant* is a medicinal earth brought from the Levant; nearly of the ſame nature, and having the ſame uſes with the *bole Armenic*.

BOLE is alſo uſed for the body or trunk of a tree; and hence *boling* trees are thoſe whoſe heads and branches are cut off.

BOLE, *Bolus Boſentſis*. See BLEBENSIS.

BOLE, *Bohemic*, *Bolus Bohemica*, is a medicinal earth dug in many parts of the kingdom whoſe name it bears. It is a pure and fine *bole*, of a denſe and compact texture, of a yellowiſh pale red colour, with ſome yellow-ish veins,

heavy, of a smooth shining surface; it eaſily breaks between the fingers, does not readily melt in the mouth, leaves no grit when melted, and is of an aſtringent taſte. It does not effervesce with acids, and in the fire acquires a little hardneſs without change of colour. In the German practice it is uſed for haemorrhages, &c. and eſteemed to poſſeſs an alexipharmic virtue.

BOLE, *Bolus Armena*, the ſame with ERYTHRICA *terra*.

BOLE, *Bolus Gothergenſis*, the ſame with *terra* GOTHERGENSIS.

BOLE, *Bolus Lemnia*, the ſame with LEMNIAE *terrae*.

BOLE, *Bolus Livonica*, the ſame with the LIVONICA *terra*.

BOLE, *Bolus Lusitanica*. See LUSITANICA.

BOLE, *Bolus Nocerina*, the ſame with NOCERIANA *terra*.

BOLE, *Boles Veneta*. See VENETA *bolus*. See alſo TERRA and the references under that article.

BOLE *of Virginia*, *Bolus Virginiana*. See VIRGINIANA.

BOLENIÆ, or BOLÆ, in *Natural Hiſtory*, a name given by ancient writers to a ſort of ſtones of a roundiſh figure, and marked with ſeveral ridges and lines. They are ſuppoſed to be the ſame with thoſe called BRONTIÆ and CERAUNIA, both being imagined to fall from the clouds in time of thunder ſtorms; but they are really no other than a common ſpecies of ECHINITÆ.

BOLETO LICHEN, a name given by M. Juſſieu to a plant, which partakes of the nature of the *marcille* and of the *hepatoria*, and which he has accurately deſcribed in the Memoirs of the Academy of Sciences at Paris, 1728.

The whole plant has the ſmell of the common muſhroom, and, when young, has a viſcous liquid contained under the foldings of its head, which finally, when the plant is arrived at maturity, dries into the form of an extremely ſubtle yellow powder, which is the ſeed.

BOLETUS, in *Botany*, a word uſed by Linnæus to expreſs a genus of FUNGUSES, belonging to the claſs of *cryptogamia*, uſually comprehended by authors under the name of AGARICS, though very different from them. The AGARICS and *boleti* are both horizontal muſhrooms; that is they have no pedicle, but grow to trees, &c. by their ſide; but the firſt are lamellated underneath, in the manner of the common muſhrooms; the *boleti* are all ſpongy underneath.

The ſpecies of *boletus*, enumerated by Mr. Tournefort, are ſeven.

The *boletus* is a kind of wood muſhroom, almoſt round, of a white colour, ſpotted with yellow and brown marks; by ſome naturaliſts called FUNGUS *nemorum*.

The *boletus* is the moſt exquiſite of all the FUNGUS-kind. The Roman epicures were particularly fond of it. Nero uſed to call it the food of the gods. The emperor Claudius is ſaid to have been poiſoned with a medicated *boletus*, given him by his wife.

BOLINTHOS, in *Natural Hiſtory*, a name given by Ariſtotle, and ſome of the other ancient Greeks, to the *margo* of Ætius, that is, the BONASUS.

BOLLANDISTS, in *Literary Hiſtory*, a denomination given to certain Jeſuits of Antwerp, who have been a conſiderable time employed in collecting the lives and acts of the ſaints. Thus called from F. Bollandus, one of the firſt and chief of the aſſociation.

BOLLARDS, large poſts fix'd in the ground on each ſide a dock. On docking or undocking ſhips, large blocks are faſtned to them; and through theſe blocks are reeved the tranſporting hawſers to be brought to the capſtans.

BOLLITO, in the *Glaſs Works*, a name by which the Italians call a ſea-green colour of artificial cryſtal.

To prepare this colour, you muſt have in the furnace a pot filled with forty pounds of good cryſtal, firſt carefully ſkimmed, boiled, and purified, without any manganeſe; you muſt then have twelve onnces of the powder of ſmall leaves of copper, thrice calcined, half an ounce of zaffer, in powder; mix them together, and put them at four times into the pot, that they may the better mix with the glaſs; ſtirring them well at each time of putting in the powder, leſt they ſhould ſwell too much, and run over.

BOLLOS, in the mines of Peru, a denomination given to the ingots or bars of ſilver procured there from the ore by the operation of the fire, and the uſe of *aqua fortis*.

BOLOGNA-*bottles*. See UNANNEALED *bottles*.

BOLOGNIAN *ſtone*. See BONONIAN.

BOLSTER, among *Surgeons*, a ſoft yielding ſubſtance, either laid under the head, or a broken limb.

BOLSTER is alſo uſed for a ſtuffing, intended to fill out or raiſe a flat, ſinking, or hollow part.

In which ſenſe, *bolſters* are contrived for crooked, buncheed, and otherwiſe diſtorted backs, ſhoulders, &c.

BOLSTERS *of a ſaddle*, in the *Manage*, thoſe parts which are raiſed on the bows, both before and behind, to reſt the rider's thighs, and keep him in poſture of withſtanding the diſorders which the horſe may occaſion.

Common ſaddles have no *bolſters* behind, or even before.

BOLSTERS, in *Sea Language*, ſmall cuſhions or bags, filled with tarred canvas, and laid between the collars of the ſtays, and the edge of ſome piece of wood on which they lie; they are deſigned to preſerve the ſtays from being chafed by the motion of the maſts, as the ſhip rocks at ſea.

BOLT, in *Building*, an iron faſtening for a door, moved with the hand, and catching in a ſtaple or notch made to receive it.

Bolts are chiefly of three kinds; *plate*, *round*, and *ſpring-bolts*.

BOLT *of a lock*, is the piece of iron, which entering the ſtaple, faſtens the door; being the part which is moved backwards and forwards by turning the KEY.

Of theſe there are two ſorts; one ſhuts of itſelf by only putting to the door, and is called a *ſpring-bolt*; the other, which only moves when the key opens or ſhuts it, is called a *dormant* BOLT.

BOLT is alſo uſed for a large iron pin, having a round head at one end, and at the other a key-hole or ſlit, wherein to put a pin or faſtening, ſerving to make faſt the bar of a door, window-ſhutter, or the like.

This is more particularly called a *round* BOLT, or *ſide-door*-BOLT.

BOLTS, in *Gunnery*, are of ſeveral ſorts; thoſe which go betwixt the cheeks of a carriage, to ſtrengthen the tranſoms, are called *tranſom*-BOLTS. The large iron *bolts* or knobs on the cheeks of a carriage, which keep the handſpike from ſliding, when it is poiſing up the breech of the piece. The two ſhort *bolts*, that being put one in each end of an Engliſh mortar-carriage, ſerve to traverſe her, are called *traverſe-bolts*. The *bolts* that go through the cheeks of the mortar, and by the help of quoins, keep her fixed at the elevation given her, are called *bracket-bolts*. And the four *bolts* that faſten the bracket or cheeks of a mortar to the bed, are called *bed-bolts*.

BOLTS, or iron pins, in a ſhip, are of ſeveral ſorts, frequently diſtinguiſhed according to the places where they are uſed; as, *chain-bolts*, *bolts for carriages*, &c. *ring-bolts*, ſerving for the bringing to of the planks, &c. *drive bolts*, uſed to drive out others; *ſet-bolts*, employed for forcing the planks and other works, and bringing them cloſe to one another; *rag-bolts*, on each ſide full of jags or barbs, to keep them from flying out of their holes; *clench bolts*, thoſe which are clenched or faſtened at the ends where they come through; *fore-lock-bolts*, made like locks with an eye at each end, whereinto a fore-lock of iron is driven to prevent ſtarting out; *fend*, or *ſinker-bolts*, made with long and thick heads, ſtruck into the outermoſt bends or wales of a ſhip, to ſave her ſides from bruiſes and hurts.

BOLT is alſo uſed for a meaſure, or certain quantity of canvas, amounting to twenty-eight ells.

BOLT of ſilk or ſtuff denotes a long narrow piece, of indefinite meaſure.

BOLT, *peaſe*, in Eſſex, denotes the peaſe-ſtraw, when the grain is thraſhed out of it.

BOLT, *thunder*. See THUNDER-*bolt*.

BOLT-*ropes*, in *Sea Language*, is that to which the edges or ſkirts of the ſails are ſewed, to ſtrengthen and prevent them from rending.

BOLTED *flour*, that which has paſſed through the BOLTER.

BOLTEL, in *Building*, any promineence or jetting out, as of a piece of timber, end of a beam or the like, advancing beyond the naked of the wall.

BOLTERS, or BOULTERS, a kind of ſieves for meal, having the bottoms made of woollen, hair, or even wire.

The word ſeems derived from the German *beutel*, a *ſieve*; whence alſo *beutelen*, to *bolt*.

The bakers uſe *bolters*, which are worked by the hand; millers have a large ſort, wrought by the motion of the mill.

BOLT-HEAD, the ſame as MATRASS; a veſſel uſed by the chemiſts.

BOLTING, or BOULTING, the act of ſeparating the flour from the bran, by means of a ſieve or BOLTER.

BOLTING-*cloth*, or BOLTER-*cloth*, ſometimes alſo called *bulting cloth*, denotes a linen or hair cloth for ſifting of meal or flour.

BOLTING-*mill*, a verſatile engine for ſifting with more eaſe and expedition. The cloth round this is called the BOLTER.

BOLTING, or BOULTING, among *Sportſmen*, ſignifies roſing or diſlodging a coney from its reſting place.

They ſay to *bolt* a coney, *ſtart* a hare, *rouſe* a buck, &c.

BOLTING, a method of pleading, or arguing. In uſe in the inns of courts; inferior to mooting. The caſe is argued firſt by three ſtudents, then by two barriſters; the *utter* ſitting judge.

The word comes from the Saxon *bult*, a *houſe*; becauſe done privately within doors, for inſtruction.

BOLUC *boſſi*, in the *Turkiſh Affairs*, denotes the chief of a company, or a captain who has the command of an hundred janizaries.

BOLUS, in *Medicine*, an extemporaneous form of remedy, of a ſoft conſiſtence, ſomewhat more to than that of an electary, and of the quantity of one dofe, or morſel, to be ſwallowed down; contrived principally for the take of ſuch as have an averſion to potable medicines; or alſo for the better conveyance of certain preparations of mercury, antimony, &c. which, by their weight, would ſink to the bottom of the glaſs, were they given in draughts.

There are *boluſes* of various kinds, made with electuaries, confections, conſerves, pulps, powders, ſalts, oils, eſſences, extracts, ſyrups, &c. ſome of which ingredients muſt always have ſolidity or drineſs enough to give a conſiſtence to thoſe that are liquid.

Boluſes are chiefly denominated from their intentions, as emetic *boluſes*, purgative *boluſes*, aſtringent, anodyne, anti-febrile, alexipharmic, &c. *boluſes*.

The choice of the proper ingredients for a *bolus* is regulated by the following conſiderations: a due cohefion, ſoftneſs, and equable mixture, are eſſentially neceſſary to a *bolus*; for this reaſon, dry ſubſtances muſt be put to liquid ones, and liquid ones to dry, to produce the proper conſiſtence; but the thicker electaries, conſerves, and robs, are themſelves naturally in form of a *bolus*.

Acrid ſubſtances, and ſuch as are offenſive either to the ſmell or taſte, or are of a very viſcid nature, are much more properly exhibited in form of *boluſes* than of powders; ſince their offenſive qualities are by this means concealed. The draſtic purges, and mercurial preparations, are therefore very properly given in *boluſes*.

Balſams, and other ſuch liquid ſubſtances, are beſt mixed into a *bolus* with ſugar, becauſe it not only is the means of their going down eaſily, but it aſſiſts their diſſolution in the ſtomach. The alkaline, fixed, and volatile ſalts, and all other ſubſtances which ſoon become liquid, are very improperly made ingredients in *boluſes* which are to ſtand any time; ſince they ſpoil the form of the medicine, and loſe their own virtues; and for the ſame reaſon, ſuch ſubſtances as will ferment when brought together, are very improper for *boluſes*, unleſs they are to be ſwallowed as ſoon as made up. To this it may be added, that the number of ingredients in a *bolus* ſhould never exceed three, or at the moſt four.

The number of *boluſes* made up at once ought only to be one, or at the utmoſt two; but the apothecaries have got an almoſt univerſal cuſtom at preſent of ſending in four at a time; by which means, the laſt which are taken, are uſually too hard to be ſwallowed, and often have loſt all their virtues.

It is the common cuſtom to wrap up *boluſes* in leaf-gold, or in a wafer; but ſome chuſe neither of theſe, but will diſſolve them in ſome liquor before they are taken. The ſignature on each *bolus* is to expreſs its nature and deſign, the liquor to be taken with or after it, and the regimen to be uſed; and it is highly neceſſary to give a convenient liquor after ſome of them, if we ſuſpect they are made of ingredients which will not eaſily diſſolve in the ſtomach; and this caution is to be regarded principally in thoſe of the terebinthinous and other balſamic kinds.

Boluſes are a form of medicines almoſt univerſally uſeful. All we have to conſider in regard to the taking of them is whether the patient is in a condition to ſwallow a ſolid morſel or not; and from hence it is eaſily inferred, that they are not to be given in quinſies, or in ulcers of the *fauces*; apoplexies, epilepſies, and ſyncopes, alſo render them very improper.

BOM, in *Zoology*, the name of an American ſerpent, remarkable for its noiſe, which is like the ſound of the word uſed as its name. It grows to a vaſt ſize, and is perfectly harmleſs, never hurting any one.

BOMARIN, in *Zoology*, a name uſed by ſome for the *hippopotamus*, or river horſe.

BOMB, in the *Military Art*, a hollow iron ball, or ſhell, filled with gun-powder, and furniſhed with a vent for a fuſee, or wooden tube, filled with combuſtible matter; to be thrown out from a mortar.

The word *bomb* comes from the Latin *bombus*, *crepitus*, or *ſibilus ani*: by reaſon of the noiſe it makes.

The method of preparing a *bomb* is as follows: a hollow iron globe AB (*Tab. Gunnery, fig.* 4. & 5.), is caſt pretty thick, having a round aperture A, by which it may be filled and lighted; and circular *anſæ* C, D, of hammered iron fixed in the mould when they are caſt, for the commodious putting it into the mortar. In France the handles are caſt iron.

It has been uſual to make the lower part of the *bomb* the thickeſt, that it may fall on that ſide and never on the fuſee, and that it may alſo better reſiſt the impreſſion of the powder, by which it is diſcharged from the mortar; but Mr. Muller thinks that neither of theſe conſiderations is of any great importance, and recommends rather to make them every where equally thick, becauſe they would thus burſt into a greater number of pieces. Artillery, p. 151. in his Syſtem, &c. vol. v.

To prove whether it be ſtaunch, after heating it red-hot on the coals, it is expoſed to the air, ſo that it may cool gently: for ſince fire dilates iron, if there be any hidden chinks or perforations, they will thus be opened and enlarged; and the rather, becauſe of the ſpring of the included air continually acting from within. This done, the cavity of the globe is filled with hot water, and the aperture well ſtopped, and the outer ſurface waſhed with cold water and ſoap; ſo that if there be the ſmalleſt leak, the air, rarefied by the heat, will now periſpire, and form bubbles on the ſurface.

If no defect be thus found on the globe, its cavity is filled with whole gunpowder; the moſt proper quantity of powder is probably two thirds of the weight which would fill the cavity. A little ſpace or liberty is left, that when a fuſee or wooden tube *ae*, of the figure of a truncated cone, is driven through the aperture, and faſtened with a cement made of quick-lime, aſhes, brick-duſt, and ſteel-filings, worked together in a glutinous water; or of four parts of pitch, two of colophony, one of turpentine, and one of wax; the powder may not be bruiſed. This tube is filled with a combuſtible matter, made of two ounces of nitre, one of ſulphur, and three of gunpowder duſt, well rammed.

This fuſee, ſet on fire, burns ſlowly till it reach the gunpowder, which goes off at once, burſting the ſhell to pieces with incredible violence: whence the uſe of *bombs* in beſieging towns.

Special care, however, muſt be taken that the FUSEE be ſo proportioned, as that the gunpowder do not take fire before the ſhell arrives at the deſtined place; to prevent which, the fuſee is frequently wound round with a wet clammy thread.

The fuſees are driven into the ſhell, ſo as that only about an inch and a half comes out beyond the fuſee hole; and then the ſhell is ſaid to be fixed. They are charged long before there is occaſion to uſe them; and in order to ſecure the compoſition with which they are filled, the two ends are covered with a compoſition of tallow, mixed either with pitch or bees-wax. When the fuſee is to be put into the ſhell, the little end is opened or cut off; but the great end is never opened till the MORTAR is to be fired.

Bombs being made of different magnitudes, it may be proper to exhibit ſome of their dimenſions; as in the following table.

Diam. of Bomb.	Thickneſs of Metal	Diam. of Apert.	Quant. of Gunpow.	Weight of Bomb.
17, In. 10	1 In. 2, 10	,20	48lb.	490lb.
11, 8	, 18	,16	15	130
8 10	, 13	,10	4	40

Others make the thickneſs of the *bomb* $\frac{1}{5}$ or $\frac{1}{6}$, or $\frac{1}{10}$, of the whole diameter; and the diameter of the aperture $\frac{1}{3}$ or $\frac{1}{4}$ of the ſame.

Mr. Muller gives the following proportions, from the 13 inch *bombs* now commonly uſed, and obſerves that they may be eaſily adjuſted to any other calibre by making the diameter of the ſhell to 30, as any part expreſſed in inches, to the ſame part expreſſed in parts of the diameter divided into 30 equal parts.

Diameter of the bore	— —	30
Diameter of the ſhell	— —	29.5
Diameter of the hollow ſphere	—	21
Thickneſs of the metal at the fuſee hole		3.5
Thickneſs at the oppoſite part	—	5
Diameter of the fuſee-hole	— —	$\frac{4}{11.7}$
Weight of the ſhell unloaded,		$\frac{d}{236.5}$
Weight of the powder contained in the ſhell		$\frac{d}{}$

N. B. The letter *d* denotes the cube of the diameter of the bore.

Bombs only differ from GRANADOS, in that the latter are much leſs; and, inſtead of mortars, are thrown out of the hand.

Bombs may be uſed without mortar pieces, as was done by the Venetians at Candia, when the Turks had poſſeſſed themſelves of the ditch, rolling down *bombs* upon them along a plank ſet ſloping towards their works, with ledges on the ſides to keep the *bomb* right forwards. They are ſometimes alſo buried under ground to blow up. See CASSON.

M. Blondel, who has wrote on the art of throwing *bombs*, obſerves, that the firſt *bombs* were thoſe thrown into the city of Watchendonch, in Guelderland, in 1588, though others pretend they were in uſe a century before, viz. at

the siege of Naples by Charles VIII. in 1495. But they came not into common use before the year 1634, and then only in the Dutch and Spanish armies. One Malthus, an English engineer, is said to have first carried them into France, where they were put in use at the siege of Collioure, in 1642.

The art of throwing *bombs* makes a branch of GUNNERY, founded on the theory of PROJECTILES, and the laws and quantities of GUNPOWDER.

Meff. Blondel, Guiniere, de Reffons, de Hire, and others, have written expreſly on the art of throwing *bombs*.

BOMB *battery*. See BATTERY.

BOMB-*veſſel*, is a kind of ſhell filled uſually with *bombs*, ſometimes only with gunpowder, placed under-ground, to tear and blow it up in the air, with thoſe who ſtand on it.

Bomb-veſſels were formerly much uſed to drive enemies from a poſt they had ſeized, or were about to take poſſeſſion of; they were ſet on fire by means of a *ſaucifſe* faſtened at one end, but they are now much diſuſed.

BOMB, *water*. See WATER-*bomb*.

BOMB-*veſſels*, which are ſmall ſhips formed for throwing of *bombs* into a fortreſs, are ſaid to be the invention of M. Reyneau, and to have been firſt uſed at the bombardment of Algiers. Till then, it had been judged impracticable to bombard a place from the ſea. See KETCH.

BOMBARD, BOMBARDA, a piece of artillery anciently in uſe, exceedingly ſhort and thick, and with a very large mouth, by ſome alſo called *baſiliſk*, by the Dutch *donderbuſs*. Some derive the word, by corruption, from *Lombard*, as ſuppoſing this piece firſt uſed in Lombardy. Du-Cange, after Voſſius, derives it from *bombus*, and *arder*. Menage, from the German *bombarder*, the plural of *bomber*, *baliſta*. But we doubt whether the Germans knew any ſuch word. It is no unuſual thing with Menage, and many other etymologiſts, to give derivations from words of their own making.

There were ſome of theſe pieces ſaid to have carried balls of 300 pounds weight. Fenſtart mentions one of fifty feet long. To ſtand them they made uſe of cranes, &c. The *bombard* is ſuppoſed to have been in uſe before the invention of cannons.

Bombards can hardly be ſuppoſed to have been of metal, nor charged with gunpowder. They were rather a ſort of *baliſtæ* for throwing ſtones, and were played with ropes.

BOMBARDIER, an engineer, or perſon, whoſe buſineſs is to take care of the firing and throwing *bombs* out of mortars.—He firſt drives the fuſee, then fixes the ſhell, points, loads, and fires.

BOMBARDIER, in *Zoology*, a name given to a ſpecies of the inſect called EPHESTIS; the wings of which are incloſed in a kind of caſe to cover and wrap them up. It keeps itſelf concealed among the ſtones, and ſeems to make little uſe of its wings; it moves by a ſort of jump, and when touched, makes a noiſe reſembling the diſcharge of a muſquet in miniature, during which, a blue ſmoke may be ſeen to proceed from its *anus*. It may be made at any time to play off its little artillery, by ſcratching its back with a needle. Rolander, who firſt made theſe obſervations upon it, ſays it can give twenty diſcharges ſucceſſively. A bladder placed near the *anus*, is the arſenal whence it derives its ſhot, and this poſſeſſion and furniture afford its chief defence againſt an enemy; although the ſmoke emitted ſeems to be altogether inoffenſive, excepting it be by cauſing a fright, or concealing its courſe.

BOMBARDING, the act or act of attacking a city or fortreſs, by throwing bombs into it, in order to ruin or ſet on fire the houſes and magazines, and do other miſchief. *Bombarding* is not reckoned the moſt honourable method of making war, as it rather tends to do miſchief to the inhabitants than to the works.

BOMBASINE, in *Commerce*, a kind of ſilk-ſtuff manufactured at Milan, and thence ſent into France and other countries. The French alſo uſe the word *bombaſine* for ſtuff made of cotton, more properly called dimity.

BOMBAST, in *Rhetoric*, denotes a STYLE too high and pompous for the ſubject and occaſion; or a certain manner of elocution and action, which is grand when ſupported by dignity in the ſentiment, and force in the expreſſion, but never fails to appear ridiculous, where the ſentiment is mean, and the expreſſion flat.

BOMBAX, in *Botany*, a genus of the *polyandria monogynia* claſs of plants; the ſilk cotton-tree. The characters are, that the flower is quinquefid and ſpreading; that it hath many ſtamina, which are the length of the petals; that a round germen is ſituated in the centre; and that the empalement afterward becomes a large, oblong, turbinated capſule, having five cells, which are lignous, containing many roundiſh ſeeds, wrapped in a ſoft down. There are three ſpecies, which grow naturally in both the Indies. Linnæus enumerates four ſpecies.

Theſe plants require a large ſtove, where they may have room to grow; but as they are ſeveral years old before they flower in the countries where they grow naturally, there is little hope of their producing any in England.

The ſeed is the only part uſed in medicine, which is of a balſamic nature, uſed in coughs, ſhortneſs of breath, and foreneſs of the lungs, cauſing expectoration, and freeing them from tough phlegm. It is alſo reſtringent, and good to ſtop fluxes of all ſorts.

BOMBINA, in *Zoology*, a ſpecies of the RANA belonging to the order of *reptiles*.

BOMBUS, in *Muſic*, an artificial motion with the hands, imitating, in cadence and harmony, the buzzing of bees.

The word is originally Greek, and ſignifies the buz or noiſe of bees, gnats, and the like.

In this ſenſe *bombus* made one of the ſpecies of applauſe uſed by the ancient auditories.

BOMBUS, in *Medicine*, denotes a murmuring noiſe as of wind breaking out of a narrow into a larger cavity, frequently heard in the thick inteſtines.

The *bombus* heard in the ears, in acute diſeaſes, is laid down by Hippocrates as a ſign of death.

BOMBYCINUM, in *Ancient Writers*, properly denoted a ſpecies of ſilk, brought from Aſſyria and the iſland of Cos. In which ſenſe, it ſtood diſtinguiſhed from SERICUM, another ſort of ſilk brought from the Indies.

BOMBYCINUM *velamentum*. See VELAMENTUM.

BOMBYLIUS, in *Natural Hiſtory*, the name of the common *humble-bee*, of which we have a great variety of ſpecies, many of them very beautiful.

Mr. Ray, in his Hiſtory of Inſects, mentions no leſs than nineteen ſpecies, all wholly different from one another.

In the Linnæan ſyſtem, it is a genus of the order of *diptera*.

BOMBYLOPHAGES, *humble-bee eater*, in *Natural Hiſtory*, the name of a fly of the TIPULA, or father-long-legs kind, which is larger and ſtronger than the common kinds; and loving honey, without knowing how to extract it from the flowers, it ſeizes on the *humble-bees*, and deſtroys them, in order to get at the bag of honey which they contain. It is of a blackiſh colour in the body; its head is a bright red, and the eyes very large and prominent. It is chiefly found in mountainous places.

BOMBYLUS *tenax*, in *Natural Hiſtory*, the name of a ſpecies of *humble-bee*, which eats its way into wood, and there makes its neſt.

BOMBYX, in *Natural Hiſtory*, a name given by ſome authors to a ſpecies of winged inſect, armed with a ſting in the manner of the bees and waſps. It is of the ſhape of a waſp, but all over black in colour; it ſtings very ſeverely, always leaving the ſting in the wound. It builds its neſt of clay, which it works up to a very hard conſiſtence, and finally ſaſtens to a ſtone.

BOMBYX is alſo a name given to the SILK-*worm*.

BOMBYX, in the *Ancient Muſic*, a kind of inſtrument, which, in Ariſtotle's time, was made of a reed, *calamus*, and by reaſon of its length, was difficult to play on.

The word ſeems alſo to have been uſed for a contrivance of horn, for ſhutting and opening the holes of wind-inſtruments.

BOMBYX, in the *Ancient Naturaliſts*, ſignifies indifferently either ſilk or cotton.

BOMONICA, in *Antiquity*, an appellation given, at Sparta, to the children, who, in the ſacrifices of Diana, threw who ſhould receive the greateſt number of ſtripes with rods, which they ſometimes continued to do the whole day, and even, as Plutarch relates, to death itſelf.

The word is formed from βωμος, *altar*, and καιω, *uro*; importing as much as *victor ad aras*, or *conqueror at the altars*.

BON, or BAN, in *Botany*, a name given by ſome authors to the tree, the kernel of whoſe fruit is the coffee. The fruit is by the ſame authors called *bunn*.

BON is alſo the name of a yearly feaſt celebrated by the Japoneſe, in honour of the dead.

BONA *fides*, or BONA *fide*, is uſed in ſpeaking of things done with an honeſt intention, in oppoſition to thoſe done with a deſign of fraud and deceit, ſaid to be *mala fide*. In this ſenſe, we ſay, a grant, a conveyance, *bona fide*.

In many caſes, in the civil law, the *bona fide* of an action excuſes the want of ſome of the cuſtomary forms.

Contracts *bonæ fidei*, among *Civilians*, ſtand contradiſtinguiſhed from thoſe *ſtricti juris*; the former being gained by plain honeſty and conſcience, which ſometimes include ſeveral things not expreſly mentioned, whereas the latter are reſtrained to the expreſs terms of the deed.

A buyer *bonæ fidei*, is he who really believed the thing to belong to the ſeller at the time when he purchaſed it.

A poſſeſſor *bonæ fidei*, is he who is in poſſeſſion of a thing belonging to another, but which he truly believes is his own.

To be entitled to the benefits of next acceſſion, it is requiſite the perſons have poſſeſſed the thing *bona fide*, or really thought themſelves the proprietors.

PRESCRIPTION cannot ariſe from acts done *mala fide*; ſince what was unjuſt in its origin, can never be made juſt by time and continuance.

BONÆ *fidei*, *Actiones*, thoſe wherein for farther light, the judge

judge might take cognizance of things not mentioned between the parties.

BONA *fide*, *Judgment*, that wherein the parties are obliged to pay each other what is due *bona fide*, i. e. juſtly and equitably; and the judge has a power of eſtimating what is thus due to the actor or plaintiff; a power given him by the *formula* of the *prætor*, viz. *Ex fide bona, vel quantum æquius melius.*

BONA *gratia*, a phraſe anciently uſed in ſpeaking of divorces, which were brought amicably about for ſome juſt reaſon, with the conſent of both parties, and without any crime on the part of either, as in caſe of old age, diſeaſe, barrenneſs, monachiſm, captivity, or the like.

BONA *defunctî ad collegendum.* See ADMINISTRATION.

BONA *mobilia.* See MOBILIA.

BONA *notabilia*, in *Law.* Where a perſon dying has goods, or good debts, in another dioceſe, but within the ſame province, beſides his goods in the dioceſe where he dies, amounting to the value of five pounds, at leaſt; he is ſaid to have *bona notabilia:* in which caſe, the probate of his will, &c. belongs not to the biſhop of the dioceſe where he dies, whoſe juriſdiction cannot extend beyond the bounds of his own dioceſe, but to the archbiſhop of the province.

Though if a perſon happens to die in another dioceſe, than that wherein he lives, on a journey; what he hath about him above the value of five pounds, &c. ſhall not be *bona notabilia.*

BONA *patria*, a JURY or ASSISE of countrymen, or good neighbours.

BONA *peritura*, periſhable goods. By ſtat. 13 Ed. I. cap. 4. the cargo of a ſhip that has been caſt away ſhall be kept for a year and a day, and reſtored to the rightful owner; but if the goods be ſuch as will not endure ſo long, they are *bona peritura*, which the ſheriff is allowed to ſell, and to account in money for the value.

BONA *vacantia*, goods; ſuch as royal fiſh, ſhipwrecks, treaſure-trove, waiſe, and eſtrays, in which no one can claim a property. Theſe goods by the law of nature, and by the imperial law, belong to the firſt occupant or finder; but in the modern conſtitutions of European governments, they are annexed to the ſupreme power by the poſitive laws of the ſtate.

BONIS *arreſtandis, ne diſſipentur.* See ARRESTANDIS.

BONIS, *non amovendis*, a writ directed to the ſheriffs of London, &c. where a writ of error is brought to charge them that the perſon againſt whom judgment is obtained be not ſuffered to remove his goods, till the error is tried and determined.

BONIS *Terris & catallis rehabendis poſt purgationem.* See TERRIS.

Arreſto factо ſuper BONIS *mercatorum.* See ARRESTO.

BONORUM *attachiamenta.* See ATTACHIAMENTA.

Summum BONUM, ſee *Chief* GOOD.

BONASIA, in *Ornithology*, a ſpecies of the TETRAO.

BONASUS, in *Zoology*, the name of a ſpecies of wild-ox, of the ſize of the tame kind common with us, but of a thicker body, and having on its neck a mane like that of a horſe, and horns very ſhort and crooked, ſo as to be of no uſe to him in fighting.

When he is urged, he is able to throw out his dung a great way, and it is then of a hot and corroſive nature, though not ſo at other times; and this is the method of defending himſelf: a thing hardly credible, as Mr. Ray juſtly obſerved, if we had not inſtances of other animals, which poſſeſs the like faculty. See GLAMA.

BOND. See COUNTER-BOND, and OBLIGATION.

BOND-*tenant*, are the ſame in reſpect to the nature of their tenure with *copy-holders*, and *cuſtomary-tenants.* Blackſtone's Comm. vol. ii. p. 148.

BOND, in MASONRY and *Brick-laying*, is when bricks or ſtones are, as it were, knit and interwoven; and when they ſay, make *good bond*, they mean that the joints are not made over, or upon other joints; but reach at leaſt ſix inches, both within the wall and on the ſurface, as the art of building requires.

BONDAGE properly denotes a ſtate of ſervitude or ſlavery.

BONDAGE, *bondagium*, in *Engliſh Law-Writers*, the ſame with VILLENAGE.

Tenants in *bondage* paid heriots, and did fealty; they were not to fell trees in their own garden, without licence of the lord.

The widow of a *tenant in bondage* held her huſband's eſtate *quamdiu vixerit ſine marito.*

BONDAGE *by the forehead*, or *bondagium per anteriores crines capitis*, was when a freeman renounced his liberty, and became ſlave to ſome great man; which was done by the ceremony of cutting off a lock of hair on the forehead, and delivering it to his lord; denoting that he was to be maintained by him for the future.

Such a *bondman*, if he reclaimed his liberty, or were fugitive from his maſter, might be drawn again to his ſervitude by the noſe: whence the origin of the popular menace, *to pull a man by the noſe.*

BONDMAN, *bondus*, in the *Engliſh Law*, is uſed for a VILLAIN, or tenant in VILLENAGE.

The Romans had two kinds of *bondmen*; one called *ſervi*, who were thoſe either bought for money, taken in war, left by ſucceſſion, or purchaſed by ſome other lawful acquiſition; or elſe born of their *bondwomen*, and called *vernæ.* Both are called in our law *villains in groſs*, as being immediately bound to the perſon and his heirs.

We may add a third kind of *bondmen* mentioned by Juſtinian, called *adſcripticii glebæ*, or *agricenſiti*; who were not bound to the perſon, but to the ground or place, and followed him who had the land. Theſe, in our law, are called *villains regardants*, as belonging to the manor or place.

In the Engliſh as well as Scottiſh laws, thoſe called by the Romans *vernæ* are ſometimes alſo denominated *nativi*, as being born on the land.

The word is formed from the Saxon *bond*, ſignifying a *fetter.*

BONDUC, in *Botany*, the name given by Plumier to a genus of plants, afterwards characteriſed by Linnæus under the name of GUILANDINA.

BONDUCH, in the *Materia Medica*, a name by which many authors have called the Molucca, Marſeo, or Bezoar nuts.

BONE, in *Anatomy*, a white, hard, brittle, inſenſible part of the BODY, framed for the defence of the ſoft parts, and the ſupport of the whole fabric. See BODY, PART, &c.

Bones are divided according to the parts wherein they are found, into the *bones* of the head, the feet, the *thorax*, &c. From their offices, figures, &c. many have likewiſe proper names, as the *os ſacrum*, *jugale*, *lachrymale*, *cuneiforme*, *pubis*, &c. Spongeous *bones*, *oſſa ſpongioſa*, are thoſe full of large bores, formed like honey-combs.

Bones have their veſſels and circulating fluids, and, in ſhort, the ſame general texture which other parts have; ſolidity, and the ſtronger coheſion of parts, are the only evident diſtinguiſhing characters of the compoſition of *bones.* Monro, Med. Eſſ. Ed. vol. v. art. 24.

There is at leaſt one artery for each *bone*, ſeveral having more, for the conveyance and ſecretion of the medullary matter. After the ingreſs of the artery into the *bone*, it divides into a number of branches, which are diſtributed *quoquo verſum* on the internal membrane. The blood, which remains after the ſecretion of the marrow, is returned by proper veins; ſome of which paſs out of the *bone* either at the ſame hole whereby the artery entered it, or very near it.

In a *bone* we conſider divers things; the body, which is the middle or greater part called by Galen *diaphyſis*; the heads, which are the great protuberances at the ends; the neck, the part immediately under the head; *ſuperficies*, the extremities of the ſides of a cavity at the end of a bone; *ridges*, the prominent, fallent parts in the length of the body of the *bone.*

Some cavities are formed for articulation, called *cotyles* and *glenes*, which contain a mucilaginous humour, ſeparated from the glands of that name; others not ſubſervient to articulation, receive different names, according to their figures; ſome being called *foramina*, or holes; others, *foſſæ*, or trenches; others, *ſulci*, or furrows, &c. Heiſter. Comp. Anat. § 45, &c.

Bones, with regard to their form and ſtructure, may be divided into flat or broad, which have thin ſolid ſides, and a thick intermediate ſpongy part; and round, which are more hollow, having the ſolid part thicker and ſtronger.

Bones may be divided with regard to their conſiſtence, 1. Into rocky, *oſſa petroſa*, which are hardeſt of all; as the temple-*bones*, thoſe of the ear, the thigh-*bone*, *tibia*, &c. 2. Soft *bones*, *oſſa mollia*; as the *ethmoides*, *vertebræ*, *carpus*, *tarſus*, and the *epiphyſes.* 3. Solid *bones*, *oſſa ſolida*, thoſe without any cavities; as the *os-palato*, *iſchium*, the teeth, &c.

The *bones*, in reſpect of their internal ſtructure, may be divided into thoſe which have a conſiderable cavity within, filled with marrow, as the bones of the arms and legs; and thoſe which have no ſuch cavity or marrow, as the bones of the ſkull and ribs, &c.

Little *bones* are denominated OSSICLES.

The *bones* are all covered with a peculiar membrane, called the *periſteum*; and are moſt of them hollow, and filled with an oily ſubſtance called *marrow.*

Dr. Havers, deſcribing the texture of the *bones*, obſerves, that they conſiſt of *lamellæ*, or plates lying one upon another; and thoſe, again, of fibres running lengthwiſe, ſome to the extremities of the *bones*, others not ſo far; but none of them terminating there in diſtinct ends, as

they seem to do; but in lieu of that, continued transversely, and as it were arched: the fibres of one side meeting and uniting with those of the other; and this at each extremity. So that the fibres are a continuation of each other; though not in the same uniform order, but in very long ellipses; not all of a length, however, but in each plate shorter and shorter than in another.

These *lamellæ*, or plates, are differently disposed in different *bones*; v. gr. in those that have a large cavity, they are contiguous on each side, and very closely united; in those again, whose cavities are small, or which are altogether spongeous within, many of the internal *laminæ* are placed at a distance from each other, having betwixt them little *bony* cells; and even in *bones* that have a larger cavity, some of these lesser cells are usually found at each extremity. In such *bones* as have their plates contiguous, there are pores through and between the plates, besides those made for the passage of the blood-vessels: the first penetrate the *laminæ* transversely, and look from the cavity to the external surface of the *bone*; the second run longitudinally between the plates: the first are found in every one of the *laminæ*; though the nearer the cavity the greater the number of pores; but they do not lie directly over one another, so as to form any continued passage from the cavity to the surface: the second are seldom found but by good glasses; a medullary oil is diffused, by these, throughout the plates; and to those, the first kind seems only subordinate, serving to bring the oil into them.

On viewing the *bones* with the assistance of good glasses, their superficial part is found to consist of a great many small vessels, and some few of a larger size; which last, when they come to the surface of the *bone*, appear invested with either a membrane or a bony substance, perfectly transparent. The inside of the *bone* is a spongy or cellular substance, consisting of long particles, closely united; and these are composed of numberless small vessels, closely united, and some running lengthways, others taking their course towards the sides of the bony fibres; which, notwithstanding their great number of apertures, are extremely hard, and lie some parallel, and others perpendicular to the length of the *bone*. Mr. Leewenhoeck discovered once, in a small bit of a thin *bone*, four or five vessels, with apertures large enough for a silk to pass through, each whereof formed furnished with a valve, disposed in such a manner as to let out what was contained in the vessel, but suffer nothing to return into it.

The way to examine the *bones*, is to shave off, with a very sharp pen-knife, extremely thin pieces, lengthwise, crosswise, and obliquely, and these from the outside, inside, and middle of the *bone*, and apply these, some dry, others moistened with water, to the focus of the double microscope; and thus the vessels will be seen in all directions: but the best way of seeing the *bony* structure, is by putting the *bones* in a very clear fire till they are red hot, and then taking them out carefully, you will find the bony cells, though tender, perfect and entire; and being now quite empty, they may be viewed with ease and pleasure. Baker's Microsc. p. 143.

The marrow in the cavity of the *bones* is invested with a membrane, wherein are included little bags, or lobules; and in these bags are *utriculæ*, or glandulous bladders, serving both for the secretion of the medullary oil from the blood, and for the reception and conservation of the same. They seem to have passages into each other, as have also the bags; whereby the oil has a freer course to the joints and substance of the *bone*. The use of the marrow is to oil the substance of the *bone*, and to prevent its being too dry and brittle; it also lubricates the articulation of the *bones*, and hinders their ends from being worn, or overheated with motion; and it moistens the ligaments by which they are tied to each other: in which it is assisted by the mucilaginous glands found in all the articulations of the *bones*.

The bones are generally bigger at their extremities than in the middle; that the articulations might be firm, and the *bones* not so easily dislocated: but to render the middle of the *bone* strong withal, so as to sustain its allotted weight, and resist accidents, the fibres are there more closely compacted together, and support one another; to which it may be added, that the *bone* being hollow, is not so easily broken, as if it had been solid, and smaller; for of two *bones* of equal length, and of equal number of fibres, the strength of the one to the strength of the other will be as their diameters.

The *bones* are joined and connected together various ways; according to the various purposes they are to serve: some being intended for motion, others for rest, and the *support of the incumbent parts only.*—That jointure intended for motion, is called DIARTHROSIS, or articulation separated: that for rest, SYNARTHROSIS, or articulation conjoined: and each of these again is subdivided into several others. See ARTICULATION.

Besides the articulation of the *bones*, there is also their union or connection, called by the ancients SYMPHYSIS. The number of the *bones* is various in various subjects: ordinarily it is about 242; some say 300; others 307; others, 318: but the later writers fix it at 249 or 250; 61 of which are in the head, 67 in the trunk, 62 in the arms and hands, and 60 in the legs and feet: the variations are in the number of the *sesamoidea*, the teeth, and the *sternum*.

The *bones* of the human skeleton, enumerated by Winslow, are 54 in the head, without reckoning the *os hyoides*, and *bones* of the ear; 54 in the trunk, taking the *sacrum* for one *bone*, and the *sternum* for two; 124 in the extremities, leaving out all the *sesamoidal bones*; so that the whole number is 232, to which adding the eight *bones* of the ear, and the five principal pieces of the *os hyoides*, we shall have in all 245, the *sesamoidal bones* being still omitted. Winslow's Anat. vol. i. p. 4.

The names of the several *bones* are given in the following table; their figures and places are represented in *Tab. Anat.* P. 1. (*Osteol.*) and particular descriptions of each are given under their proper heads.

Os Frontis	1	*Vertebræ Cervicis*	7	The *Os Femoris*	2
—*Occipitis*	1	—*Dorsi*	12	*Patella*	2
Ossa Parietalia	2	—*Lumborum*	5	*Tibia*	2
—*Temporum*	2	—*Ossis Sacri*	1	*Fibula*	2
Ossicula Auditus	8	*Os Coccygis*	3	*Ossa Tarsi*	14
Os Ethmoides	1	*Scapula*	2	—*Metatarsi*	10
—*Sphenoides*	1	*Clavicula*	2	—*Digitorum*	28
Ossa Mala	2	*Costæ*	24		
—*Maxillaria*	2	*Sternum*	1		60
—*Unguis*	2	*Ossa Innominata*	2		
—*Nasi*	2			In all	245
—*Palati*	2		64		
Vomer	1				
Maxilla Inferior	1			Beside the *Ossa*	
Dentes Incisivi	8	The *Humerus*	2	*Sesamoidea*, which	
—*Canini*	4	*Ulna*	2	are said to be found	
—*Molares*	20	*Radius*	2	to the number of	
Os Hyoides *	1	*Ossa Carpi*	16	48.	
		Metacarpi	8	Of the bones, the	
		Digitorum	30	least is the ORBICULARE; the big-	
	61		60	gest, the FEMUR.	

* To which may be added the *ossa convoluta*, or lower shells of the nose. See CONCHÆ *Narium*.

The blood-vessels of the *bones* Dr. Havers divides into nutritious and medullary; the one furnishing matter for the nutrition, the other for the lubrication of the *bones*. The chief of the nutritious enter the ends of the *bone*, viz. the arteries at one end, and the veins at the other. The medullary commonly enter the sides of the *bone*, and that obliquely; but both by the same foramen.

The medullary oil is dispensed from the cavity where it is deposited, throughout the whole substance of the *bone*; passing first through the transverse pores of the first internal *laminæ* into the longitudinal ones; where it proceeds till it finds other transverse pores, when it alters its course again, and exudes farther: thus it passes alternately through and between the plates, till it is diffused throughout. This is the method of its conveyance in *bones*, whose plates are contiguous: where the plates are at a distance, as in *bones* that have no great cavity, the small caverns above mentioned contain medullary glands; whence the plates have the benefit of the marrow without the former method of conveyance.

Thus are all the *bones* flocked with pores, &c. excepting the TEETH; which have this farther distinction, that they have nerves inserted into them: whereas, in all the other bones, the nerves go no farther than the *periosteum*. Besides the large cavities in the inside, most *bones* have superficial cavities, or *sinuses*, which may be distinguished into *sulci*, or furrows, the longer sort; and *foveæ*, pits, the shorter ones.

On the outside are also observed prominences, whereof there are two kinds; the one a continued part of the *bones*, jutting apparently above its plain surface, for the more commodious insertion of the muscles, &c. called *apophysis*, or *processus*; the other an additional *bone*, growing to another by mere contiguity, being generally more soft and porous than the other, and called an *epiphysis*, or *appendage*. If the protuberance be round, it is called the *caput*, under which is the *cervix*; if flat, *condylus*; if sharp, *corona*.

The natural colour of the fresh *bones* of an adult human *body*, is whitish, with a small mixture of pale red. This red colour is more considerable in children, but decreases by degrees as they grow up, and is lost in old age. It is

is owing to the blood-veſſels of the *bones*, which are larger, and leſs ſurrounded by the bony juices in infancy than in age; ſo that the colour of the blood appears through the ſubſtance of the *bones*. Winſlow.

The general uſe of the *bones* is to ſupport and ſtrengthen the body, like beams and pillars in a building; to defend ſome of the more eſſential parts, as the brain, &c. to give ſhape to the body, and to aſſiſt in motion.

It is demonſtrable, that of whatever figure *bones* are, and in whatever manner their fibres are diſpoſed, their ſtrength muſt always be in a *ratio* compounded of their quantity of bony matter, and of the diſtance of their centre of gravity from the centre of motion.

Hence, on a double account, the part of a *bone*, formerly fractured, muſt be ſtronger than any other part of that ſame *bone*, becauſe the diameter is enlarged, and the quantity of matter is increaſed.

The human *bones* have been ſometimes known to grow ſoft and flexible, ſo as to bend any way with leſs difficulty than the muſcular parts of a healthy perſon's leg. Phil. Tranſ. N° 470. ſect. 3.

Bartholin gives an inſtance of an *anoſteus*, or boneleſs child, ſhewn at Briſtol, whoſe arms and legs were flexible like a glove.

Bones have ſometimes been found incruſted with ſtone, which has given riſe to accounts of ſkeletons petrified. Phil. Tranſ. N° 477. p. 55. &c.

Bones are totally ſoluble in concentrated acids of vitriol, nitre, and ſea-ſalt, and may be ſoftened by theſe or acetous acids diluted. Gradual heat renders them opake, white and friable; but if they are firſt urged with a ſtrong fire, ſuch as are ſufficient to melt iron or copper, they become hard, ſemi-tranſparent, and ſonorous.

By diſtillation in a retort, the *bones* reſolve into phlegm, ſpirit, volatile ſalt, fœtid oil, and *caput mortuum*, which, calcined in an open fire, leaves a white earth, without any fixed ſalt. This laſt appears to be the proper conſtituent part of the *bones*, ſince after the other principles are ſeparated, the earth ſtill retains the former ſhape of the *bone*, though it be ſo brittle, that, on the leaſt touch, it moulders into duſt. When moiſtened with a little water or oil, it recovers ſome degree of tenacity again; but cannot be reſtored to its former firmneſs.

The *origin* and *formation* of *bones* are generally traced from cartilages, which all *bones* are ſuppoſed once to have been; or, according to others, membranous tendons. Some deduce theſe farther from gellies; and others from mere fluids; which ſucceſſively arriving at greater and greater conſiſtence, become firſt gelatinous, then tendinous, then cartilaginous, and laſtly bony. Phil. Tranſ. N° 54. N° 71. and N° 81.

Hence the different ſtates of the *bones* in different ages, ſexes, and the like; which, in children, are found ſoft, moiſt, and cartilaginous; in aged people, hard, dry, and inflexible; the very cartilages in theſe frequently becoming bony.

Bones have been regenerated. See Phil. Tranſ. vol. lix. N° 6. an 1769. p. 41. &c.

Dr. Neſbit, in his Human Oſteology, undertakes to demonſtrate, that the notion of all, or any *bones*, being originally cartilaginous, is without foundation in nature. Some conſider the membrane wherewith the *bones* are lined, as a kind of *periſteum internum*, if the expreſſion may be allowed; which, according to Havers, takes its origin from the muſcular coat of the medullary artery. Be this as it will, it is contiguous with the whole internal ſurface of the *bones*, and enters the tranſverſe pores, as the external *periſteum* does the inuoſities of the *bones*, though it does not adhere ſo cloſe thereto as the external does. Monro, Oſteology, p. 19. &c. &c.

The *bones* are uſually capped at the ends with CARTILAGES, and to them are alſo annexed LIGAMENTS.

The doctrine of the *bones* make a particular branch of *Anatomy*, under the denomination of OSTEOLOGY, or OSTEOGRAPHY.

The formation or geneſis of the *bones* is called OSSIFICATION, or OSTEOGONY.

A ſyſtem of the ſeveral *bones* of a body, dried, whitened, and joined together in their natural order by art, is called a SKELETON.

Animals without *bones*, are ſaid to be *anoſtei*; ſuch are all the ſpecies of reptiles, inſects, &c.

BONES, *extraneous* or *preternatural*, have been found in the *meninges*, the duplicatures of the *dura mater*, between the *cerebrum* and *cerebellum*, in the matrices of women, does, hares, cows, *omentum* of ſowa, &c. Hiſt. Acad. Sc. an. 1711. 1713. Plott's Hiſt. Staff. ch. vii. § 56. 63. and 74.

BONES, *diſeaſes and injuries of the*.—Thoſe to which the *bones* are ſubject, are fractures, luxations, fiſſures, caries, cancers, nodes, rickets, tophi, exoſtoſes, or excreſcences, &c. To which may be added other leſs uſual diſorders, as preternatural hardneſſes, almoſt to a degree of petrifaction, and ſtiffneſſes to the condition of wax, unions or coalitions of all the *bones* of the body into one, creaking of the *bones* in ſcorbutic caſes, worms in the cavities of the *bones*, &c. Mr. Petit gives an inſtance of the carnification of the *bones*; wherein, by a change contrary to that of their firſt formation, they were reconverted from *bones* to fleſh, or cartilages. Phil. Tranſ. N° 251. N° 379. Med. Acad. Scien. an. 1720.

The operations practiſed in diſeaſes of the *bones*, are exciſion, amputation, perforation, trepanation, ſetting, or replacing, exfoliation, ſhaving, filing, &c.

BONES, *wounds of*.—As blunt inſtruments uſually make fractures of the *bones*, ſo ſharp ones, ſuch as ſwords, ſpears, &c. do, properly ſpeaking, ſometimes wound them; and theſe wounds cannot be ſuffered, without a great variety of ſymptoms, which are often very dangerous, according to the ſize and depth of the wound, and the nature of the wounded part. Such ſlight wounds as do not penetrate deep into the *bone*, are often attended with no great danger, eſpecially if proper care be taken in the dreſſing of them, and the injured *bone* be as much as poſſible kept covered with its integuments, from the injuries of the external air. All fat and oily medicines muſt be wholly rejected in wounds of this kind, as great enemies to the *bones*. But when wounds of this kind penetrate deep, and wholly divide the *bone* and its adjacent parts, and violently affect any of the organs neceſſary to life, in the head, neck, back-*bone*, or breaſt, with a puncture, or diviſion of the longer veins, arteries, nerves, and tendons of the upper and lower limbs, the danger is always great, the cure difficult, and death too often the conſequence. Petit has adviſed, that, in wounds of the *bones*, if the ſolution be inflicted lengthwiſe, the lips of the wound are to be cloſed and united by the uniting bandage; but if the wounds are very oblique, or wholly tranſverſe, then they are to be joined together by future, and the eighteen-headed bandage; but this is certainly a wrong method in many caſes of this kind. Indeed, in the firſt kind of theſe wounds, and when they are very ſlight, as when the ſkull is not wholly, nor indeed very deeply penetrated, and that without contuſion, nor the brain much hurt, this method may do very well; but when the contrary of theſe mild ſymptoms are the caſe, a very different method of cure is to be attempted; the wound is to be kept open by lint, and not healed up till thoroughly cleanſed; for, by a too ſpeedy cloſure of ſuch wound, the very worſt ſymptoms, and even death very often, are brought on.

So alſo, in ſlight, oblique, or tranſverſe wounds of the *bones*, the future, or the eighteen-headed bandage, may be uſed with ſafety and ſucceſs; but theſe are ſeldom neceſſary; and in oblique wounds of the head, forehead, and *cranium*, if not violent ones, the parts may be much eaſier cloſed and retained by a common bandage and plaſter, than by ſutures with the needle, or the eighteen-headed bandage; but when the divided part hangs down, the future may indeed be neceſſary.

If the *bones* of the fingers are thus wounded, or wholly divided by a ſword, they may be happily cured without the future, by the following method. Firſt, accurately replace the divided *bone*, then ſecure it in its place, by winding round a ſlip of plaſter, and, over this, applying a compreſs dipped in ſpirit of wine, and laying over all little ſlips of paſte-board, by way of ſplints; then binding up the whole with a proper narrow bandage, and hanging the arm in a ſling from the neck. Once, in about three days, the dreſſing is to be removed, and the wound treated with a vulnerary eſſence; and in a month the cure will be perfected.

If either of the *bones* of the *cubitus* be divided, it uſually is the *ulna*, as that is moſt expoſed to the ſword in fighting. This caſe requires neither the future nor eighteen-headed bandage; but the wound being cleanſed, is to be treated with ſome vulnerary eſſence or balſam, and with lint dipped in the ſame eſſence; after which are to be laid on, in order, the plaſter, compreſs, and paſte-board ſplints, wetted with ſpirit of wine, which are to be bound round the thick part of the *cubitus* near the wound, with a long bandage, that, as they dry, they may accommodate themſelves the better to the figure of the part; and, laſtly, the arm is to be ſuſpended in a ſling hung round the neck: after this, the wound is to be dreſſed every day, or every other day, in proportion to the diſcharge, and a cure without the help of the future will be eaſily effected; the future, in ſuch caſes, being not only unneceſſary but pernicious. But if both *bones* are divided, then indeed the eighteen-headed bandage may be neceſſary, and uſed with advantage; but even in this caſe, the future is much better let alone: for it is always to be avoided, except when perfectly neceſſary, from the dangers of inflammation, convulſions, and other bad ſymptoms that too naturally attend it.

If

If the thigh-*bone*, however, ſhould be cut with a ſword, in that caſe the bloody future will be of ſervice, and is even neceſſary to cloſe and retain thoſe very ſtrong muſcles: the wound is in this caſe to be carefully treated, and the limb laid up in a caſe of ſtraw, as in other fractures. So alſo, if the *bone* of the *humerus*, or arm, ſhould be penetrated with a ſword, that wound alſo ſhould, for the ſame reaſon, be treated by the future; but then it is not to be dreſſed with the eighteen-headed bandage, but with the common long and narrow bandage uſed in other fractures of the arm; the limb is afterwards to be ſupported by a ſhort napkin, faſtened about the neck, by which means the muſcles will be brought to a more ready union, and the cure ſooner perfected.

If it ſhould happen that both *bones* of the *cubitus* or leg ſhould be divided by a ſword, ſo as to leave the limb hanging only by the fleſh, ſkin, and blood-veſſels, which is a caſe that very rarely happens, without wholly amputating the limb, then alſo the future, and the eighteen-headed bandage, are the neceſſary applications; the future, however, can be of no ſervice in a caſe of this kind, when the fleſh and blood-veſſels are divided, and the limb ſo far cut off, as to hang only by a ſkin, eſpecially when the part is ſo conſiderable as the leg or arm; for in theſe caſes, the limb muſt be taken off, and the ſtump dreſſed as in other amputations.

When the lower jaw is ſo cut by a ſword, that the piece ſeparates, and cannot be otherways retained, then alſo the future may be uſed, adding a proper compreſs, plaſters, and the ſuitable bandage. If the clavicle, or *os humeri ſcapulæ*, ſhould in like manner be wounded by a ſword, the treatment and bandage are to be of the ſame kind, gently unbending, cleanſing, and dreſſing the part either every day, or every other day, as the diſcharge ſhall require, till the cure is *perfected*. Heiſter.

No medicines ſo effectually prevent the corruption of *bone* laid bare, and aſſiſt to cover them ſo ſoon with fleſh, as ointments, balſams, and dreſſing ſeldom, in order to have the aſſiſtance of the moſt effectual balſam of all, *fun*. With theſe we ſee the extremities of amputated *bones* covered over with fleſh, part of the ſkull, *tibia*, and other ſolid *bones*, covered in a little time with granulated fleſh after they had been laid quite bare by wounds made even with bruiſing inſtruments; and likewiſe after their carious ſurface had been cut off, and a complete cure made, without the leaſt exfoliation. Monro, Med. Eſſ. Edin. vol. v. art. 24.

BONE-*ſetting*, the art or act of replacing diſlocated *bones*, and the parts of fractured ones.

The Spaniards call their *bone-ſetters algebriſts*.

Bone-ſetting, by ſome called *ανθιστρατος ſynthetiſmus*, includes the four operations of extenſion, coaptation, deligation, and REDUCTION or repoſition.

FRACTURES and DISLOCATIONS of *bones* are ſo frequent, that it ſeems ſurpriſing the ſetting of them ſhould ſo long have been left to quacks and ignorant perſons. It is about 150 years ſince the methodical ſurgeons have applied themſelves to this art; which they have carried to a degree of perfection beyond what it ever arrived at among the Greeks.

A *bone*-ſetter ſhould poſſeſs a perfect knowledge of anatomy and mechanics; the former, to inform him of the ſtate and ſituation of the fractured or diſlocated *bones*; the latter, to furniſh machines, whereby to reinſtate them. The famous bench of Hippocrates was once held the moſt perfect engine of this kind. See AMBE.

M. Petit has contrived another, which not only ſeems more handy and portable, but more powerful, as well as leſs painful to the patient. By means of it, the operator is fully maſter of the powers that pull it, and may proportion them to the ſtrength and weakneſs of the ſubject, and that of the muſcles or tendons which are to be replaced. Add, that as it is neceſſary the power which retains the body be equal to that which pulls the diſlocated member: in this machine, the ſame rope which pulls the limb, repels the body; and that the machines hitherto contrived, have only ſerved for luxations of the ſhoulder, and that of the *hip*, which are made upwards, and where the members are ſhortened; whereas this ſerves for FRACTURES as well as LUXATIONS, and not only where the members are ſhortened, but where they are longer. Mem. Acad. Scienc. ann. 1716, p. 330, &c.

The replacing of a diſlocated *bone* of a horſe, is a work of much difficulty, and requires great force: they uſually caſt the beaſt on a ſoft place, put four ſtrong paſterns on his feet, and draw him from the ground, that his whole weight may, in a manner, reſt on the diſjointed member. Some tie a leathern thong about the paſtern, faſtening the other end of it to a yielding ſhrub, and thus whip the creature to make him ſtrain with all his force, till the *bone* flies into its place.

BONES, *boiling and whitening of*, are neceſſary operations in making SKELETONS: the method of doing which is thus deſcribed by Simon Paulli. They muſt firſt be well boiled, and afterwards expoſed day and night in the open air for a conſiderable time. The beſt ſeaſon for this operation is in wet ſtormy weather, eſpecially in the months of January, February, March, &c. the air being then impregnated with a nitrous ſalt, which contributes much to give them a bright white colour. If it does not rain, they muſt be ſprinkled with a bruſh dipt in rain-water; and even rubbing them gently with the bruſh may be of uſe.

In expoſing them, care muſt be taken to place them on a fir-board, by no means on oak one, which ſhould be covered with a ſtratum of ſlate-ſtone, firſt well ſoaked in water; next, fine ſea-ſand is to be ſprinkled on, an inch or two deep. The uſe of the ſand is to imbibe what marrow or fat remains in the *bones* after boiling.

BONES, *colouring and ſtaining of*.—The *bones* of living animals are capable of acquiring colour by the circulation of the blood and juices from their aliment; many inſtances of this kind, in which they have been changed into a deep red by madder-root, are recorded both in the Philoſophical Tranſactions, and in the Memoirs of the French Academy. *Bones* and horns may be likewiſe artificially ſtained with a variety of colours, by ſteeping or boiling them in decoctions of the vegetable or animal ſubſtances which are uſed for dying. They may be ſtained alſo, without heat, by metallic ſolutions, and in this way may be ſpotted and variegated at pleaſure. Thus ſolution of ſilver in *aqua fortis* gives a brown or a black, according to its quantity; ſolution of gold in *aqua regia*, or in ſpirit of ſalt, a fine purple; ſolution of copper in the acetous acid, a fine green; and ſolutions of the ſame metal in volatile alkalies, a blue, which is at firſt deep and beautiful, but changes on being expoſed to the air into a green or bluiſh-green. If the *bone* or horn is only touched with the firſt two ſolutions, and expoſed to the air, it does not fail to acquire the colour in a few hours: in the two latter, it requires to be ſteeped for a day or longer, in order to its imbibing the colour. In theſe and other caſes, where immerſion is neceſſary, the *bone* may be variegated, by covering ſuch parts as are intended to remain white, with wax, or any other matter, which the liquor will not penetrate and diſſolve. Phil. Tranſ. abr. vol. ix. p. 104, &c. Neumann's Works, by Dr. Lewis, p. 519. Lewis's Com. Phil. Techn. p. 97. 435. See DYING and IVORY.

BONES, *in the funeral ſolemnities of the ancients*.—Divers uſages and ceremonies relating to the *bones* of the dead, have obtained in different ages; as gathering them from the funeral pile, waſhing, anointing, and depoſiting them in urns, and thence into tombs; tranſlating them, which was not to be done without the authority of the pontiffs; not to ſay worſhipping of them, ſtill practiſed to the *bones* of the ſaints in the Romiſh church. Among the ancients, the *bones* of travellers and ſoldiers dying in foreign countries, were brought home to be buried, till, by an expreſs S. C. made during the Italic war, it was forbid, and the ſoldiers *bones* ordered to be buried where they died: the reaſon was, leſt the melancholy ſight ſhould diſcourage the people from venturing their lives. Antiquaries are divided as to the manner of diſtinguiſhing the *bones* of the deceaſed, from thoſe of the beaſts and ſlaves who were ſacrificed at his funeral, and thrown into the ſame fire: probably it was done by diſpoſing the body of the dead in the middle of the pile, and the others towards the ſides. Potter's Archæol. tom. ii. lib. iv. cap. 6.

The Romans had a peculiar deity, under the denomination *Oſſilago*, to whom the care of the induration and knitting of the human *bones* was committed, and who, on that account, was the object of the adoration of all breeding women. Pitiſc. Ant. tom. ii. p. 341.

BONES, in *Commerce*, are very uſeful articles, for making different kinds of toys; and alſo in ſeveral of the chemical arts; as for making caſt iron malleable, for abſorbing the ſulphur of ſulphureous ores, for forming teſts and COPPELS, or veſſels for refining gold and ſilver with lead; for burnt *bones* compoſe a maſs of a porous texture, which abſorbs vitrified lead and other metals, while the unvitrefcible gold and ſilver remain entire behind. They are uſed for the preparation of milky glaſſes and porcelains, for the rectification of volatile ſalts, and of empyreumatic oils, and for making glue. The *bones* of different animals are not equally fit for different uſes; even the glue or gelatinous part of the bones of one animal, is notably different both in quantity and cohefiveneſs, from that of another. Neumann's Works, p. 518.

The *bone* of the cuttle-fiſh is uſed by goldſmiths for making moulds; thoſe of bullocks for painters black; alſo, in lieu of ivory, for toys and cutlers work; where, if

they be leſs white than ivory at firſt, they do not ſo ſoon turn yellow.

Papin has given a method of turning *bones* to ſoot. Phil. Tranſ. N° 187. p. 329.

The Turks are ſaid to have applied *bones* to building, and to have built a wall with the *bones* of the Chriſtians killed at the ſiege of Philadelphia.

A piece of this *bone* wall was ſent to Dr. Woodward, who found the tradition to be an error; the ſubſtance not being *bone*, but a looſe, ſoft, porous earth, formed in an old aqueduct, now in the wall; or rather, an incruſtation of ſeveral bodies, chiefly vegetable, cemented together by ſparry and ſtony matters, found in the ſpring.

BONES, *foſſile*, or *petrified*, are thoſe found in the earth, frequently at great depths, in all the *ſtrata*, even in the bodies of ſtones and rocks.

There are divers ſorts of foſſile *bones*; ſome of a huge ſize, uſually ſuppoſed to be the *bones* of giants, but more truly of elephants, or hippopotami; other ſmaller, as *vertebræ*, teeth, and the like.

It has been diſputed whether theſe be really animal ſubſtances, or mineral; that is, ſtones thus figured. Modern naturaliſts generally allow them to be animal, not merely on account of their figure and reſemblance, but of their chemical principles, which are found to be wholly of the animal kind. It is ſuppoſed they were repoſited in thoſe *ſtrata* at a time when all things were in a ſtate of ſolution, and that they incorporated and petrified with the bodies where they happened to be lodged.

BONE is alſo applied abuſively in ſpeaking of other matters which bear ſome analogy either in reſpect of ſtructure or office to the *bones* of animals.

In this ſenſe rocks are ſometimes called the *bones* of the earth. Divers ſpecies of figured ſtones, as the *ſephoides*, *cardites*, &c. are denominated mineral *bones*, enoſta, oſteocolla, &c. Some naturaliſts conſider ſhells as a ſpecies of *bones*. The lobſter, according to Fontenelle, is an animal which carries its *bones* on its outſide.

BONES, *Giants*. See GIANTS *bones*.

BONES, *Mammoni*. See MAMMOTH.

BONE-*fire*. See *Bone*-FIRE.

BONE-*lace*. See LACE.

BONE, *hurle*, *Neger's*, *quitter*, *ring*, *whale*. See the ſeveral articles.

BONGO *pala*, in *Botany*, a name by which ſome authors have called the tree which produces the nutmeg.

BONIFACIA, in *Botany*, a name uſed by John Bauhine, and ſome others, to expreſs the broad-leafed RUSCUS, or BUTCHER'S-*broom*, commonly called the Alexandrian bay.

BONITO, in *Ichthyology*, the name of a fiſh, of the tunny or THACHURUS kind, and called by ſome *cavvota pinima*.

It is a large ſea-fiſh, with a long, broad, and thick body: its eyes are large, as are alſo its gills, and the greater part of its body is free from ſcales. It is a fiſh of very great beauty. It is an extremely common fiſh in ſome ſeas; our Eaſt India ſhips uſually fall in with immenſe ſhoals of them.

BONNA, in *Natural Hiſtory*, a name given by Pliny, and ſome other of the ancient Latin writers, to the BONASUS.

BONNET, in a general ſenſe. See CAP, HAT, &c.

BONNET, in *Fortification*, a kind of little ravelin, without a ditch, having a parapet three feet high; anciently placed before the points of the ſaliant angles of the *glacis*; being paliſadoed round: of late alſo uſed before the angles of baſtions, and the points of ravelins, and fauſſebrayes. See *Tab. Fortif. fig.* 21. *lit. m.*

The *bonnet* has two faces, from ten to fifteen, or more rods long: the parapet is made of earth, from thirty to thirty-ſix feet thick, and from nine to twelve feet high: it is invironed with a double row of paliſadoes ten or twelve paces diſtant from each other; hath a parapet three feet high, and is like a little advanced *corps du guard*.

BONNET *à prêtre*, or *prieſt's* CAP, is an outwork, having at the head three ſaliant angles, and two inwards.

It differs from the *double* TENAILLE, only in this, that its ſides, inſtead of being parallel, grow narrower, or cloſer at the gorge, and open wider at the front; on which account it is alſo denominated QUEUE D'ARONDE, or ſwallow's tail.

BONNETS, in *Sea-language*, ſmall ſails, ſet on the courſes on the mizen, main-ſail, and fore-ſail of a ſhip, when theſe are too narrow, or ſhallow to clothe the maſt; or in order to make more way in calm weather.

Bonnets are commonly one third of the depth of the ſails they belong to.

What the *bonnet* is to the courſe, that is the drabler to the *bonnet*; being only in uſe when the courſe and *bonnet* are too ſhallow to clothe the maſt: there are alſo *bonnets* in form of ſheaths, being ſmall ſails faſtened by the narrow end to each extremity of the yards, wider at bottom than at top, of good uſe, when the ſea is ſmooth.

The words are, *lace on the bonnet*, that is, faſten it to the courſe; *take off the bonnet*, that is, take it off the courſe.

BONNET *pepper*. See CAPSICUM.

BONNY, in *Mineralogy*, a name given by our miners to a bed of ore found in many places in hills, not forming a vein, nor communicating with any other vein, nor terminating in ſtrings, as the true veins do: it is a bed of ore of five or ſix fathoms deep, and two, or ſomewhat leſs than that, in thickneſs, in the largeſt ſort; but there are ſmaller, to thoſe of a foot long. They have their trains of SHOAD-*ſtones* from them, and often deceive the miners from the expectation of a rich lead vein. They differ from the SQUATTS only in being round beds of ore, whereas thoſe are flat. Phil. Tranſ. N° 69. p. 2098.

BONO *et malo*, *Writ de*, a ſpecial writ of goal-delivery was anciently uſed for each particular priſoner under this title: but theſe being found inconvenient and oppreſſive, a general commiſſion for all the priſoners has long been eſtabliſhed in their ſtead. 2 Inſt. 43.

BONONIAN *ſtone*, a ſmall, grey, ſoft, gloſſy, fibrous, ponderous, ſulphureous ſtone, about the bigneſs of a large walnut: when broken, having a kind of cryſtal, or ſpiry talc within; found in the neighbourhood of Bologna, or Bononia in Italy; and, when duly prepared, making a ſpecies of PHOSPHORUS.

This ſtone is found in divers part of that country, particularly in a river at the foot of Mount Paterno; where a chemiſt, one Vincenzo Caſciarolo, having gathered ſome pieces, and carried them home, in hopes by the fire to draw ſilver out of them, inſtead of what he expected, found that admirable phenomenon they exhibit, which conſiſts in this, that having been expoſed to the light, they retain it, and ſhine for the ſpace of ſix or eight hours in the dark. This diſcovery was made about the year 1630.

M. Homberg is ſaid to be the firſt perſon who taught us the true manner of preparing and calcining the *Bononian ſtone*; having made a journey to Italy on purpoſe to learn it.—Though others alledge, that the true art of preparing and calciting the ſtone is loſt; there having been but one, an eccleſiaſtic, who had the true ſecret, and who is ſince dead, without communicating it to any perſon. See Phil. Tranſ. N° 21.

This property of affording a phoſphorus by calcination, is common to the other gypſums, when pure from metallic, or other heterogeneous mixtures; the artificial gypſums ſucceed equally with the natural, and it is found to belong to a variety of other ſubſtances. M. Margraaf obſerves, that all ſubſtances which have this property, contain a vitriolic acid, united to an alkaline or calcareous earth.

M. Lupigni obſerves, that one Zagonius had a method of making ſtatues and pictures of the *Bononian ſtone*, which would ſhine variouſly in the dark; but he adds, the perſon died without diſcovering his ſecret. See Phil. Tranſ. N° 134.

For the method of preparing this phoſphorus, and other obſervations upon it, ſee LAPIS *Bononienſis*. See alſo the articles LIGHT, and PHOSPHORUS.

BONOSIANI, or BONOSIACI, an ancient branch of ANOPTIANI, in the fourth century, denominated from their leader Bonoſus, a biſhop of Macedonia.

BONPOURNIKEL, a denomination given to a coarſe kind of BREAD uſed in Weſtphalia.

BONS-*hommes*, or BON-*hommes*, a ſort of hermits of St. Auguſtin, founded by F. de Paula. They were brought over into England in 1283, by Edmund, earl of Cornwall, and ſettled at Aſhorug, in Bucks, beſides which they had only one houſe more, at Edington in Wiltſhire. They followed the rule of St. Auſtin, and wore a blue habit.

The name is ſaid to have ariſen from Louis the XI. of France, who uſed to call F. de Paula, prior of the order, *le bon homme*. Till then they had been called the *Minimi*, or the order of *Grammont*. See ALBIGENSES.

BONT-*viſch*, in *Ichthyology*, the name given by the Dutch to an Eaſt Indian fiſh, ſeeming to approach to the nature of the European TURDUS, but that it has no ſcales. See *Tab. V. of Fiſh*, N° 64.

BONTIA, in *Botany*. See *Barbadoes wild* OLIVE.

BONZES, or BONZUS, a name given to the prieſts and religious of China, Japan, and Tonquin.

The *bonzes* are the great adverſaries of the miſſionaries; and to their influence are attributed the perſecutions which have been raiſed in thoſe countries againſt the Chriſtians.

They generally live in a ſort of community, in places apart, or conſigned wholly to them. The iſland Pou-to near Chuſan, is a famous ſeat of *bonzes*, being wholly inhabited by them, to the number of 3000, all of the ſect of Hoſhang, or unmarried *bonzes*.

They live a kind of Pythagorean life, and have not less than four hundred pagods, or temples, in this little island. They have also female *bonzes*, a sort of nuns. Phil. Transf. N° 280.

In order to distinguish themselves from the laity, they wear a chaplet round their necks, consisting of a hundred beads, and carry a staff, at the end of which is a wooden bird; they live upon the alms of the people, and yet are very charitably disposed, maintaining several orphans and widows out of their own collections.

The *bonzes* of China are the priests of the Fohists, or sects of Foh; and it is one of their established tenets, that there are rewards allotted for the righteous, and punishments for the wicked, in the other world; and that there are various mansions, in which the souls of men will reside, according to the different degrees of merit. The *bonzes* of Pegu are generally gentlemen of the highest extraction.

BOOBY, in *Natural History*, the name of a bird common about Jamaica, and in several other parts of the world. It is described by sir Hans Sloane, in his History of Jamaica, under the name of *avis fusca anseri bassano affinis*. It feeds upon fish, and dives under water after them, but is often robbed of its prey by another voracious bird, called the *albatross*, or the man of war bird. The frequent contests between these two birds are very diverting, the one being as unwilling to part with the prey it has so dearly earned, as the other resolute to have it; but the ALBATROSS generally succeeds.

BOOK, a writing composed on some point of knowledge by a person intelligent therein, for the instruction or amusement of the reader.

The word is formed from the Saxon *boc*, which comes from the Northern *beech*, of *beechaws*, a *beech* or *service-tree*, on the bark of which our ancestors used to write.

Book may be defined more precisely, a composition of some man of wit or learning, designed to communicate, to prove, or illustrate some science, art, truth, or invention.

Book is distinguished from PAMPHLET, or single paper, by its great length; and from TOME or VOLUME, by its containing the whole writing. Isidore makes this distinction between *liber* and *codex*; that the former denotes a single book, the latter a collection of several: though, according to Scipio Maffei, *codex* signifies a *book* in the square form; *liber*, a *book* in the roll form.

We say an old *book*, a new *book*; a Latin, a Greek *book*; to read, to write, to publish a *book*; the PREFACE, the TITLE, the DEDICATION, the INDEX of a *book*. To *collate a book*, is to see that it be perfect, and that none of the sheets be either wanting or transposed. Book-binders speak of *folding*, *sewing*, *beating*, *pressing*, *covering*, *gilding*, and *lettering* of *books*. See BOOK-BINDING.

A large collection of *books* is called a LIBRARY. An inventory of a library, in order for the reader's finding any book, is called a CATALOGUE.

The *history* or *notitia* of *books* makes the first part, according to some the whole, of the literary science.—The principal points in the *notitia* of a *book* are, its *author*, *date*, *printer*, *edition*, *versions*, *comments*, *epitomes*, *successes*, *eulogies*, *censures*, *condemnation*, *suppression*, *aspersions*, *vindicators*, *continuators*, and the like.

The history of a *book* is either of its *contents*, which is given by analysing it, as is done by journalists; or of its *appendages* and *accidents*, which is the more immediate province of those called *literators*, and *bibliothecarians*.

The *contents* of a *book* are the matters delivered in it; which make the province of the author. Of these there is one principal matter, called the *subject*; in respect of which the rest are only *incidents*.

The *appendages* of a *book* are, the *title*, *preface*, *epistle dedicatory*, *summaries*, *table of contents*, *index*, and the like, which are the proper province of the editor, unless perhaps the title page, which is frequently usurped by the bookseller.

In the *composition* of a *book*, there occur *sentiments*, which are also the materials of it; *method*, the order wherein these are disposed; and *style*, or *expression*, which is the language wherein they are clothed.

The giving of histories, catalogues, and bibliotheca of *books*, is said to have been first introduced by the Germans: we may add, that they have best succeeded in them; and to them the chief works of this kind are owing. J. Alb. Fabricius has given us the history of the Greek and Latin *books*; Wolfius, that of the Hebrew *books*; Boecler, of the principal *books* in each science and faculty; Struvius, of the *books* of history, law, and philosophy; the abbot Fabricius, of the *books* of his own library; Lambecius of those in the Vienna library; Le Long, of the *books* of Scripture; Mattaire, of the *books* printed before the year 1550; and Morhoff, a general literary history of this kind, under the title of Polyhistor. The various catalogues of choice libraries are useful and necessary for the same purposes: so are likewise the Relationes, &c. and the Reviews which have been periodically published.

As to the *materials* of *books*, they were first written on stones, witness the Decalogue given to Moses (which is the oldest *book* we have any warranted account of); then, on the parts of plants, e. gr. the leaves, chiefly of the palm-tree; the rinds and barks especially of the *tilia* or *philyra*, and the Egyptian PAPYRUS. By degrees, wax, then leather, were introduced, especially the skins of goats and sheep, of which, at length, parchment was prepared: then lead came in use; also linen, silk, horn, and, lastly, PAPER itself.

The parts of vegetables continued long the common matter of *books*; insomuch that most of the names and terms belonging to *books*, in most languages, are taken thence; as the Greek *biblos*, the Latin *liber*, *codex*, *folium*, *tabula*, and the English *book* itself. We may add, that vegetable barks appear still in some measure retained for *books* in certain of the Northern countries, as among the Calmuc Tartars, where a library was discovered by the Russians, of an unusual form as well as matter; the *books* were exceedingly long, but of no breadth; the leaves very thick, and made of barks of trees, smeared over with a double varnish; the ink, or writing, being white on a black ground. Hist. Acad. R. Inscr. t. iii. p. 6.

BOOK, *everlasting*. We find in signior Castagnotta's account of the ASBESTOS, a scheme for the making of a *book*, which from its imperishable nature, he is for calling the *book of eternity*. The leaves of this *book* were to be of the asbestos paper, the covers of a thicker sort of work of the same matter, and the whole sewed together with thread spun from the same substance. The things to be commemorated in this *book* were to be written in letters of gold, so that the whole matter of the *book* being incombustible and everlastingly permanent against the force of all the elements, and subject to no changes from fire, water, or air, must remain for ever, and always preserve the writing committed to it.

BOOKS, *form of*. The first *books* were in form of blocks and tables, of which we find frequent mention in Scripture, under the appellation *sepher*, which the Septuagint render *xoana*, q. d. *square tables*: of which form the *book* of the covenant, *book* of the law, *book* or bill of divorce, *book* of curses, &c. appear to have been. As flexible matters came to be wrote on, they found it more convenient to make their *books* in form of rolls, called by the Greeks *volumina*, by the Latins *volumina*, which appear to have been in use among the ancient Jews as well as Grecians, Romans, Persians, and even Indians. And of such did the libraries chiefly consist, till some centuries after Christ. The form which obtains among us is the square, composed of separate leaves; which was also known, though little used, among the ancients; having been invented by Attalus, king of Pergamus, the same also who invented parchment: but it has now been so long in possession, that the oldest manuscripts are found in it. Montfaucon assures us, that of all the ancient Greek manuscripts he has seen, there are but two in the roll form; the rest being made up much after the manner of the modern *books*. See BOOK-BINDING.

The rolls, or volumes, were composed of several sheets, fastened to each other, and rolled upon a stick, or *umbilicus*; the whole making a kind of column, or cylinder, which was to be managed by the *umbilicus*, as a handle: it being reputed a kind of crime to take hold of the roll itself. The outside of the volume was called *frons*; the ends of the *umbilicus*, were called *cornua*, *horns*; which were usually carved, and adorned likewise with bits of silver, ivory, or even gold and precious stones. The title Σιλλυβος, was stuck on the outside. The whole volume, when extended, might make a yard and half wide, and fifty long. Fabric. Bibl. Antiq. c. 19. §. 7. p. 607.

To the form of *books* belongs also the *œconomy of the inside*, or the order and arrangement of points and letters into lines and pages, with margins, and other appurtenances. This has undergone many varieties: at first, the letters were only divided into lines, then into separate words; which, by degrees were noted with accents, and distributed by points and stops into periods, paragraphs, chapters, and other divisions. In some countries, as among the Orientals, the lines began from the right, and ran to the left; in others, as in Northern and Western nations, from the left to the right: others, as the Grecians, followed both directions alternately, going in the one, and returning in the other, called *boustrophedon*. In the Chinese *books*, the lines ran from top to bottom. Again, the page in some is entire, and uniform; in others, divided into columns; in others, distinguished into text and notes, either margins, or at the bottom; usually it is furnished with signatures and catch-words; also with a register to discover whether the *book* be complete. To these are occasionally added the apparatus of summaries, or side notes; the embellishments

liſhments of red, gold, or figured initial letters, head-pieces, tail-pieces, effigies, ſchemes, maps, and the like. The end of the *book*, now denoted by *finis*, was anciently marked with a ⊰, called *coronis*, and the whole frequently waſhed with an oil drawn from cedar, or citron chips, ſtrewed between the leaves to preſerve it from rotting. There alſo occur certain *formulæ* at the beginning and end of *books*; as, among the Jews, the word פתח, *aſh ſortis*, which we find at the end of the *books* of Exodus, Leviticus, Numbers, Ezekiel, &c. to exhort the reader to be courageous, and proceed on to the following *book*. The concluſions were alſo often guarded with imprecations againſt ſuch as ſhould falſify them; of which we have an inſtance in the Apocalypſe. The Mahometans, for the like reaſon, place the name of God at the beginning of all their *books*, which cannot fail to procure them protection, on account of the infinite regard had among them to that name, wherever found. For the like reaſon it is, that divers of the laws of the ancient emperors begin with the *formula*, *In nomine Dei*. At the end of each *book* the Jews alſo added the number of verſes contained in it, and at the end of the Pentateuch the number of ſections; that it might be tranſmitted to poſterity entire. The Maſoretes and Mahometan doctors have gone farther; ſo as to number the ſeveral words and letters in each book, chapter, verſe, &c. of the old Teſtament, and the Alcoran. See Alcoran, Massora, &c.

The kinds and denominations of *books* are various. With regard to their uſe and authority, *books* may be divided into *human* and *divine*, alſo called *ſacred* and *inſpired books*.

Books, *Sibylline*, thoſe compoſed by certain pretended prophetteſſes, depoſited in the Capitol, under the care of *duumviri*. See Sibyl.

Books, *Canonical*, thoſe received and allowed by the church as parts of holy ſcripture. Such are the *books* of the Old and New Teſtament, as commonly bound up together.

Books, *Apocryphal*, thoſe excluded out of the canon, yet received and read in ſome churches.

Books, *Authentic*, thoſe which are deciſive, and of authority: ſuch, in the civil law, are the Code, Digeſt, &c. in our law, the Statutes, &c. Bacon, de Augm. Sc. l. 8. c. 3.

Books, *Auxiliary*, thoſe leſs eſſential, yet of uſe, as ſubſervient to the others: as in the ſtudy of the law, *books* of Inſtitutes, *Formulæ*, Maxims, Reports, &c.

Books, *Elementary*, thoſe which deliver the firſt principles of ſciences; ſuch are thoſe under the titles of rudiments, Methods, Grammars, &c. by which they ſtand contradiſtinguiſhed from *books of a ſuperior order*, which aim at making farther advances in the ſcience.

Books, *Library*, ſuch as are not ordinarily read over, but turned to, and conſulted occaſionally: ſuch are Dictionaries, &c.

Books, *Exoteric*, thoſe intended for the uſe of popular and ordinary readers.

Books, *Acroamatic*, thoſe containing more ſecret and ſublime matters, calculated for adepts and proficients in the ſubject.

Books, *Public*, the records of paſt times and tranſactions kept by public authority.

Books, *Church*, or *Eccleſiaſtical*, thoſe uſed in the public offices of religion.

Books, again, with regard to their ſcope and ſubject, may be divided into *hiſtorical*, thoſe which relate facts, either of nature or mankind; *dogmatical*, thoſe which lay down doctrines, or general truths; *miſcellaneous*, thoſe of a neutral kind, containing both facts and doctrines; *hiſtorico-dogmatical*, thoſe which only rehearſe doctrines, or, at moſt, indicate the arguments by which they are proved, as Mallet's Geometry; *ſcientifico-dogmatical*, thoſe which not only recite the doctrines, but demonſtrate them, as Euclid's Elements. Wolf. Phil. Rat. § 3. c. 1. § 744, 750, 751, &c.

Books, *Pontifical*, among the Romans, were thoſe appointed by Numa to be kept by the *pontifex maximus*; deſcribing all the ceremonies, ſacrifices, feaſts, prayers, and other religious matters, with the manner, and circumſtances, wherewith each was to be celebrated: theſe were alſo called *indigitamenta*, as containing the names of all the gods, and the occaſions, and *formulæ* of invoking each. Liv. l. 1. p. 23.

Books, *Ritual*, thoſe which directed the order and manner of founding, building, and conſecrating cities, temples, and altars; the ceremonies belonging to walls, gates, tribes, *curiæ*, camps, and the like.

Books, *Augural*, called by Cicero, *reconditi*, were thoſe wherein the ſcience of foretelling futurity from the flight and chattering of birds was contained. Cicer. Orat. pro domo ſua ad pontif. Serv. ad Æn. l. 5. v. 738. Lomei de bibl. c. 6. 9

Books, *Aruſpicine*, thoſe wherein the myſteries of diviſing from the entrails of victims were preſcribed.

Books, *Acheronic*, thoſe wherein the ceremonies and diſcipline of Acheron were contained; ſometimes alſo called *libri Etruſci*, as being ſuppoſed to have been compoſed by *Tages* the Hetruſian; though others pretend, that he had received them from Jupiter himſelf: ſome ſuppoſe theſe to have been the ſame with the *libri fatales*; others, with the *libri aruſpicini*. Serv. ad Æn. l. 8. v. 398. Lomei, ubi ſupra.

Books, *Fulgural*, thoſe written touching thunder and lightning, and their interpretation. As that compoſed by the Tuſcan nymph Bigoia, preſerved in the temple of Apollo. Serv. ad Æn. l. 6. v. 72.

Books, *Fatal*, thoſe wherein the ages, or terms of the life of men were written, according to the Hetruſian diſcipline. Theſe were conſulted by the Romans in all public calamities; and inſtructions taken from them, how to expiate the offended deities. Cenſor. de Die Natal. c 14.

Books, *Black*, thoſe which treat of necromancy and witchcraft; or thoſe which are printed in the old black letter, the Celtic character, now only retained by the Germans. The ſame denomination is alſo given to ſome other *books*, on account of the colour of their backs, or the diſmalneſs of their contents; whence alſo *Red-book*, and *Domeſday book*.

Books, *Good*, in the common uſage, are thoſe of devotion and piety as ſoliloquies, meditations, prayers, &c. Vide Shaftesb. Charact. tom. 1. p. 165. item, tom. iii p. 327. A *good book*, in the bookſeller's language, is a ſaleable one; in the language of the curious, a ſcarce one; in that of men of ſenſe, an uſeful and inſtructive one. Among five principal things which Rabbi Akiba recommended to his ſon, one was, that if he ſtudied the law, he ſhould take care to do it in a *good book*, leſt he ſhould be obliged to unlearn all again. Vide Cren. de Furib. Librar. See alſo farther, on the head of judging and chooſing of Books.

Books, *Spiritual*, thoſe which treat more expreſly of the ſpiritual or Chriſtian life, and their exerciſes, as contemplation, &c.

Books, *Profane*, ſuch as do not treat of matters of religion.

Books, with regard to their authors, may be divided into *anonymous*, thoſe without any author's name; *cryptonymous*, thoſe whoſe author's names are concealed in ſome anagram, or the like; *pſeudonymous*, thoſe which bear falſe names of authors; *poſthumous*, thoſe publiſhed after the author's death; *genuine*, thoſe really written by the perſons whom they pretend for their authors, and ſtill remaining in the ſtate wherein they were left by them; *ſpurious*, or *ſuppoſititious*, thoſe pretended to be written by others than their real authors; *interpolated*, thoſe which ſince their compoſition have been corrupted by ſpurious additions or inſertions.

Books, with regard to their qualities, may be divided into *clear* or *perſpicuous*, which, in the dogmatical kind, are thoſe where the authors define all their terms accurately, and keep ſtrictly to thoſe definitions in the courſe of their works: *obſcure*, thoſe where words are uſed vaguely, and without defining: *prolix*, thoſe which contain more things than were neceſſary to the author's deſign; as if, in a *book* of ſurveying, a man ſhould give all Euclid: *uſeful*, thoſe which deliver things neceſſary to be known, either in other ſciences, or in the buſineſs of life: *complete*, thoſe which contain all that is known concerning the ſubject: *relatively complete*, thoſe which contain all that was known concerning the ſubject, at a certain time; or, if a book were written with any particular deſign, or view, it may be ſaid to be *complete*, if it contain neither more or leſs than is neceſſary for the accompliſhing of that end: in the contrary caſes, *books* are ſaid to be *incomplete*.

Books, with regard to the matter they conſiſt of, may be divided into *paper-books*, thoſe written either on linen and cotton paper, or on the papyrus, of which laſt kind few are now remaining. Montfaucon Pal. Græc l. 1. c. 2. p. 13. *Parchment-books*, *libri in membrana*, thoſe written on ſkins, or pelts, chiefly of ſheep. *Linen-books*, *libri lintei*, among the Romans, were thoſe written on blocks, or tables, covered with a linen cloth. Such were the Sibylline *books*, and divers ancient laws, epiſtles of princes, leagues, annals, &c. Plin. Hiſt. Nat l. xiii. c. 2. —*Leather-books*, *libri in corio*, mentioned by Ulpian, are by Guilandinus taken for ſuch as were written on backs, different from that uſually written on; which was the *tilia*: by Scaliger, with more probability, for ſuch as were written on certain ſkins, or certain parts of ſkins, different from thoſe commonly uſed, which were the pelts, or back-parts of ſheep. Ulp. l. 52. Guiland. Papyr Membr. 3. n. 50. Scaliger, and Guiland. *Black-books*, *libri in ſchedis*, thoſe written on wooden planks, or tablets, ſmoothed for that purpoſe with an *aſcia*, and a plane. Such were the ori-

ordinary *books* among the Romans. *Waxen-books*, *libri in ceris*, mentioned by Pliny, have occasioned some dispute. Herm. Barbarus suspects the term to be a corruption, and inclines to read *in scheis* instead of *in ceris*, on the authority of some ancient MSS. Others see no need of the emendation, since it is known the Romans sometimes covered their planks or *scheda*, with a thin skin of wax, to make them susceptible of erasements and amendments, which the *libri in scheis* were not, and consequently were less fit for works that required elegance and accuracy than the waxen ones, which are also called *cerae*, or *libri cerei*. *Elephantine books*, according to Turnebus, were those written on thin slices, or leaves of ivory; according to Scaliger, those made of the guts of elephants; according to others, those wherein the acts of the senate, relating to the emperors, were written; according to others, certain huge or bulky *books*, consisting of 35 volumes, containing all the names of the 35 tribes. Saimuth. ad Pancirol. p. ii. p. 255. Guiland. Pap. Mem. 7. n. 48. Scal. ad Guil. p. 16. Calv. Lex Jur. p. 534. Fabr. Descrip. Urb. c. 6.

BOOKS, with regard to their manufacture and commerce, may be divided into *manuscript*, those written with the hand, whether originally by the authors, called *autographs*, or at second hand by *librarii*, or *copists*. *Printed*, those wrought off from the press. *Books in quires*, or *sheets*, those not bound, or stitched. *Books in folio*, those wherein a sheet is folded but once, or makes too leaves; or four pages; *books in 4°*, where it makes four leaves; *in 8°*, where eight; *in duodecimo*, where twelve; *in 16°*, where sixteen; *in 24°*, where twenty-four.

BOOKS, with regard to circumstances and accidents, may be divided into *lost*, those which have perished by the injuries of time, or the malice or zeal of enemies. Such are divers even of the ancient *books* of Scripture, written by Solomon, and others of the prophets. Fabr. Cod. Pseud. Vet. Test. tom. ii. p. 171. p. 247. *Books promised*, those which authors have given expectations of, which they have never accomplished. Jani. ab Almeloveen has given a Bibliotheca of *books promised*, but still latent, or not published. *Books fictitious*, those which never existed: to which may be added, divers feigned titles of *books*. Loescher has published a great number of plans, or projects of *books*, many of them good and useful enough, if there were but *books* written correspondent to them. M. Dugono has a whole volume of *schemes*, or *projects of books*, containing no less than 3000.

BOOKS *in Anag. Arch.* &c. See ANAG, ARCH, &c.

The *scope* or *design of books* is various; that of some is to trace the origin of things discovered; of others, to fix and establish some truth, or raise some doctrine to a higher pitch or subtility; of others, to remove some scruple, or prejudice, which had before obtained, or fix more accurate and precise ideas of things: of others, to explain the names and words used in different nations, ages, and sects; of others, to improve our knowledge of facts, and events, and shew the order and ways of Providence: lastly, others aim at divers, or all of these ends. The *uses* of *books* are numerous: they make one of the chief instruments, or means of acquiring knowledge: they are the repositories of laws, and the vehicles of learning of every kind: our religion itself is founded on books: "Without them," says Bartholin. "God is silent, "justice dormant, physic at a stand, philosophy lame, "letters dumb, and all things involved in Cimmerian "darkness." De Libr. Legend. Diff. i. p. 5.

The eulogiums which have been bestowed on *books* are infinite: they are represented, "as the refuge of truth, "which is banished out of conversation; as standing "counsellors, and preachers, always at hand, and always disinterested; having this advantage over oral "instructors, that they are ready to repeat their lesson, "as oft as we please." *Books* supply the want of masters, and even, in some measure, the want of genius and invention; and can raise the dullest person, who have memory, above the level of the brightest, without them. An author, who wrote not inelegantly, though in a barbarous age, sums up all their praises. Vide Lucas de Penna ap. Morhoff Polyhist. lib. i. cap. 3. p. 27. *Liber est lumen cordis, speculum corporis, virtutum magister, vitiorum depulsor, curarum prudentium, comes itineris, domesticus amicus, congerro tenuis, collega & consiliarius praesidentis, mysthicum eloquentiae, hortus plenus fructibus, pratum floribus distinctum, memoriae penus, vitae recordationis; vestutas praperat, jussus festinat, semper praesto est, nunquam non moretur, rogatus confestim respondet: arcana revelat, obscura illustrat, ambigua certorat, perplexa resolvit, contra adversam fortunam defensor, secundae moderator, ofes adjuvat, jacturam propulsat, &c.*

Perhaps their greatest glory is, the affection borne them by many of the greatest men in all ages: M. Cato, the elder Pliny, the emperor Julian, and others, are on record for an excessive devotion to *books*. The last has perpetuated his passion by some Greek epigrams in their praise. Richard Bury, bishop of Durham, and lord chancellor of England, has a treatise expressly on the love of *Books*. Philobiblion, five de Amore Librorum. Vide Plin. Epist. vii. lib. iii. Cato's attachment to *books* may be observed in the following paragraph.

M. Catonem vidi in bibliotheca sedentem multis circumfusum Stoicorum libris. Erat enim, ut scit, in exercitatissima civitate legendi, nec satiari poterat: quippe qui, ne reprehensionem vulgi imanem reformidans, in ipsa curia solerat legere, saepe dum senatus cogeretur, nihil operae reipublicae detrahens. Vide Cic. de Divin. lib. ii. n. 11. See also Cic. Orat. pro Arch. tom. iv. p. 2282.

The *ill effects* objected to *books* are, that they employ too much of our time and attention; engage us in pursuits of no use to the commonwealth, and indispose us for the functions of civil life; that they render men lazy, and prevent their exerting their own talents, by furnishing them, on every occasion, with things the growth of others; and that our natural lights become weakened and extinguished, by inuring ourselves to see only with foreign lights: besides, that ill men are hereby furnished with means of poisoning the people, and propagating superstition, immorality, enthusiasm, or irreligion, which will always spread faster, and be received more greedily, than lessons of truth and virtue. Many other things are added concerning the emptiness of *books*, and the errors, fables and follies they are fraught with; which together with the multitude and perplexity of them, are such, that it may seem easier to discover truth in the nature and reason of things, than in the uncertainty and confusion of *books*. Add, that *books* have turned the other instruments of knowledge out of doors, as experiments, observations, furnaces, and the like, without which the natural sciences can never be cultivated to purpose; and that, in mathematics, *books* have so far superseded the exercise of invention, that the generality of mathematicians are now contented to learn the solution of problems from others; which is to relinquish the chief end of their science: since what is contained in mathematical *books* is properly the history only of mathematics, not the science, art, or talent of solving questions; which is hardly to be had from *books*, but only from nature and meditation.

For the art of *writing* or *composing books*, we have much fewer helps and instructions than for the art of speaking; though the former be the more difficult of the two; as a reader is not so easy to be imposed upon, but has better opportunities of detecting faults than a hearer. A great cardinal, indeed, reduces an author's business to a few heads; were they but as easily practised as prescribed: "Let him consider who it is writes, what, how, why, "and to whom." Augusti. Valer. di Caut. in edend. lib. *The conditions required in a book* are, according to Salden, "Solidity, perspicuity, and brevity:" the first will be best attained, by keeping the piece long by us, often reviewing and correcting it by the advice of friends: the *second*, by disposing the sentiments in a due order, and delivering them under proper and usual expressions: the *third*, by throwing every thing aside that does not immediately concern the subject.

Were these rules observed, it would scarce be possible for any, except an angel from heaven, to write many *books*. *Vix totidem quot Thebarum portae vel divitis ostia Nili.* The custom is much altered since the times of the ancients, who carried their scrupulousness in what relates to the composition of *books* beyond all that has been above expressed: so august was the idea they formed of a *book*, that nothing would suffice less than its being a treasure: *thesaurus oportet esse non liber*: no labour, no assiduity and exactness, were thought enough to fit a work for the public view: every sentiment and expression were to be maturely weighed, and turned on all sides; and not suffered to pass, unless every word were a pearl, and every page beset with gems. So that they put the reader in possession in a single hour, of what had cost them perhaps ten years intense thought and application. Such were those *books*, which were reputed *centre digni*, fit to be anointed with cedar-juice, and thus rendered incorruptible, for the instruction of all future ages.

BOOKS, *for the origin of*, we have nothing that is clear: the *books* of Moses are doubtless the oldest of all that are extant; but there were *books* before them, for Moses cites several.

A *book* of Enoch is cited in the Epistle of Jude, v. 14, and 15, from which some endeavour to prove the reality of antediluvian writings; but the *book* cited by that apostle is generally allowed, both by ancient and modern writers, to be spurious.

Of profane *books*, the oldest extant are Homer's poems, which were even so in the time of Sextus Empiricus; though we find mention in Greek writers of about seventy others prior to Homer; as Hermes, Orpheus, Daphne, Horus, Linus, Musæus, Palamedes, Zoroaster, &c.

&c. but of the greater part of these, there is not the least fragment remaining; and of the others, the pieces which go under their names are generally held by the learned supposititious. F. Hardouin goes farther; charging all the ancient *books*, both Greek and Latin, except Cicero, Pliny, Virgil's Georgics, Horace's Satires and Epistles, Herodotus, and Homer, as spurious, and forged in the thirteenth century, by a club of persons under the direction of one Severus Arcontius. Fabr. Bib. Græc. lib. i. cap 1. § 1. § 6. tom. i. Hardouin. de Num. Herod. in Prolog. Act. Erudit. Lipf. an. 1710, p. 70.

Among the Greeks, it is to be observed, the oldest *books* were in verse, which was prior to profe; Herodotus's hiftory is the oldeft book extant of the profaic kind. Strabo, Geog. lib. i. Heuman. Via ad Hift. Liter. § 20. p. 50. § 21. p. 52.

BOOKS, *the multitude of*, has been long complained of: the complaint is as old as Solomon, who lived three thousand years ago: they are grown too numerous, not only to procure and read, but to fee, to learn the names of, or even to number. England has more to fear on this fcore than other countries; fince, befides our own produce, we have, for fome years paft drained our neighbours. However, as bifhop Caramuel's fcheme miscarried, which was, to write about a hundred volumes in folio, and then prevail on the civil and military powers to oblige all their fubjects to read them, we need not much regret the multitude of *books*.

In reality, there are few of the immenfe number of *books*, which deferve ferioufly to be ftudied: for the reft, part of them, like thir, are only to be occafionally confulted, and the reft read for amufement. A mathematician, for inftance, ought not to be entirely ignorant of what is contained in the mathematical *books*; but then a general knowledge is fufficient, which may eafily be had by running over the chief authors; out of whom references may be made, directing to the places where they may be found, when wanted. For there are many things which are much better preferved in *books* than in the memory: as aftronomical obfervations, tables, rules, theorems, proportions, and, in fine, whatever does not fpontaneoufly adhere to the memory, when once known. For the lefs we croud that faculty, the readier and freer will the genius remain for inventing.

Thus, a few *books* well chofen, and thoroughly ftudied, may fuffice. It may be added, that as knowledge is naturally advantageous, and as every man ought to be in the way of information, even a fuperfluity of *books* is not without its ufe, fince hereby they are brought to obtrude themfelves on us, and engage us when we had leaft defign. This advantage, an ancient father obferves, we owe to the multiplicity of *books* on the fame fubject, that one falls in the way of one man, and another beft fuits the levels of the apprehenfion of another. "Every "thing that is written, fays he, does not come into the "hands of all perfons: perhaps fome may meet with "*my books*, who may hear nothing of others which have "treated better of the fame fubject. It is of fervice, "therefore, that the fame queftions be handled by fe- "veral perfons, and after different methods, though all "on the fame principles, that the explications of diffi- "culties, and arguments for the truth, may come to the "knowledge of every one, by one way or other." Add, that the multitude is the only fecurity againft the total lofs, or deftruction of *books*: it is this that has preferved them againft the injuries of time, the rage of tyrants, the zeal of perfecutors, and the ravages of barbarians; and handed them down, through long intervals of darknefs, and ignorance, fafe to our days. *Saluqua non norunt hæc monumenta mori.* Boc. de Augm. Sc. lib. i. Auguft. de Trin. lib. i. cap. 3. Barthol. lib. cit. Diff. i. p. 8. &c.

To *judge of a book*, thofe who have treated of the fubject direct us to obferve the title, the author's or editor's name, the number of the edition, the place where, and year when it was printed (which in old *books* is frequently marked at the end) and the printer's name, efpecially if it be a celebrated one: proceed then to the preface, and look for the author's defign, and the occafion of his writing: confider alfo his country (each nation having its peculiar genius) which may fometimes be learned from the dedication: if his life be annexed, run it over, and note his profeffion, what rank he was of, and any thing remarkable that attended his education, ftudies, converfation, or correfpondences with learned men: not forgetting the elogies which have been given the author, which often occur at the beginning, or even any critique or cenfure, efpecially if made by a man of judgment. If the preface does not give an account of the method of the work, run briefly over the order and difpofition of it, and note what points the author has handled; obferve whether the things and fentiments he produces be trite and vulgar, or *folid*, and fetched from greater depths. Note, whether he go in the common road, or make any innovation, and introduce any new principle.

But it is a fmall number of *books*, we have opportunity of thus judging of, by perufing them; befides, when we have read a *book* over, the judgment comes too late for many purpofes: it feems neceffary therefore to have other indications, whereby to prevent our being at the charge of procuring, or the pains of perufing a worthlefs *book*. Divers rules of this kind are given by Baillet, Struvius, Stollius, and others; which though, in reality, no more than prefumptions, and frequently liable to be falfified, are not without their ufe. The journalifts de Trevoux objected to them all: "The fhorteft way, fay "they, to judge of a *book* is to read it, if you be quali- "fied in the fubject; otherwife to refer yourfelf to thofe "who are fo." Heuman is fomewhat more explicit; making it a mark that "a *book* is good, when it is "eftcemed by perfons intelligent in the fubject it treats "of; and when thofe who commend it receive no "advantage from the applaufe they beftow on it, nor "are leagued with the author in any cabal, for efpouf- "fing any particular principle, fyftem, or party, in reli- "gion, or learning." Baillet. Jugem. des Scav. tom. i. b. 2. p. 121. Struv. Introd. ad Not Rei Liter. cap. 5. § 3. p. 390. Stoll. Introd. Hift. Liter. p. 1. § 11. p. 9. Bood. de Criteriis boni Libri, paffim. Mem. de Trev. an. 1712. Art. 17. Heuman. Confp. Reipubl. Liter. cap. vi. § 11. p. 280.

But more particularly, it is an indication that a *book* is good, 1. If the author be known to excel in that talent more immediately neceffary for fuch a fubject; or have already publifhed any thing on the fame that is eftcemed. Thus we may conclude, that Julius Cæfar will teach us the art of war better than Peter Ramus; Cato, Palladius, and Columella, agriculture better than Ariftotle; and Cicero, oratory better than M. Varro: add, that it is not enough the author be fkilled in the faculty, but that he be fo in the particular branches of it he treats of; fome for inftance, excel in the civil law, yet not in the public law: Salmafius proved himfelf an excellent critic in his Exercitat. Plinian. but was much inferior to Milton in his Defenfio Regia. 2. If the *book* he on a fubject that requires great reading, it may be prefumed good, if the author had a copious library, or could have accefs to one; or if he lived in a place where *books* were not wanting; though here is danger too of running into excefs in quotations; efpecially, fays Struvius, if the author be a lawyer. 3. A *book* which took up a long time in compofing, cannot often fail of being good. 4. *Books* on points of doctrine by eclectic writers, are to be preferred better than thofe writ by the retainers to particular fects. 5. The age of a writer may alfo give us fome indication: *books*, which require labour, are ufually better performed by younger perfons, than thofe who are far advanced in years. 6. Another indication may be taken from the author's ftate and condition; thus hiftory written by a perfon who was an eye-witnefs to what he relates, or is concerned in public affairs, or has accefs to the public records, or other monuments, from whence intelligence may be drawn; who is not biaffed by party, or any other indirect or finifter motive, will be fuppofed to be good. Thus Salluft and Cicero were well able to write the hiftory of Catiline's confpiracy. D'Avila, de Comines, Guicciardin, Clarendon, &c. were prefent in the civil wars they defcribe: Xenophon, having an employment in the Spartan ftate, has treated excellently of that commonwealth; and Amelot de la Houffaye, by living long at Venice, was enabled to explain the fecrets of their policy. Camden wrote annals of the affairs of his own time; Thuanus had correfpondence with the beft writers in every country; and Puffendorf had accefs to the public archives. So, in literary matters, we give credit to thofe who have the direction of libraries. 7. The time or age wherein the author lived may give fome light, every age having, according to Barclay, its peculiar genius and excellency. See Bartholin. Struv. Budd. Heuman. Baill. lib. cit.

Some judge by the bulk or fize of *books*; following the grammarian Callimachus's rule, that every great *book* is of courfe an ill one, μεγα βιβλιον, μεγα κακον; a fingle leaf of the Sybil was doubtlefs preferable to the vaft annals of Volufius; yet Pliny's obfervations will neverthelefs hold true, that "a good *book* is fo much the better "by how much it is bigger." Plin. Epift. 20. lib. i. Martial prefcribes a remedy againft the largenefs of a *book*, when that is the only complaint, read but a little of it:

Si nimius videar, feroque corondæ longus
Eſſe liber, legito pauca, libellus ero.

Yet is the fmallnefs of a *book* a real prefumption in its favour: he muft be a poor author who cannot furnifh a pamphlet, or loofe fheet, with things curious, and written with fpirit: but to fupport the fame through a

volume in folio, requires very extraordinary abilities indeed. Addif. in Spect. N° 124.

See farther concerning *books*, in the writers on literary hiſtory, libraries, ſtudies, learning, arts, and ſciences; more eſpecially in Salden, Bartholin, Hodannus, Sacchinus, Baillet, Budeus, Swalbach, Putherbeus, Raynaud, Schuſter, Lauſſer, Schwartzius, Crenius, Morhoff, and others, who have written treatiſes expreſs concerning *books*.—Chriſt. Libertus, i. e. Gul. Saldenus, &c. *de origine, fine & libris ſcribendi & legendis*, Ultraj. 1681. 12°. & Amſtel. 1688. 8°. Struv. Introd. ad Hiſt. Liter. c. 5. § 21. p. 454. Th. Bartholini, de Libris Legendis, 1668. 8°. & Francof. 1711. 12°. Struv. loc. cit. Jo. Frid. Hochmius Diſſert. *de* Libris Legendis, Hanov. 1705. 8°. Fr. Sacchini de Ratione Libros cum profectu legendi, Lipſ. 1711. 12°. Baillet Jugemens des Sçavans ſur les principaux Ouvrages des Auteurs, tom. i. Car. Frid. Buddeus, de Criteriis boni Libri, Jen. 1714. Chr. Saalbach. Schediaſma de Libris veterum. Gryphii, 1705. 4°. Fabric. Bibl. Ant. cap. 19. § 7. p. 607. Reimm. Idea Syſt. Antiq. Liter. p. 229, ſeq. Gab. Putherbeus, De tollendis & exportandis malis Libris, Par. 1549. 8°. Theoph. Raynaud. Erotemata de bonis ac malis Libris, Lugd. 1653. 4°. Morhof. Polyhiſt. Liter. lib. i. cap. 16. n. 28. p. 177. Schuſter Diſſert. Acad. de Multitudine Librorum, Jenæ 1702. 4°. Lauſſer Diſſert. adverſ. nimiam Librorum Multitudinem. Vid. Jour. des Sçav. tom. lxxv. p. 572. Chr. Got. Schwartzius de Ornamentis Librorum apud Veteres, Lipſ. 1705. & 1707. Tho. Crenius de Libris Scriptorum optimis & utiliſſimis. Lugd. Bat. 1704. 8°. an extract of which is given in act. Erud. Lipſ. an. 1704. p. 526, ſeq.

The importation of *books* firſt printed in this kingdom, and reprinted abroad, is prohibited. Vide Stat. 12 Geo. II. c. 36. § 1.

There was a clauſe in the ſtatute of the 8th of Q. Anne, ch. 19. impowering the chancellor, and ſome other great officers of ſtate, to ſet the price of *books*, but this is now repealed by 12 Geo. II. ch. 36. ſect. 2.

BOOKS, *burning of*, was a kind of puniſhment much in uſe among the Romans, by legal ſentence: ſometimes the care of the execution was committed to *triumviri* appointed on purpoſe; ſometimes to the PRÆTOR, and ſometimes to the ædiles; Labienus, whom from his ſatirical ſpirit ſome have called *Rabienus*, is ſaid to have been the firſt who underwent the ſeverity of it. His enemies procured a *ſenatus-conſultum*, whereby all his *books*, publiſhed during ſeveral years, were ordered to be collected and burnt: "The thing (ſays Seneca) then appeared new "and ſtrange to take revenge on learning! *Rei nova & inſolita! Supplicium de ſtudiis ſumi.* Caſſius Servius, a friend of Labienus, hearing the ſentence pronounced, cried aloud, "That they muſt burn him too, ſince he "had got all the *books* by heart." *Nunc me quoque cum operibus ejus, quia illos didici.* Labienus could not ſurvive his *books*, but ſhutting himſelf up in the tomb of his anceſtors, pined away, and was buried alive.

Divers other ancient teſtimonies concerning the burning of *books* are given in Reimm. Idea Syſt. Antiq. Liter. p. 389.

BOOKS, *cenſors of*, ſee CENSOR.

BOOKS, *printers of*, ſee PRIVILEGE.

BOOK, *common pleas*, ſee COMMON-PLACE.

BOOK, *text*, ſee TEXT.

BOOK is alſo uſed for a part or diviſion of a volume, or large work.

In this ſenſe we ſay the *book* of Geneſis, the firſt *book* of Kings, the five *books* of Moſes, &c.—The Digeſt is contained in fifty *books*, the Code in twelve *books*.

Books are uſually ſubdivided into chapters, ſometimes into ſections, or paragraphs: accurate writers quote chapter and *book*.

BOOK is alſo uſed for a liſt or catalogue of perſons names.—Such among the ancients were the *cenſorial* BOOKS, being tables or regiſters containing the names of all thoſe who were cenſed or taxed under Auguſtus. Tertullian aſſures us, that our Saviour's name was found in the cenſorial *books* of Auguſtus. Adv. Marcion. lib. iv. cap. 7. See CENSUS.

BOOKS, in *Matters of Commerce*, denote the ſeveral regiſters wherein merchants and other dealers keep their accounts.

We ſay, ſuch a perſon's *books* are in good order: merchants cannot poſſibly do without *books*; they are even obliged by the laws to keep *books*. But more or fewer are required, according to the nature and extent of their dealings, or the preciſion and exactneſs they deſire therein.

The ancients had alſo their *books* of accounts; witneſs the *codex accepti & expenſi*, ſo often mentioned in Roman writers; and the *patrimonial books*, which were rentals, containing an account of the lands, goods, and chattels, and other effects belonging to each perſon.

BOOK-*Keeping*, the art of keeping ACCOUNTS; that is, of recording the tranſactions of a perſon's affairs in ſuch a manner, that the true ſtate of any part, or of the whole, may be thereby known with the greateſt clearneſs, exactneſs, and eaſe.

By the *tranſaction of one's affairs* are meant, either ſuch as relate to the perſons with whom we deal, or the things in which we deal; which laſt are either money, the principal means of commerce, or goods, comprehending all other effects.

All authors agree, that the Italians, particularly thoſe of Venice, Genoa, and Florence, firſt introduced the method of *keeping books* double, or in two parts, probably about the middle of the fifteenth century; hence, among us it is called *The Italian method*: though it was not introduced into England till a century later, the firſt *book* on this art having been publiſhed in London in 1569, by James Peele.—Stevin apprehends, that the art of *book-keeping*, by double entry, was known to the Romans, and originally received from the Greeks.

BOOKS, *merchants*, may be generally divided into *eſſential*, and *auxiliary*—*Eſſential* or *neceſſary*, are thoſe without which regular accounts cannot be kept; in which number ſome include the *journal*, *waſte-book*, and *ledger*; others only the two laſter. Vide Malc. Treat. of Book-Keeping, ch. i. ſect. 2. p. 3.

Subſidiary or *auxiliary*, are ſeparate *books*, wherein particular accounts are kept more diſtinctly, for eaſing the ledger. Such are the *caſh-book*, *debt-book*, *book of expences*, &c.

Theſe *books* are kept in the ſame manner, in effect, in moſt trading cities in Europe; but not as to coin: each being regulated by that ſort of coin which has courſe in the ſtate where they are.

In England, *books* are kept in *pounds*, *ſhillings*, and *pence*: in France, in *livres*, *ſols*, and *deniers*: in Holland, Flanders, Zealand, and Brabant, in *pondem*, pounds, *ſchellingen*, ſhillings, and *groſs*, *great*: they alſo keep them in *guilders*, *ſtivers*, and *penningen*: at Dantzick, and in all Poland, in *rix-dollars*, *groſs*, and *deniers*: they are likewiſe kept in *florins*, *groſs*, and *deniers*: through moſt parts of Germany, in *florins*, *creutzers*, and *pennings*: at Hamburgh, in *marks*, *ſols*, and *deniers lubs*: at Lubeck, in *rees*: at Florence, in *gold crowns*, *ſols*, and *deniers*: in Spain, in *maravedis*; ſometimes in *rials*, or *pieces of eight*: at Meſſina, and through Sicily, in *ounces*, *tarins*, *grains*, and *pieces*: at Venice, in *ducats*: at Muſcovy, in *rubles*, *altins*, and *grives*: through all the ſtates of the Grand Signior, in *piaſters*, *abaquelas*, and *others*.

BOOK, *waſte*, is the firſt, and moſt eſſential: in this, all kinds of matters are mixed together; no order but that of time being preſerved; it being a diurnal regiſter of occurrences in buſineſs, to be afterwards ſeparated and tranſferred into the others; ſo that this may be ſaid to contain the elements of all the reſt. It may be kept two ways; the firſt, by entering things down ſimply as they happen; v. gr. *Bought of ſuch a one, ſold to ſuch a one, paid ſuch a one, lent ſo much*, &c. the ſecond, by entering at once, each article, debtor and creditor: this laſt is eſteemed the beſt; becauſe, forming a kind of little journal, it ſaves the keeping of any other.

The *waſte-book* begins with the inventory of a merchant's effects and debts; the difference between theſe is what the merchant calls his neat ſtock; and contains a complete record of every tranſaction of his affairs, with all the circumſtances, in a plain narration of matter of fact, every tranſaction following another in the order of the dates.

This *book* is in reality a journal, or day-book; but that name being applied to another, the name *waſte-book* is given to this by way of diſtinction: though what relation the word *waſte* bears to the nature of this *book*, is not very obvious. Some authors better call it the *memorial-book*, or *memorandum-book*, as its principal uſe is for taking memorandums.

BOOK, *journal*, or *Day*-BOOK, is that wherein the affairs of each day are entered orderly down, as they happen, from the *waſte-book*.—Each article of this *book* is to conſiſt of ſeven parts; viz. the date, debtor, creditor, ſum, quantity and quality, how payable, and the price.

The journal, ſo far as it differs from the *waſte-book*, is only a *book* of aid to the ledger.—There are two different methods of keeping it: in the firſt, which is that hitherto chiefly in uſe, the journal is a complete tranſcript of the *waſte-book*, in the ſame order of time, but in a different ſtyle; becauſe the *waſte-book* expreſſes every tranſaction in a ſimple narration of what is done; whereas the *journal* diſtinguiſhes the debtors and creditors, as a preparation for the ledger; thus, when any tranſaction is to be tranſferred from the *waſte-book* into the *journal*, they examine

amine it by the rules of the ledger, as if it were to be entered immediately there; and, finding the debtors and creditors to which it belongs, these are distinctly marked by their denominations of *debtor* and *creditor*, in the style of the journal; at least, the accounts that are debtors are expressly so named; and by their being directly connected debtor to some other accounts, these are sufficiently determined to be the creditors, though the word *creditor* be not written.

Model of an article in the Journal.

	15th July, 1723			
Wine Dr. to Cash——*L.* 160:—:—	*Bought of* Duval, *ready Money*, 16 *Pipes of Burgundy, at* ——— *L.* 10	160	0	0

The other form of a journal, which Mr. Malcolm judges preferable in certain respects to the former, makes the journal a complete transcript of the waste-book, without any alteration, leaving on the left side of every page a large margin, about a third part of the page; on which against every transaction, are to be written the names of the debtors and creditors of that transaction, with their titles of debtor and creditor, and sums of money; observing, that where there are sundry debtors or creditors to one creditor, or debtor, they write their names next each other, and the name of the one corresponding debtor or creditor, against the total of the other sums; by which means the balance and connexion appear at sight. Then when the transaction is transferred to the ledger, they write on this margin the numbers of the folios where the account stands in the ledger; for the purposes already mentioned in speaking of the former method.

This *book* may be called either the *waste-book* or *journal*, being in reality both; not only as every *waste-book* is a *journal*, but as there is here also that which distinguishes both a *waste-book* and a *journal*.

By an ordonnance of the year 1673, all traders in France, whether by wholesale or retail, are obliged to keep a journal, containing all their affairs, debts, active and passive, bills of exchange, &c. For want of keeping this, and surrendering it on a failure, they are to be reputed fraudulent bankrupts, and subjected to the penalties thereof.

Ledger, or *Ledger*-Book, sometimes also called the *great-book*, and the *past-book*, is a large volume, containing all the transactions of a man's affairs in such order, as that those belonging to every different subject lie together in one place; making so many distinct or several accounts. The ledger is only the waste-book still farther digested; being extracted either immediately from it, or from the *journal*. It is usually ruled in *six* columns. In it all the accounts dispersed in the journal are drawn out and stated in debtor and creditor. To form each account two pages are required opposite to each other; that on the left serving for debtor, the other for creditor: each article to consist of five parts, or members; the date, the person whom we credit, or are credited by; the subject, i. e. the thing credited or indebted for; the page where it is found, and the sum or amount of the article. Two instances, the one of an article of credit, the other of debt, will illustrate the form and use of this *book*.

Model of an article in debtor.

May 12, 1701.	Anthony Roberts *Dr.* *To* Cash, *paid by his order to* Wilks.	*Fo.* 16.	*L.* 1900	*s.* *d.* 0 0

Model of an article in creditor.

	Cr.			
By Cash.	*for his remittance on James.*	*Fo.* 16.	*L.* 1900	*s.* *d.* 0 0

The management of the ledger being of great importance in accounts, we will subjoin from Mr. Malcolm the following cases relating to it.

1. That for every distinct subject, with which you have an account (i. e. for every person with whom you deal, on mutual trust and credit, or who, by any means becomes your debtor, or you his) as well as for every thing you deal in, there must be a certain separate space, or portion, allowed: wherein are to be written all, and only the transactions relating to that subject, whose *name* is to be inscribed, or written on the head thereof; making thereby distinct particular accounts.

2. Every account is to be distinguished into two parts, taking for each an equal portion (less or more, as you think fit) of right and left pages, of one *folio* or opening: the name of the subject being written on the head of the account, on both sides, which are distinguished by the words *debtor* on the left side, and *creditor* on the right, for the uses following: to which the columns explained below are subservient.

3. Every personal account to contain, on the debtor side, all the articles which that person owes you, and the payments you make of your debts to him: and, on the creditor side, all that you owe to him, and the payments he makes of his debts to you. Or, because this rule considers payments under the notion of mutual opposite debts upon the receiver, if this be once supposed, the rule may be briefly expressed thus: every person is debtor for what he owes me, and creditor for what I owe him.

4. Every real account ought to contain, on the debtor side, the quantity and value of what was upon hand at the beginning of the account, and what was afterwards received, with all costs and charges; and on the creditor side, the quantity and value of what is disposed of, or any way taken away, or gone out of it, with all the returns that subject makes me. Or, more briefly, thus: it is debtor for all received, first costs and charges: and creditor for all gone out of it, with the returns.

5. Every transaction must be entered in the *ledger-book*, with a balance of debt and credit, i. e. so as that every article be placed on the debtor side of one account, and the creditor side of some other, making thereby equal debt and credit in the ledger: and where the personal and real accounts concerned in the transaction do not, in the articles belonging to them, make this balance (as they will in most cases), then some imaginary account must be used to supply the defect.

6. Those accounts, whose articles of debt and credit, in any transaction, balance one another, are, in the ledger, to be connected together in the style of every article, as mutual and corresponding debtors and creditors; by writing in each of the corresponding accounts the name of the other, after the particle *to* in the debtor's account, and *by* in the creditor's, which connects the two; the name of the account, in which the articles are written, with its quality of debtor and creditor, being understood as joined to, and so is read before the word *to*, or *by*, in every article (though it be written only once for all upon the head of the account). Then after the name of the corresponding creditor or debtor, follows a brief narration of the fact; the date and other numbers being placed in their proper columns. Hence we find the use of the column, that stands next to the money columns, which is this, to write in it the number of the folio where stands the corresponding account, with which the account, in which you write, is connected in every article.

To facilitate the use of the ledger, there is an alphabet to serve as an index, or repertory, consisting of twenty-four leaves, each cut on the edge, and marked with one of the twenty-four letters; wherein the initial letters of the persons names, with whom you have accompts, are inserted, with the folio of the ledger, where the account is stated.

The more exact *book*-keepers extend the index to the things or commodities a man has dealings in, as well as the persons he deals with. Generally, it is a letter of a man's surname, and the proper name of the thing, that directs its place in the index; thus John Gordon is put under G; and claret wine under C, unless all sorts of wines be comprehended in one account, in which case it is put under W.

Book, *debt*, Book *of payments*, or *Bill*-Book, a *book* wherein is entered the day whereon all sums fall due, whether to be paid, or received by bills of exchange, merchandizes, or otherwise: to the end that by comparing receipts and payments, provision may be made, in time, of a fund for payment; by receiving bills, &c. due, or taking other precautions.

Two models will suffice for the use and form of this *book*: it is only to be observed, that, like the ledger, it must be on two opposite pages; moneys to be received on the left hand, those to be paid on the right.

Model of the page of payment.

Jan. 1708.	To pay		*L.*	*s.* *d.*
1	*To* Charles Horn, *for a purchase of the 1st of July.*		300	0 0
	To R. Hart, *a note under hand of the 2th of August.*		400	0 0
2	*Remittance of Lucas, of 15th of December, to Hall.*		1500	0 0
	My own bill of 25th of October, to bearer. —		100	0 0

Model

Model of the page of receipt.

May 1708.	To receive.	£	s.	d.
1	*Remittance of* J. Vallor, *of this date*	600	0	0
	Of Cade, *for wood sold the 8th of* July. —	150	0	0
2	*Of* Dykes *by bond of 23d of* May *last* —	10	0	0
	Remittance of Price, *of 25d of* October *as* Page.	170	0	0

Book, *cash*, is the moſt important of all the auxiliary ones: it is ſo called, becauſe it contains, in debtor and creditor, all the cash that comes in, or goes out, of the merchant's ſtock—In this are entered all the ſums received and paid daily; thoſe received on the left hand, with the perſon's name, of whom received, for what, for whom, and in what ſpecies; thoſe paid on the ſide of creditor; mentioning likewiſe the ſpecies, the reaſon why, the perſon to whom, and for whom, the payment is made. For inſtance:

Model of an article in debt.
Cash. Dr.

June 25th, 1708.	£	s.	d.
Received, of Paul Simons, *for a cask of wine, ſold you here inſtant,* *A part of* —— L. 300 : — : —			
Piece of eight, L. 108 : — : —	1108	0	0
L. 1108 : — : —			

Model of an article in Credit.
Cr.

May 25th, 1711.	£	s.	d.
Paid, *To* Tim. Hall, *for a cargo of wine, bought the 2d inſtant.* *A part of* —— L. 1200 : — : —			
Piece of eight, L. 300 : — : —	1300	0	0
L. 1300 : — : —			

The better to conceive the nature of this *book*, it is to be obſerved, that in buſineſs, where cash happens to be an account which has numerous articles, it is convenient to keep a particular account thereof, in a *book* diſtinct from the ledger; and for this reaſon called the *caſh-book*. This is formed, in all reſpects, like the cash account in the ledger, with a debtor and creditor ſide; in which all the cash receives and given out is entered; either in a ſimple ſtyle, or in that of the ledger: but which way ſoever the narration is made, every article muſt be duly entered on the oppoſite ſide of the correſponding account in the ledger; with a reference to the ledger account of cash: for ſuch an account there muſt alſo be, into which the ſums of the debtor and creditor ſides of the particular account muſt be tranſferred once a week or month, as is found convenient: thus, in the *caſh-book*, the ſums being written down againſt them, mine, tranſferred to the ledger, and mark the folios; and in the ledger account, enter the ſum with the date of the tranſfer, debtor *to*, and creditor *by*, ſundry accounts as *per caſh-book*. The cash account in the ledger is neceſſary for the balance of the whole; and the convenience of the ſeparate account of all the particulars is, that we have them all together in one continued account; whereas, the rule of the ledger being not to allow more than one folio for one account, till that be filled up, the account might hereby lie in ſeveral different folios.

Book *of invoices*, a *book* to ſave the journal from the erraſures inevitable in taking accounts or invoices of the ſeveral goods received, ſent, or ſold; where it is neceſſary to be very particular, and to render thoſe invoices eaſier to find than they can be in the *waſte-book* or *journal*. The invoices here entered are to be thoſe of goods bought, and ſet to account of ſome other; thoſe of goods ſold by commiſſion; of goods ſent away to be ſold on our own account; and thoſe of goods ſold in partnerſhip, whereof we have the direction, or whereof others have the direction.

This *book* contains an account or invoice of all the goods which a perſon ſhips off, either for his own account, or for others in commiſſion, according to the bills of lading; with the whole charges till on board; every invoice following after another, in order as they happen.

The invoice *book* is only a copy of what is written in the *waſte-book*, in thoſe caſes. After the date, the narration is to begin thus:—Shipped aboard the ſhip—A. B. maſter; bound for ——, the following goods; conſigned to—for my account, or by order, and the account of—Or, it may be begun thus:—Invoice of goods ſhipped aboard—*&c.*

The deſign of this *book* is for the more ready finding out theſe invoices than can be done in the *waſte-book*.

Book, *factor*, or *Book of Sales*, is an account of what a perſon receives to ſell in commiſſion for others, and of the diſpoſal thereof. It is numbered and diſtinguiſhed into folios, like the ledger; on the left-hand ſide is written, in a plain narrative ſtyle, an account of the goods received, with all charges: and, on the oppoſite ſide, an account of all the ſales and diſpoſals of thoſe goods. So that this is only a copy of the employer's account of goods in the ledger, in the ſtyle of the *waſte-book*. Where a perſon does little in commiſſion, a ſeparate *book* for this purpoſe is needleſs.

Book *of accounts current* is kept in the form of debtor and creditor, like the ledger; and ſerves for accounts ſent to correſpondents, to be regulated in concert with them, before they are entered in the ledger. This is properly a duplicate of the accounts current, kept to have recourſe to on occaſion.

Book *of commiſſions, orders*, or *advices*, is a *book*, in which are entered all the commiſſions, orders, and advices, which a perſon receives from his correſpondents. This ſhould have a broad margin for receiving the entry of remarks concerning their execution.

Book *of acceptances* is deſtined for the regiſtering all bills of exchange, notified by letters of advice from correſpondents; ſo that the merchants may know, when the bills are preſented, whether they have orders to accept them or not. When they chooſe to decline accepting a bill, againſt the article thereof in the *book*, they put P. i. e. proteſt; that, on offering the bill, the bearer may be told he may proteſt it: on the contrary, if they accept it; they write againſt it an A; adding the date, or day of acceptance. And this, upon being tranſferred to the *debt-book*, is cancelled.

Book *of remittances* ſerves to regiſter bills of exchange, as they are remitted by correſpondents, to require the payment thereof. If they be proteſted for want of acceptance, and returned to thoſe who remitted them, mention is made thereof againſt each article, by adding a P. in the margin, and the date of the day when they were returned, then cancelled.

The *books* of acceptances and remittances have ſo near a relation to each other, that many merchants, &c make but one of the two, which they keep in the form of debtor and creditor; putting acceptances on the ſide of the debt, and remittances on that of credit.

Book *of copies of letters*, ſerves to keep copies of letters, which a merchant writes to his correſpondents, that he may have recourſe to them, as occaſion requires.

Book *of expences*, a detail of the petty expences, both domeſtic and mercantile; which at the end of each month are ſummed up, and make an article for the caſh *book*.

This *book*, being a ſeparate account of all the expences of living, ſerves to keep both the profit and loſs account, and alſo the caſh-*book*, more diſtinct: the greater and more conſiderable articles are to be placed here particularly; but the ſeveral ſmall articles, of daily diſburſements, only in totals: though under what denominations, and how general or particular the articles of this *book* are to be made, muſt be left to every one's choice. All that is neceſſary to obſerve here is, that the cash paid out, on ſuch accounts, muſt be carefully entered here; and thence, once a week or month, be tranſferred to the caſh-*book*, and to the profit and loſs account of the ledger; which is debtor to cash for it.

Book *of numero's* or *quires* is kept for the eaſy knowledge of all the goods brought in, ſent out, or remaining in a warehouſe. On the left-hand page are entered the quantity, quality, and number or mark, of the goods brought in; on the right, the diſcharge of the goods out of the warehouſe, againſt the reſpective articles of the firſt. Thus,

N°	1	*A bale of whole paper* —— *weighing*	400*lb.*
	2	*A piece of ſcarlet damaſk* —— *ell*	63

March 1	*Sold to* Charles Mitchell.
Apr. 10	*Sent to* Nichols *of* Briſtol.

Book, *month*, is numbered in folios like the ledger, and divided into ſpaces, on the top of each of which are the names of the twelve months of the year; January, February, &c. allowing a whole folio, or what you pleaſe, to each month; and a different ſet of 12 ſpaces for every different year. On the left hand page enter the payments to be made to you, in that month; and on the right-hand page the payments you are to make. Make a column likewiſe on the left-hand of every page; in which, write the day of payment; and after this, the name of the debtor or creditor; and draw the ſum into the money-columns.

There are alſo *pocket memorandum-books*, publiſhed annually, digeſted into *weeks* and *days*, properly divided, for the clear and methodical entry of occaſional memorandums.

Book *of waſte* is kept in the form of debtor and creditor; a

particular

particular account being kept for each veſſel. To the ſide of debtor, are put victualling, ſitting out, wages, &c. To the ſide of creditor, are put every thing the veſſel has produced; whether by way of freight or otherwiſe. Laſtly, the total of each is entered in the journal, upon balancing the accounts of each veſſel.

Book *of wormes* is particularly in uſe among manufacturers, who have conſiderable works in their hands. It is kept in form of debtor and creditor for each workman employed. On the ſide of debt are put the matters given them to work; and on that of credit, the work they return.

Book *of charge*, or *loading*, *livre de bord*, is kept by the clerk or purſer of a ſhip: wherein are entered all the goods aboard the veſſel, whether thoſe only for freight, or for ſale, or exchange; the whole according to the ſpecification in the maſter's bills of loading.

Book, *bank*. In cities, where there are public banks, or bankers, as at Venice, Amſterdam, Hamburgh, and London, a *book* is neceſſary wherein to keep an account of the ſums paid to, or received from the bank, or bankers.

Book, abſolutely uſed, denotes the waſte-book, ſometimes the journal, or day-book.

In this ſenſe it is, they ſay, I have put down ſuch a ſum in my *book*; you ſhall have an extract of my *book*, &c.

Book-keeping, though chiefly in uſe among merchants and great dealers, is yet applicable with advantage to perſons of all other conditions; as retailers, ſtewards, gentlemen of land-eſtates, &c. with this only difference, that the narrower their affairs and tranſactions are, the fewer *books* they need to keep, and *vice verſa*. The ſame ways of accounting, which in great and diffuſed trade prevent confuſion, by an artful and regular diſpoſing of things, if applied to mean and narrow dealings, will create confuſion, at leaſt will be attended with needleſs trouble; ſince a few things ſhew themſelves readily, and are examined by mere inſpection: ſuppoſing no other method but a waſte-book record; every corner whereof in very ſmall dealings, the owners eye is acquainted with, ſo that he can readily turn to what he wants: but this, in larger accounts, is impoſſible; which makes order, the ſtricteſt form, and much writing, abſolutely neceſſary. Yet this one rule muſt be indiſpenſably obſerved in all caſes; viz. that a true and exact memorial of every thing belonging to the account be made, juſt as things occur; and if buſineſs increaſe, ſo that a nearer approach to the perfection of accounting be neceſſary, this will ſerve as a ground-work, on which you may raiſe the account to what form you pleaſe. But the leaſt a man can do, will be ſome part of the method explained under the article Books; of which all methods whatever are a part; as comprehending the greateſt ſimplicity in the waſte-book, and art in the ledger.

For a perſon in a ſingle ſtate, who has no buſineſs, but the receiving at certain times in the year a ſum of money which he lays out again for his private and perſonal expences, a pocket-book is ſufficient.

For one in a married ſtate, whoſe fortune conſiſts alſo of money, as he has a greater variety of expences, he muſt be careful to keep an exact account of what caſh he receives and pays: and to make this account more diſtinct and orderly, it will be beſt to keep the particulars of the payments in a ſeparate book, and to bring them into a caſh-book once a week, in totals, digeſted under ſuch denominations as he thinks fit, as *bread*, *beer*, *fleſh*, *coals*, *candles*, &c. Things thus brought into the caſh-account, may be again drawn into an abſtract, ſhewing the total of each kind of expences for every month, by dividing a page into twelve columns, with the names of the twelve months; and then in ſo many articles on the margin ſetting the names of the ſeveral heads of expences, and againſt each, under the reſpective month, the ſum of that kind of expences in that month; then will the ſum of the money in the columns under each month be the total expence of that month, and the aggregate of theſe ſums the year's expences.—For artificers, handicrafts-men, and the like, they may keep accounts of the expences of living, as above; but it alſo will be neceſſary to make a diſtinct account of the charges and profit of their buſineſs, which may eaſily be done, by an exact account of all they pay or owe for the materials and inſtruments of their work, with ſervants wages, and taxes upon their trade; and of all they receive or that is due for their work. They may conveniently keep accounts for the materials of their work, to ſatisfy them of the diſpoſal thereof, and to ſerve as a check on ſervants who have acceſs to thoſe things; and they muſt keep accounts for the perſons they deal with, both in buying and ſelling. As for petty traders, who deal in ſome hundreds of trifling wares, and make ſales to the value of a farthing or halfpenny, theſe cannot pretend to keep orderly accounts; the beſt they can do is, to be careful that ſervants do not wrong them; for they have no account of goods; and if you aſk what of any kind remains with them, they muſt examine, if their memory fails. Theſe can only have a caſh-account, which they are to charge once a week with the money received, and diſcharge for what they give out: it is not convenient that they ſhould touch the caſh-box or till, oftener than once a week, when it is completed; but if they do, they muſt keep a ſeparate account of what they take out, to know what was received. Beſides which, they ſhould have a

Book, *Memorandum*, or *Day*-Book, wherein all things delivered on credit are to be entered, and from thence tranſferred to a ledger; in which an account is opened for every debtor or creditor, with a debt and credit both on one ſide with a double money column.

As for more conſiderable ſhop-keepers, who commonly deal in only a few different ſpecies of goods, as drapers, mercers, &c. they uſually keep a ledger for perſons and wares diſtinct, without any formal connection or reference of the accounts, in their ſeveral articles; whereby there can no regular balance be made. In the accounts of perſons, they uſe the formality of a debtor and creditor ſtyle, which is mere ſhew, without the real value of a regular account; there being no oppoſite correſponding debtors and creditors to be found. For their ledger of wares, as they call it, contains nothing of this; and is but an imperfect contrivance, which they ſatisfy themſelves with, to know how much remains. But the worſt is, that in allotting ſpaces for the accounts of wares, they frequently allow no more than they ſuppoſe may ſerve for the retail of the quantity firſt entered on that ſpace; and when this is diſpoſed of, take a new ſpace for a new parcel: which, in a quick trade, is not only troubleſome but confuſed, if there be any of the old parcels remaining; unleſs they carry it to the new account. In reality, dealers in retail, if conſiderable in their way, ought not to come ſhort of the utmoſt pitch of art: at leaſt, they ſhould keep three grand books, a *waſte*, *journal*, and *ledger*; unleſs they ſhall think fit to join the firſt two into one. The *waſte-book* is to contain every thing done in the ſhop, both what is ſold on truſt, and for caſh. This and the *journal* may be made in one, by marking the debtors and creditors on the margin, againſt every tranſaction of value. For the *ledger-book*, becauſe there are commonly many articles of debt to one of credit, on men's accounts with whom they deal, and many articles of credit for one of debt, upon account of wares, they may keep the debt and credit both on one ſide, by double money columns; in one of which let the debt, and in the other the credit be ſet.

For gentlemen of landed eſtates, the books neceſſary to be kept are, 1. A great *waſte-book*, containing a plain narrative of all things as they occur; as receipts, and payments, every thing given and received; and, in ſhort, whatever is done relating to any thing or perſon they are concerned with: out of which are to be made up, 2. A *caſh-book*, containing in a plain narrative ſtyle, upon the debtor-ſide, all receipts of money; and upon the creditor-ſide, all payments; and though there be ſeveral articles received or paid together belonging to the ſame account, which are entered particularly in the waſte, yet they may be ſet down here in a total ſum: for example, there is paid 20*l.* for divers pieces of houſhold furniture, all particularly mentioned in the *waſte-book*, yet in the *caſh-book* there needs no more than to ſay, *paid for houſhold furniture*, &c. 3. A book of accounts with tenants, where, in diſtinct places, every one's charge and diſcharge may be fairly written, without any great formality of ſtyle: and if it hath a ſhew of debtor and creditor ſide, it will be the more diſtinct. 4. A book of petty accounts with ſervants and workmen, &c. 5. A book of real accounts; containing an account of cattle, corn, and other ſtock or furniture, to know at all times what you have, and how it is diſpoſed of. If a gentleman advances no nearer to the artificial part of accounting, he muſt keep an account with every perſon, with whom he has dealings; which may be done in the ſame book with his tenants accounts, only allotting diſtinct parts for them; the laſt will take no great room, compared with the other; theſe books of accounts muſt have indexes.

For factors or ſtewards on land eſtates, a general *waſte-book* will be neceſſary, to contain all matters tranſacted, relating to their maſter's concerns, under their management. Out of which let them make a *caſh-book*, in the manner above directed; alſo a *book* of real accounts, that they may know what real effects, beſides money they have the charge of, and how it is diſpoſed of; particularly the corn-rents, which have been delivered by the tenants, and put in the granaries under their charge, to

be diſpoſed and given out according to order. Malcolm's Treat. of *Book-keeping*, append. p. 7. 30

BOOK *of rates*, is a *Book* eſtabliſhed in parliament, ſhewing at what value goods, which pay POUNDAGE, are to be reckoned at the CUSTOM-HOUSE. See CUSTOM, DUTY, POUNDAGE, and TONNAGE.

The *book of rates* annexed to the act of TONNAGE and POUNDAGE made in the 12th year of king Charles II. is ſubſcribed with the hand of ſir Harbottle Grimſtone, then ſpeaker of the houſe of commons. An additional *book of rates* of goods and merchandizes uſually imported, and not particularly rated in the former, with rules, orders, &c. is ſigned by Spencer Compton, eſq. ſpeaker of the houſe of commons, 11 Geo. I. c. 7.

BOOK-BINDING, the art of ſewing together the ſheets of a *book*, and ſecuring them with a back, and ſtrong paſte-board ſides, covered with leather, &c

Binding is diſtinguiſhed from *ſtitching*, as, in the latter, the leaves are only ſewed, without bands, or backs.

We ſay, French-*binding*, law-*binding*, marble-*binding*, *binding* in parchment, in ſheep, in calves leather, &c. alſo half-*binding*, wherein the leaves are generally left uncut, and only the back covered with leather, the paſte-board ſides being covered with marbled, or blue paper. Dutch-*binding* is where the backs are of vellum. The Italians are ſtill contented to bind in a coarſe, thick paper called *binding alla ruſtica*, the inconvenience of which is its being liable to wear out without careful uſe. Without doubt, the art of *binding* is almoſt as ancient as the ſcience of compoſing *books*; and both the one and the other followed immediately the firſt invention of letters. Whatever the matter might be, on which men firſt wrote, there was a neceſſity of uniting the ſeveral parts together; as well for the making them of one piece, as for the better preſerving them: hence the origin of *book-binding*.

According to Olympiodorus (apud Phot.) it was one Phillatius, a learned man at Athens, who firſt taught the uſe of a kind of glue, to faſten the ſeveral leaves together: on which account a ſtatue was erected to him.

BOOKS, *the manner of binding in volumes*, i. e. of gluing the leaves together; that of rolling them on round pieces, or cylinders of wood, appears the moſt ancient; though that of binding them ſquare, and of ſewing ſeveral quires one over another, lays claim to conſiderable antiquity.

The firſt of the two, which we call *Egyptian-binding*, held a long time after the age of Auguſtus; but it is now diſuſed, excepting in the Jewiſh ſynagogues, where they continue to write the *books* of the law on vellum ſewed together; making, as it were, only one long page, with two rollers, and then claſps of gold and ſilver, at each extremity.

The form now in uſe is the ſquare *binding*, which is ſaid to have been invented by one of the Attali, kings of Pergamus; to whom we likewiſe owe the manner of preparing parchment, called in Latin, from the name of his capital, *Pergamena*, or *Charta Pergamena*.

BOOKS, *manner of binding*. The firſt operation is to fold the ſheets according to the form, viz. into two for folios, four for quartos, eight for octavos, &c. which the workmen do with a flip of ivory or box, called a *folding-ſtick*: in this they are directed by the catch words, and ſignatures at the bottom of the pages. The leaves thus folded, and laid over each other in the order of the ſignatures, are beaten on a ſtone with a heavy *hammer*, to make them ſolid and ſmooth, and then preſſed. Being thus prepared, they are ſewed in a *ſewing-preſs*, upon pack-threads or cords, which are called *bands*, at a proper diſtance from each other, and in a convenient number; which is done by drawing a thread through the middle of each ſheet, and giving it a turn round each band, beginning with the firſt, and proceeding to the laſt. The common number of bands is ſix in folios, and five in quartos, octavos, &c. Sometimes they uſe a ſaw to make places for the bands, which are ſunk into the paper, ſo that the back of the book when bound is ſmooth, without any appearance of bands. After this the backs are glued, the ends of the bands being opened, and ſcraped with a knife, for the more convenient fixing of the paſte-boards; then the back is turned with a hammer, the book being fixed in a preſs between boards, called *backing-boards*, in order to make a groove for admitting the paſte-boards. The boards being then applied, holes are made for drawing the bands through, the ſuperfluous ends being cut off, and the parts hammered ſmooth. Then the book is preſſed, in order for cutting; which is performed by a particular machine called a *plough*, to which is fixed a knife. After this the book is put into a preſs called a *cutting preſs*, betwixt two boards, the one lying even with the preſs, for the knife to run upon; the other above it, for the knife to cut againſt.

The book being cut, the paſte-boards are ſquared with a proper pair of iron ſhears; and it is then ready for ſprinkling, gilding, blacking, or marbling the leaves. The colours, with which it is ſprinkled, are uſually vermilion, or ſap-green; which is done by a bruſh made with hog's briſtles, holding the bruſh in one hand, and moving the hair with the other.

In the French-*binding*, a *back* is put in parchment. i. e. a ſlip of parchment is applied over the back, between each band, and the ends paſted on the inſide of each paſte-board. This preparation, called *indorſing*, ſeems peculiar to the French binders; who are enjoined by ordonnance to back their *books* with parchment on the penalty of 30 livres, and the re-binding of the *book*: it is done in the preſs, where the back being grated to make the paſte take hold, the parchment is applied; and they afterwards add glue to fortify it.

Manner of gilding books on the edges. The *book*, being put tight into the preſs, between two boards, is ſcraped with a knife called a *ſcraper*; and after that with another called a *ſmoother*, in order to take out all ſcratches. Being thus made ſmooth, they ſcrape a little yellow OCHRE upon the *book*, wet it with a little *fize*-water, and rub it off with ſome clean ſhavings. The gilding *fize* is made with the white of an egg, mixed with water, and beat well together. The leaves being wetted with the *fize*-water, with a bruſh, the gold is then laid upon it, and afterwards dried before the fire. When dried, it is burniſhed off with a dog's tooth ſet in a handle. Blacking the leaves is done with fine antimony, the leaves being wet, and the antimony rubbed upon them until quite dry, when it is burniſhed like the gold.

The head-band is now added, which is an ornament of thread or ſilk of two or three colours, placed at each extreme of the back, acroſs the leaves; and woven or twiſted, ſometimes about a ſingle, and ſometimes a double piece of rolled paper, or, what is more laſting, of glued pack-thread.

For the covers; the ſkins uſed undergo ſeveral preparations, which we ſhall explain, in calf, as being the leather moſt uſed; and as being that to which all the reſt, with a little variation, may be referred. The calf-ſkin, being moiſtened in water, is cut to the ſize of the *book*, and the thickneſs of the edges pared off on a marble ſtone kept for that purpoſe. The cover is next ſmeared over with paſte made of wheat-flour: then ſtretched over the paſte-board on the outſide, and doubled over the edges withinſide. They then *card the book*, or *bind it* firmly between two boards, to make the cover ſtick the ſtronger to the paſte-boards, and the back; on the exact performance of which depends a great part of the truth and neatneſs of the *book*. The back is then warmed at the fire to ſoften the glue, and the leather of the back is rubbed down, with a folding-ſtick or bonkin, to ſet and fix it cloſe to the back of the *book*. It is now ſet to dry: and when dry, uncorded: the *book* is then waſhed over with a little paſte and water. the edges and ſquares blacked with ink, and then ſprinkled fine with a bruſh, by ſtriking it either againſt the hand, or a ſtick; or with larger ſpots mixed with virriol, which is called *marbling*. Two blank leaves, on each ſide, are then to be paſted down to the cover; and when dry, the leaves are BURNISHED in the preſs, and the cover rolled on the edges.

The cover is now glazed twice with the white an of egg; it is then filleted plain, or with gold; and at laſt poliſhed with a poliſhing iron, paſſed hot over the glazed colour.

If the *book* be required to be lettered, they paſte a piece of red morocco on the back, between the firſt and ſecond band, to receive the title in gold letters; and ſometimes a ſecond between the next bands underneath, to receive the number of the volume.

The plain *binding*, properly ſo called, is now complete; the gilding on the back and cover, as it makes a part of the *book-binder's* buſineſs among us (though, with the French, &c. it is a diſtinct profeſſion) we ſhall here ſubjoin.

Manner of gilding books on the back and covers. In ordinary *binding*, they gild little elſe but the backs, and the outward edges of the cover. On the backs are gilt the title of the *book*, &c. with flowers, roſes, knots, ſtars, &c. between the bands: on the covers are ſometimes added compartments, aims, &c. All theſe ornaments are made with each its ſeveral gilding tool, engraved in *relievo*; either on the points of puncheons, as thoſe of letters, roſes, ſtars, &c. or around little cylinders of braſs, as the lines, embroideries, &c. The puncheons make their impreſſion by being preſſed flat down; and the cylinders by being rolled along by a handle, to which they are fitted on an iron ſtay, or axis.

To apply the gold, they glaze thoſe parts of the leather, whereon the tools are to be applied, three or four times with

with a liquor made of the whites of eggs diluted with water by means of a ſponge; and, when near dry, they ſlightly oil them, and then lay on pieces of leaf gold, and on theſe apply the tools, with a careful even preſſure of the hand, or roll the cylinders, both the one and the other, reaſonably hot. If the figures be large, and require a great *relievo*, as arms, &c. they are beat or preſſed down. The gilding thus finiſhed, they rub off the ſuperfluous gold, and poliſh the whole; the gloſs of which is greatly aſſiſted by a final preſſing between horns peculiar for the purpoſe.

Our *book-binders*, for gilding on rough leather, make uſe of reſin dried and powdered, inſtead of whites of eggs; and the gold leaf, firſt cut to a proper ſize, is laid on a hot ſomewhat oiled ſtamp, and preſſed down: and thus the reſin melts only in thoſe parts where the hot ſtamp is applied, and the gold fixes on it, whilſt the other parts of the leather remain rough as at firſt. *Dr.* Lewis's Com. Phil. Tech. p. 615. See GILDING.

Ahaſ. Fritſch, chancellor of the univerſity of Jena, has a diſſertation expreſs concerning BOOK-BINDERS, *De Bibliopegis*; wherein he treats of the laws preſcribed by theſe artificers, and the tax or price ſettled by the magiſtrate for *binding books*, of every ſort, in ſheep-ſkin, vellum, &c.—The rates fixed for *binding* in ſheep, throughout the electorate of Saxony, are, for large folios, 1 guilder or florin, three groſſes; common folio, 1 florin; large quarto, 12 groſſes; common quarto, 8 groſſes; large octavo, 5 groſſes; common octavo, 4 groſſes; duodecimo, 3 groſſes; ſedecimo, 2 groſſes.

BOOK-LAND, ſee BOCK-*land*.

BOOK-SELLER, a profeſſed trader in *books*; whether he prints them himſelf, or procures them to be printed by others for ſale.

Book-ſellers, among us, are the ſame with *bibliopolæ* among the ancients, whoſe office was diſtinct from that of *librarii*. Petty dealers, or venders of ſmall ware, like our publiſhers, were more particularly denominated *libellenſes*. At Rome, the Argileturn was the mart of *books*, as Paul's Church-yard, or Fleet-ſtreet, and Paternoſter row, have been among us: whence that of Martial,

Argiletanas movis habitare tabernas,
Cum tibi, parva liber, ſcrinia noſtra vacent.

Book-ſellers are a kind of agents, or curators in the republic of letters: in many places, they are ranked among the members of univerſities, and entitled to the privileges of ſtudents: as at Tubingen, Saliſbürg, and Paris, where they have always been diſtinguiſhed from the vulgar and mechanical traders, and exempted from divers taxes and impoſitions laid on other companies.

Formerly, the offices of *book-ſellers* and printers were united in the ſame perſons. Labbe gives a liſt of learned *book-ſellers*; moſt of whom were alſo authors. Of late days, *book-ſellers* have drawn their buſineſs into leſs compaſs, and leaving the labour of compoſing *books* to one ſet of perſons, and that of printing them to another, content themſelves with the gainful part; thus miniſtering to the republic of letters not with the head, or the hand, but the purſe only.

In this view, they have been very important and uſeful agents between authors and the public; and have contributed, in no ſmall degree, to the encouragement of genius and literary induſtry, and the ſpread of ſcience. There are few authors, who have undertaken the printing and publiſhing of any work likely to be tranſmitted to poſterity, without being connected with ſome *book-ſeller* or *book-ſellers*, eminent in their profeſſion.

The fairs of Frankfort and Leipſic are famous for the reſort of *book-ſellers*, not only from all parts of the empire, but Holland, Flanders, &c. They have each their ſhop or warehouſe, over which is inſcribed the name of ſome celebrated *book-ſeller* of former times: *officina Elzeviriana, Frobeniana, Morelliana, Janſoniana*, &c.

An acquaintance with the *book-ſellers* marks or ſigns, frequently expreſſed on the title-pages of their *books*, is of ſome uſe; becauſe many *books*, eſpecially in the laſt century, have no other deſignation either of printer, *book-ſeller*, or even city. The *anchor* is the mark of Raphelengius at Leyden; and the ſame with a *dolphin* twiſted round it, of the Manutii at Venice and Rome; the *Arion* denotes a *book* printed by Oporinus at Baſil; the *caduceus*, or *pegaſus*, by Cramoiſy; the *compaſs*, by Plantin at Antwerp; the *fountain*, by Valcoſan at Paris; the *ſphere* in a balance, by Janſon or Blaew, at Amſterdam; the *lily*, by the Juntas at Venice, Florence, Lyons, and Rome; the *mulberry-tree*, by Morel at Paris; the *olive-tree*, by the Stephenſes at Paris and Geneva; and the Elzevirs at Amſterdam and Leyden; the *bird between two ſerpents*, by the Frobeniuſes at Baſil; the *trunk*, by the Commelins at Heidelberg and Paris; the *Saturn*, by Colinæus; the *printing-preſs*, by Badius Aſcenſius, &c.

Chevillier ſhews, that the univerſity of Paris had formerly the ſole power of creating and appointing *book-ſellers*, who were to take an oath to the univerſity; and were reputed part of the academical body, and as ſuch entitled to the exemptions of the other members thereof. They were to give ſecurity to the univerſity for their behaviour, and produce atteſtations of their capacity for the diſcharge of their office: the univerſity alſo depoſed and expelled them at diſcretion: they were obliged to appear at all aſſemblies of the univerſity, when ſummoned, and aſſiſted at the public proceſſions thereof: they were obliged to lend their *books* to be read, or even copied by ſuch as were diſpoſed to borrow, on certain conditions, preſcribed by the univerſity. If they kept any *books* by them which were not correct, the univerſity puniſhed them: they were not allowed to buy any *book* of a ſtudent, without leave of the rector: nor where they allowed to gain above four *deniers* in a *livre*, by any copies ſold to the members of the univerſity. Every *book-ſeller* was obliged to have a catalogue of all his *books* hung up in the ſhop, with the prices as rated by the univerſity: no *book-ſeller*, who had not taken the oaths to the univerſity, might ſell a book of above ten *ſols* value. Diſſ. de l'Orig. de l'imprim. t. iv.

This ſtate laſted from the thirteenth century to the invention of printing, and even till the end of the fifteenth century; during which time there were only allowed twenty-four *book-ſellers*, two binders, two illuminers, and two ſworn *book*-writers, or copiſts.—But from that time the kings of France began to take cognizance of them: Lewis XI. thought fit to preſcribe ſome new regulations in 1467: under Francis I. the *book-ſellers* were brought wholly under the royal authority, and received ſtatutes from the king.

The chief ſcience of *book-ſellers*, is the knowledge of the titles, different editions, prices, and ſcarcity of *books*, without regard to their contents, or qualities, otherwiſe than as theſe affect the ſale of them.

BOOK-WORM, is an inſect of the mite kind, which afterwards becomes a fly, bred from eggs depoſited in the month of Auguſt in *books*, eſpecially in the leaves neareſt the covers. It is not unlike the mite or BLATTA found in corn. When the time of its tranſformation approaches, the inſect ſeeks to get into the air, and eats every thing which it finds in its way, till its gets to the extremity of the *book*. The mixture of juice of wormwood and other bitter ingredients in their paſte, which is an expedient uſed by book-binders for this purpoſe, is no ſecurity to books againſt *book-worms*. The beſt and the only ſecurity is from mineral ſalts, which all inſects hate. For this purpoſe book-binders, ought to mix with the paſte employed in binding, the ſalt which is known under the name of ARCANUM *duplicatum*, alum, and vitriol; with this precaution, *books* may be perfectly guarded from all injury and inſult from this miſchievous little creature. We cannot take too much care to preſerve what only can tranſmit our knowledge to poſterity. M. Prediger, among other inſtructions to German book-binders, printed at Leipſic in 1741, recommends their making paſte of ſtarch, inſtead of flour: he wiſhes them to powder ſlightly the books, their covers, and the ſhelves on which they ſtand, with a mixture of powder of alum, and fine pepper; and is alſo of opinion, that in the months of March, July, and September, books ſhould be rubbed with a piece of woollen cloth ſteeped in powdered alum. *Melanges D'Hiſt. Nat.* tom. v. p. 206.

BOOKING, among *Merchants*, &c. the making an entry of any matter in the journal. See BOOK, BOOK-KEEPING, and JOURNAL.

BOOM, in the *Sea-language*, a long pole, wherewith they ſpread out the clue of the ſpreading-ſail, ſometimes alſo that of the main-ſail and fore-ſail, to make them broader, and receive more wind.

Booming of the ſails is never uſed but in quarter winds, or before a wind. By a wind, ſtudding ſails, and *booming* the ſails is not proper.

When a ſhip is ſaid to come *booming* towards us, it imports as much, as that ſhe comes with all the ſail ſhe can make.

BOOM alſo denotes a pole with a buſh or baſket on the top, placed to direct ſhips how to ſteer into a channel: otherwiſe called a *beacon*.

BOOM likewiſe is uſed, in *Marine Fortification*, to denote a cable or cables ſtretched athwart the mouth of a river, or harbour, with yards, top-maſts, buttlings, or ſpars of wood,

wood, lashed to it, and girded with iron hoops rivetted together and nailed to the spurs, to prevent an enemy's entering. Such a *boom* M. Chateau Renault had with diligence and art prepared at Vigo, for the defence of the plate fleet lying there in 1702: but how strong soever, it was forced by Sir Thomas Hobson. The cables of which the *boom* is formed, are bent to a pair of sheet anchors on each side of the channel. Other cables are sometimes fastened to that within the *boom*, and bent to anchors laid down the stream; and these cables are prepared with spurs like the other; where wood is scarce, the *boom* is prepared with old ropes, &c. and iron hoops; every part of it being well covered with pitch strewed with gravel. The *boom* is generally so contrived, as to open at one end for the passage of vessels.

BOOMITES, a term used by some authors to express a kind of agate, of a very remarkable brightness and transparence, which represents the figures of shrubs, trees, mosses, &c. in the manner of the *dendrachates*, a common *mocho-stone*. This is however very different in the degree of transparence and brightness.

BOOMKIN. See BUMKIN.

BOOPHTHALMUS, derived from βοῦς, *an ox*, and ὀφθαλμος, *eye*, *Ox-eye* STONE, in *Natural History*, a name given by Schenchzer to a peculiar AGATE, in which there frequently appear circles of considerable size, resembling some large animal's eyes. The ground-colour of the stone is grey, and the circles of a deep bluish black.

BOOPS, in *Zoology*, the name of a fish caught in the Mediterranean, and sold at Nice, Messina, and Genoa. It is a small fish, seldom exceeding five inches in length, and very remarkable for the largeness of its eyes; and a species of the SPARUS. It is of a rounded, not flat shape, and its scales are large. See *Tab. V. of Fish*, N° 56. Besides this, which is the common species of the *boops*, there are two other kinds, the one commonly called BOUGE-*rouge*. The other a small kind, not above three inches in length, and without scales. Its mouth is small, and its eyes extremely large. Its tail is broad and thick. This, in the taste and consistence of its flesh, no way differs from the common *boops*.

BOOPS is also the name of a species of the WHALE.

BOOR-*worm*, in *Natural History*, a name given by Rumphius, to the *teredo lignorum*, a sea-worm, which bores the bottoms of ships.

BOOT, a leathern cover or defence for the leg, used on horse-back, both to keep the body more firm, and defend the part from the injuries of the weather.

Boots seem to have been called thus, from their resemblance to a sort of jacks, or leathern bottles, formerly in use, and called *botte*, in the old French *boots*. Borel derives the name from the ancient French word *bot*, *a stump*, because the *boot* gives the leg this appearance.

It is not long that the *boots* used on horse-back have been called by this name. In the reign of Charles VII. of France, they were called *houses*, *hose*.

The ancient monks usually wore *boots*; that is, the denomination *botte*, or *botti*, was given to their buskins.

The Chinese had a kind of *boots* made of silk, or fine stuff, lined with cotton, a full inch thick, which they always wear at home and abroad.

There are also chirurgical *boots*, for the cure of *vari* & *valgi*, or crooked and distorted legs.

The *boot* was much used among the ancients, by the foot, as well as bortemen.

The *boot* is the same with what was called by the ancient Romans, *ocreæ*, in middle-age writers, *greves*, *gamberia*, *hainbergo*, *hembarga*, or *himbergæ*. Du-Cange *Lat. Gloss.* The *boot* is said to have been the invention of the Carians: it was at first made of leather, afterwards of brass and iron, and was proof both against cuts and thrusts. It was from this that Homer calls the Greeks *brazen-booted*. Plin. Hist. Nat. lib. vii. cap. 56. Homer. Il. vii. v. 41.

The *boot* only covered half the leg; some say only the right leg, which was more exposed than the left, it being advanced forwards in an attack with the sword; but in reality it appears to have been used on either leg, and sometimes on both. Those who fought with darts, or missive weapons, advanced the left leg foremost; so that this only was *booted*. Veget. lib. i. cap. 20. Pitisc. Lex. Ant. tom. ii p. 309. and Aquin. Lex. Mil. tom. ii. p. 102.

BOOTS, *fishing*, are a thick strong sort, used in dragging ponds, and the like. *Hunting-boots*, a thinner kind, used by sportsmen. *Jack-boots*, a kind of very strong *boots*, used by the troopers.

BOOT, *bordequin*, is likewise a kind of torture for criminals; to extort a confession, by means of a *boot*, stocking, or buskin of parchment; which being put on the leg moist, and brought near the fire, in shrinking squeezes the leg violently, and occasions intolerable pain.

There is also another kind of *boot*, consisting of four thick strong boards bound round with cords: two of these are put between the criminal's legs, and the two others placed one on the outside of one leg, and the other on the other; then, squeezing the legs against the boards by the cords, the criminal's bones are severely pinched or even broken, &c.

The *boot* is now disused in England; but it subsists still, in some other countries.

BOOT-*housing*, see HOUSING.

BOOT-*last*, a wooden cylindric instrument, used by shoemakers for widening the leg of a *boot*. It is slit in two parts, between which a wedge is driven when it is put into the *boot*.

BOOT-*topping*, in *Sea-language*, the act of cleaning the upper part of the ship's bottom, or that part which lies immediately under the surface of the water, and daubing it over with tallow, or with a coat or mixture of tallow, sulphur, resin, &c.

BOOTES, in *Astronomy*, a constellation of the northern hemisphere, whose stars, in Ptolemy's catalogue, are 23; in Tycho's 28; in Bayer's 34; in Hevelius's 52; and in Mr. Flamsteed's catalogue, 54. Their longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Bayer's Class.	Signs.	Longit.	Latitude	Magnitude.
			° ′ ″	° ′ ″	
		♑	10 51 56	28 11 26	6
			0 43 34	29 32 0	6
			9 29 53	53 59 20	6
Middle of three in the fore-leg.	τ		13 37 56	46 32 8	4
Southern.	ι		14 51 57	25 12 47	4
5.					
			12 26 17	30 14 28	5.6
			14 50 20	47 51 38	7
Northern of the leg.		♉	14 58 32	22 7 55	3
			11 0 38	36 35 10	5
			14 27 1	31 28 59	7
10.					
			12 23 5	36 53 16	7.8
		♊	15 43 43	35 41 35	5
		♋	27 9 24	59 34 48	6
			22 8 42	24 51 06	
15.			23 20 33	22 15 39	6
Bright one betwixt the thighs,		♌	19 53 52	30 57 0	1
Arcturus.					
Preced. in the north hand.	κ	♍	25 36 39	56 54 44	4
		♎	23 23 52	25 10 15	6
In the preced. arm.	λ		2 37 58	54 39 20	4
			21 11 11	28 27 05	
20.					
Middle one in the hand.		♏	26 46 0	48 51 50	4
		♐	22 38 0	31 45 14	5
Last of the three in the hand.		♑	28 14 0	00 10 44	
		♒	1 35 46	58 55 56	6.7
Preced. of the two in the girdle.		♓	18 25 50	42 27 52	4
25.					
			28 49 58	35 6 13	7
In the left shoulder.		♈	13 28 18	40 35 03	
Second of two in the girdle.			19 31 33	42 8 24	5
		♉	27 30 6	30 23 28	4.5
In the right heel.		♊	28 40 21	27 53 42	3
30.					
			0 53 28	22 41 32	5
		♋	29 37 32	25 59 55	6
		♌	9 56 45	55 27 39	6
			15 56 22	40 0 56	
		♍	28 27 45	31 17 74	5
35.					
Against posterior thigh, under the girdle.		♎	23 44 35	40 38 21	5
		♏	29 10 33	33 47 28	4
			11 2 48	17 54 16	
			8 27 10	0 4 06	
40.			20 6 1	52 58 40	6.7
In the right hand.		♑	29 26 43	10 11 33	5
In the head.		♒	19 53 41	54 10 58	3
First of the two in the staff.		♑	19 10 20	42 11 40	5
			13 26 11	60 32 37	6
In the extremity of the handle of the staff.		♏	0 54 38	47 29 15	5
45.					
Second of the two in the wrist.		♑	0 34 22	21 54 43	6
			One long hour under.		
Northern of two in the staff.		♓	0 51 10	45 4 7	5
In the right shoulder.		♑	28 48 8	49 0 10	3
Under the shoulder, in the staff.		♏	0 54 25	49 10 10	5
50.					
North of the middle ones in the staff.		♑	28 51 1	53 26 56	3
			28 9 2	57 5 54	5
In the extremity of the staff.		♑	28 22 27	57 14 17	6
		♏	0 45 23	57 14 46	5

This

This conſtellation is called by divers other names, as *Arctophylax*, *Bubulcus*, *Bubulus*, *Thygnis*, *Clamator*, *Vociferator*, *Plaraus*, *Planſtri-Coſſus*, *Philometus*, *Arcas*, *Icarus*, *Lycaon* and *Arctturus Minor*; by others, *Septentrio*, *Lanceator*, *Cetonus*; by Heſychius, *Orion*; by others, *Canis Latrans*; by the Arabs, *Aramech*, or *Arcamech*. Schiller, inſtead of *Bootes*, makes the figure of St. Sylveſter; Shickhard, that of Nimrod; and Weigelius, the three Swediſh crowns. Wolf. Lex. Math. p. 266.

BOOTH, *Botha*, denotes a ſtall, or ſtanding in a fair or market: the term is alſo applied to any temporary ſtructure formed of boards and boughs, and deſigned for ſhade and ſhelter.

BOOTY, the moveab'es taken from an enemy in war.

Among the Greeks, the *booty* was divided in common among the army, the general only claiming a larger ſhare. By the military diſcipline of the Romans, ſpoils taken from the enemy belonged to the republic, and particular perſons had no right to them. The generals who piqued themſelves on their probity, carried it wholly to the public treaſury. Sometimes, indeed, they diſtributed it among the ſoldiery, to animate them, and ſerve in lieu of reward. But this diſtribution depended on the generals, who were to conduct themſelves herein with great equity and moderation; otherwiſe it became a crime of peculation to lay hands on the pillage, as regularly belonging only to the ſtate. The conſuls Romulus and Veturius were condemned for having ſold the *booty* taken from the *Æqui*. Liv. lib. iii.

Among the Jews, the *booty* was divided equally between the army and the people, though under the kings a different kind of diſtribution obtained. Numb. xxxi. 27.

Among the Mahometans, two thirds of the ſpoils are allowed to the army; the other third to God, to Mahomet, and his relations, and to the orphans, the poor, and the pilgrims. Calmet. Dict. Bib. tom. i. p. 221.

Among us, formerly, the *booty* was ſometimes divided among the ſoldiery. If the general be in the field, every body takes what he can lay hold on: if the general be abſent, the *booty* is diſtributed among the ſoldiery, two parts being allowed to the cavalry, and one to the infantry. A captain is allowed ten ſhares, a lieutenant ſix, and a cornet four. See PRIZE.

BOQUINII, a ſort of Sacramentarians, who aſſerted that the body of Chriſt was preſent only in the euchariſt to thoſe for whom he died, that is the elect.

They took the denomination from one Boquinus, a Lutheran divine, who was one of the chief of the party.

BORA, in *Natural Hiſtory*, the name of the BUTONITE, in ſome authors; theſe are ſuppoſed by many to be real ſtones, but are truly the teeth of a fiſh.

BORAGO, in *Botany*. See BORRAGE.

BORAK, among *Mahometans*, a fabulous animal, ſuppoſed to be of a middle kind between an aſs and a mule, whereon their prophet was carried in his nocturnal flight from Jeruſalem into the Heavens.

This animal the Arabs called *Al Borah*, q. d. *ſhining*. The night when the journey was performed is called *Lailat al Meeraje*, i. e. *the night of aſcenſion*; and the flight itſelf *Al Miſra*, concerning which, there is a multitude of traditions.

BORAMETZ. See ZOOPHYTE.

BORASSUS, in *Botany*, the name of a genus of plants, deſcribed by Linnæus, but not claſſed, and called in the Hortus Malabaricus, *ampana*, and *carimpana*. The characters are theſe: the male and female flowers grow on ſeparate plants, and give the plant ſuch a different figure, that they are called by the two names before mentioned: the male being the *ampana*, and the female the *carimpana*. The male, or *ampana*, has for the cup of its flower the whole compound *ſpatha*, which is amentaceous and imbricated: the flower is divided into three ſegments, the petals being hollowed, and of an oval figure: the ſtamina are ſix thick filaments, and the *antheræ* are thick and ſtriated: in the female, the cup is the ſame as in the male, but the petals of the flower, which is divided into three parts, in the manner of the male, are very ſmall, of a roundiſh figure, and remain when the piſtil, &c. fall off; the germen of the piſtil is roundiſh; the ſtyles are three in number, and ſmall, and the ſtigmata are ſimple; the fruit is a roundiſh obtuſe berry, of a rigid ſtructure, and containing only one cell; the ſeeds are three in number, and are of an oval compreſſed figure.

BORAX, a ſaline matter, with all the properties of a neutral ſalt, chiefly uſed in ſoldering, and fuſing of metals; ſometimes alſo in medicine, as an emetic, and promoter of delivery.

The word *borax* is formed from the modern Greek, *Βοραξιον*, and this, probably, from the Arabic, *bauracan*, nitre, as being reputed a ſpecies of that ſalt.

The *borax*, now uſed in Europe, is prepared or refined from the TINCAL that is brought from the Eaſt Indies. Dr. Lindolff thinks it might be made in Europe without tincal, by alum, ſoap, and a ſtrong alkaline ley. D. W. Linden thinks that Dr. Lindolff is well acquainted with the nature of *borax*, and that it might be made after his method; but that it would be too expenſive, and not ſuperſede the importation of tincal. He therefore recommends the ſour and acid water that comes out of coal mines, train oil, or any other fiſh oil, or indeed any fat that could be had cheap; the ſtrongeſt alkali of kelp; and all theſe ingredients to be worked in a liquid ſtate, till they are well mixed, and cryſtallize like a ſalt, which, he thinks, would anſwer all the ends of *borax*.

Borax is ſoluble with difficulty, in water, and cryſtallizable as alum, only that it requires more water for its ſolution, and retains leſs of it in its cryſtallizations. It ſuffers no decompoſition by fire; but may be decompoſed by vitriolic, nitrous, and marine acids, which unite with the ſaline alkaline matter that is its baſis, and form with it the ſame neutral ſalts exactly, as thoſe that are produced from the union of theſe acids with the marine alkali; i. e. the vitriolic acid forms Glauber's ſalt, the nitrous acid forms cubic nitre, and the marine acid forms ſea-ſalt. Acids, thus combining with the baſis of *borax*, ſeparate from it a ſaline ſubſtance, ſingular, and little underſtood, called *ſedative* SALT.

This was firſt diſcovered by Homberg, who obtained the ſedative ſalt by diſſolving it with vitriol; but the younger Lemery diſcovered that the ſame ſalt might be alſo obtained by the nitrous and marine acids: theſe chemiſts uſed, for this purpoſe, the embarraſſing and tedious operations of diſtillation and ſublimation: but Mr. Geoffroy has ſhewn the method of obtaining the ſame ſalt from *borax* by acids with evaporation and cryſtallization only, in greater quantity and with leſs trouble. He has alſo demonſtrated that *borax* contains the baſis of ſea-ſalt. M. Baron has ſhewn, that *borax* yields the ſedative ſalt by means of vegetable acids; and that the ſalt is a conſtituent part of the *borax*, and only diſengaged from the alkaline matter with which it is united by the acids, and that it may be reunited with its alkali and again form *borax*. Macquer. Dict. Chem. and Mem. Acad. Sc. An. 1728, 1929, 1732.

Borax is uſually ſuppoſed to have been known to the ancients under the denomination *chryſocolla*: though Mr. Geoffroy gives good reaſons for believing the modern *borax* a different thing from the CHRYSOCOLLA of the ancients.

Pliny divides the ancient *borax* or *chryſocolla* into *natural* and *artificial*: the *natural*, according to him, is only a ſlimy humour running in mines of gold, ſilver, copper, and even lead; which, being congealed and hardened by the winter's cold, becomes of the conſiſtence of pumice ſtone. See BAURAC.

For the *artificial*, it is made by letting water run in the veins of the mine, all the winter long, till June; and letting the mine dry the reſt of the year. So that artificial *borax* is no more than the mineral putrefied and corrupted.

The ſame naturaliſt diſtinguiſhes it into *black*, *green*, *yellow*, and *white*; which aſſume their ſeveral colours, as well as values, from the different mines wherein they are formed. The moderns alſo diſtinguiſh two kinds of *borax*; *natural*, which is crude; and *artificial*, which is purified and refined. Crude, or natural *borax*, *borax non viſtato*, is a mineral ſalt, dug out of the earth in ſeveral parts of Perſia; and found alſo at the bottom of a torrent, running in the mountains of Purbeth, near the frontiers of White Tartary: when taken up, it is expoſed to the air; where it acquires a reddiſh farneſe, which ſerves to ſeed it, and prevent its calcining. When in its perfection, it is ſent to Amadavat, in the territories of the Great Mogul, where the European merchants buy it.

In thoſe places whence it is brought, it is ſaid that there oozes out of the ſides of the hills, containing metals, and particularly copper, a thick turbid water, of a bluiſh grey colour, and of a brackiſh bitter taſte. The courſe of this water is directed into wide and ſhallow pits, lined with a ſtiff clay; here it is left expoſed, in order to evaporate; and the grey fine mud left in its paſſage is daily mixed with it, till it acquires the conſiſtence of a ſoft paſte; and then a large quantity of ſome animal fat melted over the fire is thrown into it, in the middle of a hot day; it is then well ſtirred, and covered with ſticks and branches of trees; and over theſe is laid a cruſt of any common clay. In this ſtate it is left, till it becomes quite dry: it is then ſifted, and what remains in the ſieves is ſent to us under the name of *rough borax*; however, it is not yet certainly known whether this matter be a natural or an artificial ſubſtance, nor whence, nor how it is obtained. Dict. Chem.

There is alſo another kind of natural *borax*, drier, and

of a greenish colour, like English copperas; only differing from the former by its being longer exposed to the air. As for *artificial* or *refined borax*, *borax vitrata*, the Venetians first found out the art of preparing it; or rather, of purifying the natural: it is said to be done by dissolving it in water; then filtrating and cryſtallizing it; using, for that purpoſe, cotton matches; about which the *borax* cryſtallizes like ſugar-candy and cordigriſe on wood.—The Dutch, who are now the only maſters of this manufacture, after refining it, reduce it into little pieces, like tagged points; and it is thus commonly uſed. It is ſaid to be refined by lime-water.

Borax, refined, either in the Dutch or Venetian manner, ſhould be clear and tranſparent, almoſt inſipid to the taſte; and above all, care muſt be taken to have no mixture of Engliſh alum. In this ſtate it conſiſts of large, white, eight-ſided cryſtals, each of which is compoſed of ſmall, ſoft, bitteriſh ſcales.

Borax is of great uſe in collecting the particles of any metal over the fire, and running them into a maſs; and this, with very little diminution of their weight. Dirt or aſhes, though in ever ſo ſmall a quantity, will certainly hinder ſome ſmall particles of gold and ſilver from running together into a maſs over the fire; but if they are ſo diſpoſed by a very ſtrong fire as to meet into a regulus, a great part of the metal will always adhere to the dirt that is thrown away. The leſs perfect metals not only ſuffer the above mentioned accidents, but their ſurfaces being greatly increaſed, copper and iron turn entirely into a *ſcoria*, and are deſtroyed, and lead and tin are ſo in great part. It is therefore very detrimental when theſe baſer metals are mixed in any, even in ever ſo ſmall a quantity, with gold or ſilver; for in the melting, there come upon the ſurfaces light *ſcoriæ*, in which part of the gold or ſilver is retained, as in the pores of a ſponge, and prevented from running into a regulus. To remedy this miſchief, *borax* is added, becauſe as it helps the melting of metals and of all bodies by fire, ſo bringing the baſer maſs into a quick fuſion gives the metals an opportunity to ſink together into a maſs to the bottom, and vitrifies the lighteſt *ſcoriæ*, throwing them off to the ſurface; and the uſe of this ſalt is not reſtrained to gold and ſilver, but takes place as well in regard to iron as copper.

This ſalt alſo cauſes metals to melt in a much leſs fire than they otherwiſe would, and is of very ſingular uſe in preſerving the leſs perfect metals while in fuſion. It flows over them, and covers their ſurface while tortured in the fire, as if it were a kind of very thin glaſs, which defends them againſt the combined force of the fire and air, ſo deſtructive of the imperfect metals.

The aſſayers have a cuſtom of rubbing with *borax* the inſides of veſſels, in which the more precious metals are to be melted, which always fills up the ſmall cavities in their ſides, that might otherwiſe take in a part of the metals. When gold is melted with *borax* alone, it makes it pale; but this is obviated by the adding a ſmall quantity of nitre, or of *ſal ammoniac*. Care muſt be taken, however, not to add both theſe ſalts together, becauſe they would cauſe a detonation. The above mentioned uſe of *borax* has cauſed it to be reckoned, by ſome writers, among the reducing bodies; that is, ſuch bodies as reſtore metals, however deſtroyed, to their priſtine form: but this is an error; for *borax* does not reduce the deſtroyed metals, but only the ſcattered particles of them, while they yet retain their true metallic form.

BORAX is alſo uſed by the dyers to give a gloſs to ſilks; in Italy, by the ladies as a coſmetic; and in making GRAUBER's *ſalt*. See A. D. S. an. 1732. p. 308. H. 52.

A principal uſe of *borax* is to facilitate the ſoldering of metals, by accelerating the fuſion of the ſurfaces of the metals to be joined, and clearing them of any calx or other matter by which they might be prevented from being perfectly applied to each other.

BORAX, in *Medicine*, is uſed to promote delivery. Med. Eſſ. Edinb. vol. i. p. 341.

The uſe of *borax* is that of an inciſive and aperient ſalt, by virtue of which it is effectual againſt diſeaſes which proceed from an inſpiſſation of the humours, and obſtructions thence ariſing. The doſe is a dram.

Its ſtimulus, however, is too weak to be depended upon for preſent relief in a difficult birth, unleſs it be joined with other ingredients of more efficacy. For this reaſon, *borax* is commonly given in powder mixed with ſaffron, myrrh, oil of cinnamon, caſtor, the volatile ſalt of amber, and the like.

Some adviſe a few grains of it to be taken in a poached egg, as a provocative to venery.

Borax calcined is reckoned of ſpecific virtue in fluxes of the belly, or the *lienes*, as being a kind of ſtyptic earth. The doſe is from a ſcruple to half a dram.

Borax is of ſome further uſe in medicine, as it enters the compoſition of the *unguentum citrinum*. It is alſo uſed in the preparation of a *focus* for the ladies.

BORAX, *glaſs of*, is obtained by melting the cryſtals of this ſalt; and it is the only ſalt that aſſumes a vitreous appearance from fire without addition. The glaſs becomes opake, and pulverizes in the air. *Borax* forms with earths different ſorts of glaſs, which are in general very hard and compact, and at firſt extremely tranſparent; but they are liable to become cloudy and opake by being long expoſed to the air.

It is alſo uſed in preparing the imitations of precious ſtones.

BORAX is alſo a name given by ſome to the BUFONITES, or toad-ſtone; a kind of BEZOARD ſaid to be found in the head of the TOAD.

BORBONIA, in *Botany*, a genus of the *diadelphia decandria* claſs of plants. The characters are theſe: the flower hath five leaves, and is of the butterfly ſhape; the ſtandard is obtuſe and reflexed; the wings are heart-ſhaped, and ſhorter than the ſtandard: the keel hath two obtuſe lunulated leaves; it hath nine ſtamina joined in a cylinder, and one upper, ſtanding ſingle; in the centre is ſituated a germen, which afterwards becomes a round-pointed pod, terminated with a ſpine, having one cell including a kidney-ſhaped ſeed. There are three ſpecies, which are natives of the Cape of Good Hope; and as they do not perfect their ſeeds in this country, are with difficulty propagated here. Hiunæus enumerates ſeven ſpecies.

BORBONIA *Aſtra*, a denomination formerly given by ſome writers to the *four* FACULÆ, on a ſuppoſition that they were ſatellites, or ſecondary planets.

Promundus mentions a Frenchman, named Tarde, who had written a book expreſs under the title ASTRA BORBONIA. Phil. Tranſ. N° 330. p. 287.

BORBORITÆ, or BORBORIANI, a branch of the ancient Gnoſtics, in the 11th century, who, to the other errors of that ſect, added this, of denying a future judgment. Their name is derived from *Βορβορος*, *filth*, on account, as it is ſaid, of a cuſtom they had of beſmearing their faces and bodies with it. Epiphan. Hereſ. 25, an. 26. Auguſt. de Hereſ. c. 5.

Some alſo have given this appellation, by way of reproach, to the MENNONITES.

BORBOTHA, in *Ichthyology*, a name given by ſome authors to the MUSTELA *fluviatilis*, or eel-pout. See GADUS.

BORDAGE, the condition or ſervice of the *bordarii*. Du-Cange. Cloſſ. Lat.

BORDARII, often mentioned in the Domeſday inquiſition, were diſtinct from the *ſervi* and *villani*, and ſeem to be thoſe of a leſs ſervile condition, who had a *board* or cottage, with a ſmall parcel of land, allowed to them, on condition they ſhould ſupply the lord with poultry and eggs, and other ſmall proviſions for his board and entertainment. Though, according to Spelman, the *bordarii* were inferior to *villani*, as being limited to a ſmall number of acres.

BORDARII alſo denotes ſervants, or workmen, employed about the houſe in the neceſſary offices of fetching wood, drawing water, grinding corn, cleaning yards, and the like: by which they ſtand diſtinguiſhed from VILLANI, employed in the tillage of lands. See VILLAIN.

BORDAS, a ſmall narrow ſtuff, which is manufactured in ſome parts of Egypt, particularly at Cairo, Alexandria, and Damiata.

BORDER, in *Gardening*, denotes a narrow bed adjoining to a walk, ſerving to bound and incloſe the parterres, and prevent their being injured by the feet.

The uſe of *borders* is to incloſe parterres. They ought always to be laid with a riſing in the middle by which they will have a better effect to the eye than if quite flat, and their breadth ſhould be between four and ſix feet.

Some are continued about parterres, and are wrought with a ſharp riſing in the middle, and planted with low ſhrubs and flowers. Others have only a verge of graſs in the middle, being edged with two ſmall paths, raked ſmooth and ſanded; theſe are ſometimes adorned with vaſes of flowers, of large growth, or flowering ſhrubs, along the middle verge of graſs. Others are quite plain, and are only ſanded, as in the parterres of orangeries; and are filled with caſes ranged with regular order along thoſe *borders*, which are edged with box on the ſides next the walks, and on the other with verges, and graſs-work next the parterre. Sometimes a yew is planted between each caſe, which makes the *border* appear richer, and the parterres handſomer during the winter ſeaſon.

The floriſts make *borders* in any part of their gardens, which they uſually edge with green boards; and this gives them a very neat look: in large parterres, all that is to be expected, is to ſtock them well with flowers, that will ſucceed one another during the ſummer ſeaſon. Miller.

BORDER, in *Heraldry*. See BORDURE.

BORDERS,

BORDERS, among *Florists*, are such leaves as stand about the middle thrum of a FLOWER.

BORD-FREE. See FREE.

BORD-HALFPENNY, or BROD-HALFPENNY, money paid in markets, and fairs, for setting up boards, tables, and stalls, for the sale of wares.

BORD-LANDS, the demesnes anciently kept by the lords in their hands for the maintenance of their *board* or table. This was anciently called *bordage*.

BORD-SERVICE, called also BORDAGE, the tenure of lands, on condition of furnishing provision for the lord's board or table.

Some lands in the manor of Fulham, and elsewhere, are still held of the bishop of London, by the service, that the tenants pay six pence per acre in lieu of finding provision for their lord's table.

BORDURE, or BORDER, in *Heraldry*, a kind of addition on the limb of a shield, in form of a hem, or girdle, encompassing it all round, and parallel to the boundary of the escutcheon, and serving as a DIFFERENCE. See *Tab. Herald. fig.* 10.

The *bordure* must be about one fifth part of the breadth of the field.

Simple bordure is that which is of the same colour or metal throughout; and is the first addition of younger brothers. There are others, *compounded*, *counterved*, *ingrailed*, *indented*, and *charged* with other pieces; which make different additions for younger brothers, in several degrees.

If the line which constitutes the *bordure* be straight, and the *bordure* plain, as they call it in blazoning, the colour of the *bordure* alone is named: as, he beareth gules, a *bordure* or. If a *bordure* be charged with any parts of plants or flowers, they say, *verdy* of trefoils, or of such vegetables and flowers, whatever they be. If it consists of ermines, vairy, or any of the furs, the term is, *per-fleuy* of ermines: if the borders be charged with martlets, the word is, *charged* with an *enaluron* of martlets: *enarmy* is used for beasts; and *entoyre* for things inanimate. A *bordure* is never of metal upon metal, and seldom of colour upon colour; but of the same tincture with the principal bearing or charge.

BORE. The *bore* of a gun or piece of ordnance is used for the chase or barrel; though it seems rather to denote the diameter of the chase. See CALIBER, and CANNON.

BORE, *square*, in *Smithery*, denotes a square steel point, or shank well tempered, fitted in a square socket in an iron wimble, serving to widen holes, and make them truly round and smooth within.

BOREA, an ancient name for a species of JASPER, of a bluish green colour.

BOREAL *Signs*, *Ephemerides*, the first six signs of the zodiac, or those on the northern side of the equinoctial.

BOREALIS, *aurora*. See AURORA *Borealis*.

BOREAS, a Greek name now in popular use, for the north wind. Etymologists usually derive the word from *Βοω*, *clamor*, *misse*; or from *Βορα*, *food*, because it creates an appetite.

Perron observes, that anciently, and with much greater propriety, *Boreas* signified the north-east wind, blowing at the time of the summer solstice: he adds, that the word comes from the Celtic *bore*, *morning*; because their principal light, in that season, came from that quarter, whence also the winds then usually blew.

The Greeks erected an altar to *Boreas*. He is represented on the temple at Athens with his robe before his mouth, as if he felt the cold of the climate over which he presides, agreeably to the description of Ovid, who calls him *gelidus tyrannus*, *the shivering tyrant*. Met. vi. ver. 711. But he is usually described by the Roman poets as violent and impetuous. Ibid. ver. 686 ver. 707.

The qualities allowed by naturalists to this wind are coldness and dryness.

BOREASMI, were feasts instituted at Athens in honour of BOREAS.

BORECH, in *Natural History*, a kind of salt brought from Persia.

BORECOLE, in *Botany*, a species of the BRASSICA, or cabbage. Of this there are three sorts; the common, the green, and the Siberian or curled colewort, called by some Scotch kale. The two former are sown about the middle of April, and are fit for transplanting about two months after. The latter kind may be sown in the middle of July, and will be fit for use from Christmas till April.

Borecole has lately been found to be an excellent food for cattle. See CABBAGE.

BOREE, or BOURRE, a kind of dance, composed of three steps joined together by two motions; and begun with a crotchet, rising. The first couplet contains twice four measures, and the second twice eight. It consists of a balance-step and a coupee: it is supposed to come from Auvergne; others say from Biscay.

BORING, the act of perforating a solid body, or making a hole throughout its whole length or thickness.

Surgeons speak of *boring* the bones of the skull, properly called TREPANNING.

BORING *birch*, and other trees, is practised in the spring for their juice, called also TAPPING and *bleeding*. Phil. Transf. N° 44. p. 880.

BORING, in *Farriery*, an operation sometimes practised for the cure of horses whose shoulders are wrenched. The method is thus: they cut a hole through the skin in the middle of the shoulder, and, with the shank of a tobacco-pipe, blow it as a butcher does a shoulder of veal; then they run a cold flat iron, like a horseman's sword-blade, eight or ten inches up, between the shoulder blade and the ribs, which they call *boring*; after that they burn him round the shoulder with a hot iron. This, says Bartlet, is an absurd and useless as well as a cruel practice.

BORING *of cannon*, in *Foundery*. See CANNON.

BORING *of masts*, from top to bottom, is proposed by Dr. Hooke as a means of strengthening and preserving them; as this would make them dry and harden the better, and prevent their cleaving and cracking. For want of this, the outside drying, when the inside does not, the former shrinks faster than the latter; the consequence of which is prejudicial.

BORING, in *Mineralogy*, a method of piercing the earth by a set of scooping irons, made with joints to as to be lengthened at pleasure. The skilful mineralist will be able to guess where a vein of ore may lie, though there are none of the common outward signs of it upon the surface of the earth; and in this case he has recourse to *boring*, the scooping irons are drawn back at proper times, and the samples of earth and mineral matter they bring up, are examined; and hence it is known whether it will be worth while or not to open a mine in the place.

BORING *of water-pipes*. The method of *boring* alder poles for water-pipes is thus; being furnished with poles of a fit size, hooks, or trestles, are procured of a due height, both to lay the poles, and rest the augre on in *boring*; they also set up a lath, whereby to turn the lesser ends of the poles, and adapt them to the cavities of the greater ends of others, in order to make the joint shut each pair of poles together. The outer or concave part is called the female, and the other, or inner, the male part of the joint. In turning the male part, they make a channel or small groove in it, at a proper distance from the end; and, in the female part, bore a small hole to fit over this channel; they then bore through their poles, flicking up great nails at each end, to guide them right; but they commonly bore a pole at both ends; so that if it be crooked one way, they can nevertheless bore it through, and not spoil it. Neve Build. Dict. in voc. Alder.

This operation is now performed with a horse-mill, as at Dorlet Stairs for the New River company.

Belidor, in his Hydraulics, has described a machine, in which a water-wheel is made use of both to turn the augre, and to bring forward the carriage on which the pipe to be *bored* rests. This machine (See *Tab* II. *Mechanics*, *fig.* 67.) is put into motion by the water-wheel A, in the axis of which there is a cog-wheel B, that turns the lanterns C and D; the trundles of D turn two small wheels E and F; the first of which is vertical and turns the augre; the other is horizontal and moves the carriage by means of the two arms H and I. H draws the wheel G towards F, and I pushes it in a contrary direction; and these combined actions cause the carriage to advance towards F, and the augre to bore the pipe. The augre being about 12 feet long and proportionably heavy is supported by the pieces L, L; and they are prepared so as to give no obstruction in the following manner: C, C, *fig.* 68. are two planks of wood which are fastened to the timber-work of the mill; these encompass another plank hung by a cord, at the bottom of which are fixed the pieces *b*, *b*, with joints at *c* and *c*: and, that they may not move out of the vertical plane, they are joined by tenons to the plank *a*, in which they may work freely: on the side of one of these pieces is fixed a spring *g*, in order to hinder them from uniting, by forcing them into a mortise in *d*; in this situation the two pieces are penetrated with a hole through which the augre is to pass. The cord is fastened to the plank *a*, as in *fig.* 69. and goes over the two pullies *b*, *b*: at the other end of the cord there is hung a weight *e*, resting on the piece N, which is supported on one end by the piece O, and fixed at the other by a joint to the lever K, which has its centre of motion in the piece of wood H; so that, leaning against the extremity M of the lever, N quits the support O, the weight sinks down, and draws up the piece *a*: then the sides *b*, *b*, *fig.* 68. quit the mortise *d*, and the spring *g* separates them: and thus the

supporter

supporter does not in the least hinder the motion of the augre.

BORITH, in the Holy Scriptures, an herb thought to be the *kali* or saltwort; of the ashes of which some make soap, and a very good ley to wash linen with. It is mentioned in Jeremiah, chap. ii. ver. 22.

BOROLYBICUS, the wind which blows in the middle between the north and west points; called also the north-west wind.

BOROUGH, Borough, Borow, or Burgh, is frequently used for a town, or corporation which is not a city. *Borough*, in its original Saxon *burg*, or *burgh*, is by some supposed to have been primarily meant of a tything or company consisting of ten families, who were bound and combined together as each others pledges.

Afterwards, as Verstegan informs us, *borough* came to signify a town that had something of a wall or inclosure about it: so that all places which among our ancestors had the denomination *borough*, were one way or other fenced or fortified.

But, in later times, the same appellation was also bestowed on several of the *villæ ingenuorum*, or country towns of more than ordinary note, though not walled.

The ancient Saxons, according to Spelman, gave the name *burgh* to those called, in other countries, cities. But divers canons being made for removing the episcopal sees from villages and small towns to the chief cities, the name CITY became attributed to episcopal towns, and that of *borough* retained to all the rest; though these too had the appearance of cities, as being governed by their mayors, and having laws of their own making, and sending representatives to parliament, and being fortified with a wall and castle, and the like.

Borough, or *burgh*, is now particularly appropriated to such towns, and villages, as send burgesses or representatives to parliament.

Boroughs are equally such, whether they be incorporate or not; there being great numbers of our English *boroughs* not incorporated; and, on the contrary, several corporations that are not *boroughs*; e. gr. Kingston, Deal, Kendal, &c.

Boroughs are distinguished into those by *charter*, or *prescription*; and those by *prescription*, or *custom*.

The number of *boroughs* in England and Wales, including cities and cinque ports, which elect members, is 215; some whereof send one, some two representatives.

Boroughs, *Royal*, in Scotland, are corporations made for the advantage of trade, by charters granted by several of their kings; having the privilege of sending commissioners to represent them in parliament, besides other peculiar privileges.

These form a body of themselves, and send commissioners, each, to an annual convention at Edinburgh, to consult the benefit of trade, and the general interest of the *boroughs*.

According to Chamberlayne, they have the sole power of trade and merchandize, exclusive of all others, a power of holding courts, exercising the JURISDICTION of sheriffs, making bye laws, &c.

The company of merchants in a *royal borough* make what is called a GUILD; the chief of which is a dean of GUILD, who is next magistrate to the bailiff.

The *royal boroughs* are not only so many distinct corporations, but do also constitute one entire body, governed by, and accountable to one general court, anciently called *the court of four boroughs*, held yearly to treat and determine concerning matters relating to the common advantage of all *boroughs*.

The *four boroughs* which composed this court were, Edinburgh, Stirling, Roxburgh, and Berwick; which two last falling into the hands of the English, Linlithgow and Lanerk were put in their places; with a saving to the former, whenever they should return to their allegiance.

But this court not being sufficient to answer the necessities of the *royal boroughs*, they were all empowered, under James III. in 1487, to send commissioners to a yearly convention of their own, which was then appointed to be held at Inverkeithing, and is now held at Edinburgh, under the denomination of the *convention of boroughs*, vested with great power.

Borough-*Courts* are certain courts held in *boroughs*, by prescription, charter, or act of parliament: such are the sheriff's court, and court of hustings in London.

Borough-*English*, denotes a customary descent of lands or tenements in certain places, whereby they come to the youngest, instead of the eldest son; or if the owner hath no issue, to the youngest, instead of the eldest brother; because the youngest is supposed, in law, the least able to shift for himself. 1 Inst. 140. b. And in support of this reason, other usages in favour of the youngest are alleged, as that in Kent, where the lands being equally divided among all the sons, the youngest is to have the privilege of attre or hearth in the mansion-house, in his share, as being supposed the tenderest, and more in need of warming. Others, notwithstanding, suspect a different reason for the rise of *Borough-English*, viz. that the places, where this custom now obtains, were anciently liable to that custom granted the lords of manors in Scotland by king Eugenius, who had the privilege of enjoying the first night of their tenants brides; so that the eldest son being presumed to be the lord's, they usually settled their lands on the youngest son, whom they thought their own; which, being practised a long time, grew at length into a custom. The custom, however, never obtained in England, though it did in Scotland till it was abolished by Malcolm III. Perhaps, says judge Blackstone, the origin of this practice may be illustrated by that of the Tartars, mentioned by Du Halde, among whom the same custom of descent to the youngest son prevails. As the nation is composed of shepherds and herdsmen, the elder sons migrate from their father with an allotment of cattle, to seek a new habitation. The youngest son, continuing latest with his father, is naturally the heir of his house. This custom of migrating obtained in many other northern nations; and *Borough-English* may be a remnant of that pastoral state of our British and German ancestors, which Cæsar and Tacitus describe. Blakstone's Comm. vol. ii. p. 83, 84.

Borough-English obtains only in some ancient boroughs and copy-hold manors.

Borough-*Head*, or *Head*-Borough, is the chief man of the *decenna* or *hundred*; chosen by the rest to speak and act in their behalf.

In many parishes, *Head-borough* also signifies a kind of head-CONSTABLE, where there are several chosen as his assistants, to serve warrants, &c.

Borough-*Holder*, in *Ancient Law Writers*, the head-man or chief pledge of a tithing, chosen by the rest to speak and act in their common behalf.

The word is formed from *boro-ealder*, as being the senior man of the borough or tithing.

Borough-holders are the same with what are otherwise written, *borsholders*, *burgholders*, *borsholders*, *borow-holders*, *borgholders*, *burghesaldi*, *burgesaldii*; of later days, *borough-heads*, and HEAD-BOROUGHS.

Borough, or *Burge*, denotes a pledge or security for another's keeping the peace, and conforming to the laws.

The word is Saxon, and is sometimes also written *borough*; in Latin writers, *burgha* and *burgho*.

Borough *breach*, *Burghi fractura*, in *Ancient Law-Writers*, denotes a breaking of the pledge or security given by the members of tithings for the behaviour of each other.

This is the same with what is otherwise called *borg-brege*, *burgh-brege*, *burg-breche*, and *burghi-fractura*.

Boroughs, *Laws*, or *Borrows*, in the law of Scotland, the same with what in England is called *binding to the* PEACE. In case of a contravention of *law-boroughs*, the surety or cautioner is equally liable with the principal for the penalty specified therein; the one half to the king, and the other to the complainer.

BOROW-*holes*, the holes, in the remotest corner of which the female rabbits depolite their young, to prevent the males from eating them.

BORRAGE, *borrago*, in *Botany*, a genus of the *pentandria monogynia* class of plants. Its characters are these: the flower is of one leaf, having a short tube, and spread wide open above; the chaps of the flower are crowned by five prominences; it hath five stamina, which are joined together; and four germina situated in the centre, which afterward become so many roundish rough seeds, inserted in the cavities of the receptacle. There are four species; the first of which is the common *borrage*, whose flowers are used in medicine, and the herb for cool tankards in summer. If the seeds are permitted to scatter, plants will come up in plenty.

The common *borrage* has long held its rank as a cordial of the first class, though perhaps it would not be easy to say on what foundation. Its flowers are of the number of the four cordial ones of the shops, and it has been recommended as a medicine of great efficacy in malignant and pestilential fevers, and against the bites of poisonous animals. By the experiments of M. Margraaf, Mem. de Berlin, 1747, it appears that the juice affords a true nitre.

BORRELISTS, a sect or sort of Anabaptists in Holland, who allow of no use of sacraments, public prayers, or other external worship, nor of any human gloss or explication of Scripture; but profess to adhere to the faith and manners of the New Testament times in all their simplicity.

They took their denomination from their founder, *Borrel*, a person of great learning in the Hebrew, Greek, and

and Latin tongues, and brother of M. Bortel, ambaſſador of the States to the French king.

BORSELLA, in the *Gloſs Works*, an inſtrument wherewith they extend or contract the glaſſes at pleaſure; alſo ſmooth and levigate them.

BOS, the *ox*, in the Linnæan ſyſtem of *Zoology*, a genus of quadrupeds of the order of *pecora*; the characters of which are, that the horns are hollow and turned forward, bent like crefcents, and ſmooth on the ſurface; the fore-teeth are eight in number, and there are no canine teeth. Of this genus, beſide the common tame one, there are four ſorts naturally wild; the BISON, BONASUS, BUBALUS, and URUS.

Bos *grunniens*, or *grunting ox*, ſo called becauſe it grunts like a hog, is a ſpecies of the ox, with a mane on the neck, and the whole body covered with long hair, a hunched back, and tail like that of a horſe; it is found in the country of the Calmucs. Pennant.

Bos *Indicus*, or *Indian ox*, is another ſpecies, with a large lump on the ſhoulders, and ſhort horns, bending cloſe to the neck in ſome of the ſpecies, and almoſt upright, bending a little forward in others. In Surat there is a ſmall kind, not bigger than a great dog, with a fierce look, which is uſed for drawing children in ſmall carts. See *Tab. Quadrupeds. fig.* 6.

Bos, in *Antiquity*, was peculiarly uſed for an ancient Greek ſilver coin, which was *didrachmus*, or equivalent to two drachms.

BOSA, in the *Egyptian Medicine*, denoted a maſs prepared of the flower of the lolium, hemp-ſeed, and water; of the ſame inebriating virtue with the *aſſis*, or opium.

BOSCAGE, denotes a place ſet with trees, a grove, or thicket.

BOSCAGE, *boſcagium*, in a *Law ſenſe*, ſignifies *maſt*, or ſuch ſuſtenance as woods and trees yield to cattle.

BOSCAGE, among *Painters*, is ſaid to denote a picture or landſcape repreſenting much wood and trees.

BOSCAGE ſometimes denoted a tax or duty laid on wood brought into the city.

BOSCHAS, in *Zoology*, the name of our common wild DUCK, called alſo by ſome, *anas torquata minor*, or the ſmaller ring DUCK.

BOSCO. See ATTACHIAMENTA *de boſco & ſpinis*.

BOSCOI, or BOSCI, in *Eccleſiaſtical Hiſtory*, denotes a ſpecies or tribe of monks in Paleſtine, who fed on graſs like the beaſts of the field.

The word is Greek, βοσκοι, q. d. *grazers*; formed from βοσκω, *paſco*, *I feed*.

The *Boſcoi* are ranked among the number of Adamites, not ſo much on account of their habit as food. They took no care about proviſion; but when eating-time came, or any of them were hungry, went into the fields, with each his knife in his hand, and gathered and eat what he could find.

BOSCUS, in *Ancient Law-Writers*, ſignifies a wood of any kind. The word is alſo written corruptly *boſcus*, *boſcaria* and *boſcale*. It is formed from the Greek, βοσκω, *I feed*, as ſerving for paſture. In which ſenſe, *boſcus* amounts to the ſame with the Italian *boſco*, and French *bois*. *Boſcus* is divided into high wood, or timber, called alſo *ſaltus*, and *haut-bois*; and *copice*, or underwood, *ſub-boſcus*, or *ſub-bois*.

BOSEA, in *Botany*, or *ſerva mora*, a genus of the *pentandria digynia* claſs of plants; commonly called the *golden red-tree*. Its characters are theſe: the flower hath no petals, but five ſtamina, which are as long as the empalement; in the centre is ſituated an oval, oblong, pointed germen, which afterward becomes a globular berry with one cell, including one pointed ſeed. We have but one ſort of this plant, which is a native of the Canary iſlands. They have not been known to flower in this country, nor will they endure the open air, through the winter.

BOSPHORICUM *Marmor*, a name given by the ancients to a ſpecies of marble, of a yellowiſh white colour, with beautiful veins of a ſomewhat darker hue; called alſo, from its tranſparency, *phengites*.

BOSPHORUS, or BOSPORUS, in *Geography*, a long and narrow ſea which it is ſuppoſed a bullock may ſwim over; in a more general ſenſe, a long narrow ſea running in between two lands, or ſeparating two continents, and by which two ſeas, or a gulf and a ſea, are made to communicate with each other.

In which ſenſe, *boſphorus* amounts to the ſame with what we otherwiſe call an arm of the ſea, channel, or ſtrait; the Italians, *faro*; the Latins, *fretum*; and the French, *pas*, *manche*.

The word is Greek, βοσπορος, formed from βος, *bos*, and πορος, *paſſage*.

The name *boſphorus* is chiefly confined to two ſtreights, in the Mediterranean ſea, viz the *Boſphorus of Thrace*, commonly called the *Streights of Conſtantinople*, or *Channel of the Black Sea*; and the *Cimmerian* or *Scythian Boſphorus*, ſo called, it ſeems, from its reſemblance to the Thracian; now more commonly the *Streights of Kapha*, or *Kiderkeri*, from two cities ſtanding on it.

The origin of the name is better agreed on than the reaſon why it was firſt given to the Thracian *Boſphorus*. Nymphius tells us, on the authority of Accarion, that the Phrygians, deſiring to paſs the Thracian ſtreight, built a veſſel, on whoſe prow was the figure of a bullock; and which was hence called βους, *bullock*; and ſerved them for a ferry-boat.—Dionyſius, *Val.* Flaccus, Callimachus, Apollodorus, Marcellinus, &c. ſay, that Io, being tranſformed into a cow by Juno, paſſed this ſtreight ſwimming, which hence was called *Boſphorus*.—Arrian tells us, that the Phrygians were enjoined by the oracle, to follow the route which a bullock ſhould mark out to them; and that upon ſtirring one up, it jumped into the ſea to avoid their purſuit, and ſwam over this ſtreight. Others ſay, that an ox, tormented by a gadfly, threw itſelf in and ſwam over: and others, that anciently the inhabitants of theſe coaſts, when they would paſs over, joined little boats together, and had them drawn over by bullocks, &c.

Some late writers rather ſuppoſe *Boſphorus* to have been ſo called, becauſe here was anciently the beaſt-market. Tournef. Voyag. tom. ii. let. 12. and let. 14.

BOSQUETS, in *Gardening*, a term for groves included in gardens.

The word is derived from the Italian, *boſchetto*, which is a diminutive of *boſco*, *a wood* or *grove*.

Theſe are ſmall compartments of gardens, which are formed of trees, ſhrubs, and tall flowering plants, ſet in quarters, and either placed regularly in rows, or diſpoſed in a more irregular manner. Theſe quarters ſhould be ſurrounded with ever-green hedges, and the entrances made into porticos with yews. In the inſide there muſt be ſome walks, either ſtraight or winding. Theſe, if the quarters are large, ſhould be eight feet wide, and laid with turf, and kept well mowed and rolled. The hedges of theſe quarters ſhould be kept low; that the heads of the ſhrubs may be ſeen from the outſide. There is a great deal of fancy to be employed in the planting of theſe *boſquets*, which ſhould be ſhewed in ſetting to view at once ſuch ſhrubs as have the moſt differently ſhaped, and differently coloured leaves that may be; as the long, the round and the jagged, and the various ſhades of deep and lighter green, and the mealy or hoary white leaves. Beſides, there is alſo a very great variety of beautiful fruits, which theſe ſhrubs produce in autumn, which give a very elegant and pleaſant proſpect even after the leaves are fallen. The ſhrubs which produce theſe, are, 1. The euonymus, or ſpindle-tree. 2. The opulus, or water-elder. 3. The cock-ſpur hawthorn. And, 4. The flowering-aſh, as it is called; beſides a great number of others. But it is a good rule in this kind of plantation, never to mix the ever-green trees with thoſe which loſe their leaves in winter. Theſe *boſquets* are only fit for large gardens. Miller.

Boſquets are generally laid out into ſome regular figure, as a circle, ſquare, polygon, or the like, and make a conſiderable article in the decoration of a fine GARDEN.

BOSS, or BOSSE, in *Sculpture*, ſignifies RELIEVO, or prominency.

The word is French, *boſſe*, which ſignifies the ſame; whence alſo to emboſs. See EMBOSSING.

BOSS *of a buckler*, among the *Ancients*, the *umbo*, or ομφαλος, which juts out in the middle.

BOSS, among *Bricklayers*, denotes a wooden utenſil wherein the labourers put the mortar to be uſed in tiling. It has an iron hook, whereby it may be hung on the laths, or on a ladder.

BOSSAGE, a projecting ſtone in *Architecture*, laid rough in building, to be afterwards carved into mouldings, capitals, arms, or the like.

BOSSAGES alſo denote ſtones which ſeem to advance beyond the naked of a building, by reaſon of indentures, or channels left in the joinings; uſed chiefly in the corners of buildings, and thence called *ruſtic quoins*.

The cavities or indentures are ſometimes round, ſometimes ſquare, ſometimes chamfrained, or bevelled, ſometimes in the diamond form: ſometimes they are incloſed with a cavetto, ſometimes with a liſtel.

BOSTANGI-*Baſchi*, in the *Turkiſh Affairs*, an officer in the grand ſignior's houſhold, who has the ſuperintendance of all the gardens, water-works, and houſes of pleaſure, with the workmen employed therein. The poſt of *boſtangi-baſchi*, or chief gardener, is one of the moſt conſiderable in the Turkiſh court. He has the emperor's ear, and on that account, is much courted by all who have buſineſs depending at the Porte: he is governor of all the villages on the channel of the Black Sea and has the command of above ten thouſand *boſtangis*, or gardeners, in the ſeraglio, and other places about Conſtantinople. But that which gives him the

greateſt eclat, is the honour he has of holding the rudder whenever the ſultan takes his pleaſure on the water.

BOSTRYCHITES *lapis*, derived from βοστρυχίζω. *I ſold the hair in braids*, in *Natural Hiſtory*, a name given by ſome to a ſtone ſuppoſed to contain women's hair included in it; ſome have underſtood by it, thoſe pieces of cryſtal which have accidental foulneſſes in them, reſembling hair, or pieces of hair, cauſed by earthy or metalline matter; others call by this name thoſe German agates, which contain either the conſervæ or other capillary water-plants, or other ſouleeſſes running into their form: the firſt of theſe very frequently have the conſerve of a great length, and variouſly undulated and turned about, ſo as very elegantly to repreſent a looſely flowing lock of hair.

BOSTRYCHITES is alſo a name given by ſome authors to a ſpecies of pyrites, whoſe irradiations were ſuppoſed to imitate hair.

BOTARGOTA, in *Natural Hiſtory*, a name given by ſome writers, to that ſpecies of ſea-ſwallow, whoſe neſts are ſo famous for ſoups in China, and in ſome parts of Europe. The neſts are ſuppoſed to be reſtorative, and greatly provocative to venery; for which laſt quality it is that the eaſtern nations in general are ſo fond of them.

BOTAGIUM, in *Middle Age Writers*, a fee paid for wine ſold in *botæ*, or *butts*.

Wine that taſtes of the caſk is called *vinum botatum*.

BOTALE *foramen*, in *Anatomy*, an aperture in the heart of a FOETUS, whereby the blood is enabled to circulate, without going into the lungs, or the left ventricle of the heart. See FOETUS, CIRCULATION, and HEART.

BOTANIST, a perſon who underſtands the nature, hiſtory and diſtinction of vegetables, on ſettled and certain principles, and can call every plant by a diſtinct, proper, and intelligible name. Linnæi Fundam. Botan. p. i. See BOTANY.

BOTANOPHILI, among the writers on the ſubject of vegetables, thoſe who have treated of them, not as botaniſts, on their natural and eſtabliſhed diſtinctions, but in regard to different, operations as gardeners, phyſicians, &c.

BOTANY, the ſcience of plants; or that part of phyſiology which treats of plants, their ſeveral kinds, forms, virtues, and uſes.

The word comes from βοτανη, *herb*; and that from βοσκω, of βοω, *I feed*; becauſe moſt animals feed on herbs. See PHYTOLOGY, &c.

Authors are divided about the preciſe object and extent of *Botany*, which ſome will have to include the whole province of plants, in all their ſtates, uſes, and relations; others reſtrain it to the knowledge of the claſſes, genera, ſpecies, external figures, and deſcription of plants, excluſive of their origin and generation, which belong to *Phyſiology*; of their culture and propagation, which belong to *Gardening* and *Agriculture*; and of their virtues, which are objects of conſideration in *Phyſic* and *Pharmacy*.

This ſcience was cultivated in ſome degree among the ancients; but chiefly with reſpect to its medical application and uſe. However, as they adopted no regular ſyſtem of diſtribution and arrangement, they made a ſlow progreſs, and the knowledge they gained was ſoon and eaſily loſt. If we except Solomon, of whom we read that *he ſpake of trees from the cedar-tree that is in Lebanon, even unto the hyſſop that ſpringeth out of the wall*, 1 Kings, chap. iv. ver. 33. and begin only with thoſe writers on the ſubject of *botany*, any of whoſe writings now remain; the firſt, in order of time, is Hippocrates, who flouriſhed in the fifth century before Chriſt, and who has enumerated about 250 different plants. Ariſtotle alſo may be mentioned, though there is reaſon to doubt whether the books concerning the generation of plants, which ſome have aſcribed to him, are his, or a collection by ſome late writer from the works of Theophraſtus. Theophraſtus, the diſciple of Ariſtotle, is therefore properly the next to Hippocrates, on the genuineneſs of whoſe writings we can depend; he flouriſhed about 300 years before Chriſt; there remain nine books of his on the hiſtory of plants, and ſix on the cauſes of them: he reckons about 500 plants.

Among the Romans, Cato, Varro, Virgil, and Columella might be mentioned; but the moſt eminent were Dioſcorides, who lived under Anthony and Cleopatra; he is called the prince of botaniſts, and yet the number of plants which he has deſcribed amount only to 600; and C. Plinius Secundus, under Veſpaſian and Titus, who enumerates more than 1000 plants. Galen, of Pergama in Aſia, who lived at Rome about the year 133, though he did not write profeſſedly on *botany*, has introduced many incidental obſervations on this ſubject; and other phyſicians proſecuted this ſtudy, as far as it was immediately connected with that of their profeſſion, from the ſecond to the ſixth century of the Chriſtian æra; ſuch as Oribaſius, Aetius, Trallianus, and P. Ægineta. The principal Arabian *botaniſts*, who muſtly with the ſame views cultivated this ſcience, from the eighth to the twelfth century, were Meſue, Serapio, Razis, Avicenna, and Averrhoes. The ſucceeding period, till the fifteenth century, was very unfavourable to every kind of ſcience; however, in this century, and eſpecially in the next, *botany* was induſtriouſly reviſed by means of numerous and laboured commentaries on Theophraſtus, Dioſcorides, Pliny, Cato, Avicenna, and Meſue: and the principal perſons who were employed in this way were Leonicenus, Brafavolus, Cordus, Fuchſius, Bauæus, Matthiolus, and Dalechampius. Turner, Gerard, and Tradeſcant were the firſt *botaniſts* in England; they applied themſelves to the culture of medical and rare plants towards the cloſe of the ſixteenth century. It was after this period that *botany* began to acquire a conſiderable degree of importance and reputation; and that ingenuity and induſtry were employed in collecting and claſſing new ſpecies of plants. It would be tedious to much as to account all the names of thoſe who are diſtinguiſhed in this reſpect; let it ſuffice to mention Geſner, Doſoæus, Cæſalpinus, Proſper Alpinus, the two Bauhins, Columna, Parkinſon, Plukenet, Morriſon, Malpighi, Grew, Hermannus, Ray, Magnol, Tournefort, Sloan, Sherrard, Linnæus, and Miller. In a word, *botany* is arrived at a degree of perfection among the moderns, to which the ancients were ſtrangers; not only as to the method of claſſing, diſtributing, and characteriſing plants, but alſo as to the *copia* or number of plants known and deſcribed. The numerous travels and voyages of *botaniſts* have very much contributed to the extent of this ſcience.

This article will terminate with a brief account of the principal ſyſtems, that have been eſtabliſhed by *botanical writers*. Nothing has been more conducive to the ſucceſsful cultivation of this ſcience, than a clear and diſtinct method of arrangement, whereby the ſeveral claſſes, genera, ſpecies, and varieties, may be readily diſtinguiſhed; and it is eaſy to foreſee, that in proportion as the Linnæan ſyſtem prevails, and different writers agree in adopting the ſame language, the ſtudy of *botany* muſt be greatly facilitated and promoted. Linnæus diſtributes the ſyſtems which have already obtained into *heterodox* and *orthodox*. The former are founded in an alphabetical arrangement; in the ſtructure of the root; in the different ſpecies of flowers; in the *habit* of plants; their time of flowering; their native ſoil and climate; their medicinal uſe, and the order of the diſpenſaries. The *orthodox* ſyſtems, as he calls them, are either univerſal or partial; ſuch as belong to plants in general, or ſuch as are accommodated to the nomenclature and arrangement of particular kinds. The univerſal ſyſtems are four; though, by various modifications, this number has been conſiderably augmented. Linnæus has diſtinguiſhed the ſeveral patrons of them under the claſſes and appellations of *Fruſtiſtæ*, *Corolliſtæ*, *Calycifiæ*, and *Sexualiſtæ*. The *Fruſtiſtæ* are ſuch as form the ſeveral claſſes of vegetables from the *pericarpium*, the *ſeed*, and the *receptacle*; of this number are Cæſalpinus, Morriſon, Ray, Knaut, Hermann, and Boerhaave. The *Corolliſtæ* diſtinguiſh the ſeveral claſſes by means of the *corolla* and *petals*; ſuch are Rivinus and Tournefort, and their diſciples. The *calycifiæ* diſtribute them from the *calyx*, as Magnol; and the *Sexualiſts* found their ſyſtem on the different ſexes of plants. To this compendious abſtract of the hiſtory and principal ſyſtems of *botany*, it may be proper to add, that Cæſalpine, who was an Italian phyſician in 1583, was the firſt ſyſtematical writer, and he diſtributed plants into claſſes, according to the form of their ſeeds: Ray, from being firſt a *Fruſtiſt*, became afterwards a *Corolliſt*: Boerhaave endeavoured to combine the ſyſtems of Hermann, Ray, and Tournefort; but as the ſyſtem of the latter was at one time very generally received, and notwithſtanding the prevalence of the Linnæan or ſexual ſyſtem, has ſtill ſome advocates, it may be proper to obſerve, that Tournefort conſiders plants as compoſed of five parts, viz. roots, ſtalks, leaves, flowers, and fruit; neglecting the three former parts, he diſtributes them into various *claſſes*, according to the diſpoſition and ſtructure of the flower; and in reſolving them into genera, he takes into conſideration both the flower and fruit. Mr. Ray, urged chiefly by the ſhort duration of the flower, fought the characters of the ſeveral genera, not merely in the flower and fruit, but in the figure of the organical parts, as the leaves, ſtalks, and roots, and in their colour, ſmell, taſte, and the outward ſurface of the whole plant. See FACE *of a plant*.

See a farther account of theſe ſyſtems under PLANTS, and PETAL.

The claſſes, according to Tournefort's diſtribution, are

the following twenty-four; *viz.* 1. Plants with monopetalous, campaniform, or bell-fashioned flowers. 2. Those with monopetalous, infundibuliform, or funnel-like flowers. 3. Plants with anomalous, monopetalous flowers. 4. Plants with monopetalous, labiated flowers. 5. Plants with polypetalous, cruciform flowers. 6. Plants with polypetalous, rosaceous flowers. 7. Plants with polypetalous, rosaceous, and umbellated flowers. 8. Plants with caryophyllous, or pink-like polypetalous flowers. 9. Plants with liliaceous, or lily-like flowers. 10. Plants with polypetalous, papilionaceous flowers. 11. Plants with polypetalous, anomalous flowers. 12. Plants with flosculous flowers. 13. Plants with semi-flosculous flowers. 14. Plants with radiated flowers. 15. Plants with staminaceous flowers. 16. Plants without flowers, but having visible seeds. 17. Plants with neither visible flowers nor seeds. 18. Trees with apetalous flowers. 19. Trees with apetalous, amentaceous flowers. 20. Trees with monopetalous flowers. 21. Trees with rosaceous flowers. 22. Trees with papilionaceous flowers. For a description of which, see the several articles AMENTACEOUS, APETALOUS, &c.

Each class in this system contains several *genera*, amounting in the whole number to 673, and comprehending 8846 species, to which the author afterwards added 1300 more, referring them to the proper genera in his system. Those who are desirous of farther information with regard to the history and various systems of *Botany* are referred to the preface of Johnson's Herball, fol. 1636; Linnæus's Philosophica Botanica, 1751; Tournefort's Ingogge in Rem Herbariam apud institutiones, &c. tom. i. ed. Paris. 1719. For a particular account of the Linnæan sexual system, see FRUCTIFICATION, and SEXUAL *System*. See also PLANTS, VEGETATION, &c. &c.

BOTANY, *terrestrial*, that employed about the plants growing on the surface of the earth.

BOTANY, *marine*, that concerned in the consideration of sea plants, as fucuses, *ulvæ*, *algæ*, &c.

BOTANY, *subterranean*, that about the plants under ground, as the *tubera terræ*, or truffles, &c.

BOTARGO, a sort of fausage, made of the roes of the mullet-fish; much used on the coasts of the Mediterranean, as an incentive to drink.

The manner of preparing *botargo*, as practised at Martegue in Provence, is described by Mr. Ray.—The mullets, *mugiles*, are taken in *bordigues*, which are places in the shallows inclosed with hedges of reeds. The male mullets are called *allerans*; the female *boter*, of the roes or spawn of which the *botargo* is made, thus.

They first take out the spawn entire, and cover it round with salt for four or five hours; then they press it a little between two boards or stones; then they wash it, and at last dry it in the sun for thirteen or fourteen days, taking it in at night. Ray. Trav. p. 396, seq.

The people of Provence call it *bou-argues*. The best is brought from Alexandria and Tunis. There is also a manufacture of it near Marseilles. It is much used throughout all the Levant.

BOTATRISSA, in *Ichthyology*, a name given by Bellonius, Gesner, and other authors, to that species of the GADUS called by authors the *lota* and *mustela fluviatilis*; by us, the EEL-*pout*. It is distinguished from the other *gadi*, by having two fins on the back, and the two jaws of equal length, with beards at the mouth.

BOTAURUS, in *Ornithology*, a name by which several have called the bird known among us by the name of *bittern*, BITTERN, or *mire-drum*.

BOTE, BOTA, in our old *Law Books*, signifies *compensation*, *recompense*, or *amends*, for any injury done. See ESTOVERS.

Hence *man-bote*, satisfaction due for a man slain.

Hence also *boteless*, where no judgment or favour will acquit a man; as, *v. gr.* for sacrilege, &c. And hence our common phrase to *bote*, speaking of something given by way of compensation.

BOTE, *cart*, *fire-bote*, *hay-bote*, *house-bote*, *kin-bote*, *plough-bote*, *thorn-bote*. See the adjectives.

BOTENALKAITOS, a star in the constellation CETUS, called also BATENKETOS.

BOTESCART, in *Ancient English Writers*, the same with BOATSWAIN.

BOTHAGIUM, *bothage*, or *bothage*, customary dues to the lord of the market, for the liberty of pitching and standing of BOOTHS.

BOTHNA, *botlna*, or *bothona*, in the Scotch *Law*, a park or field wherein cattle are inclosed, and fed.

The word is also written *bordhena*; formed from the ancient Scottish *burh*, a *flock of sheep*.

BOTHENA is also used for a barony, lordship, or sheriffdom.

In which sense it is ordained by statute, that the king's

moot or court of each *bothona*, that is, each sheriffdom, shall be held within forty days.

BOTHRION, βοθριον, denotes the ALVEOLUS or socket of a tooth.

BOTHRION is also used to denote a small, narrow, but deepish ulcer of the cornea of the eye, resembling a round puncture.

The word is also written *bothrias*; by others corruptly, *botryon*. In Latin writers it is sometimes called *fossula*.

BOTIA, *botia*, or *botus*, among *Chemists*, a glass vessel with a round belly and long narrow neck, otherwise called *ary*, *ovum philosophicum*, *cucurbita*, and *urinale*.

BOTIA, in *Medicine*, the same with STRUMÆ and SCROPHULÆ.

BOTIN, or BUTINE, among *Alchemists*, denotes turpentine, or balsam of turpentine, when gathered under the proper influence.

BOTONOMANCY, from βοτανη, *herb*, and μαντεια, *divination*, an ancient species of divination, by means of plants; especially sage, and fig-leaves.

The manner of performing it was thus: the persons who consulted, wrote their own names, and their questions, on leaves, which they exposed to the wind; and as many of the letters as remained in their own places, were taken up, and being joined together, contained an answer to the question. Potter. Arch. Græc. lib. ii. cap. 18. tom. i.

BOTONTINI, in *Middle Age Writers*, denote mounts or hillocks, raised to serve as land-marks, or boundaries of grounds.

The word is also written *botentones*, *botanes*, and *bodones*. Du-Cange Gloss. Lat.

BOTOTOE, in *Natural History*, a name given by the people of the Philippine islands to a very beautiful bird of the parrot kind; it is somewhat smaller than the common parrot, and is all over of a fine deep blue colour.

BOTRYITES, in *Natural History*, a stone of the gem kind, resembling a branch of young grapes.

The word is formed from βοτρυς, a *grape*. In English writers it is sometimes called the *grape-stone*.

BOTRYITES, or BOTRITES, also denotes a sort of burnt CADMIA, found somewhat in the form of a bunch of grapes adhering to the upper parts of furnaces, where the mineral is calcined.

It differs from the *placites*, which is that gathered on the lower parts of the furnace; though Schroder gives a different distinction, viz. into *botrites*, found in the middle of the furnace, *placites* in the upper, and *ostracites* in the lowest part.

BOTT, among *Bone-lace Weavers*, a kind of round cushion of light matter placed on the knee, whereon they work or weave their LACE with bobbins, &c.

Among the French the *bott*, called *oreiller*, is a little square wooden frame or desk, covered ordinarily with green stuff.

BOTTLE, a small vessel proper for holding liquors.

The word is formed from *butellus*, or *botellus*, used in barbarous Latin writers, for a lesser vessel of wine; being a diminutive of *botis*, which denoted a butt or cask of that liquor.

We say a glass *bottle*, a stone *bottle*, a leathern *bottle*, a wooden *bottle*, a sucking *bottle*.

The ancient Jewish *bottles* were cags made of goats or other wild beasts skins, with the hair on the inside, well sewed and pitched together; an aperture in one of the animal's paws serving for the mouth of the vessel. Calmet. Dict. Bib. tom. i. p. 323.

Glass *bottles* are better for cyder than those of stone. Foul glass *bottles* are cured by rolling sand or small shot in them; mussy *bottles*, by boiling them. See GLASS.

Bottles are chiefly made of thick coarse glass; though there are likewise *bottles* of boiled leather made and sold by the case-makers.

Some glass *bottles* covered with straw or wicker, are called *flasks*, or *bottles*.

The quality of the glass has been sometimes found to affect the liquor in the *bottle*. Mem. Acad. Scienc. 1704.

BOTTLE is also a measure at Amsterdam, the same with the MINGLE.

BOTTLE-*flower*, in *Botany*, see CENTAURY.

BOTTLE-*head*, a species of whale.

BOTTLE-*nose*, in *Ornithology*, a name by which the people in some parts of England call the *anas arctica Clusii*.

BOTTLING, or BOTTLING, the operation of putting up liquors in bottles corked, to keep, ripen, and improve.

The writers on good husbandry, give divers rules concerning the *bottling* of beer, cyder, and the like. The virtues of Spa, Pyrmont, Scarborough, and other waters, depend on their being well bottled and corked, otherwise they lose both their taste and smell. To preserve them, it is necessary the bottles be filled up to the

mouth,

mouth, that all the air may be excluded, which is the great enemy of bottled liquors. The cork is alſo farther ſecured by a cement. Some improve their bottled beer, by putting cryſtals of tartar and wine, or malt ſpirits; and others, by putting ſugar boiled up with the eſſence of ſome herb, and cloves, into each bottle.

Cyder requires ſpecial precautions in the *bottling*; being more apt to fly, and burſt the bottle, than other liquors. The beſt way to ſecure them, is to have the liquor thoroughly fine before it be bottled. For want of this, ſome leave the bottles open a while, or open them after two or three days *bottling*, to give them vent. If one bottle break, through fermentation, it is beſt to give them all vent and cork them up again. Mean cyder is apter to break the bottles than rich. Some ſoak the corks in ſcalding water, to render them more pliant and ſerviceable. See CYDER.

Another particular to be obſerved is, to lay the bottles ſo as that the liquor may always keep the cork wet and ſwelled. Something alſo depends on the place where the bottles are ſet; which ought to be ſuch as expoſes them as little as poſſible to the alterations and impreſſions of the air: the ground is better for this purpoſe than a frame; ſand better than the bare ground, and a running water, or a ſpring often changed, beſt of all.

To haſten the ripening of bottled liquors, they are ſometimes ſet in a warm place, or even expoſed to the ſun, when a few days will bring them to maturity.

BOTTOM, the loweſt part of a thing, as contradiſtinguiſhed from the top.

Hydroſtatical writers ſpeak of the preſſure of fluids, on the *bottom* of veſſels; in which caſe, the law of gravitation is, that the altitude remaining the ſame, the preſſure will be as the *bottom*. M. Leibnitz has aſſerted, that a body in falling through a fluid, does not preſs on the *bottom*, that is, does not increaſe the preſſure on it; which is found to be falſe. Phil. Tranſ. N° 351. p. 570. A. D. S. an. 1692. p. 16.

When water boils, the bottom of the veſſel is found conſiderably colder than it was ſome time before boiling; inſomuch that the hand may bear it in the former caſe, not in the latter. Hiſt. Ac. Sc. ann. 1703. p. 29.

BOTTOM, in *Navigation*, denotes the ground or ſurface of the earth under the water.

They ſay, a rocky, ſandy, gravelly, clayey *bottom*; a *bottom* with good hold, with a bad hold, &c.

The *bottom* of the ſea, Ray obſerves, is level, i. e. the deſcent from the ſhore to the deep is equable and uniform: but the *bottoms* of ſome ſeas are found higher than of others. Count Marſigli has made divers enquiries into the ſtructure of the *bottom* of the ſea, and its beds of ſtones, ſalt, bitumen, &c. Ray, Wiſd. of Creat. part i. p. 84. See SEA.

Over the natural *bottom* of the ſea is formed an accidental *bottom*, by the mixture of different matters, ſand, ſhells, mud, &c. ſtrongly compacted by the glutinous quality of the ſea-waters, almoſt to a degree of petrifaction. Theſe incruſtations being neceſſarily formed in *ſtrata*, there are ſome places wherein the fiſhermen can diſtinguiſh the annual augmentations. Hiſt. Acad. Sc. 1710.

BOTTOM *of a ſhip*.—Merchant ſhips are much broader *bottomed* than frigates; men of war are a mean between the two. Sir William Petty preſented the model of a double *bottomed* ſhip.

BOTTOM is alſo uſed to denote a whole ſhip, or other veſſel.

In this ſenſe we ſay, Engliſh *bottoms*, foreign *bottoms*. By the act of navigation, certain commodities imported in foreign *bottoms*, pay a duty called petty cuſtom; from which they are exempt, if imported in Engliſh *bottoms*.

BOTTOM is alſo uſed for what remains at the bottom of a veſſel. In this ſenſe, Paracelſus calls the ſediment of urine, *fundus urinæ*.

BOTTOM-*ſtone*, a kind of iron-ſtone, or ore, in the Staffordſhire mines.

BOTTOM-*nails*. See NAIL.

BOTTOMRY, in *Navigation* and *Commerce*, the act of borrowing money on a ſhip's *bottom*; that is by engaging the veſſel for the repayment of it, ſo as that, if the ſhip miſcarry the lender loſes the money advanced; but if it arrives ſafe at the end of the voyage, the borrower is to repay the money lent with a certain premium or intereſt agreed on; and this on pain of forfeiting the ſhip. See ASSURANCE and POLICY.

The rate or intereſt of money, taken on *bottomry*, follows that of inſurance. In queen Anne's war, when inſurance to the Eaſt Indies and back was 16 *per cent. bottomry* was 45 *per cent.* And in king William's war, when inſurance to the ſame place was 22 *per cent. bottomry* was 55.

Bottomry, if conſidered only as hiring money, would be illegal, and fall under charge of uſury, on account of the exceſſive intereſt: but it is not a mere hiring of money, ſince the lender likewiſe ſtands to the hazard of the voyage. The money here advanced is called *pecunia trajectitia*, as being carried on the lender's hazard or adventure beyond the ſeas; ſo that, if the ſhip be loſt, the lender loſes all; wherras, when money is lent at intereſt, it is delivered at the peril of the borrower. And the profit here is merely the price of the loan; but the profit of the other is a reward for the danger and adventure of the ſea which the lender takes on himſelf, and makes the intereſt lawful.

If money be lent on ſhip-board by a merchant or paſſenger, and before the day of payment the ſhip happens to be caſt away; if there be ſuch a ſaver as will admit of a contribution, the party lending is not to have his whole money, but it ſhall come into the average; becauſe if that money had been ſo lent, it would have been in common danger with the reſt: but, if the time appointed were paſt before the miſfortune happened, then the borrower muſt repay the lender his whole money, free from contribution. Therefore by the maritime laws, in caſe the borrower detains any money thus lent, beyond the appointed time for the repayment, he ſhall at his return from the voyage, not only pay the profit agreed on before, but be obliged alſo to augment the ſame, according to the longer time accrued ſince the day of payment.

A maſter of a ſhip hath no power to take up money on *bottomry* in places where his owners dwell, unleſs he is a part owner, and in that caſe he may take up ſo much only, as his part will anſwer in the ſaid ſhip: for if he exceeds that, his own eſtate ſhall ſtand liable to make ſatisfaction. But when a maſter is in a ſtrange place, where he hath no owners, nor any goods of theirs or of his own; and for want of money, which he cannot procure by exchange or otherwiſe, his voyage might be retarded, there money may be taken upon *bottomry*, and all the owners are liable for it; that is, they are anſwerable by their veſſel, but not in their perſons, by the act of the maſter: and the owners may have their remedy againſt ſuch maſter, whom they put in truſt.

When a maſter or owner of a ſhip takes up money on *bottomry*, and buys in lading, but endeavours to defraud the prince or ſtate of their cuſtoms, or puts ſuch goods on board as incur a forfeiture of the ſhip; in ſuch caſe the borrower only runs the hazard, not the lender. And where bonds or bills of *bottomry* are ſealed, and the money is paid, if the ſhip receives injury by ſtorm, fire, enemy, or any other accident, before the commencement of the voyage; then the perſon borrowing ſhall only run the hazard, unleſs it be otherwiſe provided, by particular words, that the contract is to have its beginning from the time of the ſealing. But if the condition be, that if ſuch ſhall ſail from London to a port abroad, and ſhall not arrive there, &c. then, &c. here the contingency begins not until the departure.

BOTTOMRY, *bill of*, is a contract between two perſons, the one borrowing, and the other lending a ſum of money, by which the borrower ſetting forth his intention to make a voyage in a certain ſhip therein named, acknowledges the receipt of a certain ſum of money from the lender, on this condition, that if the ſhip does happily perform her voyage, without any diſaſter by enemies or otherwiſe, then he is to reſtore that ſum to the lender, with an additional ſum, therein expreſſed, for the intereſt, within a certain time after his return; but that if the ſhip be loſt, or taken by enemies or pirates, then the perſon of the borrower to be for ever diſcharged, and the lender to bear the loſs.

BOTTONY, or BOTONE, in *Heraldry*, is uſed in ſpeaking of a CROSS, which terminates at each end in three knots or buttons, reſembling, in ſome meaſure, three-leaved graſs.

A *croſs bottony*, is the ſame with what Segion terms *croix treffée*; and Baron, *globoſa crux*. Gibbon, the better to explain the form, renders it, *Crux ad ſingulos ejus extremitates in tres gemmas, vel nodos, pro trifolii ſpecie terminata*. He bears argent a croſs *bottony* ſable, by the name of *Winewood*. Vide *Tab. Herald. fig.* 11.

BOTTRYS, in *Botany*, a name given to a ſpecies of the *chenopodium*. See GOOSE-*foot*.

BOTRYTIS, in *Botany*, ſee BYSSUS.

BOTTS, in *Zoology*, a ſpecies of worms which infeſt horſes and other cattle. See HORSE-*worms*.

The name is alſo given to a ſort of grubs which deſtroy the graſs in bowling-greens, &c.

BOVATA *terræ*, in *Ancient Law-Writers*, ſignifies an oxgate of land, or ſo much as may be ploughed in a year with one ox; by ſome reckoned at fifteen acres, by others at eighteen, by others at twenty, and by others at thirteen or twenty ſhillings yearly rent.

This is otherwiſe called *bovatas*, and *bovariata terræ*.

BOVEY *coal*, ſee COAL.

BOUCHE *of court*, the privilege of having meat and drink at court ſcot-free.

The word is alſo written *bouge*, *bouet*, and *budge*; it is mere French, where it ſignifies *mouth*.—The French ſtill uſe the phraſe *Avoir bouche à la cour*; that is, *to have table or diet at court*.

This privilege is ſometimes only extended to bread, beer, and wine: it was a cuſtom anciently in uſe, as well in the houſes of noblemen as in the king's court.

Thomas earl of Lancaſter retained ſir John de Ewre, to ſerve him with ten men at arms in time of war, allowing them *bouge of court*, with livery of hay and oats, horſe-ſhoes and nails. Sir Hugh Merrill had the ſame privilege for life, on condition of ſerving king Edward II. Kennet. Gloſſ. ad Paroch. Ant. p. 378.

BOUDS, a name given in ſome countries to the WEEVIL.

BOUGE-*ravel*, in *Ichthyology*, the name of a fiſh of the BODPS kind, caught in the Mediterranean, and brought to ſome of the Italian markets. Its noſe is long and pointed; its back is of a reddiſh blue, its tail red, and its belly of a fine ſilvery white. Its whole body is ſhorter and broader than the common kind of *boops*. Willughby.

BOUGH, in *Antiquity*.—Green *boughs* made part of the decoration of altars and temples, eſpecially on feſtival occaſions.

Oaken *boughs* were offered to Jupiter; thoſe of laurel to Apollo; of olive to Minerva; myrtle to Venus; ivy to Bacchus; pine to Pan; and cypreſs to Pluto.

BOUGEOIR, the French name for wax candleſticks.

BOUGIE, in *Surgery*, a kind of large medicated tent, worn in the urethra, for the cure of a gonorrhœa, &c.

There was no occaſion for *bougies* till towards the middle of the ſixteenth century, when the *gonorrhœa virulenta* appeared as a ſymptom of the *lues venerea*. An. 1551. Andreas Lacuna of Caſtile, publiſhed at Rome in twelve pages, the method of knowing and extirpating carbuncles in the neck of the bladder, which he owns he learned from a Portugueſe quack of the name of Philippus: he believed him to be the inventor of the *bougies* ſo employed, and that he had cured ſome people of faſhion in Rome by means of them. De Fordyce. *See* Review of the Venereal Diſeaſe, edit. 3. and Dr. Aſtruc, &c. De Morbis Ven. 2d. edit. 4to. Lat. Par. an. 1740

The properties requiſite in the *bougie*, are a ſufficient degree of firmneſs, that it may be introduced with ſome force; a ſuppleneſs and tenacity, that it may conform to the motions of the body without breaking; a lenient ſuppurative diſpoſition, to bring on diſcharge without pain; and, laſtly, a ſmoothneſs of ſurface, that it may not only be introduced with more eaſe, but that it may lie eaſy in the paſſage, until it begins to diſſolve.

The beſt baſis of ſuch a *bougie*, is *diachylon ſimplex*, which may be rendered efficacious by a great variety of mixtures; but though an addition of certain gums, or of the mucilage plaſter, will alone anſwer the purpoſe in ſome diſorders of the urethra; yet as a long uſe of mercurial applications is almoſt a ſpecific for venereal ulcers, and has alſo a powerful effect on every other ſpecies of ſlubborn ulcers, our experiments are naturally directed to mercurial preparations.

Perhaps we may diſcover hereafter the due proportion of quickſilver to the plaſter; at preſent, half an ounce to every ounce of plaſter renders it much more mercurial than any plaſter now in uſe. The *diachylon* muſt be made with oil, and a little *pix Burgundica* added to it, that it may be ſufficiently tenacious: to every ounce of plaſter it is proper to add two drams of crude antimony, finely levigated, which greatly conduces to the ſmoothneſs and good conſiſtence of the *bougie*; beſide that it may poſſibly have other virtues. Upon this plan the preſcription ſtands thus:

Diach. cum pice Burgund. ℥ii.
Argent. viv. ℥i.
Antim crud. pulv. ℥ ß.

The quickſilver, whether it be divided in balſams, ſulphur, or honey, muſt not be put into the plaſter until the moment before the *bougies* are made; nor muſt the plaſter be boiling hot at that time, leſt by the heat the quickſilver ſhould ſeparate from the body it is divided in, and fall down to the bottom in form of globules. When the quickſilver is mingled with the plaſter, moderately hot, ſlips of fine rag muſt lie ready to dip in the compoſition. Theſe ſlips muſt be of different lengths, from ſix to nine or ten inches, and about three inches broad; roll them up looſely, and taking hold of one extremity with the left hand, let it fall upon the ſurface of the plaſter, and then draw it out gently. As it is drawn out it will unroll, and take up a quantity of plaſter on the ſurface equal to the thickneſs of a ſilver groat; though to facilitate the unrolling of the rag, it will be proper to aſſiſt its motion with the end of the *ſpatula*, or ſome other inſtrument. The plaſter, however, muſt be hot enough to ſoak through, and diſcolour the rag, otherwiſe it will not make ſo good a *bougie*.

If the cloth be exactly three inches broad, it will make ſix *bougies* of a moderate ſize; but their ſize may be ſuited to the occaſion. It is generally adviſeable that the *bougie* ſhould be ſmaller at the end which is introduced through the ſtricture, than at that which is left out at the *penis*. For that purpoſe many cut off a part of the oblong ſquare before mentioned, in ſuch manner as to reduce it almoſt into the ſhape of a long right-angled triangle: but as this way of cutting it weakens the *bougie* exceedingly, and as it is not at all neceſſary that the *bougie* ſhould be taper from one extremity to the other, it is much better to cut off a little ſlope of about an inch and a half long from the end that is to be paſſed into the urethra, which will leſſen it where it is neceſſary to be ſmall, and leave it ſtrong in the other part, where the diminution is not neceſſary.

The plaſter taken up by the cloth, when dipped, will have little bubbles upon its ſurface, and not be ſo ſmooth as if it had been ſpread: therefore an iron *ſpatula*, a little warmed, may be paſſed over the plaſter before it be cut into *bougies*, which will render it more compact and even. It is a much more exact and ſpeedy method to cut the *bougies* off with a knife and ruler, than with ſciſſars. When they are rolled up, it muſt be with that ſide outward which is covered with plaſter; and they muſt firſt be rolled by hand as cloſe as poſſible, before they are rolled upon a board or marble; for upon this circumſtance the neatneſs of the *bougie* depends.

BOUILLON, among *Farriers*, a lump or exceſcence of fleſh, growing either on, or juſt by a horſe's ſtruſh, and making him halt.

BOVINA *affectio*. See AFFECTIO.

BOVISTA, in *Botany*, a term uſed by ſome authors to expreſs puff-ball, or duſty muſhrooms, which are ſometimes called the devils ſnuff-boxes.

BOULCOLACA, among the modern Greeks, denotes the ſpectre of ſome wicked perſon who died excommunicated by the patriarch, re-animated by the devil, and cauſing great diſturbance among the people; of which many ſtrange ſtories are told.

The word is Greek, and is ſometimes written βρυκολακας, *brukolakas*; and ſuppoſed to be derived from βορος, or βορα, *mud*, and λακκος, a *ditch*, on account of the filthineſs of the ſpirit.

BOULDER-*walls*, a kind of round walls built of round ſtones or pebbles, laid in a ſtrong mortar; uſed where the ſea has a beach caſt up, or where there is plenty of flints.

BOULIMY, in *Medicine*. See BULIMY.

BOULINIS, or BOULIGNIS, a copper coin ſtruck at Bologna in Italy, equivalent to the BAIOCCO.

BOULTINE, or BOLTEL, in *Architecture*, the workman's term for a convex moulding, whoſe periphery is juſt ¼ of a circle placed next below the plinth, in the Tuſcan and Doric capitals. See *Tab. Archit. fig.* 5.

BOULUKE, in the *Military Orders of the Turks*, a body of the janizaries, with an officer in the place of a colonel at their head, ſent upon ſome particular enterprize; they are ſelected out of the body for this, and, as ſoon as the buſineſs is over, are received again into their former companies.

BOUNCE, in *Ichthyology*, a name given by the people of the weſtern parts of England to a ſpecies of the SQUALUS, diſtinguiſhed by Artedi by the name of the reddiſh variegated *ſqualus* with the *pinnæ ani* in the middle ſpace between the *anus* and tail. This is the fiſh called *ſcymnos* and *ſyſtus* by the old writers, and CATULUS *major* by the later writers. The Italians call it *ſmeriglio*.

BOUND, in *Dancing*, a ſpring from one foot to the other; by which it differs from a hop, where the ſpring is from one foot to the ſame. It alſo differs from a half *coupée*, as, in the latter, the body always bears on the floor, either on one foot or the other; whereas, in the *bound*, it is thrown quite from the floor.

BOUND-*maſonry*. See MASONRY.

BOUND-*hide*. See HIDE-*bound*.

BOUND-*hoof*. See HOOF-*bound*.

BOUND-*bailiff*. See BAILIFF.

BOUNDS *of an eclipſe*. See ECLIPSE.

BOUNDS *of lands*. See ABUTTALS.

BOUNDARY-*column*. See COLUMN.

BOUNTY, in *Commerce*, denotes a premium paid by the government to the exporters of certain commodities, on their taking oath, or, in ſome caſes, giving bond, not to re-land the ſame in England.

There are divers *bounties* ſettled by act of parliament, as a *bounty* of one penny *per* ell on the EXPORTATION of Britiſh fall-cloth; and the like on ſilk ribbands and ſtuffs, on ſilk ſtockings, on fiſh and fleſh, on gold and ſilver lace of Britiſh manufacture; and on ſeveral ſpecies of corn, when not exceeding certain prices, at the port of exportation.

BOUNTY, *Queen Anne's*, for augmenting poor livings under 50*l. per annum*, conſiſts of the produce of the firſt-fruits

and tenths, after the charges and penſions payable out of the ſame are defrayed. A corporation for management of the ſame was ſettled, &c. in 1704. See AUGMENTATION.

BOURDIN, with the epithet *grand*, a name given by Belſonius to a genus of univalve ſhell-fiſh, commonly known among authors by the name of *auris marina*. See EAR-*ſhell*.

BOURDONNE', in *Heraldry*, is underſtood of a croſs, whoſe extremities are turned round like the ends of a pilgrim's ſtaff; more frequently called *pommeé*, *globated*.

BOURGER-*maſters*. See BURGHER-*maſters*.

BOURGUIGNOTTE, a defenſive weapon wherewith to cover the head, being a kind of caſk, open before, and proof againſt either pike or muſket; its name aroſe from the *Bourguignons*, who firſt introduced it.

BOURIGNONISTS, a name given the followers of Antoinette Bourignon, who ſet up a kind of QUIETISM in the Low Countries; pretending to be guided by an immediate revelation.

BOUREE. See BORÉE.

BOUSTROPHEDON, in *Literature*, is uſed in ſpeaking of the ancient method of writing among the Greeks, wherein the lines were continued forwards and backwards, like the furrows in ploughing.

The word is compounded of βους, *bullock*, and στρεφω, *I turn*.

Pauſanias mentions ſeveral ancient inſcriptions written in this manner: the laws of Solon are alſo ſaid to have been thus written; which, as the author laſt cited explains it, is when the ſecond line is turned on the contrary ſide, beginning at the end of the former, thus:

ΕΚΑΙΟΣ ΑΡ
ΑΘΕΜΩΧ

Potter. Arch. Græc. lib. i. cap. 26. tom. i.

BOUTADE, in *Muſic*, an irregular flight or movement, without art or ſtudy.

The word was alſo formerly uſed for a *ſolo* on the *viol di gamba*, thus called as being ſuppoſed to be extemporary. Richelet ſpeaks of a dance called *boutade*, invented by the famous Bocan, in the reign of Lewis XIII. ſo called from the briſk humorous manner of its beginning; but now out of uſe.

BOUTAEL, in *Ichthyology*, the name of an Eaſt Indian fiſh, of the LAMPREY kind, called alſo *megen ogen*, and, by Mr. Ray, *lampetra Indica*. It is caught in lakes, ponds, and other ſtanding waters, and is a very wholeſome and well-taſted fiſh.

Its general deſcription ſeems to make it rather of the *muſtela* than the *lampetra* kind; but if, as its name expreſſes, it has ſeveral apertures for the gills, its Dutch name ſignifying nine eyes, it is abſolutely a new genus of fiſhes.

BOUTANT, in *Architecture*.—An *Arc-*BOUTANT is an arch or buttreſs, ſerving to ſuſtain a vault; and which is itſelf ſuſtained by ſome ſtrong wall or maſſive pile.

The word is French, and comes from the verb *bouter*, *to but*, or *abut*.

A pillar BOUTANT is a large chain or pile of ſtone, made to ſupport a wall, terrace, or vault.

BOUTE, in the *Manage*. A horſe is call'ed *boute*, when his legs are in a ſtraight line from the knee to the coronet; ſhort-jointed horſes are moſt apt to be *boute*.

BOUTS *rimés*, a popular term in the French poetry; ſignifying certain *rhymes*, diſpoſed in order, and given to a poet togethter with a ſubject, to be filled up with verſes ending in the ſame words, and the ſame order.

The invention of the *bouts-rimes* is owing to one Du Lot, a poet in the year 1649. In fixing the *bouts*, it is uſual to chooſe ſuch as ſeem the remoteſt, and have the leaſt connexion.

Some good authors fancy, that theſe rhymes are of all others the eaſieſt, that they aſſiſt the invention, and furniſh the moſt new thoughts of all others. Sarrafin has a poem on the defeat of the *bouts-rimes*.

The academy of Lanterniſts at Thoulouſe have contributed towards keeping in countenance the *bouts-rimes*, by propoſing each year a ſet of fourteen to be filled up on the glories of the grand monarque; the victorious ſonnet to be rewarded with a fine medal.—An inſtance hereof may be given in the following one, filled up by P. Commire.

Tout eſt grand dans le roi, l'aſpect ſeul de ſon	buſte
Rend nos fiers ennemis plus froids que des	glaçons.
Et Guillaume n' attend que le tems des	moiſſons,
Pour ſe voir ſecondé par un bras ſi	robuſte,
Qu'on ne nous vante plus les miracles d'	Auguſte;
Louis de bien regner lui ſervit des	leçons:
Horace en vain l'egale aux dieux dans ſes	chanſons:
Mains que mon heros il étoit ſage &	juſte, &c.

BOUVIERA, in *Ichthyology*, a name given by ſome to a ſmall, broad, and flat freſh-water fiſh, called more uſually BUBULCA.

BOW, *Arcus*, a weapon of offence made of wood, horn, or other elaſtic matter, which after being ſtrongly bent, by means of a ſtring faſtened to its two ends, in returning to its natural ſtate, throws out an arrow with great force.

It is alſo called the *long-bow*; by way of diſtinction from the *croſs-bow*, or *arbalet*.

The *bow* is the moſt ancient, and the moſt univerſal of all weapons. It has been found to obtain among the moſt barbarous and remote people, who had the leaſt communication with the reſt of mankind.

The uſe of the *bow* and arrow was firſt aboliſhed in France under Lewis XI. in 1481, and in their place was introduced the Swiſs ARMS, that is, the halberd, pike, and broad-ſword.

The *long-bow* was formerly in great vogue in England; moſt of our victories in France were acquired by it; and many laws were made to regulate and encourage its uſe. The parliament under Henry VIII. complain, "of the "diſuſe of the *long-bow*, heretofore the ſafe-guard and "defence of this kingdom, and the dread and terror of "its enemies." 33 *Hen.* VIII. cap. 6.

By this act, all men under ſixty years of age, are commanded to exerciſe ſhooting with *long-bows*, and to have a *bow* and arrows always ready. Children from ſeven years old to ſeventeen, are alſo enjoined to be bred up in ſhooting. Servants were not excuſed, but to be ſupplied with a *bow* by their maſters, and the price to be deducted out of their wages. Aliens were forbid the uſe of the *long-bow*, without a ſpecial licence from the king.

The art of uſing *bows* is called ARCHERY, and thoſe practiſed therein, ARCHERS, or *bowmen*.

The two ends or extremities of a *bow*, to which the ſtring is faſtened, are called its horns, *cornua*.

The ſtrength of a *bow* may be calculated on this principle, that its SPRING, i. e. the power whereby it reſtores itſelf to its natural poſition, is always proportionate to the diſtance or ſpace it is removed therefrom.

The moſt barbarous nations often excel in the fabric of the particular things which they have the greateſt neceſſity for in the common offices of life. The Laplanders, who ſupport themſelves almoſt entirely by hunting, have an art of making *bows*, which we, in theſe improved parts of the world, have never arrived at.

Their *bow* is made of two pieces of tough and ſtrong wood, ſhaved down to the ſame ſize, and flatted on each ſide; the two flat ſides of the pieces are brought cloſely and evenly together, and then joined by means of a glue made of the ſkins of pearch, which they have in great plenty, and of which they make a glue ſuperior in ſtrength to any which we have.

The two pieces, when once united in this manner, will never ſeparate, and the *bow* is of much more force to expel the arrow, than it could poſſibly have been under the ſame dimenſions, if made only of one piece.

Among the ancients, the *bow*-ſtring, called τοξευτης, was made of horſe's hair, and hence alſo called ιππειος; though Homer's *bow*-ſtrings are frequently made of hides cut into ſmall thongs; whence ῥαφη βοεια. The uppermoſt part of the *bow* to which the ſtring was faſtened, was called κορωνη, being commonly made of gold, and the laſt thing towards finiſhing the *bow*. The Grecian *bows* were frequently beautified with gold or ſilver; whence we have mention of *aurea arcus*; and Apollo is called Αργυροτοξος. But the matter of which they were ordinarily compoſed, ſeems to have been wood; though they were anciently, Scythian like, made of horn, as appears from that of Pandarus in Homer. Iliad Δ. v. 105. Potter Arch. Græc. tom. ii. cap. 4.

There are two kinds of *bows*, different in ſtructure and manner of uſe, viz. 1. The common or long *bow* among us, beſt made of Spaniſh or Engliſh yew, ſometimes of withen or elm, which is inferior to the former; the ſhaft is made of birch or brazil, with grey or white feathers. 2. The croſs-*bow*, chiefly uſed when, through any imbecility of the arm or back, the former cannot be managed.

The invention of the *bow* is uſually aſcribed to Apollo, and was firſt communicated to the primitive inhabitants of Crete, who are ſaid to have been the firſt of mortals who underſtood the uſe of *bows* and arrows. And hence, even in later ages, the Cretan *bows* were famous, and preferred by the Greeks to all others. Some, however, rather chooſe to honour Perſeus, the ſon of Perſeus, with the invention of the *bow*; while others aſcribe it to Scythes, ſon of Jupiter, and progenitor to the Scythians, who were excellent at this art, and by many reputed the firſt maſters of it. From them it was derived to the Grecians, ſome of whoſe ancient nobility were inſtructed by the Scythians in the uſe of the *bow*, which in thoſe days

days paſſed for a moſt princely education. It was firſt introduced into the Roman army, in the ſecond Punic war. Potter, Arch. Græc. tom. ii. lib. iii. cap. 4. Aquin. Lex. Milit. tom. ii. p. 260.

The Indians ſtill retain the *bow*. In the repoſitory of the Royal Society, we ſee a Weſt Indian *bow* two yards long.

The Scythian *bow* was famous for its incurvation, which diſtinguiſhed it from the *bows* of Greece and other nations; being ſo great as to form a half-moon, or ſemicircle: whence the ſhepherd in Atheneus, being to deſcribe the letters in Theſeus's name, and expreſſing each of them by ſome appoſite reſemblance, compares the third to the Scythian *bow*: meaning not the more modern character Σ, but the ancient C, which is ſemicircular, and bears the third place in ΘΗCEVC.

Bow, *croſs*, is alſo called ARBALET; which word is derived from *arbaliſta*, i. e. *arcubaliſta*, *a bow with a ſling*.

The *arbalet* conſiſts of a ſteel bow, ſet in a ſtaff of wood, furniſhed with a ſtring and a trigger; and is bent with a piece of iron fitted for that purpoſe.—It ſerves to throw bullets, large arrows, darts, &c.

The ancients had large machines uſed for throwing many arrows at once, called *arbaleſts*, or BALLISTÆ.

Bow, in *Muſic*, denotes a machine that ſerves to play, or give the ſound to VIOLS, VIOLINS, and other inſtruments of that kind, by drawing it gently over the ſtrings thereof.

The *bow* conſiſts of three parts; the firſt is the ſtick, or wood to which the hair is faſtened; the ſecond is compoſed of about eighty or an hundred horſe-hairs, or filaments of ſilk; the third is the nut, a ſort of half wheel, which ſerves to keep the hairs in the due degree of tenſion.

The ancients do not appear to have been acquainted with *bows* of hair: in lieu of theſe, they ſtruck their inſtruments with a PLECTRUM; over which our *bows* have great advantage, for giving long and ſhort ſounds, and other modifications, which a plectrum cannot produce.

Bow, in *Trade* and *Manufactures*, denotes a flexible inſtrument, conſiſting of a piece of ſteel or iron, to the two ends of which is faſtened a cat-gut, uſed by ſmiths, watchmakers, and other artificers, for the piercing and turning of divers ſorts of works.

This is more peculiarly called a DRILL-*bow*.

It is ſometimes alſo made of wood, whalebone, and the like.

Operators in moſaic have a ſort of *bow* made of a piece of elaſtic wood, with a braſs wire faſtened to the ends of it, which ſerves to ſaw hard and precious ſtones. Letter-caſters have alſo a *bow*, wherewith to keep the *matrix* even. See FOUNDERY.

Bow, among *Builders*, denotes a beam of wood, or braſs, with three long ſcrews, that govern or direct a lath of wood or ſteel to any arch; chiefly uſed in drawing draughts of ſhips, and projections of the ſphere, or wherever it is requiſite to draw large arches.

Bow is alſo the name of an inſtrument formerly uſed at ſea for taking the ſun's altitude; conſiſting of a large arch of 90 degrees graduated, three vanes, a ſhank or ſtaff, a ſhade-vane, a ſight-vane, and an horizon-vane.—But it is now out of uſe.

Bow-*bearer*, an under officer of the foreſt, who is to obſerve and take notice of all manner of treſpaſs againſt vert or venilon, and to attach, or cauſe to be attached, the offenders, in the next court of attachment.

Bow-*top*, among *Botaniſts*, one of the forms or poſitions of the LEAVES of FLOWERS, wherein the leaves are laid ſomewhat converſely over each other, but not plaited.

Bow-*compaſs*. See COMPASS.

Bow-*dye*, a new kind of ſcarlet red, ſuperior to madder; but inferior to the true ſcarlet grain for fineneſs and duration. It was brought into England, and firſt practiſed at the village of Bow, near London, by Kephler, a Dutchman, in the year 1643.

Bow *of the gills*, a term uſed by ſome *Ichthyologiſts*, to expreſs the convex part of each GILL, each being a long ſemicircle, terminated by many *laminæ*, which form what is called the leaf.

Bow-*grace*, in the *Sea Language*, a frame or compoſition of old ropes, or junks of cables, uſed to be laid out at the *bows*, ſterns, and ſides of ſhips, to preſerve them from great flakes of ice, chiefly when they fail in high north and ſouth latitudes.

Bow-*net*, or *wheel*, an engine for catching fiſh, chiefly lobſters and craw-fiſh, made of two round wicker baſkets, pointed at the end, one of which is thruſt into the other; at the mouth is a little rim, four or five inches broad, ſomewhat bent inwards. It is alſo uſed for catching ſparrows.

Bow, *rain*. See RAIN-*bow*.

Bows *of a ſaddle*, are two pieces of wood laid archwiſe, to receive the upper part of a horſe's back, to give the ſaddle its due form, and to keep it right.

The *fore-bow*, which ſuſtains the pommel, is compoſed of the WITHERS, the BREASTS, the POINTS or toes, and the CORKING.

The *hind-bow* bears the TROUSSEQUIN, or quilted roll.

The *bows* are covered with ſinews, that is, with bull's pizzles beaten, and ſo run all over the *bows*, to make them ſtronger. They are likewiſe ſtrengthened with bands of iron, to keep them tight. It is on the lower ſide of the *bows* that the ſaddle ſtraps are nailed; the uſe of which is to make faſt the girths.

Bow *of a ſhip*, is the rounding part of a ſhip's ſide forward, or that part of her which is broadeſt before: it begins at the place where the planks arch inwards, and compaſſing about towards the ſtem, ends where they cloſe at the ſtem or prow.

If a ſhip has a broad round *bow*, they call it a *bold* or *bluff-bow*; if ſhe has a narrow thin *bow*, they ſay ſhe has a *lean bow*.

The proportioning of the *bow* is of great importance to the ſailing of the ſhip; it being this part that firſt breaks off the ſea, and on which is, in a manner, all the bearing of the ſhip. If the *bow* be too broad, the veſſel will not make her way eaſily through the water, but carry a great load of dead water before her; and if it be too lean or thin, ſhe will pitch or beat much into hollow ſea, for want of breadth to bear her up.

Bouguer obſerves, that a *bow* which meets with the leaſt reſiſtance in a direct and oblique courſe, has alſo the additional property of driving the leaſt to leeward. Traité du Navire.

The piece of ordnance that lies in this place is alſo called the *bow-piece*; and the ANCHORS that hang there, are called her *great and little* BOWER.

Bow, *on the*, in the *Sea Language*, denotes an arch of the horizon, comprehended between ſome diſtant object, and that point of the compaſs which is right a-head, and to which the ſhip's ſtem is directed.

Bow-SPRIT, or BOLT-SPRIT, a kind of maſt in a veſſel, ſtanding foremoſt in the prow, and projecting ſlopeways over the ſtem; its lower end is faſtened to the partners of the fore-maſt, and farther ſupported by the fore-ſtay: it ſerves to carry the ſprit-ſail, ſprit-top-ſail, and jack-ſtaff.—*Vide Tab. Ship. fig.* 1. *n.* 124. *fig.* 2. *n.* 16.

The *bow-ſprit* ſhould be two thirds of the length of the main-maſt, and its thickneſs equal to the mizen-maſt: when it is twelve fathoms five feet long, its yard muſt be eight fathoms two feet long; and the top-maſt of the *bow-ſprit*, three fathoms one foot.

To the *bolt-ſprit* are faſtened all the ſtays belonging to the fore-maſt, fore-top-maſt, and fore-top-gallant, &c. with their bowlines and jacks, beſides the rigging which belongs to its own ſails.

If a ſhip ſpends her *bolt-ſprit*, or, as the term is, if the *bolt-ſprit drop by the board*, the fore-maſt will quickly follow, if it be a rough ſea, eſpecially in ſailing by a wind.

Bow-*ſtaves*. See GARBLING *of Bow-ſtaves*.

Bow-*ſaw*. See SAW.

BOWELLING, *exenteratio*, the act of pulling out the intrails of an animal.

Bowelling makes part of the progreſs of EMBALMING.

BOWELLING is alſo a part of the puniſhment of traitors in England, who are to have their *bowels* ripped open, torn forth, and burnt before them. *Fractioni, ſuſpendio, decollationi, exenterationi, & quaterizationi adjudicatus*. Knyght. ſub Edw. II. in the ſentence of Hugh Spencer.

BOWER. See ANCHOR.

BOWER, in *Gardening*, a ſhady place, under covert of trees or branches interwoven.

A *bower* differs from an ARBOUR, in that the latter is always built long and arched, but a *bower* either round or ſquare at the bottom, and made with a ſort of dome or cieling at the top.

BOWER, *Lady's*, in *Botany*. See VIRGIN's *Bower*.

BOWET, or BOWESS, among *Falconers*, denotes a young hawk when ſhe draws things out of her neſt, and covets to clamber on to the boughs.

BOWGE *of court*. See BOUCHE *of Court*.

BOWL, denotes either a ball of wood for the uſe of BOWLING; or a veſſel of capacity for holding liquors.

Bowl-*veſſel*. See WASSEL-*Bowl*.

BOWLDER-*ſtones*, a ſpecies of ſmall ſtones, of an indeterminate texture and figure, generally roundiſh, found on the ſhores of the ſea and banks of rivers.

Bowlders, or *bowlder*-ſtones, are only lumps and fragments of ſtones or marble, broken from the adjacent cliffs, and rounded by being bowled, and tumbling to and again by the action of the water; whence the name *bowlder* ſtones, as being formed by an action like that of a bowl, and thereby reduced to the ſhape of one.

Neither the *bowlders* nor rubble ſtones are ever inveſted with

with an exterior ſtrong cruſt or ſkin: it is plain from the manner of their formation they cannot. This is one mark by which they are diſtinguiſhed from flints, pebbles, or the other native nodules, which were formed before the ſubſiding of the matter of the *ſtrata*, and are always covered with ſuch a cruſt or ſkin, unleſs it has been worn off.

BOWLING, or Bow-LINE, in *Sea Language*, a rope faſtened to the middle of the leech, or perpendicular edge of the ſquare ſails of a ſhip, ſerving to make the ſail ſtand ſharper or cloſer by a wind.

The *bow-line* is faſtened by two, three, or four ropes, called *bridles*, like a crow's-foot, to as many parts of the ſail; only the mizen *bow*-line is faſtened to the lower end of the yard.

The *bow-line* belongs to all ſails, except the ſprit-ſail, and ſprit-top-ſail; where it is omitted for want of room to hale it forwards by; and thence it is, that thoſe ſails cannot be uſed cloſe by a wind.

The ancients appear to have been acquainted with the uſe of the *bow-line*; which is the reaſon they always ſailed before the wind.

By means of this rope, a ſail may be drawn away, and the wind, when received ſideways, prevented from ſwelling it too much, which would hinder the ſhip's run inſtead of forwarding it: it alſo ſerves to hinder the wind from eſcaping or blowing by on the ſide they are drawn on.

The phraſes peculiar to this rope are: *ſharp the bow-line*, i. e. hale it taught, or pull it hard; *hale up the bow-line*, i. e. pull it harder forward on; *check, eaſe*, or *run up the bow-line*; i. e. let it be more ſlack.

BOW-LINE *bridles*, are the ropes by which the *bow-line* is faſtened to the leech of the ſail.

BOW-LINE *knot*, denotes a knot that will not ſlip, by which the *bow-line-bridle* is faſtened to the crengles.

BOWLING, among *Gameſters*, the act or art of throwing bowls.

Bowling, among us, is chiefly the name of a game or exerciſe, practiſed either in open places, as bares and *bowling-greens*, or in cloſe *bowling alleys*.

The ſkill of *bowling* depends much on a knowledge of the ground, and the right choice of a bowl ſuitable to it: for cloſe alleys the flat bowl; for green ſwards plain and level, the bowl as round as a ball, is preferred.

The terms uſed in *bowling*, are, to *bowl* wide, which is when the bias does not hold, or is not ſtrong enough: *narrow*, when it is too ſtrong, or holds too much; *truly bowled*, is when the ground is well choſen, and the bowl paſſes near the block, even though it goes much beyond it; *bowling through*, or a *yard over*, is done in order to move the block; an *over bowl*, that which goes beyond it; a *bowl laid at bond*, is that put down within the gameſter's reach, to be in the way of the next bowler, and hinder his having the advantage of the beſt ground; *bowling at length*, neither *bowling* through nor ſhort; *a dead length*, a juſt or exact one; *throwing* or *flinging*, is diſcharging a bowl with a ſtrength purpoſely too great for a length, in order to carry off either the block or ſome near bowl; *bowl-room*, or *miſſing-wood*, is when a bowl has a free paſſage, without ſtriking on any other; *get off*, is when a bowl being narrow, is wanted to be wider; *bowl beſt at block*, that neareſt the *block*; *drawing a ſoft or bowl*, is to win it by *bowling* nearer, without ſtirring either the bowl or block; a bowl is ſaid to *rub*, when it meets with ſome obſtacle in the ground, which retards its motion, and weakens its force; *it is gone*, when far beyond the block. *Block* ſignifies a little bowl laid for a mark, alſo called a JACK.

Mark is a proper *bowling* diſtance, not under ſo many *yards*; and being at leaſt a yard and a half from the edge of the *green*.

Ground, a bag or handkerchief laid down to mark where a bowl is to go.

Lead, the advantage of throwing the block, and *bowling* firſt.

Caſt, is one beſt bowl at an end.

End, a hit, or when all the bowls are out.

The *game*, or *up*, is five caſts, or beſt bowls.

BOWLING-*green*, in *Gardening*, a kind of parterre in a grove, laid with fine turf, requiring to be frequently mowed, laid out in compartments of divers figures, with dwarf-trees, and other decorations.

Bowling-greens are of Engliſh origin, but have been adopted by the French and Italians, who have them only for ornament; being unacquainted with, or not fancying the exerciſe, on account of which they were firſt made in England.

BOWSE, a ſea-term, ſignifying as much as *hale*, or pull together.

Thus, haling upon a tack is called *bowſing upon a tack*; and when they would have the men pull all together, they cry, *bowſe away*.

Bowſe is chiefly uſed by the gunners when they hale upon their tackles, to thruſt a piece out of a port; in which caſe they cry, *bowſe hoa*, i. e. pull more on the tackle; alſo when there is occaſion to pull more on the tackle than otherwiſe, they ſay, *bowſe upon the tackle*.

BOWYERS, artificers whoſe buſineſs is to make bows.

In which ſenſe, *bowyers* ſtand diſtinguiſhed from fletchers, who made arrows.

The *bowyers* company was incorporated in 1620, and conſiſts of a maſter, two wardens, twelve aſſiſtants, and thirty on the livery.

BOX, *Buxus*, in *Botany*, the *box-tree*; a genus of the *monoecia tetrandria* claſs of plants, the characters of which are theſe: it hath male and female flowers on the ſame plant; the male flowers having a three-leaved, and the female, a four-leaved empalement; the male flowers have two, and the female three, concave petals; the male flowers have four upright ſtamina, with the rudiment of a germen, but no ſtyle or ſtigma; the female flowers have a roundiſh, blunt, three-cornered germen; the empalement afterward becomes a roundiſh capſule, ſhaped like an inverted pottage-pot, opening in three cells, each having two oblong ſeeds. There are three ſpecies; the *box-tree* with oval leaves, the narrow-leaved *box*, and the dwarf or Dutch *box*. Linnæus mentions only one ſpecies.

The two firſt ſorts have been frequently raiſed from ſeeds, and conſtantly produced plants of the ſame kinds with thoſe from which the ſeeds were taken. The dwarf-*box* will never riſe to conſiderable height with any culture; nor has it been ſeen to flower, where the plants have been encouraged to grow many years in the greateſt luxuriancy.

The ſeaſons for planting this are the autumn, and very early in the ſpring. And the beſt ſpecies for this purpoſe, is the dwarf Dutch *box*. The edgings of *box* are now only planted on the ſides of borders next walks, and not as was ſome time ſince the faſhion, all round borders or fruit-beds, in the middle of gardens, unleſs they have a gravel walk between them, in which caſe it ſerves to keep the earth of the borders from waſhing down on the walks in hard rains, and fouling the gravel.

In the laſt age it was alſo a very common practice to plant borders, or edgings, of aromatic herbs, as thyme, ſavory, hyſſop, lavender, and the like: but theſe are all apt to grow woody, and to be in part, or wholly, deſtroyed in hard winters. Daiſies, thrift, or ſea jelly-flower, and chamomile, are alſo uſed by ſome for this purpoſe; but they require yearly tranſplanting, and a great deal of trouble, elſe they grow out of form; and theſe are alſo ſubject to periſh in very hard ſeaſons.

Box is cultivated for the ornament of gardens, chiefly for hedges and borders, the ſmalneſs of its leaf making it cut very cloſe and even. Its wood is yellow, hard, cloſe, even, very heavy, and eaſily taking a poliſh: whence its uſe in making muſical inſtruments, combs, ſpoons, tooth-pick caſes, and other Turnbridge ware. It does not ſwim in water, nor is it liable to rot or to be worm-eaten; whence its uſes for the axle-trees of wheels. It yields a chemical oil and ſpirit by diſtillation, of ſome uſe in medicine, and its decoction is by ſome held equal in virtue to *guaiacum*.

Among the ancients, the *box-tree* was conſecrated to Cybele, becauſe flutes were then made of its wood, as is done to this day. Pitiſcus imagines it was alſo ſacred to Bacchus, from a paſſage in Statius, *Cum Bacchia mugit buxus*; but without much foundation, the word *buxus* here only denoting flutes; as being the matter they were uſually made of; not that the tree was conſecrated to Bacchus. The honourable Daines Barrington is of opinion, that it is not indigenous in Great Britain. See his paper on this ſubject, Phil. Tranſ. vol. lix. N° 5. an. 1769.

Box-*tree*, *ſand*, *Hura*, in *Botany*, a genus of the *monoecia monadelphia* claſs of plants. Its characters are theſe: it hath male and female flowers on the ſame plant; the male flowers have no petals, but a column of ſtamina, which are joined at bottom into a cylinder; the female flowers have a ſwelling empalement of one leaf, with one tubulous petal; the roundiſh germen is ſituated in the bottom of the empalement, which afterward becomes an orbicular ligneous fruit, depreſſed at top and bottom, having twelve deep furrows, with ſo many cells, which open at the top with an elaſticity, each containing one round flat ſeed. We know but one ſpecies of this genus, which grows naturally in the Spaniſh Weſt Indies. The fruit of this plant, if it remains on until it be fully ripe, will burſt in the heat of the day, with an exploſion like the report of a piſtol; by which the ſeeds are caſt round to a conſiderable diſtance: theſe ſeeds, when green, vomit and purge, and are ſuppoſed to be ſomewhat akin to the *nux vomica*.

This fruit is by the inhabitants of the Weſt Indies cut open on the ſide where the footſtalk grew, and the ſeed

carefully taken out; the ſhell is uſed as a ſtand-iſh to contain ſand for writing, which gave occaſion for the name of *ſand-box* tree.

As this plant has ample leaves which are of a beautiful green colour, it makes an agreeable variety among other tender exotic plants in the ſtove; for where they are kept warm, and duly refreſhed with water, they retain their leaves all the year in verdure. Miller.

Box-*tree*, AFRICAN, *Myſſine*, a genus of the *pentandria monogynia* claſs of plants, the corolla of which is conniveut and divided into five ſegments; the germen ſits the cordils, and the fruit is a five-celled, five-ſeeded berry. There is one ſpecies.

Box is alſo uſed to denote a caſe for holding things; of which there are ſeveral kinds, as a ſalve *box*, *pyxis unguentaria*, that uſed by ſurgeons to carry with them.

Box is ſometimes alſo uſed for a kind of meaſure, though variable according to the commodity. Thus the *box* of quickſilver contains from one to two hundred weight; of pronellas, about fourteen hundred; of rings for keys, two groſs, &c.

Box, *coach*, a place under the coachman's ſeat, wherein he puts what may be wanted for the ſervice of the coach or horſes.

Box, *dice*, a narrow deep cornet, channelled within, wherein the dice are ſhaken and thrown.

This anſwers to what the Romans called *fritillus*; whence *crepitantes fritilli*, and, in Seneca, *reſonante fritillo*. The ſame author alſo uſes *concutere fritillum*, figuratively for playing.

Beſides the *fritillus*, the Romans, for greater ſecurity, had another kind of *dice-box*, called *pyrgus*, and ſometimes *turricula*. It was placed immoveable in the middle of the table, being perforated or open at both ends, and channelled alſo within: over the top was put a kind of funnel, into which the dice were caſt out of the *fritillus*; whence deſcending, they fell through the bottom on the table, by which all practiſing on them with the fingers was effectually prevented. For want of ſome contrivance of this kind our ſharpers have opportunities of playing divers tricks with the *box*, as palming, topping, ſlabbing. Hyde. Hiſt. Nerdiiad. § 5. 27, 28.

Box-*iron*, a kind of caſe wherein the heaters are incloſed for ironing linen.

Box-*money*, at *Hazard*, is that which is paid the box-keeper, or him who furniſhes the *box* and dice. Betters have the advantage over caſters, as they have no *box*-money to pay, which at long run would beggar the moſt fortunate player. Hence ſome gameſters will never caſt, to ſave the expence of *box* money.

Box *of a plough*, a name by which the farmers call that croſs piece in the head of the PLOUGH, through which the ſpindle of the two wheels paſſes, and to which are faſtened the two crow-ſtaves, ſerving by their holes, to regulate the height of the beam, the tow-chain below, the ſtake which ſupports the bridle-chain above, and the gallows behind, into which are fixed the wilds with the crooks of iron, for the drawing of the whole plough along.

This part of the plough is placed croſs-wiſe with the beam, and ſtands much below it, and not far from the ground.

Box, *ſtrong*, a coffer of iron, or of thick wood, ſecured with iron plates, and a lock with ſeveral bolts, difficult either to be opened or forced; chiefly uſed for putting money in.

Box, in *Ichthyology*, a name given by ſome authors to a ſmall fiſh caught in the Mediterranean, and more uſually known by the name of BOOPS, from the largeneſs of its eyes.

Box *and needle*, in *Navigation*, is the ſame with the COMPASS

Box *of a wheel*, the ſpetture wherein the axis turns.

Box-*galls*, ſee GALLS *of the box*.

Box-*ſpecies*, ſee GENUS *of the box*.

Box-*thorn*, in *Botany*, ſee *Box* THORN and LYCIUM.

Box-*hauling*, in *Sea-language*, a particular method of veering a ſhip, when the ſwell of the ſea renders tacking impracticable. It is performed by putting the helm *a lee*, to throw the head up to windward, when by the action of the waves on the weather bow, it falls off or turns to leeward; the after-ſails are at this time diminiſhed, that they may not prevent the ſhip from turning: but they are again extended as ſoon as the ſhip, in veering, brings the wind on the oppoſite quarter, in order to aſſiſt her motion of wheeling. See VEERING.

Boxes in a play-houſe, are little apartments behind and aſide of the pit. We ſay, the front-*boxes*, the ſtage-*boxes*, &c.

BOXERS, a kind of *athletæ*, who combat or contend for victory with their fiſts.

Boxers amount to the ſame with thoſe who, among the Romans, were called *pugiles*.

The ſtrange diſfigurements theſe *boxers* underwent were ſuch, that frequently they could not be known, and rendered them the object of many railleries. In the Greek Anthology, there are four epigrams of the poet Lucillius, and one of Lucian; wherein their diſfigurements are pleaſantly enough expoſed. Anthol. Græc. lib. ii. Ep. 1, 2, 3, 10, 14.

BOXING, the exerciſe of fighting with the fiſts, either naked, or with a ſtone, or leaden ball graſped in them.

In which ſenſe, *boxing* coincides with the *pugilatus* of the Romans, and what, on our amphitheatres, is ſometimes called *trial of manhood*.

When the champions had σφαιραι, or balls, whether of lead or ſtone, it was properly denominated σφαιρομαχια. Potter. Arch. Græc. lib. ii. cap. 21. vol. i.

The ancient *boxing* differed from the *pugna caſtuum*, in which the combatants had leathern thongs on their hands, and bulls to offend their antagoniſts; though this diſtinction is frequently overlooked, and fighting with the *caſtus* ranked as a part of the buſineſs of *pugiles*.

We may diſtinguiſh three ſpecies of *boxing*; viz. where both the head and hands were naked; where the hands were armed and the head naked; and where the head was covered with a kind of cap called ANAPHOTIDES, and the hands alſo furniſhed with the *caſtus*.

Boxing is an ancient exerciſe, having been in uſe in the heroic times, before the invention of iron or weapons.

Thoſe who prepared themſelves for it, uſed all the means that could be contrived to render themſelves fat and fleſhy, that they might be better able to endure blows: whence corpulent men or women were uſually called *pugiles*, according to Terence: *Si qua eſt habitior paulo, pugilem eſſe aiunt*. M. Burette has given the hiſtory of the ancient pugilate, or *boxing*, with great exactneſs. Mem. Acad. Inſcript. tom. iv. p. 353, &c.

BOXING, among *Sailors*, is uſed to denote the rehearſing of the ſeveral points of the compaſs in their proper order.

Boxing likewiſe denotes an operation performed, by laying the head-ſails aback, in order to receive the wind in a direction perpendicular to their ſurfaces, that the ſhip's head may hereby be thrown back into the line of her courſe, after ſhe had inclined to windward of it by neglect of the helmſman, or otherwiſe. Falcon. Mar. Dict.

BOXING is alſo uſed for the tapping of a tree, to make it yields its juice. See BLEEDING and SAP.

The *boxing* of maple is performed, by making a hole with an ax or chiſſel into the ſide of the tree, about a foot from the ground; out of it flows a liquor from which SUGAR is made. Phil. Tranſ. N° 364.

BOXUS, in *Natural Hiſtory*, a name given by ſome authors to the common MISLETOE.

BOYAR, or BOJR, a term uſed for a Ruſſian lord, or grandee. According to Becman, *boyars* are what, in other countries, are called the upper nobility: he adds, that the czar of Muſcovy, in his diplomas, names *boyars* before WAYWODES.

BOYAU, in *Fortification*, a branch of the trenches; or a line or cut, which runs from the trenches to cover ſome ſpot of ground; being drawn parallel to the defence of the place, that it may not be enfiladed, that is, that the ſhot from the town may not ſcour along it.

BOYER, in *Navigation*, a kind of Flemiſh ſloop, or ſmall veſſel of burden, having a bolt-ſprit, a caſtle at each end, and a tall maſt; chiefly fit for the navigation of rivers, and in many of its parts reſembling a SMACK.

The *boyer* has a double bottom, and a forked maſt, that it may run better with the bowling-line, without driving.

BOYES, an order of American prieſts, or magicians, uſed by the ſavages for calling up their gods, either to be revenged on thoſe who have ſtone them any injury, or to be cured of ſome diſeaſe, wherewith they are infeſted, or to drive out ſome devil.

They are alſo conſulted with regard to the event of their wars. Each *boye* has his peculiar duty: who is invoked by certain forms of words, ſung in a quaint tone, accompanied with the fumes of tobacco.

BOYEUPECANGA, in *Zoology*, the name of a very large ſerpent diſtinguiſhed by this name on account of certain prominences on its back. It is a very large and remarkably thick ſerpent, and of very fatal poiſon. Ray.

BOYLE's *Lectures*, a courſe of eight ſermons or lectures, preached annually, ſet on foot by the honourable Robert Boyle, eſq. by a codicil annexed to his will in 1691; whoſe deſign, as expreſſed by the inſtitutor, is to prove the truth of the Chriſtian religion againſt infidels, without deſcending to any controverſies among Chriſtians; and to anſwer new difficulties, ſcruples, &c.

For the ſupport of this lecture, he aſſigned the rent of his houſe in Crooked-lane, to ſome learned divine within the bills of mortality to be elected for a term not exceeding three years, by the late archbiſhop Tenniſon, and others. But the fund proving precarious, the ſalary was ill paid: to remedy which inconveniences, the ſaid archbiſhop procured a yearly ſtipend of fifty pounds, for ever, to be paid quarterly; charged on a farm in the pariſh of Brill, in the county of Bucks.

To this appointment we are indebted for many elaborate defences both of natural and revealed religion.

BOYLING, fee BOILING and EBULLITION.

BOYUNA, in *Zoology*, the name of an American fpecies of ſerpent. It is very long and ſlender, and all over of a black colour. It has exactly the ſmell of a fox, but ſo ſtrong, that nobody can endure to be near it. Raiy.

BRABANCIONES, in *Middle Age Writers*, a kind of Netherland ſoldiery, infamous for rapine, being little better than commiſſioned *banditi*, who hired themſelves to fight for any that could pay them beſt.

The word is variouſly written by the hiſtorians of thoſe days; all given them from the country of Brabant, which was the chief nurſery of thoſe troops. They are alſo frequently confounded with the *Routiers*, *Roturiers*, *Ruptorii*, *Ruterarii*, *Coterauæ*, &c. Daniel. Hiſt. de la Mil. Franc. liv. iii. chap. 8.

BRABE, an herb mentioned by Oribaſius; the deſcription he gives of which is, that it grows a cubit high, ſhooting forth branches on each ſide, with leaves reſembling thoſe of the *lepidium* in ſhape, but ſofter and whiter, and at the top bearing an umbel of flowers like the elder.

BRABEJUM, *African almond*, in *Botany*, a genus of the *tetrandria monogynia* claſs of plants. Its characters are theſe: the flower is compoſed of four narrow obtuſe petals, which are erect, and hath four ſlender ſtamina; in the centre is a ſmall hairy germen, which afterwards becomes an oval, hairy, dry berry, incloſing an oval nut. We have but one ſpecies of this plant, which is a native of the country about the Cape of Good Hope.

In Europe it ſeldom grows above eight or nine feet high; but in its native ſoil, it is a tree of a middling growth: as it is too tender to live through the winter in the open air, ſo we cannot expect to ſee it grow to a great ſize.

BRABEUTES, or BRABEUTA, in *Antiquity*, an officer who preſided at the public games, and decreed the prizes to the victors.

The word is formed from *βραβεῖον*, *prize* or *reward*.

The Latins called him *deſignator* and *munerarius*.

The generality of writers confound the *brabeutes* with the AGONOTHETA, between whom there, however, appears to have been this difference, that the former preſided at the gymnic combats, the latter at the ſacred ones.

BRACE, in *Writing*, a term uſed to ſignify a certain crooked ſtroke or figure of a pen, made at the end of two or more bars in a piece of muſic, or lines in an account, which expreſs two or more articles charged with one and the ſame ſum at the end, which is uſually placed in the centre of the *brace*.

Debts due to me, ſome of which are good, others dubious.

Good Debts.		*Bad Debts.*	
From Mr. James* 300	} 500	From Mr. John **400	} 900
From Mr. Peter* 200		From Mr. Nicolas* 500	

BRACE is commonly taken for a couple, or pair; and in this ſenſe is applied by huntſmen to ſeveral beaſts of game; as a brace of bucks, foxes, hares, &c. They alſo ſay, a *brace* of greyhounds.

BRACE, in *Architecture*, denotes a piece of timber framed in with bevel-joints; ſerving to keep the building from ſwerving either way.

When a *brace* is framed into a king-piece, or principal rafter, it is called by ſome a *ſtrut*.

BRACE, BRACCHIO, or BRASIL, alſo denotes a foreign long meaſure anſwering to our FATHOM.

BRACE is alſo uſed for a meaſure taken from the length of the arm, when extended; and is uſed in divers cities of Italy, in lieu of the foot or yard. Its length is various; the *brace* of Bergamo, according to Scamozzi, is nineteen Paris royal inches, and a half; according to M. Petit, ſixteen inches two thirds; the *brace* of Bologna is fourteen inches; that of Breſſe, ſeventeen inches ſeven lines and a half, according to Scamozzi; and according to M. Petit, ſeventeen inches five lines; the Mantuan *brace* is ſeventeen inches four lines; that of Milan, twenty-two inches; thoſe of Parma, twenty inches one third; of Sienna, twenty-one inches two thirds; of Florence, twenty inches two thirds, according to Maggi; twenty-one inches four lines and a half, according to Lorini; twenty-two inches two thirds, according to Scamozzi; and twenty-one inches one third, according to Picart.

BRACED, in *Heraldry*, is uſed in ſpeaking of chevronels which are intermingled. He bears azure a chief or, and three chevronels *braced*, in the baſe of the eſcutcheon, by the name of *Fitz-Hugh*. See *Tab. Heraldry*, *fig.* 17.

BRACELET, an ornament uſually worn round the wriſt.

The word is French, *bracelet*; which Menage derives farther from *braceletum*, a diminutive of *bracile*, a word occuring in writers of the Juſtinian age; all formed from the Latin *brachium*, *arm*.

Bracelet amounts to the ſame with what was called by the ancients, *armilla*, *brachiale*, *accabus*; in the middle-age, *bigæ*, *bauge*, *armiſpatha*.

Among the ancient Romans, the men as well as the women wore *bracelets*; but the latter, it is to be obſerved, never wore them till they were betrothed.

Bracelets were at firſt properly military ornaments or rewards frequently conferred among the ancients, by generals and princes, on thoſe who behaved gallantly in fight. They became afterwards arbitrary decorations, aſſumed at pleaſure; and are ſometimes ſaid to have been worn for health as well as ornament; and particularly as AMULETS, to break the force of charms and faſcinations.

Among the Romans we meet with divers ſpecies and denominations of *bracelets*; as the *brachiale*, which covered the whole length of the arm; the *dextrale*, or *dextrocherium*, only the wriſt, and that only of the right arm; *viriæ*, or *viriolæ*, peculiar to the male ſex; *ſpumber*, to the women, being worn on the left arm; *vervæ*, uſed as an AMULET; *amphidion*, worn either on the arm or about the neck; *calbeum*, or *galbeum*, worn by generals in their triumphs. Pitiſc. Lex. Ant. tom. i. & ii. Du-Cange. Gloſſ. Lat. tom. i. & ii. Kennet. Rom. Ant. Not. P. II. lib. iv. cap. 16.

Bartholin has a treatiſe on the *bracelets* of the ancients.

The northern people uſed alſo to ſwear on their *bracelets*, to render contracts more inviolable.

Bracelets are ſtill much uſed by the ſavages of Africa and America, made of metal, glaſs-beads, ſhells, and the like.

BRACELET is alſo uſed, in *Anatomy*, to denote the circular ligament which inveſts the *corpus*, called alſo *ligamentum annulare*.

BRACELETS, in ſome *Ancient Law Books*, denote beagles, or hounds of the ſmaller kind.

BRACES, in the *Sea Language*, are ropes belonging to all the yards of a ſhip, except the mizen, two to each yard, except thoſe of the top-gallant, and ſprit-ſail, top-ſail-yards, being reeved through blocks faſtened to pendants ſeized to the yard-arms. See *Tab. Ship. fig.* 1. *n.* 11. 21. 50. 68. 89. 130 139.

The uſe of *braces* is, to *ſquare the yard*; that is, to ſet it ſquare. Hence, *to brace the yard*, is to bring it to either ſide. *To traverſe the yard*, is to ſet it any way overthwart. *To right the yard*, is to bring it to as it may ſtand at right angles with the length of the ſhip.

All *braces* come aftward on; the main *brace* comes to the poop, the main-top-ſail *brace* to the mizen-top, and thence to the main-ſhrouds; the fore and fore-top-ſail *braces* come down by the main, and main-top-ſail-ſtays, and ſo of the reſt.

The mizen-bowline ſerves for a brace to that yard; and the croſs-jack *braces* are brought forward to the main-ſhrouds, whenever a ſhip ſails cloſe by a wind.

BRACHERIUM, or BRACHERIOLUM, a kind of ſteel-bandage worn about the hips, and uſed for the retention and cure of ruptures. Du-Cange. Gloſſ. Lat.

BRACHIÆUS, or BRACHIALIS, a name given to two muſcles of the arm, the one external, the other internal. *Brachæus* is a name given by Spigelius and others to a muſcle of the arm now generally known under the name of *brachialis*, or *brachiæus internus*.

BRACHIÆUS *externus* ariſes about the middle and poſterior part of the *humerus*. It joins its fibres with the *muſculus longus* and *brevis*; and being externally tendinous, they, together, cover all the elbow, and are inſerted into the *olecranum*. See *Tab. Anat. (Myol.) fig.* 7. *n.* 12. The ANCONEUS *externus*, and ſometimes the *internus*, is called by this name.

BRACHIÆUS *internus* lies partly under the *biceps*; it riſes by a fleſhy beginning from the middle and internal part of the *humerus*; and is inſerted into the upper and fore-part of the *cubitus*, by a very ſhort, but ſtrong tendon: it ſerves to bend the arm. See *Tab. Anat. (Myol.) fig.* 1. *n.* 25. *fig.* 2. *n.* 14. *fig.* 7. *n.* 11.

The upper part of this muſcle is forked, or ſloped, and, at the bending of the joint of the elbow, the lower part of it contracts. It is fixed to the ſurface of the *os humeri* by a great number of fleſhy fibres, from the lower inſertion of the *deltoides* almoſt down to the two *foſſæ* at the lower extremity of the bone, and from one edge of the foreſide of this lower extremity to the other. The fibres are for the moſt part longitudinal; thoſe neareſt the ſurface of the muſcle being longeſt, the more internal grow gradually ſhorter.

The lateral fibres are a little oblique, and this obliquity increaſes as they deſcend lower. Theſe lateral fibres are partly fixed in the intermuſcular ligaments of the *os humeri*; of which ligaments, that which lies toward the internal condyle, is longer and broader than that toward the external. The loweſt of theſe fibres are very oblique, and form on each ſide a kind of ſmall ſeparate *faſciculus*. In paſſing over the joint, all theſe fibres contract in breadth, and afterwards end in a ſtrong flat tendon, inſerted in the muſcular impreſſion, which is directly below the *coronoide apophyſis* of the *ulna*.

The ſloped or forked extremity of this muſcle embraces the large tendon of the *deltoides*; the internal part of the

fork meets the inferior infertion of the *coraco-brachialis*, and the foreſide of the whole muſcle is covered by the two fleſhy bodies of the *biceps*. Winſlow.

BRACHIAL *nerves*, ſee NERVE.

BRACHIALIS, *arteria*, ſee CORACO-BRACHIALIS.

BRACHIONUS, in *Zoology*, the name of a genus of ANIMALCULES of the ARTHRODIA kind, containing all the WHEEL-animals.

BRACHTÆ, a branch of MANICHEES, who appeared in the third century.

BRACHIUM, in *Anatomy*, ſee ARM, and HUMERUS.

BRACHIUM, the *arm*, in *Botany*, is the tenth degree in the Linnæan ſcale for meaſuring plants, being twenty-four Paris inches.

BRACHIUM, *proventium ſecundus*, in *Anatomy*, a name given by Veſalius, and other of the old writers, to the muſcle now generally called *deltoides*.

BRACHIUM *motorum quartus*, in *Anatomy*, the name by which Veſalius calls the muſcle now generally known under the name of *latiſſimus dorſi*. Fallopius, and many others, have alſo called it *quartus humeri*.

BRACHII *tertius*, in *Anatomy*, a name given by Veſalius and others to a muſcle ſince called, from its ſhape, *teres major* and *rotundus major*.

BRACHMANS, a branch of the ancient gymnoſophiſts, or philoſophers of India, remarkable for the ſeverity of their lives and manners.

The Greeks uſually give them the name *gymnoſophiſts*; though Clemens, Porphyry, &c. make the *brachmans* only a branch of the gymnoſophiſts, whom they divide into two ſects, *Brachmanes* and *Samanæi*.

There are ſome in the Indies who ſtill bear the name, and live in the ſame manner as the ancient *brachmans*: the Portugueſe call them *bramanes*, or *brameneſ*; we uſually bramins.

Some ſay, they derive their name from the patriarch Abraham, whom, in their language, they call *Brachma*, or *Bruma*. Others deduce it from the name of their God, *Brachma*; which ſome again take to be the ſame with Abraham; whence Poſſel calls them *Abrachmanes*. F. Thomaſin derives the word from the Hebrew *barach*, to *fly* or *eſcape*; becauſe the *brachmans* retire into the country, and live in deſarts. The ſame author gives us another derivation, viz. from the Hebrew *baraich*, *benedicere*, *orare*, to *bleſs*, *pray*; becauſe this is their principal occupation.

Porphyry obſerves that the ancient *brachmans* ſucceeded into the order, by right of family; whereas the Samaneans were elected into it: the former therefore were all of the ſame family, the latter of various.

The *brachmans* were perfectly at liberty, paid no taxes, nor were under the command of any perſon: they lived on herbs, pulſe, and fruits; abſtaining from all animals, and thinking it an impiety to touch them. The greateſt part of the day and night they ſpent in ſinging hymns in honour of the deity; praying and faſting continually. The greateſt part of them lived in ſolitude, without marrying or poſſeſſing any eſtates. There was nothing they appeared to with for ſo earneſtly as death; looking on life as a burthenſome thing, and waiting with impatience for the ſeparation of their ſoul and body. This is the account Porphyry gives of them.

Kircher obſerves, that the *brachmans* held the opinion of Pythagoras, relating to the ſoul and its tranſmigration; and led a life in all reſpects agreeable to his: or rather, it was from the *brachmans* that Pythagoras borrowed his opinions, his manner of living, &c.

The modern *brachmans* are the ſucceſſors of the ancient, and the prieſts or diviners of the idolatrous Indians.

Rogers diſtinguiſhes ſix ſorts of them; the *Weiſſerowa*, the *Seivia*, the *Smaerta*, the *Shaerwaecka*, the *Paſenda*, and the *Tſchectea*.

Theſe are much converſant in aſtrology and aſtronomy. They have ſo great a veneration for cows, that it is ſaid, they look on themſelves as bleſſed, if they can but die with the tail of one of them in their hand. They ſometimes make a proceſſion of four hundred leagues, drawing after them whole cities and towns: feeding the people, when ſtopped at the paſſages of rivers overflowed, in a manner which is ſaid to be miraculous; by giving them every thing they deſire, without making any proviſion.

Mr. Marſhal obſerves, that whenever they write any thing, they put a figure of 1 in the firſt place; to ſhew, as they ſay, that they acknowledge but ONE GOD. They account the world the body of God, the higheſt heavens his head, the fire his mouth, the air his breath, the water his feed, and the earth his legs and feet. They maintain a pre-exiſtent ſtate; and from that account for the tempers and manners of men in this: they alſo maintain the *metempſychoſis*, but in a groſſer ſenſe than Pythagoras; believing that the ſouls of ill men paſs into reptiles, inſects, and vegetables, for their puniſhment and purgation. They compute the world to be about 389,850 years old; and ſeem to have ſome obſcure traditions of the Moſaic paradiſe, Adam, Eve, and the deluge. They have alſo a notion of God's being incarnate, and living ſome time among men.

Their religion conſiſts in leading a pure life, waſhing away their ſins in the river Ganges, muttering over divers prayers, and doing ſtrange and incredible penances.—They burn their dead with much ceremony; and ſtrewing the aſhes on the place where the deceaſed firſt lay after his death, they judge from ſome figure or impreſſions pretended to be made on it, into what body his ſoul is gone; viz. if the impreſſion of a foot of a dog or ox, &c. appear, they give out he is tranſmigrated into one of thoſe animals; if there be no impreſſion, he is then gone to the ſtarry region.

They have alſo abundance of cabbaliſtic notions; v. gr. ſay they, if the numbers 28, 35, 2, 7—6, 3, 32, 31—34, 29, 8, 1—4, 5, 30, 33, be written in the ſame order in the ſquares of a ſquare figure, and your enemy's name, written under it, while you wear it, he cannot hurt you, &c. Phil. Tranſ. N° 268.

The *brachmans* of Indoſtan have a language peculiar to themſelves, which they call *banſcbrit*; in which they have ſeveral ancient books, written, as is alledged, by their great prophet *Brahma*; as the *Shaſtram*, which is their bible, and *Perane*, a hiſtory which they eſteem ſacred, and pretend to have been dictated by God himſelf.

The *brachmans* of Siam and Coromandel maintain, that the earth will be deſtroyed by fire: and the former aſſert, that another will ariſe out of its aſhes, in which there ſhall be no ſea, nor any change of ſeaſons, but an eternal ſpring: and the latter maintain a plurality of worlds, which are alternately deſtroyed and renewed.

Robert de Nobili, an Italian Jeſuit, and one of the Indian miſſionaries, in the beginning of the ſeventeenth century, in order to ſecure ſucceſs to his miſſion, aſſumed the title and appearance of a *brachman*, and at length perſuaded the credulous people, that he was, in reality, a member of that venerable order. He forged a deed in the ancient Indian characters, ſhewing that the *brachmans* of Rome were older than thoſe of India, and that the Jeſuits of Rome deſcended, in a direct line, from the god *Brahma*. He farther declared on oath, that he derived his origin from this Indian deity. By this impoſture he proſelyted twelve eminent *brachmans*, whoſe influence proved very favourable to his miſſion. After his death, the Portugueſe Jeſuits carried on the impoſture with very conſiderable ſucceſs. Theſe miſſions, however, were ſuſpended and abandoned, in conſequence of a papal mandate, iſſued out in the year 1744, by Benedict XIV. who declared his diſapprobation of the artifices that had been uſed in the converſion of the Indians, Moſheim's Eccleſ. Hiſt. vol. iv. p. 211, &c. 8vo edit.

The modern *brachmans* own a Supreme Being, who created *Brahma*, and gave him a power to create the world. They have alſo their ſubaltern deities, their pagods or temples, and idols, whom they ſay to defend from flies, dancing before them, &c.

They hold a feaſt in honour of the ſun, conſidered as the ſource of heat and light, whereby all nature is fecundified.

BRACHURI, in *Zoology*, a name given by Dr. Hill to a genus of ANIMALCULES of the tailed kind.

Theſe *animalcules* are of a roundiſh figure, with tails ſhorter than their bodies; their ſkin is perfectly ſmooth, thin, and colourleſs. They are frequent in water-ponds, in pepper-water, and many other infuſions of vegetable ſubſtances.

BRACHYCOLON, from βραχυς, *ſhort*, and κωλον, *member*, is when one member of a period is ſhorter than another.

In which ſenſe, the word ſtands contradiſtinguiſhed from *iſocolon*, where the members are equal, or conſiſt of the ſame number of ſyllables.

BRACHYGRAPHY (from βραχυς, *ſhort*, and γραφω, *ſcribo, I write*) denotes the art of ſhort-hand writing, called alſo TACHYGRAPHY.

BRACHYLOGY, from βραχυς and λογος, *expreſſion*, in *Rhetoric*, BREVITY, the expreſſing of any thing in the moſt conciſe manner. This, ſo far as conſiſtent with perſpicuity, is a virtue and beauty of ſtyle; but if obſcurity be the conſequence, which is often the caſe, it becomes a blemiſh and inexcuſable defect.

Quintilian gives us an inſtance of *brachylogy* from Salluſt: *Mithridates corpore ingenti perinde armatus*; Mithridates, as it were, armed with the hugeneſs of his ſtature. Inſt. Or. lib. viii. cap. 3.

BRACHYPOTÆ, or BRACHYPOTI, from βραχυς and πινω, *drinker*, thoſe who drink but little and at long intervals.

The word ſometimes alſo ſignifies thoſe who drink ſelſdom, though in greater quantity.

BRACHYPTERA, in *Ornithology*, the name of a genus of birds,

birds, of the clafs of the hawks, diſtinguiſhed by the ſhortneſs of their wings.

The word is derived from βραχυς, *ſhort*, and πτερον, a *wing*.

The hawks of this genus have their wings ſo ſhort, that, when folded, they do not nearly reach to the end of the tail. Of this genus are the goſs-hawk, the ſparrow-hawk, and the three kinds of the butcher-bird. Willughby. Ornith. p. 36.

BRACHYPYRENIA, from βραχυς, and πυρην, *nucleus*, in *Natural Hiſtory*, a genus of foſſils of the clafs of SEPTARIÆ.

The *brachypyrenia* have a ſhort roundiſh *nucleus*, incloſed by and contained within the body of the maſs.

BRACHYTELOSTYLA, in *Natural Hiſtory*, the name of a genus of cryſtals.

The word is derived from βραχυς, *ſhort*, τελειος, *perfect*, and στυλος, a *column*, and expreſſes a perfect cryſtal, with a ſhort intermediate column.

The bodies of this genus are cryſtals compoſed of a ſhort hexangular column, terminated at each end by an hexangular pyramid. Of this genus there are ſix known ſpecies. Hill's Hiſt. Foſſils, p. 163.

BRACKET, in *Building*, denotes a kind of wooden ſtay, in form of a knee or ſhoulder, ſerving for the ſupport of ſhelves, &c. or a cramping iron, which ſerves as a ſtay, in timber-work.

The word is alſo written *braget*, and ſeems derived from the Italian *brachette*, a diminutive of *brachia*, *arms*.

MODILLIONS are a ſort of *brackets* to the *corona* of an entablature.

BRACKETS, in *Artillery*, ſee CHEEKS *of a Mortar*.

BRACKETS, in a ſhip, are ſmall knees uſually carved, and ſerving to ſupport the GALLERY.

The timbers which ſupport the gratings in the head, are alſo called *brackets*. See CHEEKS.

BRACTEA, a thin flake or ſpangle of any ſubſtance; it is uſed by many authors in the ſame ſenſe with the word *lamina*, but uſually in a ſort of diminutive ſenſe, expreſſing a ſmall plate.

BRACTEA, in *Botany*, denotes the floral leaf.

BRACTEARIA, in *Natural Hiſtory*, the name of a genus of foſſils, of the talc clafs; the characters of which are, that they are compoſed of ſmall plates in form of ſpangles, and each of theſe, naturally very thin or fiſſile, compoſed of very thin ones. *Tab. Foſſil. cl.* I.

The word is derived from the Latin *bractea*, a *ſpangle*, or ſmall and thin glittering particle of any thing.

There are many ſpecies of this genus denominated from the variety of their colours; as MICA *aurea*, or gold-glimmer, and MICA *argentea*, ſilver-glimmer, cat's ſilver, &c.

BRACTEATED, among *Antiquaries*, denotes a coin covered over with a thin plate, or leaf of ſome richer metal. See MEDAL.

Bracteated coins, or medals, *nummi bracteati*, are uſually made of iron, copper, or braſs, plated over, and edged with gold or ſilver-leaf, and then ſtamped with the hammer or mill.

Medaliſts find ſome *bracteated* pieces even among the truly ancient coins. The French call them *fourrées*.

BRADS, a ſlender kind of NAIL, uſed in building, having no ſpreading heads as other nails have.

Of theſe, ſome are called *joiners brads*, and are for hard wainſcots; others *batten brads*, for ſoft wainſcot; and ſome *hill brads*, or *quarter-brads*, uſed when a floor is laid in haſte, or for ſhallow joiſts ſubject to warp.

BRADYPEPSIA, from βραδυς, *ſlow*, and πεπτω, *I digeſt*, in the *Medical Writings of the Ancients*, the name of a diſtemper, which conſiſted in a ſlow, weak and languid concoction of the food.

It is cauſed by a diminution of the force or heat of the ſtomach, or a defect in the gaſtric liquors. See DIGESTION.

BRADYPUS, in *Zoology*, the name given to a genus of quadrupeds of the order of Linnæus, called *Bruta*, otherwiſe termed *ſloaws*, and in Engliſh the SLOTH. Its characters are, a mouth without fore-teeth, the canine teeth are obtuſe and longer than the grinders, of which there are five on each ſide; the body is covered with hair; the feet have no great toe, and are made for climbing; and only two paps upon the breaſt. Of this genus there are known two ſpecies; the one is called the American SLOTH, with a ſhort tail, and three toes on each foot; the other is named the Ceylon SLOTH, with only two toes to each foot, and no tail.

BRAG, a name given to a game at cards, from the nature of it: the principal ſtake being won by him who *brags* with moſt confidence and aſſurance; i. e. who challenges the other gameſters to produce cards equal to his. In this game a pair of aces is the beſt *brag*, pair of kings the next, and ſo on: and a pair of any ſort wins the ſtake from the moſt valuable ſingle card. The knave of clubs pairs with any other card in hand; but a hand of cards of leſs value in this game has ſometimes gained the ſtake from one of ſuperior value, by the confidence and art of *bragging*: the conteſt being given upon the part of the latter through fear of loſing. One ſtake is gained by the higheſt card, that is turned up in dealing, three cards being dealt round to each perſon and the laſt turned up; the higheſt card is the ace of diamonds: the other ſtake is won by the perſon, who firſt makes up the cards in his hands one and thirty; each dignified card paſſing for ten, and drawing from the pack. Each gameſter depoſits three ſtakes one for each card.

BRAGGOT, a ſort of drink made in ſome parts of England, of malt, with honey, ſpices, and other ingredients.

It is derived from the old Britiſh word *brag*, which ſignifies *malt*, and *gett*, a *honey-comb*.

BRAILS *in a ſhip*, ſmall ropes uſed in furling the ſails acroſs. The *brails* are reeved through blocks, which are ſeized on either ſide the ties, a little diſtance off upon the yard, ſo that they come down before the ſails of a ſhip, and are faſtened at the ſkirt of the ſail to the creoglas. Their uſe is, when the ſail is furled acroſs to haſe up its bunt, that it may the more readily be taken up, or let fall. See *Tab. Ship. fig.* 5. *n.* 6.

Theſe *brails* belong only to the two courſes and the mizen-ſail.

They ſay, *haſe up the brails*, or, which is all one *hoiſt up the ſails*; the meaning of which is, that the ſail is to be haſed up, in order to be furled, or bound cloſe to the yard.

BRAIN, in a general ſenſe, is that large, *ſoft*, whitiſh maſs, incloſed in the *cranium*, or ſkull; wherein all the organs of ſenſe terminate, and the ſoul is ſuppoſed principally to reſide. See *Tab. Anat. (Oſteol.) fig.* 4. *lit. a. a. a. d. d. d. fig.* 5. *lit. a. a. b. b.*

The *brain* is encompaſſed with two *meninges*, or membranes, called *dura* and *pia mater*.

Its figure is the ſame with that of the bones that contain it, viz. roundiſh, oblong, and flat on the ſides: it is divided into three principal parts; viz. the *cerebrum*, or *brain ſtrictly ſo called*, the CEREBELLUM, and the MEDULLA OBLONGATA; to which ſome add a fourth, viz. the MEDULLA *ſpinalis*, which is a continuation of the latter.

BRAIN, in a more proper ſenſe, is that large globulous part which fills the fore and upper part of the ſkull.

It is divided by a duplicature of the *dura mater*, called from its figure *falx*, into two equal parts, called *right* and *left hemiſpheres*; though the figure of the *brain* be pretty far from a ſphere; and theſe parts are more like quarters of an oblong ſpheroid. It is alſo ſeparated from the CEREBELLUM by another duplicature of the ſame *dura mater*.

It conſiſts of two kinds of ſubſtance; the one cineritious, or aſh-coloured, ſoft and moiſt; which, being the exterior, is alſo called the *cortex* or CORTICAL part of the *brain*: the thickneſs of this is about half an inch, though by reaſon of the ſinuſes and ſutures in the *brain* it appears more. The other, or inner ſubſtance, is white, more ſolid, as well as more dry than the *cortex*, and is called the *marrow* or *medullary*, and ſometimes the *fibrous* part, in contradiſtinction to the other, which is alſo called the *glandulous* part.

The *cortex*, according to Malpighi, is formed from the minute branches of the carotid and vertebral arteries; which, being woven together in the *pia mater*, ſend from each point thereof, as from a baſis, little branches, which being twiſted together into the form of a gland, incloſe the *medulla*, ordinarily to the thickneſs of half an inch; but in ſome places make deeper ſinuſes and furrows within it. Theſe branches make circumvolutions like the inteſtines; each of which may be reſolved into others, like, but leſs than the firſt.

This part, therefore, moſt authors take to be glandulous; or an aſſemblage of innumerable minute glands, contiguous to each other, deſtined for the ſecretion of animal ſpirits from the blood, brought hither by the carotids, &c. Theſe glandules, Malpighi obſerves, are of themſelves oval, but by their mutual compreſſure they become angular; and run waving within each other: ſeveral of theſe connected form others larger, and theſe again unite into others, from the aggregate whereof are formed tubes, of which the outer *cortex* is compoſed. Theſe little glands conſiſt of the branches of the arteries which bring the blood; of the veins ariſing at their extremities, which carry it back again; of ſecretory tubes ſecerning the animal ſpirits, and of excretory ducts for diſcharging them into the *medulla*: though theſe are too minute to have ever been ſeen.

The inner, or medullary part of the *brain*, conſiſts of a number of infinitely fine fibres, ariſing from the leaſt and minuteſt branches or filaments of the glands of the

cortex;

cortex; as is diſtinctly ſeen in the CEREBELLUM, though ſcarce viſible in the *cerebrum*: theſe receive the fluid ſeparated and ſubtilized, from the glands of the *cortex*; and by means of the nerves which are no more than productions of this part, diſtribute it all over the body. Authers here, however, are divided; the generality, with Malpighi, making the ſubſtance of the *cortex* glandulous, as above; others, with Ruyſch and Leewenhoeck, deny any thing like glands in it; and allow nothing but little *cryptæ*, or ſinks, opening laterally to the arteries; and thence receiving a juice already ſecerned from the blood, and tranſmitting it to the MEDULLA. This doctrine, it ſeems, is the reſult of anatomical injections, and microſcopical obſervations; but the other, appearing the moſt conſiſtent with the œconomy of nature, in other things, is generally adhered to.

The *cortex* covers the whole medullary ſubſtance both of the *brain* and CEREBELLUM; ſo that wherever the cortical ſubſtance ends, there the medullary commences; and this in the appendices, ventricles, interſtices, and ſinuſes of the MEDULLA, as well as in the external ſurface. Something medullary, therefore, ariſes from every point of the *cortex*; at its firſt riſe, it muſt needs be exceedingly fine and ſlender: but, being joined with other parts of the ſame kind, it gradually thickens and at length becoming ſenſible, conſtitutes the *medulla cerebri*, the *corpus calloſum*, the MEDULLA *oblongata*, and its *crura*, the *thalami* of the optic nerves, the MEDULLA *cerebelli*, and its production into the MEDULLA *oblongata*; which, with theſe additions, forms the *corpora pyramidalia* and *olivaria*, and is extended into the ſpinal marrow. And from the ſame medullary ſubſtance, both in the *cranium*, and in the caſe formed by the union of the *vertebræ*, ariſe all the nerves.

Though the primary *fibrillæ*, or filaments when united, ſeem to form one compact body or maſs; yet Boerhaave ſhews, they are really diſtinct and ſeparate from each other: that thus ariſing from each part of the *cortex*, and tending, as it were, to the centre of the ſphere, they firſt form the *medullæ*; that others, reflected hence and collected above, form the *corpus calloſum* and *fornix*; and below, form the *corpus calloſum* and legs of the MEDULLA *oblongata*; that the like *fibrillæ*, ariſing from the CEREBELLUM, join with them; the reſult of which junCture is the MEDULLA *ſpinalis*. And laſtly, that the like *fibrillæ* ariſing from the *cortex*, continued within the cavities of the MEDULLA, join with them, and add freſh conſiſtence to them.

Hence we ſee the reaſon of the bulk, figure, and poſition of the *cortex* of the *brain*, as well as the uſe and neceſſity of the cavities called *ventricles* of the *brain*: of theſe ventricles there are four; one in each hemiſphere, ſeparated by a thin tranſparent ſubſtance, running all along from the FORNIX under the *corpus calloſum*, and diſtinguiſhed by the name of the *ſeptum lucidum*: theſe two are called the *lateral ventricles*.

The third is under the FORNIX and called *rima*: the fourth between the CEREBELLUM and MEDULLA *oblongata*.

From the whole, it appears paſt doubt, that the fibres of the *brain* are exceedingly minute canals; that they receive a humour, infinitely the moſt ſubtile, fluid, and moveable, of any of the whole body; prepared and ſecerned by the artful ſtructure of the *cortex*, driven into theſe tubules by the force of the heart, and from every part hereof collected into the MEDULLA *oblongata*. And this is what ſome call *animal ſpirits*, others the *nervous juice*; the great inſtrument of ſenſation, muſcular motion, &c.

In the ſpace between the two hemiſpheres of the *brain*, under the *falx*, or rather under the longitudinal ſinus of the *dura mater*, is a white ſubſtance, of a texture more compact than the reſt of the *medulla* of the *brain*; and for that reaſon called *corpus calloſum*; which runs along the whole tract of the *falx*, and receives from each ſide the terminations of the MEDULLA, interſperſed between the ſeveral windings of the *cortex*, and ſuppoſed by ſome to be a kind of baſe or ſupport to it. The manner wherein this is formed is ſhewn above: we ſhall only add, that, on occaſion hereof, ſome authors, M. Aſtruc for inſtance, inſtead of two ſubſtances, viz. the CORTEX and MEDULLA, divide the *brain* into three; viz. the uppermoſt, or *cinerilious*, which conſtitutes the *cortex*; the middle, which is whiter and denſer than the firſt, and therefore called the *callous*; and the loweſt or inmoſt, which, being intermixed with *radii* or *ſtriæ* of the white and cineritious ſubſtance, he calls the *ſtriated* part. Aſtruc adds that the fluid ſecreted in the *cortex* is conveyed into innumerable minute hollow medullary *fibrillæ*, of the ſame nature with the callous ſubſtance, and contiguous thereto. This middle, or callous part, he obſerves, is not diſtinguiſhed by any appearance of fibres, but is uniform, homogeneous, elaſtic, and not unlike the pith of the elder tree: for which reaſon, he thinks it may be probably conjectured to conſiſt of innumerable cells, communicating with each other, divided by the interpoſition of membranaceous, flexible, elaſtic, vibrative parietes or columns; which being flowed over by the ſpirits, and continually expoſed to the ſhakings thereof, conſtitute the fibres of the *brain*.

Now the ſecreted fluid flowing equally from each point of the cineritious ſubſtance into the callous, muſt equally fill and diſtend the cells thereof; and leſt any place ſhould want its ſhare, proviſion is made for a ſtrict communication; not only by the apertures of the cells into each other, but alſo by the ſtructure of the *brain*; the upper part communicating with the under, by the *ſeptum lucidum*; the lateral with the lateral, by the *lata commiſſura*; laſtly, the fore-parts, with the hind-parts, by the *crura*, *brachia*, and roots of the *fornix*. Theſe cells, he continues, being filled, the ſpirits will proceed to the contiguous *ſtriæ* of the medullary ſubſtance: which, ariſing from the *cortex*, compoſe the ſtriated part of the *brain*: and theſe *ſtriæ* rendered narrower and ſlenderer, and paſſing without the ſurface of the *brain*, conſtitute the firſt principles of the nerves, &c.

The other parts of the *brain* are the FORNIX, a production of the MEDULLA: which, at its extremity next the CEREBELLUM, ſends out two proceſſes or legs, by whoſe junCture is formed a kind of arch thence called *fornix*, which ſeparates the third ventricle from the two upper ones. At the bottom of the *fornix* are two holes, by which the third ventricle has a communication with the others; that before is called *vulva*, and that behind *anus*. The third ventricle, or *rima*, which is in the MEDULLA *oblongata*, has likewiſe two apertures; the one the orifice of the *infundibulum*, or funnel, which is a canal reaching to the *glandula pituitaria*: the other is a duct, whereby the third ventricle communicates with the fourth in the MEDULLA *oblongata*, under the CEREBELLUM. That fourth ventricle is in the form of a quill, whence it is ſometimes called *calamus ſcriptorius*.

In the lateral ventricles are found the *plexus choroides*, which is an aſſemblage of minute veins and arteries; and four eminences, the firſt the *corpora ſtriata*, the others the *thalami nervorum opticorum*.

At the entrance of the canal reaching from the third ventricle to the fourth, is ſituated the *pineal gland*; ſo called from the figure of a pine-apple, which it reſembles: this gland Des Cartes ſuppoſes to be the ſeat of the ſoul. Behind the pineal gland are four eminences: two upper and greater, called NATES; and two ſmaller and lower, called TESTES. See MEDULLA *oblongata*, to which all theſe parts properly belong.

The veſſels of the *brain* are nerves, arteries, and veins. By turning up the *brain*, the origin of the nerves proceeding from it is diſtinctly ſeen: theſe are in number ten pair, viz. the olfactory, optic, movers of the eyes, pathetic; the fifth pair, called *nervi innominati*, or *trigemini*; and ſixth pair, called alſo the *motores oculorum externi*, or *oculares externi*, the auditory nerves, PAR VAGUM; and the ninth pair. See NERVE.

The blood-veſſels of the *brain* are the two internal carotid, and the vertebral arteries. The firſt, piercing the *dura mater*, communicate with the cervicals, and proceeding thence ſend a branch to the *plexus choroides*; till arriving at the *pia mater*, and making ſeveral turns and circumvolutions thereon, they terminate, at laſt, in the little glands that conſtitute the *cortex*. The vertebral arteries paſſing the *dura mater*, go along the under-ſide of the MEDULLA *oblongata*; till giving branches to the ſpinal arteries, they join in one branch called the cervical artery, which communicates with the *carotides* by two branches, as before. The veins of the *brain* do not run along by the ſides of the arteries, as in other parts of the body, but riſe from their extremities in the *cortex*; whence they diſcharge themſelves into the ſinus of the *dura mater*.

For the great bulk of the *brain*, this reaſon may be aſſigned; viz. that on account of the exceeding ſubtility and fineneſs of the animal ſpirits, and the ſlowneſs with which their ſecretion muſt be effected; together with the great quantity of them required in diſcharging the animal functions; there muſt of neceſſity be an infinite number of glands to ſeparate and prepare them. From the ſame principle we ſee why the *brain* is much bigger in men than in other animals: and in other animals, why, *cæteris paribus*, it is generally biggeſt in thoſe which diſcover the greateſt ſhare of ſagacity, v. gr. in monkeys; becauſe a conſiderable ſtock of animal ſpirits is to be employed in the affairs of cogitation, memory, &c. Accordingly, anatomiſts obſerve, that in fools the *brain* is ſmaller (*cæteris paribus*) than in men of ſenſe: this ſome may account for, by ſuppoſing it the cauſe of the folly; a ſufficient ſtock of ſpirits being wanting to reaſon ſtrongly; and others from the œconomy of nature

ture, which proportioned the ſtock of ſpirits to the expence that would be required.

From the texture, diſpoſition, and tone of the fibres of the *brain*, philoſophers ordinarily account for the phenomena of ſenſation and imagination. Dr. Aſtruc goes farther, and from the analogy between the fibres of the *brain*, and thoſe of muſical inſtruments, ſolves the phenomena of judgment and reaſoning, and the defects and perfections of both. He lays it down as an axiom, that every ſimple idea is produced by the oſcillation of one determinate fibre; and every compound idea from contemporary vibrations of ſeveral fibres; that the greater or leſs degree of evidence follows the greater or leſs force where the fibre oſcillates.

He takes occaſion to obſerve, that the fibres of the *brain*, from their natural analogy to thoſe of muſical inſtruments, may be perverted ſeveral ways; viz. by being rendered too dry or too moiſt, too ſtiff or too lax, &c. In a phrenzy, he thinks the fibres too dry, or too much diſtended by the heat of the blood, &c. In a *mania*, theſe fibres he thinks too rigid, as well as too dry and diſtended. In a lethargy, they are too much ſoftened by phlegm; in idiocy, or fooliſhneſs, they are ſometimes too ſoft, and ſometimes too hard. Laſtly, he thinks that in melancholy, by the repeated ſucceſſive vibrations which the attentive meditation of a thing induces, two or more fibres, which of themſelves exhibit diſſimilar and unequal ideas, are (the other parts remaining ſound) ſenſibly brought to an iſochroniſm: ſo that the ſoul, judging well in other reſpects, yet in this always makes a falſe judgment.

Dr. Hartley has likewiſe founded his theory on vibrations excited in the medullary ſubſtance of the *brain*, ſpinal marrow, and nerves. Obſervations on Man, &c. vol. i. See ASSOCIATION, and VIBRATION.

The generality make wit and genius to depend on the conformation, magnitude, and qualities of the *brain*. Des Cartes ſuppoſes the pineal gland, Vieuſſens the *centrum ovale*, to be the part of the *brain* where the ſoul more immediately reſides. Willis lodges common ſenſe in the *corpora ſtriata*, the imagination in the *corpus callioſum*, and the memory in the *cortical* ſubſtance. Dr. Hooke endeavours to ſhew how all ideas may be diſpoſed and mechanically laid up in the *brain*, for the uſe of the MEMORY. Phil. Tranſ. N° 67. Hooke, Poſth. Works, p. 140.

We find great diverſities in reſpect of figure, ſtructure, bulk, &c. in the *brains* of different animals. The *brains* are divided into two parts, with an interval between, as is well known to mountebanks, who, in virtue thereof, ſometimes raiſe an opinion of their ſkill in the vulgar, by running a pin through the middle of a cock's head, without damage to the bird.

Through the whole bird kind, the cortical part of the *brain* is extremely over proportioned to the medullary; ten times more in proportion than in men; add, that it is uſually alſo ſmooth, and without ſinuoſities. Dr. Willis, who diſſected a great variety of *brains*, obſerved a near reſemblance between the *brains* of men and quadrupeds, and between thoſe of birds and fiſhes: though M. Steno obſerves, that the *brains* of birds and fiſhes are not at all like thoſe of men. Winſlow.

The *brain* is ſubject to divers diſorders, as wounds, contuſions, depreſſions, conſtipations, inflammations, petrifactions, diſruptions, &c. Phil. Tranſ. N° 228. Med. Eſſ. Edinb. tom. ii. p. 245. Hiſt. Acad. Scienc. an. 1703. 1710. 1722.

A watery *brain* appears to be the cauſe of the epilepſy; and an extremely dry or rigid one, of the phrenzy; and theſe have been found to be the ſtates of the *brain*, in diſſections of perſons affected with thoſe diſeaſes. Paracelſus even attributes leproſies, conſumptions, and jaundices, to diſorders of the *brain*. Hiſt. Ac. Sc. an. 1705. 1706. Conſ. Lex. Med. p. 159.

Bartholin ſpeaks of divers extraneous bodies found in the *brain*; particularly a point of a dart, an inch long, which remained there, without much inconvenience, fourteen years, and was at length expelled by ſuppuration at the *ſutures*. Act. Med. Hafn. tom. ii. *art.* 132.

Anatomiſts, in their figure and deſcriptions of the *brain*, only repreſent the cavities which are ſeen upon ſeparating the hemiſpheres, and taking away the *corpus callioſum*, without obſerving that the *crura fornicis* ſink down, and then turn forwards on each ſide of the *medulla oblongata*, in cavities which are extended far forwards, under the commonly known anterior ventricles. In theſe inferior cavities, the *crura fornicis* are of a beautiful form, reſembling a white ſilk-worm, or ſea-horſe; on which account they were called *hippocampi* by Julius Cæſar Arantius, who is the only author who has given any deſcription of them, till lately Mr. Du Verney has revived them, by an exact deſcription and delineation. He obſerves likewiſe, that the *ſeptum lucidum* between the anterior ventricles, has a cavity between the two *lamellæ* of which it is compoſed, in which he has often found water; and that the internal ſide of the *ſeptum* is made rough, by a great many ſmall grains and *papillulæ*. Comm. Acad. Petrop. tom. iv. p. 130.

Some are of opinion, that the motion of the *brain* is owing to the air entering by the olfactory nerves into the ventricles of the *brain*; which air, rarefied by the heat, loſes its ſpring, and is expelled by the elaſtic contracting *dura mater*. Med. Eſſ. Edinb. vol. ii. p. 481.

The *brain* does not appear abſolutely neceſſary to animal life. We have ſeveral inſtances in authors, of children brought forth alive, and ſurviving their birth for ſome time, without any *brain*: and there are ſome anatomical inſtances of animals ſurviving the loſs of their *brain*. To which may be added, many inſtances given by Mr. Boyle, not only of animals living a long time after the ſeparation of the head from the body, but even of the copulation and impregnation of ſome inſects under thoſe circumſtances: whence it appears that the ſpinal marrow is ſufficient, on occaſion, for the buſineſs of ſenſation, motion, ſecretion of animal ſpirits, &c.

The *brains* of birds were a great delicacy among the ancients, who yet never touched thoſe of other animals. Some vainly preſcribe hares *brains*, as a remedy againſt difficult dentition. Among the Greeks, calves *brains* were uſed as a ſort of charm to excite love.

The accurate Mr. Leewenhoeck, examined, on ſeveral occaſions, the *brains* of different creatures by his microſcope; as that of the Indian hen, the ſheep, the ox, the ſparrow, &c. He could there always diſtinguiſh multitudes of veſſels ſo extremely ſmall, that if a globule of blood (a million whereof exceed not a grain of ſand in bigneſs) were divided into five hundred parts, thoſe parts would be too large to paſs into ſuch veſſels. He obſerved alſo, that theſe veſſels in the *brain* of a ſparrow, were as large as in that of an ox; and argues from thence, that there is really no other difference between the *brain* of a large animal and that of a ſmall one, but only that the one contains a much greater number of theſe veſſels than the others, and that the globules of the fluid paſſing through them, are in all animals of the ſame ſize.

In examining the *brain* of ſeveral ſorts of fowls, particularly the turkey, what is commonly called the cortical part of the *brain*, conſiſts of a very clear and tranſparent oily matter, which would be much better denoted by the term vitreous than cortical, but a great number of ſmall blood veſſels are found ſpread through every part of this; and where a ſmall parcel of it is cut for a microſcopic examination, there flows a ſmall globule of a pellucid fluid from it. And Mr. Leewenhoeck thinks, that notwithſtanding the minuteneſs of theſe veſſels, there is a circulation carried on through them, and that of a red fluid; for wherever they lie three or four together, without any intervening matter, the congeries of them always appears red.

The medullary part of the *brain* of the ſame animal appears like a fiſher's net, between all the meſhes of which there is placed a very pliable ball-like ſubſtance, which changes its figure into a round or oval, according as the meſhes happen to be pulled or relaxed: theſe balls ſeemed to conſiſt of a clear and watery fluid, contained in a caſe or capſule of a membranous matter. Phil. Tranſ. N° 168. p. 884.

See farther concerning the *brain* in anatomical and medical writers, particularly Steno, Ridley, Willis and Vieuſſens, who have treatiſes expreſs on this ſubject. Phil. Tranſ. N° 215. N° 51. p. 1031.

BRAIN, *fungus of the*, ſee FUNGUS.

BRAIN, *traces of the*, ſee TRACE.

BRAKE, in the *Country Language*, denotes a place where female FERN grows, and ſometimes the FERN itſelf.

BRAKE is alſo uſed for a Farrier's inſtrument, otherwiſe called HARNACLES.

The word alſo occurs for a baker's treading trough.

BRAKE, in the *Hempen Manufacture*, denotes a wooden-toothed implement, wherewith to bruiſe and break the bun of hemp, and ſeparate it from the rind.

BRAKE *of a pump*, ſignifies the handle whereby it is wrought.

BRAMA, BREAM, in *Ichthyology*, a river fiſh of the leather-mouthed kind, eſteemed a ſpecies of carp, and called by the generality of authors *cyprinus latus*.

It is a very broad and thin fiſh; the head is ſmall, the back of it broad and flat, and the back riſing from the head toward the middle, like that of a hog.

BRAMA, *Sunatilis*, in *Ichthyology*, the name of a ſea-fiſh reſembling the common freſh-water BREAM in ſhape, but growing to three or four feet long. Its eyes are large; its ſnout of a pale red, as are alſo its belly-fins and its tail. It is caught among the rocks in deep water, and ſeldom is taken any other way than by hooks, and is a very

very well tasted fish. It is found in Surinam. This fish is a species of the SPARUS.

BRAMBAS, in *Natural History*, a name given by the people of Guinea, and some other parts of Africa, to a peculiar species of lemon-tree. The leaves of this are of a deep green, and of an admirable fragrancy, when rubbed between the hands. The fruit is very small, and has a remarkable thin skin. The juice is used in dying. Phil. Transf. N° 108.

BRAMBLE, or BRAMBLING, in *Ornithology*, the common English name of the MONTIFRINGILLA, or *spatzen*, called in some places the mountain-finch; a small bird somewhat resembling the chaffinch. Ray.

BRAMBLE-*bush*, in *Botany*, a species of the *rubus*. See RASPBERRY-*bush*.

BRAMBLE-*galls*. See GALLS *of the bramble*.

BRAMBLE-*net*, otherwise called *ballier*, is a net used by bird-catchers, of several sizes.

BRAMICIDE, the crime of killing a bramin, reputed in the East Indies one of the five most enormous sins.

BRAMINS, see BRACHMANS.

BRAN, the skins or husks of corn, especially wheat, ground, separated from the *farina*, or flour, by a sieve or boulter.

Wheat bran it is that starch-makers make their starch; which is nothing else but the *fæcula* remaining in the bottom of the vessels, wherein the *bran* has been steeped in water.

Bran is held detergent, and, on that account, is of some medicinal use in gargarisms and glysters. It is also a chief ingredient in the composition of cataplasms. Some apply it hot against the pleurisy; boiled, it purges scurf and dandriff, and cleanses the hands in lieu of soap. Among the ancients, it was also used as an erotic, to excite love.

Dyers rank *bran* in the number of non-colouring drugs; because it yields no colour of itself. It serves for the making of their four waters, used in preparing stuffs to take the dye.

This water is made by boiling wheaten *bran*, and into the decoction putting a little leaven.

BRANC *ursine*, in *Botany*, see BEAR'S-*breech*.

BRANCA, in *Middle Age Writers*, the paw, or extreme part of a foot of a wild beast, or bird of prey. Du-Cange.

BRANCA, or BRANCHIA, also denotes a right of lopping, or cutting off branches of trees in the forest for firing. Du-Cange.

BRANCH, in *Botany*, an arm of a tree, or a part which, sprouting out from the trunk, helps to form the head, or crown thereof.

The word, according to Salmasius, comes from the Latin *brancæ*; in the lower Latin, they used *harpa*. Others derive it from *brachium, an arm*; and others, from *branchia, the gills of fishes*.

The *branches* of trees, some have observed, almost constantly shoot from the trunk at an angle of 45 degrees: the reason is, that the whole spreading being generally confined within an angle of 90 degrees, as the most becoming and useful disposition; that space could not well be filled up any other way than by forming all the interfections which the shoots and *branches* make, with angles of 45 degrees only.

According to M. Dodart, however, the *branches* generally sprout out of the trunk horizontally, or at right angles with the trunk: but, in their ascent, they affect perpendicularity as much as possible, though not in the same degree with trunks.

Branches are distinguished into various kinds.

BRANCH, *wood*, according to Quintiny, is such a one as shooting out from a cut of the preceding year, is naturally of a considerable thickness.

BRANCH, *fruit*, is that which shoots out, of a moderate length and breadth, from the same cut, or pruning.—*Fruit-branches*, he adds, have large eyes, and are very near each other.

BRANCH, *half wood*; is that which, being too slender for a *wood-branch*, and too big for a *fruit-branch*, is cut off, at the length of two or three inches, to make it produce a better shoot, whether wood or fruit.

BRANCHES, *spurious wood*, are such as come contrary to the order of nature; or otherwise than from cuts of the preceding year; or which, coming on such cuts, are big in the place where they should be small.

To understand this order of nature, it must be observed, 1. That *branches* should never come, except on those of the last cut; such, therefore, as shoot from other parts, are spurious. 2. The order of the new *branches* is, if there be more than one, that the extreme *branch* be thicker and longer than that immediately under it; and this bigger and longer again, than the third, &c. Hence if any be big where it should be small, it is called *spurious*.

There are, however, some exceptions: in trees that are vigorous, and yet bear a handsome figure, there cannot well be too many *fruit-branches*, provided they make no confusion; but for *wood-branches*, there should not ordinarily be above one suffered to grow, of the several which shoot from each cut of the preceding year. See PRUNING.

BRANCHES, *engrafting of*, see ENGRAFTING.

Branches of trees bear a near analogy to limbs of animals; and, in certain cases, the amputation of them is found necessary. A. D. S. an. 1707, p. 366.

Some consider *branches* as a sort of roots in the air: in reality, they are only prolongations of the roots; but, being united in the trunk, are re-divided in the *branches*. What shews the conformity between the two species of roots is, that the ends of *branches* being set in the ground while yet adhering to the mother-tree, they will take root, grow on their own bottom; and what is more, there are divers trees, which, if planted upside down, the roots turn to *branches*, with leaves and fruit, and the *branches* to roots and fibres: but whether the *branches*, while such, do the office of roots, and receive any fine kind of nutriment from the air, as Mr De la Hire, Mr. Brotherston, and others, have asserted, is a question not yet fully decided. Mr. Perrault supposes the *branches* to convey a sap for the nourishment of the root, as the root does for the rest of the plant. Phil. Transf. N° 43, and N° 187.

Branches do not spring out of the mere surface of the trunk, but are profoundly rooted therein, so as not only to penetrate the cortical, but also the woody substance, and even the pith.

Anciently, *branches* were carried in the hands at the processions and ceremonies of the gods; whence the *thallephori*, or *branch*-bearers.

The Thespians adored a *branch*. The olive *branch* was the symbol or ensign of peace. The natives of the islands in the South Seas use green boughs, &c. for the same purpose at this day.

BRANCH is also applied to the parts or ramifications of divers other bodies, which, in respect hereof, are considered as stems. Thus chemists speak of the *branches* of their metalline vegetation, *branches* of the *arbor Dianæ*, *arbor Mortis*, &c. Phil. Transf. N° 286. Mem. Acad. Sc. 1692, 1710.

BRANCH, in *Anatomy*, denotes a division of a vein, artery, or nerve. All the veins in the body are only *branches* of the *vena cava*.

BRANCH is also used in the *Military Art*, in speaking of trenches, mines, and their several ducts, ways, returns, and the like, between one well and another. See GALLERY.

BRANCH is also used in speaking of the veins in mines of gold, silver, or other metals, which divide like the veins in the body.

BRANCH, in *Genealogy*, is applied to the several lines or successions arising out of the same stock or origin.

In which sense, *branches* amount to much the same with cadets.

BRANCH also denotes a complex metalline kind of candlestick contrived for the reception of a number of candles. These, in ancient writers, are called *phari*, *candelæ*, JESSE; when made of glass *lustres*; the richer sort, *girandoles*.

BRANCH *of the trenches*, in *Fortification*, see BOYAU.

BRANCH-*stand*, in *Falconry*, signifies to make a hawk leap from tree to tree, till the dog springs the partridge.

BRANCH, in *Scripture*, is an appellation peculiarly given to the Messiah, as being of the *branch* or house of David.

BRANCHES *of wealds*, are sometimes used to denote the ARCHES of them.

BRANCHES *of arches*, denote several portions of arches springing all from the same summer.

BRANCHES *of ogives*, in *Architecture*, the rejnt or arches of Gothic vaults; which traversing from one angle to another, diagonal-wise, form a cross between the other arches which make the sides of the square whereof those arches are diagonals.

BRANCHES *of a bridle*, in the *Manage*, are two crooked pieces of iron which support the mouth-bit, the chain, and the curb; and which are fastened on one side to the head-stall, on the other to the reins serving to keep the horse's head under command.

What way soever the *branches* of the bit incline, the horses mouth goes to the contrary. The duke of Newcastle is very particular on the head of *branches*; explaining their several kinds, and their effects, which are reducible to those of a lever.—The *branch* is always to be accommodated to the design, either of bringing in, or raising a horse's head, and to the necessary degree: accordingly, we have strong and hardy *branches*, gentle *branches*, rude *branches*, &c.

With regard to their form and structure, *branches* are either straight, in form of a pistol, for young horses to form their mouth; or, after the constable of France's fashion,

fashion, for horses that already carry the head well: others are in form of a gigot, or leg; others of a bent knee; others in the French fashion, &c.

These are laws in the *Manege*: 1. That the farther the *branch* is from the horse's neck, the more effect it will have. 2. That short *branches*, *exteris paribus*, are ruder, and their effects more sudden, than those of longer. 3. That the *branch* is to be proportioned to the length of the horse's neck.

That part of the *branch* of a bridle, whereby we judge of its effects, and which discovers its strength or weakness, is called the *line of the banquet*.

A strong and hardy *branch*, is that whose sevil hole, at the lower end of it, is placed on the outside of the line of the banquet.

A gentle *branch* is that, the sevil hole of which is set on the inside of the said line.

A rude and hardy *branch* will bring in a horse's head, proportionably as it is more or less hardy; whereas a gentle *branch*, by diminishing the effect of the bit-mouth, makes a horse more easily to bear the pressure thereof, who before could hardly endure it.

BRANCHED *velvet*, see VELVET.

BRANCHER, among *Fowlers* and *Falconers*, denotes a young bird well fledged, which having quitted the nest, is not yet in a condition to fly far, or shift for itself, but still keeps in the bushes and branches about its native dwelling, where it is fed by the dam.

The *branchers* of hawks are also called *ramage falcons*; those of nightingales, *pushers*; because, as some say, they are thrust out of the nest by the old ones. Canary birds the first year are called *branchers*; when just flown and unable to feed themselves, *pushers*.

BRANCHERY, in the *Anatomy of Vegetables*, denotes the vascular parts of divers fruits, as apples, pears, plums, and berries.

In which sense, the *branchery* stands contradistinguished from the acetary, skin, pulp, &c.

The *branchery* of an apple is only the ramifications of the ligneous body through all the parts of the *parenchyma*; the greater branches being likewise, by the inosculations of the lesser, united together. Grew. Anat. of Plants, lib. i. cap. 6. § 2.

BRANCHIA, βραγχια, a name given, by the *Ancient Naturalists*, to the GILLS of fishes; which are parts composed of cartilages and membranes, in form of leaves; and serving instead of lungs to perspire by.—See *Tab. Anat. (Splanch.) fig.* 14.

The *branchia*, Galen observes, are full of little *foramina*, big enough to admit air and vapours, but too fine to give passage to water. Pliny held, that fishes respired by their gills; but he observes, that Aristotle was of another opinion: to whom we may add, among the moderns, Dr. Needham.

The cetaceous fishes, as they have lungs, have none of these apertures of the *branchiæ*; and in all those fishes that have them, the larger they are, the sooner the fish dies, on being taken out of the water. See GILLS.

BRANCHIALE, in *Natural History*, a name given by Mr. Lhuyd to a peculiar species of FUNGITÆ, which being of a deeply striated texture, is supposed to resemble the gills of a fish.

BRANCHIDÆ, in *Antiquity*, priests of Apollo serving in his temple at Didyma in Miletus; which was famous for its oracle.

The denomination is taken from *Branchus*, or *Branchides*, an epithet given to Apollo as worshipped here; though on what account the title was given, is not agreed on.

In the time of the Persian war, the *Branchidæ* betrayed the temple of its oracle into the hands of the Persians, who pillaged it. They transported themselves into the farthest parts of Asia, to be out of the reach of punishment from the Greeks; which yet they are said to have met with from Alexander, who demolished their city, and put all the inhabitants to the sword. Strabo, lib. xiv. Potter. Arch. Græc. lib. ii. cap. 9.

BRANCHING, the *ramification* or *sprouting* of the HORNS of deer, &c. which bears an analogy with the vegetation of plants. Phil. Trans. N° 227.

The HAIR at the ends is apt to *branch*, or split, and divide into whole brushes, which are easily visible by a microscope.

BRANCHIOSTEGI, in *Ichthyology*, a term used to express one of the general classes of fishes; the characters of which are, that the rays of the fins are of a bony substance; but these fish have no bones or *ossicula* at the *branchiæ*, as the malacopterygious and acanthopterygious fishes all have.

The word is derived from βραγχια, *gills*, and στεγω, *a bone*.

BRANCHUS. βραγχος, in *Medicine*, a species of CATARRH affecting chiefly the jaws, throat, and *aspera arteria*.

Branchus amounts to the same with what is called, by the Latins, RAUCEDO, *raucitas*, sometimes also *ravis*. See HOARSENESS.

BRANCHUS, *or branche*, also denotes a kind of glandular tumor in the *fauces*, resembling two almonds, which render the breathing and hawking difficult.

BRAND-*herring*, a kind of herring caught by the Dutch.

BRAND-*Sunday*, *Dimanche des Brandons*, in *French Ecclesiastical Writers*, denotes the first Sunday in Lent; which is thus called on account of an ancient practice in the Lyonnois, where the peasants, in the night of this day, walked about their orchards, gardens, &c. with torches lighted, or fire-*brands* in their hands; in which plight they visited every tree, and addressing themselves to them one after another, threatened that if they did not bear fruit well the ensuing season, they should be cut down to the ground and burnt. This is evidently a relict of paganism; the like of which was practised by the ancient idolaters in the month of February; hence called *Februarius, à februando*. Menestr. Hist. de Lyon. p. 279. Menag. Orig. p. 126. & Du-Cange Gloss. Lat. tom. i. p. 610.

BRANDARIS, a species of the *frombus* in the order of *testacea*.

BRANDEUM, in *Ecclesiastical Writers*, a linen cloth or veil put over the tombs of the apostles St. Peter and St. Paul, and left there for some time; by which it is supposed to acquire a degree of sanctity, so as to be worshipped as a relic; and for that purpose frequently sent by the pope as a present to some prince. Fleur. Hist. Eccl. lib. xxxv. p. 93. Du-Cange Gloss. Lat. tom. i. p. 609.

In this sense, *brandeum* amounts to the same with what was otherwise called *sanctuarium*, *sudarium*, *oravium*, and *velum*.

The use of *brandea* was introduced as a means of diffusing and propagating the virtues and influences of RELICS, without moving, or any way impairing the substance of them; the translation of RELICS in early days being forbidden.

BRANDING *in the face* or *head*, denotes a punishment inflicted by law on various offences, by burning with a hot iron, after the offender hath been once admitted to benefit of clergy. Blackstone's Comm. vol. iv. p. 360.

BRANDRITH, denotes a trevet, or other iron stand, whereon to set a vessel over the fire.

BRANDRITH, among *Builders*, denotes a fence or rail about the mouth of a well.

BRANDY properly denotes a proof-spirit obtained by simple distillation from real wines, or fermented juices of grapes. The vessels, used herein, are usually of copper; and distillers, to cool the liquor more readily, make the neck of the matrass, which is very long, and winding like a serpent, pass through a vessel of cold water.

Brandy differs from wine spirit, in that the former is drawn from the poorer and thinner sorts of wines, the latter from the richer and fuller bodied wines.

Brandy also differs from spirit of wine, as the former is only what they call proof high, or half pure spirit, half phlegm; whereas spirit of wine is raised higher, or carried by rectification to a farther degree of purity.

Brandy also differs from strong waters, as the latter is a compound, whereof the former, or pure spirit of wine, is only one ingredient.

The Portuguese are lately coming into the way of making *brandy*. The Greek *brandies* are the worst, though made of the best wines.

The too free and frequent use of *brandy* is attended with ill effects, as it attenuates the body, and impairs the strength, and stupifies the brain. In persons who have died hereof, the blood has been found thick and coagulated; the *pancreas* dried; the liver scirrhous, and almost petrified; the glands tumefied beyond their natural bulk, &c. But what shall we say to the Parisian woman, who was burnt to ashes with a fire only kindled from the *brandy* in her body? Conringius even attributes the degeneracy of the modern from the ancient Germans to the prevalency of drinking this liquor. Phil. Trans. N° 97.

In the hot climates of America, they are said to make oysters of *brandy*. A person who had experienced the use of one of these fiery *enemata*, made of a pint of *brandy*, assures us, it not only made him dead drunk, but raving mad. Phil. Trans. N° 37.

Brandy is also applied, in a less proper sense, to all spirituous inflammable liquors, drawn from vegetables by distillation. In which sense *brandy* includes all ardent, or inflammable spirits, used in the way of beverage. Dr. Shaw adds a farther limitation to *brandy* spirits, viz. that they be proof high, or consist of equal quantities of water and alcohol. On which footing, spirits either above or below proof, do not come under the appellation of *brandies*. But in the popular use this distinction is not observed.

Arac, rum, malt, and melaſſes ſpirit, in this ſenſe, are *brandies*, though under another denomination.

In the iſland of Andros, they make *brandies* from the fruits of arbutus and mulberry-trees.

A patent was ſometime ago obtained for making *brandy* from carrots and parſneps; the latter of which is ſaid to have nearly reſembled French *brandy*. Of late we meet with frequent advertiſements of raiſin-*brandy*, which, if really made of that fruit, is neareſt akin to wine-*brandy*.

Apple, or cyder-*brandy*, is alſo praiſed by ſome.

Cyder is found to yield an eighth part of good ſpirits, and if cloſe kept a year or two in a cool place, much more. *Brandy* is alſo uſed to denote certain compound liquors, whereof *brandies* are the baſis. Such are raſpberry-*brandy*, cherry-*brandy*, gooſeberry-*brandy*, &c.

The French method of diſtilling *brandies* is the ſame with that practiſed by our diſtillers, in working from waſh or wines; only that the former throws a little of the natural lee into the ſtill along with the wine, which gives the ſpirit a flavour, on which a great part of its merit depends.

When *brandies* prove foul, feedy, or retain the taſte of certain weeds, apt to grow among the vines, they draw them over again, in order to cleanſe them of that adventitious flavour: in which operation they leave out the faints, or rather change the receiver, as ſoon as the ſtream begins to run proof. Then mixing together all that run off before, they call it *trois cinque*, that is *brandy* conſiſting of five parts alcohol, and three of phlegm; beyond which the French *bruleurs*, or common diſtillers, rarely go.

The yearly export of *brandies* from France is ſaid to amount to 25000 tons; an article of itſelf ſufficient to enrich a moderate country. While the duty on French *brandy* continued at 9*l.* the ton, the Engliſh alone took ten or eleven thouſand tons off their hands; but after the duty was raiſed to 52*l.* the ton, the importation was greatly reduced, to the advantage of the Engliſh diſtillery, except that ſmuggling ſtill intervened.

The colour of their *brandies* is acquired from the caſk, and the length of time they uſually lie in them, which is ſometimes twelve or eighteen months, and often two or three years; during which, it is no wonder if they acquire a yellow or browniſh caſt. Their lying thus long, as it were in a ſtate of ſlow digeſtion, wonderfully takes off from that hot, acid, and foul taſte peculiar to all ſpirits or *brandies*, newly diſtilled; and gives them a coolneſs and a ſoftneſs, not eaſily introduced by art. And on theſe properties are founded ſeveral methods of trying their goodneſs, or diſcovering whether they are debaſed or adulterated by the admixture of coarſer ſpirits. Phil. Tranſ. N° 391.

Brandies are rarely adulterated in France, where they have no cheaper ſpirits wherewith to debaſe them; and the like holds, in great meaſure, in favour of the Dutch, though otherwiſe ſuſpected to be great adulterators.

The chief temptations for adulterating are in England, where the duties are high, and where there are various kinds of ſpirits in plenty to mix with them, as malt, melaſſes, cyder, and ſugar ſpirits, with all which they are often ſophiſticated, and ſo dexterouſly, as frequently to eſcape all the ways of detection. *Brandy* may be imitated, by adding to very pure malt ſpirits, ſome dulcified ſpirit of nitre.

The chief uſe of *brandy* is as a drink; eſpecially in the cold northern countries; among the negroes in Guinea, who ſell one another for a few bottles of *brandy*; and among the ſavages in Canada, and other parts of North America, who are extremely fond of it. It is of ſome uſe too in medicine; being ſaid to ſtrengthen the nerves; and in dying, when raiſed into rectified ſpirit of wine, being one of the dyers non-colouring drugs.

BRANDY, *to diſtil*, they fill the cucurbit half full of the liquor from which it is to be drawn; and raiſe it with a little fire, till about one ſixth part be diſtilled, or till they perceive, that what falls into the receiver is not at all inflammable.

For this operation they uſe ſtoves built with bricks or ſtone, which are made either round or ſquare: when they uſe bricks, they bind them with a ſtrong fine clay, mixed with horſe dung or cow's hair.

Theſe ſtoves muſt always have two bottoms, the uppermoſt to put the fuel on, and the lowermoſt to receive the aſhes. They have alſo the precaution to contrive three or four vents round the copper, which they open or ſhut, as they would forward or retard their diſtillation.

For want of a ſtove, they ſometimes uſe an iron trivet to ſet the copper on, and only put wood under it: but this method is very defective: nor can good diſtillations ever be made if the operator is not maſter of the fire, to manage it with judgment and dexterity, which cannot be done in this laſt method in the open air.

In order to make good *brandy*, there muſt be uſed a large copper cucurbit, to which the head muſt be properly adapted; and having filled it half full with wine, which muſt be neither ſour, nor vented, nor corrupted, the cucurbit muſt be covered with its head, which muſt be exactly luted to it with paper and paſte, or rather with a wet bladder, folded ſeveral times. Then the cucurbit muſt be put into the ſtove, and the branch or neck through which the *brandy* is to diſtil muſt be made to paſs through a ton with one bottom only, filled with freſh water; for which purpoſe the neck muſt be three or four feet long, compoſed of a long tube which muſt paſs obliquely through the tun, and winding again, muſt meet a tube which iſſues out of the head of the cucurbit: theſe two tubes entering one into the other, muſt alſo be luted together with paper and paſte, or a wet bladder as above, to prevent the evaporation of the ſpirits during diſtillation. Care muſt alſo be taken to keep upon the head of the cucurbit a wet cloth, to make the ſpirit condenſe. As ſoon as you obſerve that ſome drops begin to fall at the end of the long tube, you muſt ſuffer about fifty to fall down, after which a recipient muſt be adapted to that end of the tube, capable of receiving the *brandy* which is going to diſtil. The diſtillation muſt not be haſtened by too fierce a fire.

The liquor, thus diſtilled the firſt time, is called *brandy*; which ſpirit, purified by another, or ſeveral more diſtillations, is what we call SPIRIT *of wine rectified*.—The ſecond diſtillation is made in *bolneo Mariæ*, and in a glaſs cucurbit; and the liquor put therein is diſtilled to about one half the quantity; which half is farther rectified, as long as the operator thinks fit.

To abridge theſe ſeveral diſtillations, which are long and troubleſome, they have invented a chemical inſtrument, whereby the rectification of ſpirit of wine is performed, at one ſingle diſtillation: the deſcription and figure of ſuch inſtrument may be ſeen in Glaſer's Chemiſtry.

To try the goodneſs of rectified ſpirit of wine, it muſt be lighted into a blaze: if then it conſumes wholly, without leaving any impurity behind it, which is a ſure ſtill, if after putting a little gunpowder in the bottom of the ſpirit, the gunpowder takes fire when the ſpirit is conſumed; the liquor is good.

Thoſe who deal in *brandy* (we ſpeak only of that made with wine), chooſe it white, clear, of a good taſte, and ſuch as will bear the teſt, or proof; i. e. ſuch as in pouring into a glaſs, forms on the top of it a little white lather, which, as it diminiſhes, makes a circle, called by the French *brandy* merchants the *chapelet*, by the Engliſh the *head*, or *bubbles*; there being no *brandy* but that which is well dephlegmated, and which retains no ſuperfluous humidity, wherein the bead will be entirely formed. For various methods of aſcertaining the ſtrength and goodneſs of *brandy* and other ſpirits, ſee *Proof* SPIRITS.

Before we finiſh this article, we ſhall give an account of the manner of extracting *brandy* from the huſks or ſkins of grapes, after the preſſing; becauſe the benefits that ariſe from this diſtillation, deſerve ſome attention.

After the grapes have been preſſed, what remains in the preſs is coarſely ſeparated into ſmall particles with the hand, and afterward thrown into large tubs, where they preſs it very hard, mix a little water with it, and cover it very cloſely with clay: in that condition they leave it to ferment during four or five weeks, obſerving, however, to ſhut the crevices which might happen to open in the clay, to prevent the evaporation.

After that time they fill a very large copper half full with that mixture, cover it with its head, lute it, and diſtil the whole after the ſame manner as they do *brandy*. By this work they make a great advantage of a matter which they were uſed to caſt on a dunghill. If this *brandy* be not ſo palatable as that which is made of wine, it is excellent for making ſpirit of wine. Both theſe liquors are a conſiderable branch of trade.

The greateſt part of the *brandies* in uſe, and thoſe too the beſt, are prepared in France: of the French *brandies*, thoſe of Nantes and Poictou are the moſt eſteemed; as being of a better taſte, finer and ſtronger, and enduring the bubble-proof longer than any of the reſt: thoſe of Anjou, Touraine, Orleans, Bourdeaux, Rochelle, Cognac, &c. claim the ſecond place. They are chiefly ſent to Paris and Flanders by the river Loire.

Brandy, in *Law-language*, is denominated either ſingle or double, when it is under or above *proof*. By the ſeveral acts 12 Car. II. c. 23. c. 24. 4 and 5 W. c. 3. 4. Ann. c. 6. 6 Geo II. c. 17. every gallon of ſpirituous liquors imported, of the produce and manufacture of the Britiſh plantations, is charged exciſe as follows: ſingle *brandy*, ſpirits, or *aqua vitæ*, 4*l* 8*d*. double *brandy*, ſpirits, or *aqua vitæ*, 8*l* 8*d*. And by the 32 Geo. II. c. 10. an additional duty of 12*d*. in the pound, according to the value of the BOOK of *rates*, is laid on all foreign *brandy* and ſpirits, rum from the produce of the Britiſh ſugar plantations excepted. And by the 33 Geo. II.

2. 9. 6 Geo. III. c. 47. and 22 Geo. III. c. 23. a duty of 2*l.* 6*d.* on every gallon of ſingle *brandy*, &c. and of 5*l.* on every gallon of double *brandy*, &c. beſides the three additional duties of 3*l.* *per cent.* of 19 Geo. III. c. 25. 21 Geo. III. c. 17. and 22 Geo. III. c. 66. See *Foreign* SPIRITS and *Low* WINES.

Of *brandy*, both plain and rectified, are prepared various kinds of ſtrong liquors, with the addition of other ingredients, ſugars, ſpices, flowers, fruits, &c. which are afterwards clarified, by paſſing them through a ſtraining bag, or filtering them through brown paper.—Such are cinnamon waters, aniſeed waters, fennel waters, celery waters, citron waters, &c. A great part of theſe are brought from Montpelier: where they are ſuppoſed to be better prepared than any where elſe. Savar. Dict. Commerce.

BRANDY, *cherry*. See CHERRY.

BRANK, the ſame with *huckle-bone*.

BRANLIN, an Engliſh name for a ſpecies of fiſh of the ſalmon kind, called alſo in ſome places *fingery*.

They obtained this laſt name from ſome ſingular marks they have, which are five or ſix tranſverſe black ſtreaks upon each ſide, appearing as made by the impreſſion of ſo many fingers, and each marked with a ſingle red ſpot. The tail of this fiſh is forked like that of the common ſalmon, and it is ſuppoſed they are all males; they ſeem to impregnate the ſpawn of the common ſalmon, and are found in waters of ſo rapid a current, that ſcarce any other fiſh could live in them. They never grow to any great ſize. Willughby, Hiſt. Piſc. p. 193.

BRASEM, in *Ichthyology*, a name by which ſome have called an American fiſh of the SMARIS kind, more commonly known among authors by its Braſilian name of *acarapeba*.

BRASIDIA, in *Antiquity*, anniverſary feaſts held at Sparta in honour of Braſidas, the ſon of Tellus, famous for his great atchievements in favour of that ſtate.

The *Braſidia* were celebrated with ſacrifices and games, at which none were allowed to contend but free-born Spartans. To be abſent from theſe ſolemnities, is ſaid by ſome to have been held criminal, and puniſhed with fines. Meurſ. Græc. Ferial. Potter. Arch. Græc. lib. ii. cap. 20.

BRASIL, and BRASILETTO. See BRAZIL, and CÆSALPINIA.

BRASMA, in the *Medical Writings of the Ancients*, a name given by Dioſcorides and others to a light, empty, and good for nothing kind of black pepper. This was no peculiar ſpecies of pepper, but as John Bauhine has well obſerved, it was the ſame with the pepper we now frequently meet with, which has decayed upon the plant. Dioſc. lib. ii. cap. 189.

BRASS, a factitious metal, compoſed of copper fuſed with *lapis calaminaris*, which gives it a hardneſs and yellowneſs. The manner of making *braſs* is ſaid to have been kept a ſecret in Germany for many ages.—The method of preparation among us is as follows. The *lapis* CALAMINARIS being calcined, and ground as fine as flour, is mixed with a third or fourth part of ground charcoal; and incorporated, by means of water, into a maſs. To this compoſition of calamine and coal, ſome manufacturers add common ſalt, by which the proceſs of making *braſs* is ſaid to be haſtened: thus prepared, about ſeven pounds of the calamine is put into a melting-pot of about a gallon; and over it, about five pounds of copper, either in plates or grains, which is ſet down into a *wind* FURNACE eight feet deep, remaining there about eleven hours; in which time it is converted into *braſs*.—After melting, it is caſt into plates, or lumps: forty-five pounds of crude calamine produce thirty pounds burnt, or calcined: and ſixty pounds of copper make, with calamine, an hundred pounds of *braſs*.

The proportion of calamine, and the increaſe which the copper receives from it, are different in different works; and hence ariſes the deeper or paler colour of *braſs*. The quantity of *braſs* obtained by the proceſs for making it, has been conſiderably augmented ſince the introduction of the method now commonly practiſed, of uſing granulated copper. See GRANULATION.

The finer and more malleable kinds of *braſs* are made of the pureſt calamine and copper, by cementing the *braſs* a ſecond time with calamine and charcoal, and ſometimes adding to it old *braſs*, by which the new is ſaid to be meliorated.

The word *braſs* ſeems to have been formed from *braſium*, a cant term among alchemiſts for *copper*.

They ſometimes uſe *braſs-ſtruff* inſtead of copper; but that is not always to be procured in quantities ſufficient; being no more than a collection of pieces of old *braſs*.

Braſs may be cleanſed, firſt by rubbing it with a cloth dipped in equal quantities of *aqua fortis* and common water; then with an oily cloth, and laſtly with a dry one dipped in *lapis calaminaris*.

The beſt *braſs* guns are not made of pure copper and calamine alone; but it is neceſſary to add coarſer metals, to make it run cloſe and ſounder; ſuch as lead, and pot-metal.

The beſt proportion for gun-metal, it is ſaid, is for eleven or twelve thouſand weight of metal, to uſe ten thouſand pounds of copper, nine hundred pounds of tin, and ſix hundred pounds of *braſs*; but the proportion is variable, according to the quality and goodneſs of the copper.

Braſs is ſomewhat lighter, harder, and more ſonorous than pure copper; it melts more eaſily, and does not ſcorify ſo ſoon in a moderate red heat. It is ductile only whilſt cold; heated a little, it cracks: and ignited, it falls in pieces under the hammer. This imperfection is derives from the zinc of the calamine; pure copper being malleable when hot, as well as when cold. The beautiful colour of *braſs*, its hardneſs, its malleability, its fuſibility, and its quality of being leſs ſubject to ruſt or verdigriſe than copper, render it fit for the fabrication of many utenſils.

Braſs is tinged of a gold colour, firſt, by burning, then diſſolving it in *aqua fortis*, and, laſtly, reducing it to its metalline ſtate. It may be whitened by heating it red hot, and quenching it in water diſtilled from *ſal ammoniac*, and egg-ſhells. It is ſilvered, or coloured ſuperficially white, by rubbing it with balls made of ſilver diſſolved in *aqua fortis*, with powder of white tartar, ſufficient to abſorb all the moiſture thereof.

BRASS, in *Antiquity*. See *Æs*.

BRASS, in a more extenſive ſenſe, includes copper, and all the mixtures or alloys of copper with other minerals. In which ſenſe, *braſs* amounts nearly to the ſame with the Roman *æs*, and the French *airain*.

BRASS, in the *Glaſs Trade*.—Thrice calcined *braſs* is a preparation which ſerves the glaſs-men to give many very beautiful colours to their metal. The manner of preparing it is this: place thin plates of *braſs* on tiles on the leer of the furnace, near the occhio; let it ſtand to be calcined there for four days, and it will become a black powder ſticking together in lumps. Powder this, and ſift it fine, and recalcine it four or five days more; it will not then ſtick together, but remain a looſe powder of a ruſſet colour. This is to be calcined a third time, in the ſame manner; but great care muſt be taken, in the third calcination, that it be not over-done, nor under-done; the way to be certain of making it right, is to try it ſeveral times in glaſs, while melting. If it makes the glaſs, when well purified, to ſwell, boil, and riſe, it is properly calcined; if not, it requires longer time. This makes, according to the different proportions in which it is uſed, a ſea green, an emerald green, or a turquoiſe colour.

Braſs, by a long calcination alone, and without any mixture, affords a fine blue or green colour for glaſs; but they have a method of calcining it alſo with powdered brimſtone, ſo as to make it afford a red, a yellow, or a chalcedony colour, according to the quantity, and other variations in the uſing of it. The method of making the calcination is this: cut thin plates of *braſs* into ſmall pieces with ſhears, and lay them *ſtratum ſuper ſtratum*, with alternate beds of powdered ſulphur, in a crucible; calcine this for twenty-four hours in a ſtrong fire, then powder and ſift the whole; and, finally, expoſe this powder upon tiles, for twelve days to a reverberating furnace; at the end of this time, powder it fine, and keep it for uſe.

The glaſs-makers have alſo a method of procuring a red powder from *braſs*, by a more ſimple calcination, which ſerves them for many colours. The method of preparing it is this: they put ſmall and thin plates of *braſs* into the arches of the glaſs-furnaces, and leave them there till they are ſufficiently calcined, which the heat in that place, not being enough to melt them, does in great perfection. The calcined matter, powdered, is of a duſky red, and requires no farther preparation. Neri's Art of Glaſs.

BRASS-*lumps*, in *Mineralogy*, a common name given by the miners and diggers of coal, &c. to the globular pyrites. This ſtone, when kept in the air, often ſends forth its efflorescences of ſalt, in form of ſmall and ſlender fibres, perfectly tranſparent, and ſometimes near an inch long. The place where theſe ſtones are expoſed to the air, will greatly alter the figures and colours of their efflorescences; if they are laid in a cellar, the ſhoots will be ſhorter, and green, like the common copperas; and if laid in the way of the ſunſhine, they will be white and duſty. Both are the ſame ſalt, which is the true green vitriol or copperas, and both will, in the ſame manner, turn a decoction of galls into ink. The white ſalt is only the green powdered and calcined by the ſun's heat. The figure of the fibres of theſe efflorescences is not eaſy to be determined; ſometimes they ſeem round, ſometimes angular. Theſe, however, are the natural figures of the ſalts of theſe ſtones; and the other ſhoots

into which they form themſelves after ſolution, and bringing them together in a body by water, are rather their accidental forms, though, under a like courſe of accidents, they generally appear the ſame. Phil. Tranſ. N° 110.

BRASS-*wire*. See WIRE.

BRASSATELLA, BRASSADELLA, or BRASSIDELLA, in *Botany*, a name given by many authors to the plant more uſually known by that of OPHIOGLOSSUM, or ADDER'S *tongue*.

BRASSE. See FRANCH.

BRASSICA, *the cabbage*, in *Botany*, a genus of the *tetradynamia ſiliquoſa* claſs of plants, the characters of which are theſe; the flower is croſs-ſhaped, having four petals, and four oval nectarious glands; it hath ſix ſtamina, which are erect, two of which are oppoſite, and the other four are longer; it hath a taper germen, of the length of the ſtamina, which afterward becomes a long taper pod depreſſed on each ſide, and is terminated by the apex of the intermediate partition, which divides it into two cells filled with round ſeeds. See BROCCOLI, CABBAGE, CAULIFLOWER, SAVOY, &c.

BRASSIDELIC *art*, a term uſed by Paracelſus to denote a method of curing wounds by the application of the herb *braſſidella*, or *ophioglaſſum*, on the freſh wound.

BRAVA *Pareira*. See PAREIRA *brava*.

BRAURONIA, in *Antiquity*, a feaſt held every fifth year in honour of Diana, ſurnamed *Brauronia*, from *Brauron*, a village near Athens, where the famous ſtatue of that goddeſs, brought from Scythia Taurica, was preſerved. The ceremony of the *Brauronia* was managed by ten men, from their office called *Ἱεροποιοὶ*; the victim offered was a goat, and it was cuſtomary for certain men to ſing one of Homer's Iliads, during the ſervice: other miniſters at the ſolemnity were young virgins, from five to ten years of age, habited in yellow, and conſecrated to Diana under the denomination of *Ἀρκτοὶ*. Potter. Arch. Græc. lib. ii. cap. 20.

BRAWN, in the *Cullinary Art*, ſignifies the fleſh of a boar, boned, rolled up, or collared, boiled, and, laſtly, pickled, for the winter's uſe.

Brawn is made only of the ſtitches, without the legs; the oldeſt boars are choſen for this uſe; it being a rule that the older the boar, the more horny the *brawn*.

There is alſo *brawn* of pig, which is made by ſcalding, drawing, and boning the beaſt whole, except the head; then cutting it into two collars, ſoaking it in brine, ſeaſoning, rolling, putting it into a cloth, binding it up, boiling it, and, when boiled, hooping it up in a frame.

BRAZED, in *Heraldry*, is uſed in ſpeaking of three chevrons claſping or folding each other.

The word is doubtleſs formed by corruption from the French word *bras*, *arm*.

BRAZEN *age*, is uſed by the poets to expreſs the third AGE of the world.

BRAZEN *diſh*, among *Miners*, is the ſtandard by which the other diſhes are gauged, and are kept in the king's hall.

BRAZIER, an artificer who makes and ſells pans, pots, kettles, and other kitchen utenſils and braſs ware.

Itinerant *braziers*, who go about with their tools and knapſacks, are called *tinkers*; by the French, *braziers of the whiſtle*, *chaudronniers au ſifflet*.

BRAZIL or BRASIL, an American wood, commonly ſuppoſed to have been thus denominated becauſe firſt brought from Brazil: though Hewet ſhews, it had been known by that name many years before the diſcovery of that country. Vide Hiſtoria, p. 268.

It is denominated variouſly, according to the places whence it is brought. Thus we have *brazil* from Fernambuc, *brazil* of Japon, of Lamon, of St. Martha; and, laſtly, *brazilatto*, or Jamaica wood, brought from the Antilles.

The *brazil* tree ordinarily grows in dry barren places, and in the middle of rocks; it is very thick and large, uſually crooked, and knotty: its flowers, which are of a beautiful red, exhale a very agreeable ſmell, which ſtrengthens the brain. Though the tree be very thick, it is covered with ſo groſs a bark, that when the ſavages have taken it off the wood, or trunk, which before was the thickneſs of a man, it is ſcarce left equal to that of his leg.

Brazil wood is very heavy and dry; it crackles much in the fire, and ſcarce raiſes any ſmoke, by reaſon of its extreme dryneſs. None of the ſeveral kinds have any pith, except that of Japon: that of Fernambuc is eſteemed the beſt. It muſt be choſen in thick pieces, cloſe, ſound, without any bark on it; and ſuch as, upon ſplitting, from pale becomes reddiſh; and, when chewed, has a ſaccharine taſte.—It is much uſed in turned works, and takes a good poliſh; but its chief uſe is in dying, where it ſerves for a red colour: it is a ſpurious colour, however, which it gives; and eaſily evaporates and fades: nor is the wood to be uſed without alum and tartar. Red ink is made of it, boiled in beer, wine, or vinegar, and the colour fixed with alum.

Hellot has given a remarkable proceſs, by which both the beauty and permanency of the dye are improved. He likewiſe directs to fix the colour of *brazil* by aſtringents; for this purpoſe the ſtale decoction of *brazil* is diluted with twice its quantity of water; to which are added, for every pound of cloth, about one ounce of powdered galls, and half an ounce of gum Arabic. The cloth, prepared with alum and tartar, and kept moiſt for fifteen days, is boiled in this liquor for an hour or two, as the colour is wanted lighter or deeper, and ſuffered thoroughly to cool before it is waſhed. Dr. Lewis's edit. 4to. of Neumann's Works. p. 136.

From the *brazil* of Fernambuc is drawn a kind of carmine, by means of acids: there is alſo a liquid lacca made of it for miniature.

Carnation is dyed with *brazil*, and violets are raiſed with *brazil*. Acids turn *brazil* yellow, but by adding an alkali, it becomes purple; ſo that if we put lemon juice, or ſpirit of vinegar, in a decoction of *brazil* wood, it becomes yellow, and, if we add oil of tartar, violet.

Brazil wood differs very obviouſly from the SAUNDERS *wood*; the former gives out its red colour to water, the latter gives no red tinge to any aqueous liquor. Neumann.

Brazil wood is of ſome uſe in medicine; being reputed a ſpecies of the SAUNDERS, and poſſeſſed of the ſame phyſical virtues, though rarely preſcribed.

BRAZING, the ſoldering or joining of two pieces of iron by means of thin plates of braſs, melted between the two pieces to be joined.

If the work be very fine, as when the two leaves of broken ſaws are to be joined, it is to be covered with beaten borax, moiſtened with water, that it may incorporate with the braſs-duſt which is here added; and the piece is expoſed to the fire without touching the coals, till the braſs be obſerved to run. To *braze* with a ſtill greater degree of neceſſity, they uſe a ſolder made of braſs, with a tenth part of tin; or another, one third braſs, and two thirds ſilver; or borax and roſin: obſerving, in all theſe ways of *brazing*, that the pieces be joined cloſe throughout; the ſolder only holding in thoſe places that touch.

The method of *brazing*, among ſmiths, farriers, &c. is, by heating the two pieces, when hot, over one another; this is more properly called *welding*.

BREACH, in a general ſenſe, denotes a break or rupture, in ſome part of a fence or incloſure, whether owing to time or violence.

The word is formed from the French *breche*, which ſignifies the ſame; formed of the German *brechen*, to *break*. Inundations or overflowings of lands are frequently owing to *breaches* in the dikes, or ſea-banks. Dagenham *breach* is famous; it was made in 1707, by a failure of the Thames wall, in a very high tide. The force wherewith it burſt in upon the neighbouring level, tore up a large channel or paſſage for water a hundred yards wide, and in ſome places twenty feet deep, by which a multitude of ſubterranean trees, which had been buried many ages before, were laid bare. Phil. Tranſ. N° 335. p. 478.

BREACH, in *Fortification*, is a hole, gap, or aperture made in any part of the works of a town, either by playing cannon, or ſpringing mines; in order to ſtorm the place, or take it by aſſault.

They ſay, make good the *breach*; fortify the *breach*; make a lodgment on the *breach*: to clear the *breach*, is to remove the ruins, that it may be the better defended.

A practicable *breach*, is that where the men may mount, and make a lodgment.—A *breach* ought to be fifteen or twenty fathoms wide.—The aſſailants make their way to it, by covering themſelves with gabions, earth-bags, &c. When a *breach* in the rampart is practicable, the governor uſually capitulates, to prevent the effects of a ſtorm. Before they mount the *breach*, they frequently widen or enlarge it with fourneaux, and render the acceſs to it practicable, even for cannon, which it is ſometimes neceſſary to plant on the *breach*, in order to ruin the enemies retrenchments on the gorge and epaules of the baſtions.

BREACH *of cloſe*, in *Law*. See CLOSE.

BREACH, *to batter in*, *battre en brèche*. See BATTER.

BREACH, *mounting the*. See MOUNTING.

Pound BREACH. See POUND.

BREAD ordinarily is made of the flour or meal of ſome farinaceous vegetable, ground, and kneaded with water and yeaſt.

Bread is uſually made of the ſeeds, ſometimes alſo of the roots, and even of the piths of plants. The Greeks attribute the invention of *bread* to Ceres, the Egyptians to Iſis, others to Menes. The firſt *bread* is ſuppoſed to have been made of the plant *lotus*. The poor Tartars, near

Sbera-

Sherazoul, ſtill live upon *acorn-bread*. Phil. Tranſ. N° 300. and N° 138. p. 2033. and 943.

In the iſlands of Banda and Amboyna, they make a kind of *bread* called *ſagoen*. or *ſago*, of the pith of a farinaceous tree, whoſe trunk is the thickneſs of a man's thigh, ten feet high, and having a round head a-top like a cabbage; in the middle whereof is a white mealy ſubſtance, which being kneaded with water, fermented, and baked on the coals, ſerves the poorer ſort for *bread*. Phil. Tranſ. N° 26. p. 485.

In the Caribbee iſlands, they make *bread* of the root of a poiſonous plant called *manioc*; probably the ſame with the CASSADA *bread*, which is made of the root of the *yuca Mexicana*. Phil. Tranſ. N° 33. p. 635. and N° 311. p. 2434.

In Benzon's time, all the ſhips bound from Spain to Mexico, when they returned, were victualled with CASSADA *bread*, inſtead of biſcuit.

To the claſs of *breads* made of roots may alſo be added *potato-bread*, frequent in Ireland, and *turnip-bread*, uſed in ſome parts of England. It is made by boiling the roots, and expreſſing the juice, till they become dry, then beating them in a mortar, and adding wheat-flour, aniſeeds, and yeaſt, moulding up the dough in the uſual form and baking it. It looks and taſtes like other *bread*, and is uſed by ſome againſt conſumptions. Phil. Tranſ. N° 205. p. 970.

Among us, *bread* is chiefly divided into *white*, *wheaten*, and *houſhold*; differing only in degrees of purity. In the firſt, all the bran is ſeparated; in the ſecond, only the coarſer; in the third none at all; ſo that *fine bread* is made only of flour; *wheaten bread*, of flour, with a mixture of the finer bran; and *houſhold*, of the whole ſubſtance of the grain, without taking out either the coarſe bran or fine flour. Stat 8 Ann. cap. 18.

We alſo meet with *ſimnel bread*, manchet or roll *bread*, and French *bread*; which are only ſo many denominations of the fineſt or whiteſt *breads*, made of the pureſt flour; except that in roll *bread* there is an addition of milk, and, in French *bread*, of eggs and butter alſo. To which may be added, *ginger-bread*, made of white *bread*, with almonds, liquorice, aniſeed, roſe-water, and ſugar; and *muſſi-a-bread*, *panis mixtus*, made of wheat and rye, or ſometimes of wheat and barley.

The proceſs of making houſhold *bread* among us, is thus: to a peck of meal they add a handful of ſalt, a pint of yeaſt, and three quarts of water, cold in ſummer, hot in winter, and temperate between the two; the whole being kneaded in a bowl or trough by the fire in winter, from it in ſummer, will riſe in about an hour; they then mould it into loaves, and put it into an oven to bake.

For unleavened *bread*, part of the flour intended for it, being made into dough with warm water and a little ſalt, is laid in the reſt of the flour an hour or more, in which time it riſes to three times the bulk; then they mix and knead the whole with more water, till it be brought into a ſtiff dough; which being formed into loaves, is baked in the oven; though the more uſual way is to take a piece of dough kneaded, and leave it in the tub till next time, when they break it ſmall, and mix it with the meal, adding ſome yeaſt. Hought. Collect. tom. i. N° 90. p. 241.

For French *bread*, they take half a buſhel of fine flour, ten eggs, and a pound and an half of freſh butter, into which they put as much yeaſt, with a manchet; and tempering the whole maſs with new milk, pretty hot, let it lie half an hour to riſe; which done, they make it into loaves or rolls, and waſh it over with an egg beaten with milk; care is taken, the oven be not too hot.

In Lancaſhire, and ſeveral other northern counties of England, the people have ſeveral ſorts of *oaten bread*; as, 1. The *bannock*, which is an oat-cake, kneaded only with water, and baked in the embers. 2. *Clap-bread*, which is made in thin hard cakes. 3. *Bitchineſs-bread*, which is made of thin batter, and formed into thin ſoft oat-cakes. 4. *Riddle-cake*, which are thick and ſour, and very little different from the hand-hover *bread*, which has but little leaven, and kneaded ſtiff. And, 5. *Jannock*, which is oaten *bread* made up into loaves.

In the ſtatute of aſſize of *bread* and ale, 51 Hen. III. mention is made of *waſtel-bread*, *cocket-bread*, and *bread* of *treet*; which anſwers to the three ſorts of *bread* now in uſe, called *white*, *wheaten*, and *houſhold bread*.

In religious houſes, they heretofore diſtinguiſhed *breads* by the names, *equiries bread*, *monks bread*, *boys bread*, and *ſervants bread*.

A like diſtribution obtained in the houſholds of nobles and princes; where, however, we find ſome other denominations, as *meſſengers bread*, that given to meſſengers, as a reward of their labour; *court bread*, that allowed by the lord for the maintenance of his houſhold; *eleemoſynary bread*, that diſtributed to the poor in the way of alms. Du-Cange Gloſſ. Lat. tom. iv.

The quantity of *bread* allowed a ſoldier for his day's ſubſiſtence is called a RATION.

For armies the *bread* is either baked in the park of proviſions in the camp, or in the town neareſt the army; for the convenience of ovens, an army ought always to have at leaſt four days *bread* before-hand. In ſome caſes, the diſtance of the places, from whence *bread* is to be had, or the army's march from one country to another, obliges the general to diſtribute *bread* for ſix or even for eight days; a thing never done without abſolute neceſſity, by reaſon of the abuſe which ſome ſoldiers make of it, who ſell their *bread* without regard to future ſubſiſtence. For long marches through an enemy's country, they ſometimes, inſtead of *bread*, make BISKET.

BREAD, *horſe*, is made of wheat, oats, and beans, to which ſometimes are added aniſeed, gentian, liquorice, fenugreek, eggs, and ale; and ſometimes rye and white wine are uſed.

For race horſes, three ſorts of *bread* are uſually given with ſucceſs, for the ſecond, third, and fourth fortnights feeding; they are all made of beans and wheat worked with barm, the difference conſiſting chiefly in the proportion of the two former. In the firſt kind, three times the quantity of beans is uſed to one of wheat, in the ſecond, equal quantities of both; in the third, three times the quantity of wheat to one of beans.

BREAD, *ſacramental*, in the proteſtant churches, is common leavened *bread*, agreeable to the ancient practice. In the Romiſh *maſs*, AZYMUS, or unleavened *bread*, is uſed, particularly in the Gallican church, where a ſort is provided for this purpoſe, called *pain a chanter*, made of the pureſt wheaten flour, preſſed between two iron plates graven like wafer-moulds, being firſt rubbed with white wax, to prevent the paſte ſticking.

Eccleſiaſtical writers enumerate other ſpecies of *bread*, allotted for purpoſes of religion; as, 1. *Cœnobarius*, that anciently offered to the prieſts at the calends. 2. *Prebendarius*, the ſame with *capitularis*, that diſtributed daily to each prebendary or canon. 3. *Benedictus*, that anciently given to catechumens before baptiſm, in lieu of the euchariſtic *bread*, which they were incapable of partaking of. 4. Conſecrated *bread* is a piece of wax, paſte, or even earth, over which ſeveral ceremonies have been performed with benedictions, &c. to be ſet up in an *agnus dei*, or a relic box, and preſented for veneration. 5. Unleavened *bread*, AZYMUS. The Jews eat no other *bread* during their paſſover; and exact ſearch was made in every houſe, to ſee that no leavened *bread* was left. The uſage was introduced in memory of their haſty departure from Egypt, when they had not leiſure to bake leavened. 6. *Shew-bread* was that offered to God every Sabbath-day, being placed on the golden table, in the holy of holies.

BREAD *of St. Hubert*, *St Geneviève*, *St. Nicholas*, &c. denote cakes ſanctified with certain prayers and invocations of thoſe ſaints held by the ſuperſtitious to be of great efficacy in the cure of hydrophobias, agues, and other diſeaſes.

BREAD is alſo uſed to denote certain foods made of animal, or even mineral matters, ſerving to ſupply the place of *bread*.

In divers parts of the North we read of *fiſh-bread*, particularly in Iceland, where dried cod is uſed for *bread*, being firſt beaten to powder, and made up into cakes. The like obtains among the Lapſanders, whoſe country affords no corn; and even among the Crim Tartars. Phil. Tranſ. N° 102. p. 35. Sheff. Hiſt. of Lapl. chap. 14.

BREAD, in a more extenſive ſenſe, includes all the neceſſaries of life, as food, raiment, lodging, &c.

Hence alſo the ſabbath is ſometimes called, in ancient writers, *the day of bread*, by reaſon the euchariſt was then adminiſtered every Lord's day.

BREAD, *ſwine*, *panis porcinus*, a denomination given to TRUFFLES.

BREAD, *ſow's*, is alſo applied to the herb CYCLAMEN.

BREAD, *aſſize of*.—The price and weight of *bread* are regulated by the magiſtrates according to the price of wheat; and, in order to direct them in their allowance to the baker, they are to take notice, that the peck-loaf of each ſort of *bread* is to weigh, when well baked, 17 lb. 6 oz. avoirdupois weight, and the reſt in proportion; and that every tack of meal, or flour, is to weigh two hundred weight and two quarters, neat; and that from every ſack there ought to be made, at an average, twenty ſuch peck-loaves of bread.

We have divers tables of the weights of the loaves both of *wheaten* and *houſhold bread*, at every price of wheat. If *bread* wants one ounce in thirty-ſix, the baker formerly was to ſuffer the pillory; now, to forfeit not more than five ſhillings. nor leſs than one, for every ounce wanting; and for every defect leſs than an ounce, not more than two ſhillings and ſix pence, nor leſs than ſix pence; ſuch *bread* being complained of and weighed before a magiſtrate within twenty-four hours after it is

baked or expofed to fale, within the bills of mortality, or within three days in any other place. Bakers are obliged, under a penalty, to mark their *wheaten-bread* with a large Roman W, and their *houſhold bread* with an H. See BAKING.

It is to be obſerved, *bread* loſes weight by keeping; in ſome experiments recited by Bartholin, the diminiſution was near one-fourth in ſix months.

By 13 Geo. III. cap. 62. a ſtandard *wheaten-bread* was ordered to be made of ſuch flour as is the whole produce of the grain, the hull only excepted, and to be marked SW, but it is little uſed.

TABLE of the Aſſize and Price of *Bread* made of WHEAT.

Price of the buſhel of wheat, and baking.	Weight			Price.									
	The penny loaf.			Quarters Loaf.		Half Peck.			Peck Loaf.				
	Wheat.	Houſh.		Wheat.	Houſh.	Wheat.	Houſh.		Wheat.	Houſh.			
s. d.	oz. dr.	oz. dr.		l. d.	l. d.	l. d.	l. d.		l. d.	l. d.			
7 9	20 4	29 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	20 0	28 12		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	19 8	28 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	19 4	28 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	19 0	27 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	18 8	27 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	18 4	27 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	18 0	26 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	17 12	26 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	17 8	26 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	17 4	25 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	17 0	25 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	16 12	25 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	16 8	24 12		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	16 4	24 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	16 0	24 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	15 12	24 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	15 8	23 12		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	15 4	23 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	15 0	23 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	14 12	23 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	14 8	22 12		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	14 4	22 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	14 0	22 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	13 12	22 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	13 8	21 12		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	13 4	21 8		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	13 0	21 4		0 3	0 3	0 0	0 0		0 0	1 0		0	0
7 8	12 12	21 0		0 3	0 3	0 0	0 0		0 0	1 0		0	0
5 0	18 1	16 6		0 2	0 2	0 0	0 0		0 0	0 11		0	0
5 3	17 9	15 7		0 2	0 2	0 0	0 0		0 0	0 11		0	0
5 6	16 9	14 10		0 2	0 2	0 0	0 0		0 0	0 11		0	0
5 9	16 0	14 1		0 2	0 2	0 0	0 0		0 0	0 11		0	0
6 0	15 8	13 9		0 2	0 2	0 0	0 0		0 0	0 11		0	0
6 3	15 1	13 2		0 2	0 2	0 0	0 0		0 0	0 11		0	0
6 6	14 6	12 10		0 2	0 2	0 0	0 0		0 0	0 11		0	0
6 9	13 12	12 3		0 2	0 2	0 0	0 0		0 0	0 11		0	0
7 0	13 6	11 11		0 2	0 2	0 0	0 0		0 0	0 11		0	0
7 3	13 1	11 5		0 2	0 2	0 0	0 0		0 0	0 11		0	0
7 6	12 8	10 12		0 2	0 2	0 0	0 0		0 0	0 11		0	0
7 9	12 3	10 6		0 2	0 2	0 0	0 0		0 0	0 11		0	0
8 0	11 12	10 0		0 2	0 2	0 0	0 0		0 0	0 11		0	0
8 3	11 7	9 13		0 2	0 2	0 0	0 0		0 0	0 11		0	0
8 6	11 2	9 7		0 2	0 2	0 0	0 0		0 0	0 11		0	0
8 9	10 13	9 2		0 2	0 2	0 0	0 0		0 0	0 11		0	0
9 0	10 8	8 13		0 2	0 2	0 0	0 0		0 0	0 11		0	0
9 3	10 3	8 8		0 2	0 2	0 0	0 0		0 0	0 11		0	0
9 6	9 14	8 3		0 2	0 2	0 0	0 0		0 0	0 11		0	0
9 9	9 10	7 14		0 2	0 2	0 0	0 0		0 0	0 11		0	0
10 0	9 5	7 9		0 2	0 2	0 0	0 0		0 0	0 11		0	0
10 3	9 1	7 4		0 2	0 2	0 0	0 0		0 0	0 11		0	0
10 6	8 12	7 0		0 2	0 2	0 0	0 0		0 0	0 11		0	0
10 9	8 8	6 12		0 2	0 2	0 0	0 0		0 0	0 11		0	0
11 0	8 4	6 8		0 2	0 2	0 0	0 0		0 0	0 11		0	0
11 3	8 0	6 4		0 2	0 2	0 0	0 0		0 0	0 11		0	0
11 6	7 13	6 0		0 2	0 2	0 0	0 0		0 0	0 11		0	0
11 9	7 9	5 13		0 2	0 2	0 0	0 0		0 0	0 11		0	0
12 0	7 6	5 10		0 2	0 2	0 0	0 0		0 0	0 11		0	0
12 3	7 2	5 6		0 2	0 2	0 0	0 0		0 0	0 11		0	0
12 6	6 15	5 3		0 2	0 2	0 0	0 0		0 0	0 11		0	0
12 9	6 12	4 15		0 2	0 2	0 0	0 0		0 0	0 11		0	0
13 0	6 8	4 12		0 2	0 2	0 0	0 0		0 0	0 11		0	0
13 3	6 5	4 9		0 2	0 2	0 0	0 0		0 0	0 11		0	0
13 6	6 2	4 6		0 2	0 2	0 0	0 0		0 0	0 11		0	0
13 9	5 15	4 3		0 2	0 2	0 0	0 0		0 0	0 11		0	0
14 0	5 12	4 0		0 2	0 2	0 0	0 0		0 0	0 11		0	0
14 3	5 9	3 13		0 2	0 2	0 0	0 0		0 0	0 11		0	0
14 6	5 6	3 10		0 2	0 2	0 0	0 0		0 0	0 11		0	0
14 9	5 3	3 7		0 2	0 2	0 0	0 0		0 0	0 11		0	0
15 0	5 0	3 4		0 2	0 2	0 0	0 0		0 0	0 11		0	0
15 3	4 14	3 2		0 2	0 2	0 0	0 0		0 0	0 11		0	0
15 6	4 12	2 15		0 2	0 2	0 0	0 0		0 0	0 11		0	0
15 9	4 9	2 13		0 2	0 2	0 0	0 0		0 0	0 11		0	0
16 0	4 6	2 10		0 2	0 2	0 0	0 0		0 0	0 11		0	0

Note: The weight of loaves of any ſize may be eſtimated from thoſe of the penny loaf, by ſimple addition; e. gr. the ſix-penny loaf weighs ſix times as much, &c. and the wheaten loaves are three-fourths of the weight of the houſhold loaves. See Burn's Juſtice, vol. i. p. 220.

BREAD, in *Medicine*.—Beſides alimentary, *bread* has alſo medical qualities: decoctions, creams, and jellies of *bread*, are directed in ſome diſpenſaries.

There are certain medicated *bread*s, appropriated to the intentions of phyſic; as, aniſeed-*bread*, turnep-*bread*, and vipers-*bread*; which laſt is made of the fleſh of that animal, with wheat-flour, yolks of eggs, ſarſaparilla, yeaſt, and milk, commended in ſcorbutic habits. Some direct acorn-*bread*, dipped in red wine, to be thruſt up the *anus*, in prolapſuſes of that part.

Mr. Boyle aſſures us, he drew a *menſtruum* from *bread* ſtronger than *aqua fortis*, and which would act even upon glaſs itſelf. Phil. Works abr. tom. i. p. 34. 49.

Bread made of good wheat, well leavened, and thoroughly baked, with a little ſalt, is the beſt; that which is not thoroughly baked, ill kneaded, and without ſalt, is hurtful and unwholſome, eſpecially in ſmoaky cities: ſo are unleavened *bread* and cakes baked under the aſhes.

In general, the lighter the *bread*, the better and more agreeable it is; coarſe and barley *bread* is deterſive, and gently purgative, at leaſt to thoſe not uſed to it. Some recommend it for perſons in the gout.

See farther concerning *bread* in the writers on foods and cookery; eſpecially in Hen. Nicolaus, who has a treatiſe expreſs on *bread*. Hen. Nicolai Tract. de Pane Dantiſc 1651. See alſo Fabr. Bibl. Antiq. cap. 19. § 6.

BREAD, in *Chemiſtry*. The chemiſt's art can extract from ſo mild a ſubject as *bread*, an acid, which is a powerful *menſtruum*. It is done in this manner; put two pounds of coarſe *bread*, cut into ſmall pieces, into a glaſs retort; place this in a ſand heat, and, luting on a receiver, diſtil with a gentle fire, and there will be produced a liquor appearing like water, with a ſmall quantity of oil; ſeparate the oil, and filtre and rectify the liquor by a ſecond diſtillation in *balneo Mariæ*, and afterwards diſtil it again in a ſand heat, and there will be produced a moderately ſtrong, clear, acid liquor. This is a *menſtruum* capable of extracting the red colour from coral, and even from garnets. Common *bread* affords it, but coarſe rye-*bread* yields the greateſt quantity. Shaw's Lect. p. 104. Oil of vitriol, poured upon crums of *bread*, will excite a ſurpriſing degree of heat. Boyle's Works abr. vol. i. p. 569.

BREAD, *bonpournichole*, or *bonpournickel*, the name of a very coarſe *bread* eaten in Weſtphalia, and many other places. This *bread* of the Weſtphalians ſtill retains the opprobrious name once given it by a French traveller, of *bonpournichole, good for his horſe Nichole*, but is by no means a contemptible kind.

It is far from being peculiar to this age or country: it has been known in diſtant places, and in different ages, and was called by the ancients *panis furfuraceus*, or *panis impurus*, from its not being ſo thoroughly cleanſed from the huſk or bran, as the fine ſorts of *bread* are.

The wreſtlers of old eat only this ſort of *bread*, to preſerve them in their ſtrength of limbs; and we may learn from Pliny, that the Romans for three hundred years knew no other *bread*: unqueſtionably, this coarſe *bread* nouriſhes more, aſſuages hunger better, and generates humours leſs ſubject to corruption, than the white.

The inhabitants of Weſtphalia, who are a hardy and robuſt people, and capable of enduring the greateſt fatigues, are a living teſtimony of the ſalutary effects of this ſort of *bread*; and it is remarkable, that they are very ſeldom attacked by acute fevers, and thoſe other diſeaſes which ariſe from an ebullition of the humours, and a malignant coliquation of the blood, and of the humours of which it is compoſed.

It is certain, that a leſs ſtrong diet is more proper to weakly conſtitutions, and people of ſedentary lives, than this; but for thoſe who will uſe the neceſſary exerciſe with it, it is eaſy to ſee that it is preferable to all other kinds of *bread*; ſince it remarkably reſtores ſtrength, and has another ſalutary effect, which is, that it renders the belly ſoluble: this was a quality remarked in coarſe *bread*, and highly commended in it, ſo early as in the days of Hippocrates.

The Germans make two ſorts of waters by diſtillation from this *bread*; the one with, the other without, the addition of a ſpirituous liquor: to both which great virtues are aſcribed. That without any thing ſpirituous, is made of the juice of craw-fiſh, May-dew, roſe-water, nutmegs, and ſaffron, diſtilled from a large quantity of this *bread*. This is eſteemed a great reſtorative, and given in hectic habits. The other is diſtilled from this *bread* and Rheniſh wine, with nutmegs and cinnamon. This is given in all the diſorders of the ſtomach, vomiting, and loſs of appetite, and other complaints of the ſame kind; and beſides theſe, there is a ſpirit diſtilled from it by the retort, in the dry way, which, when ſeparated from its fetid oil, is eſteemed a powerful ſudorific, and very valuable medicine, in removing impurities of the blood. Hoffman.

BREAD, *Indian*, or *Caſſada*. See CASSADA.

BREAD, *St. John's*. See CAROB.

BREAD-*room*, in a ſhip, that in which the *bread* or BISKET is kept.

BREAD-*fruit*, at Otaheite, in the South Sea, grows on a tree about the ſize of a middling oak: it is about the ſize and ſhape of a child's head; the ſurface is reticulated, and covered with a thin ſkin; the eatable part lies between the ſkin and the core; it is white as ſnow, and of the conſiſtence of new bread. It has an inſipid, ſweetiſh taſte, reſembling that of the crumb of wheaten bread, mixed with a Jeruſalem artichoke. It is roaſted and baked before it is eaten. Three different diſhes are prepared from this fruit, by beating it into a paſte with water, or the milk of the cocoa-nut, and mixing it with ripe plantains, bananas, or the four paſte which they call *matte*. Hawkeſworth's Voyages, &c. vol. ii. p. 80, and 108.

BREADTH. See LATITUDE, DIMENSION, AREA, &c.

BREADTH, *hair's*. See HAIR.

BREADTH, *finger's*. See FINGER.

BREADTH, *hand's*. See HAND.

BREADTH *of a ſhip* is the meaſure of it from ſide to ſide in any particular place: accordingly the *main-breadth* is

that part of every timber which incloſes the greateſt ſpace from the middle line of the ſhip's length; *top-timber breadth* is the diſtance between the upper part of the ſame timber, and the ſaid middle line; and the *extreme breadth* is the diſtance between her ſides in the *main-breadth* of the midſhip-frame.

BREADTH-*ſtaff*, in *Sea-language*, denotes the radius of the arch which forms part of the curve of a ſhip's timber in the horizontal plane.

BREAK, in Norfolk, denotes land ploughed or broke up the firſt year after it has lain fallow in the ſheep-walks.

In *Architecture*, it denotes a receſs, or giving back of a part behind its ordinary range or projecture.

In which ſenſe, they ſay, a *break* of a PEDIMENT; a *break* of ENTABLATURES, whereby it ſhrinks, as it were, between the columns, is reputed a fault.

BREAK-*in*, among *Carpenters*, is when they break a hole in brick-walls with their ripping chiſſel.

BREAK-*neck*, *Briſe-cou*, in *Building*, a fault in a ſtair-caſe as when a ſtep is made higher or lower than the reſt, and landing place too narrow, or the like.

BREAK-*water*, the hulk or hull of ſome old ſhip, ſunk at the entrance of a ſmall harbour, to *break* the force of the waves in their paſſage to the veſſels moored within. It is alſo uſed for a ſmall buoy faſtened to a large one in the water, and deſigned to ſhew where it ſwims. See BUOY.

BREAKERS, in *Sea-language*, ſignify billows that break violently over rocks, lying under the ſurface of the ſea.

BREAKING, in *Agriculture*, denotes the ploughing up of grounds, eſpecially ſuch as have lain ſome time fallow.

BREAKING *ground*, in the *Military Art*, the beginning of works for carrying on the SIEGE of a place; more eſpecially the beginning to dig TRENCHES, or approaches.

BREAKING *the angles of a battalion*, denotes a military evolution, whereby the four angles turn, and make ſo many fronts towards the enemy; ſo that the battalion, which before was only a ſquare, becomes an octangle, and can fire on all ſides.

This is otherwiſe called *blunting the angles of a battalion*; by the French, *emouſſer les angles d'un bataillon*.

BREAKING *of meaſure*, in *Fencing*, denotes a moderate retiring, or giving of ground, in order to avoid the adverſary's thruſt.

Breaking of meaſures differs much from going back, and loſing or yielding of ground; the latter being reputed a great reproach, the former a mark of judgment and adroitneſs. Some pretend that a man retiring is obliged to forbear, if his adverſary call on him to ſtand.

BREAKING *of the ſea*, BREAKING *of a wave*, or the like, on a rock, a bank, or the like, are a ſufficient indication to the pilots, that it is not ſafe mooring there.

Divers machines and ſtructures have been contrived for *breaking* the force of wind, the ſtream of water, and the like.

BREAKING is alſo uſed for the taming of animals, or reducing them from a wild to a tractable ſtate.

BREAKING *of a horſe to the ſaddle*, See BACKING and TRAVICE.

To *break* a horſe for hunting, is to make him acquire the diſpoſition and habit of running. It is a great fatigue to run horſes full ſpeed before they are *broken*.

BREAKING *herd*, among *Sportſmen* denotes a deer's quitting the herd, and running by itſelf.

In which ſenſe, the word ſtands oppoſed to *herding*.

A deer, when cloſe purſued, is loth to *break* herd. When a hart *breaks* herd, and draws to the thickets and coverts, he is ſaid to *harbour* or take hold.

BREAKING *up a deer*, ſignifies the opening or cutting it up.

BREAKING *of priſon*. See PRISON.

BREAKING *the legs*, *crucifragium*, was an appendage of crucifixion, uſed no where but among the Jews. See CROSS.

BREAKING *bulk*, in the *Sea-language*, ſignifies taking part of the ſhip's loading or cargo out of the hold.

BREAKING *of hemp*. See BRAKE.

BREAKING *of bread*, is ſometimes uſed, in *Eccleſiaſtical Writers*, for celebrating the EUCHARIST.

BREAKING *of wine*, among *Vintners*.—Wine is ſaid to *break*, when being left ſome time in the air, in an open glaſs, it changes colour; an indication that it will not keep.

This is the uſual method of trying the goodneſs of wine, among the merchants and vintners of Paris.

BREAKING is alſo uſed in trade, for a perſon's failing or ſtopping payment.

In which ſenſes, *breaking* differs from becoming BANKRUPT.

Breaking betimes, while there is ſomething left to pay withal, is a mark of honeſty; and, generally, entitles the unhappy perſon to compaſſion and gentler uſage from his creditors, ſaves his credit, and facilitates his retrieving. A late ſenſible writer on trade takes great pains to inculcate this precept, BREAK EARLY. *Compl. Eng. Tradeſman*, vol. i. p. 77. 8o, &c.

BREAM, in *Ichthyology*, the Engliſh name of the CYPRINUS *latus*.

This is but a coarſe fiſh for the table, but it affords great ſport to the angler. The beſt time of angling for *bream* is from St. James's day to Bartholomew-tide; as being then exceeding fat; and the moſt proper bait is the largeſt red garden-worms that can be got. See SPARUS.

BREAMING. See BROOMING.

BREAST, *Mamma*, in *Anatomy*, a prominent fleſhy part of the human body, on the outſide of the *thorax*, ſerving to ſeparate the milk.

Anatomiſts ſometimes divide *breaſts* into perfect, which are compoſed of a multitude of glands, interwoven with veins, arteries, and nerves; ſuch are thoſe of women; and imperfect *breaſts*, compoſed chiefly of fat, with a few glands, ſuch are thoſe of men.

The internal ſubſtance of the *breaſt* is compoſed of a great number of glands, of various ſizes, and an oval figure, intermixed with globules and veſſels of fat. Their excretory ducts, as they approach the nipple, join and unite together, till at laſt they form ſeven, eight, or more ſmall pipes, called *tubuli lactiferi*, which have ſeveral croſs canals, by which they communicate with one another, to obviate the inconveniences that might accrue from the caſual obſtruction of one or more of them. Theſe tubes are not every where of equal capacity, but in ſome places more, in others leſs, dilated; ſo as to form cells, which ſeem contrived to hinder the ſpontaneous efflux, and to create a neceſſity of ſucking, to fetch out the contents.

Of the concurrence of theſe *tubuli*, or pipes, is the ſubſtance of the *papillæ*, in great meaſure, formed; among which is interſperſed a glandulous ſubſtance, ſerving to keep them from preſſing too cloſe on each other; and with it are intermixed abundance of fibres derived from the external teguments of the *papillæ*; by means whereof, the lacteal tubes are conſtringed, and the motion of the milk is modified.

Beſides theſe veſſels, are abundance of fatty globules, called *ductus adipoſi*, which ſome would have only to fill up the interſtices of the glands: but Dr. Drake, after Malpighi, thinks they contribute to the compoſition of the MILK; which ſeems nothing elſe but water and oil artfully united.

The office of the *breaſt* is to ſecrete the milk from the arteries in their glandulous ſubſtance, to collect it in their lacteal tubes, and, at proper ſeaſons, to yield it to the infant through the nipple.

Some, however, aſſert, that the milk is not formed from the blood, but from the chyle, which is immediately conveyed thither by the thoracic, or Pecquet's ducts. And what confirms the ſuggeſtion, is the quick ſupply of milk in nurſes, after a draught of cow's milk. The difficulty is to prove, that the thoracic duct reaches to the *breaſts*, which ſome abſolutely deny. Phil. Tranſ. N° 65. and N° 40. p. 1357, and 805.

Swelling *breaſts*, eſpecially if there be milk found in them, are generally judged a mark of the loſs of VIRGINITY, and a proof that a woman has been with child; though, it is ſaid, it does not hold univerſally.

The ſwelling of the *breaſts*, during the time of geſtation, is owing to the conſent between the *breaſts* and the UTERUS; there being ſo near a communication between the mammary veſſels, and the hypogaſtric veſſels of the womb, that dilatation in the latter is attended with a ſimilar one in the former. See PREGNANCY, &c.

In virgins, the tubes which compoſe the glands of the *breaſt*, like ſphincter-muſcles, contract ſo cloſely, that no part of the blood can enter them: but when the womb grows big with a FOETUS, and compreſſes the deſcending trunk of the great artery, the blood flows in greater quantity, and with a greater force, through the arteries of the *breaſts*, and forces a paſſage into their glands, which, being at firſt narrow, admits only of a thin water; by growing wider by degrees, as the womb grows bigger, the glands receive a thicker *ſerum*; and after birth they run with a thick milk; becauſe that blood which before flowed to the *fœtus*, and for three or four days afterwards by the *uterus*, beginning then to ſtop, does more dilate the mamillary glands.

The *breaſts*, eſpecially after delivery, are liable to divers diſeaſes; as inflammations, excoriations, indurations, tumefactions, nodes, abſceſſes, ſcirrhuſes, and cancers; to which may be added certain peculiar diſorders, as the *ſpargonoſis*, *ſtrongulides*, and *gynæcomaſton*. See CANCER, SCIRRHUS, &c.

In men, the *breaſts* are very ſmall, and are chiefly for ornament; though phyſical hiſtories give inſtances of thoſe who have had milk in them.

The ancients repreſented Diana of Epheſus with many *breaſts*, as appears from ſeveral medals of that city; whence

whence ſhe had the epither *Mammoſa*; q. d. having many *breaſts*; an appellation which is alſo given to Iſis, and to Ceres.

BREAST, applied to the correſpondent parts of other animals, is more properly called *udders*, *dugs*, *uberæ*, &c.

BREAST alſo denotes that cavity or region of the body, by anatomiſts more frequently called THORAX. Though, in propriety, the *breaſt* is rather reſtrained to the anterior part of the *thorax* where the ribs meet: called alſo *ſternum*, and *pectus*; in Engliſh, popularly the *boſom*. We ſay, a flat, a narrow, a ſtrait *breaſt*; a broad *breaſt*, not high, is ranked among the ſigns of longevity. Defluctions on the *breaſt* and lungs are dangerous.

Smiting the *breaſt* is one of the expreſſions of penitence. In the Romiſh church, the prieſt beats his *breaſt* in rehearſing the general confeſſion at the beginning of maſs. Coughs, catarrhs, aſthmas, phthiſes, peripneumonies, &c. are diſeaſes of the *breaſt*. See COUGH, and ASTHMA.

Phyſicians alſo ſpeak of a dropſy of the *breaſt*, *hydrops pectoris*. See DROPSY.

Medicines for diſorders of the *breaſt* are called *pectorals*. See PECTORAL.

BREAST-*bone*. See STERNUM.

BREAST *of a* CHIMNEY, denotes the fore-part under the mantle or chimney-piece, commonly made inclined.

BREAST-*ſail*, or BREAT-*ſail*, denotes a rope or hawſer employed to confine a ſhip ſideways to a wharf or key, or ſome other ſhip.

BREAST-*hooks*, the compaſſing timbers before, in a ſhip, which help to ſtrengthen her ſtem, and all her fore-part.

BREAST-*pain*, called by the Italians *grandezza di petto*, is a diſtemper in horſes proceeding from ſuperfluity of blood and other groſs humours, which being diſſolved by ſome extreme and diſorderly heat, reſort downward to the *breaſt*, and pain them extremely.

The ſigns of the *breaſt*-pain are, a ſtiff, ſtuggering, and weak-going with his fore-legs, beſides, that he can hardly, if at all, bow his head to the ground.

BREAST-*plate*, a piece of defenſive armour, wherewith to cover the *breaſt*.

The *breaſt*-plate is ſaid to be the invention of Jaſon. It was originally made of leather, afterwards of mail, and laſtly of a brazen or iron-plate. When made of this laſt matter, it is more particularly called *cuiranus*, by the moderns CUIRASS; when made of braſs, with a Gorgon's head in the middle, it is denominated AGIS.

The *breaſt*-plate, called alſo by the Roman's *pectorale*, is frequently confounded with the *thorax* and *lorica*; from both which it ought to be diſtinguiſhed, as being properly a half-*thorax*, or half-*lorica*, covering only the breaſt; whereas the *thorax* inveſted the body.

As the whole *thorax* might be a temptation to the ſoldiery to turn their backs, when equally guarded with their *breaſts*, the *thorax* was thrown away, and the *hemi-thoracion*, or *breaſt*-plate, only retained. Polyæn. Stratag. lib. vii.

BREAST-*plate*, in the *Manege*, denotes a leathern ſtrap running from one ſide of the ſaddle, croſs the horſe's *breaſt*, to the other; intended to keep the ſaddle from ſlipping backwards in mounting up riſing grounds. It is otherwiſe called *tee*; ſometimes the *poitrail*.

BREAST-*plate*, among *Artificers*, denotes a drill-plate, againſt which to ſet the blunt end of the drill.

BREAST-*plough*, in *Agriculture*, a ſmall plough ſo conſtructed, that a man may puſh it before him. It conſiſts of a cutting-iron about eight or nine inches long, with one of its ſides turned up to cut the turf, which is fixed to a pole about five or ſix feet long, forked at the upper end, with a croſs handle. It is uſed in the operation called BURN-BAKING.

BREASTS *of a ſaddle*, are part of the BOW, being the two ſides of it down from the arch or upper part.

BREAST-*work*, in the *Military Art*. See LORICA, and PARAPET.

BREAST-*work of a ſhip*, is a ſort of balluſtrade or fence, compoſed of rails or mouldings, and often decorated with ſculpture; it terminates the quarter-deck and poop at the fore-ends, and incloſes the fore-caſtle both before and behind.

BREATH, the WIND or AIR which is received and expelled by the mouth and noſtrils, in the act of RESPIRATION.

In which ſenſe, the word amounts to the ſame with the Greek πνοια, and Latin *ſpiritus*.

A ſtinking *breath* is one of the ſymptoms uſually preceding the accels of an intermitting fever.

In ſome perſons, a ſtinking *breath* is an indication of the *menſes* being at hand.

It is diſputed among the civilians, whether a ſtinking *breath*, called *fœtor*, owing to rotten teeth or gums, ſhould be reputed a diſeaſe. Calvin. Lex. Jur.

BREATH is more particularly uſed to denote a ſtrength of lungs, whereby a man is enabled to hold out without taking wind ſo often.

In this ſenſe, we ſay, a long, a ſhort *breath*. The ordinary term of holding the *breath* does not exceed one third of a minute. Bacon. Hiſt. of Life and Death, Ap. Works, tom. ii. p. 176.

For the pearl fiſhery they chooſe ſlaves who have the beſt *breath*, or can continue the longeſt under water without fetching their *breath*. Pechlin has a diſſertation expreſs on living long without *breathing*. J. Nic. Pechlin De Aeris & Alimenti Defectu, & Vita ſub Aquis diuturna, Meditatio ad Joel Langelot, 1676.

The ancients were very watchful over the laſt *breath* of dying perſons; which the neareſt relations, as the mother, father, brother, or the like, received in their mouths. Pitiſc. Lex. Antiq. voc. *Spiritus*.

BREATH is alſo ſometimes extended to the odorous EFFLUVIA of plants, and even exhalations of minerals.

BREATHING. See RESPIRATION.

Fighting a cock to *breathe* him, is called SPARING.

To *breathe* a running horſe, and bring him to his wind, they give him a HEAT.

BREATHING, *inſufflatio*, a ceremony in BAPTISM.

BREATHING, *diffidulty of*, in *Medicine*, a diſeaſe called by phyſicians DYSPNŒA.

BREDEWITE, in *Ancient Law Writers*, an amercement ariſing from ſome default in the aſſize of bread.

BREECH *of a gun*, in *Artillery*, denotes the diſtance from the hind part of the baſe ring to the beginning of the bore, and is always equal to the thickneſs of the metal at the vent. See A C, *fig.* 1. *Tab. Gunnery*.

Engineers have contrived a ſort of cannons, which are charged by the *breech*.

BREECH-*mouldings*. See MOULDINGS.

BREECHES, a garment worn by males, reaching from the girdle to the knees, and ſerving to cover the hips, thighs, &c.

The ancient Romans had nothing in their dreſs anſwering to our *breeches* and ſtockings; inſtead of which, under their lower tunics and waiſtcoats, they ſometimes bound their thighs and legs round with ſilken ſcarfs, or *faſciæ*, called *tibialia* and *femoralia*. Salmuth. ad Pancirolli. p. i. p. 161. Kennet. Rom. Ant. Not. p. ii. lib. v. cap. 8.

Breeches appear to be a habit peculiar to the barbarous nations, eſpecially thoſe inhabiting the colder countries of the North; whence Tacitus calls them *barbarum tegmen*. We find mention made of them among the ancient Getæ, Sarmatæ, Gauls, Germans, and Britons; they alſo obtained among the Medes and Perſians, as being a people of Scythian origin: they alſo afterwards got footing in Italy, ſome pretend as early as the time of Auguſtus; but without much foundation, that emperor's *breeches*, mentioned by Suetonius, being apparently only ſwaths tied over his thighs. Tacit. Hiſt. lib. ii. cap. 20. Perſ. Sat. iii. ver. 51. Ovid. Triſt. lib. v. Eleg. 11. Suet. in Auguſt. cap. 82.

However this be, *breeches* were at length received into Italy, and grew ſo highly into faſhion, that it was thought neceſſary under Honorius and Arcadius, to reſtrain them by law, and expel the *braccarii*, or *breeches*-makers, out of the city; it appearing a thing unworthy, that a nation, which commanded the world, ſhould wear the habit of barbarians.

We find frequent mention of *bracæ*, *braccæ*, or *bracchæ*, in claſſic writers, but the form of this habit is not agreed on: ſome will have it to have been a rough party-coloured coat.

BREECHINGS, in the *Sea-Language*, thoſe ropes with which the great guns are laſhed, or faſtened to the ſhip's ſide.

They are thus called, becauſe brought from the *breech* of the piece; they prevent the cannon from recoiling too much in time of battle, and are employed for ſecuring it during the courſe of a voyage.

BREEDING is uſed for the care of rearing or bringing up the young of divers animals.

BREEDING, in a moral ſenſe, denotes a perſon's deportment or behaviour in the external offices and decorums of ſocial life.

In this ſenſe, we ſay, well-*bred*, ill-*bred*, a man of *breeding*, &c.

Good-*breeding* amounts to much the ſame with what otherwiſe called *politeneſs*, among the ancient Romans, *urbanity*. Good-*breeding* is near to virtue, and will of itſelf lead a man a great part of the way towards the ſame; it teaches him to rejoice in acts of civility, to ſeek out objects of compaſſion, and be pleaſed with every occaſion of doing good offices.

Lord Shafteſbury compares the well-*bred* man with the real philoſopher: both characters aim at what is excellent, aſpire to a juſt taſte, and carry in view the model

of

of what is beautiful and becoming. The conduct and manners of the one are formed according to the moſt perfect eaſe, and good entertainment of company; of the other according to the ſtricteſt intereſt of mankind; the one according to his rank and quality in his private ſtation, the other according to his rank and dignity in nature. Horace ſeems to have united both characters.

Quid verum atque decens curo & rogo, & omnis in hoc ſum.

Shafteſ. Charact. vol. i. p. 64. vol. ii. p. 242. vol. iii. p. 161. Hor. lib. i. ep. i. ver. 11.

BREEDING-*ſtone*, in *Mineralogy*, a ſort of maſs of pebbles, joined by a ſparry cement; frequent in divers parts of Herefordſhire. See PEBBLE.

BREEDING *of fiſh*. See FISH-*pond*.

BREEDING *of horſes, dogs, &c.* See HORSE, &c.

BREEF-*cards*, denote a kind of falſe cards, either longer or broader than the reſt, whereby they may be known and diſtinguiſhed.

BREEZE, a ſhifting wind, blowing from the ſea and land alternately, during certain hours of the day or night; only ſenſible near the coaſts.

The ſea *breeze*, Dampier obſerves, commonly riſes in the morning about nine, proceeding ſlowly in a fine ſmall black curl on the water towards the ſhore: it increaſes gradually till twelve, and dies about five. Upon its ceaſing, the land-*breeze* commences which increaſes till twelve; and is ſucceeded in the morning by the ſea-*breeze* again.

The ſea-*breezes* rule by day, and the land-*breezes* by night; ſo that dividing their empire, they remain as conſtant as the ſeaſons of the year, or courſe of the ſun, on which they ſeem alone to depend; not but that they appear ſooner or later, ſtronger or weaker, in ſome places than others, and vary the alternative according to the ſeveral latitudes, ſituations, ſoils, mountains, valleys, woods, and other circumſtances of the countries where they are found.

In ſome countries, the ſea-*breezes* appear only to be efforts of the general or trade-wind, as at Barbadoes, and in many places between the tropics, where the general wind, if not impeded by mountains, or iſlands, blows freſh in the day-time, but, after ſun-ſet, the terreſtrial exhalations becoming precipitated, beget a new wind, which is not only able to make head againſt the trade-wind but to repel it from their coaſts.

The *ſea-breezes* do not all come from the ſame point of the compaſs, but from different points as the land lies.

In Brazil, and many of the Caribbee iſlands, they have no land-*breeze*, eſpecially if the ſhores lie low, as at Barbadoes, where the general or eaſtern wind blows from one end of the iſle to the other, and ſerves inſtead of the land-*breeze*. In other places they want the ſea *breeze*, eſpecially between the tropics, on coaſts which lie weſterly, as in the weſtern kingdoms of Africa.

If either the eaſterly or weſterly winds blow freſh, they hinder both the land and ſea *breezes* in the Mediterranean; of which thoſe are always found the weakeſt which riſe lateſt. In England, in very hot days, and when no other winds are ſtirring, the like alternation of land and ſea *breezes* may be obſerved on our coaſts, though with little certitude, any where to the northward of Portugal.

Breezes are more conſtant in ſummer than in winter, and more between the tropics than in the temperate zone.

The general cauſe of thoſe alternate *breezes* which ſet on and off the coaſts in hot countries, is the greater rarefaction of the air by reflected heat, and by fermenting exhalations over the land than over the water: the denſer air from the water becomes a ſea-*breeze* in the day; but this air condenſed again by the cold of the night, may then occaſion a land-*breeze*.

Breezes differ from *eteſiæ*, or TRADE WINDS, as the former are diurnal, or have their periods each day; and, beſides, they are only perceived near the ſhore or coaſt; whereas the latter are anniverſary, and blow at a diſtance from land. Phil. Tranſ. N° 183, p. 158.

BREEZE, in *Brick making*, are ſmall aſhes and cinders ſometimes made uſe of inſtead of coals, for the burning of bricks. But as this does not ſo well anſwer the end, the uſe of it was prohibited by 12 Geo. I. cap. 35; but allowed by 3 Geo. II. cap. 22. 10 Geo. III. cap. 49.

BREEZE *fly*. See OESTRUM and GAD *bee*.

BREGMA, in *Anatomy*, the ſame with SINCIPUT.

The *bregma* conſiſts chiefly of two bones, hence alſo called *bregma*, or *bregmatis oſſa*, which are two bones of the *cranium*, otherwiſe called *oſſa parietalia*.

Bregma properly denotes the middle and fore part of the head, ſituate over the forehead, and extending on both ſides to the temples.

The origin of the word is obſcure, and has been much controverted between Hoffman and Lindenius.

BREHONS, the provincial judges among the ancient Iriſh, by whom juſtice was adminiſtered, and controverſies decided.

Theſe ſages were a diſtinct tribe or family, to whom competent lands were allowed in inheritance. In criminal caſes, the *brehon* had the eleventh part of all fines; which could not be but conſiderable, at a time when murders, rapes, robberies, and the like offences, were only ſubject to pecuniary commutations.

BREHON *laws*, denote the general maxims, or rules of law, obſerved by the *brehons*, and having the force of laws throughout all the provinces of Ireland.

Several fragments of the *leges brehonicæ* are ſtill extant in public and private libraries. The moſt complete collection is that belonging to the duke of Chandos, containing twenty two ſheets and an half, cloſe written, full of abbreviated words, and not very legible. The publication of theſe laws has been much wiſhed for.

By the ſtatute of Kilkenny, 40 Edward III. it is enacted, that no Engliſh ſubject ſhall ſubmit to a trial by the *brehon* law, on the penalty of high treaſon. Notwithſtanding which, many were ſtill under a neceſſity of being concluded by the Iriſh laws and cuſtoms, till the whole kingdom was ſettled on an Engliſh foundation under king James I.

BRENNAGE, *Brennagium*, in *Middle Age Writers*, a kind of tribute paid, in lieu of bran, or bran itſelf, which the tenants were obliged to furniſh for ſupport of the lord's hounds.

The word is alſo written *brenage*, *brenagium*, and *brenaige*, *bernagium*, *brenaticum*, and *brennaticum*. Du-Cange Lat. Gloſſ.

BRENNING. See BURNING.

BRENTA, in *Ornithology*, the name of a fowl of the gooſe-kind, known among us by that of the *brent-gooſe*, and, by ſome, ſuppoſed to differ from the barnacle no other way than in ſex; but this is erroneous. It is ſomewhat larger than the barnacle and is longer bodied. Ray. See *Tab.* IV. *of Birds*. N° 49.

BREPHOTROPHIUM, from βρεφος, *infant*, and τρεφω, *I nouriſh*, an hoſpital for foundlings, a place wherein children, expoſed by their parents, are brought up at the public charge.

BRESILIA, in *Ornithology*, a ſpecies of *tanagra*, in the order of *paſſeres*.

BRESMA, in *Ichthyology*, a name given by Hildegard, and ſeveral other writers on fiſh, to the BREAM, a ſpecies of CYPRINUS.

BREST, or BREAST, in *Architecture*, a term uſed by ſome, for that member of a column otherwiſe called the *tore*.

BREST-SUMMERS, or BRESSUMERS, in *Building*, are pieces of timber deſigned for the ſupport of the brick-work in the front or rear wall of a building, for carrying arches, &c.

In the inner parts of a building, the pieces into which the girders are framed are called SUMMERS.

BRET, a name which the people on the coaſts of Lincolnſhire give to the common turbot, a fiſh extremely plentiful with them, and taken in vaſt abundance. The way of catching them is in a net, trailed on the ground by two horſes; the one going up to the middle of his body in the water, the other on the ſhore.

BRETACHIÆ, in *Middle Age Writers*, denote wooden towers or caſtles, wherewith towns or camps were defended. Du-Cange Gloſſ. Lat.

BRETESSE, in *Heraldry*, a term uſed to expreſs a line in ſome coats of arms, of the ſame nature with what is uſually called the *crenelle*, or EMBATTLED *line*; except that this laſt is only embattled on one ſide, and the *breteſſe*, or *crenelle* on both ſides. Some authors ſeem, however, to have underſtood the terms *breteſſe* and *crenelle* as ſynonymous words, and when they would expreſs ſuch a line, they call it, if embattled on both ſides, *contre-breteſſe*.

BRETHREN *and Siſters of the Free Spirit*, in *Eccleſiaſtical Hiſtory*, an appellation aſſumed by a new ſect which ſprung up towards the cloſe of the thirteenth century, and gained many adherents in Italy, France and Germany. They took their denomination from the words of St. Paul. Rom. chap. viii. ver. 2. 14. and maintained, that the true children of God were inveſted with the privilege of a full and perfect freedom from the juriſdiction of the law. They were enthuſiaſts to a degree of diſtraction, both in their principles and practice. They reſembled the BEGHARDS, by which name they were ſometimes called, in their aſpect, apparel, and manner of living. Some of their profeſſed principles reſembled thoſe of the *Panthiſts*; for they held, that all things flowed by emanation from God; that rational ſouls were portions of the Deity; and that the univerſe was God; and that by the power of contemplation, they were united to the Deity, and acquired hereby a glorious and ſublime liberty, both from the ſinful luſts and the common inſtincts of nature: and hence they con-

concluded, that the perſon, who was thus abſorbed in the abyſs of the Deity, became a part of the Godhead, and was the ſon of God in the ſame ſenſe and manner that Chriſt was, and that he was freed from the obligation of all laws, human and divine. They treated with contempt all Chriſtian ordinances, and all external acts of religion, as unſuitable to the ſtate of perfection at which they were arrived. Some of them were honeſt but deluded enthuſiaſts; and they endured the torments inflicted upon them by the inquiſitors with aſtoniſhing calmneſs and triumph. Others proceeded to the moſt extravagant licentiouſneſs of conduct. They held their ſecret aſſemblies ſtark naked, and lay in the ſame beds with their ſpiritual ſiſters, and indiſcriminately with other women, without the leaſt ſcruple or heſitation: modeſty and decency being, according to their creed, marks of inward corruption. And ſome of them proceeded ſtill farther, and maintained, that the *divine man*, or believer, could not ſin, let his conduct be ever ſo horrible or atrocious. Many edicts were publiſhed againſt them; but notwithſtanding the ſeverities they ſuffered, they continued till about the middle of the fifteenth century. They were called by ſeveral other names, ſuch as Schwenkfeldians, Picards, Adamites, and Turlupins. Moſheim's Eccl. Hiſt. vol. iii. p. 122, &c. 202, &c. 273, &c.

BRETHREN *and Clerks of the Common Life*, a denomination aſſumed by a religious fraternity towards the latter end of the fifteenth century. They lived under the rule of St. Auguſtin, and were eminently uſeful in promoting the cauſe of religion and learning. Their ſociety was firſt formed, in the preceding century, by Gerrard de Groote, a native of Deventer; but did not flouriſh till about the period above mentioned, when it obtained the approbation of the council of Conſtance, and became very reſpectable in Holland, the lower Germany, and the adjacent provinces. It was divided into two claſſes; the *lettered brethren* or *clerks*, and the *illiterate*: they lived in ſeparate habitations, but maintained the cloſeſt fraternal union. The former applied to the ſtudy of polite literature, and the education of youth; whilſt the latter were employed in manual labour, and the mechanic arts. They were frequently called *Beghards*, and *Lollards*, by way of reproach. Moſheim, vol. iii. p. 253.

BRETHREN, *White, fratres albati*, were the followers of a leader about the beginning of the fifteenth century, who was arrayed in a white garment; and as they were alſo clothed in white linen, they were diſtinguiſhed by this title. Their leader was a prieſt from the Alps, who carried about a croſs, like a ſtandard, and whoſe apparent ſanctity and devotion drew together a number of followers. This deluded enthuſiaſt practiſed many acts of mortification and penance, endeavoured to perſuade the European nations to renew the holy war, and pretended that he was favoured with divine viſions. Boniface IX. ordered him to be apprehended and committed to the flames, upon which his followers diſperſed. Moſheim, vol. iii. p. 278.

BRETHREN *of the Obſervance*, ſee OBSERVANCE.

BRETOYSE, or BRETOIS, the law of the marches of Wales; in uſe among the ancient Britons.

BREVE, BREVIS, *ſhort*, in *Grammar*.—Syllables are diſtinguiſhed into *longæ* and *breves*, according as they are pronounced more ſlow or quicker; the time of a *breve* is half that of a *long*, or as the grammarians expreſs it a *breve* is one time, and a *long* two. See ACCENT.

BREVE, in *Muſic*, is a note or character of time, formed ſquare without any tail; and equivalent to two meaſures, or ſemibreves. See CHARACTERS *of muſic*, and SEMIBREVE.

BREVE is uſed in the *Civil Law*, for a ſhort note or minute.

In which ſenſe, the word is alſo written *brevis* (ſubaudi *libellus*) and in Engliſh BRIEF or *breve*; amounting to much the ſame with what is otherwiſe called *ſchedula* and *brevicula*.

BREVE more particularly denotes a liſt or regiſter of the names of the ſoldiers under the command of a general.

BREVE is more particularly uſed in *Common Law* for a WRIT or BRIEF. Hence,

BREVE *perquirere*, is to purchaſe a writ or licence of trial in the king's courts by the plaintiff; and on this depends the uſage of paying to the king in ſuits for money due on bond, 6s. 8d. when the debt is 40l. and 10s. when it is 100l.

Fitzherbert has given a new Natura Brevium; thus called by way of diſtinction from an old Natura Brevium, compoſed about the time of Henry III. There is a copy of this book of Fitzherbert's filled with manuſcript notes by ſir M. Hales, in Dr. Williams's Library in Red Croſs Street.

BREVE *de recto*, ſee RECTO.

BREVE *vas*, ſee VAS *breve*.

BREVET, in the *French Laws*, denotes an act iſſued by a ſecretary of ſtate, importing a grant of ſome favour or donation from the king.

The word is formed from the middle age Latin, *brevetum*, of *breve*, *ſhort*.

In which ſenſe, *brevet* amounts to much the ſame with our WARRANT.

They ſay, a *brevet* of nomination, a duke by *brevet*; ſuch a perſon had a *brevet* of a marſhal of France.

BREVET more particularly denotes the commiſſion of a ſubaltern officer, being only written on parchment, and without ſeal.

BREVET, in the *Sea-language*, is ſometimes uſed for a BILL of loading.

BREVIA *teſtata*, mentioned by *Feodal Writers*, were written memorandums, introduced, to perpetuate the tenor of the conveyance and inveſtiture of lands, when grants by parol only became the occaſion of diſpute and uncertainty. To this end they regiſtered in the deed the perſons who attended as witneſſes, and heard it read without ſigning their names; the clerk adding their names in a ſort of memorandum. Modern *deeds* are an improvement and amplification of theſe. Blackſtone's Com. vol. ii. p. 307.

BREVIARE, to abbreviate or reduce a thing into a ſhorter compaſs.

This is otherwiſe called *abbreviare* and *imbreviare*.

BREVIARIUM is more particularly uſed among Roman writers, to denote a book introduced by Auguſtus, containing the accounts of the empire.

The deſign of it was for giving an account to the people how the monies levied on them were applied. The emperor Tiberius laid aſide the *breviarium*, but it was reſumed by Caligula.

BREVIARY, is an EPITOME, or ABRIDGMENT, or ſhort ſtate of a thing.

The word is Latin, *breviarium*, though not pure, as appears from Seneca, who obſerves, that the ancients, in lieu of it, uſed *ſummarium*.

BREVIARY was alſo uſed among the ancients for the place where the briefs, or what was written abbreviately, were preſerved.

BREVIARY, among *Eccleſiaſtical Writers*, denotes the office or ſervice both for day and night, as performed in the Romiſh churches.

BREVIARY is more frequently uſed for a church-book, containing the office of the *breviary*, that is, the prayers, and other parts of the ſervice, with the ſeveral variations to be made therein, according to the ſeveral days, canonical hours, feaſts, and the like.

D. Mege derives the name *breviary* from hence, that the ancient monks in their journeys, &c. had little books, wherein were the pſalms and leſſons, read in the choir, collected out of large volumes: and P. Mabillon tells us, he has ſeen two ſuch books in the archives of Ciſteaux; they were not above three fingers broad; their letter was exceedingly ſmall, and confiſted moſtly in abbreviations, expreſſing a whole period in a few ſyllables; whence they had a good title to the appellation of *breviaries*, q. d. *abridgments*.

Some deduce the appellation *breviary* hence, that when the popes reſided in the Lateran palace, the office read in the papal palace was much ſhorter than that ſaid in the other churches of Rome; which office, thus abbreviated, was compiled by Innocent III. and called *officium capellare*, till ſuch time as the Franciſcan friars adopting the ſame, in conformity to the papal chapel, it became denominated *breviarium*, and ſhortly after was in general uſe. Magr. Vocab. Eccleſ. p. 38. Menag. Orig. Franc.

The firſt time the word *breviary* occurs, in the ſenſe of a church-book, is in a letter of the archbiſhop of Lyons to the biſhop of Langres, in 1099; or rather by Micrologus, who lived in 1080.

The Roman *breviary* is general, and may be uſed in every place: but on the model of this have been formed various others, peculiarly appropriated to each dioceſe, and each order of religious.

The *breviary* conſiſts of the ſervices of matins, lauds, prime, third, ſixth, nones, veſpers, and the compline, or *poſt-communio*; that is, of ſeven different HOURS: on account of that ſaying of David, *Septies in die laudem dixi tibi*.

The obligation of reciting the *breviary* every day, which was at firſt univerſal, by degrees was reduced to the beneficiary clergy alone, who are bound to do it on pain of mortal ſin, and of reſunding their revenues, in proportion as they are delinquent therein. In the fourteenth century, there was a particular reſervation in favour of biſhops, for paſſing, on occaſion, three days without rehearſing the *breviary*.

The inſtitution of the *breviary* not being very ancient, the

lives of the saints were inserted in it, agreeable to the opinions of the times; i. e. full of ridiculous ill-attested facts; which gave a handle to several purgations, or reformations thereof, by several councils, particularly those of Trent and Cologne; by several popes, as Pius V. Clement VIII. and Urban VIII. as also by several cardinals and bishops, each of whom lopped off some of the extravagancies, and brought the work nearer to the simplicity of the primitive offices; as acknowledging, that in the ancient church there was nothing read but scripture itself.—Cardinal Quignon carried the reformation the farthest; leaving out the little office of the Virgin, the verses, responses, and a great part of the lives of the *saints*.

The *breviaries* now in use are almost innumerable: the difference between them consists principally in the number and order of the psalms, hymns, pater-nosters, ave-marys, credo's, magnificats, cantemus's, benedictus's, canticamus's, nunc dimittis's, miserere's, hallelujah's, gloria patri's, &c.

The most eminent, after the Roman *breviary*, are, that of the Benedictins, that of the Bernardines, of the Chartreux, of the Præmonstratenses, of the Dominicans, the Carmelites, the Franciscans, and Jesuits; also that of Cluny, of the church of Lyons, the church of Milan, and the Mosarabic *breviary* used in Spain.—But in reality there is scarce a church in the communion of Rome, in France, Flanders, Spain, Germany, &c. that has not something particular in the form and manner of its *breviary*: though the differences are generally inconsiderable. See AMBROSIAN, GALLICAN, &c.

The *breviary* of the Greeks, which they call ὡρολόγιον *horologium*, q. d. *dial*, is nearly the same, in almost all the churches and monasteries that follow the Greek rite. The Greeks divide the psalter into twenty parts, καθίσματα; which are a kind of rests, pauses, or stations: and each pause is again subdivided into three parts.—In general, the Greek *breviary* consists of two parts; the one containing the office for the evening, called ἑσπερινὸν; the other that for the morning, consisting of matins, lauds, prime, tierce, sixth, none, vespers, and complines.—The *breviary* of the Maronites contains some more considerable variations.

Among the people who speak the Sclavonic language, or any of its dialects, the *breviary* is rehearsed in the vulgar tongue; as among the Maronites in Syriac, among the Armenians in Armenian, &c.—Those who rehearse the *breviary* in the Sclavonic, are divided as to the rite: some following the Roman or Latin rite, as the inhabitants of Dalmatia, and the neighbouring coasts; whereas those who live farther within the continent, as in Hungary, Bosnia, Sclavonia, &c. and in Poland, Lithuania, and Muscovy, follow the Greek rite.—The *breviaries* of the Cophts and Abyssinians are much alike.

BREVIATE, is sometimes used for an ABRIDGMENT, or short extract of a book or paper. Phil. Trans. N° 37. p. 2212.

BREVIATOR, an officer under the eastern empire; whose business was to write and transcribe briefs.—At Rome, those are still called *breviators*, or ABBREVIATORS, who dictate, and draw up the pope's briefs.

BREVIER, among *Printers*, is the denomination of a small species of letters between *minion* and *burgeois*. See PRINTING.

BREVIS *cubiti*, in *Anatomy*, one of the extensor muscles of the *cubitus*, arising from the external spine of the *humerus*.

BREVIS *radii*, one of the supinator muscles of the *radius*, arising partly from the external condylus of the *humerus*, and partly from the upper and exterior part of the *ulna*; and inserted into the superior part of the *radius*, which it embraces wholly: and serves to turn the palm of the hand upwards.

BREVIS is also used by some for the third of the extensors of the *carpus*, which, arising from the lower part of the *humerus*, and running along the *radius*, terminates in the bone of the *carpus* which sustains the middle finger. Some anatomists join this with the second EXTENSOR, and call them *bicornis*, or *radialis externus*: others choose to distinguish them because they have different origins and insertions; and that their bellies are separable.

BREVIS-*extensor pollicis pedis*, see EXTENSOR.

BREVIS *flexor pollicis pedis*, see FLEXOR.

BREVIS *peronæus*, see PERONÆUS.

BREVIS *pronator radii*, see PRONATOR.

BREVITY, in a general sense, that which denominates a thing brief or short.

BREVITY is more particularly used in speaking of the style or composition of discourse. *Brevity* of discourse is by some called *brachylogia*, and *brevilocuentia*; sometimes *locutionum*. Tacitus and Persius are remarkable for the *brevity* of their style. There are two kinds of *brevity*, one arising from dryness, poverty, and narrowness of genius; the other from judgment and reflection; which latter alone is laudable. *Brevity* is so essential to a tale, a song, and an epigram, that without it, they necessarily languish and become dull.

Rhetoricians make *brevity* one of the principal marks or conditions of eloquence; but the rules they prescribe for attaining it, are difficult to apply, so as still to keep the due medium between too much and too little.

A just *brevity* is attained by using all the words which are necessary, and none but those which are necessary. Sometimes it may also be had, by choosing a word which has the force of several. It is this last kind which Quintilian admires so much in Sallust; and the imitation of which, by other writers, has caused so much OBSCURITY.

BREVIUM *iustus*, see CUSTOS.

BREVIUM *falsi returni*, see FALSO.

BREWED *wine*, see WINE.

BREWER, an operator who professes the art of BREWING.

Brewers are called, in *Middle Age Writers*, *braciatores*, *braciatrices*, *braciatorii*, *braciatrices*, *braxatrices*, and *cambarii*. Du-Cange Gloss. Lat tom i.

The *brewers* of London make a COMPANY, incorporated by Henry VI. in 1438, consisting of a master, three wardens, twenty-eight assistants, and one hundred and eight liverymen.

At Paris, they have a company of *brewers*, which is one of the oldest in the city, having statutes as early as 1268.

The apparatus and utensils of a *brewer*, or a brewhouse, are a furnace made close and hollow for saving fuel, and with a vent for the passage of the smoke, left it taint the liquor; a copper, which is preferable to lead; a mash-fat near the head, a cooler near the mash-fat, and guile-fat under the cooler; adjoining to all, are several clean tubs, to receive the worts and liquors.

Brewers use BALLS for fining, feeding, preserving, refining, and colouring MALT-*drinks*, wines, and cyders. They are of two kinds, and denominated from their colours *brown* and *pale* BALLS.

The ingredients in the composition of these BALLS, of the brown kind are as follow:

Alabaster, or marble, calcined into powder, two pounds; oyster-shells a little calcined, and freed from their dirty-coloured outside, one pound; pure fat chalk well dried, one pound; horse-bean flour, freed from the hulls, one pound; red saunders, four ounces; grains of paradise, half an ounce; Florentine orris root, half an ounce; coriander seed, one quarter of an ounce; six cloves; half an ounce of hops; two ounces of the best staple incised isinglass; and two pounds of the first runnings of molasses or treacle.

Pale *balls* are made after the same manner, and with the same quantities of all the ingredients; except that the saunders is left out, and a pound or two of fine sugar made into a syrup is used in room of the molasses.

The powders are to be very fine, and the BALLS must be dried very gradually without heat for the first three or four days; afterwards they may be put into the sun, or at a proper distance from the fire, in order to be thoroughly dried; the quantity of hops may be omitted or increased at discretion as the liquor requires.

Put as much water to the isinglass as will just cover it, in order to open its body, and so let it stand for twelve hours. Add then the following infusion to it, and gradually dissolve the whole over a gentle fire. It is then to be strained off hot. upon some of the powder, the remainder of which is to be added by little and little, with some of the syrup or treacle alternately, till the whole be converted into a stiff mass, of which the BALLS, weighing four ounces each, are to be formed.

To make the infusion before spoken of, a pint of boiling water is to be poured on the coriander seed, and cloves bruised, and on the hops well rubbed. They are then to be close covered, and suffered to stand so for twelve hours, when they may be strained off for the purpose above mentioned.

What follows may serve for a direction with respect to the number of balls which are to be put into casks of different sizes.

Powder one of the balls; and put it into a half firkin; into a firkin, two; into a kilderkin, three; into a barrel, six; and so on, in proportion. It is to be stirred well into the liquor, which should be racked off, if it be of age to bear racking.

BREWING, the operation of preparing ale, or beer, from malt.

The usual process of *brewing* is as follows.—A quantity of water being boiled, is left to cool, till the height of the steam be over; when so much is poured to a quantity of malt in the mashing tub, as makes it of a consistence, still enough to be just well rowed up: after standing thus a quarter of an hour, a second quantity of the

water is added, and rowed up as before. Laſtly, the full quantity of water is added; and that in proportion as the liquor is intended to be ſtrong or weak. This part of the operation is called *mashing*. The whole now ſtands two or three hours, more or leſs, according to the ſtrength of the wort, or the difference of weather, and is then drawn off into a receiver; and the mashing is repeated for a ſecond wort, in the ſame manner as for the firſt; only the water to be cooler than before, and not to ſtand above half the time.

The two worts are then to be mixed, the intended quantity of hops added, and the liquor cloſe covered up, gently boiled in a copper the ſpace of an hour or two; then let into the receiver, and the HOPS ſtrained from it into the coolers.—When cool the barm or yeſt is applied; and it is left to work, or ferment, till it be fit to tun up.

For ſmall beer, there is a third mashing, with the water near cold, and not left to ſtand above three quarters of an hour, to be hopped and boiled at diſcretion.—For double beer or ale, the two liquors reſulting from the two firſt mashings, muſt be uſed as liquor for a third mashing of freſh malt.—For ſtrong ale, the liquor thus *brewed*, is farther prepared with molaſſes; but liable to forfeiture of 20*l.* by ſtat. 1 Ann. cap. 3.

Inſtead of YEAST, ſome uſe Caſtile ſoap, others flour and eggs, others an eſſential oil of barley: others a quinteſſence of malt, others of wine, and others the *ſal panacriſtus*.

For the properties of the liquors thus *brewed*, ſee MALT-*liquor*. For duty on ale and beer, ſee ALE.

Brewing is an art depending on chemiſtry, and capable of being improved various ways, both with regard to the preparation of the malt, the uſe of hops, and the management of the working or fermentation. Some have introduced the uſe of vegetable ſaps, as birch and ſycamore waters, to good purpoſe into the art of *brewing*. Honey, treacle, and ſugar are alſo capable of being applied to advantage in *brewing*. Phil. Tranſ. N° 68. p. 2071. N° 34. p. 917.

The ſap or juice of trees is a very valuable article in *brewing*, and not only improves malt liquor, but renders it much cheaper. The ſycamore is the beſt tree for tapping for this purpoſe; it yields a great quantity, and that without any other trouble than boring a hole properly, and placing a veſſel under it. One buſhel of malt, *brewed* with this juice, will make as good beer as four buſhels in the ordinary way. The beſt way of procuring the ſap is this: take a large auger, and with it bore two holes on the oppoſite ſides of the tree, each ſo deep as to the pith. Each hole is to be bored ſloping upwards, and the beſt place for it is immediately under a large arm of the tree near the ground; and if the arm be pierced through with the auger in the way to the tree, it will be ſo much the better: in this manner, there needs no ſpigot or ſtone to keep open the hole, or to direct the courſe of the liquor, for it will of itſelf run down into a veſſel placed to receive it; and one tree will thus, in a few days, yield a ſufficient quantity of liquor to *brew* with.

In order to preſerve the ſap in a proper condition for *brewing*, what is firſt gathered muſt be inſolated by a conſtant expoſition of it to the ſun, in proper glaſſes, till the reſt be obtained; otherwiſe the firſt will contract an acidity that will ſpoil it. When a ſufficient quantity of the ſap is thus collected, as much rye-bread muſt be put into it, cut thin and well toaſted, but not burnt, as will ſerve to ferment it; when it works well, the bread is to be taken out, and, at a convenient time, it is to be bottled up, and will thus afford a pleaſant liquor, of conſiderable ſtrength, without malt or any other addition. Some people add ſage to this liquor, baking it in their cruſts of rye-bread, till thoroughly dry, and then adding it with the bread to the working liquor. If a few cloves be tied up in a rag, and put into the veſſels into which the ſap is received from the tree, they will preſerve it the year round, without any fermentation: they are very apt to give a taſte to the liquor; but if it be ſo contrived that they are taken out before they give this taſte, the liquor will keep as well, without any flavour of them. The adding a few drops of oil of ſulphur will have the ſame effect; and ſo will the fuming with ſulphur itſelf. A little ſpirit of wine, poured on the top of the juice in every bottle, will alſo be very inſtrumental in preſerving it.

Many people, inſtead of adding malt, and *brewing* the ſap of the ſycamore or birch into ale, uſe raiſins, and make a ſort of wine of it; and ſome add ſugar. Some have uſed the rye-toaſts with very good ſucceſs, though they were not put into the liquor, but only hung over it, at ſuch a diſtance as to give a warmth and motion to the ſurface. Common ale yeſt has been tried by ſome to ferment the juice of the birch; but it uſually ſpoils it, turning the liquor into a very bad ſmall beer. The Flemiſh wheat-ferment would probably in time excellently mature the bottled juice of the birch or ſycamore: but it would require a conſiderable time for it. Cinnamon is worthy to be tried in the room of cloves, as of a much more agreeable flavour. Honey has no effect on cyder at all; for it will not mix with it, though boiled in it, to make mead; but, after a time, the cyder lets fall the honey, and becomes ſimple cyder again: it is a queſtion whether it would mix with theſe juices; but if it would, it might probably make a great improvement in them. The tops and young leaves of birch, boiled in the ſap, are ſaid by ſome to preſerve it. Phil. Tranſ. N° 146.

BREWING, among *Diſtillers*, denotes the method of extracting the more ſoluble parts of vegetables with hot water, and thus procuring a ſolution or decoction fitted for vinous fermentation.

In which ſenſe *brewing* is a neceſſary ſtep towards DISTILLATION.

A fermentable ſolution, fit for yielding a ſpirit, or brandy, is obtainable from any vegetable, under proper management; but the more readily and perfectly the ſubject diſſolves, the better it is diſpoſed for fermentation, and the production of brandies. Thus, ſugar, honey, treacle, manna, and other inſpiſſated vegetable juices, which totally unite with water, into a clear and uniform ſolution, are more immediate, more perfect, and better adapted ſubjects of fermentation, than roots, fruits, or herbs, in ſubſtance, the grains, or even malt itſelf; all which diſſolve but very imperfectly, in hot water.

Yet MALT, for its cheapneſs, is generally preferred in England, and *brewed* for this purpoſe, much after the common manner of *brewing* for beer; only the wort of malt will ſerve for diſtillation: and the tincture, without the addition of hops, and the trouble of boiling, is here directly cooled and fermented.

The grain intended for *brewing* is previouſly malted, to prepare it for diſſolving more eaſily and copiouſly in the water, ſo as to afford a richer tincture or ſolution, which, after due fermentation, will yield about one half more of proof ſpirit than the tincture of an equal weight of unmalted corn.

Brewing is alſo uſed, in an ill ſenſe, for the counterfeiting and compounding eſpecially of wines. Vintners and wine-coopers are ſuſpected of *brewing* wines, or mixing divers inferior ſorts, to imitate ſome better kind. The neceſſity of accommodating their liquors to the palates of their gueſts, is another cauſe of *brewing*; inſomuch that ſome have confeſſed they commonly draw out of two or three caſks for every pint.

BREWING, in *Sea-language*, the appearance of black tempeſtuous clouds, ariſing gradually from a particular part of the hemiſphere, and indicating an approaching ſtorm.

BREYNIA, in *Botany*, a genus of the *polyandria monogynia* claſs of plants, the characters of which are theſe: the flower hath four oval petals, which are a little longer than the empalement. It hath a great number of ſlender ſtamina. In the centre is ſituated a ſlender, oblong, obtuſe germen, which afterward becomes a long ſoft fleſhy pod, opening in two valves with one cell, enclоſing a row of fleſhy kidney-ſhaped ſeeds. There are two ſpecies, which being natives of the Weſt Indies, are impatient of the cold, and therefore muſt be preſerved in ſtoves.

BRIAR, in *Botany*, a name given to many ſpecies of the ROSE.

BRIBE, ſee BRIBERY.

The word is French, *bribe*, which originally denotes a *bit*, fragment, or the relic of meat taken off the table; on which footing *bribe* imports as much as *panis mendicatus*, and ſtill keeps up the idea of the matter whereof *bribes* anciently conſiſted. Hence alſo the Spaniards uſe *bribar* and *brivar* for *begging*; and *brivia*, *brivoneria*, and *brivoniſmo*, for *beggary*. Menag. Orig. Franc. p. 131. Skinner Etym. in voc.

In *Middle Age Writers*, a *bribe* given to a judge, is called *quota litis*, and the receiver *campi particeps*, or *cambi particeps*; becauſe the ſpoils of the field, i. e. the profits of the cauſe, were thus ſhared with the giver. Du Cange, Gloſſ. Lat. tom. i.

BRIBERY, in *Common Law*, is when a perſon in judicial places takes a gift or reward of any perſon who has buſineſs before him, for doing his office, or by colour of his office, except the king only, unleſs it be meat and drink: and it is puniſhable by fine and impriſonment, and the loſs of office; and it was anciently deemed treaſon in a judge.

In a larger ſenſe, *bribery* denotes the receiving or offering any undue reward, to or by any perſon concerned in the adminiſtration of public juſtice, as an inducement for acting contrary to duty; and ſometimes it ſignifies the

the taking or giving a reward for a public office. Officers of the cuſtoms taking any *bribe*, whereby the crown may be defrauded, forfeit 100*l.* and are rendered incapable of any office. Candidates that *bribe* electors, after the date or *teſte* of the writs, or after the vacancy, are diſabled to ſerve in parliament; and he that takes, as well as he that offers a *bribe*, forfeits 500*l.* and is diſabled from voting, and holding any office in any corporation; unleſs, before conviction, he diſcovers ſome other offender of the ſame kind, whereby he is indemniſied for his own offence. Blackſtone's Com. vol. i. p. 179. vol. iv. p. 139.

BRICIANI, *Knights of St. Bridget*, a military order reſembling that of Malta, eſtabliſhed by St. Bridget, princeſs of Sweden, in 1366, and approved of by pope Urban V. who gave it the rule of St. Auguſtine.

The arms of the *Briciani* were a croſs azure, like that of the knights of Malta; under which was a tongue of fire, to expreſs the ardour of their zeal: their office was to fight againſt hereticks, bury the dead, aſſiſt widows and orphans, &c.

BRICK, a kind of factitious ſtone, of a reddiſh or yellow colour, made of a fatty earth, formed into long ſquares, four inches in breadth, and eight or nine in length, by means of a wooden mould; and then burnt or baked in a kiln, to ſerve for the uſes of building.

There are alſo *bricks* of a whitiſh colour. Wulpit, in Suffolk, is famed for this ſort.

Bricks appear to be of a very ancient ſtanding, the tower of Babel and the walls of Babylon being built thereof; as appears both from ſacred hiſtory, and from the remains thereof, ſtill ſaid to be in being. Under the firſt kings of Rome, they built with maſſive ſquare ſtones, which they learnt from the Tuſcans: towards the latter time of the republic, they began to uſe *brick*; borrowing the practice from the Greeks; and the greateſt, as well as the moſt durable buildings of the ſucceeding emperors, as the Pantheon, &c. were built therewith.—In the time of Gallienus, the buildings were compoſed of a row of *brick*, and a row of ſoft gritty ſtone, alternately. After him they laid aſide the uſe of *bricks*, and reſumed that of ſtone.

In the Eaſt they baked their *bricks* in the ſun: the Romans uſed them crude: only leaving them to dry in the air a long ſpace of time; viz. four or five years.

The *bricks* uſed by the Greeks were principally of three kinds: the firſt called *Πεντοπα*, i. e. of two palms; the ſecond *τετραπαλα*, of four palms; and the third *πεντεπαλα*, of five palms.—They had other *bricks*, juſt half each of theſe, which they joined together to render their work more ſolid, as well as more agreeable to the eye, by the diverſity of figures and ſizes of the *bricks*.

Bricks, among us, acquire various names, according to their forms, dimenſions, uſes, method of making, place, &c. The principal are; *Compaſs bricks*, of a circular form, uſed in fleecing of walls. *Concave*, or *hollow bricks*, on one ſide flat, like a common *brick*, on the other hollowed, about three quarters of an inch deep, and half an inch broad; uſed for conveying water under ground: they are uſually a foot long, four inches and a half broad, and two and a quarter thick. *Cogging bricks*, uſed for making the indented work, under the coping of walls built with great *bricks*: they are about ten inches long, four broad, and two and a quarter thick. *Coping bricks*, formed on purpoſe for coping of walls, are about twelve inches ſquare, and four thick, flat underneath, one third above ſemicircular, and the two ends flat. *Dutch* or *Flemiſh bricks*, uſed to pave yards and ſtables, and for ſoap-boilers vats, and ciſterns. *Brique de Chantignole*, or *Demibrique*, is that only an inch thick, but otherwiſe of the ſame dimenſions as the whole *brick*; uſed in paving between borders of ſtones, and alſo for the making of hearths and chimney backs. *Clinkers*, ſuch *bricks* as are glazed by the heat of the fire in making: theſe lie in the middle of the kiln of clamps; and are the moſt durable. *Feather-edged bricks*, are made like the common ſtatute *bricks*, only thinner on one edge than on the other, and uſed to pen up the brick pannels in timber buildings. *Samel*, or *ſandal bricks*, are ſuch as be outmoſt in a kiln or clamp, and conſequently are ſoft and liable to moulder; as not being thoroughly burnt. *Great bricks*, are thoſe which are twelve inches long, ſix broad, and three thick: the weight of one being about fifteen pounds: ſo that 100 weigh 1500, and 1000 of them 15000 pounds: their uſe is to build fence-walls; together with *pilaſter*, or *buttreſs bricks*, which are of the ſame dimenſions with the great *bricks*, only they have a notch at one end, half the breadth of the *brick*: their uſe is to bind the work at the pilaſters of fence-walls, which are built of great *bricks*. *Paving bricks*, or *tyles*, are of ſeveral ſizes in ſeveral counties and places, from ſix to twelve inches ſquare, and one and a quarter, more or leſs, thick. See PAVEMENT, and TYLE.

Place-bricks, ſuch as are made in a place prepared on purpoſe for them, near the building in which they are to be uſed. *Statute*, or *ſmall common bricks*, when burnt, by ſtat. 19 Geo. III. c. 49. ought to be eight inches and a half long, four broad, and two and a half thick: 100 of theſe uſually weigh about 550 pounds; and 1000, 5500 pounds; about 407 in number make a ton weight. Theſe are commonly uſed in paving cellars, hearths, ſinks, &c. Thirty, or thirty-two, if true meaſure, will pave a yard ſquare, and 330 will pave a ſquare of 100 feet laid flat; but if laid edgeways, there muſt be near double the number. *Stock-bricks* are to be of the ſame dimenſions; only one eighth of an inch thicker; and they are either marle or grey ſtocks. Theſe and the *ſamel bricks* are moſtly uſed in building: *rubbing bricks* are for gauged work; *clinkers* for paving; Windſor and Welſh *bricks* for furnaces, as being the fitteſt to bear intenſe heat.

Barbaro, in his commentary on Vitruvius, recommends another form of *bricks*: viz. *triangular* ones, every ſide a foot long, and only an inch and half thick. Theſe, he obſerves, would have many conveniencies above others; as being more commodious in the management, of leſs expence, and of fairer ſhew; adding much beauty and ſtrength to the mural angles, where they fall gracefully into an indented work. Sir H. Wotton wonders they have never been taken into uſe, being recommended by ſo great an authority.

The earth, whereof *bricks* are made, muſt not be ſandy, which will render them both heavy and brittle; nor muſt it be too fat, which will make them crack in drying. They ſhould be made either in the ſpring, or autumnal ſeaſon; and when made, they muſt be ſheltered from the ſun, if it be too hot, and yet be expoſed to the air to dry. If they be made in froſty weather, they are to be covered with ſand; if in hot weather, with wet ſtraw.

The ſeveral ſteps in the proceſs of our *brick*-making, are, caſting the clay or earth; treading or tempering the ſame with water; ſanding the *brick*, which is to riddle or caſt dry ſand on the wet *brick* lying on the ground; raiſing the *bricks* on one ſide, that they may dry the better and ſooner; walling the *bricks*, which is to lay one upon another, after the manner of a wall, to keep them from foul weather, and that they may dry thoroughly; ſodding the *bricks*, which is to cover them up with turf; ſetting the *bricks* in the kiln, or the laying of ſtuck or ſmall coal between every courſe or row of *bricks*; daubing the kiln, which is the claying of it all about the top, to keep the fire in, and ſecure the kiln from weather; firing, which is to ſet the fuel put into the arches on fire; earthing, which implies to put earth about it, to ſtop the arches, that the fire may take upwards to the top of the kiln; cooling the kiln after it has done burning; breaking the kiln; counting of the *bricks*; carrying the *bricks*, which is to bring them to the place where they are to be uſed, either on horſeback or on trumbrels.

The burning of *bricks* is performed either in a kiln, or a clamp. In the former, the *bricks* being ſet in, and the kiln covered with pieces of *bricks*, they put in wood, to dry them with a gentle fire; and this they continue till they are pretty dry, which is known by the ſmoke's turning from a whitiſh to a thin black ſmoke. They then ceaſe to put in wood, and proceed to burn with bruſh, furze, ſtraw, heath brake, or fern faggots; having firſt dammed up the mouth of the kiln with a thin-log, i. e. pieces of *bricks* piled upon one another, and cloſed with wet *brick* earth inſtead of mortar: then they continue to put in more faggots, till the kiln and its arches look white, and the fire appears at the top of the kiln: upon which they ſlacken the fire for an hour, and let all cool by degrees. This they continue to do alternately heating and ſlacking, till the ware be thoroughly burnt; which is uſually effected in forty-eight hours.

About London they chiefly burn in clamps, built of the *bricks* themſelves, after the manner of arches in kilns; with a vacancy between each brick's breadth, for the fire to play through: but with this difference, that inſtead of arching, they truſs or ſpan it over, by making the bricks project one over another, on both ſides of the place, for the wood and coals to lie in, till they meet and are bounded by the *bricks* at the top, which cloſe all up. The place for the fuel is carried up ſtraight on both ſides, till about three feet high: then they fill it almoſt with wood, and over that lay a covering of ſea-coal; and then over-ſpan the arch: but they ſtrew ſea-coal alſo over the clamp, between all the rows of *bricks*; laſtly, they kindle the wood, which gives fire to the coal: and when all is burnt out, they conclude that the *bricks* are ſufficiently burnt.

The *arches* of a kiln of *bricks*, are the hollow places at the bottom where the fire is; *pigeon-holes* are apertures in the fire-arches; *ſcratch-caſe* denotes the lower row

of *bricks* in the arch; *tying-courſe*, thoſe which cover the top of the arch; *binding-courſe*, is the laying of *bricks* over the joints of the under-courſe; *dividing-courſe*, is the diviſions or parts of a kiln; *ſtarting-courſe*, is the top of all the kiln: the *wheeler*, is he who carries the clay from the pit to the moulding-board foot, and there turns it off the wheelbarrow: *ſtoker*, he who puts the clay off the ground upon the board; *moulder*, he who works the clay into the *brick*-moulds, and ſtrikes the ſuperfluous clay off the top of the moulds; *breaker-off*, he who takes the mould, with the clay in it, from the moulder, and lays it on the ground to dry; *moulder*, he who parts off the clay from the mould; *off-bearer*, he who pulls off the empty mould into the tub of water or ſand; *taker-up* of the *bricks* has his work alſo to dreſs and ſmooth them from irregular edges.

In burning *bricks*, much depends on the alternate raiſing and abating of the fire. *Brick*-burners, who continue the heat without intermiſſion, uſually make their lower ware extremely hard and good, but the upper bad: and beſides, the lower ones will ſometimes run ſo with the exceſſive heat, as alſo to unite into one body. Then for cooling kilns of ware, ſome unwiſe burners, as ſoon as the *bricks* are burnt, immediately ſtop up the reſt of the mouth of the kiln, which was left open above the thin-log, by which means the air being ſhut out, it is long in cooling; ſo that ſuch burners are commonly a fortnight, or almoſt three weeks, in ſetting, burning, and drawing off a kiln of ware; all which may be done in one week.

By ſtat. 12 Geo. I cap. 35. earth or clay, deſigned for making *bricks* for ſale, ſhall be dug, and turned at leaſt once between the firſt of November and the firſt of February, and not be made into *bricks* till after the firſt of March: and no *bricks* be made for ſale, but between the firſt of March and twenty-ninth of September. But by ſtat. 10 Geo. III. cap. 49. earth may be dug for making *bricks*, at any time in the year; provided ſuch earth be turned once before it be made into *bricks*. And by the former ſtatute, no Spaniſh is to be mixed with the earth; or breeze uſed in the burning of *bricks*. And all *bricks* are to be burnt either in kilns or diſtinct clamps, each ſort by itſelf.

By ſtat. 3 Geo. II. cap. 22. there may be mixed with the *brick* earth any quantity of ſea-coal aſhes, ſifted or ſcreened through a ſieve, or ſcreen half an inch wide, and not exceeding twenty loads, to the making of one hundred thouſand *bricks*: each load not exceeding thirty-ſix buſhels. And breeze may be mixed with coal in the burning of *bricks* in clamps for ſale, &c. Stock-*bricks* and place-*bricks* may be burnt in one and the ſame clamp, ſo that the ſtock-*bricks* be ſet in one diſtinct parcel, and not mixed and ſurrounded with place-*bricks*.

For the more effectual ſecuring the obſervation of theſe laws, it was enacted, by 12 Geo. I. cap. 35. for the better diſcovering of offenders, that the maſter and wardens of the company of tylers and bricklayers ſhould have power to ſearch *brick* kilns, &c. but they having permitted, and even encouraged divers perſons to make *bricks* contrary to the directions in the ſaid act, by 2 Geo II. cap. 15. they are diveſted of that power; and any two, three, or more perſons, appointed by the juſtices of peace, are empowered, within fifteen miles of London, to go, in the day-time, into any grounds, ſheds, or places, where any clay or earth ſhall be digged, or digging, for *bricks* or pan-tyles; or any *bricks* or pantyles ſhall be making, or made for ſale; and there to view, ſearch, and inſpect the ſame, &c. Offenders to forfeit twenty ſhillings for every thouſand of unſtatuable *bricks*, and ten ſhillings for every thouſand of ſuch tyles: one moiety to the uſe of the proſecutor, the other to the poor of the pariſh, where the offence ſhall be committed. By 17 Geo. III c. 42. all *bricks* made for ſale ſhall, when burned, be not leſs than 8½ inches long, 2½ inches thick, and 4 inches wide.

Goldman obſerves, that *bricks* will have double the ſtrength, if, after one burning, they be ſteeped in water, and burnt afreſh. If the *brick* earth be too fat, it muſt be tempered with ſand; and that trodden out again, firſt by cattle, then by men. *Bricks* made of common earth, melt, nay vitrify, by too much heat: for which reaſon, the kilns are made of ſtones, that will themſelves calcine, that the vehemence of the fire may be broken by them: beſides which, they uſually place other *bricks*, made of an argillous earth, which will melt next the fire.

Brick work is found ſtronger and more durable than ſtone-work; and eſpecially better fitted to reſiſt the force of guns and engines of war. The Greeks are ſaid to have carried *brick*-makers with them in their armies, to be in readineſs for camp works and fortifications. The Romans intermixed *brick* with their ſquare ſtone, in order to ſtrengthen it. In reality, *brick* buildings were generally conſidered by the ancients as perpetual; ſo that, in Rome, abatement was always made for the age of ſtone building, none for that of *bricks*. *Brick* walls are alſo found warmer and wholeſomer than thoſe of free ſtone and marble, as not being liable to ſweat, or collect humidities on their ſurface, which they rather imbibe. We may add, that *bricks* are found the beſt materials for vaults and edifices under ground, not only on account of their durableneſs, but the eaſineſs of their expence, and ſafety from fire. *Phil. Tranſ.* N° 93. N° 149. Sir Henry Wotton ſpeaks of a ſort of *bricks* at Venice, of which ſtately columns were built; they were firſt formed in a circular mould, and cut before they were burnt, into four or more quarters or ſides; afterwards, in laying, they were joined ſo cloſe, and the points concentred ſo exactly, that the pillars appeared one entire piece. Elem. Archit. lib. ii.

The ordinary Paris *brick* is eight inches long, four broad, and two thick, French meaſure. This ſmallneſs is an advantage to a building, the ſtrength and firmneſs of which conſiſts much in the multitude of angles and joints, at leaſt if well laid, and in good bond. The Romans were guilty of a great overſight in this reſpect; their *bricks* being above double of the French ones; though they had a better ſort, called *lateres beſſales*, only meaſuring eight inches in length: but theſe were properly only their half-*bricks*. In England we alſo ſometimes make *bricks* of an unuſual length, meaſuring twenty-two inches long, and only ſix broad, ſerving to ſupply the office of laths or ſpars in malt kilns.

Bricks may be made of any earth that is clear of ſtones, even ſea-ooſe; but all earth will not burn red, a property peculiar to earths which contain ferruginous particles. In England, *bricks* are chiefly made of a hazely yellowiſh coloured fatty earth, ſomewhat reddiſh, vulgarly called *loam*, which is a mixture of clay and ſand. The earth according to Leyboin, ought to be dug before winter, but not made into *bricks* till ſpring.

Worlidge, and others after him, have laboured to excite *brick*-makers to try their ſkill in making a new ſort of *brick*, or a compoſition of clay and ſand, whereof to form window-frames, chimney-pieces, door-caſes, and the like. It is to be made in pieces faſhioned in moulds, which, when burnt, may be ſet together with a fine red cement, and ſeem as one entire piece, by which may be imitated all manner of ſtone-work.

The thing ſhould ſeem feaſible by the earthen pipes made fine, thin, and durable, to carry water under ground at Portſmouth, and by the earthen backs and grates for chimneys, formerly made by ſir John Winter, of a great bigneſs and thickneſs.

In reality, much might be done towards making chimney-pieces, ſtone mouldings, architraves, faſcias for fronts of buildings, and the like, if men of this profeſſion had a little tincture of chemiſtry, which would enable them to contrive ſome good compoſition of earth, and a proper way to manage it in the moulding, burning, &c. *Brick*-making, among the Romans, was conducted with great care and choice; by which means their *bricks* were rendered of much longer duration than ours. In this reſpect moſt of our neighbours excel us: the *bricks* which we import from Holland, Denmark, &c. being better than our own. Phil. Tranſ. N° 351. Houghton Collect. tom. ii. N° 168. p. 96.

With reſpect to the poſition, or manner in which *bricks* are laid we meet with

BRICKS *in bond, Briques en liaiſon*, thoſe laid flatwiſe, and ſo as to over-reach each other by half their length.

BRICKS, *Floor, Briques de champ*, thoſe laid edgewiſe, to ſerve as a pavement.

BRICKS, *Spicated, Briques en epi*, thoſe placed diagonalwiſe, after the manner of Hungarian point. Such is the pavement of Venice.

BRICK *Walls*. See WALL.

BRICKS, in *Medicine* and *Chemiſtry*, are not only uſed in the preparation of the oil, which takes its denomination from them; but heated *bricks* are frequently added in diſtillation, to increaſe the fervour of bodies in boiling. Some adulterate the *ſoda*, or kali aſhes, for glaſs, with *brick*-duſt.

BRICKS, *Oil of*, is oil of olive, imbibed by the ſubſtance of *bricks*, and afterwards diſtilled from it.—The pieces of *bricks*, being heated red-hot in live-coals, are extinguiſhed in a trough half filled with oil of olives; being then ſeparated, and the *brick* thus ſaturated with oil, and groſsly pounded, it is put into a retort, and placed in a reverberatory furnace; and thus is drawn an oil, which the apothecaries call *oleum de lateribus*, and ſome chemiſts *oil of the philoſophers*: it is uſed for reſolving tumors in the ſpleen, alſo againſt paſſies, epilepſies, &c. See OIL.

ſome extol it as a ſeptic, excellent for taking away callouſes, cleanſing and removing ulcers, &c. It is now fallen much into diſuſe. Juncker. Conſp. Chirurg.

BRICK-*duſt*. It is a cuſtom with ſome perſons to reduce this ſubſtance to a very fine powder, and give it, inſtead of chalk, in the heart-burn. Many of the lozenges, ſo much famed for the cure of this diſorder, and ſold under the pompous names of coral lozenges, are only made of a mixture of this uncouth medicine, and ſugar, made into the conſiſtence of a paſte, with gum tragacanth reduced to a mucilage with roſe-water. But it is to be obſerved, that this, as well as chalk, is a very dangerous remedy. It has grown into an opinion, that the ſole cauſe of this complaint was an acid humour in the ſtomach, and thence an abſorbent was judged alone ſufficient for a cure: chalk was the firſt ſubſtance pitched upon for this purpoſe; but ſome miſchievous events having happened from the taking of it, recourſe was had by ſome to this odd medicine. But ſuch ſhould have obſerved, that as chalk did all its miſchief by being an aſtringent, this new medicine was qualified to do much more harm, on the ſame principle; it being a much more powerful one. Juncker Med. Conſ. p. 589.

BRICK *is* alſo uſed in ſpeaking of divers other matters made in the form of *bricks*.

In which ſenſe, we ſay a penny *brick*, or *brick*-BREAD. Some alſo mention *brick*-TIN, a ſort of tin in that ſhape brought from Germany; and *brick*-SOAP, made in oblong pieces, from a pound and an half to three pounds.

BRICKS, or BRIQUES, in *Heraldry*, are figures or bearings in arms, reſembling a building of *bricks*; being of a ſquare form, like billets and tablets; from which they only differ in this, that they ſhew their thickneſs, which the others do not.

BRICK, in *Ichthyology*, the name of a ſort of lamprey, called by the writers on theſe ſubjects, *lampetræ medium genus*; and diſtinguiſhed from the other lampreys by having a number of black tranſverſe ſpots, very narrow and long.

BRICK *earth*, in *Agriculture*. See *Brickiſh* SOIL.

BRICK *kiln*, a place to burn bricks in.

BRICK-*layer*, an artificer whoſe buſineſs it is to build with bricks, or make brick work.

Brick-layers work or buſineſs, in London, includes tyling, walling, chimney work, and paving with bricks and tyles. In the country, it alſo includes the maſon's and plaiſterer's buſineſs.

The materials uſed by *brick-layers*, are bricks, tyles, mortar, laths, nails, and tyle-pins.

Their tools are, a brick-trowel, wherewith to take up mortar; a brick ax, to cut bricks to the determined ſhape; a ſaw, for ſawing bricks; a rub-ſtone, on which to rub them; alſo a ſquare, wherewith to lay the bed or bottom, and face or ſurface of the brick, to ſee whether they be at right angles; a bevel, by which to cut the under ſides of bricks to the angles required; a ſmall trannel of iron, wherewith to mark the bricks; a float ſtone, with which to rub a moulding of brick to the pattern deſcribed; a banker, to cut the bricks on; line-pins, to lay their rows or courſes by; plumb rule, whereby to carry their work upright; level, to conduct it horizontal; ſquare to ſet off right angles; ten foot rod, wherewith to take dimenſions; jointer, wherewith to run the long joints; rammer, wherewith to beat the foundation; crow and pick-ax, wherewith to dig through walls.

The London *brick-layers* and TYLERS make a a regular company, which was incorporated in 1568, and conſiſts of a maſter, two wardens, twenty-eight aſſiſtants, and one hundred and eight on the livery.

A *brick-layer* and his labourer will lay in a day about a thouſand bricks, in whole work, on a ſolid place, when the wall is but a brick and a half, or two bricks thick; and ſince a cubic yard contains 460 bricks, he will lay above two cubic yards in a day: and hence it may be eaſily computed how many *brick-layers* are required to finiſh a certain piece of work in a given time.

Brick-laying is one of the arts ſubſervient to architecture. Moxon has an exerciſe preſs on the art of *brick-laying* wherein he deſcribes the materials, tools, and methods of working uſed by *brick-layers*. See *Brick* WALLS.

BRICKING popularly ſignifies building a thing up with brick; but, more properly, the act or art of counterfeiting of brick on plaiſter, by ſmearing it over with red oker colour, and marking the joints with an edged inſtrument.

This anſwers to what the French call *briqueter*, which is ſometimes alſo performed by uſing a layer of plaiſter, mixed with red oker, and, while it is freſh laid on, drawing deep lines for joints, and then filling them with fine plaiſter. Some even ſmear bricks themſelves with a red colour, and repair the joints with plaiſter, to make an antiquated building look freſh.

When bricks are rubbed to a particular dimenſion, and ſet with a neat joint, this is by way of eminence called *gauged work*.

BRIDE, a woman juſt married, or a wife in the firſt days of her matrimonial ſtate. See MARRIAGE.

Among the Romans, the maid eſpouſed remained a *bride*, *ſponſa*, till the entered the huſband's houſe; from which time ſhe commenced a wife, *uxor*.

The bridegroom was attended by a brideman, *paranymphus*; the *bride* by a *pronuba*, or bridemaid, whoſe buſineſs was to inſtruct her young miſtreſs in the duties of the genial bed, and to prepare every thing for a proſperous copulation.

The ancient ceremonies practiſed in reſpect of a *bride* were numerous; moſt of them emblematical, or ſignificant of ſome part of her duty: as, dreſſing her hair after a peculiar manner, and parting it with a ſpear; putting on her a crown; girding her with a girdle, which the bridegroom was to looſen; putting a yoke on her neck; dreſſing her in yellow ſocks; and veiling her with the *flammeum*. She was to ſeem to be raviſhed or torn by force from her mother, in memory of the rape of the Sabines under Romulus; ſhe was to be carried home in the night-time to the bridegroom's houſe, accompanied by three boys, called *patrimi* and *matrimi*, one of whom carried a torch, and the other two, called *paranymphi*, led the *bride*, a ſpindle and a diſtaff being carried with her: ſhe brought three pieces of money, called *aſſes*, in her hand to the bridegroom, whoſe doors, on this occaſion, were adorned with flowers and branches of trees: being here interrogated who ſhe was, ſhe was to anſwer, *Caia*, in memory of Caia Cæcilia, wife of Tarquin the elder, who was an excellent *lanifica*, or ſpinſtreſs; for the like reaſon, before her entrance, ſhe lined the door-poſts with wool and ſmeared them with greaſe.

Fire and water being ſet on the threſhold, ſhe touched both; but ſtarting back from the door, refuſed to enter, till at length ſhe paſſed the threſhold, being careful to ſtep over, without touching it: here the keys were given her; a nuptial ſupper was prepared for her, and minſtrels to divert her; ſhe was ſeated on the figure of a Priapus, and here the *patrimi* and *matrimi* reſigned her to the *pronuba*, who brought her into the nuptial chamber, and put her into the genial bed. This office was to be performed by matrons who had only been once married, to denote that the marriage was to be for perpetuity. When the bridegroom was brought to her, to drown the cries and ſqualling of a coy maid at the firſt conflict, epithalamia were ſung by the women, who were divided for that purpoſe into two bands, one whereof ſung in the evening, the other the next morning; and, for the like purpoſe, nuts were alſo thrown about for the boys to ſcramble for. Potter Archæol. lib. iv. cap. 11. tom. ii. Val. Max. 10. Plut. Quæſt. Rom. 30. Serv. ad Æn. lib. iv. ver. 450. Kenn. Rom Ant. p. ii. lib. i. c. 9. Fabr. Bibl. Ant. cap. 10. § 5.

BRIDEGROOM, the ſpouſe or mate of a bride.

Among the Romans, the *bridegroom* was decked to receive his bride; his hair was combed and cut in a peculiar form; he had a coronet or chaplet on his head, and was dreſſed in a white garment. Pitiſc. Lex. Ant. tom. i.

By the ancient canons, the *bridegroom* was to forbear the enjoyment of his bride the firſt night, in honour of the nuptial benediction given by the prieſt on that day. Johnſ. Eccleſ. Law, ann. 740. § 88.

In Scotland, and perhaps alſo ſome parts of England, a cuſtom called *marchet*, obtained, by which the lord of the manor was entitled to the firſt night's habitation with his tenant's brides. See BOROUGH *Engliſh*, and MARCHET.

BRIDEMIF, in the *Perſian Tables*, the conſtellation Lupus, or the Wolf.

BRIDEWELL, in our *Cuſtoms*, denotes a work-houſe, partly for the correction of vagrants and partly for the employment of the pariſh poor.

Bridewell, near Fleet-ſtreet, is a foundation of a mixt and ſingular nature, partaking of the hoſpital, the priſon, and work-houſe; it was founded in 1553, by Edward VI. who gave the place, where king John had formerly kept his court, and which had been repaired by Henry VIII. to the city of London, with 700 marks of land, bedding, and other furniture.

Several youths are ſent to this hoſpital as apprentices to manufacturers, who reſide there; they are clothed in blue doublets and breeches, with white hats. Having faithfully ſerved their time of ſeven years, they have their freedom, and a donation of ten pounds each, for carrying on their reſpective trades.

BRIDGE, an edifice either of ſtone or timber, conſiſting of one or more arches, erected over a river, canal, or the like, for the conveniency of croſſing, or paſſing over from one ſide to the other.

A *bridge* may be conſidered as a ROAD over water.

Janu

Janus is made, by ſome learned men, the firſt inventor of *bridges*, as well as of ſhips and crowns: their reaſon is, that in ſeveral ancient Greek, Sicilian, and Italian coins, there are repreſented on one ſide a Janus, with two faces, and on the other, a *bridge*, or a crown, or a ſhip.

The parts of a *bridge* are the *piers*, or legs, *pilæ*; the *arches*, the *pavement*, or way over for cattle and carriages; the *foot-banks* on each ſide for foot-paſſengers; the *rail* or parapet, which incloſes the whole; and the *butments*, or ends of the *bridge* on the banks.

Bridges are a ſort of edifices very difficult to execute, on account of the inconvenience of laying foundations, and walling under water. The earlieſt rules and inſtructions relating to the building of *bridges*, are given by Leon Baptiſta Alberti. Others were afterwards laid down by Palladio, and Scammozzi; all of which are collected by M. Biondel. The beſt of them are alſo given by Goldman, and Hawkſmoor. M. Gautier has a piece expreſs on *bridges*, ancient and modern. M. Belidor has likewiſe treated on this ſubject in his Architect. Hyd. Mr. Riou publiſhed a treatiſe in 1760, entitled, "Short Principles for the Architecture of Stone-bridges, &c." Muller, Labelye, Hutton, and others, have written on this ſubject.

The conditions required in *bridges* are, that they be well deſigned, commodious, durable, and ſuitably decorated. The PIERS of ſtone-*bridges* are to be equal in number, that there may be one arch in the middle, where commonly the current is ſtrongeſt. Their thickneſs is not to be leſs than a fixth part of the ſpan of the arch, nor more than a fourth. They are commonly guarded in front with an angular ſtarling, or ſpur, to break the force of the current; though this defence is ſometimes alſo turned ſemicircularly: in the ancient *bridges*, it is always a right angle; which has the advantage of being ſtronger and more durable than acute ones; though now ſeldom uſed, but in bridges over ſmall rivers, whereby their height and the quantity of maſonry are conſiderably reduced. The ſtrongeſt arches, according to ſome, are thoſe whoſe ſweep is a whole ſemicircle; though others prefer elliptic arches. Others recommend thoſe in form of the CATENARIAN curve. For the rails, the height, ornaments, and the like, they are left to diſcretion. It is even complained, that no demonſtrative reaſons are given of the ſeveral proportions of the moſt eſſential parts of *bridges*: much of which is ſtill left to the diſcretion of the builder, to be regulated according to the circumſtances, deſign, place, magnitude, &c. of the deſigned edifice. Mr. Gautier wiſhes, that mathematical perſons would take the ſtructure and proportion of *bridges* into their conſideration, in order to bring things to more certainty and preciſion, founded on invariable geometrical truth. Something of which kind has been attempted by M. de la Hire, in Mem. Acad. R. Scienc. an 1712. p. 70, and the Marquis De L'Hopital, in Act. Erud. Lipſ. 1695. p. 56.

The breadth of a *bridge*, according to Baptiſta Alberti, ought to be the ſame as that of the highway which abuts on it: the breadth of the piers is to be one third of the aperture of the arches; the ſtarlings to be one half the breadth of the piers, and to riſe above the greateſt height, to which the water ever mounts.

To ſecure the piers of *bridges*, they ſometimes diminiſh the current of the river, either by lengthening its courſe, by making it more winding (a method ſometimes uſed by the ancients in rendering their rivers navigable), or by ſtopping the bottom of a rapid river, with rows of banks, ſtakes, or piles, which break the current.

The piers of a *bridge* always diminiſh the bed of a river: ſuppoſe this diminution one fifth, it will follow, that in caſe of inundations, the bed muſt be ſunk or hollowed one fifth more than before, ſince the waters gain in depth what they have loſt in breadth. Add, that as the quantity of the water remains ſtill the ſame, it will paſs with greater velocity by one fifth in the place where ſuch contraction is: all which conduces to waſh away the foundation. The ſtream, thus augmented in velocity, will carry away flints and ſtones, which before it could not move.

The foundation of *bridges* is to be laid at the ſeaſon of the year when the waters are loweſt, as in autumn; and if the ground be rocky, hard gravel, or ſtony, the firſt ſtones of the foundation may be laid on the ſurface, without digging deeper; but if the ſoil be ſoft ſand, or gravel, it will be neceſſary to turn off the water, and dig till you come at a firm bottom; at leaſt, if this cannot be done, part of the water muſt be carried off, and the reſt kept dry, and piled: that ſide of the river where you are to work, is to be incloſed with coffer-dams, and the current to have its liberty on the other ſide. Palladio's directions are, firſt, to make choice of that place in a river, which has the leaſt depth of water, and where the ground is even and firm, eſpecially rock or gravel ſtone; ſecondly, to avoid thoſe places where there are voragos, or whirpools, and where the bottom is ſoft ſand, or gravel, in regard ſuch matters are eaſily carried away by the violence of water, which in time alters the bed of a river, and ſaps the foundation of the piers; thirdly, to pitch on a ſtrait part of a river, ſince otherwiſe, the turns and winding being worn away in time, the *bridge* is in danger of being left inſulate; beſides being liable to be choaked up with the filth and other matters commonly gathered in the turns of rivers. The building, and repairing of *bridges*, was one of thoſe ſervices to which all orders and ranks were ſubject; though the clergy have ſometimes got exemptions from it. See PONTAGE.

The ſtructure of the Roman *bridges* is beſt deſcribed by Bergier; they conſiſted of *pilæ*, or piers; *fornices*, or arches; *ſubſtructiones*, or butments; *pavimenta*, and *aggeres*; the roads over them in the middle for carriages; on each ſide whereof were *decurſoria*, or banquettes, ſomewhat higher than the reſt, for foot paſſengers, and ſeparated from it by a *founda*, or rail, and ſometimes even covered over to ſhelter paſſengers from the rain, as in the Pons Ælius.

The Trajan *bridge*, over the Danube, was the moſt magnificent of all the works of this kind in the world. It was erected by that emperor for the conveniency of ſending ſuccours to the Roman legions on the other ſide of the Danube, in caſe they ſhould be ſuddenly attacked by the Daci; but demoliſhed by the next ſucceſſor Adrian, for fear the Barbarians, overpowering the guards ſet to defend it, ſhould by means of it, pour into Mœſia, and cut off the garriſons there; or rather as ſome think, out of envy, as deſpairing ever to do any thing like it himſelf. The arches were broken down by Adrian; but the ruins of it are ſtill ſeen in the middle of the Danube, near the city Warkel in Hungary. The piers were twenty in number, of ſquare ſtone; each of them 150 feet high above the foundation, 60 feet in breadth, and diſtant from one another 170 feet; ſo that the whole length of it was above 1530 yards. Dion Caſſius, lib. lxviii. cap. 13. Modern architects are abſolutely at a loſs to conceive how the foundation of ſuch a *bridge* could be laid in ſo vaſt and rapid a river, and ſo deep a channel as the Danube. Scammozzi imagines that the river muſt have been turned out of its courſe. But to divert the Danube ſeems impoſſible. That author conjectures, that choice was made of ſome ſhort bend of the river, where it made almoſt a peninſula, and a canal was cut acroſs the iſthmus or neck thereof, through which the river took its courſe; ſo that the *bridge* was built on dry land, and, when finiſhed, the river was returned to its ancient channel. Some writers have added, that this *bridge* was built in one ſummer, and that Apollodorus of Damaſcus was the architect.

The Trajan *bridge*, at Salamanca, over the river Formus, popularly attributed to the giants, by ſome to Hercules, appears rather to be a Roman work, though when, and by whom erected, is not known; but it was repaired by Trajan, whoſe denomination it ſtill bears. It is 1500 feet long; conſiſts of 26 arches, each 72 feet wide; the piers that ſuſtain them being 23 feet thick, and 200 high.

Among the Romans, the building and repairing of *bridges* was firſt committed to the pontifices, or prieſts; then to the cenſors, and curators of the roads; laſtly, the emperors took the care of *bridges* into their own hands. Thus Antoninus Pius built the Pons Janiculenſis of marble; Gordian reſtored the Pons Cæſius; and Adrian built a new one, denominated from him.

In the middle age, *bridge*-building was ranked in the number of acts of religion; and a regular order of Hoſpitallers was founded by St. Benezet, towards the cloſe of the twelfth century, under the denomination of *Pontifices*, or *Bridge-builders*; whoſe chief object was to be aſſiſtant to travellers, by making *bridges*, ſettling ferries, and receiving ſtrangers in hoſpitals, or houſes built on the banks of rivers. But the order was too good to thrive. We read of one hoſpital of the kind at Avignon, where the Hoſpitallers dwelt under the direction of their firſt ſuperior St. Benezet. The Jeſuit Raynaldus has a treatiſe expreſs on St. John the *Bridge*-builder.

In France, the Pont de Garde is a very bold work; the piers being only thirteen feet thick, yet ſerving to ſupport an immenſe weight of a triplicated arcade; and ſerves to join two mountains. It conſiſts of three *bridges*, one over another; the uppermoſt of which is an aqueduct.

The *bridge* of Avignon was begun in the year 1176, and finiſhed 1188; conſiſting of eighteen arches, meaſuring 1340 paces in length, or about 500 fathoms.

Divers

Divers of its arches have been fince demoliſhed by the ice, &c. ſo that only part of it now ſubſiſts.

The *bridge* of St. Eſprit is the fineſt and boldeſt in France, conſiſting of nineteen great arches, beſides ſeven ſmaller ones, the aperture of the arches being from fifteen to twenty fathoms, which makes the length of the *bridge* upwards of 400 fathoms.

The famous *bridge* of Venice, called the Rialto, conſiſts but of a ſingle arch, and that a flat or low one; paſſing for a maſter piece of art, being built in 1591, on the deſign of Michael Angelo; the ſpan of the arch is ninety-eight feet one half, and its height above the water only twenty-three feet. Pouſet alſo mentions a *bridge* with a ſingle arch, in the city of Munſter in Bothnia, much bolder than that of the Rialto at Venice. But theſe are nothing to a *bridge* in China, built from one mountain to another, conſiſting of one ſingle arch, 400 cubits long, and 500 cubits high, whence it is called the *flying-bridge*, a figure of it is given in the Philoſophical Tranſactions. Kircher alſo ſpeaks of a *bridge* in the ſame country 360 perches long, without any arch; ſupported only by 300 pillars. The accounts given by ſome of the popiſh miſſionaries of *bridges* in China, have much the air of fables.

We have many *bridges* of conſiderable note in our own country, ſuch as the *bridge* at York, whoſe maſter arch in the middle is 82 feet and a half in the clear wide and 27 feet high. Rocheſter *bridge* is built in the ſame ſtyle with that of London; it is 550 feet long, and conſiſts of 11 arches, the biggeſt of which is more than 50 feet. It was erected at the charge of ſir Robert Knowles, who died in the midſt of the reign of king Henry the IV. The *bridges* at Durham and Biſhop-Auckland may alſo be mentioned, whoſe largeſt arches are near 90 feet in the clear. The *bridge* at Berwick is an admirable work, begun under queen Elizabeth; it conſiſts of 17 arches, the largeſt upwards of 80 feet. That of Blenheim conſiſts of three arches, the chief of which ſpans 100 feet, and a half.

There is a *bridge* over the river Don, near Old Aberdeen, very much celebrated, in the taſte, and on the plan of the Rialto at Venice. There is alſo in the ſame ſtyle a very remarkable *bridge* in Wales, built by William Edwards, a country maſon, over the river Taaf, near Caerphilly, in Glamorganſhire. It is no more than eight feet broad, but it conſiſts of a ſingle arch no leſs than 140 feet wide, part of a circle of 175 feet diameter, ſo as to make the altitude 35 feet. The arch of this *bridge* is between 40 and 50 feet wider than the celebrated Rialto of Venice, and probably the wideſt arch in Europe, if not in the world. In order to leſſen the quantity of matter in the abutments preſſing upon the arch, and thereby to bring it to an equipoiſe with that in the crown, he contrived three circular arches in the abutments, which paſs through from ſide to ſide like round windows, and gradually decreaſe in the aſcent.

The longeſt *bridge* in England is that over the Trent at Burton, built by Bernard abbot of Burton, in the twelfth century; it is all of ſquared free-ſtone, ſtrong and lofty, 1545 feet in length, and conſiſting of 34 arches. Yet this comes far ſhort of the wooden *bridge* over the Drave, which, according to Dr. Brown, is at leaſt five miles long.

The triangular *bridge* at Crowland in Lincolnſhire, which was probably intended as an emblem of the Trinity, is the moſt ancient Gothic ſtructure, remaining entire, in the kingdom. It was erected about the year of our Lord 860.

London *bridge* conſiſts of 20 locks or arches, whereof 19 are open, and one filled up or obſcured; it is 900 feet long, 60 high, and 74 broad, and almoſt 20 feet aperture in each arch. It is ſupported by 18 piers or ſolids, from 34 to 25 feet thick; ſo that the greateſt water-way, when the tide is above the ſterlings, is 450 feet, ſcarce half the width of the river; and below the ſterlings, the water-way is reduced to 194 feet. Thus a river 900 feet wide, is here forced through a channel of 194 feet.

London *bridge* was firſt built with timber, in the reign of Ethelred, between the years 993 and 1016. It was repaired, or rather new built of timber, in 1163. The ſtone-*bridge* was begun by king Henry II. in 1176, and finiſhed under king John in the year 1209. The architect was Peter of Colechurch, a prieſt; though he died before it was finiſhed.

For the charge of keeping it in repair, a large houſe is allotted with a great number of offices, and a vaſt revenue in land, &c. The chief officers are two *bridge*-maſters, choſen yearly out of the body of the livery.

The foundation is ſaid to be on a ſoft oozy ground. Stow alledges, that during the time of building, the river was turned from Batterſea to Rotherhithe; but this is not warranted. Some imagine that the tide did not then riſe ſo high at the *bridge* as it does now, by which the work would be facilitated. However this be, the piers were erected on wooden piles driven under water, over which planks were laid, and the feet of the piers on the planks. The defects of this *bridge* are the narrowneſs and irregularity of the arches, and the largeneſs of the piers, which, together with the ſterlings, turn the current of the Thames into many frightful cataracts, which moſt obſtruct and endanger the navigation through the *bridge*.

It is pretty certain, there were no houſes on the *bridge* ſix upwards of 200 years; ſince we read of a tilt and tournament held on it in 1395. Houſes were built upon it afterwards, but being found a great inconveniency and nuiſance, they were removed in 1758, and the avenues to it enlarged and made more commodious, by ſtat. 29 Geo II. cap. 40. This act alſo directed, that there ſhould be a paſſage of 31 feet for carriages, and 7 feet on each ſide for foot-paſſengers, guarded with ſtone baluſtrades. Two of the middle arches were thrown into one ſemicircular arch, by taking up the pier between them. The repairs amounted to above 80,000*l.* The ſterlings have been added, to hinder the piers from being undermined by the rotting of the piles upon which they are built; for, by means of theſe ſterlings, the piles are kept conſtantly wet; and thus the timber is kept from decaying, which always happens when it is alternately wet and dry.

One of the nobleſt *bridges* known is that at Weſtminſter, for the building of which an act of parliament was obtained in the year 1736, and it began to be erected in January 1738; and it was opened the 18th of November, 1750. The whole amount of the neat expence that attended building this *bridge*, was 218,800*l.*

The breadth of the river Thames, between the Woolſtaple dock and the oppoſite ſhore, the place where the *bridge* is built, is about 1220 feet. This *bridge* conſiſts of thirteen large arches and two ſmaller ones, the fourteen intermediate piers, and two abutments.

The length of each abutment is 76 feet; the ſpan or opening of each of the ſmaller arches of the abutments is 25 feet; the opening or ſpan of the firſt of the large arches from each ſhore is 52 feet; the ſpan of the next arch is 56 feet, and ſo on, increaſing by four feet in every arch to the middle arch, the ſpan of which is 76 feet. The tranſverſe ſection, or breadth of the two firſt piers on each ſide, is 12 feet; of the next 13, and ſo on, to the piers ſupporting the middle arch, the ſection of each of which is 17 feet. Thus the length of the two abutments being 152 feet, the ſection of the fourteen piers 198 feet, and the ſpan or opening of the fifteen arches 870 feet, the whole length of the *bridge*, including abutments, is 1220 feet, which is the breadth of the river.

The arches are ſemicircular, and ſpring from about the height of two feet above low-water mark.

Theſe arches give, as has been ſaid, a water way of 870 feet; the proportion of the water-way being ſo conſiderable with reſpect to the breadth of the piers, it follows, that the fall of water under this *bridge* muſt be very ſmall. And, in effect, thoſe who attempted to calculate it before the *bridge* was built, after making all poſſible allowances, could never find the perpendicular height of this fall to exceed three inches and three fourths; but, in truth, it now appears by experience, that the height of the greateſt fall is ſcarce half an inch; whereas the height of the fall at London *bridge* is from four feet and nine inches to five feet.

The whole breadth of the *bridge* is 44 feet; which is divided into three walks; the middle one for carriages, &c. is 28 feet broad, and the ſide walks near 7 feet each in the clear.

The foundation of the piers of Weſtminſter *bridge* are laid on a ſtrong grating of timber, planked underneath, and at leaſt five feet below the ſurface of the bed of the river. This grating was made of the bottom of a veſſel, ſuch as the French call *caiſſon*; the ſides of which were ſo contrived, that they might be taken off after a pier was finiſhed. The bed of the river was dug to a ſufficient depth, and made level, in order to lay the bottom of the *caiſſon*, and the bottom of the piers, out of all dangers of the ground, by all trials that could be contrived, ſeemed ſo good, being every where a bed of gravel, that piling was thought unneceſſary. Whether there be any ſofter *ſtratum* under this or not, we cannot pretend to determine: neither does it appear from experience, that piling is an abſolute ſecurity againſt all accidents. By what Gautier ſays, it would ſeem otherwiſe; for he aſſures us, that let the architect of a *bridge* do his beſt, yet he can no more be ſure of the ſucceſs of his work than a phyſician is. And, in effect, we find, that notwithſtanding the care that was taken in examining the ground on which Weſtminſter *bridge* was built, yet one

of the piers funk considerably. This damage was repaired, and its beauty and convenience are justly admired. See Labelye's description of Westminster *bridge*.

In the year 1756, an act was obtained for building a new *bridge* at Blackfryers, from the end of Fleet-ditch on the oppoite fhore in the county of Surry. It was begun in 1760, and completed in the years and three quarters; the neat expence of building it amounted to 152,840/. This *bridge* conſiſts of nine elliptical arches; the central arch is 400 feet wide, and the four arches on each ſide, reckoning from the central one to the ſhores, are 98, 93, 82, and 70 feet reſpectively. The breadth of the carriage-way is 28 feet, and that of the raiſed foot-way on each ſide 7 feet: the height of the baſtriades on the ſame is 4 feet 10 inches: and the whole length of the *bridge*, from ſhore to ſhore, is 995 feet. The upper ſurfaces of this *bridge*, is a portion of a very large circle; over each pier is a receſs or balcony, ſupported by two ionic pillars and two pilaſters, which ſtand on a ſemicircular projection of the pier, above high-water mark. The *bridge* is rounded off at each extremity to the right and left, in form of a quadrant of a circle, whereby the acceſs to it is rendered commodious and agreeable.

BRIDGES, *ſtone*, are compoſed of piers, arches, and buttments, made of hewn ſtone, ſometimes alſo intermixed with brick; as the *bridge* of Thoioniſe, the plinths whereof are of ſtone, as alſo the quoins of the arches, and ſome bonding courſes, and copings; but the reſt, as the arches, walls, and buttments, of brick.

BRIDGES, *wooden*, called by the Latins *pontes ſublicii*, conſiſt of beams and joiſts faſtened by pantheons, well cramped and bound together.

Simmons has a diſſertation expreſs on the ſtructure of a wooden *bridge*.

BRIDGE, *rope*, *pont de jonc*, is made of large ſheaves of rushes, growing in marſhy grounds, which they cover over with boards or planks. They ſerve for croſſing ground that is boggy, miry, or tottern.

The Romans had alſo a ſort of ſubitaneous *bridges* made by the ſoldiers, of boats, or ſometimes of caſks, leathern bottles, or bags, or even of bullock's leathers blown up, and faſtened together, called *ſcorpiones*. M. Couplet gives the ſtructure of a portable *bridge*, 200 feet long, eaſily taken aſunder and put together again, and which forty men may carry. Vide Du Hamel Hiſt. Reg. Acad. Scien. lib. iii. ſect. 3. c. 4. p. 223.

Frezier ſpeaks of a wonderful kind of *bridge* at Apurima in Lima, made of ropes, formed of the bark of a tree.

BRIDGES, *pendent*, or *hanging*, called alſo *Philoſophical* BRIDGES, are thoſe not ſupported either by poſts or pillars, but hung at large in the air, only ſuſtained at the two ends or buttments.—Inſtances of ſuch *bridges* are given by Palladio, and others.

Dr. Wallace gives the deſign of a timber-*bridge*, ſeventy feet long, without any pillars, which may be uſeful in ſome places, where pillars cannot conveniently be erected. Phil. Tranſ. N° 193. p. 714.—Dr. Plott obſerves of, that there was formerly a large *bridge* over the caſtle-ditch at Tutbury in Staffordſhire, made of pieces of timber, nine inch above a yard long, and yet not ſupported underneath, either with pillars, or arch-work, or any other ſort of prop whatever.

BRIDGE, *draw*, *pont ſubducteurius*, is ſuch an one as is made ſaſt only at one end, with hinges; ſo that the other end may be lifted up or let down by ſome eaſy contrivance: the moſt common way is by a kind of balance, called PLYARES; in which caſe the *bridge* ſtands upright, to hinder the paſſage of a moat, or the like. The breadth of this *bridge* is uſually about nine or ten feet, and its length about fifteen feet.

There are others made to draw back, to hinder the paſſage, and to thruſt over again to afford a paſſage. And others, which open in the middle; half of which turns away to one ſide, and the other half to the other; being joined again at pleaſure: but theſe have this inconvenience, that one half of them remains on the enemy's ſide.

The marquis De L'Hopital has given the conſtruction of a curve, in which a weight will always be a counterbalance to a *draw-bridge*; which the younger Bernouilli has ſhewn to be no other than the cycloid. Act. Erud. Lipſ. an. 1695.

BRIDGE, *flying*, *pont volant*, or *pont ambulatoire*, an appellation given to a *bridge* made of pontoons, leather boats, hollow beams, caſks, or the like, laid on a river, and covered with planks for the paſſage of an army.

BRIDGE, *flying*, *pont volant*, more particularly denotes a *bridge* compoſed of one or two boats joined together, by a ſort of flooring, and ſurrounded with a rail or baluſtrade; having alſo one or more maſts, to which is faſtened a cable, ſupported at proper diſtances by boats, and extended to an anchor, to which the other end is faſtened, in the middle of the water. By which contrivance, the *bridge* becomes moveable like a pendulum, from one ſide of the river to the other, without other help than the paſſage.—Such *bridges* ſometimes alſo conſiſt of two boats, for the quicker paſſage of a great number of men; or that both infantry and cavalry may paſs at the ſame time.

BRIDGE, *ſpring* or *ſpringing*, is ordinarily made of two ſmall *bridges*, laid one over the other, in ſuch manner, as that the uppermoſt ſtretches and runs out, by the help of certain cords running through pullies placed along the ſides of the under *bridge*, which puſh it forwards, till the end of it joins the place it is deſigned to be faſtened on. When the two *bridges* are ſtretched out at their full length, ſo that the two middle ends meet, they are not to be above four or five fathoms long, becauſe, if longer, they will break.

Their chief uſe is for ſurpriſing out-works, or paſſing ſhort but narrow moats.

In the Memoirs of the Royal Academy of Sciences, we find a new contrivance of a *ſpringing bridge*, which lays itſelf on the other ſide of the river. Vide Hiſt. Acad. R. Scienc. an. 1713. p. 102.

BRIDGE *of communication*, is a *bridge* made over a river, by which two armies, or parts, ſeparated by the river, have a free communication with one another.

BRIDGES *of boats* are either made of copper or wooden boats faſtened with chaines, or anchors, and laid over with planks.

Of the firſt and moſt notable expedition of Julius Cæſar, was the expeditious making of a *bridge* of boats over the Rhine. Modern armies carry copper-boats, called *pontons*, to be in readineſs for the making of *bridges* of boats of theſe being joined ſide by ſide, till they reach across the river, and planks laid over them, make all plain for the paſſage of horſe and foot.

There are fine *bridges of boats* at Bezancaire and Rouen, which riſe and fall with the waters; and that at Seville is laid to exceed them both.

The *bridge of boats* at Rouen, built in lieu of the ſtately ſtone-bridge erected there by the Romans, is reprehended by a modern writer, as the wonder of the preſent age; it always ſtinks; and rifes and falls with the tide, or as land-waters fill the river. It is near 300 yards long, and it paved with ſtone, juſt as the ſtreets are: carriages with the greateſt burdens go over it with eaſe, and men and horſes with ſafety, though there are no rails on either hand. The boats are very ſtrong, and well moored with ſtrong chains; and the whole well looked to, and conſtantly repaired, though now very old.

BRIDGE, in *Gunnery*, the two pieces of timber which go between the two tranſoms of a gun-carriage, on which the bed reſts.

BRIDGE, in *Muſic*, that part of a ſtringed inſtrument over which the ſtrings are ſtretched.

BRIDLE *of an horſe*, is an aſſemblage of various members, or parts; as the *bit*, *the chaffes*; the *head-ſtall*, or leathers from the top of the head to the rings of the bit; the *fillet*, over the forehead, and under the *head-ſtall*; *throat-band*, which buttons from the head-band under the throat; *reins*, the part held in the hand; *caſt-band*, going through loops at the back of the head-ſtall, and buckled under the cheeks; to which add the *crowns*, the *cheeks*, *martingal*, and *chaffe-band*.

In ſhes of a *bridle*, the maſters frequently uſe the word *hold!* thus, *for pull the bridle*, they ſay, *bear the bridle*. To cleave to, or hold by the *bridle*, is the fault of a bad horſeman, who, when a horſe is diſorderly, inſtead of ſtucking his hand, clings to it, as if it were to the mane or pommel of the ſaddle; wanting the habit, or ſtrength, to keep himſelf faſt by clinging with his thighs.

Checks of the *bridle* are called KNEE-CAUSE and SACKANDS.

The beſt horſemen being unacquainted with the art of governing horſes by *bridles*, managed them only with a rope, or a wiſpeh, and the accent of the voice. This was the practice of the Numidians, Getulians, Libyans, and Maſſilians.

The Roman youth alſo learned the art of fighting without *bridles*, which was an exercile or leſſon in the *Manege*; and hence it is, that, on the Trajan columns, ſoldiers are repreſented riding at full ſpeed, without any *bridles* on. Phil. Tranſ. N° 322.

BRIDLE, in *Anatomy*. See FRENUM.

BRIDLE, among *Surgeons*, is a kind of BANDAGE contrived for retaining the lower jaw in its place.

BRIDLE, *ſcolding*.—In Staffordſhire, they have a *bridle* for correcting ſcolding women. It is put into the mouth, and takes particular hold of the tongue, which it effectually keeps from ſtirring: this barnatled, the offender is led in triumph through the ſtreets. A figure and deſcription of this Staffordſhire *bridle* is given by Dr. Plott, who ſeems to wiſh the uſe of it more univerſal.

BRIDLE-*hand* ſignifies the horſeman's left-hand, in reſpect

of which the right-hand is called the spear or sword-hand.

BEILE-*chain*, in *Husbandry*, a name given by our farmers to a part of the fleechies of their PLOUGH. This is an iron chain of several links, fastened at one end to the beam of the plough, near that part where the coulter is, and the other end to the stake of the plough, or to the middle piece which runs parallel to the bar cross-bars, and at the bottom joins to the cross chain: this stake is fastened to the cross-bars sometimes by the end of this *beil-chain*, and sometimes by a wythe or rundle.

BEILINGS, in *Sea-affairs*, denote the upper part of the moorings in the king's harbours, or the bays of war.

BEISANT *of the low-class*. See BOW-*mes*.

BEISDON, or BEISDOR, in the *Manege*, properly denotes a SNAFFLE, in contradistinction from a BIT or BRIDLE.

The French say that the English use no bridles, but only *brideons*, except in the army: a body never gone to war, nor to dare with a *bridon*, unless he has been first broke to the bit.

BRIEF, a thing of short extent or duration.

The word is formed from the French *bref*, of the Latin *brevis*, which denotes the same.

BRIEF is more particularly used for a summary or short view of a thing.

BRIEF is also used for an act or writing drawn up by a notary.

BRIEF *apostolic*, *Breve Apostolicum*, a public instrument clothed with the proper formalities.

BRIEF *of dereliction*, *Breve Desolationis*, denotes a lay will or testament, or DEVISE.

BRIEF *of an oath*, *Breve Juramenti*, an instrument made on oath, and authenticated by the subscription of witnesses.

BRIEF is also used for a particular epistle directed by a lord or other superior, to his subjects or dependants, enjoining something to be done or forborn.

In which sense, we say, the lord's, king's, bishop's, or pope's *brief*.

BRIEF also denotes the territory or district within which the lord's *brief* had course. In which sense, we meet with the bishop's *brief*, *breve episcopi*; the count's *brief*, *breve comitis*, &c.

BRIEF also denotes the yearly revenue arising out of the lands usually described in *briefs*.

BRIEF, *Breve*, in *Common Law*, a writ whereby a man is summoned or attached to answer any action; or more largely, it is taken for a writing issued out of any of the king's courts of record at Westminster, whereby something is commanded to be done in order to justice, or the execution of the king's command.

It is called *brief*, *breve*, *quia brevitate intentionem profitentis cognoscit*, because couched in a few plain words, without preamble, &c.

BRIEF is also used for a letter patent, granting a licence to a subject, to make a collection for any public or private use.

BRIEFS, *apostolical*, denote letters which the pope dispatches to princes and other magistrates, touching any public affairs.

They are thus called, as being very concise, and written on paper, without preface or preamble; by which they are distinguished from *bulls*, which are more ample and always written on parchment, and sealed with lead or green wax, whereas *briefs* are sealed with red wax, and with the seal of the fisherman, or St. Peter in a boat; a seal never applied but in the pope's presence.

The *brief* is headed with the name of the pope, apart; and commences with *Dilecte fili salutem, & apostolicam benedictionem*, &c. after which he proceeds directly to the matter in hand, without further preamble.

Briefs are not subscribed by the pope, nor with his name, but with that of his secretary. Pope Alexander VI. instituted a college of secretaries for *briefs*; since which time they have been made much longer, and more ample than before. See ABBREVIATOR.

Formerly *briefs* were only dispatched about affairs of justice; but now they are likewise used in matters of benefices, expective graces, and dispensations.

BRIEFS *of the dead*, *breves mortuorum*, were letters sent by the monks of one monastery to those of another, with whom they were in fraternity, to inform them of the deaths or obits of their monks, for whom they were to say the usual and customary prayers and masses.

These were also called *literæ correntes*, a formula of which we have in the book of the usages of the Cistercian order.

BRIEF *of remembrance*, *Breve recordationis*, *or remembrator-rium*, or *memorandle*, denotes a charter, otherwise called NOTITIA.

BRIG. See BRIGANTINE.

BRIG-*bot*, BRIGG-*bot*, BRIGH-*bot*, in *Ancient Law*, *Writers*, signifies a being freed from contributing to the reparation of bridges. See PONTAGE.

The word is formed from the Saxon *brig*, a *bridge*, and *bot*, *compensation*. It is sometimes also written *brigh bot*, or *brugh-bot*.

BRIGADE, in the *Military Art*, a party or division of a body of soldiers, whether horse or foot, under the command of a brigadier.

The word is French; some derive it from the Latin *briga*, or *brigæ*, or *secret intrigue*: Du Cange derives it from *brigare*, an ill disciplined soldier, who leaves the country, and plunders it of every thing, without waiting for the enemy: as the armies of Attila, Tamerlane, &c.

The origin of *brigade* is again deduced from *brigantine*, a fleet of pinnaces used in the army: and by the Parisians, during the captivity of their king John in England, notorious for their robberies.

There are two sorts of *brigades*, according to the French way of accounting: 1. A *brigade of an army*, which is a body of 8 or 10 or more squadrons of horse, or 10 or 12 battalions.—And in this way, an army is sometimes divided into eight *brigades*, four of horse, and four of foot.

2. A *brigade of a troop of guards*, which is a third part thereof, when the troop consists of fifty soldiers; but only a sixth, when it consists of an hundred: that is, in the former case the troop is divided into three *brigades*; in the latter, into six.

BRIGADIER-*general*, in the *Military Art*, an officer chosen from among the most ingenious and expert captains. *Brigadiers-general* are to visit, at proper times, to receive the word and orders, which they carry back to their *brigades*, and afterwards to the adjutants of regiments or the lieutenant of the *brigade*, where they regulate together the guards, parties, detachments, and convoys, and appoint them the hour and place of rendezvous at the head of the *brigade*, where the *brigade major* takes and marches them to the place of the general rendezvous. A *major of brigade* ought to keep a roll of the colonels, lieutenant-colonels, majors, and adjutants, belonging to the *brigade*. When a detachment is to be made, the major-general of the day regulates with the *brigade-majors*, how many men and officers each *brigade* shall furnish; and they again with the adjutants of the regiments, how many each battalion is to send, which the adjutants divide among the companies. The commissaries each regiment is to furnish, are sworn by the adjutant at the head of each regiment, at the hour appointed, who delivers them to the *brigade-major* at the head of the *brigade*, who again delivers them to the major-general of the day, and he requires them to the officer who is to command the detachment.

BRIGADIER-*general*, an officer who commands a brigade of horse, or foot, in an army.

The *brigadier* is an officer of importance, being the next in order below a major-general, or, in the French army, to the *marechal de camp*.

Brigadiers are only general officers in their respective corps. They have no particular command out of their brigades, nor any place or vote in councils of war; they have no aids de camp to carry their orders, but only a major of brigades, to see their orders executed, within the extent only of their own brigade.

Brigadiers of the horse-guards command as youngest cornets.

Sub-BRIGADIER of a troop of horse-guards, an assistant of the *brigadier*.

BRIGANDINE, a coat of mail; a kind of ancient defensive armour, consisting of many-jointed scales or plates, pliant and easy to the body.

Some confound it with HABERGEON; and others with *brigantine*, a low long vessel.

BRIGANDINI, BRIGANTINI, BRIGANDIERS, or BRIGANERS, in *British Law Writers*, military thieves, or highwaymen, who infested France and the Netherlands. See BRABANTIONS.

BRIGANTINE, a small, light, flat, open vessel, which goes both with sails and oars, and is either for fighting, or giving chace.

It has usually twelve or fifteen benches on a side for the rowers, a mast and an oar to each bench. *Brigantines* are principally used by the corsairs, all the hands aboard being soldiers, and each having his musquet ready under his oar.

But the term is generally used for a merchant-ship with two masts, though mariners of different nations apply it to a peculiar sort of veiled of their own marines. Among English seamen, the *brigantine* is distinguished by having her main-sail far nearly in the plane of her keel, the foremast edge of it being fastened in different places to hoops which encircle the main-mast, and slide up and down as the sail is hoisted or lowered.

BRIGG's *Logarithms*. See LOGARITHM.

BRIGITTINS, or BRIDGETINS, more properly BIRGITTINS, a religious order, denominated from their founderess St. *Birgitt*, or *Bridget*, a Swedish lady in the fourteenth century, whom some represent as a princess, the daughter of king Birgerus, legislator of Upland: she is famous for his revelations.

The *Birgittins* are sometimes also called the *Order of our Saviour*, in being commended that Church hath declared the rules and constitutions observed by them, to St. Bridget, in the main, the rule is that of St. Augustin; only some certain additions, supposed to have been revealed by Christ; whence they also denominate it the *Rule of our Saviour*.

The first monastery of the *Birgittin* order was erected by the foundress, about the year 1344, in the diocese of Lincopen; at the sound of which all the rest were formed.

The *Birgittins* perform great mortifications, poverty, and self-denial, as were also enjoined; and that are not to possess any thing in the world, not so much as a halfpenny, nor even to touch money on any account.

They order (except much through Sweden, Germany, the Netherlands, &c. in England we read but of one monastery of *Birgittins*, and this built by Henry V. in 1415, opposite to Richmond, now called Shenfield, the ancient inhabitants of which, since the dissolution, are stalled at Isleworth. The revenues were reckoned at 1911 *l.* per annum.

BRIGNOLES, or PRUNEAUX, a kind of dried prunes, brought from Provence, chiefly from the town of *Brignoles*, from which the denomination is given to them all.

BRILLIANT *cut*. See DIAMOND.

BRIM, the utmost edge of a thing, as of a glass, plate or the like.

The *brim* of vessels are made to project a little over, to hinder liquors, in pouring out, from running down the side of the vessel.

The *brimming*, or *brimming* of vessels, was contrived by the ancient potters, in imitation of the superciliums or drip of the cornices of columns; it is done by turning over some of the double matter when the work is on the wheel.

Among florists, the *brim* of a FLOWER denotes the outward edge of the petals, or that part about which turns.

A *low* is said to *brim*, or go to *brim*, when she rakes the hair.

The hart goes to *rut*, the roe to *tourn*, the boar to *brim*.

BRIMSTONE. See SULPHUR.

BRIMSTONE *butterfly*, or *brimstone*. See BUTTERFLY.

BRIMSTONE *marble*, a preparation of *brimstone* in imitation of MARBLE.

BRIMSTONE *match*, *fewters*, &c. may be call in the following manner: melt half a pound of *brimstone* over a gentle fire; with this mix half a pound of fine vermilion, and when you have cleared the two, take it off the fire, stir it well together, and it will diffolve like oil; then caft it into the moulds, which muft firft be anointed with oil. When cool, the figure may be taken out; and, in cafe it fhould change to a yellowifh colour, you need only wipe it over with *aqua fortis*, and it will look like the fineft coral.

BRIMSTONE *water*, in *Nature*. See *Hepar-Waters*.

BRINDLONES, in *Natural Hiftory*, the name of a fruit of the Eaft Indies, called by John Banhine, and fome other botanical writers, *fructus feudlus rotundus maximus*. It is by many accounted a delicious fruit, notwithftanding its great ftargenefs, and is ufed by the dyers, and in making vinegar.

BRINE, water replete with faline particles.

By ftat. 1 Ann. cap. 21. are prohibited, *brine* taken out of *brine*-pits, or *brine*-pans, ufed by fome for curing or packing of fifh, without boiling the fame into SALT; and rock-fait, without refining it into white-fait.

Brine is either natural, as the fea-water, which by coction turns to fait; or factitious, formed by diffolving fait in water.

In the fait-works at Upwich, in Worcefterfhire, there are found, at the fame times, and in the fame pit, three forts of *brine*, each of a different ftrength. They are drawn by a pump, and that in the bottom, firft brought up, is called *firft mote*, the next, *middle mote*; and the third, *laft mote*. Phil. Tranf. N° 149.

BRINE, *broth*, a name given to what drops from the corned fait in draining and drying, which they preferve and boil again; being ftronger than any *brine* in the pit. Hought. Collect. tom. ii. N° 211. p. 81.

There is fand found in all the Staffordfhire *brines* after coction; but naturalifts obferve, it did not pre-exift in the water, but rather is the product of the boiling. Phil. Tranf. N° 144. p. 96.

The *brine* at Northwich is found to ftink of fulphur. *Brine* recovers with great difficulty. Some fteep their falt-meat in it, to prevent the fmut. *Brine* is alfo commended as of efficacy againft gangrenes. Phil. Tranf. ibid. 1696.

BRINE *tub*, a tub to pickle pregnant wah-fat, wherein things are ftirred to keep.

BRINE-*pan*, the pit wherein the falt-water is reduced, and inftead of fhells, to bear the action of the fun, whereby it is converted into fait.

There are divers forts of fale-pans, as the water-pan, fteem-pan, fun-pan; the water being tranfferred orderly from one to another.

BRINE-*pit*, in *Salt-making*, the fait fpring from whence the water to be let into fait is taken. There are in thefe things in many places; that at Nantwich, in Cheshire, is almoft bottomlefs, according to the account of the people of the place, to yield fait for the whole kingdom; but it is under the government of certain bonds and regulations, that the market may not be overftocked, leaft not fuffer more than a certain quantity of the fait to be made yearly. See PIT.

BRINE-*fpring*. See SALT.

BRINE-*worm*, are red coloured infects, which breed both in fummer and in winter, in the ftanding *brine* of the fait-pans. They never become flies, but are of the clafs of APTERA, or *animalia infecta*.

BRINER, or BRINNER, in *Ornithology*, the bright blue or the conftellation Lyra; more frequently called *Lanier*. See LANIER.

BRINGERS-UP, in a *battalion*, are the whole laft rank of men in it, or the hindmoft man in every file.

BRINGING-IN *a horfe*, in the *Manege*, is the ftopping down of his nofe, when he bears, and toffes it up to the wind. A horfe is *brought in* by a ftrong hard hand.

BRINGING-TO, in *Sea-language*, fignifies to check the courfe of a fhip when fhe is advancing, by arranging the fails in fuch a manner, as that they fhall counteract each other, and prevent her either from retreating or moving forward. In this ftuation the fhip is faid to *lie-by*, or *to lie-to*.

BRINING *of corn*, in *Hufbandry*, an operation performed on the wheat-feed, in order to prevent the fmut. A liquor is to be prepared for this purpofe, by putting 70 gallons of water into a tub ftuck a inches round for brewing, and a competent of unflaked lime-ftone. This is to be well ftirred till the whole is diffolved, and left to ftand for 30 hours; after which it is to be drawn off into another tub, in the manner of pouring off beer. In this way about a bufhel of ftrong lime-water will be obtained, to which muft be added three pecks of foot. The wheat muft be fteeped in this mixture by meafuring it gently, and in fmall quantities into a round-bottomed basket of about 22 inches in diameter, and 20 inches deep, and ftirring it. The ftuff that floats muft be ftrained off with a ftrainer, and muft not be fown. When the bafket has been drawn up and drained of the pickle, the wheat will be fit for fowing in two hours after the *brining*.

BRINING *of hay-rods*, a practice common in America, of raifing fait with the hay as it is ftacked.

BRINOY. See BRINOY.

BRISKET, that part of a horfe extended from the two fhoulders to the bottom of the fhaft.

BRISSOMIDES, in *Natural Hiftory*, the name of one of the genera of the ECHINI *marini*; the diftinguifhing characters of thefe are, that they are of an oval figure, and have their backs ftriated, not furrowed, and their rays fmooth, not marked with ridges. Of this genus there are two known fpecies: 1. A flat one, called by fome the *cranium*. 2. A high one, called by fome the *amygdala*, and ufually found fofftile, and mineralized in ftone.

BRISSUS, in *Natural Hiftory*, the name of a genus of the ECHINI *marini*, the characters of which are, that they are of an oval figure, and have the apertures for the anus on one of the fides of the fuperficies; their backs is fmooth and even, not furrowed, but on the contrary they have feveral very elegant, crenated, and dotted lines. Their head is at leaft cut off on the end neareft the mouth, and is not fo as in the *fpatangi*, but raifed in the manner of a cuthion.

BRISTLE, a thick ghofly kind of hair, wherewith the fwine and more efpecially are covered.

The name is fometimes alfo applied to the quills of porcupines, and the muftaches or whifkers of cats.

Hoga *briftles* are hard, tranfparent, horny fubftances, of a prifmatical figure, without any appearance of cavities or pores in them, difcoverable even by the microfcope.

Cats briftles have a large folid pith in the middle.

BRISTLE-*die*, a fort of tafle dice, furnifhed with a piece of

of bog's *briſtles* ſtuck in the corners, or other places, to hinder their falling on certain tides, and make them run high or low as pleaſure.

BRISTOL, *River*. See CAMFION.

BRISTOL *Waters*. See WATER.

BRITANNIC *figure*, a name given by ſome writers to the AWAITING *Sickneſs*, or *Malignant Fever*.

BRITANNICA, in the *Materia Medica of the Ancients*, the name of a plant reſembling a barley leaves of a dark colour, very large, and in ſhape reſembling thoſe of the common wild-dock, but ſomewhat long, and of an aſtringent taſte: the root ſmall and ſlender, and the ſtalk not large. This is the deſcription of Dioſcorides, who attributes to its inſpiſſated juice great virtues as an aſtringent, and a remedy for ulcers of the mouth and noſtrils; and Pliny acquaints us of its prodigious efficacy in a diſtemper attending the army of Germanicus, who, when they had croſſed the Rhine, encamped in a place where there was only one ſpring of water, the drinking of which affected them in a terrible manner in their mouths, and made their teeth drop out; and that the phyſicians, who called the diſeaſe *Stomacace* and *Sideroſis*, were at length directed to a remedy by the Britons who were in their camp, which was the herb *Britannica*.

The virtues aſcribed to this plant are obſerved, by the later phyſicians, to agree very well with thoſe of the *hydrolapathum minus*, or great water-dock, a plant poſſeſſed very abundantly with us, but at preſent neglected in the practice of phyſic: and Matthiolus, who has written profeſſedly of the *Britannica* of the ancients, is perſuaded that this is a true and genuine plant.

There is no doubt but that the real plant is our water-dock; but the conſequences in the Greek phyſicians, and the authors who have written ſince, and have borrowed the greateſt part of their knowledge from them, have occaſioned great perplexities to their readers, by ſuppoſing that the *Britannica* and *hermion* were the ſame plant; whereas one was a dock, and the other the plant we call *forrocks*, or *ſow-graſs*.

BRITT, or BRIGHT, in *Huſbandry*.—Wheat, barley, or other grain, is ſaid to *britt*, when it grows over-ripe and ſhatters.

BRITISH *ores*. See CROWN.

BRITISH *language*, the ſame with the Welch.

The ancient *Britiſh*, or *Cambro-Britiſh*, is a dialect of the Celtic. Some preſume, but with no probability, that the *Britiſh* is formed immediately from the Teutonic. Cooper abſurdly enough calls the Engliſh language the *Britiſh*.

BRITTLENESS, in *Natural Philoſophy*, that quality of bodies by which they are eaſily and eaſily broken by preſſure or percuſſion. It ſtands oppoſed to TENACITY. *Britle* bodies are extremely hard; the leaſt percuſſion exerts a force on them equivalent to the greateſt preſſure, and may conſequently eaſily break them. This effect is particularly remarkable in glaſs ſuddenly cooled, the *brittleneſs* of which is thereby much increaſed.

TIN, though in itſelf tough, gives a *brittleneſs* to all the other metals when mixed therewith.

The *brittleneſs* of CLAYS ſeems to ariſe from the heterogeneity of the parts wherein it is compoſed, ſalt and ſand, which can never bind intimately together.

In TIMBER, *brittleneſs* ſeems to be connected with durableneſs; the more *britle* any ſort of wood is, the more laſting it is found. Thus it is, oak is at ſo long duration, while beech and birch, as being tough, preſently rot, and are of little ſervice for building.

BRITTLENESS *of the hoof*, in horſes. See HOOF.

BRIZA, in the Linnæan ſyſtem of *Botany*, the name of that kind of graſs called the *trembler*, or quaking-graſs. It belongs to the *triandrous digynia* claſs.

BRIZE, in the *Materia Medica*, a name uſed for the grain of the *ſea monnacules*, or St. Peter's oves.

BRIZE, in the *Country Language*, a ſort of ground which has lain long untilled.

BRIZE, or BRISE, in *Navigation*. See BREEZE.

BRIZE-*nets*, or BRISE-*nets*, a kind of ſhelters uſed by gardeners, who have no walls on the north ſide, to keep the cold winds from damaging their melon-beds.

Brize-nets are incloſures ſix or ſeven feet high, and an inch thick, made of ſtraw, ſupported by ſtakes fixed into the ground, and props across both inſide and outſide, faſtened together with willow-twigs or iron wire.

BROACH, BROCHA, in *Middle Age Writers*, denotes an awl or bodkin. Among us, *broach* is chiefly uſed for a ſteel inſtrument wherewith to open holes in metals. It is ſometimes alſo applied to a ſtick on which thread or yarn is wound; and, in the North, to a ſort of wooden needles uſed in knitting certain coarſe things.

See an account of the *broach* uſed in weaving tapeſtry, under TAPESTRY.

In ſome parts of England a pike is called a *broach*.

Hence alſo to *broach* a barrel, is to tap it. The ancient lords received from their tenants a fee or tribute called *perragium*, for the liberty of *broaching* a cag of ale.

BROACH-TO, in *Sea-language*, is uſed for inclining ſuddenly to windward of the ſhip's courſe, when ſhe ſails with a large wind; or for deviating from the line of her courſe, when ſhe ſails directly before the wind, ſo as to bring her ſide to windward, and expoſe her to the danger of overturning.

BROAD-*ſail*, as oppoſed to the *Drill Huſbandry*, denotes the method of ſowing corn, turnips, peaſe, clover, the foreign graſſes, and moſt other field plants, that are not tranſplanted, by caſting them with the hand at large; in which method they are ſown upon the ground at large, and thence ſaid to be ſown in *broad-caſt*. This is called the *Old Huſbandry*, to diſtinguiſh it from the *Drill Huſbandry*, or *New Huſbandry*. See DRILL, and HUSBANDRY.

BROAD-*piece*, a denomination given to certain gold pieces *broader* than a guinea; particularly *Carolus*, and *Jacobus*.

BROAD-*ſide*, in the *Sea-language*, a diſcharge of all the guns on one ſide of a ſhip at the ſame time.

A *broad-ſide* is a kind of volley of cannon, and ought never to be given at a diſtance from the enemy above muſket-ſhot at moſt leaſt.

BROAD-*ſtone*, in *Building*, a ſpecies of free-ſtone, thus denominated, becauſe it is called *broad* and thin out of the quarries; it not exceeding two or three inches in thickneſs: chiefly uſed for paving.

BROAD-*worm*, *tomentoſus lumbi*, a name given to the TAENIA, or *tape-worm*.

BROCADE, in *Commerce*, a ſort of ſtuff, or cloth of gold, ſilver, or ſilk, raiſed and enriched with flowers, foliages, or other figures, according to the fancy of the manufacturer.

Formerly the term was reſtrained to cloths wrought either wholly of gold, both woof and warp, or of ſilks, or of both together: but by degrees it came likewiſe to paſs for ſuch as had ſilk intermixed, to fill up, and repreſent the flowers of gold and ſilver.

At preſent, any ſtuff of ſilk, ſatin, or even ſimple taffety, when wrought, and enriched with the flowers, &c. obtains the denomination of BROCADE.

Rich *brocade* may be cleaned, and the luſtre of them recovered by waſhing them with a ſoft breſh, dipped in warm ſpirit of wine.

BROCADO-*ſtuff*, a name given to a freeſes of the CYTISUS. It is of a ſilver colour, variegated with browns.

BROCARDICS, BROCARDICA, denote maxims or principles in *Law*; ſuch as thoſe publiſhed by *Azo*, under the title of *Brocardica Juris*.

Voſſius derives the word from the Greek πρόκρασις, q. d. *firſt elements*. Others, with more probability, from *Burchard*, or *Brochard*, biſhop of Worms, who made a collection of canons, called from hence *Brocardica*; and as this work abounded much in ſentences and proverbs, the appellation *brocardica* became hence extended to every thing.

BROCATELLE, called by the French *brocatel*, an ordinary kind of ſtuff made of cotton, or courſe ſilk, in imitation of BROCADE; chiefly uſed for tapeſtry and other furniture. That manufactured at Venice is the moſt eſteemed.

BROCATELLO, a name given by lapidaries to the white and gold veined red MARBLE.

BROCCOLI, among *Gardeners*, the ſhoot of a ſort of cabbage. There are ſeveral ſorts of it, as the Roman, the Neapolitan, and the black; but the Roman is far the beſt, and is therefore the only ſort now in uſe.

The ſeeds of this muſt be ſown about the middle of May, in a bode ſmall bed, when the young plants have eight leaves, they are to be tranſplanted, and ſet at three inches diſtance; and when they have grown about till the middle of July, they will be fit to plant out for ſtanding. They muſt be now ſet in ſome well-dittered ground, but not under the drip of trees, and at a foot and a half diſtance from one another. The ſeaſon muſt be light, and about the beginning of December they will begin to ſhew their heads, which look ſomewhat like a cauliflower; from this time they will continue eatable till the end of March. When the heads divide, and begin to run up, they are to be cut, with about four inches of the ſtem to them; and when theſe are cut off, about a month's time furniſhes a freſh crop from the ſame ſtock. They are to be ſtripped of their outer leaf, and boiled; and when perfectly done, they are very little inferior to aſparagus. The beſt way to have them fine, is to get freſh ſeed every year from Italy: for they are very apt to degenerate.

BROCHOS, in *Surgery*, a name uſed by ſome writers for bandages in general: in ſcorn of the old writers, the ſame word is alſo uſed to expreſs a perſon who has a very prominent upper lip, or very prominent teeth, and a thick mouth.

BROCK, among *Sportsmen*, sometimes denotes a badger, otherwise called a grey *brock*. See BADGER.

BROCK, and BROCKET, is also used to denote a hart of the third year.

BRODIATORES, in the *Middle Age*, a kind of *librarii*, or copists, who did not write the words and letters plain, but variously flourished and decorated, after the manner of embroidery. Du-Cange Gloss. Lat. tom. i.

BRODIUM, a term used by some writers in *Pharmacy*, for a liquor in which any solid substance has been boiled, is to be preserved, or with which a medicine too strong for use alone is to be diluted.

BROGLING, a method of fishing for eels, otherwise called SWIGGLING.

BROKEN-*backed*, in *Sea Language*, denotes the state of a ship which is so impaired, and loosened in her frame, as to droop at each end: a disorder to which the French ships are most exposed, on account of their length, &c.

BROKEN *knee*. Among *Horse-jockies*, *broken knees* are a mark of a stumbler. *A broken* wind is discovered by a horse's blowing at the nose in the stable, and his flanks beating quick, double and irregular, especially after motion. There are divers ways of concealing a *broken* wind. A quart of new milk given to a horse on an empty stomach will elude it for an hour. A heathing gallop discovers it; no medicine can prevent his coughing and wheezing in that case, if his wind be *broken*. This disorder frequently happens to horses which have stood long in the stable, without exercise; and it may be relieved by careful feeding, and moderate exercise. The following ball may be given once in a fortnight, or three weeks, with warm meal and water, whenever it is used, and it may be continued for two or three months, viz. six drams of succorine aloes; myrrh, galbanum, and ammoniacum, of each two drams; bay berries, half an ounce; a spoonful of oil of amber; the whole to be made into a ball, with a sufficient quantity of syrup of black thorn. Bartlet's Farriery, p. 58.

BROKEN *numbers*. See NUMBER and FRACTION.

Among *Painters*, a colour is said to be *broken*, when it is taken down or degraded by the mixture of some other.

BROKEN *ray*, in *Dioptrics*, the same with *ray of refraction*.

BROKER. The origin of the word is controlled; some derive it from the French *broier*, *to grind*; others from *brocarder*, *to cavil*, or *trifle*; others deduce *broker* from a trader *broken*, and that from the Saxon *brac*, *misfortune*; which is often the true reason of a man's breaking. In which sense, a *broker* is a broken trader by misfortune; and it is said none but such were formerly admitted to that employment.

BROKERS are of three kinds; *exchange-brokers*, *stock-brokers*, and *pawnbrokers*.

BROKERS, *exchange*, are a sort of negociators, who contrive, make and conclude bargains between merchants and tradesmen, in matters of money or merchandise, for which they have a fee, or *premium*. See EXCHANGE.

These, in our old law-books, are called *braggers*, and in Scotland, *brocarii*, i. e. according to Skeyne, mediators or intermedlers in any contract, &c. See PROXENETA. They make it their business to know the alteration of the course of exchange, to inform merchants how it goes, and to notify to those who have money to receive or pay beyond sea, who are proper persons for negociating the exchange with; and when the matter is accomplished, that is, when the money is paid, they have for brokage, two shillings per cent. pound sterling.

These, by the statute 5 and 6 William III. are to be licensed in London by the lord-mayor; and any person acting without such a license, is liable to the forfeiture of 500*l.* and persons employing them forfeit 50*l.* They are also to register contracts, &c. under the like penalty; and not to deal for themselves on pain of forfeiting 200*l.* They are likewise to carry about with them a silver medal, having the king's arms, and the arms of the city, &c. and to pay 40*s.* a year to the chamber of the city. 6 Ann. cap. 16.

In France, till the middle of the seventeenth century, their *exchange-brokers* were called *courriers de change*; but by an arrêt of council in 1639, the name was changed for that more creditable one of *agent de change, banque, & finance*; and in the beginning of the eighteenth century, to render the office still more honourable, the title of *king's counsellor* was added.

At Grand Cairo, and several places of the Levant, the Arabs, who do the office of *exchange-brokers*, are called *seraffs*: the manner of whose negociating with the European merchants, has something in it so very particular, that we have referred it to a distinct article.

The *exchange-brokers* at Amsterdam, called *meddelaers*, are of two kinds; the one, like the English, called *sworn brokers*, because of the oath they take before the *burgomasters*; but the other negociate without any commission, and are called *scolding brokers*.—The first are in number 375; whereof 375 are Christians, and 20 Jews: the others are near double that number; so that in Amsterdam there are near 1000 *exchange-brokers*.—The difference between the two consists in this; that the books and persons of the former were allowed as evidence in the courts of justice; whereas in case of dispute, the latter are disowned, and their bargains disannulled.

The fee of the (sworn *exchange-brokers*) of Amsterdam is fixed by two regulations, of 1613, and 1623, with regard to matters of exchange, to eighteen sols for 100 livres de gros, or 600 florins; i. e. three sols for 100 florins; payable, half by the drawer, and half by the person who pays the money. But custom has made considerable alterations herein.

The Jews, Armenians, and Banians, are the chief *brokers* throughout most parts of the Levant and the Indies. In Persia, all affairs are transacted by a sort of *brokers*, whom they call *dalal*, i. e. *great talkers*. The manner of making their markets is very singular: after the *brokers* have launched out into long, and usually impertinent discourse, coming towards a conclusion, they only converse with their fingers. The buyer and seller's *broker*, each take the other by the right hand, which they cover with their coat, or a handkerchief: the finger stretched out, stands for six; bent, for five; the tip of the finger for one; the whole hand for 100; and the hand clenched for 1000. They will expend even pounds, shillings, and pence, by their hands. During all this mystic commerce, the two *brokers* appear as cold and composed, as if there were nothing passing between them.

The French distinguish two kinds of *brokers*; one for the service of merchants, the other of manufacturers, artificers, and workmen. The business of the former is to facilitate the sale of goods in the wholesale and mercantile way; that of the other, to procure the goods wanted for manufacturers, artificers, &c. or to sell their goods when made. At Paris there is scarce a company of tradesmen, or even mechanics, but have their *brokers*, who are usually taken out of their body, and make it their sole business to negociate in the particular kinds of goods to which such company is by statutes restrained. There are *brokers* for drapery, *brokers* for grocery, *brokers* for mercery, &c. There are even *brokers* for tanners, cuirasiers, cutlers, and the like. Dict. of Commerce.

BROKER, *cloth*.—At Paris they have a regular company of these *brokers*, or *frippiers*, who are governed by statutes first given them under Francis I. in 1544.

BROKERS, *petit*, a sort of petty dealers in drapery, who sell fragments or remnants of cloths, stuffs, silks, and the like, at under price.

BROKERS, *fish*, are those employed to buy and sell fishes in the joint stock of a COMPANY or corporation. The negociations, &c. of these *brokers* are regulated by stat. 9 Geo. II. cap. 18. and 7 and 10 Geo. II. cap. 8. which, among other things, enact, that contracts in the nature of wagers, &c incur a penalty of 500*l.* and by the sale of stock, of which the seller is not possessed, a forfeit of 100*l.* and that *brokers* keep a book, in which all contracts, with their dates, and the names of the parties concerned, shall be entered, on pain of 50*l.* See SUBSCRIPTION and AGENT.

BROKERS *of household furniture*. See APPRAISERS.

BROKERS, *pawn*, are persons who keep shops, and let out money to necessitous people upon pledges, for the most part on usurious conditions.

These are more properly called *pawn-brokers*, or *tally-men*, sometimes *frippers*, or *frippierers*.

By 30 Geo. II. to be understood the statute of 5 Jac. I. cap. 21. by which it is enacted, that the sale of goods, wrongfully gotten, to any *broker* in London, Westminster, Southwark, or within two miles of London, shall not alter the property thereof.—If a *broker*, having received such goods, shall not, upon the request of the right owner, truly discover them, how and when he came by them, and to whom they are conveyed, he shall forfeit the double value thereof to the said owner.

But there are several excellent regulations respecting *pawnbrokers*, of later date; for which, see 30 Geo. II. cap. 24. 32 Geo. II. cap. 24. and 24 Geo. III. c. 42.

In the cities of Italy, there are companies established by authority for the letting out money in pawns; called *monts of piety*, an honourable title, like that of the *charitable corporation*, but little becoming such institutions; inasmuch as the loan is not *gratis*.

In some parts of Italy, they have likewise *monts of piety* of another kind, wherein they only receive ready money, and return it again, with interest, as to such *pawnbrokers*. At Bologna they have several such *monts*; which are distinguished into *franc* and *percentuel*: the interest of the former is only four *per cent.* in the latter, seven.

BROKERAGE, the fee paid to a BROKER.

BROMELIA, in *Botany*, *Plum.* a genus of the *hexandria monogynia* class of plants. Its characters are these: the flower hath three long, narrow petals, each having a *nectarium* joined to it above the base, and hath six stamina;

mina; the germen is situated below the receptacle, which afterward becomes an oblong capsule, divided by a partition in the middle, to which the seeds are fixed quite round; these are smooth, and almost cylindrical. There are two species, which make a pretty variety in the hothouse. Linnæus enumerates seven species.

BROMUS, in *Botany*, a name used by some authors for that kind of grass, called by others *festuca* and *agilops*, or *oat-grass*.

BRONCHIA, in *Anatomy*, the little tubes into which the *trachea* is branched, at its entrance into the lungs; and which are distributed through every part thereof, serving for the conveyance of the air in respiration.

The *bronchia* consist of cartilages like the *trachea*; only here the cartilages are perfectly circular, without any membranous hard part: they are joined together by the membranes that invest them, and are capable of being shut our lengthwise in inspiration; and of being drawn into each other in expiration.

BRONCHIAL, *artery* is an artery of the lungs, which arises from the descending trunk of the *aorta*, or intercostals; and, embracing the *trachea*, pursues the course of the *bronchia*, accompanying all the branches thereof through their whole progress. *See Tab. Anat. (Angeiol.) fig. 1. n. 29.*

BRONCHIAL *glands* are a soft, succulent, blackish sort of glands, adhering externally to the lower part of the *trachea*, the greater divisions of the *bronchia* and the *œsophagus*, some larger, some smaller; said to be discovered by Verheyen.

Their use is uncertain: the generality hold them to furnish an unctuous liquor, to moisten and line the inside of the *bronchia*. Vercellon will rather have them to secrete a juice for the service of digestion, conveyed by minute ducts to the *œsophagus* and stomach; which, however, is called in question by Haller.

Verheyen is of opinion, that the hoarseness which arises from a cold, may proceed from an obstruction of these glands; and that the benefit which accrues from taking oil of almonds, or other smooth medicaments, may proceed from their supplying the defect of this juice, and lubricating artificially the inside of the *bronchia*. But it should rather seem, that the humidity furnishing the *trachea* and *bronchia*, comes from the miliary glands of those parts, which are only lymphatics, and become tumid in morbid cases, inasmuch that they frequently press the wind-pipe, or some of its branches, and cause an ASTHMA.

BRONCHIAL *vein* arises from the intercostals, or the azygos, accompanies the artery, and divides into the same number of branches with it.

The artery brings blood to the *bronchia*, for the nutrition thereof, and of the vesicles of the lungs: and the vein carries it back again to the *cava*, where it soon terminates.

The *bronchial* artery is sometimes single, but more frequently double; sometimes triple.

BRONCHOCELE, a pendent tumour, with a large round neck, rising on the bronchial part of the *trachea*.

The word is formed from βρογχος, *wind-pipe*, and κηλη, *swelling*.

The *bronchocele* is common in Lombardy, Savoy, and about the Alps; whence Horace,

Quis tumidum guttur miratur in Alpibus.

It is commonly supposed to derive its origin from the Alpine waters, which, being impregnated and chilled with ice and snow, or deprived, by the process of freezing, of their fixed air, cause a *stasis* in the *lymphæ*, about the muscles of the throat, whereby the vessels are contracted, and the circulating humours thickened, whence an obstruction, &c. Though there are some species of it supposed also to arise from strums, bruises, and other accidents. Several physicians have now rejected the notion, that wens of this kind are owing to the use of snow-water. For in Greenland, where snow-water is commonly used, these unsightly protuberances are never met with; nor are they seen in Westmoreland, where the mountains are higher and the snow greater in quantity than in Derbyshire, where they are common. Besides, they are common in Sumatra, where there is no snow during any part of the year. Phil. Trans. vol. lxxiii. part. i. p. 367.

The *bronchocele* has been called by some *hernia guttural*, or *bronchialis*, *gutturis*, and *gongrona*. Some medical writers have confounded it with the *strume*, *scrophulæ*, or king's evil, and others have made it only a species of STRUMA. It has been described by Celsus, Albucalis, Heister, and many later writers. Some ascribe it to a rupture of a lymphatic vessel; others to some extravasated, nutritious juice, converted into a fleshy substance; and the tumor has been observed to consist partly of a fluid, and partly of a more firm and glandular substance; but its consistence is different in different cases.

The English *bronchocele*, as Mr. Pressor has termed it, or, as it is otherwise called, the *Derby-neck*, because many of the women in the hills of Derbyshire are subject to it, is a tumor arising on the fore-part of the neck, seated in the body of the neck, between the skin and wind-pipe, in the thyroid gland, and thus differs from the former, or Alpine *bronchocele*, which commonly hangs under the chin like dew-laps. Mr. Pressor distinguishes it also from the similar disease, which is caused by loud crying, coughing, or other means of straining the neck; this, he says, is incurable; whereas the other, called the natural or spontaneous *bronchocele*, is easily cured by proper and timely application. Dr. Hunter has observed, that it appears two or three years before or after menstruating; and Mr. Pressor has made the same observation, that it commonly appears first between the age of eight or twelve years. When the menstruation approaches kindly, it sometimes spontaneously disappears. This disease is almost peculiar to women; it is soft, or rather flabby to the touch, and moveable; but when it has continued for some years after the time of its growing, it becomes more firm. It is attended with a considerable difficulty of breathing, in some cases, to such a degree, as to occasion a bad wheezing. The situation of this tumor is such, that all attempts to extirpate it are extremely dangerous, and therefore the only method of cure is by discussion. The most celebrated remedy for this disorder is one which is prepared and sold at Coventry, and which Mr. Pressor believes consists of equal parts of sponge, cork, and pumice-stone, calcined; half a dram of this is mixed with sugar, and made into a bolus, and laid under the tongue every night. Mr. Pressor recommends the following powders:

℞ Cinnab. Antimon. opt. levig. ʒj. Milleped. ppti & pulv. Spong. calcin. aa grr. xx. m. f. pulvis.

One of these is to be taken an hour or two before breakfast, and at five or six in the evening, for two or three weeks; and, after the interval of about a fortnight, they are to be again renewed; and three of the following pills are to be taken at bed-time, during the second course of the powders:

℞ Pil. Mercurial. ph. nov. ʒ ß. Pil. N° 48. æquales.

The dose is to be adjusted to the age and constitution of the patient, who should be prepared for this course by two or three previous purges, and avoid taking cold, by washing much in cold water &c. If these means are used for about a month or six weeks, without any external application, he has no doubt of success. However, the patient should be under twenty-five years of age. At this age the cure is uncertain; but, at a more advanced period of life, much more improbable, and seldom or ever successful. Gooch, in his Medical Observations, mentions an *aneurism* BRONCHOCELE. Phil. Trans. N° 505. p. 634. Pressor's Account and Method of Cure of the *Bronchocele*. 1771.

BRONCHOTOMY, in *Chirurgery*, the operation of cutting into the wind-pipe, to prevent suffocation, in the quinsy; or an incision made in the *trachea*, or wind-pipe, between two of its annular rings, in order to make a passage for the breath, when there is danger of suffocation, from an inflammation of the *tonsils*, &c.

The word comes from βρογχος, *wind-pipe*, and τεμνω, *I cut*. *Bronchotomy*, called also *Laryngotomy*, is thus performed.—The body of the patient being prepared, an incision is made between the third and fourth annuli, or rings, of the *asperia arteria*, an inch below the bottom of the *larynx*; the skin and integuments divided, and the muscles removed; a silver tube is applied, and the cause of the disease removed, and the wound healed; nourishing clysters being applied in the mean time, if deglutition be impracticable.

Dr. Musgrave observes, that in all medicine there is not one method that works to greater advantage, for the better, in so short a time.—However, it is seldom practised, because that gap which appears on the cutting of a throat (the divided parts being then drawn towards their more fixed ends), together with the great effux of blood when the jugular and carotid arteries are also wounded, create in most men a dread of the operation, and make many believe all wounds of the trachea mortal.—But the same author makes no scruple, however, to say, it ought to be practised in quinsies, and other dangers of suffocation from causes of a like nature with these; from an extraordinary case which he himself had wrought in this way. *Bronchotomy* is likewise recommended as the best thing to be done, in order to recover drowned people to life; and in this operation many have been indebted for their recovery. In the Philosophical Transactions, vol. lx. part. ii. N° 87. there is an account of the case of a *cat thrown*, that may serve to make us somewhat more ready and resolute in the operation of *bronchotomy*, when it is necessary; such is the very inference that Dr. Hoadman, who relates it, draws from it. P. 531.

BRONCHUS, in *Anatomy*, properly denotes the lower part of the *aspera arteria*, dividing into *bronchiæ*, or branches.

The

In which sense, *bronchus* stands contradistinguished from LARYNX.

The name *bronchi* is also extended to the whole *asperæ arteriæ*, or TRACHEÆ.

BRONCHOCELE also denotes a person afflicted with a BRONCHOCELE, or manner of the throat, called by Ulpius *cynanche*.

BRONCINI, in *Zoology*, a name given by some to the *lupus*, or lox-wolf, called in English the LYNX.

BRONTEUM, in *Antiquity*, that part of the theatre underneath its floor, wherein brazen vessels, full of stones and other materials, to imitate the noise of thunder, were kept. Potter. Arch. Græc. *lib. ii.* cap. 8.

BRONTIÆ, among *Naturalists*, a kind of figured stones, commonly hemispherical, and divided by five grooved zones.

The word is formed from βροντη, *thunder*, alluding to the popular tradition, that those stones fall in thunderstorms: whence they are also denominated thunderstones, sometimes pole-stones, fairy-stones, and also *cerauniæ*, by naturalists.

Some take the *brontiæ* for the petrified shells of the *echinus spatagus*, or *hystrix*, or Artifulle. Dr. Woodward rather supposes them to have been formed, and received their shape in the shell of the *echinus spatagus*; on which footing they are also ranked in the number of ECHINITES. Dr. Plot contends both.

BRONTIÆ are sometimes also used in England for a kind of figured stones shaped like arrow-heads, less properly called BELEMNITES, and popularly *thunder-bolts*.

Dr. Woodward takes not these for natural stones, but supposes them to have been fashioned thus by art, or ferre as spoons before the invention of iron.

Some also give the denomination *brontiæ* to the BATRACHITES and CHELONITES.

BRONTOLOGY, books containing the doctrine of thunder, and of the prognosticks drawn therefrom. See THUNDER.

BRONZE, in *Chemistry*, a factitious metal, compounded of copper and tin, to which sometimes other metallic substances are added, particularly zinc. It is brittle, hard, and sonorous.

The word is French, in which language it bears a very extensive signification; including all the compositions of copper or brass, as for guns, bells, pots, or the like.

It is formed from the Italian *bronzo*, which has the same signification. Copper medals are frequently called medals of *bronze*. Medallists distinguish the *large*, *middle*, and *little* BRONZE.

Bronze is employed for various uses, as for making bells, cannons, and statues; and the proportions of the component metals are varied, to suit the several uses to which it is applied. For the fourth reason, the mixture in the composition of *bronze* is half *copper*, and half *brass*, or LATTEN.

The Egyptians, who are said by some to have invented the art of making it, use two thirds of *brass* and one third of *copper*.

The compound of *copper* and *tin*, it is observed in the Dictionary of Chemistry, has a greater than the intermediate specific gravity; whence it is inferred, that in the union of *copper* and *tin* there is a penetration of parts, i. e. that one metal enters into the pores of the other, and perhaps even this effect is reciprocal. See on this subject Gellert's Metallurgic Chemistry.

Bronze is less apt to be covered with verdigrise than pure *copper* is; for as *tin* is less liable to the action of salts of moisture, and of the air, than *copper*, it is also less liable to rust; hence arises one reason why this ALLAY of *bronze* is used for cannons, statues, and works exposed to the air and weather. The greater fusibility of *bronze* than of *copper*, is also an advantageous property, and much facilitates the casting of large works, as statues, bells, and cannon. See BELL-*metal*.

The operation by which large works of *bronze* are cast, is sufficiently simple. For this purpose a brick-furnace is used nearly of the shape of an oven for baking bread. The floor of it is concave, and consists of a composition of sand and clay; in which the metals to be fused are put. The furnace has three openings; the first is a lateral mouth, at which enters the flame of wood, placed in a second furnace on one side of the first; the second opening is a chimney placed on the side opposite to the mouth, by means of which the flame is drawn over the metal; the third opening is a hole opened and shut at pleasure, through which the inner part of the furnace may be occasionally inspected, that the state of the metal may be observed. When the metal is in the state required, a fourth opening is then unclosed, communicating with the hollow floor, and through which the melted metal flows by channels into the moulds prepared to receive it. Dict. of Chemistry.

BRONZE, in *Painting*, denotes a colour prepared by the colourmen of Paris, in imitation of *bronze*. There are two sorts of it, the *red* and the *yellow*, or *golden*: the latter, the *yellow*, is made solely of the finest and brightest copper-dust that can be had; and in the former there is only added a small quantity of red ochre, well pulverised. They are both applied with varnish, and, to prevent its turning greenish, the work is dried over a chafing-dish, as soon as painted.

BRONZES. Thus *antiquaries* denominate figures of men or beasts, urns, and every piece of sculpture, which the ancients made of the above metal. Statues, busts, &c. cast of this metal, are called by this name, whether they be originals or copies.

BRONZING is the art of imitating *bronze*. See BRONZE, in *Painting*.

BROOD, the young of fish and fowls.

The word is derived from the Saxon *brodan*, *to breed*; which alludes to *Spawn*, *to be big with young*.

Multitude had the curiosity to break several times all the eggs of a *brood*, one half an hour after another, and observe with a microscope the successive alterations produced therein, till the moment of hatching; of all which he has given figures, curiously engraven.

The word is also used for a set of any young. In which sense we say, a *brood* of vipers, a *brood* of oysters. A *brood* of pheasants is more properly called an *eye*. Phil. Trans. N° 369.

BROOD of fish is spawned, and lies in still waters, where it may have rest to receive nourishment, and grow to perfection. And here it is often destroyed by weirs, drawnets, and nets with canvas, or like engines in the bottoms of them, in harbours, haven, and creeks.—Every weir near the main sea-coast, in twelve hours, sometimes five pulpits, sometimes six, sometimes twenty or thirty. For the preventing hereof, by 3 Jac. I. cap. 12. it is enacted, that none shall erect a weir, or weirs, along the sea-shore, or in any haven or creek, or shall willingly destroy the spawn, or fry of fish, on pain of 20*l.* to be divided betwixt the King and the prosecutor. Neither shall any one fish in any of the said places, with any net of a less mesh than three inches and an half betwixt knot and knot (except for the taking smoults in Norfolk only), or with a canvas net, or other engine, whereby the spawn or fry of fish may be destroyed; on pain to forfeit the said engine or net, and 10*s.* in money, to be divided betwixt the poor of the parish, and the prosecutor.

BROOD, or BROOD-*comb*, called by the French *couvain*, is that part of the comb of a bee-hive which contains in its cells the future progeny of the hive, in the three different stages of eggs, worms, and nymphæ. See BEE, and OVUM-*bee*.

BROODING, the act of a hen, or other bird, sitting on a number of *eggs*, to keep them warm till they hatch, or produce young ones. See HATCHING.

In which sense, the word answers to the same with *incubation*.

Insects have also a method of *brooding* on their ova. Some even pretend, that snakes sit on the eggs; which seems without foundation. Phil. Trans. N° 5.

There is a difference between *brooding* of SNAKES and VIPERS; the former being oviparous, and the latter bringing forth their young alive.

BROOKLIME, in *Botany*, a species of SPEEDWELL.

Brooklime bears a resemblance in its flowers to the *Paul's betony*, though its leaves are larger, and the ridges entire.

Its chief use is to abrade and clear away those little viscosities which obstruct the capillaries, and occasion scabs and blotches, though it has also a diuretic virtue, and serves as a cleanser of all the viscera; whence it is frequently an ingredient in antiscorbutic and deobstruent compositions. Quincy. Disp. p. 11. § 4.

BROOM, *Spartium*, *Genista*, in *Botany*, a genus of the *decandria monogynia* class of plants. Its characters are these: the flower is of the butterfly kind; the standard long, and wholly reflexed; the wings are a little shorter, and loose; the keel erect, and longer than the standard; it hath ten stamina joined, which are situated in the keel; in the centre is an oblong germen, which afterwards becomes a roundish, turgid pod, with one cell, opening with two valves, enclosing kidney-shaped seeds. There are thirteen species. It grows plentifully on heathy grounds.

Among *Husbandmen*, *broom* is considered as a weed very pernicious to the culture of lands; and, on that account, to be grubbed up and destroyed.

It roots deep, and, shedding no leaves, is continually sucking the moisture from the earth. The best method of destroying it, is the burning of the land, then plowing it deep, and manuring it very well with dung and ashes; the spreading on the land chalk or marle, or the manuring it with urine. If the ground be designed for pasture-land, it is best to cut it close to the ground in May, when the sap is rising in it. By this artifice, the roots are destroyed,

destroyed; whereas, in the common way of pulling up the young plants, some shrigs will be left, and the least of these will grow. Fodderings of cattle upon *broomy* land, is one very good way of destroying the *broom*, their urine killing the roots, and their treading the land making it less proper for the roots of this plant; for the *broom* is never observed to grow in trodden places. This troublesome and pernicious plant is not, however, without its use to the farmer; for, when well laid, it will make an excellent and lasting kind of thatch for barns.

Broom-makers make a principal ingredient in divers medicated ales. These ales are extolled for purging off waters in dropsies; in which respect, however, Dr. Quincy assures us, they are no better than any other lixivious ashes.

Some pickle the yellow buds with vinegar and salt, &c. after the manner of capers, from which they are then scarce to be distinguished.

Broom is an attenuant, abstergent, and aperient. The juice of the green shoots of *broom*, or a strong infusion of them in wine, is an excellent diuretic, and cleanses the breezes and kidneys. If taken in large doses it purges by stool, and therefore is doubly proper in dropsical cases. The seed of *broom* is also a purge, and that of no weak kind; sixdrans and half of it being a sufficient dose. The *tinctura de broom* with white wine, is a powerful diuretic, but must be taken with caution.

BROOM, *African*. See ALEALATHUS.

BROOM, *Butcher's*, in *Botany*. See BUTCHER'S *Broom*.

BROOM-*staves*, gives the denomination to an order of knights instituted by St. Lewis of France, on occasion of his marriage. The motto was, *Exaltat humiles*, and the collar of the order made up of *broom-flowers* and bulks enamelled and intermixed with hearts-de-lys of gold, *set* in open lozenges, enamelled white, chained together, and at 0 hung a *cross fleurie* of gold. This answers to what the French call *Orden du Genest*, from the name of a species of *broom* so called; different from the common *broom*, as being lower, the stalk smaller, and leaf narrower; the flower is yellow, and bears a long bulk.

Some also speak of another order of the *Genest*, or *Broom*, established by Charles Martel, or rather Charles VI.

BROOM also denotes a well known houshold besom, or implement wherewith to keep away dirt, dust, and the like.

We say, a *birch-broom*, a *bass-broom*, a *rush-broom*, a *heath-broom*. The primitive kind of *broom*, from whence the denomination is given to all the rest, was made of the *genista*, or wild *broom*, growing on commons.

BROOM-*gall*, in *Natural History*, a name given by authors to a remarkable species of galls found on the *genista tinctoria*, or common *broom*. This is occasioned, like all other galls, by the puncture and eating of an insect, and when opened, is found to contain a small oblong worm, of a red colour, but whose size requires the use of a glass in order to see it distinctly.

BROOM-*rape*, in *Botany*. See *Orobanche* RAPE.

BROOM-*tree*, *Spartium*, *Cytisus Genista*, in *Botany*, a genus of the *decadelphia decandria* class of plants. Its characters are these: the empalement of the flower is heart-shaped; the flower of the butterfly kind; the standard almost heart-shaped, large, and wholly reflexed; the wings are oblong, shorter than the standard, and annexed to the stamina; the keel is oblong, longer than the wings; the borders hairy, and connected together; to which the stamina are inserted. It has ten unequal stamina, nine of which are jointed together, and the under stands apart; with an oblong hairy germen, supporting a sling awl-shaped style, to which is fastened an oblong, hairy, inflexed stigma. The germen afterward becomes a long, cylindrical, obtuse pod, of one cell, opening with two valves, including several globular kidney shaped seeds. There are eleven species, natives of different parts; the best known of which is the Spanish *broom*, which is common in gardens, and flowers in June and July; the parts in use are the branches, flowers, and seeds, which agree in virtues with the common *broom*; only are more efficacious.

BROOMING, or BREAMING *of a ship*, the burning off the filth she has contracted on her sides with straw, reeds, broom, or the like, when she is on a careen, or on the ground. See CAREENING.

BROSSAEA, in *Botany*, the name of a genus of plants of the *pentandria monogynia* class; the characters of which are these: the corol is one-leaved *pentanthium*, divided into five segments, each of which terminates in a long points of the same length with the petals; the flower is monopetalous, of the shape of a tunnicated cone, and undivided at the edge; the germen is divided into five parts; the style is pointed, as long as the flower, and its stigma simple. The fruit is a roundish capsule, divided by five deep furrows, into five cells; it is covered with a large cup, which closes over its top; it is succulent and fleshy; and, finally, opening at the sides, it discharges a great number of minute seeds.

BROTHEL, *See* STEWS.

BROTHER, *Frater*, a term of relation between two male children, arising from the same father, or mother, or both. Scaliger and Vossius derive *frater* from φρατηρ, or φρατηρ, which properly signifies a person who draws water in the same well; φρεαρ, in Greek, signifying *well*, and φρατρια, a company of people, who have a right to draw water out of the same well. The word, it is said, came originally from the city Argos, where there were only a few wells distributed in certain quarters of the city, to which those of the same neighbourhood alone repaired.

By the civil laws, *brothers* and sisters stand in the second degree of consanguinity; by the canon law, they are in the first degree.

By the Mosaic law, the *brother* of a man who died without issue was obliged to marry the widow of the deceased. Deuter. xxv. 7. See LEVIRATE.

The ancients applied the term *brother* indifferently to almost all who stood related to the collateral line, as uncles and nephews, cousin-germans, &c.—This we learn not but also from profane authors; Cicero, in his Philippics, says, "Antonia was both wife and sister of Mark Antony; "because she was daughter of his brother C. Antonius." And as to cousins, Tanaquil Faber, in Dionysius Halicarnassæus, calls the Horatii and Curiatii, *brothers*, because they were sisters children.

The language of the Jews, bishop Pearson observes, included in the name of *brethren* not only the first relation of fraternity, but also the larger of consanguinity. We are brethren, says Abraham to Lot, Gen. xiii. 8. whereas Lot was only his nephew.—So Jacob told Rachel that he was her father's *brother*, Gen. xxix. 12. whereas he was only her father's nephew. This consideration has been urged with good advantage against the Anticlementians, who, from the mention made of the *brethren of Jesus* (John ii. 12. Matth. xii. 46.) have impugned the perpetual virginity of the mother of Christ: for which however there seems to be no sufficient foundation.

Among us it is customary for kings to give the title *brother to each other*; the unction in coronation being effected to create a kind of *brotherhood*. Nor is the custom modern: Menander mentions a letter of Cosroes king of Persia, to the emperor Justinus, beginning thus: Cosroes king of kings, &c. to the emperor Justinian *my brother*. Kings now also give the same appellation to the electors of the empire; and the like was given, by the king of France, to the late king of Sardinia, while only duke of Savoy.

In the civil law, *brothers*, *frateres*, in the plural, sometimes comprehend sisters: as *Titius & Titia*, *frateres*; *tres fratres*, *Titius*, *Maevius*, & *Seia*.

BROTHERS, *fosterers*, those which sucked the same nurse. The French call them *freres de lait*, or *brothers by milk*; which is most properly used in respect of a person who sucked a nurse at the same time with the nurse's own child.

BRTOTHERS, *German*, *Freres Germani*. See GERMAN.

BROTHER was also used in *Middle Age Writers*, for a *consul*, or governor of a province.

BROTHER is applied, in a less proper *sense*, to denote a person of the same profession. In which sense, judges, bishops, priests, &c. call each other *brothers*.

BROTHER *in Christ*, *fratres in Christo*, the same with *spiritual brother*, a person admitted into a monastic society or fraternity.

BROTHER is more particularly used to denote the relation between monks of the same convent.

In which sense they say, *brother Zachary*, *brother Buonaventure*, &c. In English we more usually say, *friar Zachary*, &c. from the French word *frere*, *brother*. This appellation is borrowed from the primitive Christians, who all called each other *brothers*: but it is principally used for such of the religious as are not priests; those in orders are generally honoured with the title of *fathers*, *patres*, whereas the rest are only simply *brothers*. The monks of St. Dominic are particularly called *preaching brothers*, or *friars preachers*: those of St. Francis, *minor brothers*; those of charity, *ignorant brothers*, &c.

BROTHERS, *conscripti*, *fratres conscripti*, denote laymen and others entered in the catalogue of the *brothers* of a monastery, or rather partakers of the fraternity thereof.

BROTHER, *outer*, *frater exterior*, sometimes denotes a *lay-brother*.

BROTHER, *strange*, *frater advenus*, a foft or guest belonging to another monastery.

BROTHER, *former*, *frater externus*, either a monk, priest, or canon of some other monastery, to whom the prayers of the society are granted.

BROTHER, *mature*, *frater maturus*, one distinguished by his age, gravity, or probity, above the rest.

BROTHERS, *spiritual*, laymen admitted into a monastic fraternity.

family. The name was also given to those otherwise called *nature brothers*, and sometimes also to a sort of adopted *brothers*, or persons who communicated a kind of *brotherhood*, with the ceremony of breaking bread together in the church before the priest.

BROTHER, *lay, frater laicus, or conversus.* See LAY *Brother.*

BROTHER, *grise, frater dentur*, among the Carthusians, denotes a young person admitted to assume cloth, and wearing a hair, whose office is to serve in the house, answering to what in other orders is called the *second brother*, *frater medius.*

BROTHER is also an appellation more peculiarly given to certain orders of religious than the

BROTHERS *of St. Anne*, in the Low Countries, were an order of persons who attend on trade who lay dying, and take care of the burial of the dead.

BROTHERS *of Mercy.* See SERVITES.

BROTHERS *of Christian Love*, a sort of religious fraternity founded about the year 1540, by one commonly called *Borromeo*. They took the third order of St. Francis, and the hospitality, making three usual vows but without confinement.

BROTHERS *of Charity* all denote an order of Hospitallers still subsisting in Romish countries, whose business is to attend the sick poor, and minister to them both spiritual and temporal succour.

They are all laymen, except a few priests, for administering the sacrament to the sick in their hospitals. The *Brothers of Charity* of the reformation have no vows, discipline, habit, or monastery, which they profess with strictness.

They were first founded at Grenada, by St. John de Deus; and a second establishment was made at Madrid in the year 1567. Another was established by Gregory XIII. in 1572. Clement XV. pulled down the whole body of them, but by Bull V. in 1605 gave a form of the rules and constitutions to them they were governed by before the dissolution of the order. These orders are dispersed throughout Spain, and there, as well as the Low Countries, Germany, Poland, and Italy, are under different governments, with names of distinction. They were first erected into a congregation by Martin Alphonsus de Porres, and have since been established in Portugal, Germany, and the Indies.

BROTHERS *of Charity of St. Hippolytus*, a religious congregation established in Germany, and confirmed by Sixtus V. in 1587, who obliged them to the rules of St. Austin. They are distinguished from all other orders of religious by the habit, and colour of it, being of *Isabella* colour, or a dirty white. They were introduced into England by Queen Henrietta Maria, and have a house in Hog-lane, Westminster, by the name of the Fraternity of Charity.

BROTHERS *of Charity of St. Alexander*, a religious congregation established in Germany, and confirmed by Sixtus V. in 1587, who obliged them to the rules of St. Austin. They are distinguished from all other orders of religious by the habit, and colour of it, being of *Isabella* colour, or a dirty white. They were introduced into England by Queen Henrietta Maria, and have a house in Hog-lane, Westminster, by the name of the Fraternity of Charity of St. Alexander.

BROTHERS *of Penance*, or *of the Penitents of Jesus Christ*, a name given to Tiraboschi to the religious of the third order of St. Francis called also *Regulars*; and also a fraternity of Penitents held in the chapel of the church of the third order, under the direction of the Regulars. See REGULARS.

BROTHERS, *of poor, barefoot*, a denomination given to all monks, who either are partly woollen, partly linen; they were otherwise called *Sandaliati*.

BROTHERS *of St. Gregory the Illuminator*, a religious order established in Armenia, in the fourteenth century, which being much reduced and thrown by the conquests of the Turks and Persians, was, in 1750, united to the Order of St. Basilius.

BROTHERS, *Trinitarian*, or *Mathurins*, denote the Religious of the order of the Virgin Mary, first instituted at Cerfroy in 1201, for whom a rule was prescribed by pope Urban IV.

BROTHERS, *lay*, in the CAMBRIDGE UNIVERSITY, a denomination given to decayed gentlemen, to the number of eighty, who are subsisted with diet, clothing, and lodging, at the establishment.

The *poor brothers* are to be gentlemen by descent, come to poverty, or decayed merchants, scholars, or officers of the king's household. The conditions of admission are that they have an estate in land worth 300*l.* per annum, in case of widows 240*l.* per annum; and that they be fifty years old unless they have been examined in the public lectures, in which case the age of forty suffices. They wear a livery-gown within doors.

BROTHERS, *White*, the name of a sect which appeared in Russia towards the beginning of the fourteenth century; so called from their white cloaks on which was a St. Andrew's cross of a green colour. See HERETICS.

BROTHERS *of Peace*, an appellation given to those who consult a habit of forbearance in word, judging themselves to the utmost farthest and sufferance of evil rather.

In the military orders the knights are also called brothers. In the order of MALTA there is a particular class who are called *serving brothers*, consisting of such of the sons grow great of their family, but can they are of noble and genteel parents.

BROTHERS *by adoption.* See ADOPTION.

BROTHERS, those who have only the same father, are called *brothers consanguineous*; and those who are only descended from the same mother, *germans uterine.*

BROTHERS, *of the holy cords.* See ROSY-CRUCIANS.

BROTHERS, *of the sanctuary.* See SANCTUARY.

BROTHERS, in Heraldry, are *cantons* across the imperial bearing which are to be cared in their turnings by the garter chaplains, are to be *gentils*, and separated from their bearing *sec* by the principal's name.

BROTHERHOOD. See FRATERNITY.

BROW, among the Fish branch of the term of a hill, or high ground, and from the horse, or main land, near the bay.

BROW, *of the ferry*, a term which gives people at ferry-boats landing.

BROWELLIA, in *Botany*, a genus of the *Didynamia Angiospermia* class. Its characters are: The flower is of funnel shape, of one leaf, having a cylindrical tube, twice the length of the empalement, the upper part divided into five parts, of which the upper three are erect, and divided into five parts, and the lower narrower, in the shape of the petal; the two uppermost are shorter than the other three, and turned backwards; the lowermost is longer, and spreading; the stamina are four, inserted into the tube of the flower, and are shorter than the petals; the antheræ are small and roundish; the germen is oval, supporting the style, which is the length of the stamina, and crowned by the stigma, which is obtuse; the empalement remains; the capsule is oval, and has two cells; the seeds are numerous, and roundish.

BROWN, a dusky kind of colour, including under it various shades.

Dusky differently diversified and graduated is termed, *brown, fuscus, ferrugineus, cinereus, fuscus, ferrugineus, cinereus, fuscus, ferrugineus, cinereus

from the favorities of the bishops, began to differ among themselves, and stumble into so many parties, that Brown, their pastor, grew weary of his office; and, returning to England in 1585, renounced his principles of separation; and was preferred to the vicarage of a church in Northamptonshire, and died, after leading a very idle and dissolute life, in 1630.

The errors of Brown was amended with the dissolution of the church at Middleburgh; but the seeds of *Brownism*, which he had sown in England, were so far from being destroyed, that Sir Walter Raleigh, in a speech in 1593, computed in his time twenty thousand Englishmen of the separation; and was preferred to the favours of a church and reformation of the members that composed similary and separation of the members that composed it; on account of the toleration of sinners, with whom it is not lawful to eat, or converse, or communicate. They thus maintained it an impiety to communicate. They condemned the solemn celebration of marriages in the church; maintaining, that matrimony being a political contract, the consideration thereof ought to come from the civil magistrate. They would not allow any children to be baptised if such as were not members of the church, or of such as did not take sufficient care of their baptised before. They rejected all forms of prayer; and held, that the Lord's prayer was not to be recited as a prayer; being only given for a rule, or model, wherein all our prayers are to be framed.

The form of church government which they established was *democratical*. When a church was to be gathered, such as desired to be members of it made a confession of it; and signed a covenant, by which they obliged themselves to walk together in the order of the Gospel. The whole power of admitting and excluding members, with the decision of all controversies, was lodged in the brotherhood. Their church-officers were chosen from among themselves, for preaching the word, and taking care of the poor, and ordained to their several offices by fasting, prayer, and imposition of hands of some of the brethren. But they did not allow the priesthood to be any distinct order, or to give any indelible character. As the vote of the brotherhood made a man a minister, and gave him authority to preach the word, and administer the sacraments among them; so the same power could discharge him from his office, and reduce him to a mere layman again. And as they maintained the bounds of a church to be no greater than what could meet together in one place, and join in one communion; so the power of their officers was prescribed within the same limits. The ministry or pastor of one church could not administer the Lord's supper to another, nor baptize the children of any but those of his own society. Any lay-brother was allowed the liberty of prophesying, or of giving a word of exhortation to the people; and it was usual for some of them, after sermon, to ask questions, and reason upon the doctrine that had been preached. In a word, every church, on the *Brownist* model, is a body-corporate, having full power to do every thing which the good of the society requires, without being accountable to any classis, synod, consistory, or other jurisdiction whatever. Most of their discipline has been adopted by the independents, a party which afterward arose from among the *Brownists*.

The laws were enacted with great severity on the *Brownists*; their books were prohibited by queen Elizabeth, and their persons imprisoned, and many of them were hanged: but the severity of committees, and the Rump-parliament, in some measure delivered them from the rigour that they exhibited to all their country. Accordingly many families retired, and settled at Amsterdam, where they formed a church, and chose Mr. Johnson their pastor; and after him Mr. Ainsworth, author of the learned commentary on the Pentateuch. Their church flourished near a hundred years. See Neal, Hist. of New Eng. vol. 1. cap. 2. p. 58. and Robinson, Apologia pro suis Brownistarum & Barrowistarum. 12mo. 1619. See INDEPENDENTS.

BROWS, or BROWNS, are two hairy arches above the orbits of the eyes, bounding out by means of some fat under the skin in this place.

That end next the nose is called the head, *caput*, the other the tail, *cauda*, or the end.

The use of the brows is partly to break the rays of light descending from above, that they may not dart too strongly into the eyes; and partly to be a screen to the eyes from sweat, dust, or other matters descending from the forehead.

BROWSE, the tops of the branches of trees, whereon beasts feed. This is sometimes also called bronce, and

brittle; probably from the French *brout*, which signifies the same.

BROWSE more properly denotes the food which deer find in young copses, commonly signifying *spring*.

BROWSE, *bois de*, or BROWSEWOOD, a denomination including all of the fallow kind, as the deer, roe-bucks, rascayes, &c.

BROWSEWOOD, the same with spray or brushwood.

BROWSING, *Bruzare*, among the *French Gardeners*, signifies nipping off the tips of the tender branches of trees, when too long in proportion to their strength.

BRUARIA *tudera*. See TARRAS.

BRUCHUS, a genus of insects of the order of coleoptera, with filiform antennæ. Linnæus enumerates three species.

BRUISE, in *Surgery*. See CONTUSION.

BRUISER, in *Mechanics*, the name of a concave iron used for grinding and polishing the specula of telescopes. It is made of brass, about a quarter of an inch thick, and hammered as near to the figure as possible. It is turned on the convex side, and made exactly round at bottom and top. This serves to reduce the figure of the glasses, when it is too convex, and to rub down any gravy matter that happens to be mixed with the putty, before the tripolum is applied to the polishers. See Phil. Trans. vol. lviii. part 1. art. 10. and Smith's Optics, book 1. cap. 2.

BRUISING, in *Pharmacy*, signifies the operation of breaking or pounding a thing coarsely, or by blows frequently pushed on roots, woods, and other hard bodies to make them yield their juice in virtue more freely than they would do whole.

BRUMALIA, or BRUMALIA, a feast of Bacchus, celebrated among the ancient Romans, during the space of thirty days; commencing on the twenty-fourth of November, and ending the twenty-fifth of December. Some say this feast was celebrated twice a year, viz. on the twelfth of the calends of March, and on the eighteenth of the calends of September.

The word comes from *bruma*, the day of the winter solstice; in regard of the time when the feast was held: though others derive it from *Brumus*, or *Bromius*, names of Bacchus.

The *Brumalia* were instituted by Romulus, who also, during this time, to entertain the senate.

During this feast indictments were taken of the felony of the remaining part of the year.

The *Brumalia* were also called *Liberalia*.

BRUNELLA. See SELFHEAL.

BRUNSFELSIA, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are thefe; the flower is of one leaf, and funnel-shaped, having a long tube, but spreads open at the top: it hath five flamens of the length of the tube, which are inserted in the tube. In the centre is placed a small round germen, the supplement afterward becomes a globular berry, with one cell, including a great number of small seeds, which adhere to the side of the fruit.

We have but two species, which is a native of the sugar islands in America; but is at present very rare in the English gardens.

BRUNIA, in *Botany*, formerly reckoned a genus in the Linnæan system, but since called as a species of the *phylica*.

BRUSH, an assemblage of hairs or hogs bristles, inserted in the holes of a wooden handle or board, pierced for that purpose, and serving to cleanse divers bodies by rubbing therewith.

We fay a *round*, or *flat*, or *square brush*, *clothes-brush*, *hand-brush*, *hat-brush*, *hair-brush*, *comb-brush*, *watch-brush*, and the like.

The manner of making brushes is by folding the hair or bristle in two, and bringing it by means of a packthread, or wire, engaged in the fold, through the hole wherein it is to be fixed: the wood is pierced all over or inlayed thereon with glue, or pitch. When the holes are thus all filled, they cut the ends of the hair to make the surface even.

BRUSH, *Painter's*. See PENCIL.

BRUSH, *currier's*, is made of wire bent inwards, and serves to lay the wool as rap as shall, after shearing it for the last time.

The *fuller's* is of use in medicine, especially in cafe of rheumatisms, and certain cutaneous difeases. See FRICTION.

The *hair* is also applied to the cure of the rot of sheep; which, when hunting, to find whether they are alive or dead.

BRUSH, *sheep's*, in *Botany*. See LAMB'S FRENCH.

BRUSH, in *Electricity*, denotes the luminous appearance of the electric matter, issuing in a parcel of diverging rays, from a point. Brushes also are the appearance to the fence with which the electric fluid, going out of a point, divides the contiguous air, and paſſes through it, so that which is more remote. See Tab. *Electricity* fig. 8. 9. 10. 11. See STAR.

BROSSES, *wire*, are used by silver-smiths and gilders, for scrubbing silver, copper, or brass pieces, in order to the gilding of them.

There is a method of dying or colouring leather, performed by only rubbing the colour of the skin with a brush. This the French leather-gilders call *frotter*; being the lowest of all the sorts of dye allowed by their statutes.

BROSSE *ou fer*, among *Farriers*, signifies the dog or tail, the tip or end of which is called the chape.

BROSSE *d'ours*, signifies a kind of oars full of *brins*, or bristles.

Signifies also the hair of a bush.

BROSSE, is also used in speaking of a small thicket or coppice.

In this latter sense the word is formed from the middle age Latin *bruscia*, *brucia*, and *brucium*, of the same.

BRUCHE, or BRUCH, a small slender wood or spray. See BRANCHE.

BRUSHING. Among *Jockies*, a *brushing* gallop denotes a little more than a trot. A horse should have his *brushing* gallop in a morning before watering.

BRUTE, in a moral sense, denotes the want of the faculty and use of REASON.

In which sense, *brute* amounts to the same with BEAST. *Beasts*, or the second order of *mammalia* in the Linnæan system, the character of which is, that they have no upper or under fore-teeth; their feet have sharp hoofs, and formed for swift or nimble motion, and they multiply their kind. This order comprehends six genera, and fourteen species.

Among *brutes*, the monkey kind bear the nearest resemblance to men; and they both in the external shape and internal structure, though more in the former than the latter. In the anatomy also, the highest and the nearest approaching the likeness of man, is the ORANG-OUTANG, or *homo sylvestris*. Phil. Trans. N° 189. N° 256. p. 390.

The situation and economy of *brutes* make the object of what is called comparative ANATOMY.

Philosophers are much divided about the essential characters of *brutes*. Some define *brute* as an animal not rational, or a being incapable of laughter; others, as a mute animal, or a living thing deficient of speech; the Platonists, as an animal endowed with a sensitive power, but without a mental one. The Platonists follow reason and understanding, as well as sense, in *brutes*, though in a degree less pure and refined than in men. Lactantius allows every thing to *brutes* which men have, except a sense of religion. Some say the laws, civilized religion and virtue to *brutes*; and they say that Solomon seems to allow as much, that the souls of men have no pre-eminence over those of *brutes*. Eccles. iii. 18, 19. Lact. Inst. Div. lib. ii. cap. 10. Stanley Hist. of Phil. p. 818. chap. 23. Hudd. de Error. Stoic. Exerc. 1. 56. There are different tempers and degrees of knowledge in different species. Some have only the motion and sensitive faculties, as worms; others have also memory, and some imagination and invention, as monkeys and elephants; holding, that in the same species, some in docility and ingenuity exceed others; and that the climate, air, and food, have their influence on the *brute* kind, as on men; further, that of the same species, in different countries, are found to have different qualities, of which Swedish horses, sheep, turkies, &c. are a sufficient proof. It is their therefore in these and many other things only in the circumstance, which makes a difference, except as to the manner of acting, which likewise differs, though not exactly from those faculties of men?

They have some kinds of thought or intellectual knowledge; they have apprehension, but not reflection; are capable of remembrance, which is only a great mark of sagacity, but not of cogitation, which can only be the true test of reflection. Phil. Trans. N° 80. p. 4034, and 4071. Hobbes, Hist. of Hom. Nat. chap. v. p. 44. chap. vi. p. 54. and chap. ix. p. 68.

The chief distinction is a rational soul to judgment, by which we distinguish true from false; to which the memory and imagination are tenderment. But this cannot be declared to *brutes*, since they do not make propositions. They are incapable of silence, for want of reason and fear, whereby to manage their secret ideas. However, there is no talent peculiar to man, which we may not discover some resemblance of in *brutes*, except speech and curiosity. As for speech or communicative reason, to many it does not seem necessary, since many of the philosophers condemn it as a vain, and seldom absolute Science: in reality, supposing a man naturally dumb, does it follow, that he is void of reason? In any objection there to the reasoning of *brutes*, that they have not the use of speech, though we have explained it, they have other organs accordant for that purpose? Hudd. Annot. Phil. p. 101.

Some have pretended, that they have a jargon intelligible to one another: and Porphyry relates, that Theodas and Apollonius Tyaneus understood their language. There is at least a similitude of speech to *brutes*, for they know each other by their voices, and have their signs whereby they express anger, joy, and other passions; thus a dog affrights another from meat in another, love to another, and cries when beaten or stricken. It is true, their speech is not so copious and intricate; but perhaps not less in the use of their ears. Add to this, that they be contemplative in a high sense of that kind of the imagine of our own kind, whose laws have been instituted in it? The language of foreigners, what sense it appears to us, but a confused murmuring thing of sounds? In fine, if language be peculiar to men, we are not aware of it without being ignorant by the motion of their ears, eyes, mouths, tongue, &c. Lastly, what is to preclude us man's sufferance of futurity; but that not to this, which is to have with great men in their order as we see, &c. &c. The generality of the ancient philosophers thought that *brutes* reasoned: this, among the heathens, was the opinion of Anaxagoras, Plato, Porphyry, Celsus, Galen, Plutarch, and others. Among Christians, Lactantius, and the whole body of Manichees and Gnostics; among the moderns Valla, Sennertus, Aurelius, Tho. Campanella, Gassendus, V. Daniel, and others, affect the same. Plutarch has a dialogue under this title, that *brutes* use reason. All the sect of Pythagoras should be of the same sentiment, because the *metempsychosis* supports this human souls pass into the bodies of *brutes*. Can any person, says Lactantius, deny that *brutes* have reason, when they often outwit man himself? Inst. Div. lib. iii. cap. 20.

The Stoics, holding that as the Divine Being is diffused through all creatures, were necessitated to maintain the souls of *brutes* to be divine, and consequently that they had reason.

The Stoics paralleled *brutes* with men. Sextus, more particularly, gives a comparison between dogs and the human kind. The former excel the latter in scent; in that a quicker sight, whereby to pursue their game; in discovers them sooner by the eye, &c. in a more acute hearing. Sext. Empir. Pyrrhon. lib. i. cap. 14.

A dog is not deficient in logic, as appears from Chrysippus's famous instance, who observed that a hound coming into a road which divides into three, makes choice of the third by virtue of an induction or syllogism: for that having scented the two ways by which the beast did not pass, he runs straight upon the third without looking it: where the reasoning is obvious: the beast pursued either this way, or that way, or the other way: but he neither pursued that way, nor that way, and therefore this way. Stanley Hist. Phil. p. 760.

That a dog is possessed of what may call internal reason, appears from his choosing things convenient, flying the hurtful, pursuing his food, and running away from the wolf, and when wounded or sick, acting prudently, as the circumstances of his case, and his abilities and opportunities dictate.

Of how many moral duties, how many arts, do we owe the invention to *brutes*? It was from the *spider*, that man learned the art of weaving; from the swallow he borrowed architecture, from the gossamer-thing, from silk-worm, spinning; to note many other instances of the like kind alleged by Plutarch, Vossius, and others. Tab. Bib. Gymnas. lib. iv. cap. 26. tom. 1. Plut. de Solert. Animal. p. 974. Voss. de Orig. Idol. lib. iv. cap. 99. p. 1000.

How many actions are to be observed in *brutes*, not to be commanded for without reason and argumentation? If we say that dogs, by long habit and by force of rewards and punishments, may be taught many things; do not the scenting, docility, and remembrance of hares, against hunters, fear, and desire, which cannot fulfil without knowledge, teach, pleasure, and pain?

And if *brutes* have knowledge, it is allowed they must also have judgment and reason, and a measure of conveyance. Travers. Trav. Inst. 49. Phil. Trans. N° 256. p. 389. Charleton Exer. Phil. p. 327. &c.

Some look as if they held *brutes* to be sweet beings, and under the allegiance of the law of nature. Ulpian, and other civil lawyers, are supposed to be of this opinion; as also the Stoics, from whose school this notion is said to have been first borrowed. It is alleged on the other hand, that *brute* cannot be subject to a law, unless they have a power of knowing him that made the law, judging whether we have a right to command them, and what is contained in the law. But they may direct to answer accordingly; which does all to be things out of the reach of *brutes*. But Ulpian's definition of the law of nature, *the instinct of good nature common to animals*, when fairly interpreted, does not imply, that *brutes* have reason and reflection, but may be understood of that natural instinct common to man and *brute*, by which they are impelled to self-defence, propagation of their species, &c. Athenæus and Schmidius have collections of texts on the divine honours paid to *brutes*.

BRUTES, *mechanism of.*—The Cartesians, on the other hand, adopt that strange paradox, of the mechanism of brutes, and affirm them not only void of all reason and thought, but of all perception. This system is much older than Des Cartes; it was borrowed by him from Gomez Pereira, a Spanish physician, who employed thirty years in composing a treatise, which he entitles Antoniana Margarita, from the Christian names of his father and mother. It was published in 1554. See Vall. de Oriz. Med. lib. ult. cap. 12.

This was revived by Des Cartes, and further asserted by Le Grand, D'Aranton, and others of his followers, who were led to adopt this doctrine, from their principle of the philosophy, that the essence of the soul consists in thinking. To that, supposing knowledge and thought in brutes, they must have souls like those of men; the consequence of the Aristotelian being held by him a mere chimera. But Pereira does not appear to have been led into the investigation of this doctrine; something like it having been held by some of the ancients, as we find from Plutarch, and St. Augustin. Plut. de Plac. Phil. lib. v. cap. 20. Augustin. de Quant. Animæ. Pereir. Nov. Antiq. c. 3.

Perhaps the best arguments against the system of machines is, that it is contrary to the common sense and apprehensions of all mankind. Ought not those who adopt that brutes have souls, to be combated with the same weapons that are used against the deistical, who deny all truth and certainty; and against the materialists, who deny the existence of bodies?

Henry More, in his Enchiridion Metaphysicum, L. Daniel, in his Nouvelles Difficultez, published in 1693, and in his Voyage du Monde de Des Cartes, as also V. Perdies, in a treatise of the *Knowledge of brutes*, have justified the Cartesians herd. Perdies has also a dissertation on the souls and knowledge of brutes, and Willis a treatise of the soul of brutes, *De Anim. Brut. Exam.* 1672, 4to.

But to lay the truth, we are not much wider for the labours of these learned gentlemen. The common opinion of the sensitive and unperfected part of mankind seems to be, that we have brute, imagination, memory, and passions; that they are void of understanding and reason; that is, in the language of philosophers, they have the inferior faculties of the soul, but not the superior. For will the distinction appear reasonable to those who proved to the followers between the objects of the mind, and its acts about those objects; as also to the difference between the power of the distinct comprehension of anything. See Rudd. Chilli. Moral. vol. ii. p. 443. See INTELLECT.

BRUTIA, in the *Middle Ages of the Romans*, a word used to express the vilest and most infamous kinds of servitude, and such as was proposed for making the oil of apostle, called *sinum pessimum*.

The word *brutus* seems to have been a petition of distinction given to this kind of *servitus* by the ancients, from their common custom of naming things from the places whence they were brought. Brutus being the name of a country in the extreme parts of Italy. Vide Ilv. Ser. Cap. 2.

BRYCMOS, a kind of convulsion, affecting the lower jaw, and shutting the teeth together; such frequently observed in children affected with worms.

The word is formed from *βρυκω*, or *βρυχω* frequently used by Hippocrates for chattering of the teeth.

The *brycmos*, or clinching of the teeth, is a symptom of the ascels of an ague, or intermitting fever.

BRYON, in the *Botanical System of the Ancient Greeks*, an abbreviation of the word *βρυωνια*.

BRYONY, in *Botany*, a name usually made to take in two different genera of plants, under the names of the *white* and *black*, the *common* and *cretic* kind. Mr. Tournefort, however, has determined this word to express only what we call the *white bryony*, making *tamus* the name of the black. In the Linnæan system it is a genus of the monœcia pentandria class of plants. Its characters are these: it has male and female flowers on the same plant; the male flowers are bell-shaped, adhering to the impalement, cut into five segments, and have three short stamina; the female flowers agree in most respects with the male, and the germen is the same with that of the male; the pericarp, which succeeds the flower, afterwards becomes a smooth, globular berry, containing oval seeds adhering to the base. There are only two species.

The first grows upon dry banks under hedges, in many parts of England. The roots of this plant have been frequently mistaken, brought into a human shape, and thereby abused the weaker sex into many mistakes, to the common people's believing strange stories imputed to their greatness, as the procuring good beings thereby. The method practised was, to find a young thriving bryony plant, and opening the earth all round it, so as to cut through the lower fibres; then fastened a mould, made of wood by the sculptors of figures, round the root, filled with earth, and then filling up the earth again, left it to grow as the shape of the mould, which it will do in a summer. The leaves of the plant are also often imposed on the people in the market for those of *tamus*, though, although there is no resemblance in figure, or agreement in quality, between them.

The other kind can't be raised in a bark stove, and when they begin to spread, their branches may be trained upwards the wall or against an espalier; and when they are full of fruit, they make a pretty variety among other evergreens. The roots will sometimes much affect as a powerful purgative, especially of scammony; but are chiefly admired as an uterine evacuator; in which quality it enters the composition of an officinal wash, commonly known by the name *lixivium*, generally prescribed against hysteric ills. Mr. Boerhaave informs us, that a decoction of the roots of this plant, with the addition of honey, is a powerful purgative, and is often used with success in dropsies, and other diseases of the viscera. It is also a strong purgative, and as such has been strongly recommended in pleuritic cases. It appears, however, by Neumann, not to be entirely safe. See the chemical history of this plant, in Dr. Lewis's edition of Neumann's Works, p. 551.

But as this is apt to be too rough in its operation, the several preparations of jalap, scammony, and ialtrack, are to be preferred to it's substance.

In the whole fresh, full of an acrid and resinous matter, and its dose is an ounce, to which the wine is the best menstruum, in a dram of the dried root, or half an ounce of the green, which is almost equivalent to it. Hoffman. Med. Rat. vol. i.

BRYTIA, among the *Roman Agronomi*, denotes the most solid part of grapes, which remain after expressing the juice.

BRYON. See *Hist.* xxxii, and *Ess.* XIV. *Essays*, p. 13. Ess. xxxiv. *Ess.*, a name given by some to the spleen. See THE SPLEEN.

BUBALUS, in *Zoology*, a name given by authors in the *Augustan* age of the Cyprians to any tender creature, common in that part of the world, and also following among their cattle whatever its Indian name, which is unknown at home.

BUBALUS, the *buffalo*, a species of wild bull, a species of the *bos taurus*, very common in many parts of Europe, and in the north of Germany and Tartary for the food of the poor of the female, of which the famous cheese, called *cop of cambrick*, is made. They are also commonly employed in the affairs of husbandry, and have for this purpose a gristle or bone run quite through their nostrils, and, by means of a rope of thong or leather, put through them, they are governed at pleasure; though if once to well tamed, they scarcely keep tormenting of their nostrils themselves. They were originally brought from India into Lombardy in the reign of king Agilulf, who reigned from 591 to 616.

The Indian *buffalo* is considerably larger than the common bull; his body also is thicker, and his horns very large, growing for a great length from their base, then bending inwards, not round, but compressed, with one side sharp, and of a black colour; the roughness of his hair, of which buff leather is made, is well known.

Besides this, there are other varieties of this species: as the *wild buffalo* of the East Indies, with brittly short hair, weak like stump and thicker quite here, the left marked with dusky stripes pointing downwards, the left with two transverse stripes; and with horns compressed sideways, taper, and sharp at the point. The *American buffalo*, or the *wild cow* of Canada, has horns very closely matted at the base, standing inwards and downwards, and turning outwards at their points; they are two feet round at the base, and two feet distant at the points, and two feet long; the head and shoulders are covered with long hairs of a dark colour; the body is naked behind, the shoulders high, and the flesh tastes like that of mutt. It leaves Canada the high roads to the savages, in the interior parts of North America; it is very fierce, but capable of being tamed, and will breed with the common kind. Its weight is from 1600 to 2000lb. See *Phil. Transactions*, p. 121. See BISON.

There is also the *water buffalo*, with horns sloping at their base, round and flat at the beginning, receding in the middle, almost meeting at the points, and spanning wide. This animal is larger than a cow-buck, but less than a bull; it is compact and well made, with flaming hair of a tawny brown; short legs, black nose, elevated shoulder, and tail terminated with long hair. Pennant.

BUBBLES, Bulles, in *Physic*, little round drops or globules of any fluid filled with air, and formed either at its surface, upon the addition of more of the fluid, or

raining; or in its subſtance, upon a vigorous inteſtine commotion of its parts.

Bubbles are dilatable, or compreſſible, i. e. they take up more or leſs room, as the included air is more or leſs heated, or more or leſs preſſed, from without: and are round, becauſe the included aura acts equably from within all round. Their coat, or cover, is formed of the minute particles of the fluid, retained either by the velocity of the air, or by the brisk attraction between theſe minute parts and the air. See COLOUR.

Theſe little *bubbles*, riſing up from fluids, or hanging on their ſurface, form the white ſcum at top; and theſe ſame *bubbles* form the ſteam, or vapour, flying up from liquors in boiling, &c. the manner of which ſee under BOILING, VAPOUR, &c.

BUBBLE, in *Commerce*, is a cant name given to a ſort of projects, for the raiſing of money on imaginary grounds; very frequent in the years 1720 and 1721.

The pretended deſign of theſe undertakings was, to raiſe a ſtock, for the retrieving, ſetting on foot, or carrying on, ſome promiſing and uſeful branch of trade, manufacture, machinery, or the like. In order to which, propoſals were given out, ſhewing the advantages of the deſign, and inviting perſons into it. The ſum neceſſary to carry on the affair, together with the profits expected from it, were divided into a certain number of ſhares, or ſubſcriptions, to be purchaſed by perſons diſpoſed to adventure therein. The real deſign, in ſome, was to raiſe a ſum for the private advantage of the projectors, to be laid out by them in the South-ſea ſtock, &c. in hopes, by the riſe thereof, to be able to refund the ſubſcribers money, with profit to themſelves. In others, the deſign was abſolutely to defraud the adventurers of their ſubſcription-money, without any view to reſtitution.

There was a third kind ſomewhat different: the projectors of theſe, to proceed the more ſecurely, propoſed to have books opened, and ſubſcriptions taken at ſome time to come; and in the mean time took money, by way of *premium*, to inviſle perſons to be admitted ſubſcribers, as ſoon as the ſtock ſhould be ripe for dividing into ſhares. Several thouſand ſhares were thus very frequently beſpoke in one day; and *premiums*, from one ſhilling, to ſome pounds, paid thereupon, to the profits of the projectors.

The number of *bubbles*, and their qualities, are very extraordinary; ſome of them, too, authorized by patents; and, in others, the projectors and their proprietors formed into corporations: ſome for fiſheries, ſome for inſurances, ſome for the digging of mines, &c.

BUBBLING *waters*. See WATER.

BUBO, in *Ornithology*. See OWL.

BUBO, in *Anatomy*, is ſometimes uſed to denote that part otherwiſe called INGUEN, or *groin*.

BUBO, in *Medicine* and *Surgery*, denotes a tumor, ſometimes inflammatory, and ſometimes ſcirrhous, gathering chiefly in the glands of the *inguen* or groin.

The word comes from the Greek βουβων, *inguen*; the uſual place of ſuch tumors.

There are two kinds of *buboes*, the one called *benign*, or mild, the other *malignant*. Mild *buboes* are thoſe which are preceded or attended with no manifeſt diſeaſe in the body, and they are eaſily cured by gentle medicines, externally applied, and an occaſional purge; or by encouraging ſuppuration, and proceeding as in a common abſceſs.—Malignant *buboes* are divided into *peſtilential* and *venereal*: the former ariſe in peſtilential fevers, &c. The latter are the product of impure embraces; and frequently the forerunner of the pox.—When a *bubo* is encompaſſed with a circle of ſeveral colours, it is a ſign it is peſtilential; and it is generally mortal.

By *buboes* in *peſtilential* caſes, the writers in phyſic not only expreſs ſuch tumors as ariſe under the arms, under the ears, and in the groin; but comprehend under this term thoſe alſo which are ſituated in the neck, breaſt, arms, legs, and other fleſhy parts of the body, which ſwell and inflame in *peſtilential* fevers, and ſeem the conſequences of the endeavours of nature to throw out the peſtiferous matter which lay concealed in the body.

Peſtilential buboes are diſtinguiſhed from other tumors by their happening at a time, and in conjunction with the plague, and from their being accompanied by the ſymptoms proper to that diſeaſe. Theſe tumors appear ſometimes ſooner, ſometimes later, in the courſe of the diſeaſe; in ſome they appear before the patient knows he has the infection, and in others two or three days after or before their appearance: they are very ſeldom known to appear later than on the fourth day, and are ſometimes joined with carbuncles; but though the *buboes* frequently appear without theſe, yet the carbuncles never appear without tumors.

Perſons who have theſe tumors come on without any very bad ſymptoms, and have them maturate ſpeedily, are in general the ſooneſt freed from the diſtemper, inſomuch, that the beſt method of giving relief in this terrible diſeaſe, conſiſts in the carefully promoting and keeping up the *buboes* and tumors. All diſcutient or diſperſing medicines are carefully to be avoided, and the phyſician's buſineſs is to aſſiſt nature in the throwing out, and moſt ſpeedily bringing theſe tumors to ſuppuration.

The patient is to be confined to his bed on the firſt appearance of theſe, and with the help of internal medicines proper to haſten the ſuppuration of tumors, the parts affected are to be rubbed pretty ſtrongly with the hands or cloths, and external, maturating, and emollient cataplaſms, to be applied; of this kind is that of yeaſt, ſalt, and muſtard-ſeed, all mixed together, or of yeaſt alone: by means of theſe the tenſe parts are relaxed and ſtimulated, and the ſuppuration greatly promoted; as alſo by the cataplaſms of roaſted onions, with Venice treacle and butter; or of crumb of bread, with milk and ſaffron. Plaſters are alſo very uſeful on ſome occaſions; in theſe caſes, as the frequent renewal of the cataplaſms expoſes the patient too much to the external air, and theſe are not attended with the inconvenience. The moſt famed plaſters on theſe occaſions are that of Barbet, made of the *diachylon*, with the gum and mucilage plaſter, of each half a pound; muſtard-ſeed in powder, three ounces; baſilicon, four ounces; all mixed and made into a plaſter: and that of Dr. Hodges, made of three ounces of *oxycroceum*, an ounce of *galbanum*, the ſame quantity of *gum ammoniac*, and two ounces of black pitch, reduced to the conſiſtence of a plaſter.

This may be uſed like the former; nor is that plaſter to be eſteemed a trifle, which is made of honey, flour, and the yolks of eggs.

In ſome caſes of this terrible diſtemper, the tumor comes to ſuppuration in a few days; in others it is ſome weeks before it can be brought to it, by all that can be done. When thoroughly ſuppurated, it is to be opened with the ſcalpel, if it does not break of itſelf; and after this opening, when the matter has been diſcharged, it muſt be well cleanſed. The beſt digeſtive in this caſe is the common ointment uſed on that occaſion, mixed with a ſmall quantity of Venice treacle, and balſam of ſulphur made with oil of turpentine. At each dreſſing the matter is to be gently ſqueezed out of the abſceſs, and the ointment applied without tents, unleſs the opening prove very narrow; then applying over all a plaſter of the common diachylon, or of honey and flour, the whole may be bound on, and this dreſſing continued till it is a proper time to heal with ſome vulnerary balſam.

There has been much diſpute between the phyſicians of different ages about the proper time for opening *bubos* of this kind; ſome have been for making an immediate inciſion, and others even for extirpating the whole ſwelling, as ſoon as it appeared, by means of the knife; but the firſt of theſe methods has been found to be frequently attended with the ill conſequences of ill conditioned fiſtulæ, ſtiffneſs, and loſs of motion in the limb, and ſometimes even with mortifications and gangrene; and the other too harſh and dangerous in many parts of the body: and the preſent practice univerſally diſallows both methods, being always for bringing the ſwelling to ſuppurate. Heiſter's Surg. p. 200.

The poiſon of the matter of theſe ſores has been nicely and boldly inquired into, as to its nature and properties, by Dr. Aſpranus of Prague, in the time of the plague there in 1680. This gentleman having launced a *peſtilential* boil, collected the matter from it, and put it into a retort, luting the junctures with the receiver very cloſely and exactly, and applying by proper gradation the ſeveral degrees of fire; at firſt there came over a water, then a more fat and viſcid liquor, of an oily nature; and laſtly, there appeared in the neck of the retort, a ſalt. The fire being taken away, and the veſſels cooled, the doctor prepared himſelf for the opening of them by ſtopping his ears with cotton, his noſtrils with peſſaries, and his mouth with pieces of ſponge, all ſoaked in vinegar and Venice treacle. The moment the veſſels were opened, however, there proceeded out of them a ſtench more horrible than can be conceived, which ſtruck the doctor with an univerſal trembling, in ſpite of his defence. He proceeded, however, to break the neck of the retort, and ſeparating the fœtid ſalt from it, he ventured himſelf to taſte it, and declared Mr. Reiſel, the perſon from whom the matter was obtained, to do the ſame: it was found to have a moſt dreadfully piercing acrid taſte, which the doctor compares to that of *aqua regia*. Hence he infers, that the moſt terrible ſymptoms of this fatal diſeaſe are to be accounted for: the ſtomach, wounded by ſo acrid a juice as this mingled among the blood, nauſeates food, and is afflicted with continual vomitings; the guts, infeſted by the ſame unwelcome gueſt, are thrown into violent perturbations, whence ariſe thoſe diarrhœas which often accompany the patient to his death; and from the horribly acrid quality of this juice, it is no wonder that ſuch piercing pains are found

in the *buboes*, and such burnings in the carbuncles that attend this diſeaſe.

Hence, alſo, as he obſerves, it is, that ſudorifics are the beſt remedies, ſince they allay the acrimony, and tend to expel the venomous juices through the pores. In this ſickneſs a Pragve this gentleman obſerved, that almoſt all who ſweat plentifully recovered, whereas thoſe who did not ſweat, were moſtly taken off. Hooke's Philoſoph. Collect. N° ii. p. 18.

BUBOES, *venereal*, are tumors ariſing principally in the groin, after contracting the venereal diſeaſe, and they are ſometimes attended with the other ſymptoms of that diſorder, ſometimes they are themſelves the only ſymptoms of it. Theſe ariſe ſometimes ſooner, ſometimes later, after contracting the infection. The tumor firſt appears with hardneſs, redneſs, and pain, either in one or both the groins, and ſometimes in the arm-pits. Great care is to be taken to diſtinguiſh, in thoſe caſes, whether the *bubo* be of a benign kind, or be really from a venereal infection: for miſtakes of this matter are on both ſides very dangerous. If a benign *bubo* be miſtaken for a venereal one, the patient is uſually treated in too harſh a method, and has more trouble and pain than are neceſſary; and, on the other hand, if a venereal *bubo* be miſtaken for a benign one, he is uſually treated ſo improperly as to be brought into a confirmed lues.

The *buboes* are known to be venereal when they are the conſequences of impure embraces, or are accompanied with, or preceded, by gonorrhœas, chancres, and other ſymptoms of the venereal diſeaſe. When from theſe attendant ſymptoms, and from the patient's confeſſion, the *bubo* is found to be venereal, a cure is immediately to be ſet about; for though there is no great difficulty or danger in theſe caſes when taken in time, yet there are few in which delays are of worſe conſequence; for, from theſe, from an irregular courſe of life, or from an improper method of treatment, the cure often becomes extremely difficult, and the patient too frequently gets into a confirmed lues.

It is much diſputed whether the cure of theſe tumors by diſcuſſion be ſafe; many are of opinion, it is by no means to be allowed in theſe any more than in peſtilential *buboes*, ſince in both caſes, by that means, the poiſon is driven back into the blood. But the caſe is not parallel, and the truth is, that in theſe tumors the cure by ſuppuration is ſlow, tedious, and attended with many inconveniences, and that much better effects may be produced, and with the greateſt ſafety, by purging and mercurial medicines, with the decoctions of the woods, and other purifiers and ſweeteners of the blood.

The beſt method, whether the *bubo* be attended with a gonorrhœa or not, is to purge frequently, and give proper doſes of calomel; for *buboes* can never be ſafely cured till the body is perfectly freed from the venereal venom; and, by this means, if there be a gonorrhœa in the caſe alſo, that is cured at the ſame time. When there is a great inflammation, and the patient is of a robuſt plethoric habit, it is always neceſſary to bleed: while this method is followed, diſcutient plaſters ſhould be applied externally to the tumor, as the mercurial plaſter or the like, and the patient ſhould be kept to a regular courſe of life, and a proper diet. By this method, venereal *buboes*, which are not become inveterate, may be cured with great eaſe and ſafety.

But if the ſurgeon be called in too late, if the *bubo* will not give way to theſe methods; or if, for any other reaſon, he determines to bring it to ſuppuration, the maturation is in this caſe to be promoted as faſt as poſſible; and one great method to bring on ſuppuration with ſpeed, is to order the part to be rubbed ſtrongly, and for a conſiderable time, either with the fingers wetted with a little oil, or with linen rags, till it look very red and inflamed: and this is to be often repeated, applying after each time a plaſter of diachylon, with the gums, or ſome other of the maturating kind. While the patient is able to go abroad, violent exerciſes of all ſorts, as dancing and the like, are extremely proper, and do ſervice in haſtening a ſuppuration. When the pain will not ſuffer him to walk any longer, then it is proper to keep to the uſe of cataplaſms, inſtead of the plaſter: theſe are indeed ever much more ſerviceable to promote ſuppuration than plaſters, and the beſt on this occaſion are thoſe made of onions, roaſted under the aſhes, or of flour, honey, and yeaſt, or that of crumbs of bread boiled in milk, with the addition of a little ſaffron: theſe are to be applied warm to the parts, and frequently renewed: and it is always beſt to rub the parts, till they look very red, before the application of them. During the uſe of theſe external remedies, the patient ſhould be continually taking decoctions of the woods, and ſmall doſes of calomel: for theſe greatly attenuate the blood, drive it toward the ſkin, and correct the venereal venom. When theſe methods have brought the ſwelling to a perfect ſuppuration, the ſcalpel is to be taken in hand, to make the opening. Great caution is to be uſed in making the inciſion, not to hurt the larger blood-veſſels, which might occaſion very dangerous hæmorrhages. To avoid theſe miſchiefs, the protuberant part of the *bubo* is to be preſſed outward by the fingers, before the ſcalpel is introduced to make the inciſion. Great caution is alſo neceſſary as to the time of opening theſe tumors; for the doing this either too ſoon, or too late, are of very bad conſequence; the firſt brings on violent pains and inflammations, and other bad ſymptoms, and, by the latter, the venom has time given it to mix itſelf with the blood, and bring on a confirmed lues.

If the patient dreads the knife, the *bubo* may be opened with a cauſtic; and by whatever means it is done, it muſt be afterwards well cleanſed. The proper dreſſing on this occaſion is the common digeſtive ointment, with a ſmall quantity of Venice treacle, and a little red precipitate mixed in it; over this is to be applied a plaſter of diachylon, with the gums, or the like; by which means the lips of the *bubo* will be ſufficiently ſoftened: and when ſufficiently deterged in this manner, it may be healed by ſome vulnerary balſam applied on lint. It ſometimes happens, that the ulcerated *bubo* becomes ſo ſtubborn, that it will neither incarne nor cicatrize by the help of any medicines, but always diſcharges a copious quantity of matter. If, in this caſe, burnt alum and red precipitate prove of no ſervice, the actual cautery ought to be applied, and the lymphatics will by this means have their communications for ever cut off. Heiſter's Surg. p. 207.

BUBON, in *Botany*, *Macedonian* PARSLEY; a genus of the *pentandria digynia* claſs of plants. The characters are theſe: it hath an umbelliferous flower, and the ſmall umbels have twenty rays; the empalement of the flower is permanent; the flower is compoſed of five ſpear-ſhaped petals, which turn inward, and hath five ſtamina; the oval germen is ſituated below the flower, which afterward becomes an oval, channelled, hairy fruit, dividing in two parts, each having an oval ſeed, plain on one ſide, but convex on the other. There are four ſpecies. This plant in warm countries is biennial; but in England it ſeldom flowers until the third or fourth year: when the plant flowers it always dies. They make a pretty variety in the green-houſe.

The ſeeds of one ſpecies of this plant are ingredients in the mithridate and theriaca.

The *galbanum* of the ſhops is ſuppoſed to be procured from two other ſpecies indifferently; and upon breaking their leaves, the juice which flows from the wound hath a ſtrong odour of the *galbanum*, which is a confirmation of it.

BUBONIUM, in *Botany*, a name given by ſome authors to the *Aſter Atticus*, or golden STAR-*wort*.

BUBONIUS *lapis*, a figured ſtone, in ſhape reſembling an owl's head, of a flinty ſubſtance, black within, and cineritious without. It was thus denominated by Dr. Plot, having not been before named by naturaliſts. *Hiſt. Oxford*, chap. v. § 45.

BUBONOCELE, a tumor in the groin; occaſioned by the deſcent either of the *epiploon*, or the inteſtines, through the perforation of the *muſculus obliquus deſcendens*.

The word comes from the Greek βουβων, *inguen*, and κηλη, *tumor*.

The *bubonocele* is the ſame with what is otherwiſe alſo called *ramex* and HERNIA *inguinalis*.

It is a ſpecies of rupture; though ſurgeons call it an *incomplete* one; and is common to women, as well as men.

Some make two kinds of *bubonoceles*; the one owing to a deſcent of ſome of the *viſcera*, as the *omentum*, or inteſtines, ſtopping in the groin, and not falling ſo far as to the *ſcrotum*; the other a collection or ſtagnation of excrementitious humours in the inguinal glands; which latter is more properly called *bubo*, and differs little, except in ſeat, from the bronchocele.

BUBULCA, in *Ichthyology*, a ſmall freſh-water fiſh, called by ſome *bouvière* and *peteuſe*; it is ſmall, flat, and very ſhort, approaching to a round rather than a long ſhape, and of a fine ſilvery whiteneſs, ſeldom above two inches in length.

BUCA, in *Natural Hiſtory*, a name by which ſome authors call the *buccinum*.

BUCAO, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands to a ſpecies of *ſcreech* OWL, which is of the ſize of a peacock. It is very common in thoſe iſlands, but wholly unknown to us, and is a very beautiful bird, but makes a hideous noiſe in the nights.

BUCARDITES, or BUCARDIA, in *Natural Hiſtory*, a name given by many authors to a ſtone, in ſome degree reſembling the figure of an ox's heart. See *Tab* III. *of Foſſils, Claſs* 9.

It is uſually of the ſubſtance of the coarſer ſtones, and is

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no other than a quantity of the matter of ſuch ſtone received while moiſt into the cavity of a large cockle, and thence aſſuming the figure of the inſide of that ſhell, the depreſſion of the head of the cockle, where the *cardo* or hinge of this ſhell is, makes a long and large dent in the formed maſs, which gives it a heart-like ſhape. Plott mentions a *bucardites*, which he found at Stretſford in Staffordſhire, which weighed twenty pounds, though broken half away, curiouſly reticulated, with a white ſpar-coloured ſtone. Nat. Hiſt. Oxf. chap v. § 145.

BUCARDIUM, in *Natural Hiſtory*, a name given by authors to a kind of HEART-SHELL, reſembling an ox's heart in ſhape; it is of the *genus* of the *cardiformes*, or heart-ſhells, and differs from the other kinds, in being of a more globular figure.

The cabinets of the curious afford us ſeven *ſpecies* of this ſhell. 1. A yellow-furrowed one. 2. A grey ſpinoſe one. 3. A white-furrowed one. 4. A thicker narrow one. 5. The thick one, with a *cardo* ſeparated from the *apex*. 6. The thick kind, with the *cardo* at the *apex*; and, 7. The baſtard Noah's ark ſhell.

BUCCA FERREA, in *Botany*, a name given by Micheli to a genus of plants, called ſince by Linnæus RUPPIA.

BUCCÆ *muſculus*, in *Anatomy*, a name given by ſome to the muſcle more uſually called the *buccinator*, and *contrahens labiorum*.

BUCCALES *glandulæ* are ſmall glands diſperſed over the inner ſide of the cheeks and lips, which ſeparate a ſpittle, uſeful in maſtication and digeſtion.

Steno, and ſome other writers, confound the *buccal* with the maxillary glands; from which they are really diſtinct. Phil. Tranſ. N° 304. p. 6.

BUCCANEERS, or BUCANEERS, a term frequent in the Weſt Indies, properly uſed for a kind of ſavages who prepare their meat on a grate, or hurdle, made of Braſil-wood, placed in the ſmoke, at a good height from the fire, and called *buccan*.

Whence, alſo, the little lodges raiſed for the preparation of their food, are called *buccans*; and the action of dreſſing it *buccaning*.

Meat *buccaned*, is ſaid to have an excellent taſte, the vermil colour of a roſe, and a charming ſmell; all which it retains many months. Oexmelin, from whom we have this, adds, that the neighbouring people ſend their ſick hither; that by eating their *buccaned* meat, they may be recovered.

The origin of the word is referred to the people of the Caribbee iſlands, who uſed to cut their priſoners of war in pieces, and lay them on hurdles with fire underneath, which they call *buccaning*, i. e. roaſting and ſmoaking together: hence our *buccaneers* took both their name, and their cuſtom; with this difference, that what the former did to men, theſe did to animals caught in hunting.

The Spaniards, Savary tells us, call the *buccaneers* in their territories *matadores*, that is, *killers*; and *monteros*, that is, *hunters*: the Engliſh call theirs, *cow-killers*.

The *buccaneers* are of two diſtinct profeſſions: the one only hunt bulls, for their ſkins; the other beaſts, for their fleſh.

The art of *buccaning*, Oexmelin deſcribes thus: the beaſt being ſlain, and the bones ſtripped out, the fleſh is cut into pieces of the length of the arm, and ſalted, and the next day laid on the *buccan*; which conſiſts of twenty or thirty bars laid acroſs, half a foot from each other: under this they raiſe a thick ſmoke, adding the ſkin and bones of the beaſt to heighten it.

This is found vaſtly better than any ſimple fuel: becauſe the volatile ſalts of thoſe parts are by this means communicated to the fleſh, and give it ſuch a reliſh, as that, after a little of this *buccaning*, the niceſt palate will eat it without further preparation.

Buccaneers are uſually confounded with freebooters, from whom, in ſtrictneſs, they ought to be diſtinguiſhed. The ancient inhabitants of Hiſpaniola, and the other Caribbee iſlands, after their conqueſt by the Europeans, conſiſted of four ranks or orders of perſons, viz. *buccaneers*, or bull-hunters, who ſcoured the woods; *freebooters*, who ſcoured the ſeas as pirates; *huſbandmen*, who tilled the lands; and *ſlaves*. Of theſe, the two firſt diſtinguiſhed themſelves moſt by their military diſpoſition, and the ravages they made, eſpecially among the Spaniards.

The name is particularly given to the French inhabitants of the iſland of St. Domingo, whoſe ſole employment is to hunt bulls, or wild boars; in order to ſell the hides of the former, and the fleſh of the latter.

Sometimes the word *buccaneer* ſignifies alſo thoſe famous adventurers of all the nations in Europe, who joined together to make war againſt the Spaniards of America: and, under that name, their hiſtory has been publiſhed in the year 1686, by Alexander Oliver Oexmelin.

The *buccaneers* ſell their meat by the bundle or pack, weighing commonly ſixty pounds, at the rate of ſix pieces of eight per pack. The palmetto leaves ſerve to pack it up in, but their *weight* is deducted; ſo that there muſt be in each pack ſixty pounds of neat fleſh. Theſe *buccaneers* have alſo a great trade of the lard of boars, which they melt and gather in large pots, which they call *potchet*. This lard, which is called *mantegna*, is alſo ſold for about eight pieces of eight per pod.

There is a great conſumption and trade of each of theſe articles in the French ſettlements of the iſlands of St. Domingo, and in thoſe of Tortuga; beſide which they ſend great quantities of them to the Antilles, and even into the continent of French America. There is alſo a great deal of it ſold for the ſupport of the crews of the ſhips that come from France for trading, or which the privateers of Tortuga fit out, for cruiſing againſt the Spaniards.

BUCCELA, or BUCCELLA, in *Medicine*, a term uſed by ſome to expreſs a fragment of any thing, and others make it the name of what we uſually call a POLYPUS of the noſe.

BUCCELLARII, an order of ſoldiery under the Greek emperors, appointed to guard and diſtribute the ammunition-bread.

The word is formed from *buccellus*, a kind of loaf, or cake of a circular figure.

The *buccellarii* were alſo called, in reſpect of their country, *Galligraci*, or *Helenogalatæ*, q. d. Greeks of Galatia; ſometimes *Maryandini*.

Authors are much divided as to the office and quality of the *buccellarii*: ſome give the denomination to paraſites in the courts of princes and great men, maintained at their table and expence. In reality, among the Viſigoths, *buccellarius* was a general name for all clients, or vaſſals, who lived at the expence of their lords. Spelman rather ſuppoſes them to anſwer to what among us are called *retainers by military ſervice*. Others repreſent the *buccellarii* as ſtationary ſoldiers in the provinces, who, when the emperor commanded, marched before and behind him as his body guard. According to others, they were men whom the emperors employed in putting perſons to death ſecretly.

BUCCELLATIO, in *Surgery*, a word uſed by ſome chirurgical writers for the ſtopping the bleeding of an artery or vein, by applying lint to it.

BUCCELLATION, in *Ancient Phyſic*, the name of a medicine, in which *ſcammony* was the principal ingredient.

BUCCELLATUM, in *Ancient Military Writers*, denotes *camp-*BREAD or BISKET baked hard and dry, both for lightneſs and keeping.

The word is formed from *buccea*, or *buccella*, a *morſel*, or *mouthful of meat*.

Soldiers always carried with them enough for a fortnight, and ſometimes much longer, during the time that military diſcipline was kept up.

BUCCINA, an ancient military, or rather muſical inſtrument, uſed in war; eſpecially for proclaiming the watches of the night, and giving notice to the ſoldiery when they were to mount, and when to quit the guard.

The word comes from *bucca*, *mouth*, and *cano*, *I ſing*; becauſe played on by the mouth: others ſuppoſe it formed from *βυκανη*, or *βυκανη*, which ſignifies the ſame; formed from *βυς*, *bullock*, and *κανω*, *I ſing*; becauſe anciently made of bullocks horns: others from the Hebrew *buk*, a *trumpet*. Varro will have it to have been originally formed by *onomatopœia*, from *boa boa*, alluding to the ſound it gives. Others, with more probability, derive it from *buccinum*, the name of a ſhell-fiſh.

The *buccina* is uſually conſidered as a ſpecies of *tuba*, or trumpet; from which however, in propriety, it appears to have differed, not only in reſpect of figure, which in the *tuba* was ſtraight, and in the *buccina* recurve, or crooked, but in ſound; that of the *buccina* being ſharper, and audible to a greater diſtance than the trumpet-ſound.

The *buccina* approached neareſt to the *cornu*, or horn: originally the two ſeem to have been the ſame; though in after-times a difference aroſe; the name *buccinum* being reſtrained to the leſſer ſorts, and the *cornu* to the largers —Some alſo take the *buccina* to have been leſs crooked than the *cornu*, which made a full ſemicircle.

Varro aſſures, that the *buccinæ* were alſo called *cornua*, *horns*; becauſe originally made of the horns of cattle, as is ſtill done among ſome people. Servius intimates, that they were at firſt made of goats or rams horns; and accordingly, in Scripture, the like inſtruments uſed both in war, and in the temple, are called *rams horns*, *keren-jobbel*, and *ſopheroth haiiobelim*, or *buccinæ* of rams.

This inſtrument was in uſe among the Jews, to proclaim their feaſt-days, new moons, jubilees, ſabbatic years, and the like. At Lacedæmon, notice was given by the *buccina* when it was ſupper-time; and the like was done at Rome, when the grandees had a *buccina* blown both before they ſat down to table, and after.

The ſound of the *buccina* was called *buccinus*, or *bucinna*, and the muſician who played on it, *buccinator*.

BUCCINA also denotes the ſpace or extent to which the ſound of the *buccina* may be heard.

BUCCINA-*auris*, in *Middle Age Writers*, denotes the *tympanum* or *drum* of the ear.

BUCCINATOR, he that ſounds or winds the *buccina*.

Among the Romans there was a public ſlave, denominated *buccinator tuminum*, whoſe office was to attend the public crier.

BUCCINATOR, in *Anatomy*, a muſcle on each ſide the face common to the lips and cheeks; making the inner ſubſtance of the latter. Its fibres run from the *proceſſus coronæ* of the lower jaw to the angle of the mouth, and adhere to the upper part of the gums of both jaws: through its middle paſs the upper *ductus ſalivales*. By this is contracted the cavity of the mouth, and the meat thruſt forward to the teeth in maſtication.

It has its name from *buccina*, *trumpet*; becauſe, when ſwelled, it enlarges the cheeks, as in blowing a trumpet. —See *Tab. Anat. (Myol.) fig.* 1. *n.* 10.

BUCCINUM, in *Botany*, a name given by ſome authors to the LARK-SPUR. Ger. Emac. Ind. 2.

BUCCINUM is alſo uſed for the TRUMPET-*ſhell*. It is a diſtinct genus of the univalve and ſpiral *teſtacea*, in the Linnæan ſyſtem. See SHELLS.

BUCCO, in *Anatomy*, a name given by Riolanus, and ſome others to the muſcle more uſually called *buccinator*, and *contrahens labiorum*.

BUCCO, in *Ornithology*, a genus of birds of the order of *picæ*.

BUCCULA, in *Anatomy*, the fleſhy part under the chin.

Some extend the name farther to the whole lower part of the face, comprehending the under part of the lower lip, with the chin and the fleſhy part under it.

BUCCULA, in *Antiquity*, denotes the umbo of a ſhield, or the part prominent in the middle thereof.

It is thus called, becauſe uſually made in the form of a mouth or face, either of a man or ſome animal. The like figures were ſometimes alſo found on other parts of armour, eſpecially on the *lorica* and *thoracas*.

BUCENTAUR, the name of a large flate-veſſel, uſed by the Venetians in the ceremony of eſpouſing the ſea, performed each aſcenſion-day with much pomp.

The word comes from βουκενταυρος; compoſed of βου, a particle of augmentation, uſed to denote an enormous greatneſs, and κενταυρος, *centaur*. Juſtiniani adds two other etymologies: the firſt from *bis*, and *taurus*, or rather *centaurus*, the name of one of Æneas's veſſels in Virgil: the other from *bucentaurus*, for *ducentaurus*, a word forged to ſignify a veſſel capable of holding two hundred men.

P. Juſtiniani gives a very preciſe deſcription of the *bucentaur*; and adds, that its origin is carried up as high as the year of Chriſt 1311, though others trace it higher, to the year 1177, when the emperor Frederic Barbaroſſa came to Venice, to make peace with the republic and the pope: at which time the pope, in conſideration of the ſervices the ſtate had done him, in ſheltering him in their city, when he had been driven out of his own, granted them ſeveral privileges; and made a preſent to the doge of a gold ring, which is the origin of that yearly caſt by the doge, from the *bucentaur*, into the ſea.

It is on Aſcenſion-day, that the doge, being advanced in the *bucentaur* a little way into the gulph, throws a gold ring into the ſea, and ſays, "We marry thee, O ſea, in "token of that true and perpetual dominion which the "republic has over thee."

The archduchefs Maria Joſepha, married to the prince of Saxony, on the day of her entry into Dreſden, was received in a magnificent galley, finely tigged, and called a *bucentaur*, becauſe built after the model of that of Venice.

BUCEPHALON, in *Botany*. See TROPHIS.

BUCEPHALUS, *horſe-ſhoe*. See HORSE.

BUCEROS, in *Ornithology*, the name of a ſpecies of raven found in the Eaſt Indies, China, and Tartary. Its head, neck, rump, and tail, are of a gloſſy black, without the leaſt tinge of any other colour. It is of the bigneſs of a well grown pullet: its head is remarkably large, as is its beak, which has a conſiderable gibboſity towards the baſe, riſing above the reſt of the ſurface.

BUCEROS, forms a genus of birds, of the order of *picæ*, in the Linnæan ſyſtem. The beak is convex, and bent backwards; the upper chap of the beak is longer than the under; the noſtrils are near the baſe of the beak; the tongue is acute and ſhort, and the feet are formed for walking.

BUCHNERA, in *Botany*, the name of a genus of the *didynamia angioſpermia* claſs of plants, the characters of which are theſe: the *perianthium* is tubular, conſiſting of one leaf, divided into five ſegments at the edge, and remaining after the flower is fallen. The flower conſiſts of one petal, which forms a very long and capillary arched tube; its verge is plain and ſhort, and is divided lightly into five ſegments, which are ſmall at the baſe, and broader, and figured like a heart at the top. The ſtamina are four very ſhort filaments; the *antheræ* are oblong and obtuſe; the germen of the piſtil is oblong and oval; the ſtyle is very ſlender, and of the length of the tube; and the ſtigma is obtuſe. The fruit is a capſule of an oblong oval figure, pointed at the end, containing two cells, and opening at the top into two parts. The ſeeds are numerous, and of an angular figure. There are four ſpecies.

BUCIDA, in *Botany*, a genus of the *decandria monogynia* claſs of plants, the calyx of which is indented in five ſegments; it has no corolla; and the fruit is a ſingle ſeeded berry. There is only one ſpecies of this *genus*.

BUCK, a male horned beaſt of venery or chace, whoſe female is denominated a *doe*.

A *buck* the firſt year is called a *fawn*, the ſecond a *pricket*, the third a *ſorel*, the fourth a *ſore*, the fifth a *buck of the firſt head*, and the ſixth a *great buck*. See DEER and HUNTING.

BUCK is alſo applied to the males of the hare and rabbit kind. Hares commonly go to *buck* in January, February, and March, and ſometimes all the warm months; ſometimes they ſeek the *buck* ſeven or eight miles from the place where they ſit.

The *buck* rabbit is ſaid to kill all the young he can come at; on which account the doe is careful to hide her offſpring in ſome remote corner, out of his way.

The doe coney goes to *buck* as ſoon as ſhe has kindled. She cannot ſuckle her young till ſhe has been with the *buck*. When he has bucked, he uſually falls backward, and lies as in a trance half dead, at which time he is eaſily taken.

BUCK-*maſt*, is uſed by ſome for the maſt or fruit of the beech-tree.

BUCK-*bean*. See TRIFOLIUM *paluſtre*.

This plant, though mentioned by ſeveral writers before Simon Pauli, yet was firſt recommended by him in ſcorbutic caſes. He ſays it is more ſubtle and penetrating than *naſturtium*, or creſſes.

It ſeems at preſent to be coming into great repute in many chronical diſtempers; and frequently preſcribed among the apothecaries.

Many have got it into uſe in their families in the form of tea, and experience its conſtant uſe to be very effectual againſt ſcrophulas, the king's evil, and obſtinate ſcorbutic diſtempers. Its taſte, at firſt, is not very grateful, but time wears off that diſlike; its uſe in ſhop compoſitions is not yet known.

Buck-bean ſerves in Hampſhire to a very remarkable uſe; the brewers uſing it in their beer in the place of *hops*. It is a good preſerver of the drink, and is a bitter of as agreeable a flavour: it has this advantage alſo, that one eighth part of the quantity is ſufficient; it is a very harmleſs plant, and is given by many as an antiſcorbutic, and by ſome in rheumatiſms, and other chronic caſes. It might be extremely worth while to try this practice in other parts, as the plant might be eaſily cultivated in any quantity, and with this advantage, that it will grow on the worſt kind of boggy land, which will produce nothing elſe.

BUCK-*ſhins*. See SKINS.

BUCK-*ſtall*, in our *Ancient Law-books*, a toil wherein to take deer.

By an ancient ſtatute, no perſon is allowed to keep a *buck-ſtall*, who has not a pack of his own. Stat. 19 Hen. VII.

BUCKET, in *Hydraulics*, a kind of veſſel or recipient chiefly of uſe for the raiſing and conveyance of water from wells, and other places.

The word is formed from the French *baquet*, a *pail* or *tub*.

In an army, *buckets* are carried with the artillery, in the fire-workers ſtores.

Town-*buckets*, for extinguiſhing fires, are made of thick leather, ſtrongly ſoaked and boiled.

One method of raiſing water, deſcribed by hydraulic writers, *is* by the means of a chain of *buckets*.

BUCKET, *ſea-gage*. See *Sea*-GAGE.

BUCKING, among *Miners*. See ORE.

BUCKING, an operation performed on linen cloth and yarn, to render them ſomewhat white, by working them with ley made of aſhes.

Bucking of cloth is the firſt ſtep or degree of whitening it. See BLEACHING.

To drive a buck of yarn, they firſt cover the bottom of the *bucking tub* with fine aſhes of the aſh-tree, then ſpread the yarn thereon, then cover it again with the aſhes, and thus *ſtratum ſuper ſtratum*, till the yarn is all in: when they cover the whole with a *bucking-cloth*, and lay on it more aſhes, and pour in warm water, till the tub be full, and let it ſtand all night. Next morning they let the ley run into another veſſel, and, as it waſtes, fill up the tub with warm water from a kettle, and, as this waſtes, fill it up with the ley that runs from the *bucking-tub*; ſtill obſerving

ferving to make the ley hotter and hotter, till it boils. Thus are both the tub and kettle to be fupplied for at leaſt four hours, which is called *driving a buck of yarn*.

BUCKLE, in *Mechanics of Trade*, a little metalline machine, whereby to retain and keep faſt certain parts of the habit, as well as of the harneſs of horſes, &c.

The word is formed from the French *boucle*, and that, according to Caſſeneuve, from the barbarous Latin *pinſtula*, which ſignified the ſame. According to Menage, from *bucula*, the *oſſa*, or handle, of a buckler.

The *buckle* is a part of modern dreſs, correſponding to the *fibula*, among the antients.

Buckles are of divers forts, as ſhoe and garter *buckles*; ſome round, others ſquare, or oval, or cut, each of which have their reſpective artificers by whom they are made.

The like may be ſaid of the great variety of *buckles* belonging to the pack and hackney-ſaddles.

BUCKLE, *girth*, among *Saddlers*, is a four ſquare hood, with a tongue, which is made ſteady, by going through a hole or leather, and faſtened with narrow thongs.

BUCKLER, a piece of defenſive armour, uſed by the antients to ſkreen their bodies from the blows of their enemies.

The word comes from the barbarous Latin *buccularium*; of *buccula*, the umbo or middle point of this weapon, which had uſually a head, or mouth, repreſented prominent thereon.

The *buckler* of Achilles is deſcribed in Homer, that of Æneas, in Virgil, that of Hercules, in Heſiod: Ajax's *buckler* was lined with ſeven bulls hides.

The *buckler* is the ſame with what we otherwiſe call ſhield or target; and by the one or the other we indifferently render what among the ancients were denominated *clypeus*, *ſcutum*, and *parma*; though the three latter were different from each other. Phil. Tranſ. N° 241. p. 206.

The ancients were particularly ſolicitous to preſerve their *bucklers* in fight: it being highly infamous, and even penal, to return without them: it was on their *bucklers* that they carried off the bodies of their ſlain, eſpecially thoſe of diſtinction. Potter. Arch. lib. iii. cap. 4. & 13.

The Spaniards ſtill retain the *ſword* and *buckler* in their night-walks.

Buckler, on medals, are either uſed to ſignify public *vows*, rendered to the gods for the ſafety of a prince; or that he is eſteemed the defender and protector of his people. Theſe were particularly called *votive bucklers*, and were hung at altars, &c.

BUCKLER *muſtard*, in *Botany*. See MUSTARD.

BUCKLER *of a caſk*, denotes a moveable head, whereby to compreſs the contents of it.

In this ſenſe we ſay, a *buckler* of PILCHARDS.

BUCKRAM, a thick ſort of linen or hempen cloth, ſtiffened with gum, chiefly uſed in the linings of cloaths, to ſuſtain and make them keep their form.

BUCKS-HORN. See PLANTAIN.

BUCKS-HORN *ceraſus*. See COCHLEARIA.

BUCKTHORN, *Rhamnus*, in *Botany*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: it hath male and female flowers on different plants, which have no empalements according to ſome, or petals, according to others. The cover of the ſexes is funnel-ſhaped, cut into four parts at the top, which ſpread open; the male flowers have four ſtamina of the length of the tube, terminated by ſmall ſummits; the female flowers have a roundiſh germen, ſupporting a ſhort ſtyle, crowned by a quadrifid ſtigma; the germen afterward becomes a roundiſh berry, incloſing four hard ſeeds. There are nineteen ſpecies of the *rhamnus*.

The berries of *buckthorn* are larger than elder-berries, round and black, yielding a bitter purple juice, tinged with green, and holding three or four cornered ſeeds.

The tree grows in woods and hedges, having its branches ſet with long ſtiff thorns.

The ſyrup is the only preparation of thoſe berries now in phyſical uſe. See *Buck*-THORN.

It is a ſtrong purgative, and effectual in evacuating watery and flatulent humours; on which account it is eſteemed in dropſies, rheumatiſms, and even the gout.

Of *buckthorn* berries are made three ſeveral ſorts of colours; being gathered green, and kept dry, they are called *ſap-berries*; which being ſteeped in alum-water, give a fair yellow colour, uſed by painters, book-binders, and leather-dreſſers; who alſo make a green colour, called SAP-*green*, taken from the berries when they are black. Theſe being broiſed, and put into a braſs kettle, and three ſuffered to remain for three or four days, with ſome beaten alum put to them, are afterwards preſſed, and the liquor uſually put into bladders, and hung up till it be dry: this is afterwards diſſolved in water or wine, but Canary is the beſt, to preſerve the colour from ſtarving. The third is of a purpliſh colour, made of the berries ſuffered to grow upon the buſhes till the middle or end of November, when they are ready to fall of themſelves. Vide Boyle, Phil. Works abr. vol. ii. p. 76. 77.

BUCKTHORN, *ſea*, in *Botany*. See SEA *Buckthorn*.

BUCK-WHEAT. See WHEAT.

BUCOLICA, is uſed by ſome for the art of managing, feeding, and breeding cattle.

BUCOLICS, *Paſtorals*; a kind of poems relating to ſhepherds, and their flocks.

The word is derived from *βοῦς*, and *κώμη*, *cibus*, *cauſa*; hence *βουκόλος*, *a feed cattle*; and *βουκολικὸς*, *bubulcus*, *a huſbman*.

Bucolic poetry is the moſt ancient of all the kinds of poetry; and is ſuppoſed to have had its origin in Sicily, amidſt the mirth and diverſion of the ſhepherds; and to have been inſpired by love and idleneſs: by degrees, their rural gallantries were brought under rules, and became an art. The concerns of the flocks, the beauties of nature, and the pleaſures of a country life, were their principal ſubjects. Moſchus, Bion, and Theocritus, were the moſt agreeable among the ancient *bucolic* poets.

Fontenelle obſerves, that Theocritus's ſtyle is ſometimes a little too *bucolic*. Some authors attribute the invention of *bucolic poetry* to a ſhepherd called *Daphnis*; and others to *Boſcilus*, ſon of Laomedon: but this appears all fiction.

Some aſcribe the invention of *bucolic poetry* to the herdſmen of Laconia, who, not being able to hold the cuſtomary feaſt of virgins in honour of Diana Caryatis, by reaſon of the war with Xerxes, inſtituted *Bouphoneia*, or *bucolic* exerciſes, in lieu thereof.

Hence alſo the origin of a ſort of poetical champions, called *Bouphonai*, by the Latins *ludiones*, who went about the country contending for the prizes frequently propoſed for the conquerors in this kind of combat. Of which rank Daphnis was the moſt diſtinguiſhed. They not only rehearſed their verſes, but played on a kind of *fiſtula*, or pipe, called *ſyrinx*. Scal. Poet. lib. i. cap. 4. Pott. Arch. lib. ii. cap. 20. Hiſt. Acad. Inſcr. tom. iii. p. 123, & 131, &c.

Bucolic poetry is by ſome called *aſtrobic*, as being ſuppoſed to have firſt commenced among the ancient herdſmen in riding a ſort of waggons called *aſtrabes*.

It is uſually divided into *monoproſopium*, wherein only a ſingle perſon ſpeaks, and *amœbæum*, or dialogue, wherein are ſeveral interlocutors.

Theocritus's IDYLLIA, and Virgil's ECLOGUES, are the chief of the ancient *bucolics* now extant.

BUCTON, a word uſed by Severinus, and ſome others, as a name for that part of the *pudendum muliebre*, commonly called the HYMEN.

BUD primarily denotes that part of a SEED which firſt begins to ſprout or germinate.

In which ſenſe, *bud* amounts to the ſame with germ, *germen*, gem, or *gemma*.

In moſt ſeeds is found a true *bud*, conſiſting of perfect leaves, only differing in bigneſs from thoſe which grow on the ſtalk. In many ſeeds this *bud* is very apparent, in others it lies ſo deep between the lobes, as to be almoſt indiſcernible. In ſome plants the leaves of the *buds* are but two, in others four, in others ſix, and in ſome more.

BUD is alſo uſed to denote the beginning of a bloſſom, or young ſprout, whether of a branch, foliage, or flower.

The *buds* of flowers and fruits are formed at the ſame time as the branches themſelves on which they ariſe. Mem. Acad. Scienc. ann. 1711. p. 59. ſeq.

The *bud* of a branch has its origin from the inner part of the ligneous body next the pith; by which it differs from a thorn, which has its origin from the outer and leſs fruitful part, and ſo produces no leaves, being as it were only the male of a *bud*.

Every *bud*, beſides its proper leaves, wherein it is couched or folded up, is covered with divers leafy pannicles or furfoils, which ſerve as a defence to the leaves themſelves. Grew. Anat. Veget. lib. i. cap. 4. lib. iv. cap. 1. § 2. & cap. 5. § 3.

The *buds* or knots on branches ariſe from the inmoſt part of the branches, the ſtructure of the ligneous fibres and little bladders of the branch being ranged ſo nicely in this form, that, upon the putting out of the branch, the *bud*, which is compoſed of the ſame parts, may likewiſe ſhoot with it. Phil. Tranſ. N° 118. p. 404.

Leewenhoeck aſſures us, that in the *bud* of a currant-tree, even in winter, he could diſcover not only the ligneous part, but even the berries themſelves, appearing like ſmall grapes.

BUD is uſed in the country language for a weaned calf of the firſt year; ſo called, becauſe the horns are then in the *bud*.

BUDDING, in *Gardening*. See ENGRAFTING.

BUDDLE, in *Mineralogy*, a name given by the Engliſh, dreſſers of the ores of metals, to a ſort of frame made to receive the ore after its firſt ſeparation from its groſſeſt foulneſs.

The ore is firſt beaten to powder in wooden troughs, through which there runs a continual ſtream of water, which carries away ſuch of it as is fine enough to paſs a grating, which is placed at one end of the trough; this falls into a long ſquare receiver of wood, called the *launder*: the heavieſt and pureſt of the ore falling at the head of the launder, is taken out ſeparately, and requires little more care or trouble; but the other part, which ſpreads over the middle and lower end of the launder, is thrown into the *buddle*, which is a long ſquare frame of boards, about four feet deep, ſix long, and three wide; in this there ſtands a man bare-footed, with a trampling ſhovel in his hand, to caſt up the ore about an inch thick, upon a ſquare board placed before him as high as his middle; this is termed the *buddle-head*; and the man dexterouſly, with one edge of his ſhovel, cuts and divides it longwiſe, in reſpect of himſelf, about half an inch aſunder, in theſe little cuts; the water coming gently from the edge of an upper plain board, carries away the filth and lighter part of the prepared ore firſt, and then the metalline part immediately after; all falling down in the *buddle*, where, with his bare feet, he ſtrokes it and ſmooths it, that the water and other heterogeneous matter may the ſooner paſs off from it.

When the *buddle* by this means grows full, the ore is taken out; that at the head part, being the fineſt and pureſt, is taken out ſeparate from the reſt, as from the launder. The reſt is again trampled in the ſame *buddle*; but the head, or as it is called, the forehead, of this *buddle*, and of the launder, are mixed together, and carried to another *buddle*, and trampled as at firſt. The forehead of this laſt *buddle*, that is, that part of the ore which has fallen at the head, is carried to what they call a drawing *buddle*, whoſe difference from the reſt is only this, that it has no eye, but only a plain ſloping board, on which it is once more waſhed with the trampling ſhovel. The ore, when it is taken from this, is called black tin, and this is found to be compleately ready for the blowing-houſe. Phil. Tranſ. N° 69. See *Dreſſing of* ORE.

BUDDLING *of calamine*, denotes the operation of cleanſing it from filth, by waſhing and picking it, preparatory to the baking it in the oven. Phil. Tranſ. N° 198. p. 675. See CALAMINE.

BUDDLING-*diſh*, a ſmall, ſhallow veſſel, like the baſons of a pair of ſcales, for the waſhing of ores of metals by the hand.

BUDGE. See BOUCHE.

BUDGE-*barrels*, are ſmall barrels well hooped, with only one head, the other end having nailed on it a piece of leather, to draw together upon ſtrings, like a purſe.

Budge-barrels are uſed for carrying powder along with a gun or mortar: as being leſs dangerous, and alſo eaſier than whole barrels. They are alſo uſed upon batteries of mortars, for holding meal-powder.

BUDHURS, in *Ichthyology*, a name given by the Iriſh to a large ſpecies of TROUT, reſembling outwardly the red GILLAROO. See Phil. Tranſ. vol. lxiv. N° 14, and 15.

BUDDLEIA, in *Botany*, a genus of the *tetrandria monogynia* claſs of plants. Its characters are theſe: the flower is of one leaf, bell-ſhaped, and quadrifid; and hath four ſhort ſtamina, which are placed at the diviſions of the petal; the oblong germen is ſituated in the centre, which afterward becomes an oblong capſule, having two cells filled with ſmall ſeeds. There are two ſpecies, which grow naturally in gullies, or other low-ſheltered ſpots in the Weſt Indies; their branches being too tender to reſiſt the force of ſtrong winds, they are rarely ſeen in open ſituations.

BUDNÆANS, in *Eccleſiaſtical Hiſtory*, ſo called from the name of their leader, Simon Budnæus. They not only denied all kind of religious worſhip to Jeſus Chriſt, but aſſerted, that he was not begotten by any extraordinary act of divine power; being born, like other men, in a natural way. Budnæus was depoſed from his miniſterial functions in the year 1584, and publicly excommunicated, with all his diſciples; but afterwards abandoning his peculiar ſentiments, he was re-admitted to the communion of the ſocinian ſect. Cyrillus aſcribes the origin of the above opinion to Adam Neuſer. Moſh. Eccl. Hiſt. vol. iv. p. 109.

BUDUN is the name of one of the Ceyloneſe gods: he is ſuppoſed to have arrived at ſupremacy, after ſucceſſive tranſmigration from the loweſt ſtate of an inſect, through the various ſpecies of living animals. There have been three deities of this name, each of which is ſuppoſed to reign as long as a bird removes a hill of ſand, half a mile high, and ſix miles round, by a ſingle grain in a thouſand years. See SAKRADAWENDRA.

BUFETAGE, *bufetagium*; or *bufetaria*, a duty paid to the lord for the drinking, or rather ſelling, of wine in taverns.

The word is formed from *buvetage*, or *buvetarie*, of the French *boire, to drink*. Du-Cange Gloſſ. Lat. tom. i.

BUFF, in *Commerce*, a ſort of leather prepared from the ſkin of the buffalo, or BUBALUS.

The ſkin of the buffalo being dreſſed in oil, after the manner of ſhammy, or chamois, makes what we call *buff-ſkins*; anciently much uſed among the military men for a kind of coats or doublets; and ſtill retained by ſome of our grenadiers, as well as the French *gens d'armes*, on account of its exceeding thickneſs and firmneſs. It is alſo uſed for waiſte-belts, pouches, &c.

Buff-ſkins, or *buff-leather*, makes a very conſiderable article in the Engliſh, French, and Dutch commerce, at Conſtantinople, Smyrna, and along the coaſt of Africa.

The ſkins of elks, oxen, and other like animals, when dreſſed in oil, and prepared after the ſame manner as that of the buffalo, are likewiſe denominated *buff*, and uſed for the ſame purpoſes.—In France there are a good number of conſiderable manufactories employed in the preparation of ſuch ſkins; particularly at Corbeil, Paris, and Rouen: their firſt eſtabliſhment is owing to the Sieur Jabar, a native of Cologne. The manner of preparation ſee under SHAMMY.

The ſkin of the American mooſe deer, when well dreſſed, makes excellent *buff*. The Indians make their ſnow-ſhoes of them. Their way of dreſſing it, which is reckoned very good, is thus: after they have haired and grained the hide, they make a lather of the mooſe's brains in warm water, and, after they have ſoaked the hide for ſome time, they ſtretch and ſupple it. Phil. Tranſ. N° 368.

BUFF, in *Medicine*, is uſed to ſignify that fizy, viſcid, tough mafs, which forms on the upper ſurface of the blood; it is what phyſicians call the *coagulable lymph*, which Dr. Fordyce in his very excellent Elements of the Practice of Phyſic, ſays, is not ſo eaſily coagulable when the arteries of the perſon from whom the blood is drawn, act more ſtrongly than they uſually do. See BLOOD.

BUFFET. See BEAUFET.

BUFFALO, *Bubalus*, in *Zoology*. See BUBALUS.

BUFFOON, a droll, or mimic, who diverts the public by his pleaſantries and follies.

Menage, after Salmaſius derives the word from *boſſa*; a name given to thoſe who appeared on the Roman theatre with their cheeks blown up; that, receiving blows thereon, they might make the greater noiſe, and ſet the people a-laughing. Others, as Rhodiginus, makes the origin of *buffoonery* more venerable; deriving it from a feaſt inſtituted in Attica, by K. Erictheus, called BUPHONIA.

Buffoons are the ſame with what we otherwiſe find denominated *ſcurræ, geloſiani, mimiſegi, mimiſtelli, gottoli, jocuatores*, &c. whoſe chief ſcene is laid at the tables of great men.

Gallienus never ſat down to meat without a ſecond table of *buffoons* by him; Tillemont alſo renders PANTOMIMES by *buffoons*. In which ſenſe he obſerves, the ſhews of the *buffoons* were taken away by Domitian, reſtored by Nerva, and finally aboliſhed by Trajan. Hiſt. des Emper. tom. ii. p. 144.

BUFO, in *Zoology*, the name by which many authors call the common TOAD, denominated by others RUBETA.

BUFONIA, in *Botany*, a genus of the *tetragynia digynia* claſs of plants. The calyx of which is a permanent *perianthium*, conſiſting of four erect, ſubulated, carinated leaves; the corolla conſiſts of four oval, linear, entire, erect, equal petals, ſhorter than the cup; the fruit is an oval compreſſed capſule, conſiſting of two valves, and containing one cell, in which are two oval compreſſed ſeeds. There is one ſpecies.

BUFONITA, in *Natural Hiſtory*, the TOAD-*ſtone*. This is a foſſil that has been received not only among the liſt of native ſtones by the generality of authors, but even has held a place among the gems, and is ſtill worn in rings by ſome people: it is, however, as much an extraneous foſſil, as any animal remaining of that kind. There has been a ſtrong opinion in the world, that it was found in the head of an old toad; and that this animal voided it at the mouth, on being put on a red cloth. See *Tab. Foſſils, Claſs* 8.

The general colour of the *bufonitæ* is a deep, duſky brown; but it varies greatly in this reſpect in ſeveral ſpecimens, ſome of which are quite black, others of an extremely pale, ſimple brown, a cheſnut colour, liver colour, black, grey, or whiteſh.

The *bufonitæ* are uſually found immerſed in beds of ſtone; and ſo little doubt is there of what they have originally been, viz. the petrified teeth of the *lupus piſcis*, or wolf-fiſh, that part of the jaw of the fiſh has ſometimes been

been found, with the teeth petrified in it. See Gronovius.

The *bufonite* are faid to be cordial and aſtringent: many other fanciful virtues are aſcribed to them, which the preſent practice has rejected.

Dr. Kramer ſays, *pannus bufonum*, when applied by way of poultice, with barley-flour and urine, is an excellent remedy for ripening *peſtilential* buboes, but that it has no ſuch effect in *venereal*, or any other than *peſtilential* buboes.

BUG, in *Zoology*. See Chermes, and Cimex.

BUGA *marble*, in *Natural Hiſtory*, a name given by the Spaniards to a ſpecies of black marble, called by our artificers the Namur-marble, and known among the ancient Romans by the name of *marmor Luculleum*. It is common in many parts of Europe, and is uſed by the Spaniards in medicine as well as in building; the powder of it being faid to be an excellent ſtyptic, applied to freſh wounds.

BUGEE, in *Zoology*, a ſpecies of monkey, which we ſee ſometimes brought over for a ſhew. It is an Indian animal, and a very rare one even there. It is about the ſize of a beaver, and much of the ſame colour, but its tail and claws wholly of the monkey-kind.

BUGELUGEY, in *Zoology*, the name of a large ſpecies of lizard, called by Cluſius, and ſome other authors, by the indeterminate name of *Lacertus Indicus*. It grows to four feet long, and will then meaſure nine inches round; the tail is very long, and ends in an extremely ſlender point.

BUGG-*caterpillar*, in *Natural Hiſtory*, a name given by Mr. Bonnet to a ſmall ſpecies of caterpillar, which ſmells exactly like a bug. This is not the only ſpecies which yields a ſenſible ſmell, for there is one of the middle-ſized ſmooth kinds, which, at the time of the change into the chryſalis ſtate, yields a very pleaſant roſe-like ſcent; and their caſes, which are made of earth and ſilk, retain that ſmell for a long time together, even for ſeveral years. There is another, which ſmells ſtrongly of muſk. Phil. Tranſ. N° 469.

BUGGERS, *Bulgarii*, anciently ſignified a kind of heretics, otherwiſe called *Paterini*, *Cathari*, and *Albigenſes*.

The word is formed of the French *Bougres*, which ſignified the ſame, and that from *Bougria*, or *Bulgaria*, the country where they chiefly appeared.

The *Buggers* are mentioned by Matthew Paris, in the reign of Henry III. under the name of *Bugari*. *Circa dies autem illos involuit hæretica pravitas eorum qui vulgariter dicuntur* Paterini & Bugares, *de quorum erroribus multa tacere quam loqui*.

Bugger, or Buggerer, came afterwards to be uſed for a Sodomite; it being one of the imputations laid, right or wrong, on the Bulgarian heretics, that they taught, or at leaſt practiſed, this abominable crime. Caſen. Orig. p. 27. Menag. Orig. p. 112. Trev. Dict. Univ tom. i. p. 1249. voc. *Bougre*. Du-Cange, Gloſſ. Lat. tom. i. p. 637. voc. *Bulgari*.

Bugger, *Bulgarini*, is alſo a denomination given to uſurers, a vice to which the ſame heretics are ſaid to have been much addicted. Du-Cange, Gloſſ. Lat. tom. i. p. 637.

BUGGERY, in our laws, ſignifies the crime of ſodomy.

Sir Edward Coke defines *buggery*, *carnalis copula, contra naturam, & hoc per confuſionem ſpecierum* (viz. by a man's or woman's coupling with a brute beaſt) *vel ſeorſum*, by a man's having to do with a man, or a woman with a woman. Each of which is felony, without benefit of clergy. 25 Hen. VIII. cap. 6. and 5 Eliz. cap. 17. In ancient times, ſuch offenders were burnt by the common law. *Buggery* is uſually excepted out of a general pardon. The practice is ſaid to have been introduced into England by the Lombards; by whom it is uſually ſuppoſed to have been borrowed from the *Bugres*, or *Bulgarians*.

BUGLE, *Ajuga*, in *Botany*, a genus of the *didynamia gymnoſpermia* claſs. The characters are theſe: the flower is one leaf, of the lip kind, having an incurved cylindrical tube; the upper lip is very ſmall, erect, and bifid; the under lip is large, open, and divided into three ſegments. It hath four erect ſtamina, two of which are longer than the upper lip, and two ſhorter. In the centre are ſituated four *germina*, which afterward become four naked ſeeds incloſed in the empalement. There are five ſpecies.

Bugle is a noted vulnerary, much uſed in potions of that intention, and alſo in plaſters, eſpecially among the French, with whom it is a proverb, that the perſon who has *bugle* and ſanicle, has no occaſion for a ſurgeon.

It is uſed both internally and externally for all bruiſes, wounds, and contuſions; for ſores and ulcers, ſpitting of blood, and hæmorrhages from any part; alſo for the dyſentery, *fluor albus*, diſeaſes of the throat, and thruſhes in the mouth.

BUGLOSS, in *Botany*. For the characters, ſee Anchusa.

Bugloſs is uſually planted in gardens, and flowers in June and July. The leaves, flowers, and ſometimes the root are uſed.

The flowers of the common *bugloſs* ſtand recommended for the ſame virtues with thoſe of borrage; they are ſuppoſed to be cordials of the very firſt rank, and to be of great uſe in hypochondriac and melancholic caſes. But theſe virtues are not well warranted. Tournefort, Hiſt. Plant. p. 133.

Bugloss, *Viper's*, in *Botany*. See Viper's *Bugloſs*.

Bugloss, *ſmall wild*. See Asperugo.

BUGLOSSUS, in *Ichthyology*, a name uſed by many authors for the ſoul-fiſh.

BUILDING, a fabric, or place erected by art, of ſtone, or timber, either for ſhelter from the weather, or for ſecurity, magnificence, or devotion.

Building, *regular* is that whoſe plan is ſquare, its oppoſite ſides equal, and the parts diſpoſed with ſymmetry.

Building, *irregular*, is that, on the contrary, whoſe plan is not contained within equal or parallel lines, either by the nature of its ſituation, or the artifice of the *builder*; and whoſe parts have not any juſt relation to one another in the elevation.

Building, *inſulated*, is that which is not attached, joined, or contiguous to any other; but is encompaſſed with ſtreets, or ſome open ſquare, or the like; as St. Paul's, the Monument, &c.

A Building is ſaid to be *engaged*, when it is encompaſſed with others, and has no front towards any ſtreet or public place, nor any communication without, but by a back paſſage.

Building, *an interred*, or *ſunk*, is that whoſe *area* is below the adjacent ſtreet, court, or garden, &c. and whoſe loweſt courſes of ſtone are hidden.

Buildings are either public or private.

Buildings, *public*, according to Daviler, include thoſe belonging to religion, as temples, churches, hoſpitals, moſques, tombs, &c. thoſe erected for ſecurity, as walls, towers, baſtions, and other parts of fortification; thoſe ſerving for utility or convenience, as bridges, cauſeways, ports, aqueducts, courts, markets, bazars, caravanſeras; and laſtly, thoſe erected for magnificence, as triumphal arches, obeliſks, amphitheatres, porticos, &c. Phil. Tranſ. N° 200.

Buildings, *private*, thoſe intended for habitation, ſuitable to the ſtate and condition of perſons, as places, hotels, ſeats, convents, houſes of citizens, &c.

Buildings, *ruſtic* or *country*, are thoſe which compoſe farm-houſes, granges, menageries, mills, baſecourts, ſtables, &c.

Buildings, *hydraulic*, thoſe wherein are incloſed machines for the moving or raiſing of water, either for uſe or entertainment, as pumps, fountains, reſervoirs, cascades, &c.

Buildings, *marine*, thoſe wherein ſhips and other veſſels are made or preſerved; ſuch are arſenals, docks, ſtore-houſes, and the like.

Buildings, *ſubterraneous*, thoſe framed under ground, as labyrinths, grottos, caves, temples cut out of rocks, &c. Some take theſe to be of the greateſt antiquity, and to have given occaſion to the firſt erecting of ſuperterranean edifices: the primitive *buildings* ſeem rather to have been intended as ſhelter againſt the ſcorching heats of the climate and ſeaſons in Æthiopia, where the midday was ſcarce tolerable without ſome defence. Phil. Tranſ. N° 144. p. 344.

Building is alſo uſed for the art or act of conſtructing, or raiſing an edifice. In which ſenſe it comprehends, as well the expences, as the invention and execution of the deſign thereof.

In *building* there are three things chiefly in view, viz. convenience, firmneſs, and delight. To attain theſe ends, ſir Henry Wotton conſiders the whole ſubject under two heads, viz. the *ſeat* or *ſituation*, and the *work* or *ſtructure*.

Building, *for the ſituation of a*, either that of the whole is to be conſidered, or that of its parts. As to the *firſt*, regard is to be had to the quality, temperature, and ſalubrity of the air; the conveniency of water, fuel, carriage, &c. and the agreeableneſs of the proſpect.

For the *ſecond*, the chief rooms, ſtudies, libraries, &c. are to lie towards the eaſt; offices that require heat, as kitchens, diſtillatories, brew-houſes, &c. to the ſouth: thoſe that require a cool freſh air, as cellars, pantries, granaries, &c. to the north; as alſo galleries for painting, muſeums, &c. which require a ſteady light. He adds that the ancient Greeks and Romans generally ſituated the front of their houſes to the ſouth; but that the modern Italians vary from this rule. Indeed, in this matter, regard muſt ſtill be had to the country; each being obliged to provide againſt its reſpective inconveniences: ſo that a good parlour in Egypt might make a good cellar in England. The ſituation being fixed on, the next thing to be conſidered is the

BUILDING, *work, or ſtructure of the*, under which come firſt the *principal* parts, then the *acceſſories* or ornaments.—To the principals belong, firſt, the materials; then the form, or diſpoſition.

There are three ſorts of draughts or repreſentations of a *building* neceſſary to be made before the conſtruction be begun, viz. an ichnography or plan, an orthography or profile, and a ſcenography or perſpective. See ICHNOGRAPHY, ORTHOGRAPHY, and SCENOGRAPHY.

BUILDING, *the materials of a*, are either ſtone, as marble, free-ſtone, brick, for the walls, &c. or wood, as fir, cypreſs, cedar, for poſts and pillars of upright uſe; oak for beams, ſummers, and for joining and connexion.

BUILDING, *for the form or diſpoſition of a*, it muſt either be *ſimple* or *mixed*. The ſimple forms are either *circular* or *angular*: and the circular ones either *complete*, as juſt ſpheres; or deficient, as ovals.

The circular form is very commodious, of the greateſt capacity of any; ſtrong, durable beyond the reſt, and very beautiful: but then it is found of all others the moſt chargeable; much room is loſt in the bending of the walls, when it comes to be divided; beſides an ill diſtribution of light, except from the centre of the roof; on theſe conſiderations it was, that the ancients only uſed the circular form in temples and amphitheatres, which needed no compartition. Oval forms have the ſame inconveniences, without the ſame conveniences; being of leſs capacity.

As for angular figures, ſir Henry Wotton obſerves, that *building* neither loves many nor few angles; the triangle, v. gr. is condemned above all others, as wanting capacity and firmneſs; as alſo, becauſe it is incapable of being reſolved into any other regular figure in the inward partitions, beſides itſown. As for figures of five, ſix, ſeven, or more angles, they are fitter for fortifications than civil *buildings*. There is, indeed, a celebrated *building* of Vignola, at Caprarola, in form of a *pentagon*; but the architect had prodigious difficulties to encounter with, in diſpoſing the lights, and ſaving the vacuities. Such *buildings*, then, ſeem rather for curioſity than conveniency; and for this reaſon, rectangles are pitched on, as being a medium between the two extremes. But again, whether the rectangle is to be juſt a ſquare, or an oblong, is diſputed: ſir Henry Wotton prefers the latter, provided the length doth not exceed the breadth by above one third.

Mixed figures, partly circular, and partly angular, may be judged of, from the rules of the ſimple ones; only they have this particular defect, that they offend againſt uniformity. Indeed uniformity and variety may ſeem to be oppoſite to each other; but ſir Henry Wotton obſerves, that they may be reconciled; and for an inſtance, he mentions the ſtructure of the human body, where they both meet. Thus much for the firſt grand diviſion, viz. the whole of a *building*.

BUILDING, *the parts of a*, Baptiſta Alberti compriſes under five heads; viz. the *foundation*, *walls*, *apertures*, *compartition*, and *cover*.

For the foundation; to examine its firmneſs, Vitruvius orders the ground to be dug up; an apparent ſolidity not to be truſted to, unleſs the whole mould, cut through, be found ſolid: he does not indeed limit the depth of the digging; Palladio limits it to a ſixth part of the height of the *building*. This ſir Henry Wotton calls the *natural foundation*; whereon is to ſtand the ſubſtruction, or ground-work, to ſupport the walls, which he calls the *artificial foundation*: this then is to be its level; its loweſt edge, or row, of ſtone only, cloſe laid with mortar, and the broader the better; at the leaſt, twice as broad as the wall: laſtly, ſome add, that the materials below ſhould be laid juſt as they grew in the quarry; as ſuppoſing them to have the greateſt ſtrength in their natural poſture. De Lorme enforces this, by obſerving, that the breaking or yielding of a ſtone in this part, for the breadth of the back of a knife, will make a cleft of above half a foot in the fabric above. For palliſication, or piling the ground-plot, ſo much commended by Vitruvius, we ſay nothing; that being required only in a moiſt marſhy ground, which ſhould never be choſen: or, perhaps, are there any inſtances of this kind, where it was not neceſſity that drove them to it.

For the walls, they are either entire and continued, or interrupted; and the interruptions are either columns, or pilaſters. Entire, or continued walls, are variouſly diſtinguiſhed; by ſome, according to the quality of the materials, as they are either ſtone, brick, &c. others only conſider the poſition of the materials; as when they lie, or ſquare ſtones, are laid in their lengths, with ſides and heads together, or the points conjoined, like a net-work, &c.

The great laws of mutiny are, that the walls ſtand perpendicular to the ground-work; the right angle being the cauſe of all ſtability: that the maſſieſt and heavieſt materials be loweſt, as fitter to bear than be borne: that the work diminiſh in thickneſs, as it riſes: both for eaſe of weight, and expence: that certain courſes, or ledges of more ſtrength than the reſt, be interlaid like botes, to ſuſtain the fabric from total ruin, if the under parts chance to decay: and, laſtly, that the angles be firmly bound; theſe being the nerves of the whole fabric, and commonly fortified, by the Italians, on each ſide the corners, even in brick *buildings*, with ſquared ſtones; which add both beauty and ſtrength.

The intermiſſions, as before obſerved, are either columns, or pilaſters; whereof there are five orders, viz. *Tuſcan*, *Doric*, *Ionic*, *Corinthian*, *Compoſite*; each of which ſee diſtinctly conſidered under its reſpective head. See alſo COLUMN, ORDER, and PILASTER.

Columns, and pilaſters, are frequently, both for beauty and majeſty, formed arch-wiſe; the doctrine of which ſee under ARCH.

For the apertures; they are either doors, windows, ſtair-caſes, chimneys, or conduits for the ſuillage, &c. which ſee under their heads, DOOR, WINDOW, &c. Only, with regard to the laſt, it may be obſerved, that art ſhould imitate nature in theſe ignoble conveyances, and ſeparate them from ſight, where a running water is wanting, into the moſt remote, loweſt and thickeſt part of the foundation; with ſecret vents, paſſing up through the walls like tunnels to the open air; which the Italians all commend for the diſcharge of noiſome vapours. See SEWERS, &c.

For the compartition, or diſtribution of the ground-plot into apartments, &c. ſir H. Wotton lays down theſe preliminaries; that the architect never fix his fancy on a paper-draught, how exactly ſoever ſet off in perſpective; much leſs on a mere plan, without a model, or type of the whole ſtructure, and every part thereof, in paſteboard, or wood; that this model be an plain, and unadorned, as poſſible, to prevent the eye's being impoſed on; and that the bigger this model, the better.

In the compartition itſelf, there are two general views, viz. the *gracefulneſs*, and *uſefulneſs* of the diſtribution, for rooms of office, and entertainment; as fit as the capacity thereof, and the nature of the country, will allow. The gracefulneſs will conſiſt in a double analogy, or correſpondency; firſt, between the parts and the whole, whereby a large fabric ſhould have large partitions, entrances, doors, columns, and, in brief, all the members large: the ſecond, between the parts themſelves, with regard to length, breadth, and height. The ancients determined the length of their rooms, that were to be oblongs, by double their breadth; and the height by half their breadth, and length, added together. When the room was to be preciſely ſquare, they made the height half as much more as the breadth: which rules the moderns take occaſion to diſpenſe with; ſometimes ſquaring the breadth, and making the diagonal thereof the meaſure of the height; and ſometimes more. This deviation from the rules of the ancients is aſcribed to M. Angelo.

The ſecond conſideration in the compartition is, the uſefulneſs; which conſiſts in the having a ſufficient number of rooms of all kinds, with their proper communications, and without diſtraction. Here the chief difficulty will lie in the lights, and ſtair-caſes: the ancients were pretty eaſy on both theſe heads, having generally two cloiſtered open courts, one for the women's ſide, the other for the men: thus the reception of light into the body of the *building* was eaſy, which among us muſt be ſupplied, either by the open form of the *building*, or by graceful refuges or breaks, by terraſſing a ſtory in danger of darkneſs, and by abſcours, or ſky lights. For caſting the ſtair-caſes, it may be obſerved, that the Italians frequently diſtribute the kitchen, bake-houſe, buttery, &c. under ground, next above the foundation, and ſometimes level with the floor of the cellar, raiſing the firſt aſcent into the houſe fifteen feet or more: which, beſide the removing of annoyances out of the ſight, and gaining ſo much room above, does, by the elevation of the front, add a majeſty to the whole. Indeed, ſir H. Wotton obſerves, that, in England, the natural hoſpitality thereof will not allow the buttery to be ſo far out of ſight; beſides, that a more luminous kitchen, and a ſhorter diſtance between that and the dining-room is required, than that compartition will well bear.

In the diſtribution of lodging rooms, it is a popular and ancient fault, eſpecially among the Italians, to caſt the partitions ſo, that when the doors are all open, a man may ſee through the whole houſe: this is grounded on the ambition of ſhewing a ſtranger all the furniture at once; an intolerable hardſhip on all the chambers, except the inmoſt, where none can arrive but through all the reſt, unleſs the walls be extremely thick for ſecret paſſages:

passages; nor will this answer the purpose, without at least three doors to each chamber; a thing inexcusable, except in hot countries, besides its being a weakening to the *building*.

In the compartition, the architect will have occasion for frequent shifts; though many of which his own sagacity, more than any rules, must conduct him.

For the covering of the *building*; this is the laſt in the execution, but the firſt in the intention; for who would *build*, but to ſhelter? In the covering, or roof, there are two extremes to be avoided; the making of it too heavy, or too light: the firſt will preſs too much on the under-work; the latter has a more ſecret inconvenience; for the cover is not only a bare defence, but a bond, or ligature, to the whole *building*; and as ſuch requires a conſiderable weight. Indeed, of the two extremes, a ſtone top-heavy is the worſt. Care is likewiſe to be taken, that the preſſure be equal on each ſide; and Palladio wiſhes, that the whole burden might not be laid on the outward walls, but that the inner might likewiſe bear their ſhare.—The Italians are very curious in the proportion and gracefulneſs of the pentice or ſlopeneſs of the roof; dividing the whole breadth into nine parts, whereof two ſerve for the height of the higheſt top, or ridge, from the loweſt: but, in this point, regard muſt be had to the quality of the region; for, as Palladio inſinuates, thoſe climates which fear the falling of much ſnow, ought to have more inclining pentices than others.

Thus much for the principal eſſential parts of a *building*. For the *ornaments*, or *ornaments* they are derived from painting and ſculpture. As the chief things to be regarded in the firſt, are, that no room be too much, which will occaſion difficulty, except in galleries, or the like; that the beſt pieces be placed where there are the ſeveral lights; rooms with ſeveral windows are enemies to painters, nor can any pictures be ſeen in perfection, unleſs illuminated, like nature, with a ſingle light: thus in the diſpoſition regard be had to the poſture of the gueſts in viewing, which is the moſt natural for the poſture of the ſpectator; and that they be accommodated to the uſefulneſs of the room they are aſſigned in. For ſculpture, it muſt be obſerved, that it be not too abundant, eſpecially at the firſt approach of a *building*, or at the entrance, where a Doric ornament is much preferable to a Corinthian one: that the niches, if they contain figures of white ſtone, be not coloured in their concaviſy too black, but rather duſky; the light being diſpoſed with no ſudden departures from one extreme to another: that fine ſculptures have the advantage of nearneſs, and coarſer of diſtance.

As to the ſtone and bricks uſed in *buildings*, which are fleſh and white as firſt, and are commonly ſuppoſed to be diſcoloured with the air, moiſture, ſmoke, &c. the true cauſe thereof is, that they become covered with a minute ſpecies of plants, which alter their colour. A ſort of lichens, yelloweſh, brownish, or greeniſh, which commonly grow on the barks of trees, do grow alſo on ſtones, mortar, pliaiſter, and even on the faces of bricks, being propagated by little light ſeeds, diſperſed by the wind, rain, &c. The beſt preſervative known, is lime.

BUILDING, *to judge of a*, Sir H. Wotton has laid down the following rules. That before being any judgment, a perſon be informed of its age; ſince if apparent decays be found to exceed the proportion of time, it may be concluded, without further inquiſition, either that the ſituation is bad, or the materials or workmanſhip to be blamed. If it be found to look well, be from near hand, from the ornaments and things which ſtrike the eye firſt, to the more eſſential members; and to be able to form a concluſion that the work is commodious, firm, and delightful: the three conditions, in a good *building*, laid down at firſt, and agreed on by all authors.

That our window admits the beſt kind of lighting. Whether proper ſhades have been given to the ſeveral rooms; the beſt diſpoſition of which is, to have the light in the middle of a well-ſized room; whether the walls ſtand upright on a clean footing, and ſurmounted whether the *buildings* have a beautiful ſtature; whether, for the moſt part, it appears well throughout; whether the principal ornament be on the middle line of the front, or two, like to the mouths of two windows, as our eyes, ſet in equal diſtance on both ſides; the officers, like the arms, equally diſtributed, &c.

The perfection of *building* conſiſts in its adequate agreement with the intention of the founder; its duration, in the allowance of ſuch things as are proper to withſtand the aſſaults of perſons paſſing by; its ſtrength or firmneſs, in being free from the danger of coming ſhortly to ruin or decay; its utility or convenience, that diſpoſition of the whole, and each part, which renders its uſe to the owner moſt perfect; its beauty, in the true or apparent perfection of it, conſidered as ſuch.

Vitruvius gives a third method of judging; *ſumming up* the whole at once under theſe ſix heads; *ordonnance*, or ſetting the model and ſcale of the work; *diſpoſition*, the juſt diſpoſition of the firſt deſign thereof (which two, Sir H. Wotton thinks he might have ſpared, as belonging rather to the architect than the cenſure); *eurythmy*, the agreeable harmony between the length, breadth, and height of the ſeveral rooms, &c. *ſymmetry*, or the agreement between the parts and the whole; *decor*, the due relation between the *building* and the inhabitant; whence Palladio concludes, the principal entrance ought never to be limited by any rule, but the dignity and grandeur of the maſter; and laſtly, *œconomia*, the uſeful caſting of the ſeveral rooms, for offices, entertainment, or pleaſure. Theſe laſt four are ever to be run over, before a man paſs any determinate cenſures and thoſe alone, Sir Henry obſerves, are ſufficient to condemn or acquit any *building* whatever.

Dr. Fober gives us two or three good aphoriſms in *building*: 1. Let not the common rooms be ſeveral, but the ſeveral rooms common; i. e. the common rooms not to be private or retired, as the hall, galleries, &c. which are to be open; and the chambers, &c. to be retired. 2. A houſe had better be too little for a day, than too big for a year. Houſes are therefore to be proportioned to ordinary occaſions, not extraordinary. 3. Country houſes muſt be ſubſtantious, able to ſtand of themſelves; not like city *buildings*, ſupported and ſhelтered on each ſide by their neighbours. 4. Let not the front look aſquint on a ſtranger's but accoſt him right at his entrance. 5. Let the offices keep their due diſtance from the mannion houſe; thoſe are too familiar, which are of the ſame pile with it.

The method of *building* both in Barbary and the Levant, ſeems to have continued the ſame from the earlieſt ages, without the leaſt alteration or improvement.

The modern *buildings* are much more commodious, as well as beautiful, than thoſe of former times. Of old they uſed to dwell in houſes, moſt of them with a blind flair-caſe, low ceilings, and dark windows; the rooms built at random, without any thing of convenience, and often with ſteps from one to another; ſo that one would think the people of former ages were afraid of light and freſh air; whereas the preſent are for joining the two together for light flair-caſes, fine caſh-windows, and high ceilings. And ſuch has been our builder's induſtry in point of compactneſs and uniformity, that a houſe after the new way will afford, on the ſame quantity of ground, almoſt double the conveniencies which could be had from an old one.

By ats 21 Geo. I. and 3 Geo. III. for the regulation of *building* within the weekly bills of mortality, and in other places therein ſpecified, party-walls are required to be erected of brick or ſtone, which muſt be two bricks and a half thick from the cellar, two bricks thick upwards to the garret floor, &c. and other limitations are enacted reſpecting the diſpoſitions of the timbers, &c. And every *building* is to be ſurveyed; and the perſon who offends againſt the ſtatute in any of the particulars recited, is liable to a forfeit of 200*l.* to be levied by warrant of juſtices of the peace. The other principal ſtatutes relating to *building* are, 19 Car. II. c. 3. 22 Car. II. c. 11. 5 Eliz. c. 4. 35 Eliz. c. 6. 6 Ann. c. 31. 7 Ann. c. 17. 33 Geo. II. c. 30. 6 Geo. III. c. 37. 12 Geo. III. c. 73. See PARTY-*walls*.

For the method of ſecuring *buildings* from lightning, ſee CONDUCTOR.

BUILDINGS, *Judges of*. See SEWERS.

BUILDINGS, *Surveyors of*. See SURVEYORS.

BUILT, in *Sea-language*, is an epithet applied to ſhips, denoting their peculiar form and ſtructure, and diſtinguiſhing them from others of a different claſs or rank. Thus we ſay, *Engliſh-built*, *galley-built*, or *Engliſh-built*, *French-built*, &c.

BUL, in the *Hebrew Calendar*, the eighth month of the year, and ſecond of the civil year, often called eccleſiaſtical, and ſecond of the civil year, often called *Marchesvan*; anſwering to our October, and has nine and twenty days.

BULBOCASTANUM, an Engliſh name for the common Earth-nut.

BULBUS, a muſical inſtrument, much uſed by the Negroes of Guinea, &c.

It conſiſts of ſeveral pipes made of hard wood, ſet in order, which diminiſh by little and little in length, and are tied together with ſtrings of thin leather twiſted about ſmall round wands, put between each of the pipes, ſo as to form a ſmall interſtice. They play on it with ſticks, the ends of which are covered with leather, to make the ſound leſs harſh.

BULATWANA, in *Siluy*, a name by which ſome authors have called the NEREA, on both the people of the Eaſt Indies are fond of chewing.

BULB, BULBUS, in *Botany*, a thick root, nearly round, compoſed of ſeveral ſcales, or coats laid one over another;

other; sending forth from its lower part a great number of fibres. Such are the roots of the common onion, the daffodil, the hyacinth, &c.

The same denomination is sometimes also, though improperly, given to tuberous roots, composed of solid continuous substance, without any coats laid over one another. Dr. Grew observes, that in *bulbous* plants, as well as many other perennial ones, the root is annually renewed, or repaired out of the trunk or stalk itself: that is, the bulb of the stalk continually and insensibly descends below the surface of the earth, and hiding itself therein, is, both in nature, place, and office, changed into a true root. Thus, in housewort, the stalk, sinking by degrees, becomes the upper part of the root; the next year, the lower part; and the next it rots away, a fresh supply coming.

The ancients divided *bulbi* into esculent, as the onion and leek; emetic, as the narcissus; and wild, as the hermodactyl. Nothing, Pliny observes, is more prolific than the lily, a single root often producing no less than forty *bulbi*. *Nat. Hist. libr. xxi. cap. 3.*

Modern botanists distinguish two kinds of *bulbi*, *tunicated* and *squamous*.

BULBUS, *tunicated*, are those composed of several coats or tunics laid over each other; such are the roots of onion, tulip, and jonquil.

BULBUS, *squamous*, are those composed of several scales, laid in like manner over each other; such is that of the white lily. To which are added, the *solid bulb*, composed of an uniform solid substance; the *articulate bulb*, consisting of *annulæ* linked together; the *duplicate*, when there are two to each plant; and *aggregate*, when each plant has a congeries of such roots.

Some consider the *bulb* as a real plant, out of which a new stalk is yearly produced; the stalk itself withering and falling away with the flower and leaves. In reality, as the leaves which fall yearly, are not necessary to the integrity of the plant; so neither does the stalk seem to be, which springs out of the *bulb*, and withers away, the *bulb* itself still remaining entire. We may add, that the very leaves and flowers, e. gr. of a tulip, have been distinctly perceived to be contained in its *bulb*. Du Hamel, Acad. Sc. lib. ii. § 3. cap. 1.

BULBS are also taken for the round spired beards of flowers.

BULBINE, in *Botany*. See SPIDER *wort*.

BULBOCASTANUM. See PIG-*nut*.

BULBOCODIUM, in *Botany*, a genus of the *hexandria monogynia* class of plants. The flower is funnel-shaped, and composed of six petals; the fruit is a triangular acuminated capsule, with three cells, containing several angular seeds. There are two species; one of which grows naturally on the Alps, and upon Snowdon in Wales; the other is a native of Spain, and has been long cultivated in our gardens. The root of this plant, according to Lemery, is purgative: Ray says it is emetic, and hurtful to the nerves. Herman recommends the bruised leaves for an erysipelas. Linnæus mentions only one species.

Bulbocastum is also a name used by some authors for *pseudonarcissus Anglicus*, or common wild yellow daffodil.

BULBONACK, in *Botany*, the name by which several authors call the *viola tricolor*, known in our gardens by the names of *pansy* and HEARTSEASE.

BULBOUS, or BULBOSE *plants*, those which have a BULB.

BULBOUS *plants, flowering of*. See FLOWERING.

BULBUS *vegetabilis*, in the *Materia Medica*, the name used for the root of the narcissus, or bulbous plant.

BULCARD, an English name for the GALLERITA, or *cornua ammonis*, of Rondeletius; a fossil shell-fish found among the rocks on the Cornish and other shores. Woodward.

BULE, in *Botany*, a name by which some authors call the willow.

BULEPHORIUS, in the court of the eastern emperors, was the same officer with *comes refrendarius*.

BULEUTÆ, in the cities of Greece and Asia, were the same with the DECURIONES at Rome. Calc. Lex. Jur. p. 278.

The word has been sometimes also used to denote SENATORS.

BULGARIAN *language*, the same with the *lingua Illyrica*, or SCLAVONIC.

BULGOLDA *lapis*, the name of the stone taken out of the head of an animal in America, called by the natives *bulgoldaff*. We have no account of this, but that it possesses the virtues of the bezoar, as a cordial and refuter of poisons.

BULIMY, an enormous appetite, attended with fainting and coldness of the extremities.

The word is formed of *bu*, ox, and *limos*, *hunger*; as importing that the patient has the stomach of an ox; or, as others term it, sufficient to eat up an ox. Varro and Suidas derive it from the particle *bu*, which is prefixed by the Greeks to divers words, only as an intensive; and *limos*, *hunger*, q. d. *a great hunger*.

The perpetual craving of food is sometimes owing to a defect of nourishment on account of excessive evacuations, by hæmorrhage, flux of the belly, vomiting, sweating, or the like; or from too great a consumption of the alimentary substance, from various causes, whence the food is hurried out of the stomach with greater speed than it ought to be. Sometimes this affection is owing to worms consuming the chyle.

The diagnostic signs of this disorder are sufficiently evident, as well to the patient as to the attendants, who cannot but observe a depraved and excessive appetite, which compels them to receive into their stomach an immoderate quantity of victuals, which afterwards proving burdensome and oppressive to nature, are thrown up again by vomiting; in which case the distemper is the *vomer canina*; or if there be no vomiting, the patient is seized with a hypothymy, and then it is a *bulimus*.

The different causes of this distemper are distinguishable by the circumstances which are antecedent, attendant, and consequent to it. Acid eructations and vomitings, crude stools and want of thirst, are signs of an acid abounding in the stomach. In defect of nutrition, the patients are emaciated: and lastly, the signs of worms are to be taken from their proper symptoms.

As to the prognostics of this disorder, if it depends wholly on external causes, there is no danger, provided these are speedily removed: and what proceeds from worms carries but little danger in it, because the effects cease on their being destroyed. In pregnancy, where an inordinate appetite is frequent, there is no danger to be apprehended from it.

But the distemper is very dangerous, when followed by large evacuations or colliquations of the body: and especially when after receiving food, while the stomach is yet full, the patient is seized with fainting fits: for when those things which ought to give most relief, prove of none, or of ill effect, it is a sign of a great disorder in the tone of the stomach.

So also the CANINE appetite, when the vomiting or flux is obstinate, is not void of danger: for it commonly degenerates into a cachexy, dropsy, lientery, atrophy, and other fatal distempers.

For the methods of cure, while the patient is under the fainting fit, it is usual to have recourse to such things as remarkably affect the sense of smelling: as, bread sopped in wine, roasted swine's flesh, or kid, and in general all such things as have a nidorous and well-savoured smell. It is sometimes the practice likewise to compress the extremities of the patients, to prick them in every part, rub their ears, pull them by the cheeks, and by the hair. When they are come to themselves from the hypothymy, the most proper thing to give them in the first place, is wine, and after that other food. In our future management, they are to be reduced by such means, as are of good and quick nutrition, but difficult of alteration and digestion: they are also to be treated with such things as refrigerate and strengthen. By this method they are greatly benefited, and in process of time are restored to a good temperament.

Evacuation is to be performed, either by vomit or purge; and that by means of such remedies as are proper for those who labour under a want of appetite. For though these affections are contrary to each other, yet they are usually produced by the same humours, differing only in degrees of fluidity, and some very different secondary qualities which affect the stomach after a very different manner. A remedy of this kind, which is very much commended by Galen, is *hiera* made into pills.

Pure wine alone, drank in sufficient plenty, is a most powerful reliever of hunger; according to the aphorisms of Hippocrates, as also is and the spirit of wine, commonly called *aqua vitæ*, but still more powerful effect this way.

In the Philosophical Transactions, we have an account of a person affected with a *bulimus*, to such a degree that he would eat up an ordinary leg of veal at a common meal, and would feed on fine shuffle, &c. He was relieved by throwing up several worms, of the length and thickness of a tobacco-pipe.

BULLITHOS, *lapis bovinus*, a calculus or stone found in the gall-bladder, kidneys, or urinary bladder of oxen. Substances thereof are given by Bromell, the Academy Naturæ Curiosorum, and other authors: but by which it appears that Aristotle was mistaken in saying, that man alone is subject to the stone, and acquitting sedulously that the reason thereof. And Prob. § 2. 27.

BULK, *of a ship*, denotes her whole contents in the hold for stowage of goods.

BULK, *to break*. See BREAKING.

BULK-*heads*, are partitions made across a ship, or lengthways, with boards of timber, whereof one part is divided from another.

The *bulk-head afore*, is the partition between the fore-

castle and gratings in the head, and in which are the chaste ports. See *Tab. Ships, fig.* 2. *n.* 11. 24. 48. 85. 95. 99. 102. 115.

BULL, in *Ecclesiastical Writers*, denotes an instrument dispatched out of the Roman chancery, sealed with lead, containing the edicts, letters patent, and provisions of certain princes.

The word *bull* is derived from *bulla*, a *seal*; and that from *bullo*, a *drop*, or *bubble*; or according to others, from the Greek βύλλα, *council*; according to Cujacius, from the Celtic *bull*, or *bol*, a *bubble*.

We meet with four kinds of these *bulls*, or *bullæ*, golden, fleece, waxen, and leaden; all in use among the emperors and kings of the middle and barbarous ages. In some, the impression is made on the solid metal itself, in others on wax, and only inclosed in a metalline box, or case.

Sealing with metals is an illustrious privilege, belonging only to princes, though assumed also by prelates, as princes of the church. The doges of Venice durst not arrogate this honour, till leave was given them by pope Alexander III. about the year 1170, to seal their diplomata with lead.

The *leaden* is the third kind of apostolical rescript, and the most in use, both in affairs of justice, and of grace. It is wrote on parchment, by which it is distinguished from a *brief*, or simple *signature*, which is on paper. A *bull* is properly a signature enlarged: what the latter comprehends in a few words, the former dilates and amplifies. If the *bulls* be letters of grace, the lead is hung on silken threads; if they be letters of justice, and executory, the lead is hung by a hempen cord. They are all wrote in an old round Gothic letter.

The *bull*, in the form wherein it is to be dispatched, is divided into five parts, viz. the narrative of the fact; the conception; the clause; the date; and the salutation, in which the pope takes on himself the quality of *servant of the servants of God*, *servus servorum Dei*.

Properly speaking, it is the seal, or pendent lead alone that is the *bulla*, being that which gives it both the title, and authority. The lead presents on one side, the heads of St. Peter and St. Paul; on the other, the name of the pope, and the year of his pontificate.

By *bulls*, jubilees are granted; without them no bishops, in the Romish church, are allowed to be consecrated. In Spain, *bulls* are required for all kinds of benefices; but in France, &c. simple signatures are sufficient; excepting for bishoprics, abbeys, dignities, and priories conventual. According to the laws of the Roman chancery, no benefice exceeding twenty four ducats per annum, should be conferred without *bulls*: but the French would never submit to this rule, except for such benefices as are taxed in the apostolic chamber: for the rest, they reserve the right of dissembling the value, expressing it in general terms: *Cujus & alii fructus annuorum fructus ex duodecim aureis ad summum, secundum communem æstimationem, non excedunt.*

The *bulls* brought into France are limited and moderated by the laws and customs of the land, before they are registered; nor is any thing admitted till it hath been well examined, and found to contain nothing contrary to the liberties of the Gallican church: those words, *proprio motu*, in a *bull*, are sufficient to make the whole be rejected in France.

Nor do the Spaniards admit the papal *bulls* implicitly; but, having been examined by the king's council, if there appear any reason for not executing them, notice thereof is given to the pope by a dispatch sent to the *nuncio*; by this means, remains without effect, and the true method of proceeding with the court of Rome is observed by most of the other courts of Europe, in the papal communion.

To *fulminate bulls*, is to make publication thereof, by one of the three commissaries to whom they are directed; whether he be the bishop or official. This publication is sometimes appealed; but when it is, the fault is not charged on the pope who issued the *bull*, but an appeal is brought in form against the person who is supposed to make it thus the fault is laid, where it is known one is to be had, to evade affronting the pontiff.

See FULMINATION.

The *Bull in cœna Domini*, is a *Bull* read every year on Maundy-Thursday, in the pope's presence, containing various excommunications and excoriations against heresy, those who disobey the laws who usurp or oppose the exercise of ecclesiastical jurisdiction, &c.

After the death of the pope, no *bulls* are dispatched during the vacancy of the see, to prevent any abuses; the time as soon as the pope is dead, the vice-chancellor of the Roman church takes the seal of the *bulls*: and in the presence of several persons, orders the name of the deceased pope to be erased; and covers the other side, on which are the heads of St. Peter and St. Paul, with a linen cloth; sealing it up with his own seal, and giving it, thus covered, to the chamberlain, to be preserved, that no *bulls* may be sealed with it in the mean time.

By stat. 28 Hen. VIII. c. 16. all *bulls*, &c. obtained from the bishop of Rome, are void; and by 13 Eliz. c. 2. (see also 23 Eliz. c. 1.) the procuring, publishing, or using any of them, is high treason.

BULL, *golden*, is a denomination peculiarly given to an ordinance, or statute, made by the emperor Charles IV. in 1356, said to have been drawn up by that celebrated lawer, Bartolus, and still reputed the *magna charta*, or fundamental law of the empire.

It is thus called from a golden seal fixed to it, such as were used by the emperors of Constantinople, annexed to their edicts.

Till the publication of the *golden bull*, the form and ceremony of the election of an emperor were dubious, and undetermined; and the number of electors was not fixed: this solemn edict regulating the functions, rights, privileges, and pre-eminences of the electors.

The original, which is in Latin, on vellum, is kept at Frankfort. On the back-side of it there are several knots of black and yellow silk; to which hangs a *bull*, or seal of gold.

This ordinance, containing thirty articles, was approved of by all the princes of the empire, and remains still in force. The election of the empire is by it declared to belong to seven electors; three of them ecclesiastics, viz. the archbishops of Mentz, Treves, and Cologn; and four seculars, viz. the king of Bohemia, prince Palatine, duke of Saxony, and marquis of Brandenburg.

BULLA, *golden*, were in use among the eastern emperors for a considerable time, leaden ones being confined to matters of a smaller moment. Spelman mentions a *golden bull*, in a treaty of alliance between our Henry VIII. and Francis I. of France; the same author relates, that the instrument, whereby Clement VII. gave king Henry VIII. the title of Defender of the Faith, had a golden *bulla* affixed to it; and there are other instances in Du-Cange and Alsatera.

BULLA, *ivory*, were not in so frequent use, though we do not want instances of them.

BULLA, *leaden*, were sent by the emperors of Constantinople to despots, patriarchs, and princes; and the like were also used by grandees of the imperial court, as well as by the kings of France, Sicily, &c. and by bishops, patriarchs, and popes.

Polydore Virgil makes pope Stephen III. the first who used leaden *bulls*, about the year 772. But others find instances of them as early as Silvester, Leo I. and Gregory the Great. The later popes, besides their own names, strike the figures of St. Peter and St. Paul on their *bulls*; a practice first introduced by pope Paschal II.

BULLA, *woven*, are said to have been first brought into England by the Normans. They were in frequent use among the Greek emperors, who thus sealed letters to their wives, mothers, and sons. Of these there were two sorts, one red, the other green. Du-Cange Gloss. Lat. tom. i. & Gloss. Græc. Montfaucon, Palæolog. lib. 6.

BULL, a species of the *ox* or *neat*.

One *bull* suffices for fifty cows, some say fifty. His best age is about two, or from one to three, before he arrives at his full growth, when he grows heavy and sluggish. Hence that old rule among countrymen:

He that would have his calves good,
Must have an active and young bull.

From that time, being of no further use in breeding, he is usually gelt, and makes what they call a *bullock*; in the North commonly a *bullock*, or a *stot*. The better the bull is, the larger sort of beasts he begets; and the better the cow, or heifer is, that he leaps, the greater will be the increase. But of whatever sort the beast is, the *bull* should always be of the same country breed as the cow, or heifer, that he leaps, to get the best calves. The cow, or heifer, is never fruitful to well. The with the cow, or heifer, is never fruitful to well. The *bull* should be chosen of a sharp quick countenance, his forehead broad and curled, his eyes black and large, his horns long, but not lofty, his belly long and large, and hairy, his neck fleshy, his hair short and close, and like velvet; his breast should be large, but be straight and flat, his buttocks square, his thighs round, his legs straight, and his joints short. This sort of *bull* is the best for breed, and makes the best oxen for draught as well as for fattening.

The cow ought to have a broad forehead, black eyes, even clean horns, the neck long and thin, the belly large and deep, the thighs thick, the legs round, and the joints short; a white large and deep under with four teats, and large feet. The first must be proportioned to the goodness of the land.

Among the ancients, those who triumphed, sacrificed a *bull*, when they arrived at the Capitol. *Bulls* were offered to Apollo and Neptune. It was held a crime to

sacrifice

sacrifice them to Jupiter, though we do not want instances of that practice.

Bulls were ranged by the Romans in the number of military rewards.

BULL, *African*, in *Natural History*, a small wild *bull*, common in that part of the world, and supposed to be the true *bubalus* of the ancients.

BULL, *Perillus's*, was a hollow brazen engine of torture, in the shape of that quadruped; wherein persons being shut up, and fire applied, their cries imitated the roaring of a *bull*.

BULL'S *blood*, fresh drawn, is a powerful poison, as coagulating in the stomach. This is related on the authority of Pliny, xxviii. 9. and xi. 28. and many persons among the ancients, such as Æsop, Midas, Hannibal, and Themistocles, are said to have been poisoned by it. But the fact has been questioned by some, and denied by others. See Apollodorus, lib. 1. cap. 17. Strabo, lib. 1. p. 106. Plutarch in Flaminio; and Valer. Maxim. vol. vi. cap. 7.

BULL'S *gall*, is an insipid bitter, more pungent and acrimonious than that of any other animal; whence it is sometimes used to destroy worms.

BULL, *bawal*, denotes a *bull* kept by a lord, who has a right to demand all his tenants to bring their cows to be served by him. See BANNALIS.

BULL, *free*, according to Du Cange, signifies the same with *bannal bull*. Hence, *tauri liberi libertas*; which however, should rather seem to denote a privilege of keeping a *bull* independent of the lord.

BULLS, *wild*. The *wild bulls*, now so numerous on the continent of America, are said to have sprung from one *bull* and seven cows, which were carried thither by some of the first conquerors.

To the island of Hispaniola, the French buccaniers pursue *bulls* with dogs, and kill them with fire-arms. At Buenos Ayres, the Spanish rustics chase them on horseback, armed with a long lance, at the end of which is a half-moon of sharp steel. Having drawn a number of the horned kind together, they let the cows escape, but dexterously take the *bulls* with their half-moons on the hind legs, by which, disabling them from flight, they are easily dispatched.

BULL-*fighting*, a sport or exercise much in vogue among the Spaniards and Portuguese, consisting in a kind of combat of a cavalier or *torador* against a wild *bull*, either on foot or horseback, by riding at him with a lance.

The Spaniards have *bull-fights*, i. e. *bulls*, attended with shews, in honour of St. John, the Virgin Mary, &c.

This sport the Spaniards received from the Moors, among whom it was celebrated with great eclat. Some think, that the Moors might have received the custom from the Romans, and they from the Greeks. Dr. Plott is of opinion, that the *Taurokathaia ludus* amongst the Thessalians, who first instituted this game, and of whom Julius Cæsar learned and brought it to Rome, were the origin both of the Spanish and Portuguese *bull-fighting*, and of the English *bull-running*. Nat. Hist. Staff. chap. x. § 76.

The practice was prohibited by pope Pius V. under pain of excommunication, incurred *ipso facto*. But succeeding popes have granted several mitigations in behalf of the toradors.

BULL-*running*, denotes a feudal custom obtaining in the honour of Tutbury, in Staffordshire, where anciently, on the day of the Assumption of our Lady, a *bull* was turned loose by the lord to the minstrels, who, if they could catch him before he passed the river Dove, were to have him for their own; or, when taken, to receive each forty pence in consideration of which custom, they pay twenty pence yearly to the said lord. Plot. ubi supra.

BULL *and bear*. By the custom of some places, the parson is obliged to keep a *bull* and a *bear* for the use of his parishioners, in consideration of his having tithes of calves and pigs. Stra. Rep. Abr. 599. 4 Mod. 241.

BULL, in *Astronomy*, the constellation TAURUS.

BULL's *eye*, in *Architecture*. See ALDERMAN.

BULL's *eye*, in *Meteorology*, a little dark cloud, reddish in the middle, usually appearing about the Cape of Good Hope, there denominated by the Portuguese, who, on the appearance of it, instantly take down their sails, as knowing that a terrible storm of thunder, lightning, and whirlwinds, is at hand.

BULL's *eye*, in *Navigation*, denotes a sort of small pulley in the form of a ring, having a grip fixed round the outer edge of it, and a large hole in the middle for another rope to slide in. It is more commonly used by the Dutch than by English seamen.

BULL-*finch*, a species of the *loxia*. This is a very pernicious bird to gardens and orchards. They feed on the young buds of trees in spring, which occasion the loss of the summer's fruit. The black-thrush, or thoe-ster, is the great favourite of the *bull-finch*, and keeps him employed in the hedges in mild weather; but if the latter end of the winter hath been severe, and these thrushes are backward with their buds in February, he then comes into the gardens, the trees growing there being forwarder than those in the field in a cold spring; they will sometimes come in such numbers, as to take off all the buds from the currants, plums, &c. in the gardens of a whole town in a few days. Their buds are so fond, that no scare-crow, or other means that can be devised, can deter them; their great favourite is the damson-tree, and they will feed upon this while a person stands all the time up to them. It is very easy to know these birds; but the buds and young berries are usually much injured by the merchant, and the bull may seem to be in dawn over the twigs in many places with bird-lime.

The wild note of this bird is not in the least musical; but when tamed, it may be taught any tune after a pipe, or to whistle any note; and it seldom forgets what it has learned. These birds may be taught to speak, and some thus instructed are annually brought to London from Germany.

BULL-*fish*, a species of the *frog*, common in Sweden, and the northern parts of America, with four divided toes on the fore-feet, and five webbed ones on the hinder. When the limbs are extended, it measures near two feet; it is very voracious, and will frequently swallow young ducks and other fowl; its croaking is so loud, as to resemble the roaring of a *bull*; whence its name. See FROG.

BULL-*head*, the English name given to a small fish of the cottus kind, found very frequently in shallow running waters, and called by the ancients *Sarna* and *cottus*; called *dormitzer's mund*. +

BULL-*trout*, a English name for a fish of the salmon kind, caught in many of the rivers of England, and more usually called the SCHARA.

BULL-*weed*. See CHEVAGRY.

BULLA, in the *ancients*, a golden ornament, of a globular figure, and hollow within, wherein was contained some amulet, to serve as a preservative from witchcraft and envy, hung about the neck by those who triumphed among the Romans; and also by the children of the patricians, and even *negroes*, as a badge of their hereditary nobility and freedom, by which they might be animated to behave themselves worthy of their birth. Rom. Ant. p. ii. lib. v. cap. 8.

The *bulla* was not allowed to children of slaves, or even of *libertí*, who, in imitation thereof, wore a leather collar round the neck, much after the manner of the purple *thong* to which the *bulla* was hung. But the great Vestal, and the Roman ladies, wore a *bulla*; the former by way of distinction, the latter as a piece of dress. We may add, that *bullæ* were sometimes allowed to statues; whence the phrase *statuæ bullatæ*. M. Lepidus, having killed an enemy, and saved a citizen, even when a boy, had a *bullated* statue erected to him in the Capitol, in memory of the exploit. The Roman youth laid aside the *bulla* together with the *prætexta*, and conferred it to the *Lares*, when they arrived at their fifteenth year; as appears from the epistle:

Cum primum pavido custos mihi purpura cessit,
Bullaque succinctis Laribus donata pependit.
Pers. Sat. v. vers. 30. Hill. Acad. Inscr. tom. ii. Valer. Max. lib. iii. cap. 2.

BULLA was also a denomination given to divers other metalline ornaments of the after the form of *bullæ*. In which sense, *bullæ* seem to include all golden and silver ornaments of a roundish form, whether worn on the babes of men, the trappings of horses, or the like. Such were those decorations used by the ancients on their bells and discs. Virgil, speaking of Pallas's belt or girdle, fays,

Nuti fulgere in cingula bullæ
Pallantis pueri. Æneid lib. xii. ver. 942.

The *bullæ* of doors were a kind of large-headed nails followed on the doors of the rich, and kept bright with great care. The *bullæ clitinnipes* were sometimes adorned with golden *bullæ*.

BULLA also denoted a table hung up in the public courts, to distinguish which days were *fasti*, and which *nefasti*; answering in some measure to our calendar.

BULLA, in *Natural History*, a genus of worms of the order of *testacea*.

BULLACE *tree*, in *Botany*, a species of PRUNUS.

BULLARII, in the *Roman* Rome, the makers of drawers of BULLÆ or cauldrons.

BULLARY, *Bullarium*, a collection of papal BULLAS. We have extant divers tomes of *bullaries*, some containing only the bulls of particular popes; such are the *bullaries* of Innocent XII. and Clement XI. Others containing the bulls granted to particular communities; such is the *bullary* of the order of Cluny, &c.

A general *bullary* of all the papal constitutions from Gregory

Gregory VII. to Sixtus Quintus, was compiled by order of pope Sixtus Quintus, in 1586; three which have been published a great *bullary*, by Laert. Cherubin, containing the bulls of all the popes from Leo to Paul V. to 1453; since continued by Ang. Cherubin to the year 1644, and by Ang. a Lannisco and Jo. Paulus to the year 1676; and, lastly, by an anonymous writer to the time of Benedict XIII. under the title of *Bullarium magnum Romanum*. We have the taxes applied in a new method by Boucharderie; a compendium of which is begun by Vitus Ferri, and a summary of it by Novarina. Vide Bibliotheca Lat. Ital. tit. Bulla, p. 816, 822.

BULLET, an iron or leaden ball, or shot, wherewith fire-arms are loaded.

Some derive the word from the Latin *bullire*, others from the Greek βολλειν, *to throw*.

According to Montecuculi, a *bullet*, shot out of a great gun, flies 92 fathoms in a second of time, which is equal to 384 English feet; and, according to Huygenius, it would be 25 years in falling from the earth to the sun: but according to some very accurate experiments of Dr. Derham, it flies, at its first discharge, 940 yards in 822 half-seconds; or above 7 miles in a minute; allowing therefore the sun's distance 100000000 English miles, a *bullet* would however go near 14 an hour at this full speed.

Bullets are of various kinds; viz. *round bullets*, made hot in a forge, intended to fly to far places where combustible matters are heated.

BULLET *bullet*, that is made cylindrical, with an aperture and a face at one end, which giving fire to the inside, where is the powder, bursts, and has the force itself with a report.

Chain bullets, consisting of two balls, joined by a chain over or four feet asunder.

Bar-shot, two balls joined by a bar of iron five or six inches asunder.

Double-headed bullet, called also *serpent*, being two balls of a pound or more each, on a bar, or chain: these are chiefly used at sea for cutting of masts, rigging, &c.

The diameter of a leaden *bullet*, weighing 1 pound, is 1.60 inches, according to the Roman foot; and the diameter of any other *bullet* is found by dividing 1.60 inches by the subduplicate of the number, which expresses how many of those make a pound; or by subtracting the third part of the logarithm of the number of bullets in the pound from the logarithm of 1.69, and the difference will be the logarithm of the diameter required.

This may be easily found the following table, shewing the diameters of leaden *bullets*, from 1 to 99 in the pound.

1	1.60	1.27	1.09	0.97	0.88	0.81	0.75	0.71	0.67
10	0.63	0.60	0.57	0.55	0.53	0.51	0.49	0.48	0.46
19	0.45	0.44	0.43	0.42	0.41	0.40	0.39	0.38	0.37
28	0.36	0.35	0.35	0.34	0.33	0.33	0.32	0.32	0.31
37	0.31	0.30	0.30	0.29	0.29	0.28	0.28	0.27	0.27
46	0.27	0.26	0.26	0.25	0.25	0.25	0.24	0.24	0.24
55	0.23	0.23	0.23	0.23	0.22	0.22	0.22	0.21	0.21
64	0.21	0.21	0.20	0.20	0.20	0.20	0.19	0.19	0.19
73	0.19	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17
82	0.17	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15
91	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.13	0.13

N. B. The upper horizontal column shews the number of bullets in a pound; the second, their diameters; the third, the diameters of those of 10, 11, 12, &c. and the fourth, those of 20, 21, 22, &c. and the last, those of 30, 31, 32, &c.

The government allows 11 *bullets* to the pound for the proof of muskets; and 14.5 in the pound, or 29 in two pounds, for service; 15 for the proof of carabines, and 30 for service; and 28 in the pound for proof of pistols, and 56 for service. Cannon-*bullets* are of different diameters and weights, according to the metal of the piece. See CANNON.

BULLET, *quarter*. See QUARTER.

Bullets, that have the wonderful property of returning, after experiments concerning which were given by Mr. Caret, Vide Memoires de l'Acad. Scienc. ann. 1707, p. 377.

The greatest part of those from wounds is an opinion defended by the ancient writers. *Bullets* sometimes remain only in the wall during many ages.

BULLET, *of quicksilver*, is sometimes practised to venoms that are of a cold nature, as the plague happening in the year 1636, when the *bullet* was put into the vinegar, &c. which was afterwards used as the quotidian drink; where it lies for the space of three years, and then is taken out, and used amongst the sick with good success.

BULLET, *of wax*, is a ball of wax, wherewith to keep the fluids of a wound clean, of the fire inflamed.

BULLET-*wood*, a denomination given by some to Spanish or Jamaica bars of iron.

BULLIMENTA, is used by some Greek writers for the willings and coverings of gold and silver vessels to preserve liquors, to render them brighter.

BULLIMONY, or BULLIMONG, denotes a mixture of several sorts of grain, as oats, peale, and vetches, called also *maslin*, or *mang-corn*.

BULLION, denotes gold or silver in the mass, or billets.

Silver and gold whether coined or uncoined (though used for a common measure of other things), are no less a commodity than wine, tobacco, or cloth; and may, in many cases, be exported as much to national advantage, as any other commodity. — No nation can ever be considerable in trade, that prohibits the exportation of *bullion*. And it is more for the public advantage to export gold or silver coined, than uncoined: since, in the former, we have the advantage of the manufacture.

The word is apparently formed from the French *billon*, a mass of gold or silver before standard, which Du Cange derives further from *billa*, as being *formæ aut signum* on which the *billon*, i. e. *bars* are *conformed*.

Other names sometimes also denominated BULLION.

By the Scottish laws, the customs in the exportation of woods were to be paid in *bullion*.

BULLION is also used for the place where the king's exchange is kept, or where gold and silver are brought in the lump to be tried or exchanged.

BULLITION is used for the act of wine upon the mixture of different liquors, which causes it a quantity of bubbles, or froth.

BULLOCK'S *eye*, in *Architecture*, see EYE.

BULL'S-*eyes*, in *Botany*. See *Bon-nuelle*.

BULTEL, the bran or refuse of meal after dressing.

The word is derived from the latin LAT. *bultellus*, or *bultellum*, *a sieve*, or *bolter*.

BULTER, also denotes a bag wherein meal is dressed, called also a *bulter*, or rather *boulter*.

BULTER-*cloth*, a linen or hair cloth for bolting or sifting of meal or flour.

BULTERS, are strong lines five hundred feet long, with fifty hooks, eight feet asunder, and baited with pilchards or mackrel, which are used on the coast of Cornwall in the fishery of CONGERS. They are sunk to the ground by a stone fastened to them; and sometimes such a number of these are tied together as to reach a mile.

BULWARK, *Fortification*, in the *Modern Fortification*, amounts to much the same with BASTION in the modern. See the BASTION.

BUM-*boat*, in *Sea-language*, a small boat used to sell vegetables, &c. to ships lying at a distance from the shore.

BUMBUNNY, in *Botany*, a name given by the people of Guinea to a plant common in that place, which serves them as an emetic; they boil a few of the leaves in water, and drink this liquor, which works very easily. Phil. Trans. N° 232.

BUMGHALI, a sect of Mahometans in Africa, said to be great sorcerers: they fight against the devil, as they say; and frequently run about covered with drums and trumpets, in a great flight they sometimes counterfeit combats with him at noon-day, and in the presence of numbers of people, for the space of two hours, with drums, pistols, scimitars, &c. laying desperately about them, till they fall down on the ground opposite with blows; then rolling a mountain, they recover their spirits, and walk off.

What they really are, is not well known; but they are said to be no other than jugglers.

BUMKIN, or BOOMKIN, in *Sea-Language*, a short piece of timber, projecting from each bow of a ship, to extend the lower corner of the foresail to windward. It is fixed by a thong or pin, which confines it with a sheave.

BUN, a dry batt of sugar. See BATT.

BUNCH, a cluster or assemblage of several things, as of grapes.

BUNCH also denotes a tumour, or protuberance, natural or preternatural, either on an animal or a vegetable body. The knob growing about the GRAFT of a plant is a sort of *bunch* formed by preternaturalness.

BUNCH, in *Gardening*. See CANKER.

BUNCH, in *Surgery*, denotes an elevation of the bark, arising from an extreme luxuriancy of the nutrient thereof. The juices begin undergoing corruption a long time on the surface, whereby to loosen the ligaments, and separate by wearing an iron bodkin, which, compressing the *bunches*, by degrees drive them back, to their natural situation.

BUNCHES in horses, called also *knobs*, *warts*, and *scabs*, are defects arising from foul meat, bruises, hard labour, or the like; whereby the blood becoming putrefied and foul, occasions such excrescences.

BUNCHED *ears*, among *Florists*, are those which stand out, and wherein the seed is lodged.

BUNCHED *roots*, those round roots which have knobs or knots in them. See BULB and ROOT.

BUNG, the stopple of a cask, barrel, or the like.

The bung is a wooden pin serving to stop the little hole in the top of a vessel to be filled by. It answers to what, among the ancients, was called *epiphonema*, and in the middle age *tyrsus, the bung of a vessel*, because in those days it was usually leaded.

After running new wine, or cyder, *the bung* is usually left open for some time, that where the liquor comes to work, there may be vent for the froth or foam, and that the bung may not be in danger of being burst by the violence of the fermentation. Yet, in some cellars, they leave wines to ferment, without giving them vent by the *bung*, in order to render them more brisk and spirituous in drinking; it is necessary the cellar be floored with iron, and other precautions taken that the *bung* may not fly.

BUNIAS, in *Botany*, vide, or pulse *Pliny* reckons, a genus of the *tetradynamia siliculosa* order of plants. Its characters are the following: the flower hath four petals, placed in form of a cross, joined at their base, and erect; it hath six *stamina*, two of which are opposite, and shorter than the others; in the centre is situated an oblong germen, which afterward becomes an irregular short oval pod with four angles, one or other of which is prominent and pointed, including one or two roundish seeds. There are six species of *bunias*; or *saxifrage*, is found in gardens and flowers in April: the root is used in food, and the seeds in physic. These seeds are said to be heating, drying, deterging, aperitive, and diuretic: and to be enemies to cancers.

BUNIUM. See PIG-NUT.

BUNK, in *Botany*, a word frequently occurring in the writings of the Arabian physicians. We do not at this time certainly know what it was; but it was evidently an aromatic root used in cordial, stomachic, and carminative compositions. See LINCALASTHA.

BUNT *of a sail*, is the middle part of it purposely formed into a kind of bag or pouch, that it may catch and receive the more wind.

The *bunt* is chiefly used in topsails; for coarses are for the most part cut square, or at least with a small allowance for *bunt or* compass.—They say, *the bunt holds much wind*, when it is large, that is, it hangs too much in forward.

Seamen all agree, that a bowling or *bunting* sail carries a veſſel faſter in the windward than a ſtraight or faſt ſail: the contrary of which is aſſerted by Dr. Hooke, who has a diſcourſe on ſhew the peculiarity of ſtraight or *bunting* ſails. See Hooke's Poſthum. Works, p. 363, 8vo.

BUNTINGS, are ſmall lines made faſt to the bottom of the ſquare ſails, in the middle part of the bolt-rope to engage, and to be covered through a ſmall block, placed in the yard: theſe ſerve to top up the *bunt* of the ſail for the better furling it up.—See *Sea. Dict.* 53. to 58. 74. 91. 146.

BUNTINE, a thin woollen ſtuff, of which the colours are ſignalized in *ſtuffs not wholly made*.

BUNTING, in *Ornithology*, the common Engliſh name of the EMBERIZA *miliaria*, called by others *cruenta, ſcariſoria, ſcindens, cacaroni*, and *ortygia*, or *ortygina*.

The bill of this bird is ſingularly conſtructed; the ſides of the upper mandible form a ſharp angle bending towards the lower; and in the roof of the former is a hard knob, adapted to break corn or other ſeeds.

BUONACCORDO, a ſmall ſtringed muſical inſtrument, reſembling a ſpinet, uſed by ſcholars to learn to play on, becauſe of the diſtinctneſs of their ſtrings.

The moſt faſhionable properties denote their ſuperiors.

BUOY, in ſea, a piece of wood, or cork, ſometimes an empty cask well cloſed, ſwimming on the ſurface of the water, and faſtened by a chain to a cord, to a large ſtone, piece of iron, or the like, to ſerve to mark the dangerous places in the ocean, as rocks, ſhoals, wrecks of veſſels, anchors, &c.

In rivers, *buoys* are ſometimes pieces of wood in form of maſts, in the ſhalloweſt places; ſometimes the trees are planted in a particular manner; ſometimes bavins are uſed, or be taken in a right line, the better to keep the veſſel; for the two may appear to the eye no more than one.

Buoys is alſo uſed for a piece of wood, or a barrel at ſea, faſtened to or juſt directly over the anchor; that the mark of the place may be ſure to weigh the anchor, may eaſily be diſcovered at the anchor-head.

BUOYS are of various ſorts, differing in their conſtruction and uſe, and bearing different names. *Can-buoys*, are thoſe in the form of a cone, floating over dangerous banks and hollow places. *Boat-buoys*, are ſhaped like the middle ſection of two cones, floating upon a common baſe tapering at each end. *Spindle-buoys*, are ſmall pieces of timber, fometimes in the ſhape of a cylinder, and ſometimes of a *two-fided*. *Cask-buoys*, are common casks employed to buoy up the cable from rocky ground.

BUOY-*rope*, the rope which faſtens the *buoy* to the anchor. Its length muſt be little more than the depth of the water, where the anchor lies; and it muſt be ſtrong enough to draw up the anchor when the cable is broke.

BUOY, *firſt of*, ropes faſtened to the *buoy*, by which it is hung, and ſpliced round it in a manner reſembling the braces of a drum.

BUR, *to ſtream or*, is to let it fall from the ſhip's ſide into the water, which is always done before they let go the anchor.

BUOYANCY, denotes a thing floating or apt to float.

BURAGO, a genus of plants of the order of *aſpe*, or which there is one ſpecies in Senegal.

BURBONIA, from *Bur*, or, and *ſeta*, *daughter*, in *Antiquity*, an Athenian feaſt or ceremony, deſcribed as a ridiculous thing: therein, with ſerious inſtitution:

The *burbonia* was properly a part or appendage of the ceremony of the *buphonia*.

For the origin of the *buphonia*, we are told it was forbidden by the laws of Attica to kill an ox; but it once happened at the feaſt of the *buphonia*, that an ox got the corn, others by the cakes, which had been conſecrated for the ſacrifice. Thanſaus the prieſt, enraged at this, preſently killed him, and fled for it. On which the Athenians, hearing the inſtrument of the fact, and feigning themſelves ignorant who had committed the fact, brought the bloody axe before the judges, where it was ſolemnly arraigned, tried, found guilty and condemned, and, in memory of this event, a feaſt was inſtituted under the denomination of *burbonia*. In which it was ſtill cuſtomary for the prieſt to fly, and judgment to be given about the daughter of the ox.

BUPHTHALMUM, from βοῦς, ox, and ὀφθαλμὸς eye, in *Botany*. See OX-EYE.

BUPHTHALMUS, in *Botany*, a name given by ſome of the ancients to the common great houſe-leek, or SEMPERVIVUM, from the manner of its growing in cluſters reſembling the eyes of large animals.

BUPRESTIUM. See HARE'S-EAR.

BUPRESTIS, a ſort of ſhining cantharides, of a ſtinking ſmell, and very fevere bite. It is of the ſame nature with the common cantharides, or Spaniſh fly, and is ſaid to do great injury to the cattle, which, feeding, chance to eat it. They form, in the Linnæan ſyſtem, a genus of inſects, different from the CANTHARIDES, but belonging to the ſame order of *coleoptera*, and comprehending ſeventy ſpecies.

BURACO *de voile*, in *Architecture*, the name of a ſhip-carpenter on the coaſts of the Braſils, and more uſually known among authors by its Braſilian name, GUARAPARIM.

BURBARUS, in *Ichthyology*, a name given by Paul Jovius, and ſome other writers on fiſhes, to the common CARP. See CYPRINUS.

BURBER, an Egyptian piece of money. It is a thick piece of copper about an inch and a half in diameter, twelve of theſe make a *medine* there.

BURBOT, the Engliſh name of the *mollis fluviatilis*; a fiſh common in the Trent, and many other of our rivers, and called in other places the eel-pout: the *gadus lota* of Linnæus. See Phil. Trans. vol. liii. pt. ii. N° 18.

BURCA, among the Turks, the name of the rich covering of the door of the houſe of Mecca: it is ten feet long, and five wide; and there are ſeveral figures and Arabic letters on it, very richly embroidered in gold, on a ground of red and green. This is carried about in their ſolemn proceſſions, and is often made to ſtop, that the people may touch it.

BURDA, in ſome *Middle Age Writers*, denotes a garment made of aſhes.

BURDACK, an Egyptian veſſel, which ſerve uſually drink out of at Cairo. They are made of a peculiar ſort of earth, which is ſuppoſed to cool the water, and are always ſet out in the earth, to keep the cooler, and covered with a ſtraiter, to prevent any thing falling into the water; they are of ſo porous a ſtructure, that the water will get through them in a few days.

BURDEN, properly ſignifies a heavy weight or load.

Hauſcbergh recommends the bearing of *burdens* as the beſt ſort of exerciſe, eſpecially to phyſicians troubled with ſtone. To this end he had a grate lined with plates of lead, which he could fill at will with bars of ſteel. This load he bore to or from ſome place, either increaſing or diminiſhing it as he found occaſion; a be which means he could both vary and exerciſe at the ſame time.

BURDEN *of a cordage*, a ſure meaſure of certain commodities. A *burden of gunpowder* is 100 pounds.

BURDEN *of a ſhip*, is its content, or the number of tons it will carry.

The uſual rule whereby a ſhip's burden is eſtimated, is, that it will conſequently bear a weight equal to that of ſuch the water which would fill its capacity. But this rule is not demonſtrative, and ſome depart from it as unexact, allowing only two-fifths, or even one-third of the weight for the ſhip's burden.

To determine the burden of a ſhip, multiply the length of the keel, taken within board, by the breadth of the ſhip, within board, taken from the middle beam from plank to plank, and the product by the depth of the hold, taken from the plank below the keelſon, to the under

part

part of the upper-deck planks, and divide the last product by 94, and the quotient is the content of the tonnage required. See FREIGHT.

BURDEN, *Sport of*, denotes those of a larger and heavier sort, carrying 500 tons, or upwards.

BURDEN, or rather BURDON, in *Music*, denotes the drone or deepest sound of an organ; being that produced by the thickest pipe.

The modern *burden* referrs to the note which the Greeks called *mese* or *meson*.

BURDOCK, in botany, the *pipe* or *drinking leaf*, by which liquor is given.

Martin Paris will have the name *burden* to have been originally given this pipe, on account of its resemblance to a carpenter's tool, commonly called also *burdo*.

BURDO, in *Building*, a compound beast of burden, produced by a horse and the ass, of which it is distinguished from the MULE, which is that produced of a male ass by a mare.

The liver and testicles of the *burdo* are greatly recommended by Aldrovandus, and some other authors, as medicines, but now never used.

BURDON, or BURDOUN, in *Middle Age Writers*, denotes a pilgrim's long staff, so doing the office and that beseeling of a MULE, or other animal.

BURDOCK, *arctium*, in botany, a genus of the *syngenesia polygamia æqualis* class of plants.

The characters are these: the flower is compounded of many flowers, which are tubulous and unequal, and cut into five narrow segments at the top; the germen is figured at the bottom of the tube, which afterwards becomes a single pyramidal angular, which afterwards becomes a single pyramidal angular seed, crowned with down. There are three species; for food, cultivation, and use.

The first of which are common weeds, growing on the sides of roads and foot paths in most parts of England; to use is not admitted into gardens. The first is indeed to be esteemed for medicinal use by the college of physicians.

As these plants are seldom cultivated, it is needless to give any instructions for that purpose: but where they are troublesome weeds, it may not be amiss to mention that their roots last but two years; they may therefore be destroyed with much less trouble than seed to have abiding roots: for the plants which come up from seed do not flower until the second year, and when their seeds are perfected their roots decay.

The root of the common *burdock* is a very powerful diuretic and diaphoretic. It is given with great success, in decoction, in obstructions of the spleen, and in dropsies. It is also recommended by some in all diseases of the breast and lungs, in asthmas, in the tisane, and in the scurvy. The seed of it is esteemed by many to be one of the greatest lithontriptics known; and, by the instances that have been published of its doing service in nephritic complaints, it seems to merit a fair trial. The fresh leaves are by some recommended when broiling for old ulcers, and for burns and issatures. They are also applied by the good women to the soles of the feet, as a remedy in hysteric complaints.

The fection of a *burdock* root, viewed with a microscope, has the appearance represented in *Vol. of Microscopical Objects, Class 2.*

BURDOCK, *Water*, *Trapbella*, in *Botany*, a genus of the monœcia class of plants. Its characters are these: it has male and female flowers on the same plant; the male flowers have a common scaly empalement; they are composed of several tubulous, funnel-shaped, flowers, which are equal, and divided into five segments; the female flowers are situated under the male by pairs; they have no petals or flowers, but are surrounded by oblong seed prickly fruit, having two cells, each including one oblong seed, convex on one side and plain on the other. There are four species.

The roots of this plant are of a bitter and acrid taste, and are recommended as of great service in scrophulous cases, taken in decoction. Gladiolus gives great praise to the roots dried and powdered, and given in milk-whey, as a substitute for the lepracy; but these are now rarely used.

BURDONARII, in ecclesiastical government, a term given to pilgrims, or those who went out of devotion to the Holy Land.

The word is formed from BURDO, an appellation given to the mule whereon they rode.

BURDUNCULUS, in botany, a name given by some to the plant known among most of the botanical writers by the name of *burgundian scabious*, or *sea scabious*.

BUREFORD *public*. See SANDON.

BURGAGE, a tenure proper to boroughs and towns, whereby the inhabitants hold their lands and tenements of the king, or other lord, at a certain yearly rate. See BOROUGH *English*.

BURGAGE is sometimes used to denote the rent, or quit-rent paid to the chief lord for the burgage tenements in a town or borough.

BURGAGE also denotes in the laws of Normandy, (some imagine, that it had its first rise here, and was brought into England by William the Conqueror; others are of opinion, that Rollo, when driven out of England, carried it thence into Normandy.

BURGAGE, *free*, *Burgagium liberum*, denotes a tenure, whereby the tenant, after having paid their rent to the superior lord, were exempted from the service.

BURGAU, in *Natural History*, the name of a large species of bezoar, of the lunar or round-mottled kind. It is very commonly found with a coat, of the nature of the mother of pearl, and the artificers take this out, to use under the name of mother of pearl, though some call it after the name of the shell they take it from, *burgaudine*.

BURGAUDINE, the name given by the French artificers, to what we call mother of pearl. In their works, they do not use the common mere-shell for this, but the lining of the American bezoar. Some alone call the mother of pearl *burgaudine*, and others the *burgaudine* mother of pearl.

BURGEON, in *Gardening*, a knot or button put forth by the branch of a tree in the spring.

The word is formed from the French *bourgeon*, which signifies the same, formed from the Latin *burra*, of *surra*. *Burgeon* amounts to the same with what is otherwise called *eye*, *bud*, or *germ*.

Frosts are chiefly dangerous when the *burgeons* begin to appear.

The *burgeons* have the same shape, same pith, same ligneous body, and the same intentions as the bulb; that is, all the parts are the same in both, only more contracted in the former.

BURGESS, an inhabitant of a borough, or walled town, or one who possesses a tenement therein.

In other countries, *burgess* and citizen are confounded together, but with us they are distinguished. See BOROUGH.

The word is also applied to the magistrates of some towns; as the bailiff and *burgess* of Bewmaris.

Anciently, *burgesses* were held in great contempt; being reputed servile, base, and unfit for war; so that the gentry were not allowed to intermarry in the families, or with them; but, in less time, were to appoint champions. A *burgess*'s son was reputed of age, when he could distinctly count money, measure cloth, &c. Spelm. Gloss. Gibson's tr. cap. 6.

BURGESS, *knight of*, *Burgensis regni*, was he who, though residing in another's jurisdiction, was exempt therefrom, and only subject to the jurisdiction of the kings, unless the lord also enjoyed royal jurisdiction.

In statute 5 Rich. II. c. 4. where the several classes of persons in the commonwealth are enumerated, we meet with *esquire*, *gentleman*, *merchant*, *artificer*, *husbandman*, *labourer*, and *burgess*, or *burgh*.

BURGESS is now ordinarily used for the representative of a borough town in parliament.

The *burgesses* are supposed to represent the mercantile part or trading interest of the nation. They were formerly allowed by a rate established in the reign of Edward III. two shillings a day in wages. It is much to be regretted, that the members for boroughs have not a suitable proportion to those for counties. The right of election of *burgesses* depends on several local charters and customs; though by 2 Geo. II. c. 24. the right for the future shall be allowed according to the last determination of the house of commons concerning it; and by 3 Geo. III. c. 15. no freemen, except such as claim by birth, servitude, or marriage, shall be entitled to vote, unless he hath been admitted to his freedom twelve months before. No person is eligible as a *burgess*, who hath not a clear estate of 300*l.* a year. Stat. 9 Ann. c. 5. See PARLIAMENT.

BURGGRAVE, properly denotes the hereditary governor of a castle, or fortified town, chiefly in Germany.

The word is compounded of *burg*, *town*, and *graf*, or *grave*, *count*.

The *burggraves* were originally the same with what we otherwise call *castellans*, or *warders*, *castellani*; but their dignity was considerably advanced under Rudolph or Hapsburg; before this time they were taken only as counts, and below the princes, but under him began to be esteemed on a footing with princes.

In time even the dignity is much degenerated, especially in the Palatinate. There were formerly, according to Leti, fifteen families who enjoyed the title of *burggraves*, thirteen of which are now extinct. But this is differently represented by others.

In Bohemia, the title *burgrave* is given to the chief officer,

officer, or to him who wounds a man in quality of sheriff. In France, the *Connestable* is one of the four chief officers of the crown.

In Scotland, the *Bailiwick* of Nonegam is president of the three of the province.

BURGH, the same with a town or city.

Burgh-bote, is pillage used for an aid or contribution for fortifying or repairing a town or castle.

Burgh-bote, *brig-bote*, and *hedge-bote*, are exhibited and with or without the leave of king Athelstan, to edifice and repair town-walls or bridges, and for the same several every year, unless a man did by other service, the king himself excepted, who exempted from this service; yea, to fell wood and timber-trees from forth other men's woods, and carry them away, according to Cowel, the word *burgh-bote* seems to be chiefly used for timber for this service, but the liberty of exemption from it.

BURGH-*brech*, or *breche*, a fine inflicted on the community of a town, for the breach of peace among them.

BURGH-*mails*, were yearly payments to the crown of Scotland, introduced by Malcolm III. and resembling the *fee-farm* rents of lands in England. See MAIL.

BURGH-*master*, an officer in the city of Amsterdam, who directs and lays out the moneys for the workmen, &c. otherwise denominated a *lord* and BAILIFF-MASTER.

BURGHERMASTER, BOURGERMASTER, or BURGOMASTER, chief magistrates in the cities of Germany, Holland, and Flanders; to whom belong the giving of orders for the government, administration of justice, policy, and finances of the place, though the authority and office are not every where alike, each city having its particular laws and customs.

The word is formed from the old Flemish *maeta*, *burger*, *burgh*, or *citizen*; and *oofdt*, *oofde*, *head*, signifies in all languages, whether by custom, or the first and chief; so that *burgomaster* in Holland, answers to what is called *alderman*, and the *lord mayor* in England; *attorney* at Amsterdam, *advocate* at Antwerp, *syndic* at Liege, &c.

BURGLARY, or *burglary*, entering into another man's dwelling-house in the night, by any person, or into a church in the day-time, by night or day, to commit some felony, or to kill some person, or with intent to do the same, or to break open chests or boxes in which the same be executed, or not. The like offence by day, *see* CLERGY, *benefit of*, &c.

It is felony at common law, but within benefit of clergy: however, this is taken away from the principals by 18 Eliz. c. 7. and from all accessaries before the fact, by 3 and 4 W. and M. c. 9.

BURGMOTE, a borough-court; or court held for a town or borough. See LAW-*Days* and MOTE.

The word is also written *burgemot*, *burgemotus*, *burgemotum*, and *burgimotus*, from *burgh*, *oppidum*, and *mote*, or *gemot*, *conventus*.

The *burgemot*, by the laws of King Edgar, was to be held thrice in the year. By those of Henry I. twelve times.

BURGOMASTER, or *Gronlandt*, in *Ornithology*, a whimsical name given by the Dutch sailors to a species of *larus* or sea-gull, common on that and many other coasts. It is known among authors by the name of MAVIS-BACK.

BURGOO, or BURGOUT, a breakfasting dish, made of white oatmeal, or grits, boiled in water, and then buttered with butter. It is made in Scotland and in Wales, by making oatmeal and water, and boiling it into a moderate consistence. It is a cheap and strengthening diet.

Burgoo, otherwise called *Mash*, is held by Cockburn very proper to correct that stinking of humours and corruption to which the other diet of sailors much disposes them. Yet the Lapland Quailing is the least kind of all these provisions, because of the scanty allowance of butter to it. The same author thinks it might be worth the consideration of those to whom the care of the victualling is committed, to contrive to render this food more agreeable to them.

BURGWARD, *Burgwardus*, or *Burgwardium*, in *Middle Age Writers*, the same with BOROUGH.

The name is also common to the men, and even the country about such a fortress. It is formed from the Teutonic *burg*, *castrum*, and *ward*, *custodia*.

BURIAL, the act of interring a dead body, and depositing it in the ground.

Burial and *tithe* are accounted rights, and belong not to the parish, or rector, but to the patron.

Westminster-abbey is the burial place of most of our English kings.

The denial of burial has been frequent in most ages, and the denial of it to persons of the first and highest quality, as, yea, the Creeks appear to have declared it by a Pythian oracle to the ancients for it is by the command of Apollo to pacify to man. Post Argh. Greek. rep. in Hist. Cap. 1 Pub. Hist. Rel. the vii. Cr. Pyth. Quest.

Burial is said also to be a debt of humanity. Some points are obligations in the law of nature, others in the law of nations, and others on the divine law. It is certain it is performed by them all. One of the seven corporal works of mercy, recited by ancient writers, is *burying the dead*. The primitive Christians ventured on it at the hazard of their lives; they never omitted it either in times of persecution, or of the plague, when the greatest dangers attended it. They were always reminded of the plain duty of burying by inhumation, and could never be brought to use any other; reckoning it a great piece of humanity in their persecutors wherever they denied them this decent interment after death, as they sometimes did, either by exposing their bodies to the fury of wild beasts and birds of prey, or burning them to ashes and dispersing their doctrine of a future resurrection. They knew it to have had a particular exertion to burning; that not but was to put the body whole into the ground, or, if there was occasion for any other way of burying, they embalmed the body, and laid it in a coffin.

The heathens believed, that the souls of those, who lay unburied, remained in a wandering state during the space of a hundred years.

The invention of *burial* among the Greeks is ascribed to Pluto, who, on this account, was deified, and made to preside over the world of shades. The Rabbins record, that the first dust was taken from Judea. Adam and Eve, say they, being utterly at a loss what to do with the body of Abel killed by his brother, were relieved under this perplexity, by observing a crow to throw earth and leaves over the body of one of his dead companions. This was enough for the patriarchs: he went prudently, and did the same to his son. The Egyptians carried their dead for sepulture a certain time; for the prefect of which one Christian, a farmer under one of the Pharaohs, procured a toll to be imposed, by which he was speedily enriched. Whence arose a boat-tradition of the ferryman of hell. Cicero refers the origin of the vulgar opinion concerning hell to the ancient custom of *burying* the dead by inurnment; for from hence the earth was considered as the habitation of mankind, who were here supposed to lead a new life under-ground. Dion. Sic. lib. xxxvi. 15. Plut. Cod. Pindr. Vet. Tell. tom. i. 536. Hill. Acad. Inscript. tom. ii. p. 21 to 30.

Among the Greeks, throwing was no *burial*; for which reason, it was a custom to inflict on some part of their bodies a reward for him that should first throw up, and bury them in case they were cast ashore. Among us, however, those who die at sea are usually buried there, unless they be near land; the ceremony is *burying* the corpse being sewed up in its hammock, or quilt, it is thrown over from the starboard under the shrouds of a gun. It is a great disgrace to be thrown over the larboard.

The Arawcos, a people of Guiana, preserve the bodies of their great men and drink them in their liquor.

Some nations among the Brasilians are said to eat their dead, not out of hunger, much less delight, but affection and reverence.

As the same time that the Romans used to burn the bodies of their dead, the custom was to stand expence, to throw those of the slaves to rot in holes dug perpendicularly, called *puteoli*. Plut. Trans. No 295.

They also thought human bodies were compounded of earth, inclined to have them committed to the earth: Heraclitus and his followers, imagining fire the first principle of all things, preferred burning.

The ancients *buried* by day, as accusing the night of all enormities, on account of the evil spirits then abroad: and persons who died in the flower of their days, were *buried* in the morning before sunrise.

Among the Romans, we find two kinds of *burial*, mentioned in the Theodosian codex; one, the *burying* of whole bodies in coffins under ground; the other, *burning* the bodies and afterwards inclosing them under ground. Both appear to have been used at the same times, though interring appears to be the older practice.

Mr. Munro takes the ceremony about Rome to have been the *burial* place of the ancient Romans, before burning came into fashion; and which, on the new modes taking place, fell into disuse, till they were revived by the primitive Christians. See CATACOMBS, and Phil. Trans. No 265.

The Romans in Britain *buried* their warriors near the *via strata*, or military way, to put their bodies out of danger of infection, and to prevent the scattering of their ashes in battle, the whole army cast an heap of earth; which is the origin of many of the mounts still found about us. As it was the general endeavour to lie unburied, it was most glorious to be rewarded with a large monument, which might become a relation of the Romans acts: for those generals near public ways, that passengers might be continually adding to the heap, which it was judged a work of piety to do.

The ancient Saxons laid the bodies of their chief warriors in the field on the surface of the ground, and co-

vered

vered them with clods of earth; which were raised in proportion to their dignity. See BARROW.

Though burning was the ordinary usage among the Romans, yet some still retained the ancient one of *burying*. The family of the Cornelii constantly interred their dead till the time of Sylla the dictator, who, in his will, gave particular orders to have his body burnt, probably to avoid the indignities which might have been offered to after *burial*, by the Marian faction, in return for the violence shewn by Sylla's soldiers to the tomb and relics of Marius.

Burial was denied by the ancients to traitors, proscribed persons, suicides, and even frequently to enemies killed in war; though this was rejected, by the more moral and civilized nations, a violation of the laws of nature. Among the Greeks, spendthrifts and insolvent debtors were also refused the rights of *burial*. By the laws of the church, this penalty has been carried farther, to persons unbaptized and excommunicated, to those who could not say their creed and pater-noster, to strikers of ecclesiastics, and to those who should omit communicating at Easter. But the prohibition of *burial* is now restricted to persons excommunicate, unbaptized, and those have laid violent hands on themselves, idiots, lunatics, and, in some persons excepted, to heretics, to persons killed in duels, ties or tournaments. Potter Arch. Græc. lib. iv. cap. 1. Grot. de Jure Belli, lib. ii. cap. 19. § 2, 3. Seld. de Leg. Nat. lib. vi. cap. 16. Johns. Eccl. Law. Ann. 900. § 22. Ann. 1138. § 10. Ann. 1378. § 4.

Among the ancient Egyptians, kings themselves were to undergo a trial after their death; and, if their behaviour had been ill, were refused the privilege of Charon's boat, that is, to be carried to *burial*.

The Danes, and northern nations, in their second age, *buried* their dead under earthen hillocks. Sometimes huge pyramids of stone were raised over their bodies, many of which are still remaining in divers parts of England.

In Japan, Peru, Pegu, Mexico, Tartary, Siam, and the Great Mogul's dominions, they burn their dead. For the great ones, the fires are made with aromatic woods, gums, balsam, and oils. The like method obtained among the Jews as early as Saul's time, whose body was burnt at Jabesh, and his bones afterwards *buried*. Asa was buried in the bed which he had made for himself, filled with sweet odours, and divers kinds of spices. The ancients buried out of cities and towns: an usage which we find equally among Jews, Greeks, and Romans. Among the last, *burying* within the walls was expressly prohibited by a law of the Twelve Tables: *Hominem mortuum in urbe ne sepelito, neve urito*. The usual places of interment were in the suburbs and fields, but especially by the way-sides: partly, says Kennet, to put passengers in mind of their mortality, and partly also to save the best of their land.

Two reasons are alleged, why the ancients buried out of cities; the first, as opinion, that the touch, sight, or even neighbourhood of a corpse, defiled a man, especially a priest: whence the rule in A. Gellius, that the *flamen dialis* might not, on any account, enter a place where there was a grave: the second, to prevent the air from being corrupted by the stench of putrefied bodies; and the buildings from being endangered by the frequency of funeral fires. We have instances, however, of persons *buried* in the city. But it was a favour only allowed to a few of singular merit to the commonwealth. Plutarch says, those who had triumphed were indulged in it. Be this as it will, Val. Publicola, and C. Fabricius, are said to have had tombs in the Forum; and Cicero adds Tubertus to the number.

Lycurgus allowed his Lacedæmonians to *bury* their dead within the city, and around their temples, that the youth, being inured to such spectacles, might be the less terrified with the apprehension of death.

Burying in churches was allowed for the first three hundred years after Christ; but it was severely prohibited by the Christian emperors for many ages after. The first step towards it appears to have been the practice of erecting churches over the graves of some martyrs in the country, and transfusing the relics of others into churches, in the city: the next was, allowing kings and emperors to be buried in the atrium or church-porch. The reason alleged by Gregory the Great for *burying* in churches, or in places adjoining to them, was, that their relations and friends, remembering those whose sepulchres they beheld, might hereby be led to offer up prayers for them. And this reason was afterwards transferred into the body of the canon law. To this superstition, and the profit arising from it, we may ascribe the original of church-yards. In the eighth century, the people began to be admitted into the churches, and some princes, founders, and bishops, into the church. The practice first introduced into the Romish church by Gregory the Great, was brought over into England by Cuthbert archbishop of Canterbury, about the year 750: and the practice of erecting vaults in chancels, and under the altars, was begun by Lanfranc archbishop of Canterbury, when he had rebuilt the church in this city, about the year 1075. From that time, the matter seems to have been left to the discretion of the bishop. By our common law, no person can be *buried* within the church, without consent of the incumbent, exclusively of the bishop; because the freehold of the church belongs to him, and he is deemed the best judge who are entitled to the favour of being *buried* in the church.

Burying in any shroud, &c. that is not made of sheep's wool only, is by the English law, 30 Car. II stat. 1. c. 3. subject to a penalty of 5*l.* and an affidavit shall be made to this purpose, either to a magistrate, or the officiating minister. See CEMETERY, FUNERAL, &c.

Burying alive, was the punishment of a VESTAL who had violated her vow of virginity. The unhappy priestess was let down into a deep pit, with bread, water, milk, oil, a lamp burning, and a bed to lie on: but this provision was but show, for the moment she was at the bottom, they began to cast in the earth upon her, till the pit was filled up. Mem. Acad. Inscr. tom. iii. p. 278. Lord Bacon gives instances of the resurrection of persons who had been accidentally *buried* alive.

BURIAL, *Christian*, is often used to denote that which is performed in holy ground, and with the usual service or ceremonies of the church.

BURIAL is also used to denote the dues paid for interment, especially to the minister.

The *burial-fee* paid to the priest on opening the grave, was called by our Saxon ancestors *soul-scot*. Phil. Trans. N° 189.

BURIAL, *of an ass, asini sepultura*, an ignominious kind of *burial* out of holy ground, under the gallows, or in a highway, where several roads meet, and performed by public hangmen, or the like. Such is that of suicides, excommunicated persons, &c. sometimes denominated CANINE *burial*, or *burial* of a dog.

In the middle age we also find mention of a peculiar kind of *burial*, called IMBUCATION, practised on the bodies of persons excommunicated. Du-Cange.

BURIAL, *of the crucifix, Sepultura crucifixi*, denoted a representation of the *burial* of Christ, anciently performed annually in churches on the day of the Parasceve. Du-Cange.

BURIALS, in computations of mortality, denote deaths, and stand opposed to births.

In this sense, we have estimates of the *burials* in Brandenburg, in Francfort, Breslaw, &c. Phil. Trans. N° 261. 229. and 176.

By a statute under king Charles II. a register is to be kept in every parish, of all persons *buried* within the same, or at the common *burial*-places thereof. Stat. 30 Car. II. c. 3. See MORTALITY.

BURIAL is also used for the inclosing of vegetable or mineral bodies in the ground, for divers purposes. Lord Bacon gives divers experiments of *burying* fruits, &c. for preservation and condentation, and to give nourishment to their respective trees. Works, tom. iii. p. 80.

Some commend *burials* in the earth, others in wheat, to season TIMBER when first felled, and make it of more durable use. Chemists sometimes *bury* their cements. The Chinese are said to *bury* their porcelain, to give it the greater beauty.

BURIS, a name given by Avicenna, and some other old authors, to a scirrhous hernia, caused by a hard abscess.

BURLAW, or BYRLAW, *burlawa*, in *Saxon Age Writers*, denotes country laws, or the law concerning country affairs. Du-Cange.

BURLESQUE, a jocose kind of poetry, chiefly used in the way of drollery, either to excite laughter merely, or to provoke derision and ridicule.

F. Vavasor maintains, in his book *De Ludicra Dictione*, that *burlesque* was absolutely unknown to the ancients; against the opinion of some others, that one Raintovius, in the time of Ptolemy Lagus, turned the serious subjects of tragedy into ridicule; which, perhaps, is a better plea for the antiquity of farce than of *burlesque*.

The Italians seem to have the fullest claim to the invention of *burlesque*. The first author in this kind was Bernia; he was followed by Lalli, Caporalli, &c. From Italy it passed into France, and became there so much the mode, that in 1649 appeared a book under the title of "The Passion of our Saviour in Burlesque Verse." Thence it came into England; but the good taste of the English never adopted, or owned it, notwithstanding one or two have excelled in it.

BURLING *of cloth*. See CLOTH.

BURMANNIA, in *Botany*, a genus of the *hexandria monogynia* class of plants. The flower is small, and consists of three minute, ovated, oblong petals, situated at the mouth of the cup; the fruit is an involuted capsule, of

cylindraceo-trigonal figure, formed of three valves, with three cells, containing many small seeds. There are two species.

BURN, in a medicinal ſenſe, denotes a ſolution of the continuity of a part of the body, by the force of fire.

Of *burns*, phyſicians uſually make ſeveral degrees: the firſt when there are only a few puſtules raiſed on the ſkin, with a redneſs, and a ſeparation of the *epidermis* from the genuine ſkin. The ſecond, when the ſkin is burnt, dried, and ſhrunk, but without any cruſt, or ſcab. The third is, when the fleſh, veins, nerves, &c. are ſhrunk and form a ſcab.

Lufitanus recommends an unguent, made of the aſhes of laurel leaves burnt, with hog's fat dropped on them, for a *burn*; or, on occaſion, the *unguentum populeum*, with wine-leaves laid over it. Panarolus obſerves, that clay laid on a *burn* abates the pain; and that the brewers in Holland uſe a decoction of ivy for the cure of *burns*.

Burns are likewiſe divided into dry and humid, from the cauſes that produce them.

BURNS, *dry*, are thoſe occaſioned by the application of naked fire, or ignited body, as coals, flame, red-hot metals, gunpowder, lightning, and the like, which are attended with a corrugation or ſhriveling of the part.

BURNS, *humid*, more uſually among us called *ſcalds*, are thoſe occaſioned by fluid ſubſtances, as hot water, oil, wax, or the like.

Dry *burns* are of a worſe kind than moiſt ones. Of the dry, the worſt and moſt penetrating of all is that of lightning; the next are thoſe cauſed by melted metals and gunpowder; the next, by fats and oily ſubſtances; the ſlighteſt of all *burns* is that by hot water.

As *burns* nearly reſemble inflammatory diſorders in their ſeveral degrees, ſo they alſo do in their method of cure. In the ſlighter degree of *burns*, the beſt method is to have recourſe to emollients and aſtringents. The beſt ſlight aſtringent is either common proof ſpirit, or rectified ſpirit of wine, or, when it is neceſſary, ſpirit of wine camphorated: theſe may be applied to the part with linen rags, as may alſo oxycrate, or the pickle of cabbages, or litharge vinegar; and theſe applications muſt be repeated as there is occaſion. Oil of turpentine has alſo very good effects if applied in time, and repeated frequently. And the vulgar method of holding the injured part, when that is the hand or finger, to the fire, as long and as near as can be borne, is often attended with ſucceſs; for the ſtagnating fluids are, by this degree of heat, driven back into their proper channels, and, by that means, the veſication, and other troubleſome ſymptoms, which naturally ſucceed, are often prevented. Another remedy, however, there is, very efficacious on the ſame occaſions, though founded on a contrary intention: this is by emollient remedies which remove the tenſion of the fibres or veſſels, and reſtore the blood to its natural courſe before any bad ſymptoms come on, as the injured part may be fomented with water, made as warm as the patient can bear, till all the pain and heat entirely diſappear. Sydenham very highly, and with great reaſon, extols this method. It is eaſy, however, to add to the efficacy of it, by giving the virtues of a fomentation to the water before it is uſed, by boiling in it marſh-mallows, mallows, mullein, linſeed, fenugreek-ſeed, or quince-ſeed. Cataplaſms, made of the ſame ingredients are alſo of great ſervice, as are alſo the emollient oils of linſeed, and the like. Whatever remedies are uſed in this caſe, ſhould be very frequently repeated; and when it is the caſe that is *burnt*, they ſhould be ſpread on a linen maſk, to be kept conſtantly moiſt by the application of the ſame remedy.

When the *burn* is ſomething greater than this, and attended with veſication, or puſtules, the puſtules are by no means to be opened, which always brings on great pain; ſome of the remedies before mentioned will always prove of more ſervice, applied while the bliſters are whole; and, by the uſe of them, the heat and pain will quickly go off, and the cuticle will ſeparate from the cutis, without either deformity or pain. But if theſe remedies do not abate the pain, the part is to be ſtrewed with linſeed oil, or the litharge ointment, or the *unguentum dupleum bellicum*, or ſomething of a like kind. Theſe are to be applied either by rubbing them frequently on the part, or ſpreading them on a linen rag, and applying that, and often renewing it. After theſe, a plaſter of the *emplaſtrum de minio*, or any of a like kind, will keep the ſkin ſmooth, and forward the renovation of the cuticle. If the *burn* or ſcald, whichever it be, be very conſiderable in extent, and great part of the body be burnt, it is neceſſary to bleed plentifully, even till the patient faints, and to give a briſk purge. This method will often prevent ill conſequences, that too frequently elſe attend large *burns*: ſuch as foul ulcers, large cicatrices, and ſometimes even gangrenes. When infants are the ſubjects of theſe accidents, bleeding being not ſo convenient, the revulſion is to be made by repeated purges; and, in grown perſons, a regularity of diet is above all things to be obſerved.

In the yet greater degree of *burns*, where the burnt part is covered by a cruſt or eſchar, the cure cannot be performed without ſuppuration. When this accident happens to the face, great caution is neceſſary, to avoid making a deformed cicatrix: for this reaſon, all ointments and plaſters whatever are to be forbidden, even though they are the moſt valuable ſecrets, as there are in almoſt all families many ſuch; for the miſchief of theſe remedies is, that they all dry up the wound too faſt, and contract the fibres and the ſkin, and by ſuch means leave an uneven cicatrix. The forwarding the caſting off the eſchar, is by all means to be attempted, and the diſcharge of the matter that is contained under it. The eaſieſt and moſt ſucceſsful method of doing this, is by the repeated application of emollients. Three or four times every day the dreſſings are to be changed; and if, at any of theſe times, any part of the eſchar is found to be looſe, it muſt be raiſed with the *forceps*, and removed, if that conveniently may be; at the ſame time, the reſt of the eſchar muſt be anointed with butter, and warm fomentations, made of emollient herbs, &c. applied. Two, three, or four days employed in this manner, generally afford a ſeparation of all the cruſt or eſchar; and the next intention is then to heal the wound. It is firſt, therefore, to be thoroughly cleanſed, by means of ſome mild digeſtive mixed with honey of roſes, and afterwards healed up with any of the lead or litharge ointments. If the eſchar in theſe caſes ſhou'd not ſeparate in proper time, it will be neceſſary to make a deep inciſion through the middle of it, to let out the included ſanies. *Burns* of the moſt extreme and worſt kind, where the *burn* has penetrated ſo deep as to deſtroy all the parts quite down to the bone, can have no relief from medicines; nor is there any thing in the ſurgeon's power, but amputating the limb. Heiſter.

Burns, however, are not only diſeaſes, but in ſome caſes remedies: M. Homberg obſerves, that in the iſle of Java the natives cure themſelves of a colic, otherwiſe mortal, by burning the ſoles of their feet; and cure themſelves of a *ponaris*, by dipping their finger in boiling water ſeveral times. In the country of the Mogul, the colic is cured by an iron ring applied red-hot about the patient's navel.

Travellers relate many other caſes of other diſeaſes cured by *burning*; and we ſee the effects of it ourſelves, in horſes, hounds, birds of prey, &c.

A kind of downy matter, called *moxa*, brought from the Indies, has been likewiſe uſed for the gout; applied, by *burning* it on the part affected. Many of the Japaneſe are covered with ſcars, ariſing from the uſe of the MOXA. And among theſe people the whole art of phyſic conſiſts in the choice of proper places to be burnt; which are varied according to the nature of the diſeaſe. *Burning* has been particularly recommended in the gout, as a fever but adequate cure of that ſtubborn diſeaſe.

M. Homberg gives us inſtances of two women cured, the one of a violent diſeaſe in the head and eyes, and the other of a diſeaſe in the legs and thighs, by the accidental *burning* of thoſe parts. He adds, that *burning* may cure in three ways; either by putting the peccant humours into a greater motion, and making them take new routs; or by diſſolving and breaking their viſcidity; or by deſtroying the canals which brought them in too great quantities.

Burning pyramidal pieces of tow or cotton on the joints, is an ancient practice revived in Europe, chiefly by Fab. ab Aquapendente, and Severinus, againſt pains of the joints ariſing from cold and viſcous humours impacted in them. The operation is alſo ſpoke of by Hippocrates and Celſus; the former of whom recommends the uſe of raw flax. Severinus calls it the Arabian *burning*, becauſe moſt frequently uſed among that people, though common enough alſo among the Egyptians. Hippocr. App. ſect. libs. vi. & de Affect. Text. 30 & 32. Celſ. lib. iv. cap. 22. Alpin de Med. Egypt. lib. iii.

BURN, *Heart*. See HEART.

BURNET, BURNETA, or BURNETUS, in *Middle Age Writers*, denotes brown cloth made of dyed wool.

In which ſenſe, the word ſtands contradiſtinguiſhed from *brunus*, which was applied to the wool undyed.

BURNET, in *Botany*. See POTERIUM, and SANGUISORBA.

BURNET *ſaxifrage*. See *Burnet* SAXIFRAGE.

BURNING, the action of fire on ſome pabulum, or fuel, whereby the minute parts thereof are torn from each other and put into a violent motion; and ſome of them aſſuming the nature of fire themſelves, fly off *in ætherem*, while the reſt are diſſipated in form of vapour, or reduced to aſhes.

The appearances of *burning* ariſe ſucceſſively, and in a certain order: a heat muſt precede greater than what ſuffices to boil oil; the lighteſt and moſt volatile parts of

the body burn the firſt; the heavier are ſlower in taking fire, but burn the longeſt.

Burning is a ſeparation of the parts of bodies made by means of fire. Some conſider it as a ſpecies of ſolution, and ſuppoſe it effected by a diſſolvent power inherent in fire, which acts as a menſtruum in reſpect of the ſulphureous parts of bodies.

Dr. Hooke, conſidering the neceſſity of air to *burning*, and that heat, however great, does not alone ſuffice to burn a body, does indeed take *burning* for a ſolution of the ſulphureous parts of bodies; but ſuppoſes the menſtruum, by which it is done, to be the air, or at leaſt ſome ſubtile, ſaline, nitrous ſubſtance diffuſed in the air. See AIR, CALCINATION, CALX, FIRE, and PHLOGISTON.

BURNING is alſo applied to the action of divers things which are cold to the touch, or do not contain fire.

In this ſenſe *aqua fortis* is ſaid to burn cloth. There are certain fogs which burn or ſcorch the corn. Virgil obſerves that ſevere cold *itſelf will burn*, that is, have much the ſame effects on the parts of the body as fire itſelf, in cauſing gangrenes.

BURNING, *extraordinary caſes of.*—We have inſtances of perſons *burnt* by fire kindled within their own bodies. A woman at Paris, who uſed to drink brandy in exceſs, was one night reduced to aſhes by a fire from within, all but her head and the ends of her fingers. Novum Lumen Phoſphor. accend. Amſt. 1717.

Signora Corn. Zangari, or, as others call her, Corn. Bandi, an aged lady, of unblemiſhed life, near Ceſena in Romagna, underwent the ſame fate in March, 1731. She had retired in the evening into her chamber ſomewhat indiſpoſed, and in the morning was found in the middle of the room, reduced to aſhes, all except her face, ſkull, three fingers, and legs which remained entire, with the ſhoes and ſtockings on. The aſhes were light, and, on preſſing, between the fingers, vaniſhed, leaving a greaſy ſtaining moiſture behind, with which the floor was incaſed: the walls, and furniture of the room, being covered with a moiſt cineritious ſoot, which had not only ſtained the linen in the cheſts, but had penetrated into the cloſet, as well as into the room over-head, the walls of which were moiſtened with the ſame viſcous humour. Mem. de Trev. an. 1731. p. 1203.

Sig. Mondini, Bianchini, and Maffei, have written diſcourſes expreſs, to account for the cauſe of ſo extraordinary an event: common fire it could not be, ſince this would likewiſe have burnt the bed and the room; beſides that it would have required many hours, and a large quantity of fuel, to reduce a human body to aſhes; and, after all, a conſiderable part of the bones would have been left entire, as they were anciently found after the fierceſt funeral fires. Sign. Mondini attributes this effect to lightning. A philoſopher of Verona maintains, that ſuch a conflagration might have ariſen from the inflammable matters wherewith the human body naturally abounds. Sig. Bianchini accounts for it from an internal fire, occaſioned by ſpirit of wine camphorated, which the lady uſed by way of bath or lotion, when ſhe found herſelf out of order. Maffei's ſyſtem is a combination of the three laſt: he ſuppoſes it owing to lightning, but lightning generated in her own body; agreeable to his doctrine, which is, that lightning does not come from the clouds, but is always produced in the place where it is ſeen, and its effects perceived. The humours of her body, naturally inflammable enough, were become preternaturally ſo, by her putrid indiſpoſition; and theſe, by perſpiration, had inveloped her body with an atmoſphere of the ſame kind, replete likewiſe with mineral matters, whereby its activity was heightened. She had probably riſen in the night to uſe her lotion, and, by the friction of her hand, had helped to kindle the flame.

We have various relations of ſeveral other perſons being *burnt* to death in this unaccountable manner; as Grace Pet of Iſpſwich, in 1744; and Mary Clues of Coventry, in 1772. An attempt has been made to eſtabliſh the opinion, that theſe deſtroying internal fires are cauſed in the entrails of the body, by inflamed effluvia of the blood, by juices and fermentations in the ſtomach, by the many combuſtible matters which abound in living bodies, for the uſes of life, and, finally, by the fiery evaporations which exhale from the ſettlings of ſpirit of wine, brandies, and other hot liquors, in the *tunica villoſa* of the ſtomach, and other adipoſe or fat membranes; within which thoſe ſpirits engender a kind of camphor, which in the night-time, in ſleep, by a full reſpiration, are put in a ſtronger motion, and are more apt to be ſet on fire. See Phil. Tranſ. N° 476. p. 453, ſeq. Ibid. vol. lxiv. pt. ii. p. 340.

Others aſcribe the cauſe of ſuch perſons being ſet on fire, to lightning; and theſe *burning* ſo entirely, to the greater quantity of PHOSPHORUS, and other combuſtible matter they contained.

It is well known, that ſtaſhes of light have been often produced from the bodies of men, as well as other animals, by a brisk motion. Fortunius Licetus mentions a perſon, who, by only rubbing his body with his hand, could make fire iſſue; and Maffei relates the ſame of Signora Caſſandra Buri Rambaldo of Verona, who needed only rub her ſleeve with a linen cloth, to produce ſtaſhes of light. See ELECTRICITY, LIGHT, PHLOGISTON, PHOSPHORUS, &c.

BURNING is alſo a denomination given by phyſicians to divers diſorders, on account of a ſenſation of heat that attends them. In which ſenſe we ſay a *burning* FEVER. See CAUSUS.

Among the divers ſpecies of madneſs incident to dogs, one is called the *burning* madneſs. If a mare which has been covered, and the colt knit within her, be covered by another horſe, he is ſaid to *burn* her.

BURNING is more particularly uſed for the herpes, or *ignis ſacer*, called ERYSIPELAS and *arſura*.

BURNING, among *Surgeons*, denotes the application of an actual cautery, that is a red-hot iron inſtrument, to the part affected; otherwiſe denominated cauterization. See CAUTERY.

BURNING, in *Antiquity*, was a practice much uſed by the Greeks, Romans, and northern nations; and ſtill retained by many people in both Indies, with reſpect to their dead. Phil. Tranſ. N° 126. See BURIAL.

In this ſenſe, *burning* ſtands oppoſed to burying; though, after *burning*, the BONES remaining, and aſhes, have been uſually collected into urns, and depoſited in the earth. Phil. Tranſ. N° 285.

Kings were burnt in cloth made of the ASBESTOS ſtone, that their aſhes might be preſerved pure from any mixture with the fuel, and other matters thrown on the funeral pile. And the like uſage is ſtill retained for the princes in Tartary.

Burning is not ſo ancient among the Greeks as interring; though we find it obtained in the time of the Trojan war. Potter. Arch. lib. iv. cap. 6. tom. ii.

For the manner of *burning* among the Greeks; the body was placed upon the top of a pile, on which were alſo thrown divers animals, and even ſlaves and captives, beſides unguents and perfumes. In the funeral of Patroclus, we find a number of ſheep and oxen thrown in, then four horſes, followed by two dogs, and, laſtly, by twelve Trojan priſoners. Hom. Il. xxiii.

Euſtathius aſſigns two reaſons for the prevalency of *burning* in Greece; the firſt, that bodies being thought to be unclean after the ſouls departure, were to be purified by fire: that the ſoul, or purer part, being ſeparated by the flames, from the groſs inactive matter, might take its flight to the heavenly manſions with more freedom. This latter opinion obtained ſo much, that the Indian philoſophers had not patience to wait for *burning* till after death; they had recourſe to it in their life-time; erecting themſelves piles for the purpoſe, to looſen their ſouls from confinement. Calanus, who followed Alexander out of India, finding himſelf indiſpoſed, obtained that prince's leave to prevent the growth of his diſtemper, by committing himſelf to the flames; and Hercules, before his reception into heaven, was purified from the dregs of earth by the ſame means. Quintil. Declam. x. Potter ubi ſupra.

Soldiers uſually had their arms burnt with them. The garments worn by the living, were alſo thrown on the pile with other ornaments and preſents; a piece of extravagance, which the Athenians carried to ſo great a length, that ſome of their law-givers were forced to reſtrain them, by ſevere penalties, from defrauding the living by their liberality to the dead. *Virgil. Æn.* lib. vi. Potter. lib. cit.

Pliny aſſures us, that *burning* was firſt brought into uſe among the Romans, on occaſion of the cruel uſage which the bodies of the dead Romans underwent in enemies countries. But this muſt only be underſtood in regard of the common uſage; ſince we find mention of *burning* as practiſed by ſome even in the earlieſt ages of Rome: Numa forbad his own body to be *burned*, commanding it to be laid entire in a ſtone coffin, which ſhews that the practice of *burning* was not then unknown at Rome. Plin. Hiſt. Nat. lib viii. cap. 54. Kenn. Rom. Ant. p. ii. lib v. cap. 10.

In ſome caſes, *burning* was expreſly forbid, and looked upon as the higheſt impiety. Thus infants, who died before the breeding of teeth, were entombed unburnt, in the ground, in a particular place ſet apart for this uſe, called *ſuggrundarium*. The like was practiſed with regard to thoſe who had been ſtruck dead with lightning, who were never to be *burnt* again.

Some ſay, that *burning* was deemed to ſuicides as a puniſhment.

The manner of *burning* among the Romans, was not unlike that of the Greeks: the corpſe being brought without the

the city, if they designed to burn it, was carried directly to the place appointed for that purpose; which, if it joined to the sepulchre, was called *bustum*, if separate from it, *ustrina*, and there laid on the *rogus*, a pile of wood prepared to burn it on, built in shape of an altar, but of different height, according to the quality of the deceased. The wood used was commonly from such trees as contained moft pitch or rofin; and if any other were used, they ſplit it for the more eaſy catching fire: round the pile they ſet cypreſs trees, probably to hinder the noiſome ſmell of the corpſe. The body was not placed on the bare pile, but on the couch or bed where it lay on. This done, the next of blood performed the ceremony of lighting the pile, which they did with a torch, turning their face all the while the other way, as if it were done with reluctance. During the ceremony, decurſions and games were celebrated: after which came the *oſſilegium*, or gathering the bones and aſhes; alſo waſhing and anointing them, and depoſiting them in urns, which were common to both nations. Tibul. lib. i. Eleg. i. Virg. Æn. lib. vi. Kennet and Potter. lib. cit. It is commonly ſuppoſed the practice of *burning* ceaſed at Rome under the empire of the Antonines.

BURNING *alive*, among the Romans, a puniſhment inflicted on deſerters, betrayers of the public councils, incendiaries, coiners, and even Chriſtians: it was called *cremation*.

The Jews had two ways of *burning*; one called *burning* of the body, performed with wood and faggots; the other, *burning* of the ſoul, *combuſtio animæ*, performed by pouring ſcalding hot lead down their throats. The prieſt's daughter, who committed whoredom, he that lay with his own daughter, or grand-daughter, or his mother-in-law, were *burnt* alive. Phil. Tranſ. N° 230. Godw. Moſes and Aaron, lib. v. cap. 7.

BURNING, *Uſtio*, in *Chemiſtry*, is diſtinguiſhed from CALCINING; as the former is performed in cloſe veſſels, and terminates in charring, or reducing the body to a blackneſs; whereas the latter burns them white, being performed in the open air.

It alſo differs from ROASTING, *toſtio*, as, in *burning* the fire is applied in contact with the body; in roaſting at a diſtance from it.

A cauſtick *burning* volatilizes ſalts, as common ſalt, *ſal alkali*. *Burning* alſo produces ſomewhat of a mineral ſulphur out of tartar, &c.

BURNING, or BRENNING, in our *Ancient Cuſtoms*, denotes an infectious diſeaſe, got in the ſtews, by converſing with lewd women; ſuppoſed to be the ſame that we now call the VENEREAL *diſeaſe*. Whence that diſeaſe is argued to be much more ancient than the common epocha of the ſiege of Naples.

The chief objection againſt *burning* being the ſame with the venereal diſeaſe is, that the remedies preſcribed againſt the former, would be ineffectual in the latter: but it is not to be expected, the meaſures of the ancient phyſicians ſhould be calculated for the removing of any malignity in the maſs of blood or other juices, as in the modern practice; inaſmuch as they looked on the diſeaſe as merely local, and the whole of the cure to depend on the removal of the ſymptoms: beſides this, it is matter of frequent obſervation, that ſome diſeaſes grow more violent, and others more remiſs in courſe of time: ſo that the remedies which might have availed for the ancient *burning*, may now fail as to the modern *pox*. The proceſs for the cure, as delivered by J. Arden, chirurgeon to king Henry IV. is thus: *Contra* incendium *virgæ virili interius, a rubro & exteriatino, ſiat talis ſyringa* (i. e. *injectio*) *lenitiva. Accipe ius muſtarum maſculum nutrientis, & parum vinarium, elem. viola & pe ſume: quibus commiſtis per ſyringam infundatur.*

In an ancient MS. written about the year 1390 is a receipt for *burning of the pyntel pot men clepe the apegolle*; *gole* being an old word for a running ſore. And in another MS. written fifty years after, is a receipt for *burning in that part by a woman*. Simon Fiſh, a zealous promoter of the Reformation, in his Supplication of Beggars, preſented to king Henry VIII. 1530, ſpeaking of the Romiſh prieſts, ſays, "They catch the pocks of one "woman, and bare them to another; they be burnt with "one woman, and bare it to another; they catch the "lepry of one woman, and bare it to another." And Board, a prieſt and phyſician in the ſame reign, begins one of his chapters of his Breviary of Health, thus: "The 19th chapter doth ſhew of the *burning* of an "harlot." The ſame author adds, that if a man be *burnt* with a harlot, and do meddle with another woman within a day, he ſhall *burn* the woman he ſhall meddle withal: and, as an immediate remedy againſt the *burning*, he recommends the waſhing the *pudenda* two or three times with white wine, or elſe with ſack and water.

BURNING *of Diamonds*, is uſed among the Jewellers for putting the DIAMONDS into a fierce fire, in order to diveſt them of a yellow or brown colour.

BURNING *on the forehead, Frontis inuſtio*, was anciently the penalty of a calumniator. In the middle age, we find frequent inſtances of *burning* in the cheek; a puniſhment affected to bondmen, or villains guilty of theft.

BURNING-*glaſs, or burning mirror*, a machine whereby the ſun's rays are collected into a point, and by that means their force and effect extremely heightened, ſo as to burn objects placed therein.

Burning-glaſſes are of two kinds: the firſt convex, called *lentes cauſticæ*; which tranſmit the rays of light, and in their paſſage refract, or incline them towards the axis; having the property of lenſes, and acting according to the laws of refraction.

The ſecond, which are the more uſual, are concave; very improperly called *burning-glaſſes*, being uſually made of metal; there reflect the rays of light, and, in that reflection, incline them to a point in their axis: having the properties of *ſpecula* or MIRRORS; and acting according to the laws of REFLEXION.

The firſt, or convex kind, authors ſuppoſe to have been unknown to the ancients; but the latter they are generally allowed to have been acquainted with. Their magnifying power is taken notice of both by Seneca and Pliny; and their burning power is mentioned in a Treatiſe of Optics, aſcribed to Euclid, theorem 31. It is probable that the Romans had a method of lighting their ſacred fire by means of reflecting concave *ſpecula*. But Porta, and many others, ſuppoſe that the *burning* mirrors of the ancients were made of metal, in form of a ſection of a parabola, having the vertex cut off; it being the well-known property of this curve, to reflect all rays that fall upon it parallel to the axis into the focus. Hiſtorians tell us, that Archimedes, by means of reflecting mirrors, burnt a whole fleet; and though the effect related be very improbable, yet does it ſufficiently prove ſuch things were then known. The machines then uſed, nobody doubts, were metallic and concave, and had their focus by reflexion: it being agreed, that the ancients were unacquainted with the refracted *foci* of convex glaſſes. Yet M. de la Hire has diſcovered even theſe in the Clouds of Ariſtophanes; where Strepſiades tells Socrates of an expedient he had to pay his debts by means of a round tranſparent ſtone or glaſs, uſed in lighting of fires, by which he intended to melt the bond; which in thoſe days was written on wax. The glaſs here uſed to light the fire, and melt the wax, M. de la Hire obſerves, could not be concave; ſince a reflected *focus*, coming from below upwards, would have been exceedingly improper for that purpoſe: and the old ſcholiaſt of Ariſtophanes confirms the ſentiment. Pliny makes mention of globes of glaſs of cryſtal, which being expoſed to the ſun, burnt the cloaths and fleſh on people's backs; and Lactantius adds, that a glaſs ſphere, full of water, and held in the ſun, lighted the fire even in the coldeſt weather; which inconteſtibly proves the effects of convex glaſſes.

Indeed, there is ſome difficulty in conceiving how they ſhould know ſuch glaſſes burnt, without knowing they magnified; which it is granted they did not, till towards the cloſe of the thirteenth century, when ſpectacles were thought of. For as to thoſe paſſages in Plautus, which ſeem to intimate the knowledge of ſpectacles, M. de la Hire obſerves, they do not prove any ſuch thing: and he ſelves this by obſerving, that their *burning-glaſſes* being ſpherical, either ſolid, or full of water, their *foci* would be one fourth of their diameter diſtant from them: if then their diameter were ſuppoſed half a foot, which is the moſt we can allow, an object muſt be at an inch and a half's diſtance to perceive it magnified: thoſe at greater diſtances do not appear greater, but only more confuſed, through the glaſs than out of it. It is no wonder, therefore, the magnifying property of convex glaſſes was unknown, and their *burning* one known: it is more wonderful there ſhould be 300 years between the invention of ſpectacles and teleſcopes.

Every concave mirror, or *ſpeculum*, collects the rays diſperſed through its whole concavity, after reflexion, into a point or focus; and is therefore a *burning* mirror.

Hence, as the focus is there where the rays are the moſt cloſely contracted, if it be a ſegment of a large ſphere, its breadth muſt not ſubtend an arch above eighteen degrees: if it be a ſegment of a ſmaller ſphere, its breadth may be thirty degrees; which is verified by experiment. As the ſurface of a mirror, which is a ſegment of a larger ſphere, receives more rays than another of a leſs, if the latitude of each ſubtend an arch of eighteen degrees; or even more or leſs, provided it be equal; the effects of the greater mirror will be greater than thoſe of the leſs. And as the *focus* is contained between the fourth and fifth parts of the diameter, mirrors that are ſegments of greater ſpheres *burn* at a greater diſtance than thoſe which are ſegments of a ſmaller.

Since, laſtly, the *burning* depends on the union of the

rays, and the union of the rays on the concave spherical figure; it is no wonder, that even wooden mirrors, gilt, or their prepared of alabaster, &c. covered with gold, clay, even that those made of paper, and covered with straw, should be found to burn.

Among the ancients, the *burning* mirrors of Archimedes and Proclus are eminent; by one of which, the Roman ships besieging Syracuse, under the command of Marcellus, according to the relation of Zonaras, Tzetzes, Galen, Eutrachius, Anthemius, &c. and by the other, the navy of Vitalian besieging Byzantium, according to the same Zonaras, were burnt to ashes.

Many have questioned the fact recorded by several historians concerning the furprising effects of Archimedes's *burning* mirrors; and they have principally urged the impossibility of producing such effects by means of concave specula, the focal distance of which must have been much too small for the purpose. Des Cartes, particularly, discredited the story, as fabulous, on this account: but Kircher made many experiments with a view of vindicating its credibility. Apprehending that the concave specula of the ancients were sections of a parabola, he began with combining several of this figure; but, failing of success in this way, he tried the effect of a number of plane mirrors; and easily five mirrors of the same size, placed in a frame, he contrived to throw the rays reflected from them to the same place, at the distance of more than a hundred feet; and by their means he produced such a degree of heat, as led him to conclude that, by increasing their number, he could have fet fire to inflammable substances at a greater distance. He likewise made a voyage to Syracuse, in company with his pupil Schottus, in order to examine the place of the supposed transaction; and they were both of opinion, that the galleys of Marcellus could not have been more than thirty paces from Archimedes. M. Buffon, though ignorant of the particular teftimonies of ancient writers, relative to the invention of Archimedes, and of the attempts of Kircher above mentioned, has more lately, by a fimilar experiment, fufficiently evinced the practicability of the operation.

Dr. Wolfe, in the year 1708, after having given an account of fome parabolic mirrors, conftructed by M. Hoefen of Dresden, offers a conjecture, that thofe of Archimedes might be of this kind, fince it is not difficult to determine a parabola, whofe parameter is 1000 feet; and that rays reflected from fuch a fpeculum might be received by a lens, after having been brought to a focus, and tranfmitted parallel to any diftance; but he was not apprifed, that Kepler and Dechales had fhewn, that no rays could be conveyed parallel to one another, except thofe which proceeded from the fame points in the fun's difc. *Dutens du Miroir Ardent d'Archimede.* Paris, 1755 Phil. Tranf. vol. xlviii. p. 622, &c. Ibid. vol. lix. p. 8.

Among the moderns, the moft remarkable *burning* mirrors, are thofe of Magine, twenty inches in diameter, of Septala of Milan, which was more three feet and a half in diameter, and which burnt at the diftance of fifteen feet; of Villette, and Tichirnhaufen, and the new complex one of M. Buffon.

Villette, a French artift at Lyons, made a large mirror, which was bought by Tavernier, and preferted to the king of Perfia; a fecond, bought by the king of Denmark; a third preferted by the French king to the Royal Academy; a fourth has been in England, where it was publickly expofed.—The effects hereof, as found by Dr. Harris and Dr. Defaguliers, are that a filver farthing is melted in 7", and 3/4 a king George's halfpenny in 16", and runs with a hole in 34". Tin melts in 4", and runs in 16", fhoe in 9", a bottle fhell calcines in 3", a piece of Pompey's Pillar at Alexandria, vitrifies in the black part in 50", in the white in 34" copper orc in 8", bone calcines in 4", and vitrifies in 35". An emerald melts into a fubftance like a turquoife ftone; a diamond weighing four grains, lofes 1 of its weight; the *afbeft* vitrifies; as all other bodies will do, if kept long enough in the *focus*; but when once vitrified, the mirror can go no farther with them.—This mirror is 1944 inches wide; and is ground to a fphere of feventy-fix inches radius; fo that its focus is about thirty-eight inches from the *vertex*. Its fubftance is a compofition of tin, copper, and the glafs. Phil. Tranf. ubi fupra, p. 628.

M. Tchirnhaufen's reflecting mirror deferves next to be mentioned. The following things are noted of it in the Acta Eruditorum, for 1687, p. 52. 1. Green wood takes fire inftantaneoufly, fo that a ftring will cannot extinguifh it. 2. Water boils immediately, and eggs in it are prefently edible. 3. A mixture of tin and lead, three inches thick, drops prefently, and iron or fteel plate becomes red hot prefently, and a little after burns into holes. 4. Things not capable of melting, as ftones, bricks, &c. become foon red-hot, like iron. 5. Slate becomes firft white, then a black glafs. 6. Tiles are converted into a yellow glafs, and thofe into a blackifh yellow one. 7. A pumice-ftone omitted from a volcano, melts into white glafs; and, 8. A piece of crucible alfo vitrifies in eight minutes. 9. Bones are foon turned into an opaque glafs, and coals into a black one. It is made of copper and its fubftance is not above double the thickness of the back of a knife: this was about 4 French feet in diameter, and it burnt at the diftance of twelve feet. Every lens, whether convex, plano-convex, or concavo-convex, collects the fun's rays, difperfed over its concavity, into a point by refraction; and is therefore a *burning-glafs*. The moft confiderable of this kind known, is that made by M. de Tfchirnhaufen: the diameter of his lenfes are three and four feet; the focus is at the diftance of twelve feet, and its diameter an inch and a half. To make the focus more vivid, the rays are collected a fecond time by a fecond lens parallel to the firft; and placed in that place where the diameter of the cone of rays formed by the firft lens, is equal to the diameter of the fecond; fo that it receives them all; and the focus from an inch and a half, is contracted into the fpace of eight lines and its force increafed proportionally. It was purchafed by the duke of Orleans, who preferred it to the French Academy. Its weight was 160 pounds.

Its effects, among others, as related in the Acta Eruditorum, are, that it fufes hard wood, even moiftened with water, into a flame, inftantly; that water, in a brafs veffel, begins to boil prefently; all metals are melted; brick, pumice-ftone, delft wares and the *afbeftus* ftone, are turned into glafs; fulphur, pitch, &c. melted under water; the athes of vegetables, woods, and other matters, tranfmuted into glafs; in a word, every thing applied to its focus, is either melted, turned into eafs, or into fmoke; and the colours of jewels, and all other bodies, metals alone excepted, are changed by it. Herbs leaves, that it, fuccefs beft when the matter applied is laid on a hard charcoal, well burnt.

Though the force of the folar rays be here found fo ftupendous, yet the rays of the full moon, collected by the fame *burning-glafs*, do not exhibit the leaft increafe of heat. Farther, as the effects of a *burning* lens depend wholly on its convexity, it is no wonder that even thofe prepared of ice produce fire, &c. A LENS of that kind is eafily prepared, by putting a piece of ice into a ftuttle, or hollow fegment of a fphere, and melting it over a fire, till it accommodate itfelf to the figure thereof.

Nor will thofe ignorant of dioptrics be lefs furprifed to fee flame, and the effects thereof, produced by means of the refraction of light in a glafs bubble with water.

Wolfius tells us, that an artift of Dresden made *burning mirrors* of wood, bigger than thofe of M. Tfchirnhaufen at Villette, which had effects at leaft equal to any of them.—Trabetius teaches how to make *burning mirrors* of leaf gold, viz. by turning a concave, having its infide equally wide pitch, and covering that with figure pieces of the gold, two or three fingers broad, faftening them on, if need be, by fire. He adds, that very large mirrors may be made, of thirty, forty, or more concave pieces, artifully joined in a turned wooden dish or ftuttle; the effects of which will not be much lefs than if the furface was continuous.—Zahnius adds farther, that Newman, an engineer at Vienna, in 1699, made a mirror of paffe board, covered within-fide with ftraw glued to it; by which all kinds of metals, &c. were readily melted. Sir Ifaac Newton's *burning mirror* conftifted of feven concave glaffes, each of which was fixteen inches and a half in diameter, and fo difpofed as to have one common focus: for of them were placed round the feventh, and contiguous to it, in fuch a manner as to form the fegment of a fphere, whofe fubtenfe is about thirty-four inches and a half, the focus is about twenty-two inches and a half diftant, and about half an inch in diameter. This fpeculum vitrified brick or tile inftantaneoufly, and in about half a minute melted gold. M. Zeiher, not long fince, made fome improvement of this inftrument; and formed pieces of plain glafs into the neceffary degree of curvature, by heating them to hot in a dith made of metal, that they could all aflume the fame form. M. Buffon has conftructed furnaces for converting plain into concave mirrors: the mirrors are expofed to a degree of heat fufficient to fofren the glafs, in confequence of which it conforms itfelf to the fpherical figure of the mould on which it is placed. This method is fubject to many difficulties and accidents; however out of twenty-four mirrors treated thus, M. Buffon preferved three; two of which are thirty-feven inches in diameter, and the other forty-fix inches. The laft was ill-polifhed, and preferted to the French king; and is reprefented by the matter as the moft powerful *burning* mirror in Europe; and yet the moon's light reflected from this concave fpeculum, on a thermometer placed in the focus, produced no fenfible dilatation of the included fluid. M. Buffon

has also made attempts for constructing convex lenses of great power, by fixing two of the above mentioned concave glasses together, and filling the cavity between them with water: one of his glasses broke in the trial: but others have since undertaken to construct these water lenses. He has likewise suggested another improvement in the construction of *burning* glasses, consisting in a contrivance for diminishing the thickness of the middle or central part of the lens from three inches to one inch; whereby he proposes to prevent the diminution of light occasioned by its passing through the middle part of a lens of large diameter, and short focus, which must be proportionably thick in that part. This new kind of lens is composed of three parts ground to the same *radius*, or of two circular zones, or bands, surrounding a central or middle part. He supposes that the heat in the focus of a lens of this kind, three feet in diameter, will be about four times greater than that produced by any *burning* glass yet known.

But the most considerable improvement which M. Buffon has introduced into the optical apparatus in his machine, consisting of a number of mirrors whereby he seems to have revived the secret of Archimedes, and to have vindicated the credit of history in this point. In the year 1747 he constructed a machine, with a hundred and forty plain mirrors, each about four inches long, and three broad; these are fixed at about a quarter of an inch distance from each other, upon a large wooden frame of about six feet square. Each of them has three moveable screws, which are so contrived, that the mirror can be inclined to any angle, and in any direction that meets the sun; and by this means, the solar image of each mirror is made to coincide with all the rest. The experiment was first tried with twenty-four mirrors, which readily fired a combustible matter, prepared of pitch and tow, and laid on a deal board, at the distance of forty-six French feet.

He then further pursued the attempt, and put together a kind of polyhedron, consisting of 168 pieces of plane looking glass, each being six inches square; and by means of thin boards of beech-wood were set on fire, at the distance of a hundred and fifty feet, in the month of March, and a silver plate was melted at the distance of fifty feet. This machine, besides other advantages, may be easily moved, so as to burn downwards or horizontally, and it burns either in its distant focus, or in any nearer interval, which our common *burning* glasses cannot do, because their focus is wholly fixed and determined. This machine, in the next stage of its improvement, contained three hundred and fifty plain mirrors, each eight inches long, and six broad, mounted on a frame eight feet high, and seven feet broad. With twelve of these mirrors, light combustible matters were kindled at the distance of twenty feet; at the same distance, a large tea-kettle was melted with forty-five of them; and a silver piece of silver with a hundred and seventeen. When the whole machine was employed, all the metals and metallic minerals were melted at the distance of twenty-five and forty feet; wood was kindled in a clear sky at the distance of two hundred and ten feet. The focus, at the distance of fifty feet, is about seven inches broad; and at the distance of two hundred and forty feet, it becomes two feet in diameter. Mr. Buffon afterwards constructed a machine, which contained four hundred mirrors, each half a foot square, with which he could melt lead and tin at the distance of a hundred and forty feet. Phil. Trans. vol. xliv. p. 293, 460. M. de Buffon, Histoire Naturelle, &c. Supplem. vol. i. Montucci, *Histoire des Mathematiques*, vol. i. p. 216.

There is no solid substance that resists the efficacy of modern *burning glasses*. Messrs. Macquer and Beaume have succeeded in melting small portions of PLATINA, by means of a concave glass, twenty-one inches in diameter, and of twenty-eight inches focus; though this metal is not fusible by the strongest fire that can be excited in furnaces, or inflamed by any chemical apparatus. Yet it was long ago observed by the Academicians del Cimento, that spirit of wine could not be fired by any *burning-glass* which they used; and notwithstanding the great improvements which these optical instruments have since received, M. Noller has not been able, by the most powerful *burning* mirrors, to set fire to any inflammable bodies whatever. *See* LENS, MIRROR, &c.

BURNING *of metals*, called also *burn-beating*, and vulgarly DENSHIRING, from Devonshire, a county in which it has been long practised, is a method of preparing and fertilizing lands barren, sour, heathy, and rushy, for corn; by paring off the turf, and drying and burning it on the ground. — The same method also obtains for meadows and pasture ground, moss, or sedge, or rushes, to improve the hay.

BURNING *in Law*. See ARSON, BARNING, TREASON, &c.

BURNING *of metals, ores metallorum*, is either performed by fire, or by corrosive salts; which latter is also denominated CEMENTATION.

The first preparation of most ores is by *burning* them, whereby to dispose them for fusion. This is usually performed by exposing them, without admixture, to a naked fire; sometimes fixed alkalies, or nitrous salts are added, to hinder the evolution of the sulphureous particles. Some hold *burning* in the slight of the sulphureous gross; others *burning* in the mass. See ORE, § 109. The baser metals, tin and lead, are *burned* in order to fit them for plates to adhere. For gold and silver, the *burning* is needless.

BURNING, *mountains*. See VOLCANO, EARTHQUAKE, MOUNTAIN, &c.

The authors describe a mountain in the island of Timor, in the form of a *burning* boiler, *ardens cacabus*. Plin. Nat. hist. lib. cap. 34. Mem. Acad. Infer. tom. [illegible] p. 75.

Travellers into Italy describe a *burning* spot of ground at Pietramala, in the Appennines, out of which a crackling flame, continually issues, yet without any clefts to it to issue out at. Hales supposes the flame which the place yields, to be a kind of native *phosphorus ardens*, which takes fire on their coming in contact with the air.

BURNING, among *Painters*—several of the primary colours require *burning*, to fit them for use, as lamp-black, umber, ivory, &c.

The *burning*, or rather drying, of lamp-black, is performed by setting it over the fire in an iron ladle, or crucible, till no smoke arises from it. To *burn* umber, they put it in large lumps into a naked fire, where it is let till thoroughly reddish. Ivory must be *burnt*, to make a black, in an crucible, luted, covered with steele.

BURNING, in *Enamel painting*. See ENAMELLING.

BURNING is also an operation in *Pharmacy*. Simples are frequently *burnt* in earthen vessels, either to reduce them to ashes, as in the preparation of vegetable salts, or in order to dry them, that they may be more conveniently powdered, as is practised in regard of hartshorn, &c.

BURNING *phosphorus*. See PHOSPHORUS.

BURNING *plant, Euphorbia*. See SPURGE.

BURNING *spring*, in *Natural History*. See SPRING.

BURNT *zone*, in *Geography*. See TORRID ZONE.

BURNISHED *gold and silver*, denote those metals laid on any work or leaves, and afterwards polished over with a burnisher to heighten their lustre.

BURNISHER, a round polished piece of steel, serving to smooth and give a lustre to metals.

Of these there are various kinds, of various figures; straight, crooked, &c.—Half *burnishers* are used to voluting silver, as well as to give a lustre.

Burnishers for gold and silver are commonly made of a dog's or wolf's tooth, set in the end of an iron or wooden handle. Of late, agates and pebbles have been introduced, which many prefer to the dog's tooth.

The *burnishers* used by engravers in copper, usually serve with one end to burnish, and with the other to scrape.

BURNISHING, the act or art of smoothing, and polishing a metalline body by briskly *rubbing* it with a *burnisher*.

Bookbinders *burnish* the edges of their books by rubbing them with a dog's tooth. Gold and silver are *burnished* with a wolf's tooth, a dog's tooth, or the blood stone, or by *stipple*, a piece of white wood, emery, and the like.

Deer are said to BURNISH *their heads*, when rubbing off a white slimy film from their horns against a tree, they thrust them, as is said, into a reddish earth, to give them a new colour and lustre.

BURNT *clay*. See MARCHING.

BURNT-*grass*. See SMUT.

BURNT-*alum*. See ALUM.

BURNT-*lead*. See LEAD.

BURNT, in speaking of medicines, imports as much as imperfectly calcined. See CALCINATION.

Burnt bodies are generally dry and astringent. The other medicinal qualities belonging to bodies are frequently destroyed, at least impaired, by the *burning*.

BURNT *planet*.—A planet is said to be *burnt*, *combustus*, when it is in conjunction, or nearly so, with the sun. Thus Saturn is said to be *burnt*, when not above five degrees distant from the sun, Jupiter, when six, &c. Planets, in this situation, are supposed by astrologers to be much weakened, or enfeebled in their influences.

BURNT *tag*, *tache du vin*, among *Heralds*, that part of the garter from the beginning of Libra to the middle of Scorpio; or, according to others, from the middle of Libra, to the end of Scorpio, containing 45 degrees; a space supposed very unfortunate, and in which the planets are much enfeebled in their virtues, especially the moon. Vital Lex. Math. p. 118.

BURNT-*wine*. See WINE.

BURR-PUMP, or HIT-NOT-PUMP, a kind of PUMP so called, because it holds much water.

BURR, a round knob of a horn next a deer's head.

BURRAS-*pipe*, an instrument used by goldsmiths, consisting of a copper box with a spout, having teeth like a saw; sometimes also used by surgeons for the application of certain fluid medicines by inspersion.

BURREL-*fly*, in *Angling*. See WHIRLE-TAIL.

BURROCK, a small weir or dam, where wheels are laid in a river for taking of fish.

BURROUGH. See BOROUGH.

BURSTARD-*head*, in *Zoology*, a common English name for the *tarentula*.

BURROW, holes in a WARREN, serving as a covert for rabbits.

A queen's counsel has *burrow barrow*, is called *bolting*. To catch conies, they sometimes by purse-nets over the *burrows*, then put in a ferret close muzzled, which making the creatures bolt, are so caught in the net.

BURROW, or BARROW. See BARROW.

BURSA, *Purse*, originally signifies a purse.

BURSA, *prædalis pes*, in the Norman *Laws*, is a right belonging to the next akin, to redeem or purchase back, within a year and a day, a fee or tenement alienated by his kinsman, on paying the price it had been sold at. Du-Cange.

BURSA is more particularly used, in *Middle Age Writers*, for a little college or hall in an university, for the residence of students; called *bursal*, or *bursarii*.

BURSA, *Burse* or *Bourse*, in the French universities, still denotes a foundation for the maintenance of poor scholars in their studies.

The nomination of *burses* is in the hands of the patrons and founders thereof. The *burses* of colleges are not benefices, but mere others assigned to certain countries and persons. A *burse* becomes vacant by the scholar's being promoted to a cure, as being incompatible. In the college of cardinal Moline at Paris, there are two sorts of *burses*, either for young scholars who can only enjoy them six years, that is, from their first admission to the degree of master of arts; and *regents*, which may be held nine years, or till the students obtain the degree of doctor.

BURSA *pastoris*. See SHEPHERD'S *Purse*.

BURSA *pudendi mulieris*. See DARTOS.

BURSALIS *musculus*, in *Anatomy*, a name given by Cowper and others to a muscle of the thigh, called also *marsupialis* by the same authors. It is the *semimembranosus* of Winslow and Albinus, and is described by Veslingius under the name of *musculus tertius interioribus*, and by Spigelius under that of *triangularium tertium*, or *triangulare internum*.

BURSAR, or BURSER, *bursarius*, is used in *Middle Age Writers* for a treasurer or cash-keeper.

In this *sense* we meet with *bursars* of colleges. Conventual *bursars* were officers in monasteries, who were to deliver up their account yearly on the day after Michaelmas.

The city of Bern is commanded by four bannerets, who are the heads of the militia of the whole canton; and two *bursars*, who are the treasurers general, one for the German district, the other for the Roman or French.

The word is formed from the Latin *bursa*; whence also the English word *purse*: and hence the like officer, who in a college is called *bursar*, in a city is called PURSER.

BURSARS or BURSERS, in *Universities*, also denote those who enjoy certain benefices for defraying the expences of the education of young men of mediocrity, parts, and small fortune. In Sweden and at Paris, all such benefices are still called *bursaries*, or *bourses*. Alleins bought for the effects of a college, are entered in the name of the principal and *bursars*. See ALLEIN, 2.

BURSARIA, *Burses*, in *Middle Age Writers*, denotes the place of receiving and paying money and rents by the bursars, or officers of account, in religious houses. See BURSA and BURSAR.

BURSE, in *Matters of Commerce*. See EXCHANGE.

The first place of this kind to which the name *burse* was given, Guicciardin affirms us, was at Bruges; and it took its denomination from a house adjoining to it, built by a lord of the family *de la Bourse*, whose arms, which are three purses, are still found on the crowning over the portal of the house. Cate's account is somewhat different, viz. that the merchants of Bruges bought a house or apartment to meet in, at which was the sign of the purse. From this city the name was afterwards transferred to the like places in others, as in Antwerp, Amsterdam, Bergen in Norway, and London.

BURSE *of merchants*, *Bourse des marchands*, denotes a court or jurisdiction established in several trading cities of France, for the taking cognizance, at the first instance, of all disputes arising between merchants, bankers, negotiants, and the like, and from which no appeals lie but to the parliament.

The *burse* is a kind of consular jurisdiction, the judges whereof are also denominated *peers* and *consuls*.

The *burse* of merchants at Thoulouse was established by Henry II. in 1549, after the manner of the judges conservators of the privileges of the fairs at Lyons. The chief officers are a *prior* and two *consuls*, chosen yearly, and empowered to choose and associate, to the number of forty, several merchants to assist them, in the decision of differences. These are called judges *consulaires de la traverse*. The *burse* of Rouen, or, as it is commonly called, the *conventum* of Rouen, is of some years later standing than that of Thoulouse, having only been erected in 1566. The chief of the consular *burses* is that of Marseilles, established by Louis XIV. in 1691; whose jurisdiction extends through several of the neighbouring dioceses.

BURSERA, in the Linnæan system *of botany*, a genus of the *decandria monogynia* class. It has a three leaved cup; the flower is composed of three petals, and has three valves, and contains one seed. There is one species. Pomet botanists have called this the American turpentine-tree, and the American birch. See MASTIC-*tree*.

BURSTEN, a person ruptured, called by physicians *herniosus* in middle-age writers, *ponderosus*. See HERNIA and RUPTURE.

BURTHEN. See BURDEN.

BURTON, in the *Sea Language*, a small tackle, consisting of two single blocks, capable of being made fast any where at pleasure, for hoisting of small things in or out, and which will purchase more than a single tackle with two blocks. It is generally employed to tighten the shrouds of the top masts.

BURY, is sometimes used to denote the hole or den of some animal under ground. See BARROW.

In which sense we say, the *bury* of a mole, a toadle or the like. The *gryllotalpa*, or mole cricket, digs itself a *bury* with its fore-feet, which are made broad and strong for that purpose. Naturalists speak of a kind of urchins in the island of Mauritius, which have two conies to their *burys*, one towards the north, the other to the south, which they open and shut alternately, as the wind happens to set.

BURYING, the same with interment or BURIAL.

BUSELAPHUS, in *Zoology*, the name of an animal of the goat kind, called also *merolaphus*. It is of a sort of middle shape between the stag and ox kind. Its head and its ears are long, its legs and feet small, its tail about a foot long and of the shape of that of a hinder; its upper part reddish and very naked, its lower covered with long hairs. The hair of its whole body is of a tawney or reddish yellow colour; its horns are black, smooth at the top, and round every where else. It has two teats, and is an extremely tame and quiet animal, and naturally fond of play. It is extremely swift in running, and in small respects, except in size, greatly resembles the common KREDOSS. Ray.

BUSH, a tuft or assemblage of boughs or branches.

BOUGH, among *Rural Country*, denotes an arm or bough of a bushy tree, full of thick and long, yet smooth and straight twigs, dashed over with BIRD-LIMES, and placed in some hedge where birds frequent, used especially for the taking of phasants and heldrees.

BUSH also denotes a contracted frame of wood hung out as a sign at taverns. It takes the denomination from hence, that, anciently, signs where wine was sold were *bushes* chicky of ivy, cypress, or the like plants, which keep their verdure long. And hence the English proverb, "Good wine needs no *bush*."

BUSH. See SPUNGE.

BUSHEL, a measure of capacity for things dry; as grain, pulse, dry fruits, &c. containing four pecks, or eight gallons, or one eighth of a quarter.

Du-Cange derives the word *bushel* from *buscellus*, or *biscellus*, a diminutive of *bus*, or *bussa*, used in the corrupt Latin for the same thing: others derive it from *bussellus*, or *bus*, wherein bus were cast; which seems to be a corruption from *buscellus*.

Buscellus appears to have been first used for a liquid measure of wine, equal to eight gallons. *Octo libræ faciunt gallonem vini, & octo gallones unus sextarius* BUSSELLUS *Londoniensis, quem alibi vocant quarterium*. The word was soon after transferred to the dry measure of corn of the same quantity. *Præter alia mirarum frumenti sunt* BUSSELLUM, *de quibus alibi condidit scriptorum*.

By 22 Hen. VII. cap. 5. a *bushel* is to contain eight gallons of wheat; the gallon eight pounds of wheat, troy-weight; the pound twelve ounces troy-weight; the ounces twenty sterlings; and the sterling thirty-two grains, or corns of wheat growing in the midst of the ear.

This Standard *bushel* is kept in the Exchequer; when being filled with common spring water and the water measured before the house of commons in 1696, in a regular parallelepiped, it was found to contain 2145.6 solid inches; and the full water being weighed, amounted to 1131 ounces and 14 penny weights troy. Greaves, Orig of Weights, p. 25.

Besides the ſtandard or legal *buſhel* we have ſeveral local *buſhels*, of different dimenſions in different places. At Abingdon and Andover, a *buſhel* contains nine gallons; at Appleby and Penrith, a *buſhel* of peaſe, rye, and wheat, contains 16 gallons; of barley, oats, malt, mixt malt, and oats, 20 gallons. A *buſhel* contains at Carliſle, 24 gallons; at Cheſter, a *buſhel* of wheat, rye, &c. contains 32 gallons, and of oats 40; at Dorcheſter, a *buſhel* of malt and oats contains 10 gallons; at Falmouth, the *buſhel* of ſtricken meaſure is 16 gallons, of other things 20, and uſually 21 gallons; at Kingſton upon Thames, the *buſhel* contains eight and a half; at Newbury 9; at Wycomb and Reading, eight and three fourths; at Stamford, 16 gallons. Houghton. Collect. rom. t. 4. p. 42.

At Paris, the *buſhel* is divided into two half *buſhels*; the half *buſhel* into two quarts; the quart into two half quarts; the half quart into two litrons; and the litron into two half litrons. By a ſentence of the prevoſt of the merchants of Paris, the *buſhel* is to be eight inches two lines and a half high, and ten inches in diameter; the quart four inches nine lines high, and ſix inches nine lines wide; the half quart four inches three lines high, and five inches diameter; the litron three inches and a half high, and three inches ten lines in diameter.—Three *buſhels* make a minot, ſix a mine, twelve a ſeptier, and a hundred and forty-four a muid.

In other parts of France, the *buſhel* varies; fourteen one eighth *buſhels* of Amboiſe and Tours make the Paris ſeptier. Twenty *buſhels* of Avignon make three Paris ſeptiers. Twenty *buſhels* of Blois make one Paris ſeptier. Two *buſhels* at Bourdeaux make one Paris ſeptier. Thirty-two *buſhels* of Rochel make nineteen Paris ſeptiers. Grain are meaſured in a double proportion to other goods; ſo that twenty-four *buſhels* of oats make a ſeptier, and 248 a muid. The *buſhel* of oats is divided into four pottins; the pottin into two half quarts, or four litrons. For ſalt, four *buſhels* make one minot, and ſix a ſeptier. For coals, eight *buſhels* make one minot, fifteen a mine, and 360 a muid. For lime, three *buſhels* make a minot, and forty-eight minots a muid. See MEASURE and WEIGHT.

BUSKIN, *Cothurnus*, a kind of garment, ſomewhat in manner of a boot, covering the foot and middle leg, and tied beneath the knee; very rich and fine, and uſed principally on the ſtage by the actors in tragedy.

The *buſkin* is ſaid to have been firſt introduced by Æſchylus: it was of a quadrangular form, and might be worn indifferently on either leg. Its ſole was made ſo thick, as, by means thereof, men of ordinary ſtature might be raiſed to the pitch and elevation of the heroes they perſonated: in which it was diſtinguiſhed from the ſock, worn in comedy; which was a low, popular ſhoe.

Dempſter obſerves, that the *buſkin* was not confined to actors only, but girls likewiſe uſed it to raiſe their heights and travellers and hunters to defend themſelves from the mire, &c.

As the *buſkin* was the diſtinguiſhing mark of tragedy on the ſtage, we find it in claſſic authors frequently uſed to ſignify *tragedy itſelf*.

BUSS, in *Navigation*, a ſhip with two maſts, uſed by the Engliſh and Dutch in the HERRING-FISHING.

The word is originally Flemiſh, *buis*, or *buys*, which ſignifies the ſame.

The herring-buſs is uſually about 60 ton, and furniſhed with two ſmall cables, one at the poop, and the other at the ſtem, the former of which is uſed as a kitchen. The officers on board are the maſter or patron, his mate, and a boatſwain, who direct the fiſhermen, barrellers, &c. The only diet on a *buſs* is ſea-biſket, gruel, and the fiſh they catch.

BUSS, *Buſſis*, is alſo the name of a large ſort of veſſel of war, in uſe in the middle age, ſpoke of by antiquaries and hiſtorians under the ſeveral denominations of *buſſo*, *buſsa*, *barca*, *baza*, *bucco*, and *buſa*.

BUSSORES, by corruption from *Baſſara* in Perſia, whence they were originally brought, a name given by ſome to that ſpecies of pigeon called the CARRIER.

BUST, or BUSTO, in *Sculpture*, denotes the figure, or portrait of a perſon *in relievo*, ſhewing only the head, ſhoulders, and ſtomach, the arms being lopped off; ordinarily placed on a pedeſtal or conſole.

In ſpeaking of an antique, we ſay the head is marble, and the reſt porphyry, or bronze, that is, the ſtomach and ſhoulders. Felibien obſerves, that though in painting, one may ſay a figure appears in *buſt*, yet it is not properly called a *buſt*, that word being confined to things in *relievo*.

The *buſt* is the ſame with what the Latins called *herma*, from the Greek Hermes, Mercury, the image of that god being frequently repreſented in this manner among the Athenians.

BUST is alſo uſed, eſpecially by the Italians, for the trunk of a human body, from the neck to the hips.

BUSTA *Gallica*, was a place in ancient Rome [illegible] the bones of the Gauls, who firſt took the [illegible] ſlain by Camillus, were depoſited. It

BUSTA *Gallorum*, a place on the Appennine [illegible] reaſon of many thouſands of Gauls [illegible]

BUSTARD, OTIS, in *Zoology*, the [illegible]

The *otis* is called *tarda* and *ward* [illegible]

See *Tab.* III. *of birds*, N° 28.

In the Linnæan ſyſtem of nature [illegible] diſtinct genus of birds of the [illegible] the diſtinguiſhing characters of [illegible] have only three toes each, and [illegible] upper mandible of the bill arched [illegible] and the tongue bifid. There are four [illegible] *tarda* is of the ſize of the common [illegible] like that of the common gallinaceous [illegible] and neck are grey; its belly white, and its back variegated with tranſverſe ſtreaks of red and black; it has no hinder toe, by which, and by its ſize, it is eaſily diſtinguiſhable. The male is diſtinguiſhed from the female by being of a much larger ſize, and by a tuft of feathers about five inches long on each ſide of the lower mandible. Beſides, the males have a pouch, whoſe extenſive ſize immediately under the tongue, which is capable of holding near ſeven quarts; this ſerves them againſt drought, in thoſe dry tracts where they commonly live, and is probably filled with water, to ſupply the hen when ſitting, at the time they leave their young to fly. It feeds on herbs and grain, and eaſily wearies, and eats very greedily the leaves of dandelion, and particularly on the ſeeds of hemlock, which ſeems a very ſtrange food. It is frequent in many parts of England, where there are large heaths and plains they are very bad ſhots, and very difficult ſtate themſelves up from the ground; but they are extremely fly, and if they ſee a man at a very great diſtance, they immediately diſappear as ſoon as they can. Their fleſh is eſteemed. The leſſer *buſtard*, or *otis tetrax* of Linnæus, is about the ſize of a pheaſant.

BUSTARD, *Thick-kneed*. See *Stone*-CURLEW.

BUSTIARII, a kind of gladiators, among the ancient Romans, who fought about the buſtum, or pile, of a deceaſed perſon, in the ceremony of his obſequies.

The practice at firſt was, to ſacrifice captives on the tomb, or at the buſtum, of their warriors; inſtances of which we have in Homer, at the obſequies of Patroclus, and among the Greek tragedians. Their blood was ſuppoſed to appeaſe the infernal gods; and render them propitious to the manes of the deceaſed.

In after-ages, this cuſtom appeared too barbarous; and in lieu of theſe victims they appointed gladiators to fight; whoſe blood, it was ſuppoſed, might have the ſame effect.—According to Valerius Maximus and Florus, Marcus and Decius, ſons of Brutus, were the firſt, at Rome, who honoured the funeral of their father with this kind of ſpectacle, in the year of Rome 489. Some ſay the Romans borrowed this cuſtom from the Hetrurians; and they from the Greeks.

BUSTUARIÆ *meretrices*, a kind of public whores, who proſtituted their bodies among the *buſta* or tombs, which it ſeems were ordinarily places of reſort for actions of this kind. Others ſuppoſe that theſe were women hired to attend a funeral, and lament the loſs of the deceaſed.

BUSTUM, in *Antiquity*, denotes a pyramid or pile of wood, whereon were anciently placed the bodies of the deceaſed, in order to be burnt.

The Romans borrowed the cuſtom of BURNING their dead from the Greeks. The deceaſed, crowned with flowers, and dreſſed in his richeſt habits was laid on the *buſtum*. See BURNING.

Some authors ſay, it was only called *buſtum*, after the burning; *quod bene uſtum*: before the burning it was more properly called *pyra*; during it *rogus*; and afterwards, *buſtum*.

Where the body was only burnt there, and buried elſewhere, the place was not properly called *buſtum*, but *ſuſtrina*, or *ſuſtrinum*.

BUSTUM, in the Campus Martius, was a ſtructure wherein the emperor Auguſtus firſt, and after him, the bodies of his ſucceſſors were burnt.

It was built of white ſtone, ſurrounded with an iron paliſade, and planted within ſide with alder trees.

BUSTUM was alſo figuratively applied to denote any TOMB.

Whence theſe phraſes, *facere buſtum*, *vacare buſtum*, &c.

BUSTUM, *of an altar*, was the hearth or place where the fire was kindled.

BUTCHER. Among the ancient Romans there were three kinds of eſtabliſhed *butchers*; viz. two colleges, or companies, compoſed each of a certain number of citizens, whoſe office was to furniſh the city with the neceſſary cattle, and to take care of preparing and vending their fleſh. One of theſe communities was at firſt confined

Others are of opinion, that the *arac* or *arrac*, is a vinous spirit obtained by diffillation, in the East Indies, from rice or sugar, fermented with the juice of cocoa nuts.

The *Goa arac* is made from the *toddy*, the *Batavia arac* from rice and sugar. There is likewise a kind of shrub from which *arac* is made.

Goa and Batavia are the chief places for *arac*.—At Goa there are three sorts; single, double, and treble distilled. The double distilled, which is that commonly sent abroad, is but a weak spirit in comparison with Batavia arac; yet on account of its peculiar and agreeable flavour, is preferred to all the other *aracs* of India. This is attributed to the earthen vessels which they use at Goa to draw the spirit; whereas at Batavia they use copper stills.

The *Porto arac*, made at Madrass, and the *Calcutta*, and *Bombay arac*, at other places, being very hot spirits, are little valued by the Europeans, and therefore rarely imported; though highly prized among the natives. In the best *Goa arac*, the spirits of the cocoa juice do not make above a sixth or eighth part.

The manner of making the *Goa arac* is this. The juice of the trees is not procured in the way of tapping, as we do; but the operator provides himself with a parcel of earthen pots, with bellies and necks like our ordinary bird-bottles: he makes fast a number of these to his girdle, and any way else that he commodiously can about him. Thus equipped, he climbs up the trunk of a cocoa tree; and when he comes to the bough, he takes out his knife, and cutting off one of the small knots, or buttons, he applies the mouth of the bottle to the wound, fastening it to the bough with a bandage: in the same manner he cuts off other buttons, and fastens on his pots, till the whole number is used: this is done in the evening, and descending from the tree, he leaves them till the next morning; when he takes off the bottles which are mostly filled, and empties the juice into the proper receptacle. This is repeated every night, till a sufficient quantity is produced, and the whole being then put together, is left to ferment, which it soon does.

When the fermentation is over, and the liquor or wash is become a little sour, it is put into the still, and a fire being made, the still is suffered to work as long as that which comes over has any considerable taste of spirit.

The liquor thus procured is the low wine of *arac*, and this is so poor a liquor, that it will soon corrupt and spoil, if not distilled again; to separate some of its phlegm; they therefore immediately after pour back this low wine into the still, and rectify it to that very weak kind of proof spirit, in which state we find it. The *arac* we meet with, notwithstanding its being of a proof-till, according to the way of judging by the crown of bubbles, holds but a ſixth, and sometimes but an eighth part of alcohol, or pure spirit: whereas our other spirits, when they shew that proof, are generally esteemed to hold one half pure spirit. Shaw's Essay on Distilling.

There is a paper of observations on *arac*, in the Melanges d'Histoire Natur. tome v. p. 302. By fermenting, distilling, and rectifying the juice of the American maple, which has much the same taste as that of the cocoa, the author says, he made *arac* not in the least inferior to any that comes from the East Indies; and he thinks the juice of the sycamore and of the birch trees would equally answer the end.

Beside the common sorts of Goa and Batavia *arac*, there are two others less generally known: these are the bitter *arac*, and the black *arac*.

By stat. 12 Geo. I. c. 36. *arac* on board a ship within the limits of any port of Great Britain, may be searched for and seized, together with the package; or if found unshipping or unshipped, before entry, may be seized by the officers of excise, in like manner as by the officers of the customs.

Upon an excise officer's ſuspicion of the concealment of *arac*, and oath made of the grounds of such ſuspicion, before the commissioners, or a justice of peace, they may empower him to enter such ſuspected places, and seize the liquors, with the casks, &c. If the officers are obstructed, the penalty is 100*l*.

Arac is not to be sold but in warehouses, entered as directed in the 6th of Geo. I. c. 21. upon forfeiture, and the casks, &c. If permits are not returned which are granted for the removal of *arac*, or if the goods are not sent away within the time limited, the penalty is treble the value. If the permits are not returned, and the decrease is not found to be sufficient, the like quantity is forfeited. Permits are not to be taken out, but by direction in writing to the proprietor of the stock, or his known servant, upon forfeiture of 50*l*. or three months imprisonment.

By Statute 9 Geo. II. c. 35. if *arac* is offered to ſale without a permit, or by any hawker, pedlar, &c. with a permit, the person to whom it is offered, may ſeize and carry it to the next warehouse belonging to the customs or excise, and bring the person offering the same before any justice of the peace, to be committed to prison, and prosecuted for the penalties incurred by such offence. The person seizing such goods may profecute in his own name; and on recovery is intitled to one third part of the gross produce of the ſale: and the commissioners are, if desired, upon a certificate from the justice of the offender's being committed to prison, to abate to the ſeizer 15*s.* per gallon for the *arac* so ſeized.

Arac (except for the use of seamen, two gallons each) found in any ship or vessel arrived from foreign parts, at another, or hovering within the limits of any port, or within two leagues of the shore; and not proceeding on her voyage (unleſs in case of unavoidable necessity and distress of weather, notice whereof shall be given to the collector or chief officer of the port, upon the ship's arrival) is forfeited, with the boat, casks, or other package, or the value thereof.

ARACARI, in *Ornithology*, the name of a Brasilian bird, of the WOODPECKER kind. It is of the size of a common green woodpecker, and has a very large, sharp, and transverse hooked bill. Margrave. Ray, Pices, and *Syn.* II. *Birds*, N°. 14.

ARACHIS, in *Botany, round pease, arachindes*, and *arachidnes*. See EARTH-NUT.

ARACHNOIDES, in *Anatomy*, a fine, thin, transparent membrane, which lying between the *dura* and *pia mater*, is ſuppoſed to invest the whole ſubstance of the brain, *medulla oblongata*, and the spinal marrow.

The word is borrowed from ἀραχνη, *a ſpider*, or *ſpider's web*, and εἶδος, *form*; in regard to the fineness of the part, which is ſuppoſed to resemble that of a ſpider's web.

Many anatomists deny the existence of such a third *tunica*, or membrane; and contend, that it ought either to be regarded as the external *lamina* of the *pia mater*, which ſends its internal *lamina* between the folds of the cortical part of the brain.

ARACHNOIDES, or ARANEA *tunica*, is likewiſe uſed for a fine slender tunic, wherewith the cryſtalline humour is encompaſſed.

This, others call *cryſtalloides*, and *tunica cryſtallina*, or *capſula cryſtallina*.—Many have even doubted of its existence; which is the more extraordinary, ſome Eaſtern ſpecks of it, and compares it to a pellicle of an onion: Vesalius repreſents it as resembling fine transparent horn. —It is eaſily found in quadrupeds, eſpecially the ſheep, ox, and horſe; and though it be a little more difficult to diſcover in man, yet after a perſon has once been ſhewn it, he will readily find it.

What is ſurpriſing, Briggs ſays not a word of it; and ſo able an anatomiſt as Ruyſch, was long in ſuſpence about it; it was only by means of his injections that he diſcovered it in man; though ſo eaſy to diſcern in a ſheep.

The *arachnoides* adheres by its poſterior part to the vitreous tunic.—In man it is about twice as thick as a ſpider's web, at leaſt the fore-part of it; in an ox it is as thick again as in man; and in a horſe it is thicker than in an ox.

It has three uſes: firſt, to retain the cryſtalline in the cell of the vitreous humour, and prevent its changing ſituation: ſecondly, to ſeparate the cryſtalline from the aqueous humour, and prevents its being continually moiſtened therewith: thirdly, the lymphatics furniſh a liquor which they diſcharge into its cavity, wherewith the cryſtalline is continually refreſhed, and kept in right order: inſomuch that when this liquor is wanting, the cryſtalline loſes its juice, grows hard, and ſpoke, and may even be reduced to powder. Vide Petit, in Mem. Acad. R. Scienc. an. 1730. p. 621 ſeq.

ARACHNOIDES, in *Natural Hiſtory*, the name of one of the genera of the ECHINI marini; the diſtinguiſhing characters of which are, that it is of a circular circumference, but variouſly broken in at the edges. The mouth is ſmall, and placed in the centre of the baſe, and the aperture for the *ani* is quadrangular, and ſituated in one of the ſides, on the upper ſuperficies, but near the edge. Klein. See *Tab. of Teſtaceous and Cruſtaceous Animals*, N°. 8.

ARACUS, in *Botany, ſtrangle* TARE, or *wild* VETCH: a plant which grows in hedges, on banks, and among

corn. It is an herb in use, and has the same qualities with the other species of the vicia.

ARACUS *aromaticus*, in the *Materia Medica*, a name given by some authors to the VANILLA used in chocolate-making.

ARADOS, in *Hippocrates*, signifies that perturbation which is excited in the stomach by concocting meats of different qualities. *Aradus* also signifies any internal perturbation excited by purging medicines, vehement exercises, or other causes.

ARÆOMETER, *Aræometrum*, an instrument wherewith to measure the density or gravity of fluids.

The word is formed of ἀραιὸς, *thin*, and μέτρον, *measure*.

The *aræometer*, or water-poise, is usually made of glass; consisting of a round hollow ball, which terminates in a long slender neck, hermetically sealed at top; there being first as much running mercury put into it, as will serve to balance or keep it swimming in an erect position.

The stem is divided into degrees (as represented *Tab. Pneumatics, fig.* 18.) and by the depth of its descent into any liquor, the lightness of that liquor is concluded: for that fluid in which it sinks least, must be heaviest; and that in which it sinks lowest, lightest.

M. Homberg has invented a new *aræometer*, described in Philos. Transact. N° 262. thus: *A* (*fig.* 19.) is a glass bottle or matrass with so slender a neck, that a drop of water takes up in it about five or six lines, or half of an inch. Near that neck is a small capillary tube *D*, about six inches long, and parallel to the neck.—To fill the vessel, the liquor is poured in at the mouth *B* (which is widened to receive a funnel), till it run out at *D*; that is, till it rise in the neck to the mark *G*, by which means you have always the same bulk or quantity of liquor; and consequently, by means of the balance, can easily tell, when different liquors fill it, which weighs most, or is most intensely heavy.

Some regard, however, is to be had in these trials to the season of the year, and the degree of heat and cold in the weather: because some liquors rarefy with heat, and condense with cold, more than others; and accordingly take up more or less room.

By means of this instrument, the ingenious author has made a table, to shew the different weights of the same bulk of the most considerable chemical liquors, both in summer and winter, as follows:

	Weighed in summer.			In winter.		
The aræometer full of	oz.	dr.	gr.	oz.	dr.	gr.
Quick-silver,	11	00	06	11	00	32
Oil of tartar	01	05	08	01	03	31
Spirit of urine,	01	00	32	01	00	43
Oil of vitriol,	01	05	56	01	04	03
Spirit of nitre	01	01	40	01	01	70
——— salt,	01	00	39	01	00	47
Aqua fortis,	01	01	38	01	01	55
Vinegar,	00	07	55	00	07	60
Spirit of wine,	00	06	47	00	06	61
River water,	00	07	53	00	07	57
Distilled water,	00	07	50	00	07	54

The instrument itself weighed, when empty, one drachm twenty-eight grains. See HYDROMETER.

ARÆOPAGUS. See AREOPAGUS.

ARÆOPAGITIC. See AREOPAGUS.

ARÆOSTYLE, Ἀραιόστυλος, in the *Ancient Architecture*, a sort of INTERCOLUMNATION, wherein the columns were placed at the distance of eight, or, as some say, ten modules from one another. See *Tab. Archit. E. fig.* 40.

In the *æraostyle*, the columns were the widest and openest they were ever planted at; whence the name—from the Greek ἀραιὸς, *rarus*, and στύλος, *columna*.

The *æraostyle* is chiefly used in the Tuscan order; at the gates of great cities, and fortresses.

ARÆOTICS, in *Medicine*, such remedies as tend to open the pores of the skin, and render them large enough for the morbific matter's being carried off by sweat, or insensible perspiration.

To the class of *æraotics* belong diaphoretics, sudorifics, &c.

ARAF, or AL-ARAF, in the *Mahometan Theology*, a kind of separation or partition-wall between paradise and hell. Sale's Koran.

ARAHUM, or HARAHOM, in *Ancient Writers*, denotes a place consecrated or set apart for holy purposes. Du-Cange.

Hence the phrase, in *arahum jurare*, or *conjurare*, to make oath in the church; because, by the Riguarian laws, all oaths were to be taken in the church, on the relics of the saints.

ARAIGNEE, in *Fortification*, sometimes denotes a trench, return, or gallery of a mine.

ARAIRE, the name of a small plough [illegible] and Languedoc, in France.

ARAIS ACNIE, in *History*, the na[illegible] of Acnis, to the *fetes* [illegible] KERMESSES. Prosper Alpin.

ARALIA, in *History*, berry-[illegible] of *the peruvian virginia cherry*, [illegible] that it is an umbelliferous pla[illegible] having a small *involucrum* [illegible] and petals, and five short styles [illegible] turns to a roundish channelled ber[illegible] seeds, each containing one oblong kern[illegible] are three species; the Canada berry bearing *the berry-bearing angelica* with a naked stalk; and the *angelica tree*.

The inhabitants of Canada, and those of Virginia, call the first species of *aralia* by the name of *sarsaparilla*, because its roots have almost the same figure and virtues. M. Sarrazin writes from thence, that he had a patient who had been cured of an *amaurosis*, about two years before, by a drink made of these roots: and assures us that the roots of the second species, well boiled and applied by way of cataplasm, are very excellent for curing old ulcers; as also the decoction of them, with which they bathe and syringe wounds: and he does not at all doubt but the virtues of the third species are the same with those of the second. Phil. Trans. abr. vol. v.

ARALIA, in *Ancient Law Writers*, denotes arable or ploughing lands.

This is otherwise denominated *aratoria*, *araturia*.

In Domesday for Essex, we meet with *decem aeræ prati, duæ æraæ quatuor arabil.*—Where *arabil* seems to denote land fit for ploughing or tillage, by way of contradistinction to *pratum*, which was over-run with briars and thorns. Du-Cange.

ARALIASTRUM, in *Botany*, see GINSENG.

ARANEÆ, a genus of the *apteros* insects of Linnæus. See SPIDER.

ARANEA *cancer*, in *Natural History*, the name of a kind of sea-shell, of which there are several species: we call call them in English the spider-shells; they are of the family of the MURICES, and their peculiar character is the having digitated lips. The several species have different numbers of fingers, from the lip of the shell, as four, five, six, seven, or eight.

ARANEA *cancer*, see ARACHNOIDES.

ARANEUS *marinus*, the *sea-spider*, a name by which some authors have called the fish more usually known by the name of DRACO *marinus*, and supposed to have something venomous in the spines of its back-fin. Aldrovand.

ARANEA, a silver ore found only in the mines of Potosi, or in the single mine there of Catamito. It owes its name to some resemblance it bears to a cobweb, being composed of threads of pure silver, which to the sight appear like a silver lace when burned to separate the silk from it. It is the richest of all kinds of silver ore.

ARAPABACA, a name given by Plumier to the *filicula* of of Linnæus, or *adiantum*.

ARARAUNA, in *Ornithology*, the name of a Brasilian bird, of the MACAW kind. Margrave.

ARATEIA, in *Antiquity*, a yearly festival celebrated at Sicyon, on the birth-day of Aratus, wherein divers honours were paid by a priest constituted to this service, who for distinction's sake wore a ribband bespangled with white and purple spots.

The *aratcia* were solemnized with much pomp of music, the choirsters of Bacchus attending. Vitruv. Archæol. lib. ii. cap. 20.

ARATO-BAYABEN, a fixed star of the second magnitude in the head of the DRAGON.

ARATUM *terræ*, in our *Ancient Law Books*, as much land as can be yearly tilled with one plough.—*Hic mansionis sit 30 aratrorum.*

ARATURA *terræ*, an ancient service which the tenant was to do his lord, by ploughing his land.

ARBALET. See Bow, and BALLISTA.

ARBITER, in the *Civil Law*, a judge nominated by the magistrate, or chosen voluntarily by two contending parties, on whom they confer a power by compromise, of deciding their differences according to law.

The Romans sometimes submitted to a single *arbiter*; but ordinarily they chose several; and those always in an uneven number.

In matters wherein the public was concerned, as crimes, marriages, affairs of state, &c. it was not allowed to have recourse to *arbiters*.—Nor was it permitted to appeal

peal from an *arbitral* sentence; the effect of an appeal being to suspend the authority of a jurisdiction, not of a compact.

Among the ancients, there are properly divers kinds of *arbitria*, some obliged to go by the rigour of the law; and others not authorized by the contending parties to relate, or give any thing natural equity; these are properly called ARBITRARY.

ARBITRARY, in a general sense, that which is not defined, or limited by any certain, express law, or constitution, but is left solely to the judgment and discretion of another.—The punishment of such a crime is *arbitrary*.—*Arbitrary* fines or mulcts are usually called *amercements*.

The word is formed *from arbitrium, will*; whence also *arbiter, arbitrate*.

ARBITRARY POWER. See DESPOTISM, MONARCHY, &c.

ARBITRATION, or ARBITRAGE, the referring of a cause or quarrel to the decision of one or more indifferent persons, under the quality and denomination of *arbiters* or *arbitrators*.

An *arbitration* is either general, that is, including all actions, quarrels, and demands of special, which subsist one or more matters, or facts specified.

By flatutes 9 and 10 W. III. cap. 15. fect. 1. three May 25th, 1698, all merchants and others desiring to end any controversy, for which there is no remedy but by perfonal action, or fuit in equity, by *arbitration*, may agree that their fubmiffion of the fuit to the award or umpirage of any perfons, fhall be made a rule of any of his majeſty's courts of record, which the parties fhall chufe; and may inſert fuch their agreement in their fubmiffion, or the condition of the bond or promiſe; and upon producing an affidavit of fuch agreement, and upon reading and filing fuch affidavit in the court fo chofen, the fame may be entered of record in fuch court, and a rule of court fhall be thereupon made, that the parties fhall fubmit to, and finally be concluded by, fuch *arbitration* or umpirage; and in caſe of diſobedience thereto, the party neglecting or refuſing, fhall be fubject to all the penalties of contemning a rule of court, and proceſs fhall be iſſued accordingly; which fhall not be ſtopped or delayed by any order, &c. of any other court, either of law or equity, unleſs it appear on oath, that the *arbitrators* or umpire muſt have themſelves, and that ſuch award was corruptly or unduly procured.

Sec. 2. Any *arbitration* or umpirage procured by corruption or undue means ſhall be void, and fo likewiſe by any court of law or equity, fuch corruption or undue practice be complained of in the court where the rule is made for ſuch *arbitration*, before the laſt day of the next term after ſuch *arbitration* made and publiſhed to the parties.

The power of *arbitrators* is to be regulated by the compromiſe between the parties, as to what concerns the differences they are to determine; and whatever they decree beyond that, is of no effect.

ARBITRATOR, an extraordinary judge or commiſſioner, in one or more cauſes between party and party, chofen by their mutual conſent.

Among us, two *arbitrators* are uſually chofen by the contending parties: and in caſe theſe cannot agree, a third is added, and is called an *umpire*; in whoſe deciſion both ſides are bound to acquieſce.

The civilians make a difference between *arbiter* and *arbitrator*: though both ground their power on the compromiſe of the parties, yet their liberty is diverſe: for an *arbiter* is tied to proceed and judge according to the forms of law: whereas an *arbitrator* is permitted wholly to uſe his own diſcretion, without ſolemnity of proceſs, or courſe of judgment, to hear and accommodate the controverſy committed to him; ſo it be *juxta arbitrium boni viri*. See ARBITRIUM.

ARBITREMENT. See ARBITRATION.

ARBOR, in *Natural Hiſtory, Botany*, &c. See TREE.

ARBOR, in *Chemiſtry*.—ARBOR *philoſophica* is a name common to ſeveral metalline cryſtallizations; thus called from their ramifications reſembling a tree.

Of this kind, is the ARBOR *Dianæ*, ſometimes alſo called ARBOR *Lunæ*, a kind of efflorescence or cryſtallization, in which *aqua fortis* incorporated with ſilver and mercury, being put in water, expands and ſhoots itſelf into an appearance of a tree, with branches, leaves, and flowers.

The *arbor* DIANÆ is properly a precipitation of ſilver with mercury: the operation of making it belongs to the head of AMALGAMATION. It has its name from the ſilver which chemiſts call *Diana*, or the *Moon*. The experiment is generally conſidered merely as curious and amuſing.

Albertus Magnus is ſaid to have produced a tree before the king of France, while he ſat at dinner: this paſſed at that time for a *palingeneſis*, or reſuſcitation; but it may more naturally be referred to the ſpecies of germinations we are ſpeaking of.

The method of preparing the *arbor* DIANÆ, according to Lemery, is as follows. "Diſſolve an ounce of fine "ſilver in a ſufficient quantity of ſpirit of nitre, very "pure and moderately ſtrong; mix the ſolution in a "matraſs, with about twenty ounces of diſtilled water, "add two ounces of mercury, and let the whole remain "at reſt. In about forty days, a kind of ſilver tree will "be formed on the mercury, with branches reſembling "vegetable ramifications."

This proceſs is very long; the following, by Mr. Homberg, is much ſhorter. "Make an AMALGAMA without "heat, of four drams of filings of ſilver, or rather of "ſilver-leaf, and of two drams of mercury; diſſolve "this in four ounces, or a ſufficient quantity of ſpirit of "nitre, pure and moderately ſtrong; dilute this ſo"lution in about a pound and a half of diſtilled water; "ſhake the mixture, and preſerve it in a bottle with a "glaſs ſtopper. When the preparation is to be uſed, "an ounce of it is to be put in a phial together with "about the ſize of a pea of an *amalgam* of gold, or of "ſilver, which ought to be as ſoft as butter, and the "whole is to remain at reſt. Some ſmall filaments are "to be ſeen iſſuing from the ſmall *amalgam*, which "quickly increaſe, branch out on both ſides, and take "the form of ſhrubs."

Another kind of artificial vegetation may be produced, ſays Dr. Lewis, by ſprinkling a few drops of ſolution of ſilver upon a glaſs plate, and placing in the middle a ſmall piece of any of the metals that precipitate ſilver, as particularly of iron. The ſilver quickly concretes into curious ramifications all over the ſurface of the plate. Neumann's Works, p. 47.

ARBOR *Martis* is a germination of iron, reſembling a natural plant.

The *arbor Martis* is but of late invention; we owe it to the younger Lemery.

The manner of the diſcovery was this: on a diſſolution of iron filings in ſpirit of nitre contained in a glaſs, he poured oil of tartar *per deliquium*; upon this the liquor iron ſwelled very conſiderably, though with very little fermentation; and was no ſooner at reſt, than there aroſe a ſort of branches adhering to the ſurface of the glaſs, which, continuing to grow, at length covered it all over.

The form of the branches was ſo perfect, that one might even diſcover a kind of leaves and flowers thereon; ſo that this vegetation has as good a title to the appellation of *arbor* MARTIS, as the former has to that of *arbor* DIANÆ. See Hiſtoir. Acad. Royal. an. 1706.

ARBOR *genealogiæ, tree of conſanguinity*, ſignifies a lineage drawn out under the figure or reſemblance of root, ſtock, branches, &c.

ARBOR *porphyriana*, among the ſchoolmen, denotes a ſcale of beings; or a figure conſiſting of three rows or columns of words; the middlemoſt whereof contains the ſeries of genera and ſpecies, and bears ſome analogy to the trunk; and the extremes, containing the differences, to the branches of a tree.

SUBSTANCE

Thinking		Extended
	BODY	
Inanimate		Animate
	ANIMAL	
Irrational		Rational
	MAN	
This		That
	PLATO.	

The *arbor porphyriana* is otherwiſe called *ſcala prædicamentalis*.

ARBOR is alſo figuratively uſed in *Mechanics*, for the principal part of a machine, which ſerves to ſuſtain the reſt.—It is alſo uſed for a ſpindle, or axis, whereon a machine turns; thus, *arbor* of a CRANE, a MILL, a windmill, &c.

ARBOREOUS, ARBOREUS, is applied by ſome naturaliſts to ſuch excreſcences, fungules, moſſes, and other paraſites, as grow on trees; in contradiſtinction to ſuch as grow on the ground: ſuch are the *lichenoides* and *coralloides*.

ARBORESCENT, a term uſed to denote any thing that ſhoots or grows up in form of a tree.

Botaniſts ſpeak of *arborescent* ſhrubs and plants; the STECHAS *arborescens*, &c. Mineraliſts treat of *arborescent* metals, *arborescent* ſilver, *arborescent* iron, *arborescent* ſtones, &c. The *fungus marinus* is ranked by ſome in the claſs of *arborescent* foſſils; the chemiſts produce *arborescent*

horescent cryſtallizations, which they call philoſophical trees. Phil. Tranſ. N° 198. N° 111. and N° 129. Zoologiſts give inſtances of *arborescent* animals, particularly fiſhes.

The *arborescent* STAR-*fiſh*, *ſtella arborescens*, is one of the curioſities of nature found in ſeveral cabinets of natural rarities.

ARBORIBONZES, in *Modern Hiſtory*, prieſts of Japon, who live an eremitic life, and ſubſiſt on alms. They dwell in caverns, and cover their heads with bonnets made of the bark of trees.

ARBORIS *pectен*. See PECTEN.

ARBORIST, ARBORISTA, a perſon ſkilled in trees, their kinds, forms, natures, &c.

Arboriſt is an appellation of leſs extent than *botaniſt*.

ARBORIſcientia, a general diſtribution or ſcheme of ſcience or knowledge.

ARBOR *vitæ*. See CONVOLVULUS.

ARBOR *vitæ*. See THUYA.

ARBOUR, among *Gardeners*, &c. a kind of ſhady bower or cabinet, contrived to take the air in; yet to keep out the ſun and rain.

Arbours are now gone much into diſuſe; being apt to be damp and unwholſome.—They are diſtinguiſhed into *natural* and *artificial*.

ARBOURS, *natural*, are formed only of the branches of trees, interwoven artfully, and borne up by ſtrong lattice-work, poles, hoops, &c. which make galleries, halls, porticoes, and green villas, naturally covered.

The trees wherewith theſe *arbours* are formed, are uſually the female elm, or lime-tree; becauſe they eaſily yield, and by their great quantity of ſmall boughs, form a thick bruſh-wood; the lower parts are uſually filled up with horn-beam, or the like.

ARBOURS, *artificial*, and cabinets, are made of lattice-work, borne up by ſtandards, croſs-rails, circles and arches of iron. For theſe *arbours*, they make uſe of ſmall fillets of oak, which being planted, and made ſtraight, are wrought in chequers, and faſtened with wire.

ARBUSCULA is uſed by Bradley, to denote a little, or dwarf tree, above the rank of ſhrubs, but below that of trees, ſuch, e. gr. as the elder.

ARBUSTIVA, in *Botany*, an order of plants in the *Fragmenta Methodi Naturalis* of Linnæus.

ARBUSTUM implies a number or multitude of trees, planted for the fruit ſake.

Such are *alneta*, *avellanata*, *cerneta*, &c.

The word was more peculiarly applied to a place planted with trees for ſaſtening vines to, which are hence called by Columella *arbuſtiva*.

ARBUSTUM is ſometimes alſo uſed to denote an orchard, or field wherein trees are planted at ſuch diſtance, that there is room for ploughing, and growing corn between.

ARBUTUS, *in Botany*, the STRAWBERRY-*tree*; a genus of the *decandria monogynia* claſs. The characters are, that the flower has a ſmall obtuſe empalement, which is cut into five parts, upon which the *corolla* is. The flower is of one leaf, ſhaped like a pitcher; at the bottom of the flower is ſituated the globular *germen*, which afterward becomes an oval or round berry, having five cells, which are filled with hard ſeeds. There are five ſpecies.

The common ſtrawberry-tree is one of the greateſt ornaments in the months of October, November, and frequently great part of December; that being the ſeaſon when the trees are in flower, and the fruit of the former year is ripe; for the fruit is a whole year growing to perfection.

The beſt method to propagate the *arbutus*, is from ſeeds: therefore when the fruit is perfectly ripe, they ſhould be gathered and mixed with dry ſand, to preſerve them till the middle or latter end of March, which is the proper ſeaſon for ſowing them, in order to have ſtrong plants before winter. They muſt be ſown in pots, which ſhould be plunged into a moderate hot-bed, which will greatly forward their vegetation; and if they are properly managed, they will grow eight or ten inches high before winter.

Theſe trees are tolerably hardy, and are ſeldom hurt, except in extreme hard winters, which many times kill the young and tender branches, but rarely deſtroy the trees: therefore, however dead the trees may appear after a hard winter, yet they ſhould be ſuffered to remain till the ſucceeding ſummer has ſufficiently demonſtrated what are living and what are dead.

The beſt ſeaſon for tranſplanting the *arbutus* is in September, at which time the bloſſoms are beginning to appear; and at that ſeaſon, if they ſhould prove very dry, and they are kept moiſt, they will take root very ſoon: but toward the beginning of November their roots ſhould be well covered with mulch, to keep out the froſt. Miller.

ARC, ſee ARK.

The words are formed from *arcus*, a *bow*.

ARCA, in *Zoology*, a genus of the *vermes* in the Linnæan ſyſtem; comprehending [illegible] animal is a teſtæ; the ſhell bivalve [illegible] the teeth of the hinge numerous, [illegible] with other.

ARCA *cordis* is uſed by ſome [illegible] the PERICARDIUM.

ARCADE, in *Architecture*, is [illegible] ning in the wall of a building formed [illegible] *Archit. fig.* 40.

ARCADIANS, a literary ſociety [illegible] ome in 1690. See ACADEMIES.

ARCÆ *inſer*, a title one [illegible] bacon, on account of his leaving the [illegible] th's cheſt, or treaſure.

ARCANES, in the *Turkiſh* [illegible] kind of fi-nality, which ſerve as *on* [illegible] barrals and pillage the enemies frontiers.

The *Arcanes* are an order inferior to the *Janizaries*; and, when any of them diſtinguiſh themſelves, are uſually preferred in the *janizaric* order.—They have no pay, but are to ſubſiſt on their plunder.

ARCANNA, a kind of red chalk, called by phyſiologiſts *rubrica fabrilis*, as being uſed by carpenters to colour their line, for marking timber, &c.

ARCANUM literally ſignifies a *ſecret*; and is therefore very pertinently applied by quacks and impoſtors in medicine, who conceal their ignorance and fraud under a pretence of ſecrecy.—Hence a multitude of *arcana*.

There are alſo ſtanding officinal compoſitions, under the denomination of *arcana*.—Such are the

ARCANUM *duplicatum*, a preparation of red precipitate, made by diſtilling it with the ſpirit of nitre, and repeating the diſtillation again and again, till a fine white powder be procured. This powder is boiled in water, and the water poured off, and tartariſed ſpirit of wine put to the powder: two or three coholations are made; which leave a powder, much like the princes powder, and ſaid to be of good uſe in the gout, dropſy, leſſory, &c. It operates chiefly by ſtool. It is, therefore, in fact nothing elſe but *red* PRECIPITATE, on which ſpirit of wine has been two or three times burnt, with an intention of rendering it milder.

ARCANUM *duplicatum* is prepared of the *caput mortuum* of *aqua fortis*, by diſſolving it in hot water, filtrating, and evaporating it to a cuticle; and then leaving it to ſhoot. It is entirely the ſame in compoſition and effect with *vitriolated* TARTAR; and is ſometimes called *ſal ſtellatum*, and *ſal ſtellatus*.

The *arcanum duplicatum*, or *panacea antimonii*, is extolled as a diuretic, and ſudorific.—The receipt was purchaſed at the expence of 500 dollars, by that great virtuoſo the duke of Holſtein. Schroder, that prince's phyſician, writes wonders of its great uſe in hypochondriacal caſes, and in continued and intermitting fevers, dropſy, &c. Mixed with the ſpirit employed in binding books, it recures them effectually againſt all injury from that miſchievous inſect, the *book-worm*.

ARCANUM *nephriticum luſitanicum*, in *Medicine*, a name given by Wedelius to a compound medicine adminiſtered by him and others of the ſame time, with great ſucceſs, in a peſtilential fever, attended with dyſentery, which raged for many years in Germany, and yielded to well to nothing as to this medicine. It was compoſed of henbane, plantane-root, and the root of *ſcabious*. This laſt root has generally been eſteemed a poiſon of late times, though the authors of the greateſt antiquity have ſhewn ſo much greater reſpect for it, and called it the ſacred root, or *herba ſalutaris*.

ARCANUM *Jovialis* is made of an *amalgama* of mercury and tin, digeſted in ſpirit of nitre; the ſpirit being drawn off, the remaining matter is wetted with ſpirit of wine, and the ſpirit burnt away; and this for ſeveral times, till the pungent taſte is wholly gone: what remains is uſed much with the ſame intentions as the *antimonium Perſii*, and is recommended by ſome as a ſudorific.

ARCANUM *tartari*, is a neutral ſalt ſoluble in water and ſpirit of wine, formed from the combination of vinegar with fixed alkalies.

ARC-BOUTANT, in *Building*, a kind of flat arch, or part of an arch, abutting againſt the feet of an arch, or ſeat of a vault, to ſuppoſe, and prevent their giving way.

The name is French; formed of *arc* and *bouter*, to *abut*.

Arc-boutants are only arched BUTTRESSES.

ARCEUTUM is uſed in ſome *Ancient Law-Writers*, for a procuration due to a biſhop, abbot, or archdeacon, from their clergy, in time of entertainment.

ARCH, ARC, ARCUS, a part of any curve line; e. gr. of a circle, an ellipſis, or the like.

ARCH *of a circle* is a part of the circumference thereof, leſs than a half, or ſemicircle.—Such is A E D (*Geometry, fig.* 6).

The baſe or line AB, that joins the two extremes of the

arch, is called the CHORD; and AD half of the chord bifected by the diameter at right angles, is the SINE of half the faid *arch*, viz. AE.

All *angles* are meafured by *arches*.—To know their quantity, an *arch* is deſcribed, having its centre in the point of the ANGLE.

Every circle is ſuppoſed to be divided into 360 degrees; and an *arch* is eſtimated according to the number of thoſe degrees it take up. Thus an arch is ſaid to be of 30, of 80, of 100 degrees. See DEGREE.

ARCHES, *concentric*. See CONCENTRIC.

ARCHES, *equal*, are ſuch *arches* of the ſame or equal circle, as contain the ſame number of degrees.—Hence,

In the ſame or equal circles, equal chords ſubtend equal *arches*.—And hence, again, *arches* intercepted between parallel chords are equal.

A radius, CE. *fig.* 6. which biſects the chord in D, does alſo biſect the *arch* in E; and is perpendicular to the chord: and on the contrary. And hence the problem to *biſect an arch*, is ſolved, by drawing a line CE from the centre perpendicular to the chord in D.

ARCHES, *ſimilar*, are thoſe which contain the ſame number of degrees of unequal circles.—Such are the *arches* AB and DE, *fig.* 87.

Two radii being drawn from the centre of two concentric circles, the two *arches* intercepted between them bear the ſame ratio to their reſpective peripheries; and alſo the two ſectors to the areas of their reſpective circles. See ANGLE.

To find the CENTER *of gravity* of an *arch* of a circle; ſee CENTER *of gravity*, &c.

For the ſines, tangents, &c. of *arches*, ſee SINE, TANGENT, &c.

ARCH, in *Aſtronomy*.—*Diurnal* ARCH of the ſun is part of a circle parallel to the equator, deſcribed by the ſun in his courſe betwixt riſing and ſetting. See DAY, DIURNAL, &c.

His *nocturnal arch* is of the ſame kind, except that it is deſcribed betwixt his ſetting and riſing. See NIGHT, NOCTURNAL, RISING, &c.

The latitude and elevation of the pole are meaſured by an *arch* of the meridan; and the longitude, by an *arch* of a parallel circle. See ELEVATION, LATITUDE, LONGITUDE, &c.

ARCH *of progreſſion*, or *direction*, is an *arch* of the ecliptic, which a planet ſeems to paſs over, when its motion is according to the order of the ſign. See DIRECTION.

ARCH *of retrogradation* is an arch of the ecliptic deſcribed while a planet is retrograde, and moves contrary to the order of the ſign. See RETROGRADATION.

ARCH *of ſtation*. See STATION, and STATIONARY.

ARCH *between the centres* is an *arch*, as AI *Tab. Aſtronomy*, *fig.* 35. paſſing from the centre of the moon's ſhadow, A, perpendicular to her orbit OB. See ECLIPSE.

If the aggregate of the *arch* between the centres AI, and the apparent ſemidiameter of the ſhadow, be equal to the ſemidiameter of the ſhadow, the eclipſe will be total without any duration: if leſs, total with ſome duration; and if greater, yet leſs than the ſum of the ſemidiameters of the moon and the ſhadow, partial.

ARCH *of viſion* is the ſun's depth below the horizon, at which a ſtar, before hid in his *rays*, begins to appear again.

TABLE exhibiting the *Arch* of *Viſion* of the PLANETS and FIXED STARS.

Planets.	°	′
Mercury,	10	0
Venus	5	0
Mars,	11	30
Jupiter,	10	0
Saturn,	11	0

Fixed Stars. Magnitude.	°
1	12
2	13
3	14
4	15
5	16
6	17

However, the quantity of this *arch* is not always the ſame; but varies with the latitude, declination, right aſcenſion or deſcenſion, and diſtance of any planet or ſtar. Ricciol. Alm. vol. i. p. 41.

See *Poetical* RISING.

ARCH, in *Architecture*, is a concave ſtructure, raiſed with a mould bent in form of the *arch*, of a curve, and ſerving as the inward ſupport of any ſuperſtructure.—See *Tab. Archit. fig.* 40. E.

An *arch*, ſays ſir Henry Wotton, is nothing but a narrow or contracted *vault*; and a VAULT is a dilated *arch*. *Arches* are uſed in large intercolumnations of ſpacious buildings; in porticos, both within and without temples; in public halls, as cielings, the courts of palaces, cloiſters, theatres, and amphitheatres.

They are alſo uſed as buttreſſes and counter-forts, to ſupport large walls laid deep in the earth, for foundations of bridges and aqueducts, for triumphal arches, gates, windows, &c.

Arches are ſuſtained by piers, impoſts, &c.

Arches are either circular, elliptical, or ſtraight.

ARCHES *circular*, are of three kinds; viz.

ARCHES, *ſemicircular*, thoſe which make an exact ſemicircle; and have their centre in the middle of the chord of the *arch*; called alſo by the French builders, *perfect arches*, and *arches en plein centre*.

ARCHES, *ſcheme*, from the Italian *ſcemo*, *imperfect*; thoſe which are leſs than a ſemicircle, and conſequently are flatter *arches*; containing, ſome 90 degrees, others 70, and others only 60; called alſo *imperfect* and *diminiſhed arches*.

ARCHES *of the third and fourth point*, as ſome of our workmen call them, though the Italians call them *di terzo* and *quarto acuto*, becauſe they always concur in an acute angle at top, conſiſt of two *arches* of a circle, meeting in an angle at the top, and are drawn from the diviſion of the chord into three or four, or more parts, at pleaſure. Of this kind are many of the *arches* in old Gothic buildings; but on account both of their weakneſs and unſightlineſs, they ought, according to ſir Henry Wotton, to be for ever excluded out of all buildings.

ARCHES, *elliptical*, conſiſt of a ſemi-ellipſis; and were formerly much uſed inſtead of mantle-trees in chimneys. Theſe have commonly a key-ſtone, and chapiters or impoſts.

ARCHES, *ſtraight*, are thoſe, whoſe upper and under edges are ſtraight; as in the others they are curved; and thoſe two edges alſo parallel, and the ends and joints all pointing towards a centre.—Theſe are principally uſed over windows, doors, &c.

The doctrine and uſe of ARCHES is well delivered by ſir Henry Wotton, in the following theorems.—Firſt;

All matter, unleſs impeded, tends to the centre of the earth in a perpendicular line.

Secondly; All ſolid materials, as bricks, ſtones, &c. in their ordinary rectangular form, if laid in numbers, one by the ſide of another, in a level row, and their extreme ones ſuſtained between two ſupporters; thoſe in the middle will neceſſary ſink, even by their own gravity, much more if preſſed down by any ſuperincumbent weight.—To make them ſtand, therefore, either their figure or their poſition muſt be altered.

Thirdly; Stones, or other materials, being figured *cuneatim*, i. e. wedge-wiſe, broader above than below, and laid in a level row, with their two extremes ſupported as in the preceding theorem, and pointing all to the ſame centre; none of them can ſink, till the ſupporters or butments give way, becauſe they want room in that ſituation to deſcend perpendicularly. But this is a weak ſtructure; becauſe the ſupporters are ſubject to too much impulſion, eſpecially where the line is long; for which reaſon the form of ſtraight *arches* is ſeldom uſed, excepting over doors and windows, where the line is ſhort.—In order to fortify the work, therefore, we muſt not only change the figure of the materials, but alſo their poſition.

Fourthly; If the materials be ſhaped wedge-wiſe, and be diſpoſed in form of a circular *arch*, and pointing to ſome centre; in this caſe, neither the pieces of the ſaid *arch* can ſink downwards, for want of room to deſcend perpendicularly; nor can the ſupporters or butments ſuffer much violence, as in the precedent platforms: for the convexity will always make the incumbent weight rather reſt upon the ſupporters than heave them outwards; whence this corollary may be fairly deduced, that the ſecureſt of all the *arches* above mentioned is the ſemicircular; and of all vaults, the hemiſpherical.

Fifthly; As ſemicircular vaults raiſed on the whole diameter, are the ſtrongeſt: ſo thoſe are the moſt beautiful, which, keeping to the ſame height, are yet diſtended one fourteenth part longer than the ſaid diameter: which addition of width will contribute greatly to their beauty, without diminiſhing any thing conſiderable of their ſtrength.

It is, however, to be obſerved, that, according to geometrical ſtrictneſs, to have the ſtrongeſt *arches*, they muſt not be portions of circles, but of another curve, called the CATENARIA, whoſe nature is ſuch, that a number of ſpheres diſpoſed in this form will ſuſtain each other, and form an *arch*.

Dr. Gregory even ſhews, that *arches*, conſtructed in other curves, only ſtand, or ſuſtain themſelves, by virtue of the *catenaria* contained in their thickneſs; ſo that were they made infinitely ſlender or thin, they muſt tumble of courſe; whereas the *catenaria*, though infinitely ſlender, muſt ſtand, becauſe no one point thereof

tends downward more than any other. See Philosoph. Transact. N° 231.—See farther of the theory of *arches* under the article VAULT.

ARCH is particularly used for the space between the two piers of a bridge.

The chief or *master-arch* is that in the middle; which is widest, and usually highest, and the water under it deepest: being intended for the passage of boats, or other vessels.—We read of bridges in the East, which consist of 300 *arches*.

ARCH-*stone*. See KEY-*stone*, and VOUSSOIR.

ARCH, *triumphal*, is a gate or passage into a city, built of stone or marble, and magnificently adorned with architecture, sculpture, inscriptions, &c. serving not only to adorn a triumph, at the return from a victorious expedition, but also to preserve the memory of the conqueror to posterity.

The most celebrated *triumphal arches*, now remaining of antiquity, are that of Titus, of Septimius Severus, and of Constantine, at Rome, of which we have figures given us by Des Godetz.—One of the gates of Orange is a *triumphal arch* of C. Marius.—The gates, Peyro at Montpelier, and of St. Denis, St. Martin, and St. Antoine, at Paris, may also be reckoned *triumphal arches* of the moderns.

ARCH, *mural*. See MURAL.

ARCH, in the scripture sense. See ARK.

ARCH, or ARCHI, is also a term without any meaning of itself, but which becomes very significant in composition with other words; as it heightens and exaggerates them; and has the force of a superlative, to shew the greatest degree, or eminence of any thing.

The word is formed of ἀρχὴ, *beginning*; whence ἄρχων, *princeps*, *chief*.

Thus we say, *arch*-treasurer, *arch*-angel, *arch*-bishop, *arch*-heretic, &c. to denote such as have a pre-eminence over others. So also *arch*-fool, *arch*-rogue, &c. to express folly, and knavery, in the utmost degree.

In English, we usually cut off the final *i*, from *archi*, though with very ill effect; as the words with which it is joined, sound much harsher on that account, than they would do, were it preserved entire, as it is in most other languages.

ARCHÆUS. See ARCHEUS.

ARCHANGEL, an intellectual substance or angel, placed in the second order among the blessed spirits which compose the celestial HIERARCHY.

The word is compounded of the Greek ἄρχων, *prince*, and ἄγγελος, *angels*.

ARCHANGEL, in *Botany*, *lamium*, a genus of the *didynamia gymnospermia* class, *dead* NETTLE. The characters are, that the flower hath a permanent empalement, which is cut into five equal segments at the top, which end in beards; the flower is of the lip kind, with one petal, twelve times the chops are compressed; the upper lip is arched, obtuse, and entire; the under is heart shaped, and indented at the end; it hath four awl-shaped stamina, two of which are longer than the other; it hath a four-cornered germen, which afterwards becomes four three-cornered seeds, sitting in the open empalement. There are several species; but as many of them are weeds, there are few who care to admit them into their gardens.

The common sort grows naturally in most parts of England, under hedges and by the sides of highways: it is also a troublesome weed in gardens; but as it stands in most dispensaries as a medicinal plant, it is therefore inserted. Its flowers are reputed sort and lubricating, and as such administered in some female weaknesses, as the whites, and difficulty of urine. A conserve of them is also made in the shops, but seldom prescribed.

ARCHANGEL, *baum-leaved*. See MELITTIS.

ARCHANGEL, *yellow*. See GALEOBDOLON.

ARCHBISHOP, ARCHIEPISCOPUS, from ἀρχὸς, and ἐπισκοπος, *overseer*, a metropolitan prelate, having several suffragan bishops under him.

Archbishops were not known in the East till about the year 320; and though there were some soon after this, who had the title, yet, that was only a personal honour, by which the bishops of considerable cities were distinguished.—It was not till of late that *archbishops* became metropolitans, and had suffragans under them.

Athanasius appears to be the first who used the title *archbishop*, which he gave occasionally to his predecessor; Gregory Nazianzen, in like manner, gave it to Athanasius: not that either of them were entitled to any jurisdiction, or even any precedence, in virtue of it.

Among the Latins, Isidore Hispalensis, is the first that speaks of *archbishops*. He distinguishes four orders of degrees in the ecclesiastical hierarchy, viz. *patriarchs*, *archbishops*, *metropolitans*, and *bishops*.

ARCHBISHOPRICK, ARCHIEPISCOPATUS, the dignity of *archbishop*; or the province under his jurisdiction.

There are now two *archbishoprics* in England, viz. of Canterbury, and York; the prelates who are called *primates*, and *metropolitans*; with this only difference, that the former is called primate of all England, and the latter simply, primate of England.

The *archbishop*, beside the inspection [illegible] inferior clergy in the province [illegible] exercises episcopal jurisdiction [illegible] is guardian of the spiritu[illegible] his province, as the king is of the [illegible] exercises ecclesiastical [illegible] entitled to present by lapse to all [illegible] livings in the disposal of his diocesan bishop, [illegible] within six months. He has likewise a [illegible] prerogative, upon consecrating a bishop, to name a chaplain to be provided for by such bishop's [illegible] living of which it is now usual to accept an OPTION. He is said to be *inthroned* when vested in the *archbishoprick*; whereas bishops are said to be *installed*.

The *archbishop* of Canterbury had anciently, viz. till the year 1152, jurisdiction over Ireland as well as England, and was styled a *patriarch*, and sometimes *alterius orbis papa*, and *orbis Britannici pontifex*. Matters were done and recorded in his name thus, *anno pontificatus nostri primo*, &c. The first *archbishop* of Canterbury was Austin, appointed by king Ethelbert, on his conversion to Christianity, about the year 598.

He was also *legatus natus*. See LEGATE.

He even enjoyed some special marks of royalty; as, to be patron of a bishoprick, which he was of Rochester; and to make knights, coin money, &c.—He is still the first peer of England, and the next to the royal family; having precedence of all dukes, and all great officers of the crown. It is his privilege, by custom, to crown the kings and queens of this kingdom. He may retain and qualify eight chaplains; whereas a duke is by statute allowed only six.

He has, by common law, the power of probate of wills and testaments, and granting letters of administration.

He has also a power to grant licences and dispensations in all cases formerly used for in the court of Rome, and not repugnant to the law of God. He accordingly issues special licences to marry, to hold two livings, &c. and he exercises the right of conferring degrees.

He is addressed with the title of *Grace*, and *Most Reverend Father in God*; and writes himself by *Divine Providence*; whereas bishops only use by *Divine Permission*.

He also holds several courts of judicature; as court of arches, court of audience, prerogative court, and court of peculiars.

The *archbishop* of York has the like rights in his province, as the *archbishop* of Canterbury. He has precedence of all dukes not of the royal blood; and of all officers of state, except the lord high chancellor. He has also the rights of a count palatine over Hexamshire.

The first *archbishop* of York was Paulinus, appointed by pope Gregory about the year 622. He had formerly jurisdiction over all the bishops of Scotland; but in the year 1470, pope Sextus IV. created the bishop of St. Andrew's archbishop and metropolitan of all Scotland.

ARCH-BUTLER, ARCHIPINCERNA, the great butler or skinker of the empire.

The king of Bohemia is *arch-butler*: and his business as such is to present the first cup at an imperial entertainment; but he is not obliged to officiate with his crown on. He has for vicar or deputy the hereditary prince of Limbourgh.

ARCH-CHAMBERLAIN, ARCHICAMERARIUS, an officer of the empire: much the same with what in England we call *great-chamberlain*.

The elector of Brandenbourg is *arch-chamberlain* of the empire, being so appointed by the golden bull; and in that quality, he bears the sceptre before the emperor, walking on the left-hand of the elector of Saxony. At some solemnities he also serves on horseback like other electors, carrying a bason with a towel in his hands: which, alighting, he lets for the emperor to wash.—He has his vicar, or sub *archichamberlain*, who is prince of Hohenzollern, of the house of Brandenbourg.

ARCH-CHANCELLOR, ARCHICANCELLARIUS, great chancellor, who anciently presided over the notaries, that is, the secretaries of a court.

This office chiefly obtained in France, under the two first races of their kings; and afterwards under the empire: as they had three several territories, Germany, Italy and Arles; they had *three arch-chancellors*: and hence the three *archi-chancellors* still subsisting in Germany, the archbishop of Mentz being *archi-chancellor* of Germany, the archbishop of Cologn of Italy, and the archbishop of Treves of Arles.

Bern. de Mallincrot, in an express treatise *de Archi-cancellariis*

cancellarii Imperii Romani, shews, that these three archbishops were *arch-chancellors* before they were electors.—We also read of *arch-chancellors* of Burgundy, &c.

ARCH-CHANTOR, ARCHICANTOR, the chief or president of the chaunters of a church.

ARCHDEACON, ARCHIDIACONUS, a church-officer vested with a jurisdiction over the laity and clergy, next after the bishop, either through the whole diocese, or only a part of it.

The *archidiaconi*, sometimes also called *arch-levitæ*, was originally the first and eldest of the deacons who attended on the bishop; whence his name.

But as the *archdeacons*, in their original institution, had no relation to the diocese, but only to the episcopal see, so it was by several steps and degrees that they attained to the power they now enjoy. At their first institution, their proper business was, to attend the bishop at the altar, to direct the deacons and other inferior officers in their several duties, for the orderly performance of divine service, to attend the bishop at ordinations, and to assist him in the management of the revenues of the church; but without any thing that could be called jurisdiction in the present sense of the word, either in the cathedral or out of it. Gibson.

An *archdeacon* was not known before the council of Nice: his function is since become a dignity; and even set above that of priest; though anciently it was quite other wise. The *archdeacon* was the bishop's chief minister for all external concerns, and particularly the administration of the temporalities. He took care that order and decency were observed in divine service; looked to the ornaments and utensils of the church; had the direction of the poor, and the inspection of the manners and behaviour of the people: for which reason he was called *the bishop's heart, and eye*; *oculus episcopi, & cor episcopi*.

These advantages soon gained him the superiority over priests, who had only spiritual functions. But he had no jurisdiction over them till the sixth century; though by that time he was become superior to the archimandrite, or rural dean.

In the tenth century, *archdeacons* were considered as having jurisdiction in their own right, or attached to their office; with a power of delegating it to others. But from that time measures were taken to lessen their power, by increasing their number.—He whose district lay in the capital city, took the quality of *great-archdeacon*.

We have sixty *archdeacons* in England: their office is to visit every two years, in three, to inquire into the reparations and moveables belonging to the church, reform abuses in ecclesiastical matters, and bring the more weighty affairs before the bishop; besides which, they have also a power to suspend, excommunicate, and in many places to prove wills, and in some to institute to benefices.

It is one part of the *archdeacon's* office to induct all clerks into their benefices within his jurisdiction; and, by the act of uniformity, he is now obliged to be in priests orders.

Many *archdeacons*, in old foundations, have, by prescription, their courts and officials, as bishops have.

Archdeaconries are commonly given by bishops, who do therefore prefer to the same by collation: but if an *archdeaconry* be in the gift of a layman, the patron doth present to the bishop, who institutes in like manner as to another benefice; and then the dean and chapter do induct him, that is, after some ceremonies, place him in a stall in the cathedral church to which he belongeth, whereby he is said to have a place in the choir.

ARCH-*fundraton*, *archisubdiaconus*, the first or chief among the subdeacons, as the archdeacon is among the deacons. In some copies of the Roman ordinal, he is called *subarchidiaconus*.

ARCH-DRUID, ARCHIDRUIDA, the chief or pontiff of the ancient DRUIDS in a nation.

ARCHDUKE, ARCHIDUX, a duke vested with some quality, pre-eminence, and authority, above other dukes.

The *archdukes* of Austria is a very ancient title. There have also formerly been *archdukes* of Lorrain and Brabant. Austria was erected into a marquisate by Otho, or Henry I. and into a duchy by Frederic I. in 1156; but we do not well know when, or why, the title *archduchy* was given it.—It is commonly held, that duke Frederic IV. first assumed the quality: others say, it was first given by the emperor Maximilian I. in 1459, and ample privileges annexed to it.

The principal privileges of this state are, that the *archduke* shall distribute justice in his own dominions, without appeal; that he shall be judged to have received the investiture of his states, after having demanded it three times; and that he cannot be deprived of his countries, even by the emperor, and the states of the empire: that no affair of the empire can be concluded without his participation; and that he have a power of creating counts, barons, and gentlemen, throughout the whole empire: which are privileges to which the other dukes of the empire are entire strangers.

ARCH-*count*, *archicomes*, a title anciently given to the earl of Flanders, on account of his great power and riches.

ARCH *monastery*, *archimonasterium*, an appellation sometimes given to the greater monasteries and abbies.

ARCH-*notary*, *archinotarius*, the *primicerius*, or chief of the notaries.

This officer is supposed by some to have differed from the *arch-chancellor*, though wherein the difference consisted does not appear.

ARCHÆOGRAPHIA, from ἀρχαιος, *ancient*, of ἀρχη and γραφω, *I describe*, the art of describing or explaining ANTIQUITIES. See ANTIQUE.

ARCHÆOTA, a keeper of ancient records.

ARCHAISM, properly denotes a phrase or diction now obsolete, and out of use, though anciently deemed good, or passable.

ARCHAISM, *etymologic. archaismus etymologicus*, is when either an obsolete word, declension, or conjugation is used.

ARCHAISM, *syntactic. archaismus syntacticus*, is an unusual and obsolete construction in discourse.

ARCHARD, in *Commerce*, a kind of green fruit, pickled in vinegar, much valued throughout the East Indies.

The best are those brought from Persia, in bottles, much like small cucumbers among us.

ARCHE, ἀρχη, is a Greek word, importing the *beginning*.

ARCHE, among *Physicians*, is the beginning or first period of a disease.

ARCHED *fountain*. See FOUNTAIN.

ARCHED *form*, or *scheme*, in *Architecture*, is used to denote a flat *arch*, less than a semicircular one.

ARCHED *legs*, is an imperfection in a horse, when being in his natural position he has his legs bent forwards; so that his whole leg makes a kind of arch or bow.

This usually arises from excessive labour, whereby the back-sinews are made to stretch up, so that the legs remain *arched*, and naturally tremble after a little riding; though the disorder is natural to some horses.

ARCHEMY, *archemia*, is used by some to denote the art of transmuting less perfect metals into the more perfect. In which sense, *archemy*, differs from *alchemy*, as a part from the whole.

ARCHENDA, in the *Ancient Physic*, a kind of powder prepared of *alcanna* and leaves of the Egyptian LIGUSTRUM, wherewith the people smeared their feet after bathing, as a preservative against sweating and stench.

ARCHERS, a kind of militia or soldiery, armed with bows and arrows.

The word is formed of *arcus*, a *bow*; whence *arcuarius*, and even *arquus*, and *arquites*, as they are also denominated in the corrupt state of the Latin tongue.

Archers were much in use in former times; but they are now laid aside, excepting in Turkey, and some of the eastern countries; where there are companies of *archers* still subsisting in their armies; and with which they did terrible execution at the battle of Lepanto.

The name *archer*, however, is still retained even where the thing is lost: thus in France, the officers who attend the lieutenants de police, and provosts, to make captures, seizures, arrests, &c. are called *archers*; though their arms be only halberts or carabines.—In this sense they say, the *archers* of the *grand vreuet de Hostel*; of the *prevot des marchands*; the city *archers*; the *archers du guet*, or of the watch, &c.—Small parties or *archers*, called also *gens des marechaussee*, are continually patrolling on the great roads, to secure them against robbers.—The carriages of Lyons, &c. are always escorted by a party of *archers*.

To the diligence of these *archers*, or marshals men, it is partly owing, that persons now travel in all parts of France in the utmost security; their being fewer robbers on the highway in that whole kingdom in a year, than about London in a week.

They have also *their archers des pauvres*, *archers of the poor*, whose office it is to seize such beggars as they find in the streets, and carry them to the hospitals.

ARCHERY, the art or exercise of shooting with bow and arrow.

Archery was greatly encouraged among our ancestors, and many statutes were made for the regulation thereof; whence it was that the English *archers* became the best in Europe. See 3 H. VIII. c. 3. 6 H. VIII. c. 2. 33 H. VIII. c. 9. 8 Eliz. c. 10.

It was forbid, by statute, to shoot at a standing mark; unless it be for a rover, where the *archer* is to change his mark at every shoot.—Any person above twenty-four years old is also forbid to shoot with any prick-shaft, or flight, at a mark of eleven score yards

or under, 33d H. VIII. c. 9.—The former was a provision for making good marksmen at fight; the latter for giving ſtrength and ſinews.

ARCHERY, in our ancient cuſtoms, a ſervice of keeping a bow for the uſe of the lord, to defend his caſtle.

ARCHES, or *Court of* ARCHES. See COURT *of Arches*.

ARCHES, among *Navigators*, is particularly uſed for the Archipelago.

ARCHETYPE, ARCHETYPUS, the firſt pattern, or model, by which any work is formed, or which is copied after to make another like it.

The word is compounded of ἀρχὴ, *beginning*, and τύπος, TYPE.

In this ſenſe the word coincides with *original*, or *prototype*; and ſtands oppoſed to *copy*.

Among minters, &c. *archetype* is peculiarly uſed for the ſtandard or original weight, by which the other weights are to be adjuſted and examined.

Philoſophers, particularly the Platoniſts, talk of an *archetypal* world; meaning, the world, ſuch as it exiſted in the Divine Mind, or in the idea of God, before the viſible creation.

ARCHIEUNUCH, ARCHIEUNUCHUS, the chief of the eunuchs.

The *archeunuch* was one of the principal officers in Conſtantinople, under the Greek emperors.

ARCHEUS, an obſcure term, uſed chiefly among the *Ancient Chemiſts*, to expreſs ſome occult principle of life and motion, the cauſe of all the effects which we obſerve in nature.

The word is derived from ἀρχὴ, *principle*.

As the chemiſts differ in their ideas of a vital cauſe, the term *archeus* becomes applied to very different things: though moſt of them conceive it of the nature of fire.

Some uſe *archeus*, to denote the fire lodged in the centre of the earth: to which they aſcribe the generation of metals and minerals, and which they believe to be the principle of life in vegetables.

Others, by the word *archeus*, mean a certain univerſal ſpirit, diffuſed throughout the whole creation, the active cauſe of all the phenomena in nature.

Others, inſtead of *archeus*, chooſe to call this the *anima mundi*; and others, the *Vulcan* or *heat* of the earth.

They add, that all bodies have their ſhare of this *archeus*; and that, when this is corrupted, it produces diſeaſes, which they call *archeal diſeaſes*.

They likewiſe attribute ideas to it; which for this reaſon they call *archeal ideas*.

Helmont is a great aſſertor of the dogma of an *archeus*. It is likewiſe uſed to ſignify that peculiar fluid among the vegetable chaſſes, which determines every particular plant to its odour, taſte, and other qualities.

The fruit of a plant is the part in which the ſeed is conceived and formed, the ſeed is the embryo of the plant, with a *plumula* or *cotyledon*, to which it is faſtened by an umbilical ſtring. The cotyledons uſually contain a balſam, which appears to be the laſt and higheſt preparation of the moiſt kind, which nature here lays up for the uſe of the offspring. In this is an oily tenacious matter, which repels all other moiſt things, defends the embryo, and, by its tenacity, retains and fetters the thin pure ſpirit, which is the ultimate bounds and object of the actions of nature in plants, and which would elſe eaſily fly away; this chemiſts call the *archeus* and *ſpiritus rector*; the oil is too groſs ever to enter the fine veſſels of the embryo. But this ſpirit being invigorated by a vegetable power, breathes, it is ſaid, a vital principle, and impreſſes the ſpecific character on the food deſtined for the embryo, by which means every thing afterwards turns to the proper nature of the plant; in this ſpirit the fragrant odour, and peculiar taſte of the plant is lodged, and even its colour has a near dependance on it. Boerhaave's Chem.

ARCHIACOLYTHUS, from ἀρχὴ, *chief*, and ἀκόλουθος, *miniſter*, an ancient dignity, in cathedral churches: the miniſters whereof were divided into four orders, or degrees, viz. *prieſts*, *deacons*, *ſubdeacons*, and *acolyths*; each of which had their chiefs. The chief of the *acolythi*, was called *archiacolythus*. Du-Cange.

ARCHIATER, ARCHIATRUS, properly denotes the chief phyſician of a prince who retains ſeveral.

The word is formed of ἀρχὴ, *principium*, *chief*; and ἰατρὸς, *medicus*, a *phyſician*.

ARCHIDAPIFER, from ἀρχὴ, and *dapifer*, *ſewer*, or chief ſewer, is a great officer of the empire.

The elector of Bavaria is *archidapifer*.—The palatine of the Rhine at one time pretended this office was annexed to his palatinate; but he has ſince deſiſted.

ARCHIEROSYNES, from ἀρχὴ, and ἱερὸς, *ſacred*, in the Grecian *Antiquity*, a high-prieſt veſted with authority over the reſt of the prieſts, and appointed to execute the more ſacred and myſterious rites of religion.

ARCHIGALLUS, in *Antiquity*, the high-prieſt of Cybele, or the chief of the eunuch-prieſts of that goddeſs, called Galli.

ARCHIGERONTES, from ἀρχὴ, and γέρων, *old*, in *Antiquity*, the chiefs or maſters of the ſeveral companies of artificers at Alexandria.

Some have miſtaken the *archigerontes* for the arch-prieſts, appointed to take the confeſſions of thoſe who are condemned to the mines.

ARCHIGUBERNUS, ARCHIGUBERNETES, or ARCHIGUBERNITES, in *Antiquity*, the commander of the imperial ſhip, or that which the emperor went aboard of.

Some have confounded the *archigubernus* compared with that of *præfectus claſſis*, or admiral, but the former was under the command of the latter.

Potter takes the proper office of the *archigubernus* to have been, to manage the marine affairs, to provide commodious harbours, and order all things relating to the ſailing of the fleet, except what related to war. Archeol. Græc. lib. iii. cap. 19.

ARCHIL, *Archilla*, *Roccella*, or *Oſſeille*, a white moſs, which grows on the rocks in many parts of the Archipelago, and in the Canary and Cape de Verd iſlands; and, according to Linnæus's account, on the weſtern coaſt of England. It belongs to the third of Dillenius's genus of *coralloides*, and to the *lichenes fruticuloſi* of Linnæus. This moſs is imported as it is gathered, and the demand for it is ſo great, that, as M. Hellot informs us no leſs than 2600 quintals, or 130 ton weight of it, is annually collected in different places. Thoſe who prepare it for the uſe of the dyer grind it betwixt ſtones, ſo as to bruiſe it thoroughly without reducing it to powder, and then moiſten it occaſionally with ſtrong ſpirit of urine, or urine itſelf mixed with quicklime. In a few days it acquires a purpliſh red, and at length a blue colour. The dyers ſeldom uſe this drug by itſelf, becauſe of its dearneſs, and the perihableneſs of its beauty; but they chiefly employ it to give a bloom to other colours, as pinks, &c. and this is done by paſſing the dyed cloth, or ſilk, through hot water lightly impregnated with the *archil*. However, the bloom thus communicated ſoon decays upon being expoſed to the air; though, M. Hellot ſays, that by adding a ſmall quantity of the ſolution of tin, the colour obtained from this drug changes towards a ſcarlet, and gives a durable dye. Prepared *orchil* will readily yield its colour to water, to volatile ſpiritis, and to ſpirit of wine; and it is accordingly uſed to colour the ſpirits of thermometers; but being confined from the air, the ſpirits loſe their colour, and, as M. l'Abbé Nollet obſerves, regain it, upon being again expoſed to the air. He repeated the experiment ſeveral times with ſucceſs. A ſolution of *archil* in water gives a durable ſtain of a beautiful violet, or purpliſh blue colour, to marble. M. du Fay informs us, that he has ſeen pieces of marbles ſtained with it, that preſerved their colour for two years, without any ſenſible change. It ſinks deep into the marble, and makes it more brittle. The dye yielded by this ſubſtance, it is ſuppoſed, was known as early as the days of Theophraſtus. Linnæus apprehends, that there are ſeveral other common moſſes, from which valuable colours might be extracted. The French dyers uſe a craſtaceous moſs growing upon rocks in Auvergne, and prepared with lime and urine, as a ſucceſſaneum to the Canary *archil*. Dr. Lewis's Ed. of Neumann's Chem. Works, p. 438. Phil. Tran vol li. p. 652. Raii Hiſt. Plant. vol. i. p. 74. Michel's Nova Plant. p. 78. See LICHEN.

ARCHILOCHIAN, a term in *Poetry*, applied to a ſort of verſes whereof *Archilochus* was the inventor.

Theſe conſiſt of ſeven feet; the four firſt whereof are ordinarily *dactyls*, though ſometimes *ſpondees*; the three laſt *trochees*: for inſtance;

Solvitur acris hyems grata vice veris & Favoni. Hor.

It is uſual to mix *iambic* verſes of ſix feet, abating a ſyllable, with *Archilochian* verſes; this Horace himſelf has done in the ODE now cited.

Theſe verſes are called *dactylic*, on account of the *dactyls* at the beginning.

ARCHI-LUTE. See ARCILEUTO.

ARCHIMAGUS, in the *Ancient Perſian Religion*, the chief prieſt or head of the order of magi.

The *archimagus* anſwered to the high-prieſt among the Jews, or the pope now among the Romaniſts, being the head of the whole religion.

The *archimagus* reſided in the fire temple, a place held in the ſame veneration among them as the temple of Mecca among the Mahometans; every perſon of the ſect being under a kind of obligation to make a pilgrimage to it once in their lives. Zoroaſter is ranked as the firſt *archimagus*.

ARCHIMANDRITE, from ἀρχὴ, and μάνδρα, *monaſtery*, the ſuperior of a monaſtery; amounting to what now we call ABBOT.

Cavarruvias obſerves, that the word literally denotes the chief or leader of a flock; in which ſenſe it may be applied to any eccleſiaſtical ſuperior; and accordingly, we

find

find the name sometimes attributed to archbishops. But among the Greeks, by whom it is chiefly used, it is always restrained to the chief of an abbey.

ARCHIMEDES's *screw*. See SCREW *of Archimedes*.

ARCHIMEDES's *burning-glass*. See BURNING-*glass*.

ARCHIMIME, ARCHIMIMUS, from ἀρχὸς, and μῖμος, *mimus*, or *actor*, the same thing, in effect, with archbuffoon, or mimic.

The *archimimes*, among the Romans, were persons who imitated the manners, gestures, and speech, both of people living, and those who were dead.

At first they were only employed on the theatre; but were afterward admitted, to their feasts, and at last to their funerals; where they walked after the corpse, counterfeiting the gestures and behaviour of the person who was carried to the funeral pile; as if he were still alive.

ARCHIPELAGO, in *Geography*, a sea interrupted by a great number of islands.

The word is formed by corruption of *Ægepelagus*, q. d. *Ægean sea*, which again is formed of Αιγαιος Πελαγος, a name originally given it by the Greeks; but for what reason is not agreed on.

The most celebrated *Archipelago*, and that to which the name is in some measure appropriated, is that between Greece, Macedonia, and Asia; wherein are the islands of the Ægean sea; which is called the *White Sea*, in contradistinction to the Euxine, which they call the *Black Sea*.

All these islands lie between the 35th and 40th degrees of north latitude. Some of them are called *Cyclades*, because they form, as it were, a crown or circle round the isle of Delos; the others are called *Sporades*, as being dispersed without any order between Asia, and the isle of Candia.

The modern geographers mention other *Archipelagos*; as that of Luzonia, near the coasts of Malabar, and Malacca; the *Archipelago* of Mexico; and that of the Caribbees, wherein are many islands; that of the Philippine, called by some, the *great Archipelago*, containing several islands; and all those of the Moluccos, or Celebes, &c.

ARCHIPHERACITÆ, ministers in the Jewish synagogues, appointed to read and interpret the Pentateuch, or titles and heads of the law, and the prophets.

The *archipheracita* was not the same with the *archisynagogus*, as Grotius, and others, have mistakenly imagined; but rather the chief or principal of those appointed to read, explain, and profess the law, in their schools.—And hence the name which is formed of ἀρχὸς, *chief*, and the Hebrew or Chaldee פרק, *division*, or *chapter*.

ARCHIPRESBYTER. See ARCH-PRIEST.

ARCHISTRATEGUS, the generalissimo, or captain-general of an army. See STRATEGUS.

ARCHISYNAGOGUS, in the *Jewish History*, the chief or ruler of the synagogue.

These are sometimes also called the angels or princes of the synagogues: the Jews called them *shatthamin*, i. e. *wise*. *Archisynagogi* were persons of authority in each synagogue, who presided in assemblies held therein, invited those to speak whom they judged capable of it, and decided all disputes relating to money, &c. They had a power to have those whipped who were convicted of acting contrary to the law; also a right of excommunicating, or casting out of the synagogue, those whom they found to merit this punishment. Their number was different according to the extent of the city, or the number of persons that came to the synagogue; in some there were seventy, in others eight or ten, and in others not above one. Vitringa de Synagog.

ARCHITECT, a person skilled in architecture, or the art of BUILDING; who forms plans and designs for edifices, conducts the work, and directs the several artificers employed in it.

The word is derived from ἀρχὸς, *primeps*, and τεκτων, *faber*, *workman*; q. d. the principal workman.

The most celebrated *architects* are Vitruvius, Palladio, Scamozzi, Serlio, Vignola, Barbaro, Cataneo, Alberti, Viola, Inigo Jones, De Lorme, Perrault, S. Le Clerc, Sir Christopher Wren, and the earl of Burlington.

Vitruvius enumerates twelve qualities requisite to constitute a good *architect*; that he be docile and ingenious; well educated; skilled in designing, in geometry, optics, arithmetic, history, philosophy, music, medicine, law, and astronomy.

Close application to the study of ancient masters, and the remaining works of the ancients, together with judgment and taste to select, and properly to apply the hints which such examples afford, joined to a peculiar genius for the study of this art, are absolutely necessary to render an *architect* eminent in his profession.

ARCHITECTOGRAPHIA, the description of ancient buildings, temples, theatres, arches, pyramids, baths, gates, aqueducts, tombs, and the like.

ARCHITECTONIC, that which builds a thing up regularly, according to its nature and intentions.

ARCHITECTURE, ARCHITECTURA, the art of BUILDING, i. e. of *erecting* edifices, proper for habitation or defence, as houses; *for domestic concerns*, as stabling, barns, and all out-offices; *for devotion*, as temples, churches, &c. for state, as public offices, halls, theatres, &c. for monuments and mausoleums, and for trade.

Architecture is scarce inferior to any of the arts in point of antiquity. Nature and necessity taught the first inhabitants of the earth to build themselves huts, tents, and cottages; from which, in course of time, they gradually advanced to more regular and stately habitations, with variety of ornaments, proportions, &c. See Vitruvius's account of the origin of *architecture*, under ORDER.

The ancient writers represent the Tyrians as the first among whom *architecture* was carried to any tolerable pitch; and hence it was that Solomon had recourse thither for workmen to build his temple.

To what a degree of magnificence the Tyrians and Egyptians carried *architecture*, before it came to the Greeks, may be learned from Isaiah xxiii. 8. and from Vitruvius's account of the Egyptian Oeci; their pyramids, obelisks, &c.

Yet, in the common account, *architecture* should be almost wholly of Grecian original: three of the regular orders or manners of building are denominated from them, viz. Corinthian, Ionic, and Doric; and there is scarce a single member, or moulding, but comes to us with a Greek name.

Be this as it will, it is certain the Romans, from whom we derive it, borrowed what they had entirely from the Greeks; among whom it was in its greatest glory under Pericles.

Under Augustus, *architecture* arrived at its highest perfection. Tiberius neglected it; as well as the other polite arts. Nero, amongst a number of horrible vices, still retained an uncommon passion for building; but luxury and dissoluteness had a greater share in it than true magnificence.—Apollodorus excelled in *architecture* under the emperor Trajan, by which he merited the favour of that prince; and it was he who raised the famous Trajan column, subsisting to this day; though robbed of its ornaments, in order to decorate the arch of Constantine.

After this, *architecture* began to decline again; and though the care and magnificence of Alexander Severus supported it for some time, yet it fell with the western empire, and sunk into a corruption, from whence it was not recovered for the space of twelve centuries.

The ravages of the Visigoths, in the fifth century, destroyed all the most beautiful monuments of antiquity; and *architecture* thence forward became so coarse and artless, that their professed architects understood nothing at all of just designing, wherein its whole beauty consists; and hence a new manner of building took its rise, which is called the *Gothic*.

Charlemagne did his utmost to restore *architecture*; and the French applied themselves to it with success, under the encouragement of H. Capet: his son Robert succeeded him in his design; till by degrees the modern *architecture* was run into as great an excess of delicacy, as the Gothic had before done into massiveness. To these may be added, the Arabesk and Mosaic, or Moresh *architecture*, which were much of a piece with the Gothic, only brought in from the south by the Moors, and Saracens, as the former was from the north by the Goths and Vandals.

The church built by Helen over the supposed sepulchre of our Saviour, is in this style, ornamented with foliage and figures of angles in the capitals, and on the imposts. This seems to have been the first corruption of the ancient architecture; and it was succeeded by the Gothic, which style of building has a fine effect in places of devotion; such are many of our cathedrals and old churches.

The architects of the 13th, 14th, and 15th century, who had some knowledge of sculpture, seemed to make perfection consist altogether in the delicacy and multitude of ornaments, which they bestowed on their buildings, with excessive care and solicitude; though frequently without any conduct or taste.

In the two last centuries, the *architects* of Italy and France were wholly bent upon retrieving the primitive simplicity and beauty of ancient *architecture*; in which they did not fail of success: insomuch that our churches, palaces, &c. are now wholly built after the antique.

The rules of *architecture* require, that in a fabrick judiciously and elegantly erected, there should be solidity, convenience, and beauty; to which, according to the taste of some of the most refined masters, are added order, disposition, proportion, decorum, and economy. These eight requisites are esteemed by the best judges, to constitute the necessary parts of *architecture*.

Solidity implies the choice of a good foundation, and good materials to work with, properly applied. Convenience consists in so disposing the various parts of a structure, that they may not crowd and embarrass each other, or appear disagreeable to the inspector. Beauty is that engaging form, and pleasing appearance, which captivates at one glance, as it were, the sight of the spectator. Order gives each part of the building a proportionate extent, adapted to the magnitude of the whole. Disposition is the due ranging, and agreeable union of

all the parts, in order to render the whole agreeable at all times, and, in general, means the proper convenient arrangement of the apartments. Proportion is the relation that the whole work has to its conſtituent parts; and which each part hath to the complex idea of the whole: for among buildings that are perfect in their kind, from any particular part we may form a judgment of the taſte of the whole. For example, the diameter of a column, or the dimenſions of a triglyph, give us a right idea of the whole with which they have connexion. To expreſs the relation which many things have to each other, as to their magnitude, and the variety of their parts, Vitruvius, the great architect, indifferently uſes the words proportion, eurythmy, and ſymmetry; the two laſt whereof are nearly ſynonymous with the firſt. *Diactum*, or decency, conſiſts in making the whole aſpect of the fabric ſo correct, that nothing ſhall appear but what is founded on the principles of geometry, and delicacy of judgment. Theſe have regard to deſign, cuſtom, and nature. Deſign induces to chuſe other diſpoſitions for a church than a palace. The regard we pay to cuſtom inclines us to decorate the elevations of ſuch houſes which are ſumptuous and magnificent within. The regard we have to the nature of places, from an inherent taſte, perhaps natural to mankind, makes us pitch upon different proſpects, for different parts of an edifice. Thus we chuſe to expoſe bed-chambers, and libraries, to the morning ſun; winter apartments to the weſt; and galleries of paintings to the north; as they require an equal light. Oeconomy inſtructs the artiſt to have regard to the expence to be made of his deſign, the quality of the materials near the place where he builds; and to take his meaſures judiciouſly for the order and diſpoſition.

Architecture is commonly divided into *civil*, *military*, and *naval*, or *marine*.

ARCHITECTURE, *civil*, is the art of deſigning edifices of every kind for the uſes of civil life in every capacity; as habitations for dwellings, churches, meetings, ſynagogues, colleges, halls, palaces, &c.

Civil architecture may be diſtinguiſhed, with regard to the ſeveral periods, or ſtates thereof, into the *antique*, *Gothic*, *modern*, &c.

Another diviſion of *civil architecture* ariſes from the different proportions which the different kinds of buildings rendered neceſſary, that we might have ſome proper for every purpoſe, according to the bulk, ſtrength, delicacy, richneſs, or ſimplicity required.

Hence aroſe five orders or manners of building, all invented by the ancients at different times, and on diſtinct occaſions, viz. *Tuſcan*, *Doric*, *Ionic*, *Corinthian*, and *Compoſite*; the hiſtory, characters, &c. of each whereof, ſee under their reſpective articles, COMPOSITE, CORINTHIAN, DORIC, IONIC, and TUSCAN.

What forms an order is, the column with its baſe and capital; ſurmounted by an entablature, conſiſting of architrave, frieze, and cornice; and laſtly on a pedeſtal.

For a general view of the elements of *architecture*, with the rules which obtain with reſpect to the manner, form, proportion, ſituation, foundation, diſtribution, covering, apertures, &c. ſee BUILDING.

For particulars, ſee CEILING, DOOR, FOUNDATION, ROOF, WALL, WINDOW, &c.

There are ſeveral arts ſubſervient to *architecture*, as carpentry, maſonry, paring, joinery, ſmithery, glazing, plumbing, plaiſtering, gilding, painting, &c. See CARPENTRY, GILDING, JOINERY, MASONRY, PAINTING, PAVING, PLUMBING, SCULPTURE, &c. See alſo BRICK, GLASS, LEAD, MORTAR, STONE, TILE, TIMBER, &c.

We have no Greek authors at this time extant on *architecture*. The firſt who wrote of it was Agatharcus the Athenian, who was ſeconded by Democritus and Theophraſtus. Among the Latins, Fuſſatius, Terentius Varro, Publius Septimius, Rufus, and Epaphroditus, all wrote De Re Architectonica.

But, of all theſe ancients, Vitruvius is the only entire author whoſe works we have; though Vegetius relates, that there were 300 architects at Rome in his time.—He lived in the reigns of Julius Cæſar, and of his ſucceſſor Auguſtus, and compoſed a complete ſyſtem of *architecture*, in ten books, which he dedicated to that prince.

M. Perrault has extracted all the rules out of Vitruvius's proſix work, and has methodized and publiſhed them in a little abridgment. Several authors have alſo endeavoured to explain the text of Vitruvius, particularly Philander, Barbaro, and Salmaſius, in notes added to their ſeveral Latin editions; Rivius and Perrault, in the notes to their German and French verſions; and Baldus, in his Lexicon Vitruvianum, enlarged by *De Laet*. The ſame M. Perrault has alſo compoſed an excellent treatiſe of the five orders, which may be eſteemed a ſupplement to Vitruvius, who left the doctrine of the orders defective.

The authors upon *architecture*, ſince Vitruvius, are, Leon Baptiſta Alberti, who, in 1512, publiſhed ten books of the art of building, in Latin, deſigned to outvie Vitruvius; in which, however, he has not ſucceeded. His work has abundance of good things; but it is deficient in the doctrine of the orders. Seb. Serlio, who wrote ſeven books of *architecture*, five of which, concerning the five orders, were made public in 1502, throughout all which he ſtrictly adheres to Vitruvius's rules; the ſeventh was ſince publiſhed in 1575; but the book concerning private buildings, has not yet appeared. Alſo, Palladio, who wrote four books of *Architecture*, containing the fundamental rules of the art, with various inſtances of all the kinds of work, publiſhed in Italian in 1575; the two firſt books are tranſlated into High Dutch, and enlarged with annotations by Joſeph Fur. Phil. de Lorme, who publiſhed three books of *Architecture* in French, in 1567; J. Barozzi de Vignola, who, in 1601, made public his rules of the five orders, in Italian; this work has been ſince *tranſlated*, with large additions, by Daviler, under the title of Cours d'*architecture*, &c. and ſince alſo in High Dutch, with notes.

To theſe are to be added Vincent Scamozzi, in his Idea of univerſal *Architecture*, publiſhed in 1615, in Italian; Car. Phil. Dieuſſart, in his Theatre of Civil *Architecture*, publiſhed in High Dutch in 1697, wherein he not only delivers the rules of *architecture*, but explains and compares the five orders, as laid down by Palladio, Vignola, Scamozzi, and others; which ſame deſign was alſo executed in French by R. Freart de Cambray, in a Parallel of the ancient *architecture* with the modern, publiſhed in French in 1650, and ſince tranſlated into Engliſh, with additions, by Mr. Evelyn. Fr. Blondel, director of the Royal Academy of *Architecture*, 1698, gave a Courſe of *Architecture*, in French; being a collection from all the celebrated writers upon the ſubject of the orders, &c. Nic. Goldman, in a treatiſe De Symmetris, publiſhed in Latin and High Dutch, in the year 1696, has done good ſervice, by reducing the rules and orders of *architecture* to a farther degree of perfection, and ſhewing, how they may be eaſily delineated by means of certain inſtruments invented by him.

Laſtly, the elements of *Architecture* are very ingeniouſly laid down by ſir H. Wotton. The ſame are alſo reduced by Sturmius, and Wolfius, to certain rules and demonſtrations: and thus is *architecture* brought into the form of a mathematical art; by the firſt, in his Matheſis Juvenilis, and by the ſecond, in his Elementa Matheſeos, tom. ii. an. 1715.

ARCHITECTURE, *counterfeit*, is that which has its projectures painted either in black or white, or coloured after the manner of marble; as is ſeen practiſed in the frontiſpieces and palaces in Italy, and in the pavilions of Marly.

This painting is done in freſco, upon plaiſtered walls; and in oil, on walls of ſtone.

Under the name of *counterfeit architecture*, which we otherwiſe called *ſcene-work*, is likewiſe comprehended that painted on ſlight boards or planks of wood, wherein the columns, pilaſters, and other parts of building, ſeem to ſtand out, with a relievo: the whole being coloured in imitation of various marbles, metal, &c. and ſerving in the decorations of theatres, triumphal arches, public entries, funeral pomps, &c.

ARCHITECTURE, *military*, is the art of ſtrengthening and fortifying places, to ſereen them from the inſults of enemies, and the violence of arms.

This we more uſually call FORTIFICATION.

The buſineſs of *military architecture* is to erect forts, caſtles, and other fortreſſes, with ramparts, baſtions, &c. Thoſe who have excelled in *military architecture*, are Cochorn, Pagan, Vauban, Scheiter, and Blondel; from whom all who have wrote ſince have chiefly derived what they have communicated to the world. See FORTIFICATION.

ARCHITECTURE, *naval*, or *Ship* BUILDING, is that which teaches the conſtruction of ſhips, galiies, and other floating veſſels for the water; with ports, moles, docks, &c. on the ſhore.

How it was eſteemed in the days of Homer, may be ſeen in his Odyſſ. v. 244. See SHIP, and the articles there referred to.

ARCHITECTURE, in PERSPECTIVE, is a ſort of building, wherein the members are of different meaſures and modules, and diminiſh in proportion to their diſtance; to make the work appear longer and larger to the view than really it is.

Such is the celebrated pontifical ſtair-caſe of the Vatican built under pope Alexander VII. by the cavalier Bernino.

ARCHITHALASSUS in *Conchyliology*, a name given by ſome authors to a very beautiful and precious ſhell of the *voluta* kind, called by us the admiral.

The curious in Holland have three ſpecies of this ſhell, which they call *architholaſſus primus*, *ſecundus*, and *auriantius*, the admiral, the vice admiral, and the orange ADMIRAL.

ARCHITRAVE, in *Building*, that part of a column, or order of column, which lies immediately upon the capital. See *Tab. Archit. fig.* 24, 25, 26, 27, 28.

The Greeks call it *epistyle*.

The *architrave* is the loweſt member of the entablature.

The *architrave* is ſuppoſed to repreſent the principal beam in timber buildings; whence the name, which is formed of ἀρχὴ, *chief*, and *trabs*, *beam*.

The *architrave* is different in the different orders. In the Tuſcan it only conſiſts of a plain face, crowned with a fillet; and is half a module in height.

In the Doric and Compoſite, it has two faces, or *faſciæ*; and three in the Ionic and Compoſite; in which laſt order it is $\frac{7}{8}$ of a module high, though but half a module in the reſt. See a table of the meaſure of the ſeveral parts of the *architrave* in the different orders, under COLUMN.

Architects, however, allow themſelves a great latitude in this part; ſome uſing more members than others; and many of them having two or three forms of *architraves*.

The proportions here laid down are taken from Vignola. *Architrave* is ſometimes alſo called the *reaſon-piece*, or *maſter-beam* in timber-buildings, as porticos, cloiſters, &c. In chimneys it is called the *mantle-piece*, and over the jaumbs of doors, or lintels of windows, the HYPERTHYRON.

ARCHITRAVE *cornice*. See CORNICHE.

ARCHITRAVE *doors*, are thoſe which have an *architrave* on the jaumbs, and over the door upon the cap-piece, if ſtraight; or on the arch, if the top be curved.

ARCHITRAVE *windows*, of timber, are commonly an OGEE raiſed out of the ſolid timber, with a liſt over it; though ſometimes the mouldings are ſtruck, and laid on; and ſometimes they are cut in brick.

The upper *faſcia* is called the *header*, or *heading architrave*; and the lower the *jack*.

ARCHITRICLINUS, in *Antiquity*, the maſter or director of a feaſt, charged with the order and œconomy of it, the covering and uncovering of the tables, the command of the ſervants and the like.

The word *architriclinus* properly imports the chief or maſter of a *triclinium*, or dining room. His office properly differed from that of *modimperator*, or *arbiter bibendi*, as the latter was appointed by the gueſts, the *architriclinus* by the perſon who gave the feaſt.

The *architriclinus* was ſometimes alſo called *ſervus triclinii-arcba*, and by the Greeks πρωτοκλίτης, i. e. *præguſtator*, or *fore-taſter*. Potter alſo takes the *architriclinus* for the ſame with the SYMPOSIARCHA.

ARCHITYPE. See ARCHETYPE.

ARCHIVAULT, in *Architecture*, the inner *couture* of an ARCH; or a band or ſtame adorned with mouldings, running over the faces of the arch-ſtones, and bearing upon the impoſts. See this repreſented in the linea that bound the arch over E. See *Tab. Archit. fig.* 40.

The word is *French*, *archivolte*; where it ſignifies the ſame thing; formed of *arcus volutus*.

It is different in the different orders.—In the Tuſcan, it has only a ſingle face; it has two faces crowned, in the Doric and Ionic; and the ſame mouldings with the ARCHITRAVE in the Corinthian and Compoſite.

ARCHIVE, or ARCHIVES, a chamber or apartment where in the records, charters, and other papers and evidences, of a ſtate, houſe, or community, are preſerved, to be conſulted occaſionally.

The word comes from *arca*, a *cheſt*; or the Greek ἀρχεῖον, which Suidas uſes in the ſame ſenſe. In ſome Latin writers we meet with *archarium*.

We ſay, the *archives* of a college, of a monaſtery, &c. The *archives* of ancient Rome were in the temple of Saturn; the *archives* of the court of chancery are in the rolls office. In the code we meet with *archivum publicum vel armarium publicum, ubi acta & libri expenduntur*. *Cod. de fid. inſtrum. autb. ad hæc.* XXX. q. 1.

ARCHIVIST, *archiviſta*, a keeper of an ARCHIVE.

Under the emperors, the *archiviſt* was an officer of great dignity, held equal to the proconſuls, veſted with the quality of a count, ſtyled *clariſſimus*, and exempted from all public offices and taxes. Among the ancient Greeks and Perſians, the truſt was committed to none but men of the firſt rank; among the Franks, the clergy, being the only men of letters, kept the office among themſelves.

Since the erection of the electoral college, the archbiſhop of Mentz has had the direction of the ARCHIVES of the empire.

ARCHIZUPANUS, a title given to the prince or deſpot of Servia.

The word is compounded of ἀρχὴ and ζυπανὸς, *governor*. In an epiſtle of pope Innocent III. he is called *Alagnus Zupanus*.

ARCH-MARSHAL, ARCHIMARISCALLUS, the grand marſhal of the empire.

The elector of Saxony is *arch-marſhal* of the empire; and in that quality he goes immediately before the emperor, bearing a naked ſword.

ARCH-MINISTER, the prime miniſter of a prince, or ſtate. Charles the Bald having declared Boſon his viceroy in Italy, under the title of duke, made him alſo his firſt miniſter under that of *arch miniſter*.

The word is derived from the Greek ἀρχὴ, and the Latin *miniſter*.

ARCHON, in *Antiquity*, the chief magiſtrate of the city and commonwealth of Athens.

The word is Greek, ἄρχων, which literally ſignifies a *commander*.

After the Athenians had abeliſhed monarchy, they created *archons*, who were obliged to render an account of their adminiſtration to the people.

Some of theſe were annual, and others perpetual. Medon, the ſon of Codrus, was the firſt of the latter, and Cleon of the former, who entered upon his charge in the third year of the twenty-fourth Olympiad. The occaſion of their inſtitution was this: Codrus, king of Athens, having devoted himſelf for the good of his people, in the war with the Heraclidæ; his ſons, Medon and Nileus, diſputed the crown betwixt them: the Athenians took this occaſion of diſſolving their monarchy, and, in lieu of kings, created perpetual governors, under the name of *archons*. Medon, ſon of Codrus, was he who firſt had this charge; and his deſcendants (from him called *Medontidæ*) enjoyed it for 287 years. But a perpetual magiſtracy ſeemed to this free people too lively an image of royalty, the very ſhadow whereof they were reſolved to aboliſh. Accordingly, the adminiſtration of an *archon*, which had before been perpetual, they reduced, in the firſt year of the ſeventh Olympiad, to ten years, and, about ſeventy years after, to one year; with a view of recovering, as oft as poſſible, the authority into their own hands, which they never transferred to the magiſtrate, but with regret. The chief magiſtrates of Athens, diſtinguiſhed by this common appellation, were nine in number; though the name *archon* belonged by way of eminence to the chief of the nine, who was alſo called *eponymus*, ἐπώνυμος, becauſe the year was denominated from him. His juriſdiction comprehended both eccleſiaſtical and civil affairs. He determined all cauſes between men and their wives, parents and children, and diſputes relating to wills, dowries, and legacies: he had the charge and direction of orphans, minors, tutors, and guardians. He was puniſhed with death if convicted of drunkenneſs, during the time of his office. The ſecond *archon* was called *βασιλεὺς*, or *king*. To him pertained the ſuperintendence of the religious ceremonies and feaſts: he had alſo ſome concern in ſecular affairs. The third was the *polemarchus*, ſo called from πολεμος, *war*, and ἀρχειν, *to command*: to him belonged the care of ſtrangers and ſojourners, and the conduct of war. The other ſix were called *theſmothetæ*, from θεσμος, *law*, and τιθημι, *I eſtabliſh*. They formed a tribunal for judging concerning ſeductions, calumnies, bribery, &c. and for ſetting diſputes between the citizens and ſtrangers, and all controverſies in trade. They ratified all contracts and leagues, directed and guarded the eſtabliſhment of laws, and formed a kind of barrier between the other magiſtrates and the people. The whole body had the power of life and death; and they were exempted from all taxes and contributions for building ſhips of war, in recompence of their ſervice. They were elected by lots, and previous to induction into their office, they underwent a twofold trial, one in the forum, and the other in the ſenate-houſe. An oath was required of them, that they would adminiſter juſtice without partiality, and never be corrupted by bribes. This cuſtom was eſtabliſhed by Solon. Potter's Arch. Græc. vol. i. p. 71.

Under the Roman emperors, ſeveral other Greek cities had two *archons*, for chief magiſtrates; which were the ſame with the *duumviri* in the colonies, and *municipia*.

ARCHON is alſo applied, by ſome authors, to divers officers, both civil and religious, under the eaſtern or Greek empire. Thus, biſhops are ſometimes called *archontes*; and the ſame may be ſaid of the lords of the emperor's court. We alſo read of the *archon of the antimenſia*, *archon of archons*, *grand archon*, *archon of churches*, *archon of the goſpel*, *archon of the ſeats*, &c.

ARCHONTICI, in *Church Hiſtory*, a ſect which aroſe towards the cloſe of the ſecond century; thus called from the Greek ἀρχοντες, q. d. *principalities* or *hierarchies of angels*; becauſe they held the world to have been created not by the Supreme God, but by certain ſubordinate powers, called *archontes*, or *angels*. The *Archontici* were a branch of VALENTINIANS.

ARCHONTIUM, ἀρχοντιον, denotes a dignity in the Greek church.

ARCHPRIEST, ARCHPRESBYTER, a prieſt, or preſbyter, eſtabliſhed in ſome dioceſe, with a pre-eminence over the reſt.

Anciently, the *arch-prieſt* was the firſt perſon after the biſhop; he was ſeated in the church next after the biſhop; and even acted as his vicar, in his abſence, as to all ſpiritual concerns.

In

In the fixth century, there were found feveral *archi-prieſts* in the ſame diocefe; from which time ſome will have them to have been called *deans*.

In the ninth century, they diſtinguiſhed two kinds of cures or pariſhes: the ſmalleſt governed by ſimple prieſts; and the baptiſmal churches, by *arch-prieſts*; who, beſide the immediate concern of the cure, had the inſpection of the other inferior prieſts, and gave an account of them to the biſhop, who governed the chief, or cathedral church, in perſon.

There are *archpreſbyters* ſtill ſubſiſting in the Greek church; veſted with moſt of the functions and privileges, of *chorepiſcopi*, or rural deans.

ARCH-PRIOR, was a name ſometimes given to the maſter of the order of TEMPLARS.

ARCH-TREASURER, *archithæſaurarius*, the great treaſurer of the German empire.

This office was created with the eighth electorate, in favour of the elector Palatine, who had loſt his former electorate, which was given to the duke of Bavaria, by the emperor Ferdinand II. who took it away from Frederick V. elector Palatine, after the battle of Prague, where he was defeated in maintaining his election to the crown of Bohemia.

The dignity of *archithæſaurer* was conteſted between the elector of Brunſwic, now king of Great Britain, who claimed it in virtue of his deſcent from the elector Frederic, and the elector Palatine.

ARCHLEUTO, ARCHILUTE, a long and large lute, having its baſs ſtrings lengthened after the manner of the theorbo, and each row doubled either with a little octave or an uniſon.—It is uſed by the Italians for playing a thorough-baſs.

ARCION, in *Botany*, a name given by ſome of the ancient writers on medicine, to the plant we call TUSSILAGO, or COLT'S FOOT.

ARCIVÆ *aves*, in *Auſpices*, birds which gave bad omens, either by their flight, noiſe, or manner of eating.

They were called *arcivæ*, ſometimes alſo *arculæ*, *quod arcebant ne quid fieret*, prevented or forbad things being done.

ARCTAPELIOTES, in *Cosmography*, the wind which blows at the 45° from the north, towards the eaſt.

In this ſenſe *arctapeliotes* amounts to the ſame with what we call the north-eaſt wind.

ARCTATIO, a ſtreightneſs; in particular, it is applied to the inteſtines conſtipated from an inflammation; and to a preternatural ſtreightneſs of the *mulebre pudendum*, or *uterus*. It is alſo called *arctitudo*.

ARCTIC, in *Aſtronomy*, an epithet given to the north pole, or the pole raiſed above our horizon.

It is called the *arctic* pole, on occaſion of the conſtellation of the *Little Bear*, in Greek called ἄρκτος, the laſt ſtar of the tail whereof nearly points out the north POLE.

ARTIC *circle* is a leſſer circle of the ſphere, parallel to the equator, and 23° 30′ diſtant from the north pole, from whence its name.

This, and its oppoſite, the *antarctic*, are called the two *polar circles*, and may be conceived to be deſcribed by the motion of the poles of the ecliptic, round the poles of the equator, or of the world.

ARCTIUM, in *Botany*. See BURDOCK.

ARCTOMYS *Palæſtinarum*, in *Zoology*, the name of an animal of the rat kind, but very large, being of a middle ſize between the rat and the rabbit: it lives in caves, and feeds on vegetables, and is a fierce and bold creature. It uſes its fore-feet as hands, and has a cuſtom of ſitting on the buttocks, and in this poſture looks very like a bear. Ray.

ARCTOPHYLAX, from ἄρκτος, *bear*, and φύλαξ, *I guard*, in *Aſtronomy*, a conſtellation, otherwiſe called BOOTES.

ARCTOPUS, in *Botany*, a genus of the *polygamia dioecia* claſs.

ARCTOTIS, or ARCTOTHECA ARBUSCULO SEMPERVIRENS, in *Botany*, belonga to the *ſyngeneſia polygamia neceſſaria* claſs.

The characters are, that the common compalement is ſcaly and ſilvery; the flower is compoſed of many female florets, which are ranged round the border; the germen afterwards become a ſingle roundiſh ſeed, covered with a ſoft down.

The middle or diſk of the flower is compoſed of hermaphrodite floretsy in each of which is placed a ſmall germen, ſupporting a ſtiliatical ſtyle with a ſingle ſtigma. Theſe flowers are abortive.

Linnæus enumerates twelve and Miller eight ſpecies.

Theſe plants are natives of the country about the Cape of Good Hope, from whence they have been brought to ſome curious gardens in Holland and England. They ſhould be frequently renewed by cuttings, becauſe the old plants are ſubject to decay in winter; therefore, if young plants are not annually raiſed, the ſpecies may ſoon be loſt.

ARCTURUM *inferius*, a ſmall ſtar of the ſeventh or eighth magnitude, to the ſouth of *arcturus*, obſerved by Mr. Flamſteed, and ſo named by him, whoſe place is not determined in the Britiſh Catalogue.

ARCTURUS, in *Aſtronomy*, a fixed ſtar of the firſt magnitude, in the conſtellation of ARCTOPHYLAX, or BOOTES.

The word is formed of ἄρκτος, and οὐρὰ, *tail*, q. d. *bear's tail*; as being very near it.

This ſtar was known to the ancients, as in the following verſe of Virgil:

Arcturum, pluviaſque Hyadas, geminoſque Triones.

See alſo Job ix. 9. xxxviii. 32.

Mr. Hornſby concludes, that *arcturus* is the pearcſt ſtar to our ſyſtem viſible in the northern hemiſphere, becauſe the variation of its place, in conſequence of a proper motion of its own, is more remarkable than that of any other of the ſtars; and by comparing a variety of obſervations reſpecting both the quantity and direction of the motion of this ſtar, he infers that the obliquity of the ecliptic decreaſes at the rate of 58″ in one hundred years; a quantity which nearly correſponds to the mean of the computation framed by Mr. Euler, and M. de la Lande, upon the principles of attraction. Phil. Tranſ. vol. lxii. p. i. N° 14.

ARCTUS, ἄρκτος, in *Aſtronomy*, a name given by the Greeks to two conſtellations of the northern hemiſphere; by the Latins called URSA *major* and *minor*, and by us the *Greater* and *Leſſer* BEAR.

ARCUALIA *oſſa*, in *Anatomy*, a name uſed by ſome for the *oſſa ſincipitis*, by others for the *oſſa temporum*.

ARCUALIS *ſutura*, among *Surgeons*, denotes the coronal SUTURE.

ARCUATION, from *arcus*, *a bow*, is uſed by ſome writers in *Surgery*, for an incurvation of the bones: ſuch as we ſee in the caſe of rickets, &c.

ARCUATION, in *Gardening*, denotes a method of raiſing trees by layers.

This, Switzer obſerves, is now the general method of raiſing ſuch trees as cannot be raiſed from ſeeds; as the *platanus*, elm, *abies*, lime, alder, willow, &c.

The firſt thing here done is, to procure large and ſtrong mother-plants called ſtools. Theſe, being planted in a trench, will throw out twenty, thirty, forty, or fifty plants a-piece; which may be begun to be laid about the Michaelmas following; at which time, if the ſtools have been carefully managed, they will have ſhot five, ſix, or more, main branches out of the root; and on every one of theſe, as many ſide or collateral branches.

Theſe main branches are be bent down to the ground; and, when thus laid quite round the ſtool, and pegged faſt down, the ſmall ones may be ſerved in the ſame manner: thus the main branches are to be covered over, all except the tops; and the ſmall, or ſide branches, to be covered over two or three inches thick upon the joints. This done, they may be trenched, to make them take root the better.

About the middle of September they may be opened: when, it is probable, they will have taken root: otherwiſe they may lie till next ſpring; and then, taking them up, they are to planted in the nurſery. Miller.

ARCUBALISTA, in the *Military Art*, a kind of *baliſta*, probably made after the faſhion of a bow.

It is mentioned by Vegetius; but the deſcription of it omitted by him, as too well known then, though now hard to be gueſſed at.

Thoſe who fought with this weapon were called *arcubaliſtarii*, ſometimes *manubaliſtarii*.

ARCUCCIO, ARCUTIO, a machine made of a board, covered with pieces of hoops, like the tilt of a waggon; uſed in Italy to prevent children from being overlaid and ſmothered by nurſes, or others.

Every nurſe in Florence is obliged to lay her child in an *arcutio*, under pain of excommunication.—See a figure and deſcription of the *arcutio*, given by Mr. St. John, in Phil. Tranſ. N° 442. Abridg. vol. vii. part. iv. p. 46.

ARDAMON, or ARDAMA, from ἄρδω, *I water*, in *Antiquity*, a veſſel of water placed at the door of a perſon deceaſed, till the time of burial, as a token that the family was in mourning, and to ſerve to ſprinkle and purify perſons as they came out of the houſe.

ARDASSES, in *Commerce*, the coarſeſt of all the ſilks of Perſia; and, as it were, the refuſe of each kind. In this ſenſe, they ſay, the *legis*, the *bouſſes*, the *chouſis*, and the *papas ardaſſes*, to ſignify the worſt of thoſe four ſorts of Perſian ſilk.

ARDASSINES, in *Commerce*, called in France *ardaſſines*; a very fine ſort of Perſian ſilks, little inferior in fineneſs to the *ſourbaſſis*, or rather *cherbaſſis*, and yet it is little uſed in the ſilk manufactures of Lyons and Tours, becauſe that kind of ſilk will bear hot water in the winding.

ARDEA, in *Ornithology*, a genus of the order of *grallæ*, belonging to the claſs of *aves*, in the Linnæan ſyſtem: its characters are, that the beak is ſtrait, acute, long, and compreſſed; and that a furrow paſſes from the noſtrils, which are lineat, to the apex. The feet have four toes. Linnæus enumerates 26 ſpecies. See CRANE, HERON, and STORK.

ARDENT, ARDENS, from *ardere*, *to burn*, ſomething hot, and as it were, burning.

ARDENT *fever*, is a violent burning FEVER, otherwiſe called CAUSUS.

ARDENT *ſpirits* are thoſe diſtilled from fermented vegetables; thus called, becauſe they will take fire, and burn.

Such

Such are brandy, spirit of wine, rum, arrack, &c.

ARDENTES, in *Middle Age Writers*, an appellation given to those afflicted with the *ignis sacer*, or ERYSIPELAS. They are thus called, as seeming to be scorched or burnt with the disease.

Hence also the abbey of St. Geneviève at Paris is called *domus ardentium*, because, as it is said, great numbers were cured of that distemper at the shrine of this saint, in the reign of Louis VI.

ARDEOLA, in *Ornithology*, the name of a very beautiful bird, of the Brasils, of the heron kind, but no larger than a pigeon.

ARDERS, fallow wings, or ploughings of grounds. See FALLOW, PLOUGHING, &c.

ARDESIA. See *Iron* SLATE.

ARDOR *ventriculi*, a heat of the stomach, usually expressed by the term HEART-*burn*, or CARDIALGY.

ARDUINA, *bastard* LYCIUM, in *Botany*, a genus of the *pentandria monogynia* class: the corolla of which has a single petal; the stigma is bifid; and the fruit is a double-celled berry with a single seed. There is one species.

ARE, or A-LA-MI-RE, one of the eight NOTES in the scale of music.

AREA, in general, denotes any plain surface, wherein we walk, &c.

The word is Latin, importing more properly a threshing-floor; and is derived from *arere, to be dry*.

AREA, in *Architecture*, denotes the space or scite of ground on which an edifice stands. It is also used for inner courts, and those portions of ground

AREA, in *Geometry*, denotes the superficial content of any FIGURE.

Thus, if a figure, e. gr. a field, be in form of a square, and its side be 40 feet long, its area is said to be 1600 square feet: or it contains 1600 little squares, each a foot every way. Hence, to find the *area* of a triangle, square, parallelogram, rectangle, trapezium, rhombus, polygon, circle, or other figure, is to find the magnitude or capacity thereof in square measure.—To do which, see the article TRIANGLE, &c. To find the area of fields, and other inclosures, they first survey or take the angles thereof, then plot them on paper, and thus cast up their contents in acres, roods, &c. after the usual manner of other plain figures.

The law by which the planets move round the sun, is this; that a line, or radius, drawn from the centre of the sun to the centre of the planet, always sweeps or describes elliptic *areas* proportional to the times. Thus, the sun being supposed in S, and a planet in A (*Tab. Astronomy, fig.* 61. N° 2.) and letting it proceed in any given time, to B; in such progress, its radius AS will have described the *area* ASB. Suppose, again, the planet to be arrived to P; then the elliptic space PSD being drawn equal to the other ASB, the planet will move through the arch PD in the same time as through the arch AB.

Sir I. Newton demonstrates, that whatever bodies do observe such law in their motions about any other body, do gravitate towards such body.

AREA is also used, in *Medicine*, for a disease which makes the hair fall.

The *area* is a general kind of depilation; and is distinguished into two species, ALOPECIA, and OPHIASIS.

AREA, in *Optics*. See FIELD.

AREE, a kind of imaginary money, used in the dominions of the great mogul.

Four *orbs* are equal to one *crou*, or 100 *lacs*; one *lac* to 100,000 *rupees*.

ARECA, or AREEK, a fruit of the East Indies, wherein they drive an incredible trade, and of which they make a prodigious consumption; there being scarce any person from the richest to the poorest, who doesnot make use of it. See *Table of Materia-tropical Objects, Class* 7.

The tree which bears the *areek*, is tall, straight, thin, and round. It is of the palm kind, and has no branches; but its leaves are beautiful to the sight, they form a round tuft on the top of the trunk, which is as straight as an arrow. It grows sometimes to the height of thirty-five feet, and is a great ornament in gardens.

The shell which contains the fruit is yellowish, smooth without, but rough and hairy within, in which it pretty much resembles the shell of the cocoa-nut. Its size is equal to that of a large walnut; its kernel is as big as a nutmeg, to which it bears a great resemblance without; and when cut, has the same whitish veins within. In the centre of the fruit, when it is soft, is contained a greyish and almost liquid substance, which grows hard, in proportion as it ripens. The fruit when ripe is astringent, but not unpalatable.

The chief use that it is made of *areek*, is to chew it with leaves of betle, mixing it with a chalk in a red paste, made of sea-shells. In order to chew it, they cut the *areek* into four quarters, and take one quarter of it, which they wrap in a leaf of betle, over which they lay a little of that chalk: afterward they tie it by twisting it round. This bit thus prepared is called *pinang*, which is a Malayan word used all over the East Indies. The *pinang* promotes spitting very much; the spittle is red, which colour the *areek* gives it. This masticatory cools the mouth, and fastens the teeth and gums. Some pretend that *areek* strengthens the stomach, when the juice of it is swallowed, and most of the Indians do swallow it.

Another property ascribed to it, is the curing, or carrying off, all that might be unwholesome or corrupt in the gums. Of this fruit the extract is made, which in our shops is called *terra Japonica*. To this extract they sometimes join that of another plant named *jatanhi*, and also calcined shells; it is generally adulterated. Geoffroy.

AREM, or AL-AREM, a vast mound or dam, which formed a stupendous reservoir above the city Saba, whose rupture caused an inundation, famous in eastern writers. Sale's Prel. Disc.

The word *arem* is Arabic, and literally signifies any mound, or dam, for the containing of water.

ARENA, among the Romans, sometimes signified the same with an *amphitheatre*; viz. a place where the GLADIATORS had their combat.

The word is Latin, and signifies *sand*; because the place was always strewed with sand, to conceal from the view of the people the blood spilt in the combat.

Properly speaking, *arena* was only the pit or space in the middle of those places where the athletæ and gladiators performed.

The *arena* was the same thing, with regard to the gladiators, that the *campus*, or field, was to soldiers and armies; viz. the place where they fought.—He who fought in the *arena*, was called *arenarius*. Nero is said to have strewed the *arena* with gold-dust.

ARENA, in *Architecture*, is the middle or body of a temple, and comprehends the whole space between the *ante*, and the extreme wall of the building.

ARENARIA, in *Botany*. See *Sea*-CHICKWEED.

ARENARIA, in *Ornithology*, the name of a bird, called in English the *sanderling*, and in some places, particularly in Cornwall, the *curwillet*.

It is a water-bird, of the long-legged, and open-footed, not webbed, kind, and is a little larger than the *tringa minor*, or *sand*-PIPER.—These birds are common about the sea-shore, and generally fly in large flocks.

ARENARIA, in *Ancient Writers*, is used for sand-pits, or ground out of which sand is dug. Vitruvius.

ARENARII, in *Antiquity*, gladiators who combated with beasts in the *arena*, or amphitheatre. The *arenarii* were slaves of the lowest rank, to that though manumitted, they were not capable of being Roman citizens. They were the same with what were otherwise called BESTIARII.

ARENARIUM, in *Ecclesiastical Writers*, denotes a cemetery or burying ground.

The *arenaria* were properly a kind of pits, or holes, under ground, wherein the ancient Christians not only buried their dead, but held their religious assemblies, in times of persecution. Baron. Annal. and Du-Cange.

ARENATION is used, by some *Physicians*, for a kind of dry bath, in which the patient only puts with his feet on hot sand.

AREOLA, or AREOLA *mamillaris*, in *Anatomy*, the coloured circle which surrounds the nipple. See BREAST.

AREOPAGUS, or AREOPAGUS, in *Antiquity*, a sovereign tribunal at Athens; famous for the justice and impartiality of its decrees: to which the gods themselves are said to have submitted their quarrels.

Authors are divided, as to the reason and origin of the name: some imagine *areopagus* the proper name of the court of justice, which was first on a hill in Athens; and that in this court the senate of that illustrious city assembled.—Others say, that *areopagus* was the name of the whole suburbs of Athens, wherein stood the hill on which the court was built; and the name *areopagus* seems to countenance this last opinion; for it signifies literally, the hill or rock of Mars; from *mars*, *hill*, and *agein*, belonging to Mars. In effect, the denomination might either arise hence, that the *areopagus* was built in a place where had been a temple of Mars: or, because the first cause pleaded there was that of this god, who was accused of killing Halirrhotius the son of Neptune, and tried here before twelve gods, and acquitted by a majority of voices; or, finally, because the Amazons, whom the poets feign to have been the daughters of Mars, when they besieged Athens, pitched their tents, and offered sacrifices to the god of war in this place.

This tribunal was in great reputation among the Greeks; and the Romans themselves had so high an opinion of it, that they trusted many of their difficult causes to its decision. Authors are not agreed about the number of the judges who composed this august court. Some reckon thirty-one, others fifty-one, and others five hundred; in effect, their number seems not to have been fixed, but to have been more or less in different years.—By an inscription quoted by Volaterranus it appears, they were then three hundred.

At firſt this tribunal only conſiſted of nine perſons, who had all diſcharged the office of archons, had acquitted themſelves with honour in that truſt, and had likewiſe given an account of their adminiſtration before the *logiſtæ*, and undergone a very rigorous examination. Their ſalary was equal, and paid out of the treaſury of the republic: they had three *obols* for each cauſe.

The *areopagites* were judges for life.—They never ſat in judgment but in the open air, and that in the night time; to the intent that their minds might be more preſent and attentive; and that no object, either of pity or averſion, might make any impreſſion upon them. However, ſome maintain, that the building in which the *areopagites* aſſembled, was not wholly uncovered; and they obſerve, that among the ruins, large ſtones have been found, whoſe joints are in the ſame angle with the pediment that muſt have been uſed for a covering.—All pleadings before them were to be in the ſimpleſt and moſt naked terms; without exordium, epilogue, or appeal to the paſſions.

At firſt they only took cognizance of criminal cauſes; but in courſe of time their juriſdiction became of greater extent.—Mr. Spon, who examined the antiquities of that illuſtrious city, found ſome remains of the *areopagus* ſtill exiſting in the middle of the temple of Theſeus, which was heretofore in the middle of the city, but is now without the walls.—The foundation of the *areopagus* is a ſemicircle, with an eſplanade of 140 paces round it, which properly made the hall of the *areopagus*. There is a tribunal cut in the middle of a rock, with ſeats on each ſide of it, where the *areopagites* ſat, expoſed to the open air.

This court is ſaid by ſome to have been inſtituted by Solon; but others carry it much higher, and aſſert it to have been eſtabliſhed by Cecrops, about the time that Aaron died; viz. in the year of the world 2553, maintaining withal, that Solon only made ſome new regulations in it, increaſed its power and privileges, and made it ſuperior to the *ephetæ*, another celebrated court inſtituted by Draco.—In effect, Demoſthenes himſelf, in his oration againſt Ceſiphon, owns himſelf at a loſs on the point: *The inſtitutors of this tribunal*, ſays he, *whatever they were, whether gods or heroes, &c.*

AREOMETER. See AROMETER.

AREOSTYLE. See ARAEOSTYLE.

AREOTICS. See ARAEOTICS.

ARES, a term framed by Paracelſus, to expreſs a hidden diſpoſer, in the three principles of things, from which each being receives its proper form and ſubſtance, and aſſumes its own ſpecific nature, not that of any other being. Paracelſus diſtinguiſhes the *ares* into *arcbæus*, which is *natural*; and *chemicus*, which is *artificial*. See ARCHÆUS.

ARETALOGI, in *Antiquity*, a ſort of philoſophers, chiefly of the Cynic or Stoic tribe, who, having no ſchool or diſciples of their own, haunted the tables of great men, and entertained them in their banquets with diſputations on virtue, vice, and other popular topics. Pitiſcus Lex.

Theſe are ſometimes alſo denominated *circulatores philoſophi*. Calvin. Lex. Jur.

ARETHUSA, in *Botany*, a genus of the *gynandria diandria* claſs; with a tubular *nectarium* within the bottom of the corolla, and a ſtyle connected with the lower lip. There are three ſpecies.

ARETIA, in *Botany*, a genus of the *pentandria monogynia* claſs, the corolla is ſhaped like a ſalver, and divided into five ſegments, with an oval tube; the ſtigma is depreſſed above, and the capſula is globular and ſingle-celled.

ARETOLOGY, ARETOLOGIA, that part of moral philoſophy which treats of virtue, its nature, and the means of arriving at it.

ARGAL, or ARGOL, the hard lees ſticking to the ſides of wine-veſſels; more frequently called TARTAR.

ARGEA, or ARGEI, in *Antiquity*, human figures made of ruſhes, thrown annually by the Veſtals into the river Tiber, on the day of the ides of May.

This ceremony we learn from Feſtus and Varro; the latter of whom, however, ſays, they were caſt by the prieſts, noiſels by *ſacerdotibus* we ſuppoſe he meant *prieſteſſes*. He adds, that the number of figures was thirty. Plutarch, in his Roman Queſtions, inquires, why they were called *argeæ*? There are two reaſons aſſigned: the firſt, that the barbarous nation, who firſt inhabited theſe parts, caſt all the Greeks they could meet with into the Tiber; for *Argians* was a common name for all Grecians; but that Hercules perſuaded them to quit ſo inhuman a practice, and to purge themſelves of the crime, by inſtituting this ſolemnity.—The ſecond, that Evander, an Arcadian, and a ſworn enemy of the *Argians*, to perpetuate that enmity to his poſterity, ordered the figures of *Argians* to be thus caſt into the river.

ARGEMON, or ARGEMA, in *Medicine*, an ulcer about the *iris* of the eye, comprehending part of the white, and part alſo of the black.

The *argemon* appears of a red colour, on the outſide of the *iris*, and white within it. When it ſpreads far, and eats deep, it ſometimes occaſions the UVEA to fall.

ARGEMONE, in *Botany*. See *Prickly* POPPY.

ARGEMONION, in *Botany*, a name given by ſome of the late Greek writers, to the plant called SARCOCOLLA by the other writers of their times.

ARGENT, in *Heraldry*, ſignifies the white colour, uſed in the coats of gentlemen, knights, and baronets.

Barons, and all nobles, have the white colour called *pearl*; and ſovereign princes have theirs called *luna*.—Without either *argent* or *or*, the heralds ſay, there can be no good armory.

Argent is expreſſed, in engraving, by the parts being left plain, without any ſtrokes from the graver.

The word is French, derived from the Latin *argentum*, SILVER; this colour being ſuppoſed the repreſentation of that metal: whence the Spaniards call this field *campo de plata*, *ſilver field*.

In the doubling of mantles, where the white is ſuppoſed to repreſent a fur, and not a metal, it may be blazoned *white*.

ARGENTARIA *creta*, *ſilver chalk*, in *Natural Hiſtory*, a name given to an earth, not properly a chalk, but a kind of TRIPELA. It is a very beautiful earth, of a looſe friable texture, and perfectly pure white. It is dug in Pruſſia, and is much eſteemed for cleaning plate. It has alſo been found in France, and of late in Ireland.

There are many white chalks of various hues, which are dug in Germany, America, Italy, and other countries.

That dug in the duchy of Mantua, in Italy, is much uſed by painters, and at Rome vulgarly called *peſſe*.

ARGENTARIUS is frequently uſed, in *Roman Writers*, for a money-changer or banker.

The *argentarii* were monied people, who made a profit either by the changing, or lending of money at intereſt. Theſe had their *tabernæ*, or offices, in the *forum Romanum*, built there as early as the reign of L. Tarquinius Priſcus. The *argentarii* and *fœneratores* were much hated, on account of their covetouſneſs and extortion. Du-Cange and Priſcus.

ARGENTARIUS, in *Writers of the Middle Age*, an officer entruſted with the cuſtody of money.

In this ſenſe *argentarius* amounts to the ſame with the Greek ἀργυροπράτης, and our *cofferer*. Du-Cange.

ARGENTARIUS *miles*, in our *Old Writers*, an officer of the exchequer, whoſe buſineſs it was to carry up the bag of money from the lower exchequer to the higher, in order to its being examined or told. Spelman.

ARGENTARII is alſo applied, in the *Civil Law*, to thoſe who adorned military arms with ſilver or gold.

In which ſenſe the word amounts to the ſame with BARBARICARII.

ARGENTATI *militet*, in *Antiquity*.—Livy, lib. vi ſpeaks of *argentati militet*, as diſtinguiſhed from *auratis*. Aquinas ſuppoſes theſe to have been ſimilar to the ARGYRASPIDES and CHRYSAPIDES; but the deſcriptions do not quadrate. Livy only repreſents the *argentati* as clothed in white linen coats. Aquin. Lex. Mil.

ARGENTEUM *os*, in *Natural Hiſtory*. See *Os argenteum*.

ARGENTICOMUS, among *Ancient Aſtrologers*, denotes a kind of ſilver-haired comet, of uncommon luſtre, ſuppoſed to be the cauſe of great changes in the planetary ſyſtem.

ARGENTIL, an old Engliſh name for the plant called *perſicaria Anglorum*; in Engliſh, PARSLEY *piert*, or PARSLEY *break-ſtone*. See APHANES.

ARGENTINA, in *Ichthyology*, the name of a genus of fiſh, of the MALACOPTERYGIOUS kind; and in the Linnæan ſyſtem, of the order of *abdominales*: the characters of which, according to Artedi, are theſe: the body is oblong and cylindric; the teeth are placed on the tongue and palate. Artedi mentions only one ſpecies of this genus; this has large eyes, and the tail is forked. It is caught about the ſhores of Italy.

Mr. Ray deſcribes the *argentina* to be a ſmall fiſh of the herring-form kind, caught in the Mediterranean, and common in the markets of Rome.

ARGENTINA, a medicinal plant, nearly reſembling CINQUEFOIL, of ſome uſe as a cooler and aſtringent.

ARGENTUM. See SILVER.

ARGENTUM *album*, mentioned in Domeſday Book, ſignifies, according to Spelman, bullion, or ſilver uncoined. In thoſe ancient days, ſuch metal paſſed as money from one to another in payment. *Sumitur pro ipſo hoc metallo priuſquam ſignatur.*

ARGENTUM *Dei*, *God's penny*, anciently ſignified *earneſt-money*, or money given to bind a bargain; in ſome places called *erles*, or *arles*, and by the civilians and canoniſts, ARRHA. *Et capit de præditis Henrico tres denarios de* argenti *Dei pro manibus.*

ARGENTUM *Muſivum*, or *muſſivum*, is an amalgam or metalline paſte, which may be eaſily bruiſed into ſilver-like flakes of powder, and is uſed for colouring plaiſter figures, and for other purpoſes, as a pigment. It conſiſts of equal parts of tin, biſmuth, and mercury, melted together.

together. The powder is mixed with white of eggs, or spirit varnish, and then applied to the intended work, which is afterwards burnished. See GILDING and SILVERING.

ARGESTES, is used by Vitruvius for the wind which blows from that quarter of the horizon, which is 75° from the south, and westward.

Riccioius uses the term to denote the wind which blows at 22° 30′ from the west towards the north, coinciding with that which is otherwise called *West-North-West*. Aft. Reform.

ARGETENAR, in *Astronomy*, a ſtar of the fourth magnitude, in the ſcxture of the conſtellation ERIDANUS.

ARGILLA, or ARGIL, *clay*, a general name for all earths uſed in pottery, brick, and tile-making, and for the like purpoſes. See CLAY.

ARGILLACEOUS *earths*, ſuch as form with water a tenacious paſte, or ſoft ſtones; they burn hard, are corroded by ſtrong coction in the concentrateſt mineral acids, but not acted upon by moderate digeſtion. They are the baſis of earthen wares. They vitrify with falts, with arſenic, with gypſum, and difficultly with lead. See Neumann's Works, and Dr. Lewis's Additions, p. 21. *ſeq.*

ARGO, in *Antiquity*, a ſhip or veſſel celebrated among the poets; being that wherein the Argonauts, of whom Jaſon was the chief, made their expedition, in queſt of the golden fleece.

The occaſion of this expedition, is thus repreſented by Greek writers. Phryxus, flying with his ſiſter Helle from the rage of their ſtepmother Ino, the daughter of Cadmus, went on board a ſhip, whoſe enſign was a *golden ram*, and ſailed to Colchis (now Mingrelia, part of Georgia.) Helle was drowned by the way, in that ſea which from her was called the Helleſpont, now the Dardanelles. This was the ground of the poetical fable, that a *ram with a golden fleece* ſwam away with them to Colchis; and that the Argonauts undertook their famed expedition, in order to find that fleece. Sir Iſaac Newton thinks that this expedition was really an embaſſy ſent by the Greeks, during the inteſtine diviſions of Egypt, in the reign of Amenophis, to perſuade the nations upon the coaſt of the Euxine and Mediterranean ſeas, to take that opportunity of ſhaking off the yoke of Egypt, which Seſoſtris had laid upon them: and that fetching the golden fleece was only a pretence to cover their true deſign.

Jaſon, having happily accompliſhed his enterprize, conſecrated the ſhip *Argo* to Neptune; or, as others ſay, to Minerva, in the iſthmus of Corinth; where, they ſay, it did not remain long, before it was tranſlated into heaven and made a conſtellation.

The generality of authors repreſent the ſhip *Argo* as of a long make, reſembling the modern galleys; and furniſhed with thirty benches of rowers. It could not however be of any great bulk, ſince the Argonauts were able to carry it on their backs from the Danube to the Adriatic ſea.

ARGO *navis*, or the *Ship*, in *Aſtronomy*, is a conſtellation of fixed ſtars, in the ſouthern hemiſphere, whoſe ſtars, in Ptolemy's catalogue, are 45 in Tycho's, 11 in the Britannic catalogue, and Sharp's Appendix, 64; the longitudes, latitudes, magnitudes, &c. whereof are as follow:

Situation of the ſtars.	Sharp's Cha.	Sing. Decan.	Longitude.		Latitude.		Magnitude.
			°	′	°	′	
	♌		0	38	14	46	45
	♌		27	26	26	35	18
Under the ſhield in the ſtern.	♌		1	34	22	40	14
	♍		27	19	40	35	9
			27	32	26	32	54
5°.							
			29	22	18	37	32
Under the northern ſhield.	♌		1	44	13	44	58
	♍		28	43	17	38	8
			29	2	6	34	9
In the top of the ſtern.			29	26	5	35	3
10.							
	♌		3	20	45	42	36
			4	10	24	42	53
	♍		27	55	7	17	48
	♌		4	34	24	19	4
			7	5	31	43	18
15.							
			5	39	6	38	20
			3	56	19	32	30
			4	22	51	31	59
			4	15	47	32	0
			5	44	40	34	44
20.							
			7	20	1	34	57
			7	30	6	31	29
In the ſtern.			2	17	33	6	3
In the middle of the ſhield.	♍		29	40	48	47	24
In the rudder.	♌		7	8	40	39	40
25.							

Situation of the ſtars.	Sharp's Cha.	Sing. Decan.	Longit.		Latitude.		Magnitude.
			°	′	°	′	
	♌		20	33	5	31	55
In the keel.	♌		5	17	56	58	23
	♌		7	6	24	57	44
In the tranſom.	♌		10	36	2	58	4
	♌		14	46	31	58	20
30.							
	♌		11	19	21	59	42
At the bottom of the maſt.	♌		29	52	6	57	21
	♌		28	16	23	58	14
	♍		3	48	21	60	7
In the middle of the maſt.	♌		2	45	38	61	8
35.							
In the ſail.	♌		22	58	28	11	0
	♌		22	49	54	8	55
In the ſection of the tranſom.	♌		23	40	27	43	18
	♌		23	0	39	42	52
	♌		7	21	51	5	52
40.							
			10	1	42	59	18
In the keel.	♌		4	58	47	2	47
			23	54	7	4	20
Below the keel.	♍		19	20	46	21	58
	♌		26	58	59	20	17
45.							
	♍		16	6	28	32	10
			18	56	20	6	55
			25	3	13	23	42
	♎		0	23	49	54	13
			4	54	36	5	21
50.							
			1	32	26	4	52
	♍		29	55	19	27	30
	♍		29	53	14	10	6
			7	2	14	29	27
			2	8	30	5	56
55.							
			13	13	59	26	17
In the helm.	♍		13	24	2	50	5
	♍		11	25	50	26	16
Canobus.	♎		11	16	41	35	50
			13	58	2	12	51
60.							
	♍		18	50	31	14	27
Between Canobus and the Flying Fiſh.	♎		20	37	49	53	2
	♍		10	56	22	51	9
Between the Ship and Centaur.			23	32	30	58	14

Longit.		Latitude.		Magnitude.
°	′	°	′	
20	33	5	31	55
5	17	56	58	23
7	6	24	57	44
10	36	2	58	4
14	46	31	58	20
11	19	21	59	42
29	52	6	57	21
28	16	23	58	14
3	48	21	60	7
2	45	38	61	8
22	58	28	11	0
22	49	54	8	55
23	40	27	43	18
23	0	39	42	52
7	21	51	5	52
10	1	42	59	18
4	58	47	2	47
23	54	7	4	20
19	20	46	21	58
26	58	59	20	17
16	6	28	32	10
18	56	20	6	55
25	3	13	23	42
0	23	49	54	13
4	54	36	5	21
1	32	26	4	52
29	55	19	27	30
29	53	14	10	6
7	2	14	29	27
2	8	30	5	56
13	13	59	26	17
13	24	2	50	5
11	25	50	26	16
11	16	41	35	50
13	58	2	12	51
18	50	31	14	27
20	37	49	53	2
10	56	22	51	9
23	32	30	58	14

ARGOL, the ſame with TARTAR.

ARGOL. See ARCHIL.

ARGONAUTA, a genus of worms of the *teſtacea* order: the animal is a ſepia, and the ſhell univalve, ſpiral, membranaceous, and ſingle-celled. *There are two ſpecies.*

ARGONAUTIC, ſomething belonging to the ARGONAUTS.

The *Argonautic* expedition is one of the greateſt *epochas*, or periods of hiſtory, which Sir Iſaac Newton endeavours to fettle, and from thence to rectify the ancient CHRONOLOGY. This he threw by ſeveral authorities, to have been one generation, or about thirty years earlier than the taking of Troy; and forty-three years later than the death of SOLOMON.

Dr. Bryant rejects the hiſtory of the *Argonautic* expedition as a Grecian fable, founded indeed on a tradition derived from Egypt, and ultimately referring to Noah's preſervation, &c. in the ark. Anc. Myth. vol. ii. p. 473.

ARGONAUTICA, in *Literary Hiſtory*, denotes poems on the ſubject and expedition of the ARGONAUTS. We have the *Argonautics* of Orpheus in epic verſe, publiſhed by H. Stephens; the *Argonautics* of Valerius Flaccus, in eight books of Latin heroics, in imitation of Apollonius, with reſpect to which Burman obſerves, that the imitator has often ſurpaſſed the original; the *Argonautics* of Apollonius Rhodius, an heroic poem, conſiſting of four books, epic, as Quintilian calls it, *non contemnendum*.

ARGONAUTS, in *Antiquity*, a company of fifty-one, according to Valerius Flaccus, or, according to Apollonius Rhodius, forty-four heroes, who embarked along with Jaſon, in the ſhip *Argo*, for Colchis, with a deſign to obtain the golden fleece.

Hercules, Theſeus, Caſtor, Orpheus, &c. were of the number of the *Argonauts*.

ARGONAUTS *of St. Nicholas*, was the name of a military order, inſtituted by Charles III. king of Naples, in the year 1382, for the advancement of navigation, or, as ſome ſay, merely for preſerving amity among the nobles.

They wore a collar of ſhells, enclaſped in a ſilver creſcent, whence hung a ſhip with this device, *Non credo tempori. I do not truſt time.* Hence theſe *Argonaut* knights came to be called *Knights of the Shell*. They received the order of St. Baſil, archbiſhop of Naples; and held their aſſemblies in the church of St. Nicholas, their patron.

ARGOS,

ARGOS, *agos*, from a negative, and *ergon*, *work*, or *business*; as if it were *agelas*. So *agos agoyos ie silvos not worked*; *segnis segnis*, in Hippocrates, *is crude wheat, not prepared, but such as it is taken from the floor.*

ARGUMENT, in *Rhetoric*, is some reason, or series of reasoning, by which we eſtabliſh the proof, or ſhow the probability, of ſome given propoſition.

Logicians, ſomewhat more ſcientifically, define *argument*, a *medium*, from whoſe connexion with two extremes, the connexion of the two extremes themſelves is inferred.

Arguments are termed *grammatical*, *logical*, *phyſical*, *metaphyſical*, *moral*, *mechanical*, *theological*, &c. according to the art, ſcience, or ſubject, from whence the middle term is borrowed. Thus, if we prove that no man ſhould ſteal from his neighbour, becauſe the ſcripture forbids it, this is a *theological argument*; if we prove it from the law of the land, it is *political*; but if we prove it from the principles of reaſon and equity, the *argument* is *moral*.

Arguments are either *certain* and *evident*, or *doubtful* and merely *probable*. *Probable arguments* are thoſe whoſe concluſions are proved from ſome probable medium. *Evident* and *certain arguments*, are thoſe which prove their concluſions by clear media and undoubted principles: theſe are called *demonſtrations*.

In reaſoning, Mr. Locke obſerves, that men ordinarily uſe four ſorts of *arguments*. The firſt is to alledge the opinions of men, whoſe parts and learning, eminency, power, or ſome other cauſe, have gained a name; and ſettled their reputation in the common eſteem, with ſome kind of authority: this may be called *argumentum ad verecundiam*. Secondly, another way is to require the adverſaries to admit what is alledged, as a proof; or to aſſign a better; this he calls *argumentum ad ignorantiam*. A third way, is to preſs a man with conſequences, drawn from his own principles or conceſſions: this is known by the name of *argumentum ad hominem*. Fourthly, the uſing proofs drawn from any of the foundations of knowledge or probability: this he calls *argumentum ad judicium*; and obſerves, that it is the only one of all the four, that brings true inſtruction with it; and advances us in our way to KNOWLEDGE. For, 1. it argues not another man's opinion to be right, becauſe I, out of reſpect, or any other conſideration but that of conviction, will not contradict him. 2. It proves not another man to be in the right way, not that I ought to take the ſame with him, becauſe I know not a better. 3. Nor does it follow, that another man is in the right way, becauſe he has ſhewn me that I am in the wrong: this may diſpoſe me perhaps for the reception of truth, but helps me not to it. That muſt come from proofs and arguments, and light ariſing from the nature of things themſelves; not from my ſhamefacedneſs, ignorance, or error. See REASON and REASONING.

Beſide theſe, there are other *arguments* enumerated by different writers, as the *argumentum ab amore*, which is uſed to engage the reaſon by the affections; the *argumentum ad ignoratum*, called by the Greeks αργος λογος, which always concludes in favour of inaction; the *argumentum ab invidia*, which is made uſe of to render an adverſary's opinion odious; M. le Clerc has a diſſertation on this *argument* as applied to theology; and alſo the *argumentum a tuto*, drawn from the conſideration of its being ſafer to chooſe one ſide of the queſtion than the other, when the evidence is equal on both ſides. This has been much uſed againſt atheiſts and infidels; it was firſt ſtarted by Arnobius, and adopted by ſeveral advocates for Chriſtianity, as Paſchal, Tillotſon, Gaſſrel, &c. Lord Shaftesbury and others have endeavoured to explode it: Clarke and Leibnitz only allow it a moral force. Molheim has a diſſertation on this *argument*, viz. De Vi Argumenti quod *a tuto* dicitur in Theologia. Wolfem. 1723. 4°.

Logicians divide their *arguments*, with regard to their form, into *ſyllogiſms*, *enthymemes*, *inductions*, &c.

An *argument in form*, is a *ſyllogiſm* framed according to the ſtrict rules of *logic*.—According to Ariſtotle, the *enthymeme* is the *argument* of *rhetoric*, as the *ſyllogiſm* is that of *logic*.—*Rhetoric* is defined by ſome, the art of finding *arguments* adapted to perſuade, or gain belief.

Rhetoricians divide *arguments*, with reſpect to the places they are drawn from, into *intrinſic* or *artificial*; and *extrinſic* or *inartificial*, or *remote*.

ARGUMENTS, *artificial*, or *intrinſic*, by the Greeks called ατεχνοι, by Cicero *inſita*, are the proper invention of him who ſpeaks: or they are thoſe which are taken from the ſubject treated of; of which there are ſeveral kinds; viz. genus and ſpecies, form, cauſe, and effect, &c. See each in its place, GENUS, &c.

To theſe ſome add two other places of *argument*, viz. the manners, and the paſſions.

ARGUMENTS, *inartificial*, or *extrinſic*, ατεχνοι, by Cicero called *aſſumpta*, are thoſe which are borrowed abroad, and are only applied by the orator to the point in hand; ſuch are laws, common reports, books, oaths, torture, and witneſſes.

The places, or general heads of *arguments*, with regard to their end, may be divided into, 1. Thoſe intended to perſuade or diſſuade, which are chiefly drawn from the conſiderations of profit, honour, and equity. 2. Thoſe intended to praiſe, or diſpraiſe; and, 3. Thoſe intended to accuſe and defend.

ARGUMENT, *dialectical*. See DIALECTICAL.

ARGUMENT is alſo uſed for a ſyllabus, or abridgment of the ſubject of a book, hiſtory, comedy, or the like.

We have almoſt loſt the original uſe of prologues, which was to give the *argument* of the play.

ARGUMENT, in *Aſtronomy*, is an arch whereby we ſeek another unknown arch proportional to the firſt.

Hence,

ARGUMENT *of inclination* is an arch of a planet's orbit intercepted between the aſcending node, and the place of the planet from the ſun, numbered according to the ſucceſſion of the ſigns. See INCLINATION.

ARGUMENT, *monſtrual*, or *latitude*, is the diſtance of the moon's true place from the ſun's true PLACE.

By this we find the quantity of the real obſcuration in eclipſes, or how many digits are darkened in any place. See ECLIPSE.

ARGUMENT *of the moon's monſtrual latitude*, or *Monſtrual* ARGUMENT *of the longitude*, is an arch of her eccentric, I P (*Tab. Aſtron. fig.* 32.) intercepted between her true place once equated I, and a right line P O, drawn through the centre of the eccentric B, parallel to the monſtrual line of the apſides.

The *annual argument* of longitude is repreſented by the angle D A H.

ARGUMENTATION, the act of inventing or framing *arguments*, of making inductions, and drawing concluſions. See INDUCTION, &c.

Argumentation, according to Cicero, is the delivering or unfolding of an argument.—The matter of *argumentation* is propoſitions: the form, their due diſpoſition, with regard to one another, ſo that a concluſion may be drawn from them. See ENTHYMEME, PROPOSITION, RATIOCINATION, SORITES, SYLLOGISM, &c.

ARGUS, a kind of animal full of eyes, called in Iceland *ſcolicorn*; of which Wormius has given a deſcription, and Jacobus has given an account. It is of the teſtaceous kind, of an oblong form, reſembling a crab's tail, and about two fingers breadth in length.

ARGUS, a ſpecies of pheaſant in the Chineſe Tartary.

ARGUS-*ſhell*, in *Conchyliology*, a ſpecies of porcellan-ſhell, beautifully variegated with ſpots, reſembling in ſome meaſure thoſe in a peacock's tail.

ARGUTTÆ, witty and acute ſayings, which commonly ſignify ſomething farther than what their mere words at firſt ſight ſeem to import.

Writers on rhetoric ſpeak of divers ſpecies of *argutiæ*, viz.

ARGUTIÆ *ab alieno*, when ſomething is ſaid, which ſeems repugnant either to the nature and property of a thing, or to common cuſtom, the laws, &c. which yet in reality is conſiſtent therewith; or when ſomething is given as a reaſon of another, which yet is not the reaſon of it. For inſtance, *ſi Cæſus nihil dixiſſet, arriſſet minus: ergain, earum hoc ſecundum eſt, quæ plurimus ſum uare bonas venit.*

ARGUTIÆ *ab alluſione*, thoſe wherein alluſion is made to ſome hiſtory, fable, ſentence, proverb, or the like; e. gr. *multi umbram timent & earum amittunt.*

ARGUTIÆ *a comparatis*, when two things are compared together, which yet at firſt ſight appear very different from each other, but ſo as to make a pretty kind of *ſimile*, or *diſſimile*; e. gr. *par eſt pauper ni ſapiens principi omnia habenti.*

ARGUTIÆ *a repugnantibus*, when two things meet in a ſubject, which yet regularly cannot be therein; or when two things are oppoſed to each other, yet the epithet of the one is attributed to the other; e. gr. *dum taceat clamant.*

ARGYRASPIDES, or ARGYRAOSPIDES, in *Antiquity*, perſons armed with ſilver bucklers, or BUCKLERS ſilvered.

The *argyraſpides*, according to Quintius Curtius, made the ſecond corps of Alexander's army; the firſt was the *phalanx*.

According to Juſtin's account, lib. xii. cap. 7. Alexander having penetrated into India, and extended his empire as far as the ocean; for a monument of his glory, ordered

dered the armour of his soldiers, and the housings of his horses, to be adorned with silver.—And hence commanded them to be called *argyraspides*, from the Greek *αργυρος*, *silver*, and *ασπις*, *buckler*.

By this author it should seem, that Alexander's whole army were called *argyraspides*.—After that prince's death, the *argyraspides* despised all other chiefs of the army, disdaining to obey any other, having borne arms under Alexander.

ARGYRITÆ *agonis*, in *Antiquity*, games in which money was the prize. Potter.

ARGYRITIS, in *Natural History*, a name given by the ancients to a substance resembling silver.

In this sense, *argyritis* was used to signify such litharge as was of a white colour, by way of distinguishing it from that which was yellow, which they dignified with the name *chrysitis*, as we do at present with that of litharge of gold.

The *argyritis* of late writers, seems to have been the same with the *lapis magnetis* of the ancients, mentioned by Theophrastus, and distinguished from the MAGNET.

ARGYRODAMAS, in *Natural History*, a sort of silver-coloured TALC, which bears the fire, and neither burns, melts, nor changes its hue. Plott's Hist. Staff.

Hence its denomination among the ancients of *argyrodamas, quasi argentum indomitum*.

ARGYROGONIA is used by some alchemists for a kind of argentine, or silver making seed, of a white colour, pretended to be procurable from a solution of that metal perfectly concocted.

Argyrogonia stands contradistinguished from *chrysogonia*.

ARGYROLIBANOS, in the *Materia Medica* of the *Ancient Greeks*, a word used to express the white kind of *olibanum*.

ARGYROPOEIA, in *Alchemy*, the art of making silver, out of other more imperfect metals.

The word is formed of *αργυρος*, *silver*, and *ποιεω*, *I make*.

ARIADNIA, in *Antiquity*, solemn festivals held at Naxos, in honour of *Ariadne*.

The *Ariadnia* are said to have been instituted by Theseus, in atonement for his cruelty in exposing *Ariadne*, big with child, on that coast. They were of a mournful cast: one part of the ceremony was for a young woman to lie down, and counterfeit all the agonies of a woman in labour. Plut. in Thes. and Potter's Arch.

ARIANS, followers of *Arius*, a presbyter of the church of Alexandria about the year 315; who owned Christ to be God, yet maintained him inferior to the Father even as to his deity, and his essence to be different from that of the Father, and that he was neither co-eternal nor co-equal with him: also that the Holy Ghost was not God.

The *Arians* owned that the Son was the word, but denied that word to have been eternal; asserting, that it had only been created before all other beings.—They held, that Christ had nothing of man in him, but the flesh, with which the *λογος* or *word* was joined, which supplied the rest.

The *Arians* were first condemned and anathematized by a council at Alexandria in 320, under Alexander, bishop of that city; who accused *Arius* of impiety, and caused him to be expelled from the communion of the church: and afterwards by 380 fathers in the general council of Nice, assembled by Constantine in the year 325. But, notwithstanding that, *Arianism* was not extinguished: on the contrary, it became the reigning religion, especially in the East, where it obtained much more than in the West. *Arius* was recalled from banishment by the emperor Constantine, in two or three years after the council of Nice; and the laws that had been enacted against him were repealed. In the year 335, Athanasius, his zealous opponent, was deposed and banished into Gaul; and *Arius* and his followers were reinstated in their privileges, and received into the communion of the church: in little more than a year after this, he fell a victim to the resentment of his enemies, and died a tragical death, occasioned probably by poison, or some other violence. The *Arian* party found a protector in Constantius, who succeeded his father in the empire of the East; and the zeal with which he abetted them, produced many animosities and tumults to the time of his death, in the year 362. They underwent various revolutions, persecuting and oppressed, under succeeding emperors, according to the degree of interest they had in the civil power; till, at length, Theodosius the Great exerted every possible effort to suppress and disperse them.

The *Arians* were divided into various sects, of which ancient writers give an account under the names of *Semi-Arians*, *Eusebians*, *Aetians*, *Eunomians*, *Anomians*, *Pneumatomachians*, and others. But they have been commonly distributed into three classes, viz. the genuine *Arians*, *Semi-Arians*, and *Eunomians*.

Arianism was carried in the fifth century into Africa under the Vandals; and into Asia under the Goths. Italy, the Gauls, and Spain, were also deeply infected with it: and towards the commencement of the sixth century, it was triumphant in many parts of Asia, Africa, and Europe. But it sunk almost all at once, when the Vandals were driven out of Africa, and the Goths out of Italy, by the arms of Justinian. However, it revived again in Italy under the protection of the Lombards, in the seventh century. Erasmus seems to have aimed, in some measure, to restore *Arianism*, at the beginning of the fifteenth century, in his commentaries on the New Testament: accordingly, he was reproached by his adversaries, with *Arian* interpretations and glosses, *Arian* tenets, &c. To which he made little answer, save that there was no hereſy more thoroughly extinct than that of the *Arians*: *Nullo hæresis magis extincta quam Arianorum*. But the face of things was soon changed: Servetus, a Spaniard by nation, published, in 1531, a little treatise against the Trinity: which once more set the hereſy of the *Arians* on foot in the West.—Indeed he rather shewed himself a *Photinian*, than an *Arian*; only that he made use of the same passages of scripture, and the same arguments against the divinity of our Saviour, with the proper *Arians*.

It is true, Servetus had not, properly speaking, any disciples; but he gave occasion, after his death, to the forming of a new system of *Arianism* in Geneva, much more subtil and artful than his own; and which did not a little perplex Calvin.—From Geneva, the new *Arians* removed to Poland, where they gained considerable ground; but at length became SOCINIANS.

The appellation *Arian* has been indiscriminately applied, in more modern times, to all those who consider Jesus Christ as inferior and subordinate to the Father; and whose sentiments cannot be supposed to coincide exactly with those of the ancient *Arians*. Mr. Whiston was one of the first divines, who revived this controversy in the beginning of the eighteenth century. He was followed by Dr. Clarke, who published his famous book, entitled "The Scripture Doctrine of the Trinity," &c. in consequence of which, he was reproached with the title of *Semi-Arian*. He was also threatened by the convocation, and combated by argument. Dr. Waterland, who has been charged with verging towards *Tritheism*, was one of his principal adversaries. The history of this controversy, during the present century, may be found in a pamphlet, intitled, "An Account of all the considerable Books and Pamphlets that have been wrote "on either Side, in the Controversy concerning the "Trinity, from the Year 1712; in which is also contained, an Account of the Pamphlets written this last "Year, on each Side, by the Disputants to the end of "the year 1719." Published at London, 1720.

ARIANISM, the doctrine of *Arius*, who lived in the beginning of the fourth century. See UNITARIAN.

ARIDED, in *Astronomy*, a fixed star of the second magnitude, in the extremity of the Swan's tail.

This is also called HERRETIM, ADIEGE, and ARIDEF.

ARIDELOSIS, *αριδηλωσις*, in *Rhetoric*, is sometimes used for the figure commonly called SYNONYMIA.

ARIDULLAM, in *Natural History*, the name of a fossile substance, used in the East Indies in intermittent fevers. It is of a greenish yellow colour, and coarse texture, and, when burnt, emits fumes smelling like arsenic. It is properly of the ZARNIC kind, though somewhat different from all the European kinds.

ARIDURA, in *Physic*, a dryness, or want of juice and moisture of the parts.

ARIDURA is also used by some for an *ariality*, or consumption.

ARIDURA is more particularly used to denote a hectic fever.

ARIDURA, is more frequently used, by *Modern Writers*, to denote a particular atrophy, or wasting of some single member of the body.

In which sense, it amounts to the same with what we otherwise call WITHERING.

ARIES, or the *Ram*, in *Astronomy*, the first of the twelve signs of the zodiac; from which also a twelfth part of the ecliptic takes its denomination.

The stars in the constellation *Aries*, in Ptolemy's catalogue, are 18; in Tycho's, 21; in Hevelius's, 27; in the Britannic catalogue, 66: the longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and situations of the stars.	Sign.	Bayer's Cha.	Longitud. ° ′ ″	Latitude. North. ° ′ ″		Magnitude.
	♈		26 58 25	11 04 58 N		3.6
			26 48 15	9 01 26		3.6
			26 36 18	5 57 3		6
			26 49 04	5 43 59		3.6
Preced. ſtar in the horn.	♈		28 51 00	7 08 56		4
5.						
Subſ. and more north ſtar in the horn.	♉		29 37 59	8 28 16		1
	♉		0 54 20	10 57 12		5
In the neck.	♈		29 10 57	5 20 22		5
In the crown of the head.	♉		1 21 15	19 47 47		3.4
			3 26 14	12 31 32		3.7
10.						
			4 02 12	12 04 02		6
That under the Lucida.	♉		2 55 08	9 13 29		6
Informis over the head.	♉		3 19 18	9 57 12		2
			4 40 46	12 05 32		6
			2 43 49	5 56 58		6
15.						
			5 04 35	11 57 00		8
In the noſe, the more north. of two.	♉		3 46 50	7 22 45		6
			3 25 16	6 18 45		7
			1 49 55	1 40 75		3.7
			5 59 38	11 27 44		6
20.						
			5 43 40	10 46 20		7
In the noſe the more ſouth.	♉		4 32 25	5 43 39		3.5
	♉		4 41 59	5 27 23		7
In the extremity of the foremoſt foot.	♉		3 00 49	3 33 51		5.5
			3 30 53	4 09 43		7
25.						
	♊		7 19 13	4 41 07 N		6.7
			6 41 33	2 40 41		6.7
			7 31 45	4 41 50		6
			6 18 40	0 01 15 S.		6.7
Informis, *alias* 16th of the triangle.	♉		10 14 15	8 49 48 N		7
30.						
			6 20 07	2 44 12		5.6
The north in the loins.	♉		9 48 35	6 07 56		6
Informis, *alias* the 17th of the triangle.	♉		11 48 01	10 51 52		5
The ſouth in the loins.	♉		9 59 55	4 01 56		6
Informis, *alias* the 18th of the triangle.	♉		12 35 47	11 17 23		4
35.						
			9 41 08	1 44 43		7
In the preced. hind knee.	♉		9 03 43	0 36 22 S.		6
			8 17 35	3 21 50		7
Moſt northern of the informes.			24 00 55	12 28 08 N		4
			10 52 39	1 56 14		6
40.						
Brighteſt of the informes.			13 51 41	10 25 37		3
In the leg.	♉		10 47 52	1 06 13		6
In the hindmoſt knee.	♉		10 35 46	1 19 37 S.		6
	♉		12 09 32	0 58 37		6
In the thigh or hip, the north.	♉		12 32 11	1 28 58		6.7
45.						
The ſouth.	♉		12 34 24	1 10 03		6.7
			13 42 08	3 35 37		6.7
In the root of the tail.	♉		14 10 09	4 00 01		5
Alias, 20th of the triangle.	♉		16 13 51	8 51 53		7
			13 44 34	0 46 38		7
50.						
Alias, 21ſt of the triangle.			16 22 21	8 59 42		7
Alias, 22d of the triangle.			16 39 20	7 29 05		6
			15 03 56	0 10 22		7
			15 30 48	1 05 39		6.7
Alias, 23d of the triangle.			18 38 06	10 54 25		7
55.						
Alias, 24th of the triangle.			18 41 02	8 58 25		7.6
Foremoſt of the three in the tail.	♊		16 30 11	1 47 34		4
The middle.	♊		17 36 34	2 51 19		5
			20 19 30	8 23 00		7
			20 03 05	6 59 28		7
60.						
Laſt of the tail.	♊		19 03 42	3 34 05		5
			20 56 54	8 45 25		6
The middle.	♊		19 18 49	2 04 57		6
			20 39 45	5 51 39		6
The third.			19 41 15	2 02 52		7
	♊		21 06 24	3 46 01		7

ARIES alſo denotes a *battering ram*; or a military engine with an iron head, much in uſe among the ancients, to batter and beat down the walls of places beſieged.

Of this there were three kinds; the firſt rude and plain, the other artificial and compound.

The firſt ſeems to have been no more than a great beam, which the ſoldiers bore in their arms, and with one end of it, by main force, aſſailed the walls. This required a great force to work it; yet produced but a ſmall effect.

The ſecond or compound ram is deſcribed by Joſephus (De Excid. Hieroſol. 3.) thus: "The ram is a vaſt long "beam, like the maſt of a ſhip, ſtrengthened at one end "with a head of iron, ſomething reſembling that of a "ram, whence it took its name. This is hung by the "middle, with ropes, to another beam, which lies acroſs "a couple of poſts; and hanging thus equally balanced, "is, by a great number of men, violently thruſt for-"ward, and recoiled backward, and ſo ſhakes the wall "with its iron head, nor is there any tower or wall ſo "thick or ſtrong, as to reſiſt the repeated aſſaults of "this forcible machine."

The third only differed from the former, in that it was covered with a *vinea*, or ſcreen, to guard the ſoldiers, whence it is alſo called *teſtudo arietaria*.

M. Felibien deſcribes a fourth ſort of *battering ram*, which ran on wheels; and was the moſt perfect and effectual of them all. Vitruvius affirms, that the *battering ram* was firſt invented by the Carthaginians, while they laid ſiege to Cadiz: theirs was the ſimple kind firſt mentioned: Pephaſmenes, a Tyrian, afterwards contrived to ſuſpend it with ropes; and finally, Polydus, the Theſſalian, to mount it on wheels, at the ſiege of Byzantium, under Philip of Macedon. Yet Pliny aſſures us that the *ram* was invented at the ſiege of Troy; and that it was this that gave occaſion to the fable of a wooden horſe.

The *engine* oppoſed to the ram was called *lupus*, *the wolf*. —Plutarch tells us, that Mark Antony, in the Parthian war, uſed a *ram* of 80 feet long; and Vitruvius aſſures us, they were ſometimes made 106, and ſometimes 120 feet long; to this great length, perhaps, the force of the engine was in great meaſure owing.

The *ram* was managed at once by a whole century of ſoldiers; ſo that it played continually, and without intermiſſion; being uſually covered with a *vinea*, to protect it from the attempts of the enemy.

ARIETATION. See EARTHQUAKE.

ARIETUM *ſeruato*, an ancient kind of ſportive exerciſe, probably the ſame with what of later times is called *running at the quintain*.

ARILLUS, in *Botany*, the exterior coat or tunic of the ſeed, which comes off of itſelf.

ARIMANIUS, one of the chief deities of Perſia. This deity, according to the philoſophy of Zoroaſter revived by the Manichæans, is the principle of evil, which at laſt will be totally vanquiſhed by Oroſmades, the author of good.

ARINGA, in *Ichthyology*, a name given by Paulus Jovius and others to the HERRING.

ARIOLI, in *Antiquity*, a kind of prophets, or religious conjurors, who by abominable prayers, and horrid ſacrifices at the altars of idols, procured anſwers to their queſtions concerning future events. Iſid. Orig. l. viii. c. 9.

Theſe are alſo called *hariovi*, and their operation, *hariolation*.

Sometimes they were denominated *aruſpices*, or *haruſpices*. The *arioli* were diſtinguiſhed by a ſlovenly dreſs, diſorderly and matted beards, hair &c.

ARISARUM, or ARUM, in *Botany*. See WAKE *robin*.

ARISE. *Licence to* ARISE. See LICENCE.

ARISH, a Perſian long meaſure, containing 3197 Engliſh feet. Arbuth. Tab. 32.

The Perſian *ariſh*, according to Mr. Greaves, is a long meaſure equal to 38 $\frac{1}{12}$ Engliſh inches.

ARISI, *rice*, an Indian word, which does not properly ſignify the plant which produces the rice, but the ſeed itſelf, when cleanſed from its huſk, and rendered fit for uſe. The Indians call it *oriſa* in this ſtate; but in the huſk, and upon the plant, they call it *nellen*.

ARISTA, in *Ichthyology*, ſee ATHERINA.—In *Aſtronomy*, the ſame as SPICA VIRGINIS.

ARISTA, in *Botany*, a long needle-like beard, that grows out from the huſk of corn, or graſs; called alſo the *awn*.

ARISTARCHUS, in its original Greek, ſignifies *beſt prince*; but in its ordinary uſe among the learned, denotes a very ſevere *critic*; there having been a learned grammarian of that name, who criticized on the verſes of the very beſt poets, as Homer, &c.

Hence we derive the title of ſeveral books; as *Ariſtarchus ſacer*, the name of Heinſius's notes on the New Teſtament; *Ariſtarchus Anti-Bentleianus*, &c.

ARISTIDA, in *Botany*, a genus of the *triandria digynia* claſs; the calyx of which is a bivalve fubulated glume, of the length of the corolla; the corolla is a glume of one valve, opening longitudinally, hairy at the baſe, and terminated by three ſub-equal patulous *ariſtæ*; the fruit is a convivent glume, containing a naked filiform ſingle ſeed, of the length of the corolla. There are three ſpecies.

ARISTOCRACY, in *Politics*, a form of government, where the ſupreme power is lodged in the hands of the optimates,

optimates, i. e. of a council, or senate, composed of the principal persons of a state, either in respect of nobility, capacity, or probity.

The word is derived from ἀριστος, *optimus*, and ἀρχω, *impero, I govern*.

The ancient writers of politics prefer the *aristocratical* form of government to all others.—The republic of Venice is an *aristocracy*.

Aristocracy seems to coincide with *oligarchy*; which, however, is more ordinarily used to signify a corruption of an *aristocratical* state, where the administration is in the hands of too few; or where some one or two usurp the whole power.

ARISTOLOCHIA, popularly called BIRTHWORT; a medicinal plant, used as an ingredient in Venice treacle, and many other compositions.

Cicero derives its name from its inventor *Aristolochus*: others from its virtues.—These last suppose it formed from ἀριστος, *optimus*, and λοχια, *lochia*, or *purgations*, because it is found of excellent use in bringing down the lochia, or discharges of women newly delivered.

Some alexipharmic qualities are also ascribed to them; on which account they have a place in the composition of the *theriaca*, and some other medicines of the same tribe. Externally applied, they are reckoned detergent and suppurative, and, for that reason, make a part of the styptic plasters of Crollius and Paracelsus. Taken internally, they are great resolvers of viscidities, and therefore much recommended against the gout, asthma, &c. They allay the excessive pains after child-birth, and are very serviceable for the necessary purgations on that occasion. Some of the species are used in America, particularly one in Virginia, whose roots are used against the bites of venomous beasts, in malignant fevers, and the small pox. Its alexipharmic virtue has occasioned it to be called *Viperinum Virginiæ*, and *Serpentaria Virginiana*, otherwise SNAKE-root.

ARISTOPHANEUM, in the *Ancient Physic*, a name given to a kind of emollient plaster, prepared of pitch, wax, opopanax, scopoxmax, and vinegar.

ARISTOTELIA, in *Antiquity*, annual feasts, celebrated by the citizens of Stagira, in honour of *Aristotle*, who was born there; and in gratitude for his having procured from Alexander the rebuilding, and re-peopling of that city, which had been demolished by king Philip. Ammon. in Vit. *Aristot*. Stanley's Hist. of Philos. P. vi. c. 8.

ARISTOTELIAN, something that relates to the philosopher *Aristotle*.—Thus we say, an *Aristotelian* dogma, the *Aristotelian* school, &c.

The philosopher from whom the denomination arises, was the son of Nicomachus, physician of Amyntas, king of Macedonia, born in the year of the world 3566, before Christ 348, at Stagira, a town of Macedonia, or, as others say, of Thrace; whence he is also called the *Stagirite*.

At seventeen years of age he entered himself a disciple of Plato, and attended in the Academy till the death of that philosopher. Repairing afterwards to the court of king Philip, at his return he found that Xenocrates, during his absence, had put himself at the head of the Academic sect; upon which he chose the Lyceum for the future scene of his disputation.

It being his practice to philosophize walking, he got the appellation *Peripatetics*; whence his followers were also called *Peripatetics*.

In the schools, *Aristotle* is called the *Philosopher*; and the *Prince of Philosophers*. Such was the veneration paid to him, that his opinion was allowed to stand on a level with reason itself; nor was there any appeal from it admitted, the parties, in every dispute being obliged to shew, that their conclusions were no less conformable to *Aristotle*'s doctrine than to truth.

Laertius, in his life of *Aristotle*, enumerates his books, to the number of 4000; of which, scarce above 20 have survived to our age: they may be reduced to five heads; the first, relating to poetry and rhetoric; the second, to physics; the third, to ethics and politics; the fourth, to physics; and the fifth, to metaphysics. In all which, as there are many things excellent, particularly what relate to poetry, rhetoric, and the passions; so there are others which the improvements of later ages have taught us to explode and despise.

ARISTOTELIAN *philosophy*, the philosophy taught by *Aristotle*, and maintained by his followers.

The *Aristotelian* is otherwise called the *Peripatetic philosophy*; the rise and fate whereof, see under PERIPATETICS.

ARISTOTELIANS, a sect of philosophers, otherwise called *Peripatetics*.

The *Aristotelians* and their *dogmata* prevailed for a long while, in the schools and universities; even in spite of all the efforts of the Cartesians, Newtonians, and other corpuscularians. But the systems of the latter have at length gained the pre-eminence; and the Newtonian philosophy in particular is now very generally received.

The principles of *Aristotle*'s philosophy, the learned agree, are chiefly laid down in the four books *de Cœlo*: the eight books of *Physical Auscultation*, φυσικης ακροασεως, belonging rather to logics, or metaphysics, than to physics. Instead of the more ancient systems, he introduced *matter*, *form*, and *privation*, as the principles of all things; but he does not seem to have derived much benefit from them in natural philosophy. His doctrines are, for the most part, so obscurely expressed, that it has not yet been satisfactorily ascertained what were his sentiments on some of the most important subjects. He attempted to refute the Pythagorean doctrine concerning the two-fold motion of the earth; and pretended to demonstrate, that the matter of the heavens is ungenerated, incorruptible, and subject to no alteration: and he supposed that the stars were carried round the earth in loud orbs.

The reader will find a distinct and candid account of the logical part of his philosophy, by Dr. Reid, Professor of Moral Philosophy in the University of Glasgow, in the second volume of Lord Kaimes's Sketches of the History of Man. Edinb 4to. 1774. p. 165.

J. Harris, esq. has published a sensible commentary on his Categories, under the title of *Philosophical* ARRANGEMENTS.

See a more particular account of the principles of the *Aristotelian* philosophy, under the articles ACCIDENT, ANTIPERISTASIS, ELEMENT, FUGA VACUI, FORM, PRINCIPLES, QUALITY, SYMPATHY, &c.

ARISTOTELICA *testa*. See ROTA.

ARISTOTUS, in *Ichthyology* a name given by Albertus and others, to the fish which we call the SHAD, or the mother of herrings. See THRISSA and CLUPEA.

ARITHMANCY. See ARITHMOMANCY.

ARITHMETIC, ARITHMETICA, *the art of numbering*; or, that part of mathematics, which considers the powers and properties of numbers, and teaches how to compute or calculate truly, and with expedition and ease.

Some authors choose to define *arithmetic*, the science of discrete quantity.

Arithmetic consists chiefly in the four great rules or operations of ADDITION, SUBTRACTION, MULTIPLICATION, and DIVISION.

It is true, for the facilitating and expediting of computations, mercantile, astronomical, &c. divers other useful rules have been contrived; as, the rules of proportion, of alligation, of false position, extraction of square and cube roots, progression, fellowship, interest, barter, rebate, reduction, tare and tret, &c.—But these are only applications of the first four rules. See these rules under their several heads, ADDITION, &c.

We have very little intelligence about the origin and invention of *arithmetic*: history neither fixes the author, nor the time.—In all probability, however, it must have taken its rise from the introduction of commerce; and consequently it should be of Tyrian invention.

From Asia it passed into Egypt (Josephus says, by means of Abraham). Here it was greatly cultivated and improved; insomuch that a large part of the Egyptian philosophy and theology seems to have turned altogether upon numbers. Hence those wonders related by them about unity, trinity; the numbers seven, ten, four, &c. In effect, Kircher, in his Oedip. Ægypt. tom. 2. p. ii. shews, that the Egyptians explained every thing by numbers; Pythagoras himself affirming, that the nature of numbers goes through the whole universe; and that the knowledge of numbers is the knowledge of the Deity.

From Egypt *arithmetic* was transmitted to the Greeks, who handed it forward, with great improvements, which it had received by the computation of their astronomers, to the Romans; from whom it came to us.

The ancient *arithmetic*, however, fell far short of that of the moderns: most of what they did, was to consider the various divisions of numbers; as appears from the treatises of Nicomachus, written in the third century of Rome, and that of Boethius, still extant. A compendium of the ancient *arithmetic*, written in Greek, by Psellus, in the ninth century from our Saviour, was given us in Latin by Xylander, in 1556.—A more ample work of the same kind was written by Jordanus, in the year 1200, published with a comment by Faber Stapulensis in 1480. A treatise of *arithmetic* was also written by Johannes de Sacro Bosco, who died about the year 1256.

Arithmetic, under its present state, is variously divided into different kinds; *theoretical*, *practical*, *instrumental*, *logarithmical*, *numerous*, *specious*, *decimal*, *sexagesimal*, *duodecimal*, *sexagesimal*, &c.

ARITHMETIC, *theoretical*, is the science of the properties, relations, &c. of numbers, considered abstractedly; with

with the reasons and demonſtrations of the ſeveral rules. Euclid furniſhes a *theoretical* ARITHMETIC, in the ſeventh, eighth, and ninth books of his Elements.—Barlaamus Monachus has alſo given a theory for demonſtrating the common operations, both in integers and broken numbers, in his Logiſtica, publiſhed in Latin by J. Chambers, an Engliſhman, in 1600.—To which may be added, Lucas de Borgo, who in an Italian treatiſe publiſhed in 1523, gives the ſeveral diviſions of numbers from Nicomachus, and their properties from Euclid; with the algorithm, both in integers, fractions, extractions of roots, &c.

ARITHMETIC, *practical*, is the art of numbering or computing; that is, from certain numbers given, of finding certain others, whoſe relation to the former is known.

As, if a number be required equal to two given numbers 6 and 8.

The firſt entire body of *practical arithmetic*, was given by Nic. Tartaglia, a Venetian, in 1556, conſiſting of two books; the former the application of *arithmetic* to civil uſes; the latter, the grounds of algebra. Something had been done before by Stifelius, in 1544, where we have ſeveral particulars concerning the application of irrationals, coſſics, &c. no were elſe to be met with.

We omit other mere practical authors, which have come ſince, the number whereof is almoſt infinite; as Gemma Friſius, Metius, Clavius, Ramus, Buckley, Digges, Record, Wingate, Corker, Leyburn, Malcolm, &c. &c.

The *theory* of *arithmetic* is joined with the *practice*, and even improved in ſeveral parts, by Maurolycus, in his *Opuſculo Mathematica*, 1575; by Heneſchius, in his *Arithmetica Perfecta*, 1609, where the demonſtrations are all reduced into the form of ſyllogiſms; and by Tacquet, in his *Theoria & Praxis Arithmeticæ*, 1704.

ARITHMETIC, *harmonical*, is ſo much of the doctrine of numbers, as relates to the making the compariſons, reductions, &c. of muſical intervals.

ARITHMETIC, *inſtrumental*, is that where the common rules are performed by means of inſtruments contrived for eaſe and diſpatch; ſuch are ſeveral ſorts of ſcales, and ſliding-rules; ſuch, more particularly, are Napier's bones, deſcribed under their proper article: ſir Sam. Morcland's inſtrument, the deſcription whereof was publiſhed by himſelf, in 1666; that of M. Leibnitz, deſcribed in the Miſcellan. Berolin. and that of Polenus, publiſhed in the Venetian Miſcellany, 1709.

The Chineſe have little regard to any rules in their calculations; inſtead of which they uſe an inſtrument already deſcribed. See ABACUS and SWAN PAN.

To theſe may be added,

ARITHMETIC, *logarithmetical*, performed by tables of logarithms.

The beſt piece on this ſubject, is Hen. Brigg's Arithmetica Logarithmica, 1624.

To this head may alſo be added, the Univerſal Arithmetical Tables of Proſthaphæreſes, publiſhed in 1610, by Herwart ab Hohenburg; whereby multiplication is eaſily and accurately performed by addition, and diviſion by ſubtraction.

ARITHMETIC, *logiſtical*. See LOGISTICAL.

ARITHMETIC, *numerous*, is that which gives the calculus of numbers, or indeterminate quantities; and is performed by the common numeral, or Arabic characters.

ARITHMETIC, *ſpecious*, is that which gives the calculus of quantities; uſing letters of the alphabet inſtead of figures, to denote the quantities.

Specious arithmetic coincides with what we uſually call *algebra*, or *literal arithmetic*.

Dr. Wallis has joined the numeral with the literal calculus; and by means hereof, demonſtrated the rules of fractions, proportions, extractions of roots, &c. a compendium of which is given by Dr. Wells, under the title of Elementa Arithmeticæ, an. 1698.

ARITHMETIC, *decimal*, or *decadal*, is that performed by a ſeries of ten characters, ſo that the progreſſion is from 10 to 10.

Such is the common *arithmetic* among us, which makes uſe of the ten Arabic figures, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9; after which we begin 10, 11, 12, &c.

This method of computation is not very ancient, being utterly unknown to the Greeks and Romans.—It was introduced into Europe by Gerbert, who was afterwards pope, under the name of Sylveſter II. who borrowed it from the Moors of Spain.—No doubt it took its origin from the ten fingers of the hands, which were made uſe of in computations before *arithmetic* was brought into an art.

The eaſtern miſſionaries aſſure us, that to this day the Indians are very expert at computing on their fingers, without any uſe of pen and ink. Let. Edif. & Cur.—Add, that the natives of Peru, who do all by the different arrangement of grains of maize, outdo any European, both for ſureneſs and diſpatch, with all his rules.

ARITHMETIC, *decimal*, is alſo uſed for the doctrine of decimal fractions.

ARITHMETIC, *binary*, or *dyadic*, is that wherein only two figures, unity, or 1, and 0, are uſed. See BINARY *Arithmetic*.

M. Dangicourt, in the Miſcell. Berol. gives us a ſpecimen of the uſe hereof in arithmetical progreſſions; where he ſhews, that the laws of progreſſion may be more eaſily diſcovered hereby, than in any other method where more characters are uſed.

ARITHMETIC, *tetractic*, is that wherein only the figures 1, 2, 3, and 0, are uſed.

We have a treatiſe of this *arithmetic*, by Erhard Weigel; but both *binary*, and this, are little better than curioſities, eſpecially with regard to practice; inaſmuch as the numbers may be much more compendiouſly expreſſed by *decadal arithmetic* than by either of them.

ARITHMETIC, *vulgar*, is that converſant about integers and vulgar fractions.

ARITHMETIC, *ſexageſimal*, or *ſexagenary*, is that which proceeds by ſixties; or the doctrine of ſexageſimal fractions; ſuppoſed to have been invented by Ptolemy, in the ſecond century. In this notation the integral numbers from 1 to 59 were expreſſed in the common way; then *ſixty* was called a *ſexagena prima*, and marked I'; twice *ſixty*, or 120, II'; and ſo on to 59 times 60, or 3540, which is LIX'. *Sixty* times *ſixty*, or 3600, was called *ſexagena ſecunda*, and marked with two dashes, I''; twice 3600, II''; and ten times 3600, X'', &c. And in this way the notation was continued. But if a number leſs than *ſixty* was joined with any of the *ſexageſimal* integers, their proper expreſſion was annexed without the dash; e. gr. four times 60 and 25 is IV' XXV; the ſum of twice 60, ten times 3600, and 15, is X'' II' XV. &c. So near did the inventor of this method approach to the Arabic notation: inſtead of *ſexageſimal* progreſſion, he had only to ſubſtitute *decimal*; to make the ſigns of numbers from 1 to 9 ſimple characters, and to introduce a character which ſignifies nothing by itſelf, ſerving only to fill up places. The *ſexagena integrorum* were ſoon laid aſide, after the introduction of the Arabic notation; but the *ſexageſimal* fractions continued till the invention of *decimals*. See SEXAGESIMAL.

Sam. Reyher has invented a kind of ſexagenal *rods*, in imitation of Napier's bones, by means whereof the *ſexagenary arithmetic* is eaſily performed.

ARITHMETIC, *political*, is the application of *arithmetic* to political ſubjects; as, the ſtrength and revenues of princes, number of inhabitants, births, burials, &c. See POLITICAL *Arithmetic*.—To this head may be referred the doctrine of CHANCES, GAMING, &c.

ARITHMETIC *of infinites*, is the method of ſumming up a ſeries of numbers conſiſting of infinite terms; or of finding the ratios thereof.

This method was firſt invented by Dr. Wallis; as appears from his Opera Mathematica, where he ſhews its uſe in geometry, in finding the areas of ſuperficies, and the contents of ſolids, and their proportions.—But the method of FLUXIONS, which is an univerſal *arithmetic* of infinites, performs all this much more eaſily; and multitudes of other things, which the former will not reach.

ARITHMETIC *of rationals* and *irrationals*. See RATIONAL, &c.

ARITHMETICAL *complement* of a logarithm, is what the logarithm wants of 10.0000000.

Thus the *arithmetical complement* of 7.1079054, is 2.8920946, where each figure but the laſt is ſubtracted from 9, and that from 10.

It is ſometimes alſo uſed in trigonometrical calculations, when radius or 10.0000000 is the firſt term, to ſave the labour of ſubtraction. It is diſtinguiſhed by placing a point before, and another after the index; thus, .2.8920946.

ARITHMETICAL *medium* or *mean*. See MEDIUM.

ARITHMETICAL *progreſſion*. See PROGRESSION.

ARITHMETICAL *proportion*. See PROPORTION.

ARITHMETICAL *ratio*. See RATIO.

ARITHMOMANCY, a kind of divination, or method of foretelling future events, by means of numbers.

The word is compounded of ἀριθμὸς, *number*, and μαντεία, *divination*.

The GEMATRIA, which makes the firſt ſpecies of the Jewiſh CABBALA, is a ſort of *arithmomancy*.

ARK, or ARC, *arcus*, in *Geometry*, *Aſtronomy*, &c. See ARCH.

ARK, ARCA, in the ſcripture-language, denotes a kind of floating veſſel built by Noah, for the preſervation of the ſeveral ſpecies of animals from the deluge.

The *ark* has afforded several points of curious enquiry among the critics and naturalists, relating to its form, capacity, materials, time of building, place of resting, after the flood, &c.

Noah is computed to have been an hundred years in building the *ark*, viz. from the year of the world 1555, to the flood, which happened in the year 1656; at least this is the common opinion of the learned. Origen, lib. iv. Contra Cels. St. Austin, de Civit. Dei, lib. xv. c. 27. and contra Faustum, lib. xii. c. 18. and in his Quest. 5. and 23. on Gen. Rupert, lib. iv. in Gen. xx. affert as much; and are followed by Salian, Torniel, Spondeus, Pelletier, &c.

Yet Berosus affirms, that Noah only begun to build the *ark* seventy-eight years before the flood: Solomon Jarchi, on the other hand, will have it to have been an hundred and twenty years in building, Tanchuma fifty-two, and the Mahometans only two years. See the texts, Gen. vi. &c. F. Fournier, in his Hydrography, gives into the opinion of the fathers; noting, that the hands employed in it were only Noah and his three sons. To this purpose he alledges the instance of Archias of Corinth, who, with the help of three hundred workmen, built Hiero's great ship in one year. Add, that Noah's eldest son was not born till about the time when the *ark* was begun, and the younger after; so that it was a long time before they could do their father any service.—However, for so large a building, a prodigious number of trees must have been required, which would employ a great number of workmen to fell and hew, were it possible for three men to have laid them.

The wood whereof the *ark* was built, is called in scripture עֲצֵי גֹפֶר *atsè gopher, gopher wood*; and in the LXX. ξυλα τετραγωνα. *square timbers*. Onkelos and Jonathan render *gopher* by קדְרוס *kedros, cedar*; St. Jerom, in the Vulgate, by *lignis lævigatis, planed wood*; and elsewhere, *lignis dolomatis*, viz. *it, pitched wood*. Kimchi translates it, *wood and propre to float*; Vatable, *light wood*, which swims in the water without corrupting; Junius Tremellius, and Buxtorf, a kind of cedar, by the Greeks called κεδρελαιον; Avenarius and Munster, *pine*; Fuller and Bochart, *cypress*; others *fir*; Castalio, *turpentine*, &c.—Pelletier prefers the opinion of those who hold the *ark* made of cedar: his reasons are, the incorruptibility of that wood; the great plenty thereof in Asia, whence Herodotus and Theophrastus relate, that the kings of Egypt and Syria built whole fleets of it in lieu of deal; and the common tradition throughout the East imports, that the *ark* is preserved entire to this day on mount Ararat.

The dimensions of the *ark*, as delivered by Moses, are three hundred cubits in length, fifty in breadth, and thirty in height; which, compared with the great number of things it was to contain, seem to many to have been too scanty. And hence an argument has been drawn against the authority of the relation. Celsus long ago laughed at it, calling it κιβωτον αλογιστον, *the absurd ark*. To solve this difficulty, many, both of the ancient fathers, and later critics, have been put to very miserable shifts. Origen, St. Augustine, and others, maintain, that by the cubit here spoken of, we are to understand the Egyptian geometrical cubits, equal, according to them, to six vulgar cubits, or nine feet. But the truth is, it does not appear there ever was any such measure as a geometrical cubit, either among Egyptians or Jews.—Others account for it, by asserting the stature of mankind, in the first ages, to have been much greater than in our days; and, consequently, the cubit, which is taken for a part of the human body, proportionably larger. But this does not avail, since the same reason will infer an equal augmentation of the size of other animals. Others suppose the sacred cubit to be that here spoken of, which was a hand's breadth longer than the civil one: but this only affords a small supply; beside, the sacred cubit does not appear to have been ever used, except in sacred edifices, as the temple and tabernacle.

This difficulty is much better solved by Bibeo and Kircher, who, supposing the common cubit of a foot and a half, prove geometrically, that the *ark* was abundantly sufficient for all the animals supposed to be lodged therein. The capacity of the *ark* will be doubled, if we admit, with Cumberland, &c. that the Jewish cubit was 21.888 inches.—Snellius computes the *ark* to have been above half an acre in area. Cuneus, and others, have also calculated the capacity of the *ark*.—Dr. Arbuthnot computes it to have been 81062 tuns.—Father Lamy says, that it was an hundred and ten feet longer than the church of St. Mary at Paris, and sixty-four feet narrower; to which his English translator adds, that it must have been longer than St. Paul's church in London, from west to east, broader than that church is high in the inside, and about fifty-four feet in height, of our measure.

The things contained in the *ark* were, beside eight persons of Noah's family, one pair of every species of unclean animals, and seven pair of every species of clean animals, with provisions for them all, during the whole year.—The former appears, at first view, almost infinite; but if we come to a calculus, the number of species of animals will be found much smaller than is generally imagined: out of which, in this case, are to be excepted such animals as can live in the water; and bishop Wilkins imagines, that only seventy two of the quadruped kind needed a place in the *ark*.

It appears to have been divided into three stories; and it is agreed on, as most probable, that the lowest story was destined for the beasts, the middle for the food, and the upper for the birds, with Noah and his family; each story being subdivided into different apartments, stalls, &c. Though Josephus, Philo, and other commentators, add a kind of fourth story, under all the rest; being, as it were, the hold of the vessel, to contain the bilsalt, and receive the filth and faeces of so many animals.

Drexelius makes three hundred apartments; father Fournier, three hundred and thirty-three; the anonymous author of the Questions on Genesis, four hundred; Bucco, Temporarius, Arius Montanus, Wilkins, Lamy, and others, suppose as many partitions as there were different sorts of animals.—Pelletier only makes seventy-two, viz. thirty-six for the birds, and as many for the beasts: his reason is, that if we suppose a greater number, as three hundred and thirty-three, or four hundred, each of the eight persons in the *ark* must have had thirty-seven, forty one, or fifty stalls to attend and cleanse daily, which he thinks impossible. But there is not much in this; to diminish the number of stalls, without a diminution of the animals, is vain; it being, perhaps, more difficult to take care of three hundred animals in seventy-two stalls, than in three hundred.

Bucco computes, that all the animals contained in the *ark* could not be equal to five hundred horses; he even reduces the whole to the dimensions of fifty-six pair of oxen. Father Lamy enlarges it to sixty-four pair, or an hundred and twenty-eight oxen; to that supposing one ox equal to two horses, if the *ark* had room for two hundred and fifty-six horses, there must have been room for all the animals. And the same author demonstrates, that one floor of it would suffice for five hundred horses, allowing nine square feet to an horse.

As to the food in the second story, it is observed by Bucco from Columella, that thirty or forty pounds of hay ordinary suffices an ox for a day; and that a solid cubit of hay, as usually pressed down in our hay racks, weighs about forty pounds; so that a square cubit of hay is more than enough for one ox one day. Now it appears that the second story contained 150,000 solid cubits; which, divided between two hundred and six oxen, will afford each more hay by two thirds than he can eat in a year.

Bishop Wilkins computes all the carnivorous animals equivalent, as to the bulk of their bodies, and their food, to twenty-seven wolves; and all the rest to two hundred and eighty beeves. For the former he allows the sustenance of 1825 sheep, and for the latter 109,500 cubits of hay: all which will be easily contained in the two first stories, and much room to spare.—As to the third story, no body doubts of its being sufficient for the fowls, with Noah, and his sons and daughters.

Upon the whole, the learned bishop remarks, that of the two, it appears much more difficult to assign a number and bulk of necessary things to answer the capacity of the *ark*, than to find sufficient room for the several species of animals already known to have been there.—This he attributes to the imperfection of our lists of animals, especially those of the unknown parts of the earth; adding, that the most expert mathematician at this day could not assign the proportions of a vessel better accommodated to the purpose, than is here done: and hence finally concludes, that "the capacity of the "*ark*, which had been made an objection against scripture, ought to be esteemed a confirmation of its divine "authority; since, in those rude ages, men, being less "versed in arts and philosophy, were more obnoxious "to vulgar prejudices than now; so that had it been an "human invention, it would have been contrived according to those wild apprehensions which arise from a "confused and general view of things; as much too "big, as it has been represented too little."

ARK *of the Covenant*, in scripture, denotes a kind of chest, wherein, by God's command, Exod. xxv. 16. were kept the two tables of stone, wherein God had engraven the ten commandments, given to Moses on the mount, and held in high veneration among the Hebrews. It contained likewise the golden pot that had manna and Aaron's rod, and the tables of the covenant. Heb. ix. 4.

The *ark* was repoſited in the holieſt place of the tabernacle.—It was taken by the Philiſtines, and detained twenty ſome ſay forty years, at Kirjath Jearim; but the people being afflicted with emrods on account of it, returned it with divers preſents.—It was afterwards placed in the temple.

The lid, or covering of the *ark*, was called the *propitiatory*, or mercy-ſeat; over which were two figures placed, called *Cherubim*, with expanded wings of a peculiar form. Here the Schechinah reſted both in the tabernacle and temple in a viſible cloud; hence were iſſued the divine oracles by an audible voice; and the high prieſt appeared before this mercy-ſeat once every year on the great day of expiation; and the Jews, wherever they worſhipped, turned their faces towards the place where the *ark* ſtood. In the ſecond temple there was alſo an *ark*, made of the ſame ſhape and dimenſions with the firſt, and put in the ſame place, but without any of its contents and peculiar honours. It was uſed as a repoſitentative of the former, on the day of expiation, and a repoſitory of the original copy of the holy ſcriptures, collected by Ezra and the men of the great ſynagogue, after the captivity. And in imitation of this, the Jews, to this day, have a kind of *ark* in their ſynagogues, wherein their ſacred books are repoſited. This they call *aron*. Leo of Modena gives a deſcription thereof, in his account of the Cuſtoms and Ceremonies of thoſe of his Nation: "The Jews, ſays "he, in the eaſtern ſides of their ſynagogues, have an "*ark*, or armory, called *aron*; in memory of the *ark* of "the covenant. In this are preſerved the five books of "Moſes, written on vellum, with ink made on pur-"poſe." &c. Some have ſuppoſed that the figure of this *ark* is ſtill remaining on the triumphal arch of Titus at Rome; though Villalpandus and others, with greater reaſon, are of opinion, that it is the table of ſhew-bread. Prideaux's Conn. vol. i. p. 209.

Tertullian calls this *ark*, *Armarium Judaicum*; whence the phraſe, *to be in the armory of the ſynagogue*, q. d. in the number of canonical writings.

A cheſt or coffer very nearly reſembling the Jewiſh *ark*, and called the *houſe of the God*, was found in Huaheine, one of the iſlands in the ſouthern ſea. Mr. Banks could obtain no other information concerning it, than what the name imports. Hawkeſworth's Account, &c. vol. ii. p. 252.

ARK is uſed for a large cheſt, in which corn and fruit are depoſited.

ARLYNG, in *Ornithology*, a name by which the common OENANTHE is called, in many parts of England.

ARM, *brachium*, a part of the human body, terminating at one end in the ſhoulder, and at the other in the hand.

Among *Phyſicians* and *Anatomiſts*, ARM only includes that part between the ſhoulder and the elbow; the reſt, from the elbow to the wriſt, being taken into the greater HAND; by others called the *fore-arm*.

The *arm*, in this latter acceptation, has only one large bone, called the HUMERUS, or ſhoulder-bone.

It has five ſorts of motions, which are effected by five pair of muſcles; upwards, by the *deltoides*, *ſupraſpinatus*; and *coracobrachialis*; downwards, by the *teres rotundus major*, and *latiſſimus dorſi*; forwards by the *pectoralis*; backwards, by the *infraſpinatus*; and, circularly, by the *tranſverſalis*, *ſubſcapularis*, and *infraſpinatus*. See each muſcle deſcribed under its proper article.

The other part conſiſts of two bones, called FOCILS; viz. the *radius* and *cubitus*, or *ulna*.

The muſcles whereby this part is moved, are the *biceps*, *brachiæus internus*, *gemellus*, *brachiæus externus*, *anconæus*, *pronator radii teres*, and *quadratus*; *ſupinator longus*, and *brevis*.—See each in its place. The uſual ſections are in the *arm*.

We have an account of a man whoſe *arm*, with the *ſcapula*, was torn off by a mill, and who was cured without any haemorrhage. Phil. Trans. N° 449. ſec. 5.

ARM, in the *Manege*, is applied to a horſe, when he endeavours to defend himſelf againſt the bit; to prevent obeying, or being checked thereby.

A horſe is ſaid to *arm* himſelf, when he preſſes down his head, and bends his neck, ſo as to reſt the branches of the bridle upon his britket; in order to withſtand the effort of the bit, and guard his bars and his mouth.

A horſe is ſaid to *arm himſelf with the lips*, when he covers the bars with his lips, and deadens the preſſure of the bit. This frequently happens in thick-lipped horſes.—The remedy is by uſing a bit-mouth, forged with a cannon or ſcratch-mouth, broader near the bankers than at the place of its preſſure, or reſt upon the bars.

For *arming againſt the bit*, the remedy is, to have a wooden ball covered with velvet or other matter, put on his chaul; which will ſo preſs him between the jaw-bones, as to prevent his bringing his head ſo near his breaſt.

ARM, in *Geography*, is uſed for a branch of a ſea, or river. Italy and Sicily are only parted by an *arm* of the ſea.—St. George's *arm*, in the Mediterranean, is the Thracian Boſphorus.

ARM, among *Gardeners*, is ſometimes uſed in reſpect of cucumbers and melons, in the ſame ſenſe as branch, of other plants.

ARM is alſo uſed figuratively for *power*.—The ſecular *arm* is the lay or temporal authority of a ſecular judge; to which recourſe is had for the execution of the ſentences paſſed by eccleſiaſtical judges.

The church ſheds no blood: even the judges of inquiſition, after they have found the perſon guilty, ſurrender him to the ſecular *arm*.

The council of Antioch, held in 341, decrees, that recourſe be had to the ſecular *arm* to repreſs thoſe who refuſe obedience to the church: for ſecular *arm*, they here uſe exterior power.

ARM, in the *Military Art*, *heraldry*, &c. See ARMS and ARMOUR.

ARM, in *Sea-Language*.—A ſhip is ſaid to be *armed*, when fitted out, and provided, in all reſpects, for war.

Armed ſhip more peculiarly denotes a veſſel that is occaſionally taken into the ſervice of government in time of war, and employed to guard ſome particular coaſt, or attend on a fleet. All ſhips of this ſort are commanded by an officer of the navy, and are upon the ſame eſtabliſhment with the king's ſloops.

Alſo, a croſs-bar ſhot is ſaid to be *armed*, when ſome rope-yarn, or the like, is rolled round about one end of the iron bar which runs through the ſhot, both that the ſhot may be the better rammed down into the gun, and leſt the ſharp end of the bar ſhould catch into any honeycombs within the cylinder of the piece.

ARM, *yard*, See YARD.

ARM, in reſpect of the *Maguet*.—A loadſtone is ſaid to be *armed*, when it is capped, caſed, or ſet in iron or ſteel; in order to make it take up the greater weight; and alſo to diſtinguiſh readily its poles.

It is ſurpriſing, that a little iron faſtened to the poles of a MAGNET, ſhould ſo vaſtly improve its force, as to render it 150 times ſtronger than when naked. Mr. Butterfield told Dr. Lifter, that ſome load-ſtones would gain much more, and others vaſtly leſs, by *arming*, than one would expect; and he has obſerved, that there are ſome magnets, which ſeem to act more powerfully *unarmed*, than *armed*. Whether the magnetic force of ſome paſſes more eaſily through iron than that of others; or whether the effect depends on the different quality of iron, experiments have not yet aſcertained.—A ſtrong load-ſtone ought to have thick irons, and a weak one but thin ones: ſo that a ſtone may be eaſily overſhod.

The uſual armour of a LOAD-*ſtone*, in form of a right-angled *parallelepipedon*, conſiſts of two thin pieces of ſteel or iron, of a ſquare figure, and a thickneſs proportionable to the goodneſs of the ſtone: if a weak ſtone have a ſtrong armour, it will produce no effect; and if the armour of a ſtrong load-ſtone be too thin, its effect will not be ſo conſiderable as when thicker.—The proper thickneſs is found by filing it thinner and thinner, till its effect is found at the greateſt poſſible ſtrength.

The armour of a ſpherical LOAD-*ſtone*, conſiſts of two ſteel ſhells faſtened to one another by a joint, and covering a good part of the convexity of the ſtone. This alſo is to be filed away till the effect is found the greateſt.

Kircher, in his book *de Magnete*, tells us, that the beſt way to *arm* a loadſtone, is, to drill a hole through the ſtone from pole to pole, and in that, to place a ſteel rod of a moderate length; which rod, adds he, will take up more weight at the end, than the ſtone itſelf, *armed* the common way can do.

Gaſſendus and Cabæus preſcribe the ſame method of *arming* a load-ſtone: but Muſchenbrock has found, by repeated trials, that the uſual armour already mentioned is preferable to that obtained in this way: and he gives the following directions for preparing it. When the poles of the magnet have been diſcovered, by means of ſteel filings and a ſmall needle, he directs that thoſe parts where the poles lie ſhould be rubbed or ground into parallel planes, without ſhortening the polar axis; and the magnets may be afterwards ſhaped into the figures of cubes or parallelepipeds, or any other that may be found moſt convenient. Plates of the ſofteſt iron ſhould then be prepared, of the ſame length and breadth with the whole polar ſides of the propoſed magnet. The thickneſs of theſe plates, ſo as that they may admit and convey the greateſt quantity of the magnetic virtue, is to be previouſly determined by experiment, in a manner which he preſcribes for the purpoſe: a thicker piece of iron is to be annexed at right angles to theſe plates, which is called *pes armaturæ*, the foot or baſe of the armour: the plates, accurately ſmoothed and poliſhed, are to be applied and firmly tied to each of the polar ſides, whilſt the thicker part or baſe is made cloſely to touch

touch the lower part of the magnet. In this way, he fays, almoſt all the magnetic virtue iſſuing from the poles enters into the armour, is directed to the baſe, and condenſed by means of its roundneſs, ſo as to ſuſtain the greateſt weight of iron. Phyſ. Exper. and Geom. Differt. 1729. p. 131. See MAGNET *armed*.

ARMA *dare*, to give arms, in ſome ancient charters, ſignifies to dub, or make a knight.

ARMA *deponere*, to lay down arms, was a puniſhment anciently enjoined when a man had committed an offence. Leg. Hen. I.

ARMA *mutare*, q. d. to change arms, was a ceremony uſed to confirm a league or friendſhip.

ARMA *milata* were ſharp weapons: Feſta calls them *arma emiſſa*.

ARMA *reverſata*, inverted arms, was a puniſhment when a man was convicted of treaſon or felony.

ARMADA, a Spaniſh term, ſignifying a fleet of men of war. The *armada* which attempted to invade England in the time of queen Elizabeth, is famous in hiſtory; it was partly ſcattered by the wind, and partly ſubdued by the Engliſh fleet. On which occaſion a medal was ſtruck with this motto, *Afflavit Deus, et diſſipantur*.

ARMADILLA, in the Spaniſh America, denotes a ſquadron of men of war, to the number of ſix or eight, from twenty-four to fifty pieces of cannon, which the king maintains, to prevent foreigners from trading with the Spaniards and the Indians, both in time of war and peace.

The veſſels of this *armadilla* are thoſe that have been ſo much talked of, under the name of *guarda coſtas*.

They have even power to take all Spaniſh merchantſhips they meet with on the coaſts, that have not licences from the king.

The South ſea has its *armadilla* as well as the North ſea. The ordinary abode of the former are at Calao, a port of Lima; that of the latter, at Carthagena.

ARMADILLO, in *Zoology*, the name of an animal ſomewhat approaching to the *hedge-*HOG kind, and called by the Latin authors the ECHINUS *Broſiienſis*. It is alſo called *tatou*; and by Linnæus, *daſypus cingulis novem, palmis tetradactylis, plantis pentadactylis*. See TATU.

We have ſeveral ſpecies of this creature deſcribed to us; but the moſt uſual, is of the figure and ſize of a large pig, and has a bony covering, which extends over the whole body, the head and the tail. This is compoſed of a number of very elegant ſcales, which have two junctures near the hinder part of the head, by means of which the creature is able to move its neck. On the back there are ſeven diviſions, with a thick membrane between; and in all other parts of the body the ſhell is whole. The legs, ſo far as they come in ſight, are in the ſame manner defended by a bony covering. The feet are made like hands; each have five toes, and the nails are round. Its colour is a ſort of reddiſh tawney. It digs up the ground with its noſe, in the manner of a hog, but much more nimbly; the tail is thick at the inſertion, and tapers to the extremity. The creature feeds on roots and fruits, as potatoes, melons, and the like, but will eat meat alſo if it comes in its way. It is uſually found in dry places. Ray.

This creature gathers himſelf up, when he pleaſes, head, feet, and tail, within his ſhell, and becomes as round as a ball; and this he does, not only when purſued, but every time he ſleeps. He is ſo good at digging, that, unleſs ſtid up, he will make his way out under the walls of a houſe. He is extremely valued among the Braſilians, for the whiteneſs and delicacy of his fleſh, and furniſhes a principal diſh at their beſt feaſts. The places of his ſhell, powdered and given in a doſe of a dram, are eſteemed a ſudorific, and as a remedy for the *lues venerea*. See *Tab. of Quadrupeds*, N° 21.

See a deſcription and drawing of one of theſe animals, in Phil. Tranſ. vol. liv. N° 97.

ARMAMAXI, in *Antiquity*, a kind of Scythian chariots, or carriages, compoſed of two wheels, variouſly adorned with crowns, ſhields, breaſt-plates, and other ſpoils, carried in proceſſion after the images of the gods and great men. The word is compoſed of the Latin *arma*, and the Greek αμαξα, *plauſtrum*, *carriage*.

Theſe were ſometimes called *amaxi*, or *amaxæ*. Pitiſc. Lex. Ant.

ARMAMENT, a large body of forces, raiſed and provided with the furniture of war, either for land or ſea ſervice.

ARMAN, among *Farriers*, a confection of great efficacy to prevent a total loſs of appetite in horſes.

ARMARIUM *unguentum*, among *Hermetical Philoſophers*, a SYMPATHETIC ointment, or weapon-ſalve, whereby wounds are ſaid to have been cured at a diſtance, by only dreſſing the weapon.

ARMATIUM, in *Ancient Phyſic*, a deterſive kind of *collyrium*, of great value in removing aſperities of the eye-lids. Its chief ingredients were *ariſtum*, gum ammoniac, and the roots of the tree *thus*. The preparation is deſcribed by Galen, Aetius, Paulus, and Scribonius.

ARMATURE, ARMATURA, in a general ſenſe, is the ſame with what we otherwiſe call armour.

ARMATURA is more particularly uſed in the *Ancient Military Art*, for a kind of exerciſe, performed with miſſive weapons, as darts, ſpears, arrows, and the like.

In this ſenſe, *armatura* ſtands contradiſtinguiſhed from *palaria*; the latter being the exerciſe of the heavy-armed, the former of the light-armed.

The *armatura* was practiſed with great diligence among the Romans: they had their *compoſitores*, on purpoſe to inſtruct the *tyrones*, or young ſoldiers, in it. Under it were included, the throwing of the ſpear or javelin, ſhooting with bows and arrows, &c.

ARMATURA is alſo an appellation given to the ſoldiers who were light-armed.

Aquinas ſeems, without reaſon, to reſtrain *armatura* to the *tyrones*, or young ſoldiers, under diſcipline or tutorage in the exerciſe above mentioned.

ARMATURA is alſo a denomination given to the ſoldiers in the emperor's retinue. Du-Cange.

Of theſe we find two ſchools, mentioned in the *notitia imperii*, called the *armaturæ ſeniores*, and *armaturæ juniores*. Their commander was entitled TRIBUNUS *armaturarum*.

ARMED, in *Sea-Language*, &c. See ARM.

ARMED, in *Heraldry*, is uſed in reſpect of beaſts and birds of prey, when their teeth, horns, feet, beak, talons, or tuſks, are of a different colour from the reſt.—He bears a cock, or a falcon, *armed*, or, &c.

ARMENA, in *Botany*, a name given by Pliny to a kind of wild aſparagus; but the ancient Greeks have uſed the ſame word to expreſs the young ſhoots of the common aſparagus, at the time when they are eaten: and not only theſe, but the young ſprouts of the cabbage, and of all other eſculent plants.

ARMENIACA, in *Botany*; ſee APRICOT.

ARMENIAN *bole*; ſee BOLE.

ARMENIAN *ſtone*, *lapis* ARMENUS, a mineral ſtone, or earth of a blue colour, ſometimes ſpotted with green, black, and yellow. It is a very ſcarce foſſil, anciently brought only from Armenia, but is now found very pure, though in ſmall quantities, in the mines at Goſſelaer in Saxony.

The *Armenian ſtone*, in its harder ſtate, bears a near reſemblance to *lapis lazuli*, from which it ſeems only to differ in degree of maturity: they are diſtinguiſhed by this, that the *lapis armenus* is ſofter, and inſtead of ſparks of gold, is often ſpeckled with green.

Boerhaave ranks it among ſemi-metals; and ſuppoſes it compoſed of a metal and earth. Woodward ſays, it owes its colour to an admixture of copper.

Its chief uſe is in Moſaic work, though it has ſome place alſo in phyſic. It is a very valuable ſubſtance in painting, being a bright and florid blue. It was in ſo high eſteem as a paint, among the ancients, that counterfeits were continually attempted to ſerve in its place.

Both this and the *lapis lazuli* are ORES of copper.

ARMENIANS, in reſpect of religion, a diviſion among the eaſtern Chriſtians; thus called from *Armenia*, the country anciently inhabited by them.

Some have ſuppoſed, that Chriſtianity was eſtabliſhed in *Armenia* by the apoſtle St. Bartholomew; but this is certain, that in the beginning of the fourth century, the *Armenian* Chriſtians were in a very flouriſhing ſtate.

The *Armenian* church, in the ſixteenth century, was governed by three patriarchs, the chief of whom reſided in a monaſtery at Echmiazin. There were other biſhops among them, who aſſumed the title of patriarchs, without prerogatives annexed to it; though, by authority derived from the chief patriarch, they were allowed to conſecrate biſhops, and every third year to make and diſtribute the holy chriſm, or ointment, which is the privilege of the patriarchs alone.

The *Armenians*, ſince the conqueſt of their country by Scha Abbas, king of Perſia, have had no fixed place of habitation, but are diſperſed in divers parts of Perſia, Turky, and Tartary, and even ſome parts of Europe, particularly Poland.—Their chief employment is merchandize, in which they excel.—The cardinal de Richelieu, we are told, had a deſign to make an eſtabliſhment of them in France, for promoting the commerce of that country. And the chancellor Seguier granted them a printing-houſe at Marſeilles.

With regard to religion, there are two kinds of *Armenians*; the one catholics, and ſubject to the pope, having a patriarch in Perſia, and another in Poland. The other make a particular ſect, having two patriarchs in Natolia. The *Armenians* are generally accuſed of being Monophyſites, and only allowing of one nature in Jeſus Chriſt. As to the Euchariſt, they agree with the Greeks, except in this, that they mix no water with their wine, and uſe unleavened bread after the manner of the Latins.

They

They abſtain very rigorouſly from eating of blood, and meats ſtrangled, and are much addicted to faſting; inſomuch that from their diſcourſe, one would conclude that almoſt their whole religion conſiſted in faſting.

The monaſtic order is in great repute among them, ſince one of their patriarchs introduced that of St. Baſil; but part of them, which have united with the church of Rome, have changed their ancient rule, for that of the Dominicans.

ARMENIAN *bibles*; ſee BIBLES.

ARMERIUS; ſee DIANTHUS.

ARMIGER, *armour-bearer*, in *Modern Writers*, denotes a title of dignity, rendered in Engliſh by *Eſquire*.

ARMILAUSA, in *Antiquity*, a ſhort military coat, reaching down only to the knee. Aquin. and Piſiſc. Lex. Ant.

It was thus called, as being divided both before and behind, and only cloſe about the ſhoulders, *in armos tantum clauſa*, quaſi *armiclauſa*. Iſid. Orig. l. XIX. c. 22.

The word is ſometimes alſo written, *armelauſa*, *armelanſia*, *armicaſia*, and *armicaſta*.

ARMILAUSA is alſo applied, in *Eccleſiaſtical Writers*, to the ſcapular of monks and cannons; thus called on account of its hanging from the arms, or ſhoulders. Schmid Lex. Eccleſ. p. 73.

The ſame habit is vulgarly called *patience*.

ARMILLA *membranoſa* is a name given by ſome anatomiſts, to the annular ligament.

ARMILLARY, ARMILLARIS, in *Aſtronomy*, an epithet given to an artificial ſphere, compoſed of a number of metalline circles, repreſentative of the ſeveral circles of the mundane ſphere, put together in their natural order.

The word is formed of the Latin *armilla*, *a bracelet*.

Armillary ſpheres eaſe and aſſiſt the imagination to conceive the conſtitutions of the heavens, and the motions of the heavenly bodies.

Such is that repreſented *(Tab. Aſtron. fig. 21.)*—Where P and Q repreſent the poles of the world, AD the equator, EL the ecliptic and zodiac, PAGD the meridian, or the ſolſtitial colure, T the earth, FG the tropic of cancer, HI the tropic of capricorn, MN the arctic circle, OV the antarctic, N and O the poles of the ecliptic, and RS the horizon.

The *armillary* ſphere not long ſince conſtructed by Dr. Long, in Pembroke-hall, Cambridge, is eighteen feet in diameter; and more than thirty perſons may conveniently ſit in it. The lower part of the ſphere invisible in England is cut off; the whole apparatus is ſo contrived, that it may be turned round with as little labour as it takes to wind up a jack.

ARMILLARY *trigonometer*, an inſtrument firſt contrived by Mr. Mungo Murray, and improved by Mr. Ferguſon, conſiſting of five ſemicircles; viz. meridian, vertical circle, horizon, hour circle, and equator; ſo adapted to each other by joints and hinges, and ſo graduated and divided, as to ſerve for expeditiouſly reſolving many problems in aſtronomy, dialling, and ſpherical trigonometry. For the drawing, deſcription, and method of uſing it, ſee Ferguſon's Tracts, p. 80, &c.

ARMILLATI *milites*, thoſe who wore bracelets on their left arms, beſtowed on them by their generals, or emperors. Though the term is more frequently applied to ſoft and effeminate ſoldiers, who wore bracelets on their arms, not as the rewards of their proweſs, but marks of their foppery. Aquin. Lex.

ARMILUSTRIUM, in *Antiquity*, a feaſt held among the Romans; wherein they ſacrificed, armed at all points, and with the ſound of trumpets.

Some define *armiluſtrium* to have been a feaſt, wherein a general review was made of all the forces in the Campus Martius.—But this does not come up to the point; for Varro does not derive the word from the Latin *arma* and *luſtrare*, *to make a review*; but from the cuſtom of holding this feaſt in the place where the reviews were uſed to be made, or rather from their going round the place armed with bucklers.

The ſacrifice was intended for the proſperity of the arms of the people of Rome; and was celebrated on the fourteenth of the calends of November.

ARMINGS, in a ſhip, are the ſame with *waſt-clothes*, being red cloths, hung about the outſides of the ſhip's upper-works, fore and aft; and before the cubbridge-heads.

There are ſome alſo hung round the tops, and called *top-armings*. See TOP.

ARMINIANISM, the doctrine of Arminius and of his followers. See ARMINIANS.

ARMINIANS, the followers of Arminius, a celebrated miniſter of Amſterdam, and afterwards profeſſor of theology in the univerſity of Leyden. Arminius, though educated at Geneva, and having imbibed the doctrines concerning predeſtination and grace maintained by Calvin, Beza, Zanchius, &c. began to expreſs his doubts concerning them in the year 1591; and upon farther enquiry, adopted ſentiments more nearly reſembling thoſe of the Lutherans, than of the Calviniſts. After his appointment to the theological chair, at Leyden, he thought it his duty to avow and vindicate the principles which he had embraced; and the freedom with which he publiſhed and defended them, expoſed him to the reſentment of thoſe that adhered to the theological ſyſtem of Geneva, which then prevailed in Holland; but his principal opponent was Gomar, his colleague. The controverſy which was thus begun, became more general after the death of Arminius, in the year 1609, and threatened to involve the United Provinces in civil diſcord. The *Arminian* tenets gained ground under the mild and favourable treatment of the magiſtrates of Holland, and were adopted by ſeveral perſons of merit and diſtinction. The *Calviniſts*, or *Gomariſts*, as they were now called, appealed to a national ſynod; accordingly the ſynod of Dort was convened by order of the States General, in 1618, and was compoſed of eccleſiaſtical deputies from the United Provinces, as well as from the reformed churches of England, Heſſe, Bremen, Switzerland, and the Palatinate. The principal advocate in favour of the *Arminians* was Epiſcopius, who at that time was profeſſor of divinity at Leyden. It was firſt propoſed to diſcuſs the principal ſubjects in diſpute, and that the *Arminians* ſhould be allowed to ſtate and vindicate the grounds on which their opinions were founded: but ſome difference ariſing as to the proper mode of conducting the debate, the *Arminians* were excluded from the aſſembly; their caſe was tried in their abſence; and they were pronounced guilty of peſtilential errors, and condemned as corrupters of the true religion. In conſequence of this deciſion, they were treated with great ſeverity; they were deprived of all their poſts and employments; their miniſters were ſilenced, and their congregations were ſuppreſſed. However, after the death of prince Maurice, who had been a violent partizan in favour of the *Gomariſts*, in the year 1625, the *Arminian* exiles were reſtored to their former reputation and tranquility; and under the toleration of the ſtate, they erected churches, and founded a college at Amſterdam, appointing Epiſcopius to be the firſt theological profeſſor. The *Arminian* ſyſtem has very much prevailed in England ſince the time of archbiſhop Laud, and its votaries in other countries are very numerous.

The diſtinguiſhing tenets of the *Arminians* may be comprized in the following five articles; relating to predeſtination, univerſal redemption, the corruption of man, converſion, and perſeverance. With reſpect to the firſt they maintained, "That God, from all eternity, determined to beſtow ſalvation on thoſe, who he foreſaw would perſevere unto the end in their faith in Chriſt Jeſus; and to inflict everlaſting puniſhments on thoſe who ſhould continue in their unbelief, and reſiſt, unto the end, his divine ſuccours: ſo that election was conditional, and reprobation in like manner the reſult of foreſeen infidelity, and perſevering wickedneſs."

On the ſecond, the *Arminians* taught, "That Jeſus Chriſt, by his ſufferings and death, made an atonement for the ſins of all mankind in general, and of every individual in particular; that, however, none but thoſe who believe in him, can be partakers of their divine benefit."

On the third article, they held, "That true faith cannot proceed from the exerciſe of our natural faculties and powers, nor from the force and operation of free will, ſince man, in conſequence of his natural corruption, is incapable either of thinking or doing any good thing; and that therefore it is neceſſary, in order to his converſion and ſalvation, that he be regenerated and renewed by the operation of the Holy Ghoſt, which is the gift of God through Jeſus Chriſt."

Fourthly, "That this divine grace, or energy of the Holy Ghoſt, begins and perfects every thing that can be called good in man, and conſequently all good works are to be attributed to God alone; that, nevertheleſs, this grace is offered to all, and does not force men to act againſt their inclination, but may be reſiſted, and rendered ineffectual, by the perverſe will of the impenitent ſinner."—Some modern *Arminians* interpret this and the laſt article with a greater latitude.

Fifthly, "That God gives to the truly faithful, who are regenerated by his grace, the means of preſerving themſelves in this ſtate;" and though the firſt *Arminians* made ſome doubt with reſpect to the cloſing part of this article, their followers uniformly maintain, "that the regenerate may loſe true juſtifying faith, forfeit their ſtate of grace, and die in their ſins."

The modern ſyſtem of *Arminianiſm* likewiſe, founded on a comprehenſive plan projected by Arminius himſelf, as appears from a paſſage in his laſt will, extends the limits of the Chriſtian church, and relaxes the bonds of fraternal communion in ſuch a manner, that Chriſtians of all ſects and denominations, whatever their ſentiments and opinions may be, papiſts excepted, may be formed into one religious body, and live together in brotherly love and concord. But, in order to avoid the reproach of being altogether unconnected by any common principles, Epiſcopius drew up a confeſſion of faith, expreſſed for the moſt part in words and phraſes of Holy Scripture, which the *Arminians* have generally adopted, though not enjoined upon them by any authoritative obligation.

The *Arminians* are alſo called *Remonſtrants*, from an humble petition entitled their *Remonſtrance*, which, in the year 1610, they addreſſed to the ſtates of Holland. Their principal writers are, Arminius, Epiſcopius, Vorſtius, Grotius, Curcellæus, Limborch, Le Clerc, and Weſtſtein; not to mention many others, of more modern date. Brandt's Hiſt of the Reformation in the Netherlands; and Moſheim's Eccleſ. Hiſt. by Dr. Maclean, vol. v.

ARMISTICE, ARMISTITIUM, from *arma ſtare*, or *ſiſtere*, a ſhort truce, or a ceſſation of arms for a ſmall time.

ARMOISIN, in *Commerce*, a ſilk ſtuff, or kind of taffety, of an indifferent goodneſs; made at Lyons, and at ſeveral places in Italy. There are half *armoiſins*, made at Avignon, which are of inferior quality, and leſs price than the others. Some pretend that the word *armoiſin* comes from the Italian *ormoſino*; or that thoſe ſilks were thus called, becauſe there were coats of arms delineated on the cloths in which they were wrapped.

There is alſo a taffety of this name manufactured in the Eaſt Indies; but of an inferior quality to thoſe made in Europe.

ARMONIAC; ſee *Sal* AMMONIAC.

ARMONICA from *αρμονια*, *harmony*, is a name which Dr. Franklin has given to a muſical inſtrument conſtructed with drinking-glaſſes. It is well known, that a drinking-glaſs yields a ſweet tone, by paſſing a wet finger round its brim. Mr. Puckeridge, of Ireland, was the firſt who thought of playing tunes formed of theſe tones. He collected a number of glaſſes of different ſizes, fixed them near each other on a table, and tuned them by putting into them water, more or leſs, as each note required. Mr. Delaval, F. R. S. made an inſtrument in imitation of that which was contrived by Mr. Puckeridge; and from this inſtrument Dr. Franklin took the hint of conſtructing his *armonica*.

The glaſſes for this muſical inſtrument are blown as near as poſſible in the form of hemiſpheres, having each an open neck or ſocket in the middle. The thickneſs of the glaſs near the brim is about one tenth of an inch, increaſing towards the neck, which in the largeſt glaſſes is about an inch deep, and an inch and a half wide within; but theſe dimenſions leſſen, as the ſize of the glaſſes diminiſhes, only obſerving that the neck of the ſmalleſt ſhould not be ſhorter than half an inch. The diameter of the largeſt glaſs is nine inches, and that of the ſmalleſt three inches: between theſe there are twenty-three different ſizes, differing from each other a quarter of an inch in diameter. For making a ſingle inſtrument, there ſhould be at leaſt 6x glaſſes blown of each ſize, and out of theſe, thirty-ſeven glaſſes (which are ſufficient for three octaves with all the ſemitones) may be found, that will either yield the note required, or one a little ſharper, and fitting ſo well into each other, as to taper regularly from the largeſt to the ſmalleſt. The glaſſes being choſen, and the note for which each glaſs is intended being marked upon it with a diamond, they are to be tuned by diminiſhing the thickneſs of thoſe that are too ſharp, which is done by grinding them round from the neck towards the brim, comparing, by means of a well tuned harpſichord, the tone drawn from the glaſs by your finger, with the note you want, as ſounded by the correſponding ſtring of the harpſichord. The largeſt glaſs in the inſtrument is G, a little below the reach of a common voice, and the higheſt G, including three complete octaves: and they are diſtinguiſhed by painting the apparent parts of the glaſſes within ſide, every ſemitone white, and the other notes of the octave with the ſeven priſmatic colours; ſo that glaſſes of the ſame colour (the white excepted) are always octaves to each other.

When the glaſſes are tuned, they are to be fixed on a round ſpindle of hard iron, an inch in diameter at the thickeſt end, and tapering to a quarter of an inch at the ſmalleſt. For this purpoſe, the neck of each glaſs is fitted with a cork, projecting a little without the neck: theſe corks are perforated with holes of different diameters, according to the dimenſion of the ſpindle in that part of it where they are to be fixed. The glaſſes are all placed within one another; the largeſt on the biggeſt end of the ſpindle, with the neck outwards; the next in ſize is put into the other, leaving about an inch of its brim above the brim of the firſt; and the others are put on in the ſame order. From theſe expoſed parts of each glaſs, the tone is drawn, by laying a finger upon one of them, as the ſpindle and glaſſes turn round. The ſpindle thus prepared, is fixed horizontally in the middle of a box, and made to turn on braſs gudgeons at each end. A ſquare ſhank comes from its thickeſt end through the box, on which ſhank a wheel is fixed by a ſcrew: this will ſerve, like a fly, to make the motion equable, when the ſpindle is turned by the foot like a ſpinning wheel. The wheel is eighteen inches in diameter, and conceals near its circumference about twenty-five pounds of lead, and may be made of mahogany. An ivory pin is fixed in the face of the wheel, about four inches from the axis; over which is put the loop of the ſtring, that comes up from the moveable ſtep to give it motion. The box is about three feet long, eleven inches wide at the biggeſt end, and five inches at the ſmalleſt end: it is made with a lid, which opens at the middle of its height, and turns up by back-hinges. The inſtrument, thus completed, ſtands on a neat frame with four legs. This inſtrument is played upon by ſitting before it, as before the keys of a harpſichord, turning the ſpindle with the foot, and wetting the glaſſes now and then with a ſponge and clean water. The fingers ſhould be firſt ſoaked in water, and rubbed occaſionally with fine chalk, to make them catch the glaſs, and bring out the tone more readily. Different parts may be played together, by uſing both hands; and the tones are beſt drawn out, when the glaſſes turn *from* the ends of the fingers, not when they turn *to* them.

The advantages of this inſtrument, ſays Dr. Franklin, are, that its tones are incomparably ſweet beyond thoſe of any other; that they may be ſwelled and ſoftened at pleaſure, by ſtronger or weaker preſſures of the finger, and continued to any length: and when it is once well tuned, it never again wants tuning. Franklin's Letters, &c. on Philoſophical Subjects, p. 428. See GLASSES, *Muſical*.

ARMOR, or ARMOUR, a defenſive habit, wherewith to cover and ſecure the body from the attacks of an enemy. In ancient ſtatutes this is frequently called HARNESS.

Parts of *armor* are, the buckler, cuiraſs, helmet, coat of mail, gantlet, &c.

A complete *armor* anciently conſiſted of a caſque or helm, a gorget, cuiraſs, gantlets, taſſes, braſſets, cuiſhes, and covers for the legs, to which the ſpurs were faſtened.—This they called *armor cap-a-pie*; and was the wear of the cavaliers, and men at arms.

The infantry had only part of it; viz. a pot or head-piece, a cuiraſs, and taſſes; but all light.—Laſtly, the horſes themſelves had their *armor*, wherewith to cover the head and neck.

Of all this furniture of war, ſcarce any thing is now retained except the cuiraſs; the gorget or neck-piece, worn by officers, being at preſent only a badge of honour, and of no defence.

The gallantry of going to the battle naked, without any defenſive *armour*, prevailed ſo far, that the French, during the reign of Louis XIV. were obliged to be continually iſſuing ordonnances to reſtrain it; in conſequence of which, the general officers, and thoſe of the cavalry, were obliged to reſume the cuiraſs, which yet has been but ill obſerved.

ARMOR, *coat*, is the eſcutcheon of any perſon, or family, with its ſeveral charges, and other furniture: as mantling, creſt, ſupporters, motto, &c.

Thus we ſay, a gentleman of *coat-armor*; meaning one who bears arms.

ARMORACIA, in *Botany*, a name given by the ancients to a kind of RADISH. Pliny mentions it, but his account is very unſatisfactory.

ARMORIAL, ſomething that relates to arms, or heraldry. In this ſenſe we ſay an *armorial* figure, *armorial* bearing, *armorial* enſign, the *armorial* lily of France, *armorial* lion or leopard of England, &c.

ARMORIAL is alſo a title given to ſeveral books, which contain the arms of a number of perſons of quality.

In this ſenſe, we meet with the French *armorial*, the Spaniſh *armorial*, &c.

ARMORIC, or ARMORICK, ſomething that belongs to the province of Bretagne, or Britany, in France.

The name *Armorica* was anciently given to all the northern and weſtern coaſt of Gaul, from the Pyrenees to the Rhine; under which name it was even known in Cæſar's time. Cæſ. de Bell. Gall. lib. vii. cap. 14.

ARMORIC, abſolutely uſed, denotes the language in uſe among the inhabitants of Britany.

The French uſually call this language *Bas-breton*; compounded, ſays M. Menage, of *ar*, *apud*, and *mer*, *ſea*.

The *Armoric* is a dialect of the Welch, and ſiſter of the Corniſh language.

The inhabitants of Britany, of Cornwall, and of Wales, formerly underſtood each other's ſpeech; though conſiderable diverſities have crept in between theſe languages, ſince their ſeparation from each other.

The inhabitants of Britany, Mr. Lhuyd obſerves, by their intercourſe with the French, have much altered their ancient orthography; beſides that there are ſeveral words in the *Armoric* which have no affinity with the Welch; and that both the *Armoric* and Cornish contain ſeveral ancient words and phraſes which are loſt in the Welch.

Julian Maneir, a *Jeſuit*, has publiſhed an *Armoric* grammar and vocabulary, in French, which has been tranſlated into Engliſh by Mr. Williams, and publiſhed with notes by Mr. Lhuyd. In Atchaol. tit. 3. & 4. p. 280. &c. Before him Yvon Quillivere had publiſhed an *Armoric* vocabulary at Paris, 1521.

Toland has given a catalogue of ſeveral *Armoric* words, which proveto be Iriſh, alſo a vocabulary *Armoric* and Iriſh.

ARMOURER, a maker of arms, or armour.

The Roman *armaturæ* were diſpoſed in certain places in the empire, it being forbid either to ſell, or buy, or make arms elſewhere. They were exempt from all offices and taxes, and received a ſalary from the public.

When once they had taken the employment on themſelves, neither they nor their children were allowed to quit it. To prevent this, they had a kind of note, or ſtigma, impreſſed on the arm, whereby they might be known. If any of them fled, or ſecreted their ware, the reſt were obliged to anſwer for him; on account of which, the eſtate of ſuch as died without a legal heir went to the college.

There were fifteen *armamentaria*, or repoſitories of arms in the Eaſtern empire, placed near the frontiers, and nineteen in the Weſtern. Priſc. Lex. Aut.

ARMOURER *of a ſhip*, a perſon whoſe office is to take care that the arms be in a condition fit for ſervice.

ARMORY, or ARMOURY, a ſtore-houſe of arms, or a place wherein military habiliments are kept, to be ready for uſe.

There are *armories* in the Tower, and in all arſenals, citadels, caſtles, &c.

ARMORY is alſo uſed for a branch of HERALDRY; being the knowledge of coat-armors; as to their blazons, and various ordinaments.

ARM *pit*. See AXILLA.

ARMS, ARMA, in a general ſenſe, include all kinds of weapons, whether for defence, or offence.

Nicod derives the word from the Latin phraſe, *quod aperiant armos*; becauſe they cover the ſhoulders or ſides: but Vario derives *arma*, *ab arcendo, ex quod arcuant haſtes*. It is ſuppoſed, that the firſt artificial *arms* were of wood, and were only employed againſt beaſts; and that Belus, the ſon of Nimrod, was the firſt that waged war; whence, according to ſome, came the appellation *Bellum*.—Diodorus Siculus takes Belus to be the ſame with Mars, who firſt trained ſoldiers up to battle.

Arms of ſtone, and even of braſs, appear to have been uſed before they came to iron and ſteel:—Joſephus aſſures us, that the patriarch Joſeph firſt taught the uſe of iron *arms* in Egypt, arming the troops of Pharaoh with a caſque and buckler.

What contributed moſt to render the Romans maſters of the world, was, that, having ſucceſſively warred againſt all nations, they conſtantly renounced their own methods, *arms*, &c. whenever they met with better.—Thus Romulus, during his war with the Sabines, a bold and warlike nation, adopted their broad buckler, in lieu of the ſmall Argian buckler, which he had uſed till that time. Monteſq. Conſid. ſur les Cauſ. de la Grand. des Rom. chap. i. p. 2. ſeq.

The principal *arms* of the ancient Britons were hatchets, ſcythes, lances, ſwords, and bucklers: the Saxons, &c. brought in the halberd, bow, arrows, arbalets, &c.

By the ancient laws of England, every man was obliged to bear *arms*, except the judges and clergy. Under Henry VIII. it was expreſly enjoined on all perſons to be regularly inſtructed, even from their tender years, in the exerciſe of the *arms* then in uſe; viz. the long bow and arrows: and to be provided with a certain number of them. 33 H. 8.

ARMS, ARMA, in *Law*, are extended to any thing which a man takes in his hand in his wrath, to caſt at, or ſtrike another.—So Crompton.—*Arma rum appellatio non ubique ſenſu, & gladius, & galea ſignificat, ſed & haſtes & lapides*. See *Vi & Armis*.

By the common law, it is an offence for perſons to go or ride armed with dangerous weapons: but gentlemen may wear common armour, according to their quality, &c. 3d Inſt. The king may prohibit force of *arms*, and puniſh offenders according to law; and herein every ſubject is bound to be aiding. Stat. 7 Edw. I. None ſhall come with force and *arms* before the king's juſtices, nor ride armed in affray of the peace, on pain to forfeit their armour, and to ſuffer impriſonment, &c. 2 Ed. III. c. 3.

The importation of *arms* and ammunition is prohibited by 1 Jac. 2. c. 8. and by 1 W. and M. ſtat. 2. c. 2. Proteſtant ſubjects may have *arms* for their defence. So likewiſe, *arms*, &c. ſhipped after prohibition, are forfeited, by 29 Geo. I. c. 16. ſec. 2.

Arms of offence in uſe among us at preſent, are, the *ſword*, piſtol, muſket, bayonet, &c.

The *arms* of the Highlanders are, the broad ſword, target, poniard, and whinyar or dirk, &c.

There are ſeveral acts of parliament for diſarming the Highlanders; ſee 1 Geo I. cap. 54. 11 Geo. I. c. 26. 19 Geo. II. c. 39. 21 Geo. II. c. 34. 26 Geo. II. c. 22. and 29.

ARMS *of defence*. See ARMOR.

Fire-ARMS are thoſe charged with powder and ball: ſuch are cannon, mortars, and other ordnance; muſkets, carabines, piſtols, and even bombs, granadoes, carcaſſes, &c. For the rebound or reflexion of *fire-arms*, ſee REBOUND. In the Hiſtory of the Royal Academy for the year 1707, we have an account of ſome experiments made with *fire-arms* differently loaded, by M. Caſſini. Among other things he obſerves, that by loading the piece with a ball which is ſomewhat leſs than the calibre; and only laying a little gunpowder below the ball, and a good deal above it, it will yield a vehement noiſe, but have no ſenſible effect or impreſſe on the ball.

This he takes to have been all the ſecret of thoſe people who pretended to ſell the art of rendering one's ſelf invulnerable, or ſhot-proof.

ARMS, *paſs of*, was a kind of combat in uſe among the ancient cavaliers. See PASS.

ARMS, *ſtand of*.—A *ſtand of arms* ſignifies a muſket, a bayonet, ſword, belt, and cartridge-box.

ARMS *of parade*, or *courtely*, were thoſe uſed in the ancient juſts, and tournaments; which were commonly anſhod lances, ſwords without edge or point, wooden ſwords, and even canes.

ARMS denote the natural weapons, or parts of defence, of beaſts: as claws, teeth, tuſks of elephants, beaks of birds, &c.

ARMS are alſo uſed figuratively for the profeſſion of a ſoldier.—Thus we ſay, he was bred to *arms*.—See FRATERNITY, LAW, PLACE, SUSPENSION *of arms*.

ARMS, or ARMORIES, are alſo uſed, in *Heraldry*, for marks of dignity and honour, regularly compoſed of certain figures and colours, given and authorized by ſovereigns, and borne in banners, ſhields, coats, &c for the diſtinction of perſons, families, and ſtates; and paſſing by deſcent to poſterity.

They are called *arms*, in regard they are borne principally on the buckler, cuiraſs, banners, and other apparatus of war.—They are alſo called COATS *of arms*, COAT-*armor*, &c. becauſe anciently embroidered on ſur-coats, &c.

Some will have the name to have been firſt occaſioned by the ancient knights, who in their juſts and tournaments bore certain marks (which were frequently their miſtreſs's favours) in their armour, i. e. their helms or ſhield, to diſtinguiſh them from each other.

There has been a great diſpute among the learned about the origin of *arms*.—Favyn will have them to have been from the beginning of the world; Segoin, from the time of Noah; others from that of Oſiris, which is ſupported by ſome paſſages in Diodorus Siculus. Some again, from the example of the patriarch Jacob, who, when he bleſſed his ſons, gave them marks of diſtinction, which the twelve tribes bore on their enſigns; others, from the times of the Hebrews, becauſe *arms* were given to Moſes, Joſhua, the twelve tribes, David, &c.

Others will have them to have taken their riſe in the heroical age, and under the empires of the Aſſyrians, Medes, and Perſians; building upon the accounts of Polliſtratus, Xenophon, and Quintus Curtius.

Some pretend that the uſe of *arms*, and the rules of BLAZON, were regulated by Alexander.—Others will have them to have had their original under the empire of Auguſtus; others, during the inundations of the Goths; and others under the empire of Charlemagne. Chevier obſerves, that, among the ancient Gauls, each man bore a mark on his buckler, by the ſight whereof he might be known to his fellows; and hence he refers the original of the *arms* of noble families. Camden has obſerved ſomething like this of the ancient Picts, and Britons, who, going naked to the wars, painted their bodies with BLAZONS, and figures of divers colours, which he ſuppoſes to have been different in different families, as they fought divided by kindreds. Yet Spelman ſays, that the Saxons, Danes, and Normans, firſt brought *arms* from the North into England; and thence into France.

Upon the whole, it is certain, that from time immemorial, there have been ſymbolical marks in uſe among men, to diſtinguiſh them, in armies, and to ſerve as ornaments for ſhield and enſigns; but theſe marks were uſed arbitrarily as devices, emblems, hieroglyphics, &c. and

and were not regular *armories*, like our's, which are hereditary marks of the nobility of a house, regulated according to the rules of HERALDRY, and authorized by princes.

Before Marius, even the EAGLE was not the conſtant enſign of the Roman army; but they bore in their ſtandards a *wolf*, *leopard*, or *eagle*, indifferently, according to the fancy of the generals.

The ſame diverſity has been obſerved with regard to the French and Engliſh; on which account, authors are divided when they ſpeak of the ancient *arms* of thoſe countries. In effect, it appears, from all the beſt authors, that the armories of houſes, as well as the double names of families, were not known before the year 1000. And ſeveral have even endeavoured to prove, that the uſe of *arms* did not begin till the time of the firſt croiſades of the Chriſtians in the Eaſt.

The truth is, it appears that the ancient tournaments occaſioned the fixing of armories.

Henry the Fowler, who regulated the tournaments in Germany, was the firſt who introduced theſe marks of honour, which appear to be of an older ſtanding in Germany than any other part of Europe. It was then that COATS *of arms* were firſt inſtituted; which were a kind of livery compoſed of ſeveral bars, fillets, and colours; whence came the *feſs*, *bend*, *pale*, *chevron*, and *lozenge*; which were ſome of the firſt elements of ARMORIES. See BEND, CROSS, FESS, &c. Thoſe who had never been concerned in a tournament, had no *arms*, though they were gentlemen.

Such of the nobility and gentry as croſſed the ſea, in the expeditions to the Holy Land, alſo aſſumed theſe tokens of honour to diſtinguiſh themſelves.

Before theſe times, we find nothing upon ancient tombs but croſſes, with Gothic inſcriptions, and repreſentations of the perſons deceaſed. The tomb of pope Clement IV. who died in 1268, is the firſt whereon we find any *arms*; nor do they appear on any coins ſtruck before the year 1336. We meet with figures, it is true, much more ancient, both in ſtandards, and on medals: but neither cities nor princes ever had *arms* in form: nor does any author make mention of *blaſoning* before that time.

Originally, none but the nobility had a right of bearing *arms*; but king Charles V. having enobled the Pariſians, by his charter in 1370, he permitted them to bear *arms*; from whoſe example, the more eminent citizens of other places did the like.

Camden refers the original of hereditary *arms* in England, to the time of the firſt Norman kings. He ſays, their uſe was not eſtabliſhed till the reign of king Henry III. and inſtances in ſeveral of the moſt conſiderable families in England, wherein, till that time, the ſon always bore different *arms* from the father. About the ſame time it became the cuſtom here in England, for private gentlemen to bear *arms*; borrowing them from the lords of whom they held in fee, or to whom they were the moſt devoted. See BEARINGS.

ARMS, at preſent, follow the nature of titles, which being made hereditary, theſe are alſo become ſo, being the ſeveral marks for diſtinguiſhing of families and kindreds, as names are of perſons and individuals.

Arms make the object of the art of HERALDRY.

ARMS are variouſly diſtinguiſhed by the *heralds*.

ARMS *of alliance*, are thoſe which families, or private perſons, join to their own, to denote the *alliances* which they have contracted by marriage.

ARMS, *aſſumption*, are ſuch as a man has a right to aſſume of himſelf, in virtue of ſome gallant action.

As, if a man who is no gentleman of blood, nor has coat armour, takes a gentleman, lord, or prince, priſoner in any lawful war; he becomes entitled to bear the thield of ſuch priſoner, and enjoy it to him and his heirs. The foundation hereof is that principle in *Aliens Law*, that the dominion of things taken in lawful war, paſſes to the conqueror.

ARMS, *canting*, are thoſe wherein the figures bear an alluſion to the name of the family. Such are thoſe of the family of La Tour in Auvergne, who bear a tower; that of the family of Prado in Spain, whoſe field is a meadow.

Moſt authors hold theſe the moſt noble and regular, as is ſhewn by an infinity of inſtances produced by father Varenne and Menetrier. They are much debaſed, when they come to partake of the REBUS.

ARMS, *charged*, are ſuch as retain their ancient integrity and value, with the addition of ſome new honourable CHARGE or BEARING, in conſideration of ſome noble action.

ARMS *of community*, are thoſe of biſhopricks, cities, univerſities, and other bodies corporate.

ARMS *of conceſſion*, or augmentation of honour, are either *entire arms*, or elſe one or more figures given by princes, as a reward for ſome extraordinary ſervice.

ARMS *of dimidiation*, are thoſe which emperors, kings, and ſovereign ſtates bear; being annexed to the territories which they poſſeſs. Thus the three lions are the *arms* of England; the *fleurs de lys* thoſe of France, &c.

ARMS *of family*, or *paternal arms*, are ſuch as belong to a particular family, and which no other perſon has a right to aſſume.

ARMS, *full*, or *entire*, are ſuch as retain their primitive purity, integrity, or value; without any alterations, diminutions, abatements, or the like.

It is a rule, that the ſimpler and leſs diverſified the *arms*, the more noble and ancient they are. For this reaſon, Garcias Ximenes, firſt king of Navarre, and his ſucceſſors for ſeveral ages, bore only GULES, without any figure at all.

The *arms* of princes of the blood, of all younger ſons, and junior families, are not pure, and full; but diſtinguiſhed and diminiſhed by proper differences, &c. See DIFFERENCE, &c.

ARMS *of patronage*, are thoſe which governors of provinces, lords of manors, &c. add to their family *arms*, in token of their peculiar ſuperiority and juriſdiction. See PATRONAGE.

ARMS *of pretenſion*, are thoſe of ſuch kingdoms or territories to which a prince or lord has ſome claim, and which he adds to his own, though the kingdoms or territories be poſſeſſed by a foreign prince, or other lord. Thus the kings of England have quartered the *arms* of France with their own, ever ſince the claim of Edward III. to that kingdom, in 1330.

ARMS *of ſucceſſion*, are aſſumed by thoſe who inherit eſtates, manors, &c. by will, intail, or donation, and which they either impale or quarter with their own *arms*.

ARMS are alſo ſaid to be *parted*, *couped*, *quartered*, &c. See PARTY, &c.

Arms are ſaid to be *falſe* and *irregular*, when there is ſomething in them contrary to the eſtabliſhed rules of HERALDRY. As, when metal is put on metal, or colour on colour, &c.

The laws, and other affairs of *arms*, with the cognizance of offences committed therein, belong, among us, to the earl-marſhal and college of *arms*. See COLLEGE *of arms*.

ARMS, in *Falconry*, denote the legs of a hawk, from the thigh to the foot. See HAWKING.

ARMS, *king at*. See KING *at arms*.

ARMS, *herald at*. See HERALD.

ARMS, *purſuivant at*. See PURSUIVANT.

ARMY, a large body of ſoldiers, conſiſting of horſe and foot, under the command of a general, with ſeveral ranks of ſubordinate officers under him.

An *army* conſiſts of ſquadrons and battalions, and is uſually divided into three corps; which are ranged in three lines. The firſt line is called the *van-guard*; the ſecond, the *main body*; and the third, the *rear-guard*, or body of *reſerve*. The middle of each line is poſſeſſed by foot; the cavalry forms the wings on the right and left; and ſometimes they alſo place ſquadrons of horſe in the intervals between the battalions.

When the *army* is ranged in order of battle, there are five feet diſtance between the horſes, and three between the foot. But in the ſhock the file contracts, and its front leſſens almoſt to one half.

In each line the battalions are diſtant from each other about 180 feet, a diſtance about equal to the extent of their front; and the ſame holds of the ſquadrons, which are about 300 feet diſtant, the extent of their own front. Theſe intervals are left for the ſquadrons and battalions of the ſecond line, to range themſelves againſt the intervals of the firſt line; and thoſe of the third line, againſt the intervals of the ſecond; that both the one and the other may march more readily through theſe ſpaces to the enemy.

There are uſually 300 feet left between the firſt line and the ſecond, and 600 between the ſecond line and the third; that there may be room to rally when the ſquadrons and battalions are broke. Sauv. Nouv. Ecol. Milit. p. 266.

Long experience has ſhewn, that in Europe, a prince with a million of ſubjects cannot keep an *army* of above ten thouſand men, without ruining himſelf. It was otherwiſe in the ancient republics: the proportion of ſoldiers to the reſt of the people, which is now as about one to a hundred, might be then as about one to eight. The reaſon ſeems owing to that equal partition of lands, which the ancient founders of commonwealths made among their ſubjects; ſo that every man had a conſiderable property to defend, and had means to defend it with. Whereas, among us, the lands and riches of a nation being ſhared among a few, the reſt have no way of

of subſiſting, but by trades, arts, and the like: and have neither any free property to defend, nor means to enable them to go to war in defence of it, without ſtarving their families. A large part of our people are either artiſans or ſervants, and ſo only miniſters to the luxury and effeminacy of the great. While the equality of lands ſubſiſted, Rome, though only a little ſtate, being refuſed the ſuccours which the Latins were obliged to furniſh after the taking of the city in the conſulate of Camillus, preſently raiſed ten legions within their own walls: which was more, Livy aſſures us, than they were able to do in his time, though maſters of the greateſt part of the world. A full proof, adds the hiſtorian, that we are not grown ſtronger; and that what ſwells our city is only luxury, and the means and effects of it. Vide Liv. Dec. 1. lib. vii. and Conſid. ſur les Cauſ. de la Grand. des Rom. chap. iii. p. 24.

Our *armies* anciently were a ſort of militia, compoſed chiefly of the vaſſals and tenants of the lords. When each company had ſerved the number of days, or months enjoined by their *tenure*, or the cuſtoms of the fees they held, they returned home. See TENURE, FEE, &c.

The *armies* of the empire conſiſt of divers bodies of troops, furniſhed by the ſeveral circles. See EMPIRE, and CIRCLE.

The *troops* of the French *armies*, under the Merovingian race, conſiſted of infantry. Under Pepin and Charlemagne, the *armies* conſiſted almoſt equally of cavalry and foot; but ſince the declenſion of the Carlovingian line, the fees being become hereditary, the national *armies*, ſays Le Gendre, are chiefly cavalry.

The *armies* of the Grand Signior conſiſt chiefly of JANIZARIES, SPAHIS, and TIMARIOTS.

ARMY, *naval*, is a number of ſhips of war, equipped and manned with ſailors and marines, under the command of an admiral with other inferior officers under him.

ARMY *of obſervation*, is employed by beſiegers, to prevent relief being brought into a place, or the ſiege being raiſed by the enemy.

ARMY, *royal*, is an *army* marching with heavy cannon; capable of beſieging a ſtrong well-fortified city.

For the diſeaſes incident to *armies*, ſee DISEASE, CAMP, GARRISON, HOSPITAL, SOLDIER, &c.

ARNABOS, in the *Materia Medica*, a name of an aromatic drug, deſcribed by Paulus Ægineta, and other of the Greek phyſicians, and ſuppoſed to be the ſame with the *carnabo* of Avicenna, that is, with the CARPESIA of the ancient Greek writers.

This was a drug much uſed as an aromatic and cordial, and allowed in many caſes to be a good ſubſtitute for CINNAMON. It was the young ſhoots of the CUBEBtree, or ſomething of that kind.

ARNALDIA, in *Phyſic*, a flow malignant kind of diſeaſe, frequent formerly in England; the moſt diſtinguiſhing ſymptom whereof was a falling off of the hair.

Authors are much at a loſs for the nature and kind of this diſeaſe, which appears to have been peculiar to our country. From the deſcription given of it in an ancient chronicle, Mollerus concludes it to have been a ſpecies of the venereal diſeaſe, as that diſtemper appeared in thoſe days in this country.

ARNICA, in *Botany*, a genus of the *ſyngeneſia polygamia ſuperflua* claſs. Its characters are, that it hath a compound flower; the borders or rays being compoſed of many female florets, which ſpread open; the diſk or middle hath many hermaphrodite flowers, which are tubulous, and have each five ſhort *ſtamina*. In the hermaphrodite flowers, the *germen* is ſituated below the flower, which afterwards becomes a ſingle oblong ſeed, crowned with long ſlender down. There are two ſpecies; which grow on the Alps, and in the northern parts of Europe.

There is another *arnica*, which Neumann calls *ſchwedenſis*, that is, a ſpecies of the *aſter*. P. 361.

Dr. Bruckner recommends the decoction of *arnica vera*, or *montana*, in feveriſh diſorders accompanied with hæmorrhages, elleroſtentia, &c.

Neumann ſays, the flowers and leaves are emetic, or purgative; and it is ſaid, he adds, that an infuſion of them is remarkably ſervicеable for reſolving coagulated blood from falls, &c. and in obſtructions of different kinds. He gives alſo the chemical hiſtory of this ſpecies of DORONICUM. P. 346.

ARNODI, in *Antiquity*, the ſame with RHAPSODI.

The word is compounded of ἀρνὸς, *a lamb*, which was their uſual reward; and ᾠδὴ, *ſong*, or *ſinging*.

ARNOLDISTS, ARNALDISTS, in the twelfth century; ſo called from their chief, Arnold of Breſſe, who was a great declaimer againſt the wealth and vices of the clergy; and who is alſo charged with preaching againſt baptiſm and the euchariſt.

After raiſing great diſturbances at Breſſe and Rome, he was burnt at this latter place in 1155, and his aſhes caſt into the Tiber. His diſciples were alſo called *Publicani*, or *Popilicani*.

ARNOTTA, in *Botany*, a name given by the peaſants of Burgundy, and many other places, to certain roots which they frequently turn up, from five or ſix inches deep, in ploughing the ground. They carefully collect theſe, and eat them, after roaſting in the aſhes, or otherwiſe; by which ſort of cooking they acquire the taſte of a cheſnut, and are found to be a very wholeſome and nouriſhing food. They are blackiſh on the outſide, and white within, and are of the ſize of a ſmall walnut. They are common in the north of Scotland, and called *arnots*.

ARNULPHIN, *Arnulphinus*, a coin of the value of a ducat and a half, current in ſome parts of France in the 15th century. Du-Cange.

ARROBE, by ſome ſpelt and pronounced *arroba*; in Spaniſh, *arroba*; in the language of Peru, *arrouca*; a weight uſed in Spain, Portugal, Goa, Brazil, and throughout all Spaniſh America. All theſe *arobes* are ſcarcely like each other but in name, being very different in weight, and in their proportion to the weights of other countries.

The *arobe* of Madrid, and almoſt all over Spain, weighs twenty-five Spaniſh pounds.

AROLEC, the name of a weight, uſed in ſome parts of America, and in quantity equal to twenty-five pounds of our weight.

AROMA is, by ſome authors, particularly applied to denote MYRRH.

AROMA *Germanicum*, a denomination given by Platerus to ELECAMPANE.

Some writers give the title *aroma Germanicum* to JUNIPER-*berries*, on account of the great eſteem they are in among that people, for their ſpicy, warm qualities; in which reſpect they are by many preferred to ginger itſelf.

AROMA *philoſophorum*, is uſed by ſome for SAFFRON.

Others give the appellation of *aroma philoſophorum* to Paracelſus's AROPH.

AROMATIC, AROMATICUS, is underſtood of a drug, plant, or the like, which yields a brisk fragrant ſmell, and a warm ſpicy taſte.

The word is formed of ἄρωμα, which is compounded of ἀρ, *very*, and ὀδμὴ, or ὄσμη, *ſmell*.

AROMATICS, or AROMATIC *medicines*, are either *ſimple* or *compound*. To this claſs belong moſt cardiac, cephalic, and carminative remedies, with many ſtomachic ones.

Of this kind are frankincenſe, theriac, benjoin, cinnamon, mace, cloves, nutmeg, pepper, &c. Such alſo are lavender, marjoram, ſage, thyme, roſemary, &c.

The peculiar qualities of *aromatics* reſide in their eſſential oils, and reſinous parts. The more eſſential oil any vegetable affords, the weaker the oil is, and *vice verſa*. The taſte and pungency of ſome of them reſide in the oil, and of others of them in a fixt gummy reſinous matter.

Powders which have *aromatic*, or other acrid particles in them, not only abſorb liquors, but give more or leſs ſtimulus; and as the effect of all irritation is ſome degree of inflammation, which in ſores is principally removed by a ſubſequent increaſed ſuppuration, theſe powders may aſſiſt to ſeparate corrupted from ſound parts. Such of them as have balſamic particles in their compoſition encourage the ſuppuration moſt.

Several of them reſiſt the putrefaction of animal ſubſtances, and therefore may preſerve a carious bone, or the matter coming from it, from ſuch a high degree of putrefaction as they might otherwiſe attain.

Beſide theſe effects on the ſore, regard muſt always be had to their operation, if any of their particles are abſorbed by the blood-veſſels, for ſome of them produce a fever in a greater or leſs degree, others become purgatives, &c. Med. Eſſ. Edinb. vol. v. art 24.

Aromatics are of particular ſervice in cold cachectic habits, where the load of humours has been forced away by ſtrong detergents and cathartics; as they tend to ſtrengthen the fibres, and prevent a relapſe. Hence, alſo, they become of neceſſary uſe after purging, and carrying off the waters of a dropſy, or in the intervals, to ſortify the ſprings and prevent a filling again.

AROMATICUM *roſatum*, is a compound officinal powder, made of red roſes, liquorice, aloes-wood, yellow ſanders, cinnamon, cloves, mace, gum tragacanth, nutmegs, cardamoma, galangals, ſpikenard, ambergriſe, and muſk, all mixed together. It is chiefly preſcribed in cordial and cephalic boluſes and electuaries, to ſtrengthen the ſtomach and head, which all *aromatics* have a tendency to do.

AROMATICUM *vinum*. See VINUM.

AROMATICUS *calamus*. See CALAMUS.

AROMATITIS, in *Ancient Phyſiology*, a kind of bituminous ſtone, by ſome repreſented as a gem, both in ſmell and colour reſembling myrrh.

In

It is said to have been found in Arabia and Egypt, and to have been in great use among ladies, as a perfume.

ARONDE, in *Fortification*. See DOVETAIL, and QUEUE *d'Aronde*.

ARO-ORCHIS, in *Botany*. See GALANGAL.

AROPH, a term used by Paracelsus, to denote a medicine endued with a power of breaking or dissolving the stone in the human body.

In which sense, *aroph* amounts to the same with *lithontriptic*. Van Helmont assures us, that he was possessed of the *aroph*; and from his account, it seems to have been a preparation of saffron and rye-bread, digested with spirit of wine, in a horse-dung heat, and at length distilled. Vid. Choeffel. in Ephem. Acad. N. C. Dec. 1. An. 4. Obf. 109.

AROPH *Paracelsi*, is also a name given to a kind of chemical flowers, elegantly prepared by sublimation, from equal quantities of *lapis hæmatitis* and *sal ammoniac*; said to be of great efficacy in quartan agues, the *plica Polonica*, and hypochondriac diseases.

This is also called *arcana philosophorum*.

AROPH is also used to denote MANDRAGORA.

ARORNUS, in *Botany*, a name by which some authors have called the JUNIPER.

AROURA, a Grecian measure, of fifty feet.

AROURA was more frequently used for a square measure, the half of the plethron.

The Egyptian *aroura* was the square of a hundred cubits. Arbuth. Tab. 9.

ARPAGIUS, or rather HARPAGIUS, in some ancient inscriptions, signifies a person who died in the cradle, at least in early youth.

The word is formed from ἁρπάω, *rapio, I snatch*.

The Romans made no funerals for their *arpagii*.—They neither burnt their bodies, nor made tombs, monuments, or epitaphs for them, which occasioned Juvenal to say,

——*Terra clauditur infans,*
Et minor igne rogi.——

In after-times it became the custom to burn such as had lived to the age of forty days, and had cut any teeth; though these they also called *ἀσπαστὸι*, or *ἀσπαστὸ μικροὶ*, q. d. *rapti, ravished*. The usage seems to have been borrowed from the Greeks; among whom, Eustathius assures us, it was the custom never to bury their children either by night or full day, but at the first appearance of the morning; and that they did not call their departure by the name of death, but by a softer appellation, ἁρπαγὴ ἀρπαγῆς; importing, that they were ravished by Aurora, or taken away to her embraces.

ARPENT. See ACRE.

ARQUATA, in *Ornithology*, the name of a bird, called also by some NUMENIUS, and commonly known in England by the name of the CURLEW.

The male in this species is somewhat smaller than the female, and is called the *jack-curlew*.

It is well known to be a very delicately tasted bird. Ray.

ARQUATA *minor*, in *Ornithology*, the name used by authors for the bird called by our sportsmen the WIMBREL.

ARQUEBUSADE, in *Medicine*, is a name given to a kind of water originally of French invention, recommended as useful in cases of gun-shot wounds, from whence it derives its name. The composition of it is not generally known, but it is said to be made from mint, sage, mugwort, &c. and lime-water distilled in wine.

It is also called *aqua vulneraria*, *aqua sclopetaria*, and *aqua catapultarum*.

ARQUEBUSS, a large hand-gun, something bigger than our musquet; and called, by some, a caliver. See HARQUEBUSS.

ARQUEBUSS *a Croc*, is a sort of small fort-arm, which carries a ball of about three half ounces; now only used in Old Castile, and some garrisons of the French.

ARRACHEE, in *Heraldry*, is underflood of representations of plants forcibly torn up by the roots, with their roots hanging at them.

In this sense, *arrachee* amounts to the same with what is otherwise call *eradicated*, or *eraded*. Nisb. Her.

ARRACK; see ARAC.

ARRAIATIO *peditum*, the ranging or arraying of foot-soldiers.

ARRAIGN, or ARAIGN, in *Law*, signifies to set a thing in order, or in its place.

It is derived from the French *arraisonner*, i. e. *ad rationem ponere, to call a man to answer in form of law*; which comes from the barbarous Latin *adrationare*, i. e. *placitare*.—In which sense, to *arraign* a criminal, is *ponere eum ad rationem*.

Thus, he is said to *arraigna* writ of *novel diffeisin*, who prepares and fits it for trial before the justices of the circuit.

To arraign the assize, is to cause the demandant to be called to make the plaint, and to set the cause in such order, as the tenant may be forced to answer thereto.

A prisoner is also said to be *arraigned*, when he is indicted, and brought forth to TRIAL.

But no man is properly *arraigned*, except at the suit of the king, upon an indictment found against him, or other record, wherewith he is to be charged: and this *arraignment* requires that the prisoner appears to be true and holds up his hand at the bar, for the certainty of the person, and makes a sufficient plea to the indictment. 1 Inst. 262. 263. The prisoner is to hold up his hand only in treason and felony; but this is only ceremony: if he own that he is the person, it is sufficient without it; and then upon his *arraignment* his fetters are to be taken off, and he is to be treated with a the humanity imaginable. 2 Inst. 315. 3 Inst. 31 The pleas upon *arraignment* are either the general issue not guilty; plea in abatement, or in bar; and the prisoner may demur to the indictment; also he may confess the fact, but then the court has nothing more to do than to proceed to judgment against him. Till lately, if he stood mute, and did not put himself upon trial, he must have suffered the penance *pain fort & dure*, in cases of felony, &c. 3 Inst. 217. But now, by 12 Geo. III. c. 20. standing mute in felony or piracy is made a conviction. In indictments of high treason, or petit larceny, standing mute was always equivalent to a conviction, and the criminal shall receive the same judgment and execution. For the solemnity of the *arraignment* and trial of a prisoner, see Dalt. c 185. p. 515.

ARRANGEMENT, or RANGEMENT, the disposition of the parts of a whole, in a certain order.

The modern philosophy shews us, that the diversity of the colours of bodies, depends entirely on the situation and *arrangement* of the parts, which reflect the light differently; the diversity of tastes and smells on the different *arrangements* of the pores, which render them differently sensible; and the general diversity of bodies on the different *arrangement* of their parts.

The happy *arrangement* of words makes one of the greatest beauties of discourse.

ARRANGEMENTS, *philosophical*. This title is given by the ingenious J. Harris, Esq. to a most excellent commentary on the CATEGORIES of Aristotle: it is just as happy a simplification of *Logic*, as his *Hermes* is of *Grammar*. Both these valuable books, so well calculated to convey sensible and precise notions of logic and grammar, might be very usefully and compendiously exhibited in the forms of a *logical* and *grammatical* tree, after the manner of genealogical tables.

ARRAS HANGINGS, a sort of rich TAPESTRY, made at ARRAS, in the county of Artois, in Flanders.

ARRAY, in *Law*, the ranking or ordering a jury or inquest of men impanelled on any cause.

The word may be derived either from the obsolete French, *arroy, order*; or from *raye, a line, stroke*, &c.

Hence to *array* a pannel, ann. 3 Hen. V. &c. is to set forth the men impanelled one by another.—By the statute, every *array* in assize ought to be made four days before.

ARRAYERS, or ARRAIERS, ARRAITORES, is used, in some ancient statutes, for such officers as had care of the soldiers armour, and saw them duly accoutred in their kinds. Stat. 12 R. II. c. 6.

In some reigns, commissioners have been appointed for this purpose. Such were the commissioners of *array* appointed by king Charles I. in the year 1642.

ARREARS, ARREARAGE, ARRERAGIUM, or ARRERAGIUM, the remains of an account; a sum of money remaining in the hands of an accomptant.

The word is derived from the French *arrerage*, which is formed from *arriere, behind*.

ARREARS is also used more generally for a remainder of rents or monies unpaid at the due time; whether they be rents of a manor, or any other thing reserved: called also, in some writers, *arrirogium fromarum*.

ARRENTATION, in the *Forest Law*, the licensing an owner of lands in the forest, to enclose them with a low hedge, and small ditch, in consideration of a yearly rent.

Saving the arrentations, denotes a power reserved to give such licences for yearly rent.

ARREST, in *Common Law*, the apprehending or restraining of one's person, in execution of the command of some court, or officer of justice.

The word *arrest* is French, and is used in that language for a decree or determination of a cause debated, to and fro: in which sense it seems derived from *aprez, placitum, the pleasure of the court*.

Hence, when a person is legally stopped, apprehended, and restrained of his liberty, for debt, &c. he is said to be *arrested*, or put under an *arrest*; which is the beginning of imprisonment.

None shall be *arrested* for debt, trespass, &c. or other cause of action, but by virtue of a precept or commandment out of some court: but for treason, felony, or breach of the peace, a man may *arrest* without precept or warrant. Term de Ley. 54. Persons present at the

committing

committing a felony, muſt uſe their endeavours to apprehend the offender, under penalty of fine and imprisonment. 3 Inſt. 117. 4 Inſt. 177. The king cannot command any one by word of mouth to be *arreſted*; but he muſt do it by writ, or order of his courts, according to law: nor may the king *arreſt* any man for ſuſpicion of treaſon or felony, as his ſubjects may; becauſe if he doth wrong, the party cannot have action againſt him. 2 Inſt. 186. If a bailiff lays hold of one by the hand (whom he hath a warrant to *arreſt*) as he holds it out at the window, this is ſuch a taking of him, that the bailiff may juſtify the breaking open of the houſe to carry him away. 1 Vent. 306. When a perſon has committed treaſon or felony, &c. doors may be broke open to *arreſt* the offender; but not in civil caſes, except it be in purſuit of one *arreſted*, or where a houſe is recovered by real action, to deliver poſſeſſion to the perſon recovering. Plowd. 5. Rep. 91. Action of treſpaſs, &c. lies for breaking open a houſe to make *arreſt* in a civil action. Mod. Caſ. 205. But if it appear that a bailiff found an outer door &c. open; it is ſaid he may open the inner door to make an *arreſt*. Comber. 347. An *arreſt* in the night as well as the day, is lawful. 9 Rep. 66. By ſtat. 29 Car. II. c. 7. *arreſt* ſhall not be made on a Sunday, except in caſes of treaſon, felony, or for breach of the peace. But a perſon may be retaken on a Sunday, if arreſted the day before, &c. Mod. Caſ. 231.

To *move* or *plead in arreſt of judgment*, is, to ſhew cauſe why judgment ſhould be ſtayed, though there be a verdict in the cauſe.

Judgment may be arreſted for good cauſe in criminal caſes, as well as civil: if the indictment be inſufficient, &c. 3 Inſt. 210. Four days are allowed to move in *arreſt* of judgment.

To *plead in arreſt of taking the inqueſt*, is, to ſhew cauſe why an inqueſt ſhould not be taken.

ARRESTANDIS *bonis ne diſſipentur*, a writ which lies for him whoſe cattle or goods are taken by another, who, during the controverſy, makes, or is likely to make away with them, and will hardly be able to give ſatisfaction for them afterwards.

ARRESTANDO *ejunm, qui pecuniam recepit ad proficiſcendum in obſequium regis*, &c. is a writ which lies for the apprehenſion of him that hath taken preſs-money to ſerve in the king's wars, and hides himſelf when he ſhould go.

ARRESTO *facto ſuper bonis mercatorum alienigenarum*, &c. is a writ which lies for a denizen againſt the goods of ſtrangers, or perſons of another country, found within this kingdom, in recompence of goods taken from him in that country, after he hath been denied reſtitution there. This anſwers to what among the ancient civilians was called *clarigatio*, now barbarouſly REPRISALIA.

ARRETED, ARRECTACUS, is ſometimes uſed in our ancient LAW-*books* for imputed, or laid to.—As, no folly may be *arreted* to one under age.

ARRETS, among *Farriers*, denote a ſort of mangy tumours on the ſinews of the hind legs of a horſe, between the ham and the paſtern; called alſo *rat-tails*.

The name is taken from the reſemblance they bear to the *arretes*, or back-bones of fiſhes.

ARRHABONARII, in *Eccleſiaſtical Hiſtory*, a ſect, in the ſixteenth century, who held that the euchariſt is neither the real fleſh and blood of Chriſt, nor yet the ſign of them, but only the pledge or earneſt thereof.

The word is derived from ἀῤῥαβὼν, *arrha*, *earneſt*.

ARRHÆ, or *Argentum Dei*. See EARNEST, &c.

ARRHAPHON, denotes a ſkull without ſutures, found to be the cauſe of incurable CEPHALALGIÆ.

ARRHENOGOGON, in *Botany*, a name given by ſome to the *paronychia*, or PELLITORY *of the wall*.

ARRHEPHORIA, a feaſt among the Athenians, inſtituted in honour of Minerva, and Herſe, daughter of Cecrops. The word is compounded of ἀῤῥητὸν, *myſtery*, and φέρω, *I carry*; on account of certain myſterious things which were carried in proceſſion at this ſolemnity.

Boys, or, as ſome ſay, girls, between ſeven and twelve years of age, were the miniſters that aſſiſted at this feaſt, and were denominated ἀῤῥηφόροι.

This feaſt was alſo called *Herſiphoria*, from Herſe, the daughter of Cecrops, on whoſe account it is ſaid to have been firſt eſtabliſhed.

ARRIAGI, in the *Materia Medica*, a name given by ſome authors, particularly by Serapion and Avicenna, to a fine kind of CAMPHOR.

ARRIERE-BAN, or ARIERE-*ban*, in the *French Cuſtoms*, is a general proclamation, whereby the king ſummons to the war all that hold of him; both his vaſſals, i. e. the nobleſſe, and the vaſſals of his vaſſals.

M. Caſeneuve takes the word to be compoſed of *arriere* and *ban*: the *ban*, according to him, denotes the convening of the nobleſſe or vaſſals, who hold fees immediately of the king: and *arriere*, thoſe who only hold of the king immediately.

To the provoſt of Paris belong the convoking and commanding of the *arriere-ban*.

ARRIERE *fief*, or *fief*, is a FEE dependent on ſome other ſuperior one.

Arriere-fiefs commenced at the time when the counts and dukes, rendering their governments hereditary in their families, diſtributed to their officers certain parts of the royal domains which they found in their provinces; and even permitted thoſe officers to gratify the ſoldiers under them with parts thereof.

ARRIERE-*guard*. See REAR-*guard*.

ARRIERE-*vaſſal*, or *tenant*, the VASSAL or tenant of another vaſſal or tenant.

ARROBAS, or ARROBA. See ARODE.

ARROGATION; ſee ADROGATION.

ARRONDIE, in *Heraldry*. CROSS-*arrondie*, or *rounded*, is that whoſe arms are compoſed of ſections of a circle, not oppoſite to each other; ſo as to make the arm bulge out thicker in one part than another; but both the ſections of each arm lie the ſame way, ſo that the arm is every where of an equal thickneſs; and all of them terminating at the edges of the eſcutcheon, like the plain croſs.

ARROW, a maſſive weapon of offence, ſlender, pointed and barbed, made to be caſt or ſhot with a bow. See ARCHERY.

We ſay, a flight of *arrows*: *arrows* are alſo called *ſhafts*.

ARROW-*makers* are called *fletchers*, who were formerly, as well as *bowyers*, perſons of great conſequence in the commonwealth.—*Arrow*-heads and quarels were to be well hooked or braſed, and hardened at the points with ſteel; the doing of which ſeems to have been the buſineſs of the *arrow*-ſmith. Vid. Stat. 7. H. IV. c. 7.

ARROW, in *Aſtronomy*, *Trigonometry*, &c. See SAGITTA.

ARROW, in *Fortification*, is a work placed at the ſalient angles of the glacis, and conſiſts of two parapets, each forty toiſes long. This work has a communication with the covert-way, of about twenty-four or thirty feet broad, called *coponier*; and a ditch before it, of five or ſix toiſes.

ARROW, in *Surveying*, is uſed for ſmall ſtraight ſticks about two foot long, ſhod with iron ferrils. Their uſe is to ſtick into the ground, at the end of the CHAIN.

ARROW, *eaſt*. See ELF-*arrow*.

ARROW, *magical*, a ſort of weapon very common among the barbarous inhabitants of Lapland, and many other of the northern climates; and ſuppoſed to poſſeſs very ſtrange virtues.

ARROW, *wildfire*. See WILD-FIRE.

ARROW-*head*, *ſagittaria*, in *Botany*, a genus of the *monœcia polyandria* claſs. Its characters are theſe: it hath male and female flowers on the ſame plant; the male flowers have a permanent cœpalement of three concave leaves; they have three roundiſh petals, which ſpread open, and many awl-ſhaped *ſtamina*, collected into a head terminated by erect ſummits. The female flowers are ſituated below the male; theſe have a three-leaved empalement, and three petals as the male, but no *ſtamina*; they have many compreſſed *germina* collected in a head, ſituated upon very ſhort ſtyles, and have permanent acute *ſtigmata*. The *germina* afterwards become oblong compreſſed ſeeds, having longitudinal borders, and are collected in globular heads. There are two ſpecies. See SAGITTARIUM *aleniformacmne*.

ARROW-*headed graſs*. See TRIGLOCHIN.

ARROW-*root*, *Indian*, *maranta*, in *Botany*; a genus of the *monandria monogynia* claſs. Its characters are theſe: the flower hath one petal of the grinning kind, with an oblong compreſſed tube cut into ſix ſmall ſegments, repreſenting a lip-flower. It has one membranaceous *ſtamen*, appearing like a ſegment of the petal, and a roundiſh *germen* ſituated under the flower, which turns to a roundiſh three-cornered capſule with three valves, containing one hard rough ſeed. There are two ſpecies, natives of the warm parts of America.

It is eſteemed a ſovereign remedy againſt the bite of waſps, and the poiſon of the MANCHINEEL-*tree*.

ARS *Notoria*. See ART.

ARS *Theſſalica*, *Theſſalian art*, is uſed by *Ancient Writers*, for a ſpecies of MAGIC, whereby, it is pretended, they could draw the moon and ſtars out of heaven.

It was denominated *Theſſalica* from its ſuppoſed inventors, the people of Theſſaly.

ARSCHIN, a long meaſure uſed in China, to meaſure ſtuffs; of the ſame length with the Dutch ell, which is two feet eleven lines.

ARSE-*verſe*, in *Antiquity*, a term, or formula, inſcribed on doors, to prevent fire.

It is ſaid to be of Tuſcan origin, where the word *arſe* ſignifies *avert*, and *verſe*, *fire*. Pitiſc. Lex. Ant.

ARSELLA, in *Botany*, a name given by ſome of the

Greek writers, to the *argemone*, a kind of wild poppy; and by others, to the common *argimony*. Both one and the other of these plants they also sometimes called SARCOCOLLA.

ARSENAL, a royal or public magazine, or place appointed for the making and keeping of arms, necessary either for defence or assault.

The *arsenal* of Venice is the place where the gallies are built and laid up.—The *arsenal* of Paris is that where the cannon or great guns are cast. It has this inscription over the gate:

Ætna hæc Henrico vulcania tela ministrat,
Tela Gigantæos debellatura furores.

There are *arsenals*, or store-houses, appropriated to naval furniture and equipments.—At Marseilles is the *arsenal* for the gallies; and at Toulon, Rochefort, and Brest, are those for the men of war.

ARSENIC, ARSENICUM, in *Natural History*, a ponderous mineral substance, volatile and uninflammable, which gives a whiteness to several metals in fusion, and proves extremely caustic, or corrosive, to animals, so as to become a violent poison.

The word is compounded of *αρσην*, *man*, or *agreeable*, *male*, and *τεκνον*, *I kill*; alluding to its poisonous quality.

Arsenic is dug out of mines in Saxony, near Goslar; in Bohemia, in the valley of Joachim; and in England, in the Mendip hills, in great quantities. It has so strong a corrosive quality, as sometimes to burn and ulcerate the hands and feet of the miners; and is a deadly poison for all known animals. All the three kinds of *arsenic* are extracted from it; and it likewise serves to make *azure*, used by painters in giving a blue colour to their vessels; and the *smaltum caruleum*, or that kind of blue sometimes used by painters; and often by women, to mix with their starch for whitening and stiffening linen. The way to make all these is taught by Kunkel, in his Art of making Glass.

Arsenic is made by sublimation from COBALT: the method of which, as practised in Hungary, is given us by Dr. Ettig, in the Philosophical Transactions, N° 203.—The COBALT being beat to powder, and the light sandy part washed off, by a current of water, they put what remains into the furnace; the flame of which passing over the powder, takes along with it the *arsenical* part, in form of a smoke; which being received by a chimney, and carried thence into a close wooden channel, flicks by the way to the sides; and is scraped off, in form of a whitish or yellowish powder.—From what remains of the *cobalt*, they proceed to make SMALT.

Arsenic consists of an acid salt, and a kind of mercurial metallic substance, which discovers itself when it is distilled in a retort, mixed with soap, suet, oil, or any fat or oily substance: for with a strong degree of fire, the *arsenic* will be raised into the neck of the retort in a metallic form, like *antimony*. The sulphur contained in *arsenic* is in so small a proportion, that it does not flame when cast on burning coals; though *cobalt* contains a great quantity of sulphur, which consequently has been separated from the *arsenical* parts in the calcination and deflagration, and so evaporated: but the smell of *arsenic* proves, that some sulphur still remains in it.

Arsenic is very volatile; for if any quantity of it is put into a crucible, and set over a fire, it neither burns, nor perfectly melts, but it will presently evaporate in white fumes, without leaving any remainder. Geoffroy.

This poisonous mineral, though not found native in its perfect form, but buried in ores of various kinds, yet is capable of being separated, and raised out of that ore, by the vapours continually passing through the earth; and, in this case, is carried up into the air, and occasions many of the epidemical and fatal diseases, to which the countries, where minerals are found in the earth, are subject. Delafont does not scruple to attribute the plague itself to the air's being infected with these *arsenical* exhalations, entering the human body, either by the pores, or by respiration, or both.

Arsenic is attracted with a different force by different metals, and attracts them reciprocally: of all metals, it absorbs iron most greedily; after this, copper, tin, lead, silver, and gold, in this order of succession; therefore, all metals may be freed from the foulness of *arsenic* by iron. The *scoriæ* may be used for this purpose in fusion, in an open fire: for though they do not produce this effect as *scoriæ*, yet here being reduced to iron again, they act in the same manner as if pure iron had been put in.

Lead mixed with *arsenic*, and exposed to the fire, is, in great part, immediately carried away in form of a thick smoke; the remainder is a glass of a fine saffron colour. Silver is also penetrated by *arsenic* in the same manner, and loses its malleability; but the *arsenic* vanishes from it in a strong fire, in the form of a smoke. Gold, penetrated by *arsenic*, becomes very brittle, and loses its colour; and, being suddenly thrown into a violent fire, part of it is sublimed.

The smallest quantity of *crystalline arsenic*, being mixed with any metal, renders it friable, and absolutely destroys its malleability.

Hence the refiners dread nothing so much as *arsenic* in their metals; nor could any thing be so advantageous to them, were such a thing to be had, as a *menstruum* that would absorb, or act on *arsenic* alone; for then their metals would be readily purified, without flying off, or evaporating.

A single grain of *arsenic* will turn a pound of copper into a beautiful white metal, called *alchemy*, looking like silver. This hint many persons have endeavoured to improve on, for making silver, but in vain, as the mixture could never be brought to sustain the hammer: some have been hanged for coining species of this spurious silver.

The chemists furnish several preparations of *arsenic*, which all turn on repeated ablutions and sublimations, to blunt its corrosive salts, and change it into a safe medicine, after the manner of sublimate.—Such are *ruby of arsenic*, &c. But it scarce appears worth the pains.

Arsenic, though a virulent poison, has been introduced into medicine. Mr. Boyle mentions a balsam made of it, with nitre and spirit of wine, or vinegar, as efficacious in the cure of venereal ulcers.

Dr. Cheyne mentions pills made of *arsenic*, as used for the cure of obstinate quartans.

Arsenic is applied to many mechanical purposes. It is used by dyers, as an ingredient in their compositions for scarlets, and other fine red colours; by goldsmiths, for enamelling; by makers of glass, for promoting the fusion of frit, and transparency of glass; by potters, for a white glazing; by alkaners, in form of glass, for promoting the fortification of ores which contain tin and antimony, for the preparations of compound metals, and for whitening copper and brass. Neumann observes, that a beautiful metal like the finest steel, may be made by melting cast iron with *arsenic*, glass, and a little tin; and that a metal resembling silver may be made from iron, tin, *arsenic*, and perhaps a little copper. Mr. Brandt (Act. Upsal. 1733.) proposes to make a varnish for ships, of *arsenic*, with pitch, sulphur, or tolin, to preserve the timber from rotting, and from worms. See Neumann's Natural History of this substance, and his account of its various kinds, effects, uses, &c. in Dr. Lewis's edition of his Works, p. 140. & seq.

Arsenic is by some ranked in the class of *sulphurs*.

There are divers kinds of *arsenic*; viz. yellow, red, and crystalline or white.

ARSENIC, *native*, is called ORPIMENT. It is of a yellow or orange colour; whence it is also denominated *auripigmentum*. It is chiefly found in copper-mines, in a sort of glebes or stones, of different figures and sizes. Its colour, though always yellow, yet admits of different shades and mixtures, as a golden yellow, reddish yellow, greenish yellow, &c. It is found to contain a portion of gold, but so little, as not to quit the cost of separating it; but there is besides this a yellow factitious *arsenic*, made of the white *arsenic* and sulphur.

Our yellow and red *arsenics* are artificial, being only white *arsenic* mixed with different proportions of sulphur. The white is the strongest, the yellow is weaker, and the red weakest. White *arsenic*, sublimed with one tenth of its weight of sulphur, is yellow; and with one fifth it is red. Both the yellow and the red fossil *arsenics*, when of a smooth texture, are called *sandarach*; but when composed of small scales or leaves, they are called *auripigmentum*.

ARSENIC, *regulus of*, is the most fixed and compact part thereof, prepared by mixing it with pot-ashes and soap, then fusing the whole, and casting it into a mortar; upon which the heaviest part falls to the bottom.

ARSENIC, *caustic oil of*, is a butyrous liquor, like butter of antimony, prepared of *arsenic*, and corrosive sublimate, being a combination of marine acid with the *arsenic*.—It serves to eat off fungous flesh, and to cleanse carious bones, &c.

Some recommend rock crystal reduced to an impalpable powder, as an antidote against *arsenic*; but large quantities of milk, oils, or fat broths, are more to be depended on, while the poison remains in the *primæ viæ*: but after it has got into the blood, alexiterial medicines are to be used, such as Venice treacle, mithridate, bezoar, powder of vipers, contrayerva root, and such like, and afterwards a milk diet. Geoffroy.

ARSENICAL *magnet*, *magnes arsenicalis*, is a preparation of antimony, with sulphur and white *arsenic*.

ARSENOTHELYS, among *Ancient Naturalists*, the same with hermaphrodite.

The

The Greeks uſe the word both in ſpeaking of men and beaſts.—It is formed from ἄρρην and θῆλυς, *male* and *female*.

ARSMART, *perſicaria*, in *Botany*. Its characters are theſe: the flower hath no empalement; it hath one petal, which is permanent, and cut into five ſegments, which ſpread open; it has in ſome ſpecies five, and in others ſix ſhort ſtamina, terminated by roundiſh ſummits, and a three-cornered germen, ſupporting two or three ſhort ſlender ſtyles, crowned by ſingle ſtigmas. The germen afterwards becomes a roundiſh, acute-pointed ſeed, wrapped up in the petal of the flower.

This, in the Linnæan ſyſtem, belongs to the genus POLYGONUM.—There are ſeveral ſpecies.

The common *arſmart* without ſpots, is by ſome eſteemed a good diuretic, but it ſeems too acrid to be given internally without great caution. Externally it is uſed by many in cataplaſms againſt indurated tumors, and in inveterate ulcers: that with ſpotted leaves has no virtues. *Arſmart*, by its heat and pungency, becomes almoſt intolerable to the tongue; and hence it obtains in ſcorbutic, hypochondriac, and other diſorders, ariſing from a ſluggiſh circulation of the fluids.

Several valuable diſtilled waters for its efficacy in the ſtone in the kidneys or bladder. Some alſo uſe the plant in external applications, particularly to diſſipate bruiſed blood: others for the tooth-ach, &c.

ARSIS *and theſis*, in *Proſody*, are names given to the two proportional parts into which every FOOT or RHYTHM is divided.

By *arſis* and *theſis* are uſually meant no more than a proportional diviſion of the metrical feet, made by the hand or foot of him that beats the time.

As in meaſuring the quantities of words the hand is elevated, as well as let fall; that part of the time which is taken up in meaſuring the foot, by lifting the hand up, is termed *arſis*, or *elevatio*; and the part where the hand is let fall, *theſis*, or *poſitio*. Vid Auguſtin. de Muſica, lib. ii. cap. 10. *In plaudendo enim quia elevatur & ponitur manus, partem poſiti ſibi elevatio vendicat, partem poſitio.*

Feet per ARSIN *& theſin*. See FOOT.

ARSON, *ab ardendo*, in the law of England, a felony at common law, in maliciouſly and voluntarily burning the houſe, or out-houſes, of another by night or by day. See Hawkins's Picas of the Crown, book i. chap. 39.

As to the puniſhment of *arſon*, it ſeems now clearly ſettled that the principal, not being in holy orders, is excluded from the benefit of clergy. See Hawk. lib. cit book ii. chap. 33. ſect. 107.

In ſome places this crime is puniſhed by burning the offender. And this was the old Roman law. See INCENDIARY.

ARSURA, in *Ancient Cuſtoms*, a term uſed for the melting of gold or ſilver, either to refine them, or to examine their value. Spelman.

The method of doing this is explained at large in the Black Book of the Exchequer, aſcribed to Gervaiſe, in the chapter De Officio Militis Argentarii, being in thoſe days of great uſe, on account of the various places, and different manners in which the king's money was paid.

ARSURA is alſo uſed for the loſs or diminution of the metal in the trial. In this ſenſe, a pound was ſaid *tot ardere denarios*, to loſe ſo many penny-weights.

ARSURA is alſo uſed for the duſt and ſweepings of ſilverſmiths, and others, who work in ſilver melted down. Du-Cange.

ARSURA is alſo uſed, in ſome writers, for the diſeaſe called ERYSIPELAS, or IGNIS *ſacer*.

ART, is defined to be a habit of the mind preſcribing rules for the due production of certain effects; or the introducing the changes of bodies from ſome fore-knowledge and deſign in a perſon endued with a principle or faculty of acting.

The word *art* is derived from ἀρὸω, *nitiſco*, *proſit*; and is found in that ſenſe in Æſchylus.

According to Lord Bacon, it is a proper diſpoſition of the things of nature by human thought and experience, ſo as to make them anſwer the deſigns and uſes of mankind.

Nature, according to the philoſopher, is ſometimes free, and at her own diſpoſal; and then ſhe manifeſts herſelf in a regular order: as we ſee in the heavens, plants, animals, &c.—Sometimes ſhe is irregular and diſorderly, either through ſome uncommon accident, or depravation in matter, when the reſiſtance of ſome impediment perverts her from her courſe; as in the production of monſters.—At other times ſhe is ſubdued and faſhioned by human induſtry, and made to ſerve the ſeveral purpoſes of mankind.—This laſt is what we call *art*.—In which ſenſe, *art* ſtands oppoſed to *nature*.

Hence, the knowledge of nature may be divided into the hiſtory of *generation*, of *preter-generation*, and of *arts*.—The firſt conſiders NATURE at *liberty*; the ſecond, her *errors*; and the third, her *reſtraints*.

ART is alſo uſed for ſcience, or knowledge reduced into *practice*.

Several of the ſchoolmen hold logic and ethics to be *arts*; in as much as they do not terminate in mere *theory*, but tend to *practice*.

In this ſenſe ſome branches of the mathematics alſo are *arts*; others, matters of *doctrine*, or *ſcience*.—*Statics* is wholly ſcientifical, as it comprehends the mere contemplation of motion: *mechanics*, on the contrary, is an *art*, as it reduces the doctrine of *ſtatics* into practice.

ART is more commonly uſed to denote a certain ſyſtem or collection of rules, precepts, and inventions or experiments, which being duly obſerved, make the things a man undertakes ſucceed, and render them advantageous and agreeable.

In this ſenſe, *art* is oppoſed to *ſcience*, which is a collection of ſpeculative principles, and concluſions.

The nature and origin of *art*, and its diſtinction from ſcience, are conſidered more at large in the preface to this work.

Arts, according to the foregoing definition, may be *divided* into *active* and *effective*.—Such as leave no external effect after their operation, as dancing, fiddling, &c. are called *active* or *practical arts*: thoſe which do leave an effect behind them, as painting, &c. are called *effective arts*.

Farther, with reſpect to their ſcope and object, they may be divided into *human*, as *medicine*; and *divine*, as *theology*.

ARTS, *human*, again, may be ſubdivided into *civil*, as *law*, *politics*, &c. *military*, as *fortification*, &c. *phyſical*, as *agriculture*, *chemiſtry*, *anatomy*, &c. *metaphyſical*, as *logic*, *pure mathematics*, &c. *philological*, as *grammar*, *criticiſm*, &c. *mercantile*, to which belong the *mechanical arts* and *manufactures*. See each in its place.

Arts are more properly divided into *liberal* and *mechanical*.

ARTS, *liberal*, are thoſe that are noble, and *ingenious*; or which are worthy of being cultivated without any immediate regard to the lucre ariſing from them.—Such are *poetry*, *muſic*, *painting*, *grammar*, *rhetoric*, the *military art*, *architecture*, and *navigation*.

ARTS, *mechanical*, are thoſe, wherein the hand and body are more concerned than the mind; and which are chiefly cultivated for the ſake of the profit attending them.—Of which kind are moſt of thoſe which furniſh us with the neceſſaries of life, and are popularly known by the name of trades.—Such *are weaving*, *turnery*, *brewing*, *miſtery*, *clock-making*, *carpentry*, *joinery*, *foundery*, *printing*, &c.

The *mechanical arts* take their denomination from *μηχανὴ*, *machine*; as being all practiſed by means of ſome machine or inſtrument.

With the *liberal arts* it is otherwiſe; there being ſeveral of them which may be learnt and practiſed without any inſtrument at all: as *logic*, *eloquence*, *medicine* properly ſo called, &c.

The *arts* which relate to the ſight and hearing, Lord Bacon obſerves, are reputed *liberal*, beyond thoſe which regard the other ſenſes, and are chiefly employed in matters of luxury: theſe are uſually called the *fine arts*; ſuch are *poetry*, *painting*, *ſculpture*, *muſic*, *gardening*, and *architecture*.

It has been well noted by philoſophers, that, during the riſe and growth of ſtates, the *military arts* chiefly flouriſh; when arrived at their height, the *liberal arts*; and when in a declining ſtate, the *voluptuary arts*.

There are alſo divers particular *arts*; as the *art* of *memory*, the *art* of *deciphering*, the *art* of *ſwimming*, *art* of *diving*, &c.

Democritus maintained, that men learnt all their *arts* from brutes; that the *ſpider* taught them *weaving*; the *ſwallow*, *building*; the *nightingale*, *muſic*; and ſeveral kinds of *medicine*.

ART, *term of*. See TERM.

ARTS, *bachelor of*. See BACHELOR.

ARTS, *maſter of*. See MASTER, DEGREE, FACULTY.

ART is alſo applied to divers imaginary, and even ſuperſtitious doctrines and inventions.—Such are, Lully's ART, or the *tranſcendental* ART. This is an art by means of which a man may diſpute whole days on any topic in nature, without underſtanding the leaſt tittle of the thing in diſpute; thus called from its inventor Raymond Lully. It conſiſts chiefly in diſpoſing the ſeveral ſorts of beings into divers ſcales or climaxes, to be run down in a deſcending progreſſion.—Thus, whatever was propoſed as the ſubject of diſcourſe, they would ſay, firſt, it is a being, and conſequently, one true, good, perfect: then, it is either created, or uncreated. Again, every created being is either body or ſpirit, &c.

ART, *notoria* is a pretended manner of acquiring ſciences by infuſion, without any other application than a little faſting, and performing a few ceremonies. It was ſolemnly condemned by the Sorbonne in 1320.

ART, *St. Anſelm's*, is a ſuperſtitious manner of curing wounds

wounds, by barely touching the linen wherewith thofe wounds had been covered.

Delrio, in his Difquifitiones Magicæ, obferves, that fome Italian foldiers, who practifed this *art*, attributed the invention thereof to St. Anfelm; but he aflures us withal, that it was really invented by Anfelm of Parma, a celebrated magician.

ART, *St. Paul's*, is a branch of the *ars notoria*, fo called as being fuppofed to have been taught by St. Paul, after his being taken up into the third heaven.

ART *and Part*, is a phrafe ufed in the north of England, and in Scotland. When any one is charged with a crime, they fay he is *art and part* in committing the fame; that is, he was concerned both in the contrivance and in the execution of it.

The facts inferring *art and part* need not to be particularly laid in the libel or indictment, for thefe general words, as terms of ftated fignification, are fufficient. Yet thefe facts may be fet forth, and it is proper fo to do, if the profecutor chooles to confide in the court rather than in the jury. Vide Mackenz. Crim. Law.

One may be *art and part*, 1. By giving counfel to perpetrate, without diftinction, whether the crime would have been committed without fuch counfel or not: this being what can never be perfectly known. But it is to be obferved, that in the more atrocious crimes, he that gives counfel is equally punifhed as he that commits them; but in the lefs atrocious lefs feverely. And fometimes reafons of mitigation are taken from the age, the manner of advifing, &c.

2. By aid and aflifance, and that either previous, or concomitant, or fubfequent to the commiffion of the crime.

3. By a clear and explicit mandate to commit the crime, or to do fomewhat inclufively in itfelf, which with great probability might produce it, if executed by the hand of the mandatary, and not that of another.

ART, *hermetical*. See HERMETICAL.

ART. *hyfopic*. See HYSSOPIC.

ARTABA, an ancient meafure of capacity ufed by the Perfians, Medes, and Egyptians.

The Perfian *artaba* is reprefented by Herodotus as bigger than the Attic *medimnus* by three Attic *chœnices*; from which it appears, that it was equal to 6½ Roman *modii*; confequently that it contained 166½ pounds of wine or water; or 126½ pounds of wheat.

The Egyptian *artaba* contained five Roman *modii*, and fell fhort of the Attic *medimnus* by one *modius*; confequently held 133⅓ pounds of water or wine, 100 pounds of wheat, or 80 of flour.

The Babylonians allowed their god Belus twelve *artabæ* of fine flour for his daily fuftenance; which will amount to 60 Roman *modii*, and confequently 720 pounds of flour.

The Median *artaba* was of the fame content with the Attic *medimnus*, and confequently equal to fix Roman *modii*, held 160 pounds of water or wine, and 120 of wheat. Beverin. de Pond. & Menf. part 2. p. 125.

ARTADA, or ARTADAR, is ufed by fome writers for REALGAR burnt, or calcined; commended by Paracelfus in malignant ulcers, and by Forelius for the cure of the POLYPUS.

ARTANITA *of the ancients*. See LEONTOPETALON.

ARTEDIA, in *Botany*, a genus of the *pentandria digynia* clafs. We have no Engliſh name for this genus. The character is are, that it is an umbelliferous plant; the rays of the large umbel are difform, the flowers of the fmall ones in the difk are male, and the rays are hermaphrodite. Thefe have each five fender ftamina; thofe flowers that compofe the rays have a fmall germen at bottom, which afterward becomes a roundifh compreffed fruit, with a leafy border; this fplits into two, and contains two oblong feeds with fcaly borders. There are two fpecies, natives of the Eaft.

ARTEMISIA, in *Antiquity*, yearly feftivals obferved in divers cities of Greece, particularly Delphi, in honour of Diana, furnamed Artemis.

In the *Artemifia*, a muller was facrificed to this goddefs, as being thought to bear fome refemblance to her, becaufe it is faid to hunt and kill the *sea-hare*. Athen. lib. vii.

ARTEMISIA, in *Botany*. See MUGWORT.

ARTEMONITES, in *Church Hiftory*, Chriſtians in the third century who denied the divinity of Chriſt, afferting him to have only had a human nature, though divinely ſent, and more excellent than the prophets. Prateol. Elench. Hær. l. i. n. 70.

ARTENNA, in *Ornithology*, the name of a water-bird, of the ſize of a hen, of a brownifh colour on the back, and white on the belly; having a hooked bill, and its three fore-toes connected by a membrane, but the hinder one loofe. It is found on the iſland Tremiti, in the Adriatic ſea, and ſuppoſed to be the *avis* DIOMEDIS of the ancients. Ray.

ARTERIA *aſpera*. See ASPERA.

ARTERIA *ſacra*. See SACRA.

ARTERIA *venoſa*, a name given by the ancients to what we call the pulmonary vein, or that veſſel whereby the blood is conveyed from the lungs to the left ventricle of the heart. Gorr. Def. Med. p. 54.

The denomination was anciently given it, on a ſuppoſition of its being an air veſſel, and that it ſerved for the conveyance of the vital aura from the lungs to the heart.

ARTERIACS, ARTERIACA, medicines proper for diſorders of the *trachea*, and the voice.

Arteriacs are reduced by Galen into three kinds: 1. Such as are void of all acrimony, ſerving to mollify the aſperities of the part; to which kind belong, gum tragacanth, *oſter*, *ſaccus*, *amylum*, or ſtarch, milk, &c. 2. Thoſe of an acrimonious quality, whereby they ſtimulate even the ſound parts; ſuch as honey, turpentines, bitter almonds, iris root, &c. 3. Thoſe of an intermediate kind, ſoft and mild, yet detergent; ſuch as butter, and divers preparations made of almonds, milk, honey, &c.

ARTERIAL, or ARTERIOUS, in *Anatomy*, ſomething that relates to the arteries. See ARTERY.

The *arterial* blood is ſuppoſed more warm, florid, and ſpirituous, than the venal.

ARTERIOSA *vena*, or *arterial vein*, a denomination given to the pulmonary artery, or that veſſel whereby the blood is conveyed from the right ventricle of the heart to the lungs.

ARTERIOSUS *canalis*, is a tube in the heart of a *fœtus*; which, with the *foramen ovale*, ſerves to maintain the circulation of the blood, and to divert it from the lungs.

ARTERIOTOMY, in *Chirurgery*, &c. the operation of opening an artery; or of letting blood with a lancet by the arteries, practiſed in ſome extraordinary caſes.

The word is formed of ἀρτηρία, and τομὴ, *ſcco*, *I cut*.

The word *arteriotomy*, according to its etymology, ſignifies that chirurgical operation, by which, for the ſafety of the patient, the arteries are opened almoſt in the ſame manner with the veins, in order to procure a diſcharge of blood. But though in our own days this operation is not ſo frequently attempted as in former ages, for fear not only of too great an effuſion of blood, but alſo of an ANEURISM; yet if it is cautiouſly performed, it has the ſuffrage of the greateſt phyſicians in its favour; as being a practice of ſingular uſe, and unattended with any bad conſequences. Accordingly we read that the more ancient phyſicians opened arteries in various parts of the body.

Arteriotomy, however, being a hazardous operation, is ſeldom uſed with deſign, except in the forehead, the temples, and behind the ears, where the arteries are eaſily cloſed again by means of the *cranium* underneath, which would be very difficult to effect in any other part.—In the other parts it uſually proves fatal; and we have numerous inſtances of perſons killed in bleeding, by the opening an artery inſtead of a vein.

Opening an artery is much more difficult than the opening a vein, as the veſſel ſeldom appears plainly through the ſkin, and there is no guide but its vibration under the finger.

In the operation of *arteriotomy*, the patient muſt be placed in a good light, and the ſurgeon muſt place two fingers of his left-hand, at a ſmall diſtance from each other, both on the artery. He muſt then obſerve the courſe of the veſſel, and cut down into it deeper than in *phlebotomy*, and raiſe the point of the lancet, ſo as to make a ſufficient orifice: in this he need not fear the cutting of the veſſel quite through, for even that is attended with no ill conſequences after deligation. If now the blood follows the lancet in a very florid and falient ſtream, you may be ſatisfied the artery is well opened: if this is not the caſe it muſt be cut again; but as in this operation, the fine point of a lancet is apt to be broke againſt the bone, the uſe of a ſmall ſcalpel is preferable. A pound or a pound and half of blood ſhould be taken by this operation: when the ſufficient quantity of blood is taken, the deligation muſt be made with three compreſſes, each larger than the other, laying on the ſmalleſt firſt, in which muſt be included a farthing, a bit of lead, or of chewed paper, to compreſs the artery againſt the bone, and the head muſt continue tied up with a proper bandage eight days. Heiſter.

Cornelius, Severinus, Tulpius, and Catherwood, have endeavoured to introduce *arteriotomy* in apoplectic caſes, as much preferable to veneſection.

ARTERY, in *Anatomy*, a hollow fiſtulous canal, appointed to receive the blood from the ventricles of the heart, and diſtribute it to all parts of the body, for the maintenance of heat and life, and the conveyance of the neceſſary nutriment. *See Tab. Anat. (Angeiol.) fig. 1.*

The word is, ſome imagine, derived from ἀὴρ, *air*, the *air*, and τηρέω, *ſervo*, *to keep*; but others, who under-

ſtand the uſe of the part better, derive it from *αειρω*, *I lift*, becauſe of its continual throbbing or beating.

The *arteries* are ordinarily compoſed of three coats or membranes. The firſt or outermoſt, nervous or tendinous; being a thread of fine blood-veſſels with nerves, for nouriſhing the other coats. The ſecond muſcular, and made up of circular, or rather ſpiral fibres; of which there are more or fewer ſtrata, according to the bigneſs of the *artery*: theſe fibres have a ſtrong elaſticity, by which they contract themſelves with force, when the power by which they have been ſtretched out ceaſes. The third and inmoſt coat is a fine, denſe, tranſparent membrane, keeping the blood within its channels, which otherwiſe, upon the dilatation of an *artery*, would eaſily ſeparate the ſpiral fibres from one another. As the *arteries* grow ſmaller theſe coats grow thinner.

All the arteries are conical, i. e. they begin with the trunk, and, growing leſs and narrower, end in branches ſo minute, that they eſcape the ſight, unleſs aſſiſted with microſcopes; by which, in the tails of tadpoles, and very ſmall eels, the extremities of the *arteries* ſeem, by the ſwift uninterrupted courſe of the blood, to be inoſculated, or continued to the originations of the veins: though by the tranſparency of thoſe veſſels, the actual continuation be not viſible.

The coats of the *arteries* are of a very denſe, cloſe contexture; by which means the blood not being viſible through them, they generally appear white. Add, that the blood, proceeding from a greater capacity to a leſs, is thereby ſomewhat obſtructed in its paſſage; but being forced on by the motion of the heart, it diſtends the coats, and thereby occaſions a ſalient motion, called the PULSE.—By this thickneſs and whiteneſs of the *arteries*, with the pulſation obſerved therein, *arteries* are diſtinguiſhed from veins.

The pulſe of the *arteries*, like that of the heart, conſiſts of two reciprocal motions, a *ſyſtole* or contraction, and a *diaſtole* or dilatation: but they keep oppoſite times; the *ſyſtole* of the one anſwering to the *diaſtole* of the other.

All the *arteries* of the body, we have obſerved, ariſe in two large trunks, from the two ventricles of the heart. That from the right ventricle is called the *pulmonary artery*, ſerving to carry the blood into the lungs: that from the left the *aorta*, or *great artery*; which, by its numerous ramifications, furniſhes all the reſt of the body, as far as the remoteſt ſtages of CIRCULATION.

The great *artery*, after it leaves the heart, divides into two large trunks, called the *aſcending*, or upper, and *deſcending*, or lower *trunks*.

The *aſcending trunk*, or *aorta aſcendens*, conveys the blood to the head, and other upper parts of the body, and is ſubdivided into three branches.—The firſt, the right *ſubclavian*, whence ariſe the *carotid*, *vertebral*, *cervical*, right *axillary*, &c. The ſecond, is the left *carotid*. The third, the left *ſubclavian*; whence ariſe the left *cervical*, *vertebral*, and *axillary*.—See each deſcribed in its proper article, AXILLARY, CAROTID, CERVICAL, SUBCLAVIAN, VERTEBRAL, &c.

The deſcending trunk, or *aorta deſcendens*, carries the blood to the trunk, and the lower parts of the body.

Out of this ariſe the *bronchial*, *intercoſtals*, *cœliac*, *phrenic*, *meſenteric*, *emulgent*, *ſpermatic*, *iliac*, *umbilical*, *epigaſtric*, *hypogaſtric*, *crural*, &c. with their ſeveral ramifications.—See each in its place.

Mr. Weitbrecht concludes, from the ſmall quantity of blood thrown out of the heart into the *arteries*, and the great reſiſtance in the capillary *arteries*, that all or much the larger ſhare of what is ſent out of the heart, is retained in the *arteries* during the *ſyſtole* of the heart, and is ſent forward into the veins, by the contraction of the *arteries*, but ſo, that the veins can have no pulſation, becauſe ſo much as is received from the veins is thrown into the heart at the ſame time. The ſmallneſs of the quantity of blood thrown out of the heart makes him think, that the pulſation of the *arteries* cannot be ſo much owing to their diſtention, as to their change of place; and he ſays he perceived, upon trial, that all the *arteries* of the body are not dilated or contracted at the ſame time.

The *auricles* alſo, according to him, ſerve to give an *impetus* to the blood in the ventricles of the heart; for the blood moves ſo ſlow in the veins, that its *momentum* would not be ſufficient to diſtend, and to give a ſpring great enough to the ventricles. The pulmonary blood acquiring conſiderable velocity by the motion of the lungs, requires a much leſs *auricle* from the blood of the *vena cava*. Comment. Acad. Petrop. tom. vi. & vii.

A draught of the ſeveral *arteries*, with their diviſions and ſubdiviſions, in their natural order and poſition, as taken from the life, ſee in plate *Anatomy*, [*Angeiol. fig.* 6.] For an eſtimate of the number of capillary *arteries*, ſee Hales's Statics, vol. I. p. 68.

ARTERY is alſo applied to that fiſtulous tube, compoſed of cartilages and membranes, which deſcends from the mouth to the lungs, for the conveyance and reconveyance of the air, in reſpiration.

This is particularly called the *aſpera arteria*, or *trachæa*, and popularly the WIND-*pipe*.

ARTERY, *wounded*. See ANEURISM.

ARTHANITA, in *Botany*. See CYCLAMEN, and SOW-BREAD.

ARTHEL, ſomething caſt into a court, in Wales, or its marches; whereby the court is letted or diſcontinued for the time.—The caſting of *arthel* is prohibited, 26 Hen. VIII. cap. 6.

ARTHRITIC *Waters*. See WATER.

ARTHRITICA, in *Botany*, a name given by ſome to the PRIMROSE, and by others to the *ground*-PINE.

ARTHRITIS, in *Medicine*, a diſeaſe better known under the name of the GOUT.

The word is formed from *αρθρον*, *articulus*, *joint*; in regard the chief ſeat of that diſtemper is in the joints.

ARTHRODIA, in *Anatomy*, a ſpecies of ARTICULATION, wherein a flat head of one bone is received into a ſhallow ſocket of another.

The word is formed from *αρθρον*, *articulus*, and *δεχομαι*, *recipio*, *I receive*.

Such is the articulation of the *humerus* with the *ſcapula*.

ARTHRODIA, or ARTHRODIUM, in *Natural Hiſtory*, the name of a genus of CRYSTAL, of which there are five ſpecies. See *Tab. Foſſils, Claſs* 3.

ARTHRODIA, in *Zoology*, a lately eſtabliſhed claſs of *animalcula*, containing thoſe with viſible limbs.

ARTHROSIS, in *Anatomy*, a juncture of two bones, deſigned for motion; called alſo *articulation*.

The word is formed from *αρθρον*, *articulus*.

ARTICHOKE, in *Botany*, called by the Latins CYNARA, a genus of the *ſyngeneſia polygamia æqualis* claſs. Its characters are theſe: it hath a compound flower made up of many hermaphrodite florets, included in one common ſcaly empalement. The florets are tubulous, equal and uniform, divided at the top into five narrow ſegments; and they have five ſhort, hairy ſtamina. At the bottom of each is ſituated an oval germen, which afterward becomes a ſingle, oblong, compreſſed, four-cornered ſeed, crowned with long hairy down.

We have two ſorts of *artichokes* that are cultivated in the Engliſh gardens, which we ſhall diſtinguiſh here, only by the names whereby they are generally known among gardeners.

The beſt ſort are what the gardeners call the globe *artichoke*. This hath large heads, with broad brown ſcales, which turn inward; the fleſhy part at the bottom of the ſcales is very thick, and is therefore much preferred to the other, called the French *artichoke*; the ſtalks of which do generally grow taller, with ſmaller heads, formed more conical than thoſe of the globe; the ſcales are narrower, of a greener colour, and frequently turned outward. The fleſhy part at bottom is not near ſo thick, and hath a diſagreeable perfumed taſte. This was almoſt totally rooted out of the Engliſh gardens before the hard froſt in 1739-40, when the greateſt part of the roots of the other ſort were deſtroyed; many perſons were ſupplied the following ſpring with plants from Guernſey, where they cultivate only the latter ſort; but ſince the other has been increaſed again, this green ſort has been rooted out of moſt gardens, to make way for the globe *artichoke*.

The manner of propagating this uſeful plant, is from ſlips or ſuckers taken from the old plant in February and March; theſe, if planted in a good ſoil, will produce a good fruit the autumn following. The old *artichoke* ſtocks are to be dreſſed in the latter end of February, or beginning of March; this muſt be thus performed: with a ſpade remove all the earth from about the ſtock, down below the parts from which the young ſhoots are produced. Then make choice of two of the cleareſt and ſtraighteſt, and moſt promiſing plants which are produced from the under-part of the ſtock; let theſe be left for a crop; then with a thumb force off all the other buds and young ſhoots cloſe to the head of the ſtock from whence they are produced, and with the ſpade draw the earth about the two plants which are left, cloſing it faſt with the hands to each of them, and ſeparating them aſunder as far as can be without breaking them, then crop off the tops of the leaves which hang down. When this is done, a crop of ſpinach may be ſowed between the ſtocks, which will be gathered off before they come to ripen; in the beginning of May, when the *artichokes* begin to fruit, all the young plants produced ſince the dreſſing muſt be removed, and all the ſuckers taken off, leaving only the one principal fruit; and when the *artichoke* is fit to gather, the ſtock muſt be cut down cloſe to the ground, that it may ſhoot out new ſprouts before

October, which is the ſeaſon for earthing them, or, as the gardeners call it, laying the *artichoke* ſtocks. Miller.

The earthing them is thus done; cut off all the ſprouts cloſe to the ground, then dig trenches between the rows, covering up the ſtocks with the earth in ridges; thoſe *artichokes* which are planted in a moiſt rich ſoil will always produce the largeſt fruit, but the roots will not live through the winter in a very moiſt one.

The *artichoke* is a pleaſant, wholeſome, and very nouriſhing food; the roots are reckoned to be aperitive, cleanſing, and diuretic; good for the jaundice, and to provoke urine.

The French and Germans eat not only the heads, but alſo the young ſtalks boiled, and ſeaſoned with butter and vinegar. The Italians ſeldom boil the heads, but eat them raw, when young, with ſalt, oil, and pepper.

Artichokes have the reputation of promoting venereal inclinations to a very great degree; the ſtalks, preſerved in honey, are ſaid to be an excellent pectoral; but they ſhould firſt be blanched, like celery.

The common leaves, boiled in white wine whey, are much commended in the jaundice, as is alſo the juice of theſe leaves. James.

ARTICHOKE, *Jeruſalem*, is the root of a ſpecies of the *helianthus*, or SUN-*flower* of the perennial kind, which is propagated in many gardens for the uſe of the kitchen; it is a very agreeably taſted root, but watry and windy, and therefore at preſent generally diſregarded.

It is propagated by planting out the ſmaller roots, or even pieces of the larger, which have buds to them, in the ſpring or autumn; they muſt be allowed a very conſiderable diſtance, for they ſpread immoderately, and multiply very quick. In the autumn following, when their ſtems decay, the roots may be taken up for uſe. They are but unſightly plants, though very tall, and are commonly placed in obſcure corners of a garden. Miller.

ARTICLE, ARTICULUS, a little part or diviſion of a book, writing or the like.—Aquinas divides his ſum of theology into ſeveral queſtions; and each queſtion into divers *articles*.—Such an account conſiſts of ſo many *articles*.

ARTICLE is alſo applied to the ſeveral clauſes or conditions of a contract, treaty of peace, or the like.

In this ſenſe we ſay, *articles* of marriage, *articles* of capitulation, preliminary *articles*, &c.

ARTICLES *of the clergy*, ARTICULI *cleri*, are certain ſtatutes touching perſons and cauſes eccleſiaſtical, made under Edward II. and III.

ARTICLE *of faith* is by ſome defined a point of Chriſtian doctrine, which we are obliged to believe, as having been revealed by God himſelf, and allowed and eſtabliſhed as ſuch by the church.

The thirty-nine *articles* were founded, for the moſt part, upon a body of *articles* compiled and publiſhed in the reign of Edward VI. They were firſt paſſed in the convocation, and confirmed by royal authority in the year 1562. They were afterwards ratified anew in the year 1571, and again by Charles I. The law requires a ſubſcription to theſe *articles* of all perſons ordained to be deacons or prieſts, 13 El. cap. 12. of all clergymen inducted to any eccleſiaſtical living, by the ſame ſtatute, and of licenſed lecturers and curates, 13 El. cap. 12. and 13 and 14 Ch. II. cap. 4. of the heads of colleges, of chancellors, officials, and commiſſaries, and of ſchoolmaſters. By 1 Wil. III. cap. 18. diſſenting teachers are to ſubſcribe all except the 34th, 35th, and 36th, and part of the 20th (and in the caſe of Anabaptiſts, except alſo part of the 27th); otherwiſe they are exempted from the benefits of the act of toleration. For the preſent ſtate of diſſenting teachers, &c. See TOLERATION.

ARTICLE, *articulus*, in *Anatomy*, denotes a joint, or juncture, of two or more bones of the body.

ARTICLE *of death*, *articulus mortis*, the laſt pangs or agony of a dying perſon.

The pope uſually ſends his benediction to the cardinals, &c. *in articulo mortis*.

ARTICLE, in *Arithmetic*, ſignifies the number 10, or any number juſtly diviſible into ten parts; as 20, 30, 40, &c.—Theſe are ſometimes called *decads*, and ſometimes *round numbers*.

ARTICLE, in *Grammar*, denotes a particle uſed in moſt languages for the declining of nouns, and denoting the ſeveral caſes and genders thereof.

The uſe of *articles* ariſes chiefly hence, that in languages which have no different terminations to expreſs the different ſtates and circumſtances of nouns, there is ſomething required to ſupply that office.

The Latins have no *articles*; but the Greeks, and moſt of the modern languages, have had recourſe to them, for fixing and aſcertaining the vague ſignification of common appellative names.

The Greeks have their ὁ, the eaſtern tongues their *ho emphaticum*, the Italians their *il*, *lo*, and *la*.—The French their *le*, *la*, and *les*.—The Germans their *der*, *das*, *die*.

The Engliſh alſo have two *articles*, *a* and *the*; which being prefixed to ſubſtantives, apply their general ſignification to ſome particular things. See letter A.

Some grammarians make the *article* a diſtinct part of ſpeech; others will have it a pronoun; and others a noun adjective. See SPEECH and PRONOUN.

Articles are of great ſervice in a language, as they contribute to the more neat and preciſe expreſſing of ſeveral properties and relations, which muſt otherwiſe be loſt. And hence one great diſadvantage of the Latin, above other languages which have *articles*; in that the *article* being either expreſſed, or left out, makes an alteration in the ſenſe, which the Latins cannot diſtinguiſh.—Thus when the devil ſaid to our Saviour, *ſi tu es Filius Dei*, it may either be underſtood, *if thou art a Son of God*, or *if thou art the Son of God*.—Scaliger, from the want of *articles* in the Latin, has concluded them uſeleſs. The Italians even prefix *articles* to proper names, which do not naturally need any, becauſe they of themſelves ſignify things individually.—Thus they ſay, *il Ariotto*, *il Taſſo*, *il Petrarcha*.—Even the French join the *article* to the proper names of kingdoms, provinces, &c. as *la Suede*, *la Normandie*.—And we likewiſe annex it to the names of certain mountains and rivers; as the *Rhine*, the *Danube*, the *Alps*, &c.

ARTICLE, *indefinite*. The *article a* is ſaid to be *indefinite*, becauſe applied to names taken in their more general and confuſed ſignification; as, he travelled with the port and equipage of a prince; where the words, *a prince*, may be underſtood of any prince in general. Or a reſpects our primary perception, and denotes individuals, as unknown.

ARTICLE, *definite*. The *article the* is ſaid to be *definite*, or *demonſtrative*, as fixing the ſenſe of the word it is put before, to one individual thing. Or, *the* reſpects our ſecondary perception, and denotes individuals as known. See DEFINITIVE.

F. Buffier diſtinguiſhes a third kind of *articles* in French, which he calls *intermediates*, or *partitive*; ſerving to denote part of the thing expreſſed by the ſubſtantives they are added to: as, *des ſavantes est vrai*, *ſome learned men have ſuppoſed*, &c. I want *de la lumiere*, *ſome light*, &c.

The uſe and diſtinction of the *definite* and *indefinite articles le* or *lo*, *de* or *du*, make one of the greateſt difficulties in the French tongue, as being utterly arbitrary, and only to be acquired by practice.—We may add, that in the Engliſh, though the *articles* be ſo few, yet they are of ſuch frequent uſe, that they eaſily diſcover any ſtranger from a natural Engliſhman.

ARTICULARIS, ARTICULAR, in *Medicine*, an epithet applied to a diſeaſe, which more immediately infeſts the *articuli*, or joints.

The *morbus articularis* is the ſame with the Greek ἀρθρῖτις, and our GOUT.

ARTICULATE *ſounds* are thoſe which expreſs the letters, ſyllables, &c. of any alphabet, or language. See INARTICULATE.

Brutes cannot form *articulate* ſounds, or they cannot *articulate* the ſounds of their voice; excepting ſome few birds, as the *parrot*, *pye*, *raven*, *ſtarling*, &c.

ARTICULATED *libel*, *libellus articulatus*, that wherein the parts of a fact are ſet forth to the judge in ſhort, diſtinct *articles*.

This amounts to much the ſame with what is otherwiſe called *libellus poſitionalis*.

ARTICULATED *leaf*. See LEAF.

ARTICULATED *radius*, in *Natural Hiſtory*. See RADIUS *articulatus*.

ARTICULATION, in *Grammar*, a diſtinct pronounciation of words and ſyllables.

Articulation is that part of grammar, which treats firſt of ſounds and letters; then of their combinations, for the compoſing of ſyllables and words. Hence he who pronounces his words clearly and diſtinctly, is ſaid to pronounce them *articulately*.

ARTICULATION, ἄρθρωσις, in *Anatomy*, the juncture or connection of two bones. The bones cannot ſerve the intended purpoſes, except the ſeveral pieces are fitly adjuſted, and then kept together in different ways. The moſt ancient oſteologiſts (ſpeaking only of the perfect bones of an adult) called the firſt of theſe *articulation*, and the other SYMPHYSIS.

Articulation thus underſtood is of two kinds, one moveable, by which the bones are allowed a certain degree of motion; the other immoveable, by which they are fixed together without motion. The firſt is commonly called DIARTHROSIS; that is (according to the expreſſion of Carolus Stephanus, an ancient phyſician of the faculty at Paris) an *articulation* ſeparated; the other *ſynarthroſis*, or an *articulation* conjoined. There is ſtill another ſpecies of *articulation*, which cannot well be reduced to either of the two former, as partaking of both: this, therefore, may be eſtabliſhed as a third kind, by the name of AMPHIAR-

THIARTHROSIS, which agrees better to this sort, than to the other *articulations*, to which it has sometimes been applied.

ARTIFICERS, those who work with the hands, and sell things fashioned by them into other forms.

Artificers amount to the same with what we otherwise call *handicrafts* and *mechanics*: such are smiths, carpenters, taylors, shoemakers, weavers, and the like.

The Roman *artificers* had their peculiar temples, where they assembled and chose their own patron, to defend their causes: they were exempted from all personal services. Tarutenius Paternus reckons thirty-two species of *artificers*, and Constantine thirty-five, who enjoyed this privilege. The *artificers* were incorporated into divers colleges or companies, each of which had their tutelar gods, to whom they offered their worship. Several of these, when they quitted their profession, hung up their tools, a votive offering to their gods. Pitiſc. Lex. Ant.

Artificers were held a degree below merchants, and *argentarii*, or money-changers, and their employment more sordid. Some deny, that in the earliest ages of the Roman state, *artificers* were ranked in the number of citizens: others, who assert their citizenship, allow that they were held in contempt, as being unfit for war, and so poor that they could scarce pay any taxes. For which reason they were not entered among the citizens in the censor's books; the design of the *census* being only to see what number of persons were yearly fit to bear arms, and to pay taxes towards the support of the state. It may be added, that much of the *artificers* business was done by slaves, and foreigners, who left little for the Romans to mind but their husbandry and war. Dion. Hal. lib. ii. p. 98. By means of the *arts*, the minds of men are engaged in inventions beneficial to the whole community; and thus prove the grand preservative against the barbarism and brutality, which ever attend on an indolent and inactive stupidity.

By the English laws, *artificers* in wool, iron, steel, brass, or other metal, going out of the kingdom into any foreign country without licence, are to be imprisoned three months, and fined in a sum not exceeding one hundred pounds. And such as going abroad, and not returning on warning given by our ambassadors, &c. shall be disabled from holding lands by descent or devise, from receiving any legacy, &c. and be deemed aliens. Stat. 5. Geo. I. cap. 27. By 23 Geo. II. cap. 13. § 1. penalty is also inflicted on seducing *artificers* to go abroad. See MANUFACTURERS.

Ramazini has a treatise on the diseases of *artificers*.

ARTIFICER *by fire*, a denomination sometimes given to chemists, and workers in metals.

ARTIFICIAL, something made by art; not produced naturally, or in the common course of things.

ARTIFICIAL is also frequently used for *factitious*.

Thus we have *artificial* sal ammoniac, *artificial* borax, &c.

ARTIFICIAL *fire-works* are compositions of inflammable materials; chiefly used on solemn occasions, by way of rejoicing. See Sav. Etr. tom. iv. p. 66.

ARTIFICIAL *lightning*. See ELECTRICITY and LIGHTNING.

ARTIFICIAL *lines*, on a sector or scale, are certain lines so contrived as to represent the the logarithmic lines and tangents; which, by the help of the line of numbers, will solve all questions in *trigonometry*, *navigation*, &c. pretty exactly.

ARTIFICIAL *magnets*. See MAGNETS.

ARTIFICIAL *music*, that which is according to the rules of art; or executed by instruments invented by art. It is also used in another sense, for some artful contrivance in music; as when a piece is sung in two parts; one whereof is by B mollie, or flat, and the other by B sharp. See Artificii Musicali del Signor Vitali.

ARTILLERY, the heavy equipage of war; comprehending all sorts of great fire-arms, with their appurtenances; as cannons, mortars, bombs, petards, muskets, carbines, &c.

In this sense, the word *artillery* coincides with what we otherwise call *ordnance*.

The Persians, we are told in the embassy of Figueroa, would never, in 1518, have either *artillery* or *infantry* in their armies, because they hindered their charging and retiring with that nimbleness wherein their chief military address and glory lay.

The term *artillery* is sometimes also applied to the ancient instruments of war, as the *catapultæ*, battering rams, &c.

ARTILLERY, *park of*, is that place in a camp set apart for the *artillery*, or large fire-arms.

ARTILLERY, *train*, or *train of*, is a set or certain number of pieces of ordnance, mounted on carriages, with all their furniture fit for marching. To this frequently belong mortar-pieces, with bombs, carcases, &c. It is under the direction of the master of the *artillery*.

There are *trains of artillery* in most of the king's magazines, as in the Tower, at Portsmouth, Plymouth, Windsor, &c.

ARTILLERY *guard* is a detachment from the army to secure the artillery. This corps is in the front, and their sentries are round the park. Upon a march they go in the front and rear of the *artillery*, and must be sure to leave nothing behind. If a gun or waggon break down, the captain is to leave part of his guard to assist the gunners and matrosses in getting it up again.

The writers upon *artillery* are, Casimir Semionowitz, a Pole, Buchnerus, Brunnius, Mieth, S. Remy in his Memoires d'Artillerie, M. Belidor, M. le Blond, and Muller on Artillery, which contain an accurate description of all the machines and instruments of war now in use, with every thing that relates to them.

ARTILLERY *company of London*, is a band of infantry, consisting of about four hundred men.

Their officers are a leader, two lieutenants, two ensigns, three gentlemen of arms, two serjeants, and a provost-marshal.

ARTILLERY is also used for what we otherwise call *pyrotechnia*, or the art of fire works, with the instruments and apparatus belonging thereto.

ARTISAN. See ARTIST.

ARTISCUS, from ἄρτος, *bread*. in *Medicine*, denotes a *troche*, but more particularly that prepared of viper's flesh, mixed up with bread, to be used in the composition of venice treacle.

These are more particularly called *artisci theriaci*, or *theriacal troches*.

They were formerly in great vogue, and brought with much parade from Venice; but Zwelfer discovered their vanity; since which time, viper's powder has been generally substituted for them, in the preparation of the treacle.

ARTIST, in a general sense, a person skilled in some art; or, according to Mr. Harris's definition, a person professing an habitual power of becoming the cause of some effect, according to a system of various and well-approved precepts.

In this sense, we say, an excellent, a curious *artist*. The pre-eminence is disputed between ancient and modern *artists*, especially as to what relates to sculpture, painting, and the like. At Vicenza, we are told of a privilege granted to *artists*, like that of clergy in England; in virtue of this, criminals adjudged to death save their lives, if they can prove themselves the most excellent and consummate workmen in any useful art. This benefit is allowed them *in favorem artis*, for the first offence, except in some particular crimes, of which coining is one. The exception is just, since here the greater the *artist*, the more dangerous the person. Evelyn's Dis. of Medals, ch. vii. p. 237, &c.

ARTIST, *artifex*, in an academical sense, denotes a philosopher, or proficient in the faculty of arts.

ARTIST is more particularly understood of a *chemist*, or *alchemist*.

In which sense it is, that Paracelsus and other ADEPTS use the word.

ARTIZOOS, from ἄρτος, *bun*, and ζωὸς, *life*, is used by some ancient physicians for an infant short-lived, by reason of a difficult birth, whereby he was long detained in the passage from the womb.

ARTOMELI, from ἄρτος, *bread*, and μέλι, *honey*, in *Ancient Pharmacy*, a kind of cataplasm, prepared of bread and honey, applied chiefly to the *precordia*.

ARTOPYRITES, or ARTOPYRITA, a branch of the ancient *Montanists*, who first appeared in the second century; chiefly in Galatia.

They used bread and cheese in the Eucharist, or perhaps bread baked with cheese.—Their reason was, that the first men offered to God not only the fruits of the earth, but of their flocks too.

Hence, according to St. Augustine, came their name, which is composed of ἄρτος, *bread*, and τυρὸς, *cheese*.

ARVALES *fratres* were priests in ancient Rome, who assisted in the sacrifices of the *Ambervalia* offered every year to Ceres and Bacchus for the prosperity of the principal fruits of the earth, viz. the corn and wine.

They were instituted by Romulus, and were twelve in number; all of them persons of the first distinction; the founder himself having been of the body.—They made a college, called *collegium fratrum arvalium*.

The mark of their dignity was a garland, composed of ears of corn tied with a white ribband: this, Pliny says, was the first crown in use at Rome.

According to Fulgentius, Acca Laurentia, Romulus's nurse, was the first founder of this order of priests: she, it seems, had twelve sons, who used to walk before her in procession to the sacrifice; one of whom dying, Romulus, in favour of his nurse, promised to take his place; and hence, says he, came this sacrifice, the number twelve, and the name of brother.—Pliny (lib. xvii. cap.

2.) seems to indicate the same thing, when he mentions, that Romulus instituted priests of the fields, after the example of Acca Laurentia his nurse.

ARVIL-*supper*, an entertainment made at funerals in the northern part of England; and *arvil*-bread is the bread delivered to the poor on such occasions.

ARUM, *African*. See CALLA.

ARUM, *shooting*. See CRONTUM.

ARUM, in *Botany*. See WAKE-*Robin*.

ARUNCUS, *greater meadow sweet*, in *Botany*, the name of a genus of plants, called by Tournefort, and others, BARBA *caprea*; and by Linnæus SPIRÆA.

This plant has been supposed to be of the same genus with the *filipendula*; but, by the close examination of the flowers, they appear to be extremely different.

ARUNDELIAN *Marbles*, MARMORA *Arundeliana*, or Oxford MARBLES, are ancient stones, whereon is inscribed a chronicle of the city of Athens, engraved in capital letters in the island of Paros, one of the Cyclades, 263 years before Jesus Christ.

They take their name from Thomas earl of Arundel, who procured them out of the East, or from Henry his grandson, who presented them to the university of Oxford.—An account of all their inscriptions was published in 1676, by Dr. Prideaux.

ARUNDO, in *Botany*. See REED.

ARUNDO *Indica*, in the *Materia Medica*, the name of the ARUNDO *sanguinum draconis manans* of Morison. This is the plant from the fruit of which, by maceration in warm water, they get a kind of dragon's blood, which makes the fine red of the Indian varnishes. Dale.

ARURA, in *Antiquity*. See AROURA.

ARURA, in *Middle Age Writers*, denotes a field ploughed and sowed.

ARUSPICES, an order of priests among the ancient Romans, who foretold things to come, chiefly by inspecting the entrails of beasts which were killed in sacrifice.

The word seems more properly written *haruspices*; as being derived from *horrea*, which signifies the entrails of victims; and *aspicere*, *to view*, or *consider*.

The doctrine or discipline of the *aruspices* was formed into a precise art, called *aruspicina*.

Cato, who was an *augur*, used to say, he wondered how one *aruspex* could look at another without laughing in his face. By which we learn what opinion he had of the solidity of the *aruspicina*.

ARUSPICI *libri*, a kind of sacred writings among the ancient Hetrurians, wherein the laws and discipline of the *aruspices* were described.

These were also called *rituales*, sometimes *fulgurales libri*, as directing how to take indications from thunder, lightning, &c.

ARVUM, in *Ancient Agriculture*, properly denoted ground ploughed, but not sowed.

Though the word is also sometimes extended to all arable, or corn land, in contradistinction from pasture.

ARX, in the *Ancient Military Art*, a town, fort, or castle, for defence of a place.

The *arx*, in ancient Rome, was a distinct edifice from the Capitol, though some have confounded the two. According to Ryckius, the *arx*, properly speaking, was a place on the highest part of the Capitoline Mount, stronger and better fortified than the rest, with towers and pinnated walls; in which was also the temple of Jupiter Capitolinus. Stuv. Synt. Ant. Rom. c. 11. p. 522.

ARX also denoted a consecrated place on the Palatine Mount, where the augurs publicly performed their office.

Some will have the *arx* to have been the augural temple; but Varro expressly distinguishes between the two.

ARX was particularly used for a public place in Rome, set apart for the operations of the AUGURS.

In which sense, *arx* amounts to the same with what is otherwise called *auguraculum*, and *auguratorium*, and in the camp *augurale*.

Out of this *arx* it was that the *fetiales*, or heralds, gathered the grass used in the ceremony of making leagues and treaties. Liv. l. c. 24.

ARYTÆNOIDES, in *Anatomy*, the third and fourth cartilages of the LARYNX, situate under the *thyroides*; called also *guttales*; thus called on account of the figure of an *ἀρύταινα*, *ewer*; which, together, they somewhat resemble: and the name is compounded of that word, and *εἶδος*, *shape*, or *figure*.

ARYTÆNOIDÆUS, in *Anatomy*, one of the muscles serving to close the LARYNX; otherwise called little *arytænoideus*, and *arytænoidæus*, as deriving its origin from the posterior and inferior part of the *arytænoides*.

The *arytænoideus* has its head in one *arytænoid* cartilage, and its tail in the other; and serves to bring them together, and shut the *rima* or *glottis*.

ARYTHMUS, or ARRHYTHMUS, in *Medicine*, is used by some for a sinking, or failure of the pulse, so that it can no longer be felt; but it more properly denotes an irregularity, or want of due order and proportion of the PULSE.

The word is formed from the privative *α*, and *ῥυθμὸς*, *modulus*, or *measure*.

AS, among *Antiquaries*, sometimes signifies a particular weight; in which sense the Roman *as* is the same with the Roman *libra*, or *pound*.

The word is by some derived from *duo*, which, in the Doric dialect, is used for *ως*, *ους*, q. d. an entire thing; though others will have this money named *as*, quasi *æris*; because made of brass.—Budæus has written nine books *de asse, & ejus partibus*, of the *as*, and its parts.

The *as* had several divisions. See the table under AS, an integer.

As was also the name of a Roman coin, which was made of different matters, and different weights, in different ages in the commonwealth.

Under Numa Pompilius, according to Eusebius, the Roman money was either of wood, leather, or shells.—In the time of Tullus Hostilius, it was brass, and was called *as, libra, libella*, or *pondo*, because actually weighing a pound, or twelve ounces. The Romans reckoned by *asses* before they coined silver, in the 485th year of the city, and afterwards they kept their accounts in SESTERCES.

When the first Punic war had exhausted the treasury, they reduced the *as* to two ounces. In the second Punic war, Hannibal pressing hard on them, the *asses* were farther reduced to an ounce a-piece.—Lastly, by the Papirian law, they took away half an ounce more, and reduced the *as* to a bare half-ounce: and it is generally thought, that it rested here all the time of the commonwealth, and even till Vespasian's reign.

This last was called the Papirian *as*, because the law just mentioned was passed in the year of Rome 562, by C. Papirius Carbo, then tribune of the people. Thus, there were four different *asses* in the time of the commonwealth. The figure stamped on the *as* was at first a sheep, ox, or sow; and from the time of the kings, a Janus with two faces on the one side, and the *rostrum* or prow of a ship on the reverse.

The triens and quadrans of copper had the figure of a small vessel called *ratis*, on the reverse. Thus Pliny: *Nota æris, (i. e. assis) fuit ex altera parte Janus geminus, ex altera rostrum navis; in trientis vero & quadrante rotæ.* Hist. Nat. lib. xxxiii. cap. 3.—Hence these pieces were sometimes called *ratiæ*.

As was also used to denote any *integer*, or whole. Whence the English word *ace*.

Thus, *as* signified the whole inheritance; whence *hæres ex asse*, the heir to the whole estate.

So the *jugerum*, or Roman acre of land, being reckoned the *integer*, was called *as*, and divided, like it, into twelve *uncia*.

The *as*, and its parts or divisions, stand thus:

1	As	12 *Uncie*	$\frac{1}{2}$	*Semis*	6 *Uncie*
$\frac{11}{12}$	*Deunx*	11	$\frac{5}{12}$	*Quincunx*	5
$\frac{10}{12}$	*Dextans*	10	$\frac{1}{3}$	*Triens*	4
$\frac{9}{12}$	*Dodrans*	9	$\frac{1}{4}$	*Quadrans*	3
$\frac{8}{12}$	*Bes*	8	$\frac{1}{6}$	*Sextans*	2
$\frac{7}{12}$	*Septunx*	7	$\frac{1}{12}$	*Uncia*	1

ASA, among *Naturalists*. The writers of the later ages have formed this word *asa* from the *laser* of the ancients, and attributed it to a gum very different from that anciently known by the name they have thus corrupted.

The *asa* of the ancients was an odoriferous and fragrant gum; and the *asa* of the after-ages had so little title to this epithet, that they distinguished it by one, expressing its being of an offensive or stinking smell.

The Arabian writers, according to this distinction, describe two kinds of *asa*, the one *stinking*, the other *aromatic*; and the modern Greeks preferred the name *asa*, or *laser*, to the stinking gum the Latins called by that name, but added a distinctive epithet to express its smell, and called it *scordalosaron*.

ASA *dulcis*, in the *Materia Medica*, a name by which some authors have called the *benjamin*, or BENZOIN of the shops. Dale.

ASA *fœtida*, see ASA *fœtida*.

ASAPHEIS, *ἀσαφεῖς*, from *α* negative, and *σαφὴς*, *clear*, *open*; in Hippocrates, in Prorrh. & Coac. are such patients as do not utter their words in a clear manner. The defect is occasioned, as Galen says, Comm. 2. in Prorrh. "either by some hurt which the organs of speech have "contracted from a disorder of the nerves, or else by a "*delirium*."

ASAPPES, or AZAPES, an order of soldiers in the Turkish army, whom they always expose to the first shock of the enemy; to the end that the enemy being thus fatigued, and their swords blunted, the spahis and janizaries may fall on, and find an easy conquest.

The word is derived from the Turkish *sapi*, which signifies

nifies *rank*, from whence they have formed *asphaltes*, *to range in battle*.

The *asaphes* are said to be held of so little value, that they frequently serve as bridges for the cavalry to pass over, in bad roads, and as faſcines to fill up the ditches of places beſieged.—The greateſt part of them are natural Turks; they travel on foot and have no pay, but the plunder they can get from the enemy.

ASARABACCA, or ASSARA-BACARA, in *Botany*, a plant ſuppoſed to be mentioned by Pliny and Dioſcorides, under the name of *baccharis*, or *narcus ruſticus*; by us called ASARUM; of the *dodecandria monogynia* claſs.

Its characters are, that the flower hath no petals, but a thick coloured empalement, and twelve ſhort ſtamina. At the bottom of the empalement is enclioſed a thick germen, which afterward turns to a thick capſula, having ſix cells, containing ſeveral oval ſeeds. There are three ſpecies.

Among the ancients it was much in uſe as an emetic and cathartic. It is chiefly uſed among us as a ſternutatory, in order to which, it is dried and reduced to a powder, to be taken as a ſnuff; in which quality it drains the head of mucous humours. It is alſo a powerful emmenagogue, and has been recommended by authors in the gout, dropſy, and many other chronic diſorders.

ASARINA, in *Botany*, baſtard ASARUM, a ſpecies of the ANTIRRHINUM, in the Linnæan ſyſtem. Its characters are, that the flower is of one leaf, of the grinning kind, divided at the top into two lips, the upper one divided in two parts, the lower one ſlightly divided into three obtuſe parts. The two lips join cloſe together, ſo as to form a kind of ſnout. It hath four ſtamina; in the centre is placed a round germen, which afterward turns to a round huſk, divided into two cells, full of roundiſh ſeeds. There are two ſpecies.

ASAROTA, ἀσαρωτὰ, from ἀ and σαίρω, *I ſweep*, a kind of painted pavements in uſe before the invention of moſaic work. The moſt celebrated was that at Pergamus, painted by Soſus, and exhibiting the appearance of crumbs, as if the floor had not been ſwept after dinner, whence, according to Pliny, the denomination. Perhaps ſuppoſes them to have been a black kind of pavements of a ſpongy nature. Plin. Nat. Hiſt. lib. xxxvi. cap. 25. Pertault ad Vitruv. lib. vi. cap. 5.

ASARUM, in *Botany*. See ASARABACCA, and ASARINA.

ASASI, in *Botany*, a name given, by the people of Guinea, to a tree, the leaves of which being boiled in water, and held in the mouth, cure the tooth-ach. This tree, in its form and manner of growing, reſembles the laurel; the leaves are very hard and ſtiff, and grow alternately on the ſtalks; they have ſhort pedicles, and the branches are blackiſh and rugged, but they are variegated with ſmall reddiſh ſpangles, or ſcaly protuberances. Phil. Tranſ. N° 232.

ASBESTINE, ſomething incombuſtible, or that partakes of the nature and qualities of the *lapis aſbeſtus*. Such as *aſbeſtine* paper and cloth. See ASBESTOS.

ASBESTOS, a mineral ſubſtance, of a whitiſh, or ſilver colour, and a woolly texture; conſiſting of ſmall threads, or delicate fibres, endued with the wonderful property of reſiſting fire, and remaining unconſumed in the inſenſeſt heat.

The word properly ſignifies an incombuſtible body; it is formed of the privative ἀ, and σβέννυμι, *extinguo*.

This ſanguineous mineral is ſometimes alſo called *amianthus*, and ſometimes *ſalamandra*, or *ſalamander's wool*, from the candle-wicks ſaid to be made anciently of it. From a pungent quality, which Agricola ſays it has on the tongue, though without aſtringency, it has been by ſome called *alumen*, having the epither of *plumoſum* added to it, taken from its downy filaments, to diſtinguiſh it from the other alums; though it is to be obſerved, the true plumealum is another ſort of body, being a real efflorſcence of alum.

From its light grey colour, it is called *piſis* and *corſudes*; and from its likeneſs to the hoary fibres of ſome ſorts of mat-weed, *ſpartopedias*. From the capacity it has of being ſpun into thread, it is called *linum*, with ſome diſtinguiſhing epithet, taken either from its quality, as *linum aſbeſtinum vivum*, or *incombuſtibile*; or from the place where it is found, as *linum foſſile*, *linum Indicum*, *Creticum*, *Cyprium*, and *Carpaſium*, or *Carpaſium*. Beſides the places whence it borrows its names, it is alſo found in Tartary, at Namur, in the Low Countries, in Thuringia among the mines, in the Old Noricum, in Egypt, in the mountains of Arcadia, at Puteoli, in the iſland of Corſica, in the iſland of Anglefey, in Wales, and in Aberdeenſhire in Scotland, at Montauban in France, and in the kingdom of Siberia.

Naturaliſts generally reckon it among the ſtones, whence its appellation of *lapis aſbeſtos*, &c. But Dr. Plott rather judges it a *terra lapidoſa*, or middle ſubſtance, between ſtone and earth. As to its generation, the ſame author takes it to be a mixture of ſome ſalt, and a pure earth without ſulphur, coagulated in the winter, and hardened by the heats in ſummer. The ſalt, J. Heſius pretends, is a liquid alum of a milky ſubſtance, inclining to yellow, that ſweats out of the earth, and ſmells like rotten cheeſe.

The *aſbeſtus*, or *lapis aſbeſtos*, is really a ſort of native, fiſſile ſtone, which one may ſplit into threads or filaments, very fine and brittle, yet ſomewhat tractable, ſilky, and of a greyiſh ſilvery colour, not unlike talc of Venice. Acids have no effect upon it.

It is almoſt infuſed to the taſte, indiſſoluble in water; and, expoſed to the fire, it neither conſumes nor calcines.—A large burning-glaſs, indeed, reduces it into little glaſs globules, in proportion as the filaments ſeparate; but common fire only whitens it.

Theſe filaments are of different lengths, from one inch to ten.—The ſtone is uſually found cloſed within other very hard ſtones; though ſometimes growing to the ſurfaces of them, and ſometimes detached and ſeparate from any.

The proprietor of a forge in France found great quantities of a ſubſtance, which anſwered all the common uſes of native *aſbeſtos*. Upon a further inquiry into the nature of it, he concludes, that both the one and the other are calcined iron deprived of its phlogiſton; and by reuniting the phlogiſton with them, he can reſtore both to their primitive ſtate of iron. Phil. Tranſ. vol. ii. part 2. N° 72.

The *aſbeſtus*, applied to any part of the body, excites an itching; and yet we read of it as anciently preſcribed for diſeaſes of the ſkin, and particularly for the itch: unleſs it were rather the *alumen plumoſum* that was meant hereby; for even at this day, they are frequently confounded. The induſtry of mankind has found a method of working this untoward mineral, and employing it in divers manufactures, chiefly cloth and paper.

The manufacture is, undoubtedly, difficult enough. Pliny calls the *aſbeſtus*, *inventu rarum*, *tractu difficilimum*: Vorſius aſſures us, that the method of making cloth of *aſbeſtos* is now entirely unknown: in reality, one would ſcarce imagine the thing practicable, without the mixture of ſome other pliant matter, as wool, hemp, or flax, along with the *aſbeſtos*, the filaments of this latter appearing too coarſe and brittle, to make any tolerable fine work. However this be, Bapt. Porta aſſures us, that in his time, the ſpinning of *aſbeſtos* was a thing known to every body at Venice.

Sig. Caſtagnatta, ſuperintendant of ſome mines in Italy, is ſaid to have carried the manufacture to ſuch perfection, that his *aſbeſtos* was ſoft and tractable, much reſembling lamb-ſkin dreſſed white: he could thicken and thin it at pleaſure, and thus either make it into a very white ſkin, or a very white paper.

This kind of linen cloth was greatly eſteemed by the ancients; though then better known, and more common, than among us, being held equally precious with the richeſt pearls; nor is it now of mean value, even in the country where it is moſt generally made, a China cover (i. e. a piece of twenty-three inches and three quarters long) being worth eighty tale, i. e. 36l. 15s. 4d. Pliny ſays, he himſelf had ſeen napkins thereof, which being taken foul from the table, after a feaſt, were thrown into the fire, and by that means were better ſcoured than if they had been waſhed in water, &c. But its principal uſe, according to Pliny, was for the making of ſhrouds for royal funerals, to wrap up the corpſe, ſo that the aſhes might be preſerved diſtinct from thoſe of the wood, &c. whereof the funeral pile was compoſed: and the princes of Tartary, according to the accounts in the Philoſophical Tranſactions, ſtill uſe it at this day in burning their dead. Some of the ancients are ſaid to have made themſelves cloaths of it, particularly the Brachmans, among the Indians. The wicks for their perpetual lamps, according to De Lifter, were alſo made of it; and ſome to this day uſe it for the wicks of ſuch lamps as they would not have any trouble with; becauſe the *aſbeſtos* never waſtes, there is no occaſion for ſhifting the wick: Septalis, canon of Milan, had threſh. ropes, nets, and paper, made of the *aſbeſtos*. A handkerchief or pattern of this linen was long ſince preſented to the Royal Society, a foot long, and half a foot broad. This gave two proofs of its reſiſting fire; though, in both experiments, it left above three drachms in its weight. When taken out red-hot, it did not burn a piece of white paper, on which it was laid. Mr. Villette preſends, that his large burning concave ſtrikes the *aſbeſtos*.

The method of preparing the incombuſtible paper and cloth is thus deſcribed by Ciampini. The ſtone is laid to ſoak in warm water, then opened and divided by the hands, that the earthy matter may be waſhed out. The

ablution being several times repeated, the flax-like filaments are collected and dried; and they are most conveniently spun with an addition of flax. Two or three filaments of the *asbestus* are easily twisted along with the flaxen thread, if the operator's fingers are kept oiled. The cloth also, when woven, is best preserved by oil from breaking or wasting. On exposure to the fire, the flax and the oil burn out, and the cloth remains pure and white. Probably from the dissipation of some extraneous matter of this kind proceeded the diminution of weight in the handkerchief just recited; for pure *asbestus* leaves nothing. The shorter filaments which separate in washing the stone, may be made into paper in the common manner. Phil. Trans. N° 273.

It is first necessary to observe, that in the searching after this substance, the distinction between the *asbestines* and amianthi is carefully to be observed, the one of these being composed of the long threads, and the other of very short and abrupt ones; this is their great distinction, and all the *asbestines*, or long-threaded ones, are more or less fitted for this work, and none of the *amianthi*, or short-threaded ones, are at all so. Besides, the *asbestus* is somewhat heavier than the amianthus.

ASBESTOS, *fossil*, is a name given to plume-alum. See *Plume* ALUM.

ASCARIDES, in *Medicine*, a slender sort of worms, found in the *intestinum rectum*, chiefly of children, and frequently voided with their *faces*; sometimes also adhering to the fundament, or even pendent from it.

They are thus called from ἀσκαίρω, *I leap*, on account of their continual troublesome motion, causing a most intolerable itching. They are ranged by Linnæus among the *vermes intestinæ*.

The *ascarides* are worms not so dangerous as some others, but more difficult to be expelled, and that for several reasons. The first is, because those creatures are remote from the stomach; so that remedies lose their virtue before they can come where the worms are. The second is, because the *ascarides* are wrapt up in viscous humours, which hinder the operation of medicines. The third is, because these worms adhere sometimes to the *coecum*.

Now that gut being like the bottom of a sack, the *ascarides* keep themselves as it were intrenched in that place. However it be, it is better to attack them below.

The best known remedy for them is Harrowgate water, at the spring; the flower of brimstone taken with treacle, in such a quantity as to purge the patient gently every day, is, perhaps, the next most efficacious remedy. The fumes of tobacco, injected in form of a clyster, have been successfully used for expelling *ascarides*. Med. Obs. and Inq. vol. ii. p. 307.

Ascarides are said to be often the occasion of a *prolapsus ani*. See PROCIDENTIA.

The name *ascarides* is also given by M. Reaumur to a sort of small worms or maggots, bred from the eggs of winged animals; which bury themselves between the membranes of the leaves of plants, and there eat away the parenchymatous substance.

As small as these *ascarides* in general are, they do not fail to shew the proper characters, by which they may be reduced to regular classes: those which have had their origin from the eggs of butterflies, are truly and properly caterpillars in miniature; the others are maggots from flies; and if from beetles, they are hexapode worms.

Of the little caterpillars, some have sixteen feet, some only fourteen; and some of them are perfectly smooth and equal all over the body; others have a number of rings or annular divisions, like the larger caterpillars; their several changes in arriving at the fly-state are the same with those of the common silk-worm and other species of large caterpillars.

The *ova* of the parent butterfly are deposited singly, only one being placed on a leaf; for the little caterpillar is of the nature of the solitary, not the gregarious animals. These eggs are so small, as to be scarce visible, except to an observer so accurate, as M. Reaumur; but he not only discovered them lying upon the leaves of plants, but traced them to the time of their hatching; and observed this curious particular, that the caterpillar never enjoys the light or free air, but as soon as ever it is hatched eats its way through the integument of the leaf; and, under the cover of its shell, buries itself among the parenchymatous matter, whence it never comes out again till it arrives at the fly state.

The worms which are hatched of the eggs of flies, make their way as speedily into the substance of the leaf; but with this difference in the manner of doing it, that as the caterpillar eats its way through with its teeth, the *worm* strikes its head forcibly against it several times, and by repeated blows at length breaks a hole in it, large enough to admit its little body; and then feeds on the parenchyma of the leaf, in the same manner with the caterpillar. These finally change into their chrysalis state, within the covert of the membrane of the leaf. The last kind of *ascarides* which are to become beetles, make their way into the substance of the leaf in the same manner, and when they have fed their destined time upon its parenchyma and juices, they sometimes change in the covering of the membrane, and sometimes come out of their holes, and choose the surface of the leaf for the scene of this great catastrophe.

ASCENDANT, in *Genealogy*, is understood of ancestors, or such relations as have gone before us: such are father, grandfather, &c.—They are thus called in contradistinction to descendants, or the descending line. It is a canon in law, that inheritances never lineally *ascend*. Marriage is always forbid between the *ascendants* and *descendants*, in a direct line.

ASCENDANT, in *Astrology*, denotes the *horoscope*; or the degree of the ecliptic which rises above the horizon, at the time of the birth of any one.

This is supposed to have an influence on the person's life and fortune, by giving him a bent and propensity to one thing more than another.

In the celestial theme, this is also called the *first house*, the *angle of the East*, or *Oriental Angle*, and the *significator of life*.—Such a planet ruled in his *ascendant*.—Jupiter was in his *ascendant*, &c.

Hence the word is also used in a moral sense, for a certain superiority which one man has over another, from some unknown cause.

ASCENDENS *obliquus*. See OBLIQUUS.

ASCENDING, in *Astronomy*, is understood of those stars, or degrees of the heavens, &c. which are rising above the horizon in any parallel of the equator.

ASCENDING *latitude* is the latitude of a planet when going towards the north pole.

ASCENDING *node* is that point of a planet's orbit, wherein it passes the ecliptic, to proceed northward.

This is otherwise called the *northern node*, and is represented by this character ☊. See NODE, &c.

ASCENDING *signs*, among *Astrologers*, are those which are upon their ascent, or rise, from the *east*, or lowest part of the heavens, to the *south*, or highest.

ASCENDING, in *Anatomy*, is applied to such vessels as carry the blood upwards, or from lower to higher parts of the body. The *ascending aorta*, or *aorta ascendens*, is the superior trunk of the artery, which furnishes the head.

The *ascending cava*, or *cava ascendens*, is a large vein, formed by a meeting or union of the iliacs of one side, with those of the other. See *Tab. Anat. (Splanch.) fig. 1. lit.* O. (*Angeiol. fig. 6. lit.* cc.)

Many of the ancient anatomists called this the *descending cava*; as imagining that the blood descended from the liver by this vein, to supply the parts below the diaphragm. But the moderns have shewn, that it has a quite contrary use, and serves for the conveyance of the blood from the lower parts to the heart; whence its appellation *ascendant*.

ASCENSION, ASCENSIO, a rising or moving upward.

ASCENSION, in *Theology*, is particularly used for that miraculous elevation of our Saviour, when he mounted to heaven, in the sight of his apostles.

ASCENSION-*day*, popularly called *Holy-Thursday*, a festival of the church, held ten days before Whitsuntide, in memory of our Saviour's *ascension*.

ASCENSION, in *Astronomy*, is either *right* or *oblique*.

ASCENSION, *right*, of the sun, or of a star, is that degree of the equinoctial, accounted from the beginning of Aries, which rises with the sun, or star, in a right sphere.

Or right *ascension*, is that degree and minute of the equinoctial, counted as before, which comes to the meridian with the sun, or star, or other point of the heavens.

The reason of thus referring it to the meridian, is, because that it is always at right angles to the equinoctial, whereas the horizon is only so in a *right*, or direct sphere.

The right *ascension* stands opposed to the right *descension*.

Two fixed stars, which have the same right *ascension*, i. e. are at the same distance from the first point of Aries in a right sphere; or, which amounts to the same, are in the same meridian, rise at the same time.—If they be not in the same meridian, the difference between the time when they rise is the precise difference of their right *ascensions*.—In an oblique sphere, where the horizon cuts all the meridians obliquely, different points of the meridian never rise or set together; so that two stars, on the same meridian, never rise or set at the same time; and the more oblique this sphere, the greater is the interval of time between them.

To find the right *ascensions* of the sun, stars, &c. trigonometrically, say, As radius is the cosine of the sun's greatest declination, so is the tangent of the distance from Aries to Libra, to the tangent of right *ascension*.—To find the right *ascensions* mechanically by the globe, see GLOBE.

The

The *arch of right aſcenſion* is that portion of the equator intercepted between the beginning of *Aries*, and the point of the equator which is in the meridian: or, it is the number of degrees contained therein.—This coincides with the right *aſcenſion* itſelf.—The right *aſcenſion* is the ſame in all parts of the globe.

We ſometimes alſo ſay, the *right aſcenſion* of a point of the ecliptic, or any other point of the heavens.

The difference between the *right* and *oblique aſcenſion* is called the ASCENSIONAL *difference*.

ASCENSION, *arch of right*. See ANGLE.

ASCENSION, *oblique*, is an arch of the equator intercepted between the firſt point of *Aries*, and that point of the equator, which riſes together with a ſtar, &c. in an oblique ſphere.

The oblique *aſcenſion* is numbered from weſt to eaſt; and is more or leſs, according to the different obliquity of the ſphere.

To find the oblique *aſcenſions* of the ſun, either trigonometrically, or by the globe, ſee GLOBE.

The *arch of oblique aſcenſion*, is an arch of the horizon intercepted between the beginning of *Aries*, and the point of the equator, which riſes with a ſtar, or planet, in an oblique ſphere.—This coincides with the *oblique aſcenſion* itſelf.—The *oblique aſcenſions* change according to the latitude of the place.

ASCENSION *and deſcenſion, refraction of*. See REFRACTION.

ASCENSIONAL *difference*, is the difference between the right and oblique *aſcenſion* of the ſame point on the ſurface of the ſphere.

To find the *aſcenſional* difference trigonometrically: having the latitude of the place, and the ſun's declination given, ſay, As radius is to the tangent of the latitude, ſo is the tangent of the ſun's declination to the ſine of the *aſcenſional* difference.

If the ſun be in any of the northern ſigns, and the *aſcenſional* difference, as DO, be ſubtracted from the right *aſcenſion* reckoned at D (*Tab. Aſtronomy, fig.* 62.) the remainder will be the oblique *aſcenſion* at O.—If he be in a ſouthern ſign, the *aſcenſional* difference being added to the right *aſcenſion*, the ſum is the oblique *aſcenſion*; and thus may tables of oblique *aſcenſions* be conſtructed for the ſeveral degrees of the ecliptic, under the ſeveral elevations of the pole. The ſun's *aſcenſional* difference converted into time, is juſt ſo much as he riſes before or after ſix o'clock.

ASCENSORIUM ſometimes occurs in our ancient writers for a ſtair or ſtep.

ASCENT, ASCENSUS, the motion of a body tending from below upwards; or the continual receſs of a body from the earth.

In this ſenſe the word ſtands oppoſed to *deſcent*.

The Peripatetics attribute the ſpontaneous *aſcent* of bodies to a principle of levity, inherent in them.

The moderns deny any ſuch thing as ſpontaneous levity, and ſhew that whatever *aſcends*, does it in virtue of ſome external impulſe, or extruſion. Thus it is that ſmoke, and other rare bodies, *aſcend* in the atmoſphere; and oil, light woods, &c. in water: not by any external principle of levity, but by the ſuperior gravity, or tendency downwards of the parts of the medium wherein they are.

The *aſcent* of light bodies in heavy mediums is produced after the ſame manner as the *aſcent* of the lighter ſcale of a balance.—It is not that ſuch ſcale has an internal principle, whereby it immediately tends upwards; but it is impelled upwards by the preponderancy of the other ſcale; the exceſs of the weight of the one having the ſame effect by augmenting its impetus downwards, as ſo much real levity in the other: becauſe the tendencies mutually oppoſe each other, and that action and reaction are always equal. *See* this farther illuſtrated under the articles *Specific* GRAVITY, and FLUID.

ASCENT *of Bodies on inclined Planes*. See the doctrine and laws of them under *Inclined* PLANE.

ASCENT *of fluids* is particularly underſtood of their riſing above their own level, between the ſurfaces of nearly contiguous bodies, or in ſlender capillary glaſs tubes, or in veſſels filled with ſand, aſhes, or the like porous ſubſtances.

This effect happens as well *in vacuo*, as in the open air, and in crooked as well as ſtraight tubes. Some liquors, as ſpirit of wine, and oil of turpentine, *aſcend* ſwifter than others; and ſome riſe after a different manner from others. Mercury does not aſcend at all, but rather ſubſides.

The *phænomena*, with its cauſes, &c. in the inſtance of capillary tubes, will be ſpoken of more at large under CAPILLARY *tube*.

As to plants. Two ſmooth poliſhed plates of glaſs, metal, ſtone, or other matter, being ſo diſpoſed as to be almoſt contiguous, have the effect of ſeveral parallel capillary tubes: and the fluid riſes in them accordingly: the like may be ſaid of a veſſel filled with ſand, &c. the divers little interſtices whereof form, as it were, a kind of capillary tubes. So that the ſame principle accounts for the appearance in them all. And to the ſame may probably be aſcribed the *aſcent* of the ſap in vegetables. Thus Sir I. Newton. "If a large pipe of glaſs be filled "with ſifted aſhes, well preſſed together, and one end "dipped into ſtagnant water, the fluid will *aſcend* ſlowly "in the aſhes, ſo as in the ſpace of a week or fortnight "to reach the height of thirty or forty inches above the "ſtagnant water. This *aſcent* is wholly owing to the "action of thoſe particles of the aſhes which are upon "the ſurface of the elevated water; thoſe within the "water attracting as much downwards as upwards: it "follows, that the action of ſuch particles is very ſtrong; "though being leſs denſe and cloſe than thoſe of glaſs, "their action is not equal to that of glaſs, which keeps "quick-ſilver ſuſpended to the height of ſixty or ſeventy "inches, and therefore acts with a force which would "keep water ſuſpended to the height of about ſixty feet. "By the ſame principle, a ſponge ſucks in water, and "the glands in the bodies of animals according to their "ſeveral natures and diſpoſitions, imbibe various juices "from the blood. Optics, p. 367.

If a drop of oil, water, or other fluid, be laid on a glaſs plane, perpendicular to the horizon, ſo as to ſtand without breaking, or running off; and another plane, inclined to the former ſo as to meet a-top, be brought to touch the drop, then will the drop break, and *aſcend* towards the touching end of the planes: and it will *aſcend* the ſaſter in proportion as it is higher, becauſe the diſtance between the planes is conſtantly diminiſhing.—After the ſame manner, the drop may be brought to any part of the planes, either upward or downward, or ſideways, by altering the angle of inclination.

Laſtly, if the ſame perpendicular planes be ſo placed, as that two of their ſides meet, and form a ſmall angle, the other two being only kept apart, by the interpoſition of ſome thin body; and thus immerged in a fluid tinged with ſome colour; the fluid will aſcend between the planes, and this the higheſt where the planes are neareſt; ſo as to form a curve line, which is found to be a juſt *hyperbola*, one of the *aſymptotes* whereof is the line of the fluid, the other being a line drawn along the touching ſides.—The phyſical cauſe, in all theſe *phænomena*, is the ſame power of ATTRACTION.

ASCENT *of vapour*. See CLOUD and VAPOUR.

ASCENT, in *Aſtronomy*, &c. See ASCENSION.

ASCENT, in *Logic*, denotes a kind of argumentation, wherein we riſe from particulars to univerſals.

As, when we ſay, this man is an animal, and that man is an animal, and the other man, &c. therefore, every man is an animal.

ASCESIS, properly denotes exerciſe of the body. It is formed from the verb ασκεω, uſed by the ancients in ſpeaking of the ſports and combats of the *athletæ*.

ASCESIS is alſo uſed by philoſophers to denote an exerciſe conducive to virtue, or to the acquiring a greater degree of virtue. Buddæus has a diſſertation on this philoſophical *aſceſis*.

ASCETERIUM, in *Eccleſiaſtical Writers*, is frequently uſed for a monaſtery, or place ſet apart for the exerciſes of virtue and religion.

The word is formed from *aſceſis, exerciſe*, or *aſcetes*, one who performs exerciſe. Originally it ſignified a place where the *athletæ*, or gladiators, performed their exerciſes.

ASCETIC, an ancient appellation given to ſuch perſons as, in the primitive times, devoted themſelves more immediately to the exerciſes of piety and virtue, in a retired life; and, particularly, to prayer, abſtinence, and mortification.

The word is derived from ασκεω, *exerceo, I exerciſe*.

Afterwards, when the monks came in faſhion, this title was beſtowed upon them; eſpecially upon ſuch of them as lived in ſolitude.

ASCETIC is alſo a title of ſeveral books of ſpiritual exerciſes.—As, the *Aſcetics*, or devout treatiſes of St. Baſil, archbiſhop of Cæſarea in Cappadocia.

We alſo ſay the *aſcetic* life, meaning the exerciſe of prayer, meditation, and mortification.

A SECRETIS. See SECRETARY.

ASCHARIOUNS, or ASCHARIANS, followers of Aſcharius, one of the moſt celebrated doctors among the Mahometans.

ASCHIA, in *Ichthyology*. See GRATELING.

ASCIA, in *Antiquity*, an inſtrument ſuppoſed of the ax-kind, uſed in the fabric of the Roman tombs, and frequently repreſented on them.

The *formula ſub aſcia dedicare*, is frequently found inſcribed on ancient tomb-ſtones. We alſo meet with *regum aſcia ne polirito*, among the ancient laws of the Twelve Tables.

Tables. These expositions, and the figure of the *ascia*, as seen on the tombs, have puzzled several antiquaries who have formed very various conjectures concerning it. M. Mallet rejects all these explications, and with considerable probability affirms, that the *ascia* was a hoe, or sort of pickaxe for digging up the ground, which is to this day called *assuade*, or *assade*, in Languedoc. This *ascia* he presumes was not an instrument to common use, but consecrated and employed only for digging of graves; and that it is the same with what Sidonius Apollinaris calls *rastrum funebre*, wherewith the Gauls digged their graves. Lib. iii. ep. 12.

This, he thinks, appears plainly to be the signification of the word, from the Latin proverb, *ipse sibi ascian in ora fodere*; which often happens to those who work with this instrument.

On this footing the famous law of the Twelve Tables, wherein the above-mentioned, and the explication of which has puzzled all our antiquaries, contained only a prohibition to dig graves without an instrument of iron or copper, such as the *ascia*. In reality it was a tradition observed by the remotest antiquity, that no instrument made of those metals should be used in sepulchres.

Dom. Martin has given a dissertation concerning the funeral monuments of the Romans, confounded *Ad Asciam* La Relig. des Gaul. tom. ii. liv. 5.

ASCIA is also used, in *Surgery*, for a kind of bandage, somewhat oblique, or crooked in the manner we are well described by Scultetus, in his Armam. Chirurg. p. 1. tab. 34. fig. 3.

ASCII, in *Geography*, are those inhabitants of the globe, who, at certain times of the year, have no shadow.

The word is formed of the *privative* a, and σκια, *umbra*, *shadow*.

Such are the inhabitants of the torrid zone; because the sun is sometimes vertical to them.—To find on what days the people of any parallel are ascii, see Geography.

ASCIDIA, a genus in the order of *malacia worms*, in the Linnean system.

ASCINDOE, in *Botany*, a name given by the people of Guinea to a shrub, which they use in medicine, boiling it in water, and giving the decoction in gonorrhœas, and the like complaints. Petiver has named it the prickly Guinea shrub, with roundish serrated leaves, and filamentous flowers. The leaves are about an inch wide, and about an inch and a half long; they stand on short foot-stalks; and at the ends of the branches, three-fold clusters of flamineous flowers. The thorns on the lower branches are very strong. Phil. Trans. N° 233.

ASCITÆ, in *Antiquity*, a sect, or branch, of Montanists, who appeared in the second century.

The word is derived from ασκος, a *bag*, or *bottle*.

The *Ascitæ* were so called, because they introduced a kind of Bacchanals into their assemblies, who danced round a bag or skin blowed up; saying, these were their new bottles filled with new wine, wherein Jesus Christ makes mention, Math. ix. 17.—They are sometimes also called *Askenazitæ*.

ASCITES, in *Medicine*, a species of HYDROPSY, affecting chiefly the *abdomen*, or lower belly.

The word is borrowed from ασκος, *uter*, *bag*, or *bladder*.

This *ascites* is the ordinary WATER-DROPSY.

ASCLEPIA, in *Antiquity*, feasts celebrated through Greece in honour of Bacchus.

ASCLEPIAD, ASCLEPIADEUS, a Greek or Latin verse of four feet, containing a spondee, a choriambus, and two dactyls; or, which amounts to the same, a spondee, two choriambuses, and a pyrrhichius.

Such is the verse,

Maecenas atavis edite regibus.

Avid, *Tendit sectores fibris curvis.*

ASCLEPIAS, in *Botany*, *Convolvulus*, *Hirundinaria*. See SWALLOW-Wort.

ASCODRUTÆ, in *Antiquity*, a sect in the second century, who rejected all use of symbols and sacraments, on this principle, that incorporeal things cannot be communicated by things corporeal, nor divine mysteries by any thing visible.

ASCOGLYPHRUS, in *Middle Age Writers*, denotes a bridge supported on logs made of leather, or bullocks hides. Such bridges appear to have been in use among the ancients, and to have given the denomination to a tribe of Arabs, hence called *Asciæ*.

Hence also the appellation *ascomanic* given to pirates, by reason of their using bridges, or rather boats made of leather. Plin. Hist. Nat. lib. vi. c. 9. Du-Cange.

ASCOLIA, in *Antiquity*, a feast, which the peasants of Attica celebrated in honour of Bacchus.

They sacrificed a he-goat to him, (as being the destroyer of vines); and of the victim's skin made a foot-ball, which they blew up, and anointed with some unctuous matter; or, as Potter thinks, they made a bottle of it, which they filled with oil and wine. The young people playing at this, and keeping themselves always on one foot, whilst the other was suffended in air, by their frequent falls, gave occasion of diversion to the spectators. He that held the spout longest, and made the largest leap, was the conqueror. Hence the game called *Aspilaton*. Pollux.

ASCRIPTI, or ADSCRIPTI, in *Roman Law*, those who entered their names in the colonies, and became inhabitants.

ASCRIPTII, or ASCRIPTIVII, a kind of villains who coming from abroad, settle in the lands of some new lord, whose subjects or servants they commence; being first entered to the lands, that they may be transferred and sold with the same.

The *ascripti* are annexed to the land they hold, so that they cannot flie from it; besides, that whatever they acquire accrues to the benefit of the lord of the land. Du-Cange, and Cowel. Law Jur.

ASCRIPTITII is sometimes also used in speaking of aliens or foreigners, newly admitted to the freedom of a city or country.

ASCRIPTITIUS was also used in the *Military Laws*, for the persons supposed to supply the losses of the legions, called ADSCRIPTI.

ASCRIPTIVI, in *Antiquity*. See ASCRIPTII.

ASCUS, in *Natural History*, a word used by Du Luc, as the name of that pouch or bag which nature has given to the opossum, or sarigue, or our common people in America call it, for the securing the young ones into it in time of danger.

This *ascus* is a kidney bag, separate from the coil of the body, and only adhering by a membrane to the bottom of the belly. It is a vulgar error to suppose, that the young of this animal are taken back again into the womb, in time of danger, they being only at liberty to creep into and out of this bag, prepared on purpose for them.

ASCYRUM, in *Botany*. See St. PETER's-wort.

ASERI, or ASERAI, the name which the Turks give to the fraternal fraternities, who have brought forth sons. These are greatly distinguished above others in their apartments, attendants, pensions, and honours. They have sometimes filled the government. The sultans who first perform the circumcision with a male child, is reckoned the chief favourite, is called *serai agasi*, and ranks as a legitimate wife; though, from the time of Bajazet I. the sultans are forbid to marry by a public law, which Solyman II. violated in favour of Roxalana.

ASELLI, two small stars of the fourth magnitude, in the constellation CANCER.

ASELLI is sometimes used for MILLEPEDES.

ASELLI *Pancreas*. See PANCREAS.

ASELLUS, in *Ichthyology*, the name of a genus of fish, including the *cod* and *whiting*; of which writers enumerate several species. See Willughby's Hist. Pisc. p. 160. See COD and FISHERY.

ASEMOS, *ασημος*, from α *negative*, and σημα, a *sign*, is an epithet applied to events that fall out contrary to all appearance, and without any manifest cause.

ASEPTA, in *Medicine*, *ασηπτα*, from α *negative*, and σηπω, *to putrefy*; applied to anything unputrefied, or unputrefying.

ASH-TREE, *fraxinus*, in *Botany*, a genus of the *polygamia dioecia* class. The characters are, that it has hermaphrodite and female flowers on the same tree, and sometimes on different trees. The hermaphrodite flowers have no petals, but a small empalement including two erect stamina. In the centre is situated an oval compressed germen, which afterward becomes a compressed two-edged fruit, shaped like a bird's tongue, having one cell, including a seed of the same figure. The female flowers are the same, but have no stamina. Linnæus enumerates three, and Miller six species.

These trees are now propagated in plenty in the nurseries for sale, as there have been of late years a great demand for all the hardy plants of trees and shrubs which will live in the open air; but all those trees which are grafted upon the common ash are not so valuable as those which are raised from seeds, because the stock generally grows much taller than the graft; whereby the lower part of the trunk, so far as the stock rises, will often be twice the size of the upper, and if the trees stand much exposed to the wind, the grafts are frequently broken off to the stock, after they are grown to a large size, which is a great disappointment to a person, after having waited several years, to see their trees suddenly destroyed. Beside, if the wood of either of the sorts is valuable, it can be of little use when the trees are so raised.

The common ash propagates itself in plenty by the seeds which scatter in the autumn; so that where the seeds happen to fall in places where the cattle do not come, there will be plenty of plants come up in the spring. But where any person is desirous to raise a quantity of the trees, the seeds should be sown as soon as they are ripe, and then the plants will come up the following spring; but if the seeds are kept out of the ground till

fusing, the plants will not come on amiss the year after, which is the same with all the sorts of *afhes*.

Where the plants are come up, they muſt be kept clean from weeds, during the ſummer; and if they make any good progreſs in the firſt bed, they will be fit to tranſplant by the following autumn; otherwiſe there ſhould be ſome ground prepared to receive them, and as ſoon as their leaves begin to fall, they may be tranſplanted.

In taking them up, care ſhould be taken not to tear off any of their roots, as perhaps moſt, they ſhould be taken up with a trowel, and not drawn up as is commonly practiſed. For, as many of the plants which are firſt raiſed from ſeeds will ariſe by the offsets from their roots, ſo

ASINUS *piscis*, in *Ichthyology*, a name given by some authors to the ROBERNUS, or common haddock, called also ONOS. Willughby.

ASIO, in *Ornithology*, a name given by Aldrovandus, and others, to the OTUS, or little horned-owl.

ASKER, a name used in some parts of England for the water-newt, or EFT.

ASLANI, in *Commerce*, a name given to the Dutch dollar, current in most parts of the Levant.

The word is also written corruptly, *eslani*. It is originally Turkish, and signifies a lion, which is the figure stamped on it. The Arabs, taking the figure of a lion for a dog, called it *eschach*.

The *aslani* is silver, but of a base alloy, and oftentimes counterfeit. It is current for 115 or 120 aspers. See ASPER.

ASMODAI, the name given by the Jews to the prince of demons; and, according to *R. Elias*, the same with *Beelzebub*.

ASOTUS, in *Ichthyology*, a species of the SILURUS.

ASP, in *Natural History*, a small poisonous kind of serpent, whose bite gives a speedy, but easy death.

It is said to be thus denominated from ασπις, *shield*, in regard to its manner of lying convolved in a circle, in the centre of which is the head, which it exerts, or raises, like the *umbo* or umbilicus of a buckler.

This species of serpent is very frequently mentioned by authors, but so carelessly described, that it is not easy to determine which, if any of the species known at present, may properly be called by that name.

Naturalists mention three species of *asps*; the first called *cherias*, the second *chelidonia*, and the third *presa*, the most fatal of all.

It is with the *asp* that Cleopatra is said to have dispatched herself, and prevented the designs of Augustus, who remitted to have carried her captive to adorn his triumphal entry into Rome. But the fact is corrected by Brown, as placing it among the vulgar errors. The indications of that queen's having used the sanguinary of the *asp*, were only two almost insensible pricks found in her arm. In reality, Plutarch says, it is unknown of what death she died.

Lord Bacon makes the *asp* the least painful of all the instruments of death; he supposes its poison to have an affinity to opium; but to be less disagreeable in its operation; which does not so well coincide with the description of the symptoms given by Dioscorides and others. Immediately after the bite, the sight becomes dim, a terrible tumor arises, and a moderate pain is felt in the stomach.

Matthiolus adds, that the bite is followed by a stupor of the whole body, paleness, coldness of the forehead, continual yawning, agitations of the eye-lids, inclination of the neck, heaviness of the head, sinking into a profound sleep, and fatal convulsions.

The bite of the *asp* is said by Aristotle to admit of no remedy. Pliny and Avicenna allow of no other cure, but to cut off the wounded part. Others recommend burning the part, with the internal use of hot alexipharmic medicines.

The ancients had a plaster called *de aspide*, made of this terrible animal, of great efficacy as a discutient of *strumæ*, and other indurations; and used likewise against pains of the gout. The flesh and fens, or *excrementa* of the creature, had also their share in the ancient *Materia Medica*.

ASPALATH, ASPALATHUS, in *Pharmacy*, the wood of a foreign tree, heavy, oleaginous, somewhat sharp and bitter to the taste, and of a strong smell, and purple colour.

The *aspalath* is otherwise called *lignum Rhodium*, or *rose-wood*; and by some, *Cyprus-wood*; the former on account of its sweet smell, or growth in the island of Rhodes; the latter from its being also found in the island of Cyprus. Though some will have *aspalathus* a different wood from the *lignum Rhodium*.

Aspalath was anciently in much repute, as an astringent, strengthener, and diuretic; but it is now much disused in internal practice.

In virtue, taste, smell, and weight, it resembles the *lignum aloes*; and in physic they are frequently substituted the one for the other.

Aspalathum affords an oil of an admirable scent: reputed one of the best perfumes; it is chiefly used in scenting pomatums, and liniments.

ASPALATHUS, *African Broom*, in *Botany*, a genus of the *decandria monogynia* class; the calyx of which consists of a single-leafed perianthium, divided into five segments; the corolla papilionaceous; the fruit is a roundish, turgid, unilocular, bivalve pod; the seed is single, and frequently kidney-shaped. There are nineteen species.

ASPARAGUS, in *Botany*, vulgarly called SPARROW-*grass*, a genus of the *hexandria monogynia* class. Its characters are, that the flower is naked, having no empalement, and is of the bell-shaped kind, spread open, and reflected on the top. There are male and hermaphrodite, sometimes on different plants, and at other times on the same stalks. The hermaphrodite flowers have a germen, which afterwards becomes a round berry, having three cells; in each of which is lodged one or two seeds. The male flowers have no germen, but no seeds in them; nor are succeeded by any berries. There are ten species, according to Mr. Miller; the first of which is the common *asparagus*, which is cultivated for the use of the table, and may probably have been brought by culture to its present degree of perfection, from the wild sort which grows naturally in the fens of Lincolnshire, where the shoots are no larger than straws.

This *asparagus* is propagated by seeds, in the procuring which, particular care should be taken to get them from a person of skill and integrity. But where a person is in possession of some good beds of *asparagus*, it is worth the while not to buy them himself; in order to which, a sufficient number of the fairest buds should be marked early in the spring, and be permitted to run up to seed; because those which run up after the season for cutting the *asparagus* are generally so backward, as not to open the seeds, unless the summer is warm, and the autumn favourable.

There are some persons who plant the seeds of *asparagus* in the place where the roots are to remain, which is a very good method, if it is performed with care. The ground should be well trenched and dunged, they lay it level, and draw a line across the ground, in the same manner as is practised in planting the young plants. With a dibble make holes at a foot distance, two each of which are to be dropped two seeds, for fear one should miscarry; which holes should not be by more than half an inch deep. Then cover the seeds, and remove the line a foot back for another row; and after two rows are finished, leave space for an alley between the beds. If it is to be taken up for hot beds, there may be six rows planted in each bed, nine inches distance between the rows. This should be performed by the middle of February, because the seeds lie long in the ground; but if onions are intended to be sown upon the ground, that may be performed a fortnight or three weeks after, provided the ground be not hoed so deep as to disturb the *asparagus* seeds, in taking the onion roots into the ground.

A month after this, the *asparagus* will come up; the crop of onions must then be thinned, and the weeds carefully cleared away. About August all the onions will be fit to pull up. In October following, cut off the shoots of the *asparagus* within two inches of the ground, clear well all weeds away, and throw up the earth upon the beds, so as to leave them five inches above the level of the alleys. A row of cabbages may be planted in the middle of the alleys, but nothing must be sown down on the beds. In the spring, the weeds must be hoed up; and all the summer, the beds kept clear of weeds. In October, they must be turned up, and earthed again, as in the preceding season.

The second spring after planting, some of the young *asparagus* may be cut for the table. The larger shoots should only be taken, and those should be cut at two inches under ground, and the buds every year managed as in the second year.

It is proper to take notice of a common error that has long prevailed with most people, which is, that of not digging the ground for *asparagus*, believing that the dung communicates a strong rank taste to it; which is a great mistake, for the fairest *asparagus* is that which grows on the richest ground, the poor ground occasioning that rank taste so often complained of.

The quantity of ground necessary to be planted with *asparagus*, to supply a small family, should be at least five or six rods; less than which will not do, for if there cannot be a hundred cut at a time, it will be scarcely worth while to plant it. Miller.

ASPARAGUS is a medicinal plant, which furnishes one of those called the five opening roots. It is a known diuretic; its use, or head, taken in the way of food, readily discovers itself in the smell of the urine: but its root is still more strongly endued with that quality, as containing more of the salt from which it is derived. Hence it becomes, among us, an ingredient in all compositions, intended to cleanse the *viscera*, and guard against jaundices, dropsies, &c. It is also of some use as a pectoral; and makes a chief ingredient in the syrup of marshmallows, against the stone. Though foreign physicians speak more sparingly of the use and virtues of this medicine.

ASPARAGUS was also used by the ancient Greeks, to express not only the young shoots of the plant of that

name,

name, but any other young sprouts of an eatable plant. The sprouts of the larger kinds of cabbage were particularly expressed by this word, or sometimes by the compounded term *cymbacaryagati*.

ASPASIA, among *ancient Physicians*, a constrictive medicine for the *parotid tumours*. It consisted only of wool, moistened with an infusion of unripe galls. Caius's Lex. Med.

ASPASTICUM, in *Ecclesiastical Writers*, a place or apartment, adjoining to the ancient churches, wherein the bishop and presbyters sat, to receive the salutations of the persons who came to visit them, deliver their blessing, or consult them on difficulties.

This is also called *aspasium*, *aspasmum*, *exceptorium*, *auditorium* or *acceptorium*, and *salutatorium*; in English, *greeting-place*.

ASPECT, ASPECTUS, in *Gardening*, is used for what we otherwise call *exposure*.

ASPECT, in *Astronomy*, is used for the situation of the stars, or planets, in respect of each other; or, in *Astrology*, it denotes a certain configuration, and mutual relation between the planets, arising from their situations in the zodiac, whereby their powers are supposed to be mutually either increased or diminished, as they happen to agree or disagree in their active or passive qualities. Though such configurations may be varied, and combined a thousand ways, yet only a few of them are confidered.—Hence, Wolfius more accurately defines *aspect* the meeting of luminous rays emitted from two planets to the earth, either situate in the same right line, or including an angle which is one or more quota parts of four right angles.

The doctrine of *aspects* was introduced by the aftrologers as the foundation of their predictions. Hence, Kepler defines *aspect* an angle formed by the rays of two planets meeting on the earth, able to excite fome natural power or influence.

The ancients reckoned five *aspects*, viz. *conjunction*, denoted by the character ☌; *opposition*, by ☍; *trine*, by △; *quadrate*, by □; and *sextile*, by ⚹.

Conjunction, and *opposition*, are the two extremes of the *aspects*; the firſt being the beginning, and the ſecond the higheſt or ultimate term. See CONJUNCTION, and OPPOSITION.

Trine, or *trine*, is the third part of a circle, or the angle meaſured by AB; *Tab. Aſtron. fig. 3.*

Tetragon, or *quadrate*, is the fourth part of a circle, or the angle meaſured by the quadrant AD. *Sextile*, which is the ſixth part of a circle, or angle, is meaſured by the ſextant AG. See TRIGON, &c.

The *aſpects* are divided, with regard to their ſuppoſed influences, into *benign*, *malign*, and *indifferent*.

The quadrate *aſpect* and oppoſition are reputed *malign*, or *mutual*; trine and ſextile, *benign* or *friendly*; and conjunction, an *indifferent aſpect*.

To the five ancient *aſpects*, the modern writers have added ſeveral more: as *decile*, containing the tenth part of a circle; *tridecile*, three tenths; and *biquintile*, four tenths, or two fifths.—Kepler adds others, as he tells us, from muſical obſervations: as the *ſemi-ſextile*, containing the twelfth part of a circle; and *ſeſquare*, containing five twelfths.—Laſtly, to the aſtrological phyſicians we owe, *octile*, containing one eighth; and *tredecile*, containing three eighths. Some have alſo added *quintile*, containing a fifth part of the circle; and *ſeſquitile*, or two fifths.

The angle intercepted between two planets in the *aſpect* of conjunction is 0; in the ſemi-ſextile *aſpect*, 30°; in decile, 36°; in octile, 45°; in ſextile, 60°; in quintile, 72°; in quintile, 90°; in tridecile, 108°; in trine, 120°; in tredecile, 135°; in biquintile, 144°; in quincunx, 150°; in oppoſition, 180°.

Theſe angles, or intervals, are reckoned on the ecliptic circles; or according to the longitudes of the planets; ſo that the *aſpects* are the ſame, whether a planet be in the ecliptic, or out of it.

The *aſpects* are uſually divided into *partile* and *platic*.

ASPECTS, *partile*, are when the planets are juſt ſo many degrees diſtant, as is above expreſſed.—Theſe alone are the *perfect aſpects*.

ASPECTS, *platic*, are when the planets do not regard each other from theſe very degrees; but the one exceeds as much as the other comes ſhort.—So that the one does not caſt its rays immediately on the body of the other, but only on its tub or ſphere of light.

ASPECT, *double*, is uſed in painting, where a ſingle figure is ſo contrived, as to repreſent two or more different objects, either by changing the poſition of the eye, or by means of angular glaſſes.—Inſtances hereof, ſee under the articles ANAMORPHOSIS, CATOPTRIC, CISTULA, and MIRROR.

ASPEN-*tree*; ſee POPLAR.

ASPER, in *Grammar*.—*Spiritus* ASPER, a character, or accent, in form of a ʽ, placed over certain letters, in the Greek tongue, to ſhew they are to be ſtrongly aſpirated, and that the breath is here to ſupply the place of an *h*.

ASPER, or ASPRE, alſo ſignifies a little Turkiſh ſilver *coin*, wherein moſt of the grand ſignior's revenues are paid.

The *aſper* is worth ſomething more than an Engliſh half-penny.—The only inſpection it bears, is that of the prince's name under whom it was ſtruck.—The pay of the janizaries is from two to twelve *aſpers* per diem.

ASPER, in *Ichthyology*, a ſmall fiſh called in the Rhone, ſo called from the roughneſs of its ſcales. Its head is large, in proportion to its body, and of a pointed ſhape. It has no teeth, but its jaws are sharp to the touch. It is of a dark yellow colour, with large black ſpots. It is good to eat, being eſteemed aperitive. Lemery.

ASPERA *Arteria*, in *Anatomy*, the WIND-*pipe*; otherwiſe called the TRACHEA.

The *aſpera arteria* is a canal ſituate in the middle and fore-part of the neck, before the *oeſophagus*: its upper end is called the LARYNX; from whence it deſcends to the fourth *vertebra* of the neck, where it divides, and enters the lungs.—See *Tab. Anat. Exquiſit. fig. 2. & 10. & Splanch. fig. 17. lett. n. & t.*

It is formed of annular cartilages, ranged at ſmall and equal diſtances from one another, and growing ſmaller and ſmaller, as they approach the lungs: thoſe of the *bronchia* being ſo cloſe to one another, that, in reſpiration, the ſecond enters within the firſt, and the third within the ſecond, and the following always enters the preceding.

Between the *larynx* and the lungs, theſe cartilages make not complete rings, being flat on one ſide, and not touching the whole circle, but repreſenting the figure of the ancient Greek *ſigma*: whence they are alſo ſometimes named *ſigmoides*.—Their hind part, which is contiguous to the *oeſophagus*, is membranous, that they may better contract and dilate, and give way to the food as it paſſes down the gullet.

The cartilages of the *bronchia* are completely annular: yet their capillary branches have no cartilages, but inſtead of them, ſmall circular ligaments, which are at pretty large diſtances from one another.—The uſe of the cartilages is to keep the paſſage for the air open; but in the capillary *bronchia*, they would hinder the ſubſiding of the veſſels.

Theſe cartilages are tied together by two membranes, external and internal: the external is compoſed of circular fibres, and covers the whole *trachea* externally; the internal is of an exquiſite tenſe, and covers the cartilages internally: it is compoſed of three diſtinct membranes; the firſt woven of two orders of fibres; thoſe of the firſt order being longitudinal, for ſhortening the *trachea*: theſe make the cartilages approach, and enter one another: the other order is of circular fibres, for contracting the cartilages.

When theſe two orders of fibres act, they aſſiſt, together with the external membrane, in expiration, in coughing, and in altering the tone of the voice.

The ſecond membrane is altogether glandulous; and the excretory veſſels of its glands, opening into the cavity of the *trachea*, ſeparate a liquor for moiſtening the fibres, and defending it from the acrimony of the air.—The laſt is a net of veins, nerves, and arteries: the veins are branches of the *vena azyga*; the nerves of the recurrent; and the arteries are ſprings of the *aorta*.

Tranſverſe ſections of the *aſpera arteria* have been commonly reputed mortal. Yet in the modern practice we find many inſtances to the contrary. In ſome dangerous caſes of quinſies, &c. they are even obliged to cut open this part. This operation is called BRONCHOTOMY, or LARYNGOTOMY.

In the Philoſoph. Tranſact. is a letter by Mr. John Kent, recommending the more frequent uſe of bronchotomy, or opening the wind-pipe, upon preſſing occaſions; which he urges from a remarkable caſe of a perſon who had the *trachea*, or wind-pipe, cut quite through beneath the *pomum Adami*, cured by ſtitching the wound, and uſing proper medicines.

There are curious obſervations on ſome peculiar advantages in the ſtructure of the *aſpera arteria*, or WIND-*pipes* of ſeveral birds, and of the hooping-cough, in the Phil. Tranſ. vol. lvi. N° 24. an. 1766. The birds referred to are the wild *goose*, *duck*, *ſwan*, *crane*, *Indian cock*, and *domeſtic hen*. See each and CLERGYMEN.

ASPERGILLOUS, in *Botany*, the name given by Michelli to that genus of moſſes called, by Dillenius and others, *byſſus*. Linnæus preferves the name of *byſſus* to theſe plants, but he removes them out of the claſs of moſſes, and places them under the general ſeries of fungines, defining them to be fungules compoſed of diſtinct capillary fibres, without knots.

ASPERGILLUM, in *Antiquity*, a long brush made of hoſſe-

horſe-hair, fixed to a handle, wherewith the luſtral water was ſprinkled on the people in luſtrations and purifications. Horſley Brit. Rom. lib. ii. cap. 1.

This is alſo denominated *aſperſile*, and *aſperſorium*.

The ancients, inſtead of a brufh, made uſe of branches of laurel and olive.

It is alſo uſed, in *Eccleſiaſtical Writers*, to denote the inſtrument in Romiſh churches, wherewith holy water is ſprinkled.

ASPERIFOLIOUS, in *Botany*, one of the diviſions or claſſes of plants in the *Fragmenta Methodi Naturalis* of Linnæus; ſo denominated, becauſe uſually rough-leaved. According to Mr. Ray, theſe plants make a diſtinct genus, the characters of which are, that the leaves ſtand alternately, or without any certain order, on the ſtalks: the flowers are monopetalous, but they have the margin cut into five diviſions, ſometimes deep, ſometimes ſhallow; and the upper ſpike or top of the plant is often curved back, ſomething like a ſcorpion's tail.

In the place of each flower, there uſually ſucceed four ſeeds; Mr. Ray ſuppoſes the *corinthe* the only plant of this genus that has leſs than four ſeeds at the baſe of each flower; this indeed hath but two.

To the claſs of *herbæ aſperifoliæ* belong the *pulmonaria maculoſa, cynoglſſa, borago, buglſſa, anchuſa, echium, linum umbilicatum, helioſcopium majus, aparine majus, conſolida major, lithoſpermum, echium ſcorpioides*, and *corinthe*.

They all poſſeſs the ſame general virtues, and are ſubaſtringent, and uſeful both internally and externally as agglutinants.

ASPERITY, implies the inequality or roughneſs of the ſurface of any body; whereby ſome parts of it do ſo ſtick out beyond the reſt, as to hinder the hand, &c. from paſſing over it eaſily and freely.

Aſperity, or roughneſs, ſtands oppoſed to ſmoothneſs, evenneſs, politure, &c.—From the *aſperity* of the ſurfaces of contiguous bodies, ariſes friction.

According to the relations of Vermauſen, the blind man ſo famous for diſtinguiſhing colours by the touch, it ſhould appear, that every colour has its particular degree and kind of *aſperity*. He makes black the rougheſt, as it is the darkeſt of colours; but the others are not ſmoother in proportion as they are lighter; i. e. the rougheſt do not always reflect the leaſt light: for according to him, yellow in two degrees rougher than blue, and as much ſmoother than green. See COLOURS.

ASPERULA, a medicinal plant, reputed warm, and drying, recommended as an hepatic, and detergent.

This is alſo called ASPERUGULA *odorata*, and *rubiola montana odorata*; in Engliſh, WOODRUFFE.

The ancients directed it externally in cataplaſms, to aſſuage and diſcuſs tumors, and applied it to the feet to promote delivery. But the moderns own no ſuch qualities in it; nor do they much uſe it internally.

ASPERSION, the act of ſprinkling with water, or ſome other fluid.

The word is formed of the Latin *aſpergere*, *to ſprinkle*; of *ad*, *to*, and *ſpargo*, *I ſcatter*.

Some contend for baptiſm by *aſperſion*, others by *immerſion*.

ASPERUGO, in *Botany*, ſmall wild BUGLOSS, or *goſſgraſs*; a genus of the *pentandria monogynia* claſs: the characters of which are, that the flower is of one leaf, with a ſhort cylindrical tube, and hath five ſhort ſtamina in the centre, with four compreſſed germina, which afterwards become four oblong ſeeds, incloſed in the empalement. We have but one ſpecies, which alſo goes by the name of *great goſe graſs*, or *German madwort*.

This is an annual plant, which is found wild in ſome parts of England, as, near Newmarket, at Boxley in Suſſex, and in Holy Iſland. It is preſerved in the botanic gardens for variety, and may be eaſily propagated by ſeeds which ſhould be ſown in autumn; and when the plants come up, they require no other culture than to keep them clear from weeds. They flower in May, and their ſeeds ripen in June.

ASPERULA, in *Botany*. See WOODRUFFE.

ASPHALATUS, in *Botany*. See ROBINIA.

ASPHALITES, in *Anatomy*, the fifth VERTEBRA of the loins.

It is thus called, becauſe conceived as the ſupport of the whole ſpine of the loins; from the privative *a*, and σφαλλω, *I ſupplant*.

ASPHALTOS, or ASPHALTUM, a ſolid, brittle, black, inflammable, bituminous ſubſtance, reſembling pitch, brought from the Eaſt, and particularly from Judea; whence it is alſo called *Jews-pitch*.

The *aſphaltos* of the Greeks is the *bitumen* of the Latins. Modern naturaliſts, who make a claſs of *bitumens*, generally place *aſphaltos* at the head of it, as being the moſt maturated and concocted of the whole tribe; but conſiſting of the ſame ſimple principles as the reſt.

It is chiefly found ſwimming on the ſurface of the *Lacus Aſphaltites*, or Dead Sea, where anciently ſtood the cities of Sodom and Gomorrah.—It is caſt up from time to time, in the nature of a liquid pitch, from the earth which lies under this ſea; and being thrown upon the water, it there ſwims like other fat bodies, and condenſes by little and little, through the heat of the ſun, and the air that is in it; it burns with great vehemence; in which it reſembles *naphtha*; but is firmer as to conſiſtence. The genuine *aſphaltum* has no ſmell, and is not acted upon by water, nor highly rectified ſpirit of nitre, nor olive oil, nor the eſſential oils of aniſeed or turpentine.

The Arabs uſe it for pitching their ſhips, as we do common pitch.—Beſides this uſe, it was frequently employed in the embalming of the ancients. In a fluid ſtate, it is uſed for burning in lamps, and for varniſhes. It is ſuppoſed to fortify the conſtitution, and reſiſt putrefaction; and to reſolve, attenuate, cleanſe, and cicatrize wounds: but in little uſed among us, either externally or internally.

It is uſual to ſophiſticate the *aſphaltus*, by mixing common pitch with it; the reſult whereof makes the factitious *piſſaſphaltum*, which the cruſtneſs of the black colour, and the fetid ſmell, eaſily diſcover. Moſt of that which is ſold in the ſhops under the name of *Jews-pitch*, is of the ſophiſticated kind. There is, however, beſides this, a native *piſſaſphaltum*.

ASPHALTUM alſo denotes a kind of bituminous ſtone, found near the ancient Babylon, and lately in the province of Neufchatel; which, mixed with other matters, makes an excellent cement, incorruptible by air, and impenetrable by water: this was ſuppoſed to be the mortar ſo much celebrated among the ancients, wherewith the walls of Babylon, and the temple of Jeruſalem, were cemented.

It yields an oil which defends ſhips from water, worms, &c. much better than the ordinary compoſition; and which is alſo of good ſervice for the cleanſing and healing of ulcers, &c.

ASPHODELUS, in *Botany*. See KING'S-*ſpear*.

ASPHYXIA, is uſed by *Ancient Phyſicians*, to denote a privation, or ceſſation of the pulſe, through the whole body, and all its arteries.

The word is derived from *a*, and σφυξις, *a pulſe*.

In ſtrictneſs, no ſuch ceſſation can ever happen, except in caſe of death; but in ſome other caſes, the pulſe is found ſo remiſs and languid as not to be perceivable by the touch.

Hence the *aſphyxia* is conſidered as an attendant of deep faintings, or deliquiums; and amounts to much the ſame with what is otherwiſe called *hyperſyſtia* or *ſyncope*.

Mr. Sage has lately publiſhed a treatiſe, recommending the volatile alkali fluor as the moſt effectual remedy in *aſphyxies*. See SUFFOCATION.

ASPHYXIA is alſo uſed by ſome for a privation of pulſe in ſome one part of the body, e. gr. in the *arm*, &c.

ASPIC, in *Botany*, a plant which grows in plenty in Languedoc, in Provence, and eſpecially on the mountain of St. Baume, in France. It is a kind of lavender, nearly like what grows in our gardens; both with regard to the figure and colour of its leaves and flowers. The botaniſts call it *male lavender*, *lavendula mas*, or *ſpica narbi, pſeudo nardus*, &c.

ASPLATES, or ASPLENITES, in the writings of the ancients, the name of a ſtone, famous for its virtues againſt the ſpleen, and many other diſorders: it was to be applied externally, and faſtened on to the part with camel's hair.

ASPINY, or ANGLIART-*thorn*, a drug uſed in medicine; on which particular duties are impoſed, by the tariff of the cuſtom-houſe at Lyons.

ASPIRATE, ASPIRATIO, in *Grammar*, a character uſed to denote an aſpiration.

The *aſpirate*, by the Greeks called *ſpiritus aſper*, and marked over their vowels, ſeems to be of a very different nature from the letters; but is nevertheleſs a true letter, as well as the reſt, and a real conſonant.—By letters we do not mean the characters of the alphabet, which are changeable according to the languages and the people, and among the ſame people, according to time and cuſtom; and even according to the fancy of particular perſons.—Thus ſome, for inſtance, write the *aſpirates*, or letters *aſpirated*; which, by others, are omitted: though both the one and the other pronounce alike; as in *homo*, *humus*, an Italian word frequently written *uomo*, *uomini*. But, by letters, we mean articulate ſounds, marked by them, and formed by the organs of ſpeech, viz. the throat, mouth, tongue, palate, teeth, &c.

Theſe ſounds are of two kinds, the one *ſimple*, and the other *compound*, or modified.—*Simple* are thoſe pronounced by a ſingle motion of the organ; ſuch are the vowels.

Compound ſounds are thoſe ſame ſimple ſounds modified

by a motion of the organ, superadded to the motion necessary to pronounce the simple sound; of which kind are the consonants.

Now an *aspirate* is an effect or consequence of a motion made by some of the organs of speech; and therefore it must either be a vowel, or a consonant.—The former it cannot be, as not being a simple sound, or a sound that may be pronounced by itself. It must therefore be a modificative, or conisonant; and in effect it has all the properties of one.

For, 1st, It refults from a motion of the organ, which, of itself, produces no found. Thus the *spiritus* of the Greek, our *h aspirate*, as well as that of the French, and other people, has no more found of itself, than *b*, *c*, *d*, &c. and the fame thing may be obferved of the *aleph*, *beth*, and *coph*, of the Eaftern languages.

2dly, On the contrary, our *h*, the *fpiritus* of the Greeks, and the other *afpirates* juft mentioned, are pronounced with all the power, in the fame manner as conſonants are.—They modify thofe vowels, and are effects of a motion of the organ fuperadded to the motion neceſſary to form the vowel. Thus, to pronounce *ha*, two motions of the organ are required as well as for *ba*, or *ca*, &c. one for *a*, which itſelf is a found; the other for *h*, which yields no found, no more than *b*; but adds fomething to *a* which modifies it, and makes that *ha* is not mere *a*, nor *ba*, nor *ca*, &c. And this muſt hold ſtill more ſenſibly in the ſtronger *afpirates*, as thofe of the oriental tongues ח, חַ. חִ. חֵ. חֹ. חוּ. כ, &c. in all which, there are evidently two motions, the one to expreſs the vowel, and the other to modify it: now this being the nature and eſſence of a conſonant, it follows, that let them be denoted in what manner they will, whether as our *h*, as the orientals do, i. e. by proper characters in the courſe of the words themſelves; or, as the Greeks do ſome of theirs, by a ſign of aſpiration placed over the vowel, it matters not. The *aſpirate* is no leſs a conſonant in ἄφρων, than in χαφὼ; in ὗν, than in χὺν; in ἅλς, than in χάλς; and ſo of others.

The third and laſt reaſon urged by ſome, is, that the Eaſtern languages, which, according to them do not expreſs the vowels, do yet expreſs the *aſpirates*. This kind of argument ſeems, however, to be grounded on a miſtake; ſince it is more than probable, that the א, ה, ו, י of thoſe languages, ſhould be ranked among the vowels, and were ſo uſed.

Add, that the *aſpirate* is frequently changed into a conſonant, and expreſſed by a conſonant. Thus, of ἑπ is made *ſex*; of ἑπτὰ, *ſeptem*; of ὑπνος, *vſperus*, &c. of the Hebrew רוּח, *ruæ*, and thence *ventus*, &c. Nay even in the ſame language, Heſiod, ſpeaking of Hercules's buckler, uſes ἥρωα for ἕρωα; making no difference between a Θ and an *aſpirate*.

Hence it follows, that *aſpirates* are real conſonants; and that we ought not to exclude the *h* in our language, out of the number of letters.

Other grammarians contend, that the *h* is ſounded only by a ſtrong emiſſion of the breath, without any conformation of the organs of ſpeech, and conſequently is no letter. See H.

ASPIRATION, the act of aſpiring, i. e. of pronouncing any ſyllable, or word, ſtrongly; with a good deal of breath and vehemence.

This we do, for inſtance, in thoſe words which have the letter *h* before them; as *hearonge*, *hoot*, *Holland*, *horſe*, &c. whereas the like ſyllables are ſounded much ſofter and eaſier without the *h*; as in the *ear*, *nat*, &c. See H.

ASPIUS, in *Ichthyology*, a ſpecies of the *cyprinus*, belonging to the *abdominal* order. It is met with in the lakes of Sweden.

ASPLENIUM, in *Botany*, ſee Miltwaſte.

ASS, *aſnus*, in *Zoology*, a quadruped of the horſe kind, with a long head, long ears, a round body covered with a ſhort and courſe fur, of a pale dun colour, with a ſtreak of black running down its back, and acroſs its ſhoulders, and a tail not hairy all the way, as in a horſe, but only at the end. As to his qualities, he is ſlow, lazy, and dull; but patient, proper to work hard, and to carry or drag heavy weights. The largeſt and ſtrongeſt of theſe animals are choſen for ſtallions to leap mares, which are deſigned in ſtuds for the breeding mules; and ſome of theſe mules are ſo highly valued as to be ſold even dearer than the fineſt horſes.

Though the *aſs* agrees with the horſe in many reſpects, it nevertheleſs has but a mean reſemblance to that noble animal; being not only ſmaller, but wanting the ſymmetry and beauty, ſo conſpicuous in the horſe.

The *aſs*'s ears ſeem much over-proportioned in length to the head. Its eyes are large, but have nothing bright or ſtriking in them; and the neck is long, but lank; and the tail is very long.

So nearly allied are the horſe and *aſs* kind, that they will copulate together, the produce of which commixture is a MULE.

This animal is originally a native of Arabia, and other parts of the Eaſt; its ſize and ſpirit decline as it advances into the colder regions. It was loſt in England during the reign of queen Elizabeth; and probably introduced again in the ſucceeding reign. We find mention of it in the hiſtory of this country, as early as the time of king Ethelred, and afterwards in the reign of Henry III. Pennant's Zoology, vol. i. p. 14.

The fleſh of animals which have ſolid hoofs is very bad food; but of theſe, the beſt and lighteſt (as they ſay who have travelled over Aſia) is the fleſh of wild *aſſes*.

The blood of the *aſs* is ſaid to be ſudorific, and that of a young *aſs* to cure the jaundice.

Aſs's milk is very nourihing and abſtergent, and is therefore eſteemed good in a conſumption, in diſorders of the ſtomach, abſceſſes of the kidneys, the ſtone in the bladder, and arthritic pains. It is eſteemed gently cathartic, and was frequently directed by Hippocrates as a purge in large quantities. As a topic, it makes the gums firm, eaſes arthritic pains, and gives the face an agreeable whiteneſs, if waſhed with it. See Milk.

The urine of an *aſs* is a powerful remedy, as is ſaid, in diſorders of the kidneys, cures the itch, takes away warts and callous excreſcences, relieves in atrophies, palſies of the limbs, and pains of the gout.

The dung of this animal alſo is of uſe in medicine.

We have known, ſays Aetius, the juice of *aſs*'s dung highly beneficial in a dyſentery, eſpecially if the beaſt has been fed upon the mountains, or has had an aſtringent paſture. If the juice be inſufficient, let the dung be moiſtened with the juice of plantain, which muſt afterwards be expreſſed and infuſed.

The hoofs of *aſſes*, calcined and drank every day, are ſaid to cure the epilepſy; and mixed and worked with oil, to diſcuſs ſtrumous ſwellings: alſo the aſhes of the ſame, well beaten in woman's milk, and reduced to a collyrium, are ſuppoſed to deterge cicatrices in the eyes, if rubbed thereon together with milk.

Wild *aſſes* are plentiful in many warm countries, particularly in Africa. See Zebra.

Ass *cucumber*, ſee Momordica.

Asses, *order of*, *afinorum ordo*, a denomination given to the Mathurins, or Trinitarians, becauſe they were anciently obliged, in travelling, to ride on *aſſes*, not horſes. This obligation was ſet aſide, by a new rule given the order by pope Clement, in 1267. Du-Cange.

ASSA-DOLCIS; ſee Asa-*dulcis*.

Asa-*fœtida*, or Asa-*fœtida*, a gum or reſin, brought from the Eaſt Indies, of a brownish colour, a ſharp taſte, and a very ſtrong offenſive ſmell; whence it is alſo called *ſtercus diaboli*, or devil's dung.

The goodneſs of *aſſa-fœtida* is known by its colour and ſmell: a tolerable ſecnt, and a clear colour, are the ſigns of its good quality; as a black colour, and a great ſtench, are proofs of the contrary. The ſtrong ſcent of this gum is much like that of garlic. The Engliſh and Dutch import it from Surat.

Geoffroy gives the following account of *aſſa-fœtida*. Many authors, ſays he, have doubted whether our *aſſa-fœtida* be that of the ancients, which was by them called the food of the gods. But when we conſider the deſcription of Dioſcorides, and the relations of travellers, who ſay that the Perſians, Indians, and other Eaſtern nations uſe it in ſauces, and call it alſo the food of the gods, there can be no reaſon to queſtion, but that ours is the ſame with that of the ancients.

Aſſa-fœtida, ſays he, is a gum reſin, brought to us in lumps of different colours; white, yelloviſh, blue, or brown; which laſt is the worſt colour of all. It has a very ſtrong fœtid ſmell; and we are obliged to Kæmpfer for an exact hiſtory of the tree which produces it, and of the manner of gathering it, &c. In general, this tree, or large plant, which is the umbelliferous kind, growing plentifully in the province of Lahir, in the dominions of the Great Mogul; and in that of Chorazen, in Perſia. In the months of July and Auguſt, the country people make inciſions in the roots of theſe trees, through which the juice drains. It is whitiſh and thin at firſt, but by drying ſoon becomes thicker, and of a brown colour; in which form it is gathered, and preſerved for uſe. The root of the plant reſembles a large parſnep, and is externally black.

Aſſa-fœtida is an excellent remedy in all hyſteric diſorders, whether only ſmelled to, or mixed in what is taken internally. It is alſo eſteemed a good ſudoriſic, and ſtrengthens the ſtomach. The doſe is from twelve grains to half a dram: but with a view to the ſtomach only, it muſt be given in ſmaller doſes. Externally, it is a good diſſolvent, and in that intention is an ingredient in the *cerotum de galbano*, and is ſometimes uſed to the bits of horſe's bridles.

The

The *asſa-fœtida* plant is recommended by Mr. Lawrence to be cultivated in our fields, for the food of cattle, inſtead of clover, ſainfoin, or other ſuch herbs as we ſow among corn, and make into hay in the ſucceeding ſummers, and uſed as food for cattle at other ſeaſons.

This gentleman is of opinion, that the ſheep, fed on this plant, would afford mutton of a much finer flavour than any that we are at preſent acquainted with. But it ſeems ſtrange, that this ſhould be the effect of theſe creatures feeding on a plant of ſo ſtrong a ſcent, that as the ſame author obſerves, one dram of the freſh root ſmells more than a hundred weight of the drug, as kept by the druggiſts, and that the whole air is ſtrongly and very diſagreeably ſcented with it, wherever it grows. Upon the whole, it ſeems probable, that though this plant, or the *cytiſus*, or ſeveral others, might be cultivated in England for the food of cattle, yet not any one would be ſo eaſily raiſed, or make ſo great an advantage to the farmer, as the SAINTFOIN.

ASSABA, the name given by the people of Guinea to a ſhrub which they are very fond of, for its medicinal virtue; they boil it in water, and rub it on a *bubo*, and it proves a cure. Phil. Tranſ. N° 232.

ASSAC, or ASSAK, in the *Materia Medica* of the ancients the name given by the Arabians to the *gum ammoniac* of the Greeks; but by many of the qualities attributed to this drug, it does not appear to be the ſame that is now called ſo.

ASSACH, or ASSATH, a kind of purgation, anciently uſed in Wales, by the oaths of three hundred men.

ASSAILANT, one that aſſaults or ſets upon another. See ASSAULT.

ASSAPOORY, in *Natural Hiſtory*, a name given by the people of the Eaſt Indies to a peculiar ſpecies of ſtate, which they uſe in medicine, reducing it to powder, and ſtrewing this on burning coals, that the ſick perſon may receive the fumes of it. It is principally uſed for children, when they are diſordered by taking cold. The ſmell of it while burning, is very offenſive.

ASSARABACCA; ſee ASARABACCA.

ASSARIUM, denotes a ſmall copper coin, being a part or diminutive of the *as*.

The word is uſed by Suidas indifferently with ἀσσάριον, and *πουτρα*, to denote a ſmall piece of money; in which he is followed by Cujacius, who defines *aſſarium*, by *minimus aeris nummus*.

We find mention of the *aſſarion* in the goſpel of St Matthew, chap. x. ver. 29.

ASSARON, an ancient Jewiſh meaſure of capacity, equal to the tenth part of the EPHAH.

The *aſſaron* is the ſame with what is more frequently called *omer*, or *gomor*.

Joſephus calls it *σσαρος*; in the Hebrew is alſo written *aſſaroth*. Calmet and Arbuthnot.

ASSART, ASSARTUM, in *Law*, an offence committed in the foreſt, by pulling up, by the roots, woods which ſerve as thickets and covert for the deer, and making them plain as arable land.

This is the greateſt treſpaſs that can be committed in the foreſt, being more than a waſte. For whereas waſte of the foreſt is but the felling and cutting the coverts, which may grow again; *aſſart* is a total extirpation. What we call *aſſartum*, is elſewhere termed DISSOCATIO.

ASSART was alſo uſed for a parcel of land *aſſarted*. See ESSART.

ASSART-*rents* were thoſe formerly paid to the crown for the foreſt lands *aſſarted*. See RENT.

ASSASIN, or ASSASSIN, a perſon who kills another with the advantage either of an inequality in the weapons, or by means of the ſituation of the place, or by attacking him at unawares.

The word *aſſaſſin* is ſaid, by ſome, to have been brought from the Levant, where it took its riſe from a certain prince of the family of the *Aſſacidæ*, popularly called *Aſſaſſini*, living in a caſtle between Antioch and Damaſco, and bringing up a number of young men, ready to pay a blind obedience to his commands; whom he employed in murdering the princes with whom he was at enmity. The *Aſſaſſini*, or *Aſſaſſinians*, *Aſſaſſini*, above mentioned, poſſeſſed eight or twelve cities about Tyre; they choſe themſelves a king, whom they called the *old man of the mountain*. In 1211, they aſſaſſinated Louis of Bavaria. They were Mahometans, but paid ſome tribute to the knight's Templars.—The favourers of the *Aſſaſſini* were condemned by the council of Lyons, and under Innocent IV. in 1231.—The Tartars overcame them, and killed their ſenior of the mountain in 1257, upon which the faction became extinct.

There was a certain law of nations, an opinion received in all the republics of Greece and Italy, whereby he that *aſſaſſinated* an uſurper of the ſupreme power, was declared a virtuous man. At Rome eſpecially, after the expulſion of the kings, the law was formal and ſolemn, and inſtances of it admitted. The commonwealth armed the hand of any citizen, and created him magiſtrate for that moment. Conſid. ſur les Cauſ. de la Grand. des Rom. chap. xi. p. 121.

ASSATION, the preparing or dreſſing foods, or medicaments, in their own juices, by an external heat, without addition of any foreign moiſture.

Aſſation, in reſpect of culinary matters, is more frequently called *roaſting*; and, in pharmacy, *uſtion*, or *torrefaction*.

The word is formed of the Latin *aſſare*, *to roaſt*.

ASSAULT, in the *Art of War*, an attack made upon a camp, forteſs or poſt, in order to carry or become maſter thereof.

An *aſſault* is properly a general furious attack, wherein the aſſailants do not ſcreen themſelves by any works.—We ſay, to give an *aſſault*, to be commanded to the *aſſault*, to ſtand an *aſſault*, to repulſe an *aſſault*, to carry by *aſſault*, &c.

While an *aſſault* laſts, and both parties are mixed, the fire of the batteries ceaſes; and there is no uſe of cannon on either ſide; for they are afraid of deſtroying their own men thereby.

A governor was formerly obliged to ſuſtain three *aſſaults* before he gave up the place.—It is very difficult ſaving a town from pillage that is carried by *aſſault*.

Few places, of late years, ſtand *aſſaults*: M. de Feuquiere finds but three in his time. The firſt was Neuhauſel, in 1683, commanded by the Turkiſh baſhaw: it was taken, as moſt others muſt be, becauſe the column of infantry that marched to the breach, conſiſted of more ranks than that of the infantry which defended it.—The ſecond was Buda, the baſhaw of which was killed in the attack. He had ſome flanking works remaining, whoſe fires had not been entirely ruined by the artillery of the beſiegers.—The third was the caſtle of Namur, defended by M. de Boufflers, which was not carried, becauſe the column of infantry which attacked the breach, marched too far off unbethered.—We may add Bergen-op-zoom, taken by the French in 1747. And, that it is almoſt impoſſible to carry a place by *aſſault* or ſtorm, when the breach may be defended by the fires of works not yet deſtroyed. In reality, it ſhould be defended by no other fires, but thoſe which are oppoſed to it in front, or from the breach itſelf. Feuq. Mem. chap. xcix. Such obſtinacy in defending places to the laſt extremity is no longer found, except among the Turks; with whom it is a point of religion not to ſurrender to the Chriſtians, by capitulation, any place where they have once had a moſque.—Though of late they have ſometimes departed from this maxim.

ASSAULT, ASSULTUS, or *Inſultus* in *Law*, an offer, or attempt, to hurt the perſon of another.

Or it is a violent injury offered to a man's perſon, of a larger extent than battery, becauſe it may be committed by only offering to give a blow; or even, according to ſome, by a threatening ſpeech, by preſenting a piſtol, or the like. Though ſome, it is to be obſerved, deny that words can amount to an *aſſault*.

To rebuke a collector with ſaul words, ſo that he depart for fear, without doing his office, has been adjudged an *aſſault*, and to ſtrike a man, though he be not hurt, or ſometimes not even hit, with the blow, is reputed the ſame. For, in treſpaſs for *aſſault* and battery, a man may be found guilty of the *aſſault*, and acquited of the battery. 25 Ed. III. c. 4. But every battery includes an *aſſault*.

The *aſſaulting* a perſon with offenſive weapons, with a deſign to rob (though no robbery enſues), is puniſhed with tranſportation for ſeven years. 7 Geo. II. c. 21. *Aſſaulting* in the ſtreet or highway, with intent to ſpoil people's cloaths, and ſo ſpoiling them, is felony and tranſportation, by 6 Geo. I. c. 23, ſec. 11. And *aſſaulting* a privy counſellor in the execution of his office, is felony without benefit of clergy, by 9 Ann, c. 16.

ASSAY, ESSAY, or SAY, in *Metallurgy*, the proof or trial of the goodneſs, purity, value, &c. of metals, and metalline ſubſtances.

In ancient ſtatutes, this is called *touch*; and thoſe who had the care of it, *keepers of the touch*.—Under Henry VI. divers cities were appointed to have *touch* for wrought ſilver-plate. 2 Hen. VI. c. 14.—By this, one might imagine they had no better method of *aſſaying* than the ſimple one, by the touch-ſtone; but the caſe is far otherwiſe. In the time of king Henry II. the biſhop of Saliſbury, then treaſurer, conſidering, that though the money paid into the king's exchequer for his crown-rents, did anſwer, *numero & pondere*; it might nevertheleſs be mixed with copper or braſs: wherefore a conſtitution was made, called the *trial by combuſtion*; which differs little or nothing from the preſent method of *aſſaying* ſilver. See a deſcription of it in the Black Book in the

the Exchequer, written by Gervaſe of Tilbury, c. xxi.— This trial is alſo there called *aſſaium*, and the officer who made it is named *ſoſor*. Vide Lownd. Eſſ. Amend. Silv. Coin, p. 5, & 155.

The method ſtill in uſe of *aſſaying* gold and ſilver, was firſt eſtabliſhed by an act of the Engliſh parliament, in 1354. Anderſon's Com. vol. i. p. 187.

ASSAYING, *ars docimaſtica*, in its extent, comprehends particular manners of examining every ore, or mixed metal, according to its nature, with the beſt adapted fluxes; ſo as to diſcover, not only what metals, and what proportions of metal, are contained in ores; but likewiſe how much ſulphur, vitriol, alum, arſenic, ſmalt, &c. may be obtained from every one reſpectively.

Aſſaying is more particularly uſed by moneyers and goldſmiths, for the making a proof or trial by the cuppel, or teſt, of the fineneſs and purity of the gold and ſilver to be uſed in the coining of money, and manufacture of plate, &c. or that have been already uſed therein.

There are two kinds of *aſſaying*: the one before metals are melted, in order to bring them to their proper fineneſs; the other after they are ſtruck, to ſee that the ſpecies be ſtandard.

For the firſt *eſſay*, the *aſſayers uſe* to take fourteen or fifteen grains of gold, and half a dram of ſilver, if it be for money; and eighteen grains of one, and a dram of the other, if for other occaſions.

As to the ſecond *aſſay*, it is made of one of the pieces of money already coined, which they cut in four parts. The quantity of gold for an *aſſay* among us, is ſix grains; in France, nearly the ſame; and in Germany, about three times as much.

In order to the due ſeparation of metals from metals, or of a confuſed mixture of metals, ſuch as thoſe commonly called *electrum*, or ſuch as the Corinthian braſs was ſuppoſed to be, we muſt obſerve, that experience has taught us a certain effect of lead, which could not be well conceived *à priori*.

ASSAYING *gold*.—In order to the *aſſaying* of gold ores, it muſt be obſerved, that the method varies, according to the nature and diſpoſition of the mineral matters along with which the metals happen to be mixed; whether it be ſtony, earthy, ſulphureous, arſenical, &c. The art of making *aſſays* with diſpatch upon gold and ſilver ores, depends upon the ſcorification or vitrification of thoſe heterogeneous foſſile ſubſtances which may be incorporated therewith: lead and the glaſs of lead, and antimony and its glaſs; being great ſcorificators or vitrifiers, they become the natural agents on ſuch occaſions.

Silver is ſeparated from gold by means of *aqua fortis*, which diſſolves the ſilver, and leaves the gold entire behind; but in order to the ſucceſs of the operation, the mixt maſs ſhould contain conſiderably more ſilver than gold, otherwiſe the particles of ſilver will be defended by thoſe of the gold from the action of the acid. The writers on *aſſaying* generally direct three parts of ſilver to one of gold; but Dr. Lewis obſerves, that leſs is ſufficient, and ſhould therefore be made uſe of.—The ſeparation of baſer metals is effected by keeping the maſs in fuſion for ſome time upon a cuppel, with the addition of lead. The lead with all the metals, ſilver and platina excepted, turns into a *ſcoria* or droſs, which riſes to the ſurface, and is no longer miſcible with any metallic body in its perfect metallic ſtate.

For various other proceſſes of *aſſaying*, the curious are referred to Dr. Lewis's Phil. Techn. who has treated this ſubject very copiouſly and very accurately.

The method of *aſſaying* gold by cuppelling, is thus performed. The *aſſayer*, having weighed the gold he intends to make the trial in, very exactly, with ſcales that will turn with the hundredth part of a grain, and noted down the weight, he adds twice as much fine ſilver thereto; though this ſhould be in proportion to the fineneſs the gold ſeems to be of, the baſeſt gold requiring the leaſt ſilver. The gold and ſilver, thus weighed and mixed, are wrapped up in a piece of paper, to prevent their loſing any thing of their weight, which would diſturb the accuracy of the *eſſay*.

While the *aſſayer* is weighing his materials, a reverberatory fire is lighted in a furnace, furniſhed with a muffler, and a cuppel, or teſt, ſet therein to heat: this done, a little bullet of lead is put into the cuppel, of a weight proportionable to the quantity and quality of the gold to be *aſſayed*. The quantity of lead ſhould be at leaſt three or four times that of the gold; if the gold is very impure, ten or twelve times its quantity will be neceſſary. When copper and gold lie mixed in equal quantities, the copper will not be ſeparated from the gold with leſs than twenty times its quantity of lead; and if the copper be in very ſmall proportion, as a twentieth or thirtieth part of the gold and ſilver, upwards of ſixty parts of lead are neceſſary for one of the copper. When the lead is well melted, and appears very clean and bright, they put in the mixture of gold and ſilver, and let it fuſe till it appear of an opal colour, and have fixed itſelf, in a little lump to the bottom of the cuppel.

This done, the cuppel is left to cool in the furnace itſelf; after which, the lump is ſeparated very exactly, from the place where it ſtuck to the veſſel, and beaten or hammered on the anvil; heating it again and again, on the coals, to promote the ſtretching. It is likewiſe made to paſs ſeveral times between poliſhed ſteel rollers, ſcrewed gradually cloſer and cloſer, till it is extended into a very thin plate.

When ſufficiently hammered, &c. they roll it up in form of a cornet or coffin; and thus put it in a glaſs matraſs, capable of containing four ſpoonfuls of water; and, having added to it a quantity of *aqua fortis*, well corrected, that is, mixed with near one third of the quantity of river-water, they boil it over a wood fire, till ſuch time as the *aqua fortis* yields no more red fumes.

This firſt water being poured off, and the cornet left alone at the bottom of the matraſs, they fill the matraſs again, but with pure *aqua fortis*; which, after boiling, is poured off in its turn, at ſuch time as the fumes are become white.—This done, they fill up the matraſs with river water, to waſh the cornet.

When waſhed, they put it dry in a crucible, with a cover over it, and heat it till it become of a cherry-colour. But the uſe of a crucible is attended with this inconvenience, that ſmall particles of the earth are apt to adhere imperceptibly to the gold, and thus render the *aſſay* leſs certain.

This done, the *aſſay* is finiſhed, and there remains nothing but to weigh it againſt the ſame weight of fine gold, as was uſed at firſt, before the *aſſay*: for by comparing the firſt weight of the gold, before it was put in the fire, and the *aqua fortis*, with what it retained after it had thus undergone the teſt, they judge, from the greater or leſs loſs it has ſuſtained, of the quantity of alloy mixed with it.

By the above deſcribed proceſſes, gold may be ſeparated from all the known metallic bodies, platina excepted. See PLATINA.

The ultimate refinement of gold, is thought to be that procured by fuſing it thin along with antimony; wherein the antimony tears away and imbibes the ſubſtance of all the other metals, but leaves the gold untouched; which therefore, as the heavier body, falls like a regulus to the bottom of the melting cone. See an account of the proceſs, in Dr. Lewis's Phil. Techn. p. 156; upon which he obſerves, that platina cannot thus be ſeparated from the gold; that ſome of the ſilver will remain; and, in general, that gold cannot be ſo effectually purified by ſubſtances which operate upon the alloy, and not upon the gold, as by thoſe which act on the gold itſelf, and not on the alloy.

The *alloy* of gold is eſtimated by carats, that of ſilver by penny-weights. The carat with us is divided into four grains; among the Germans, into twelve parts; and by the French, into thirty-two. The Chineſe reckon by touches, of which the higheſt number denoting pure gold, and correſponding to our twenty-four carats, is one hundred.

Gold without an alloy, is ſaid to be twenty-four carats fine. According to the proportion of pure gold, to that of the alloy in an ounce, the mixture is ſaid to be ſo many carats fine. If there be two carats of alloy, to twenty-two of pure gold, it is ſaid to be twenty-two carats fine: if four of alloy to twenty of gold, twenty carats fine, &c.

ASSAYING *ſilver*.—The proceſs is much the ſame as in gold; only leſs difficult, and ſhorter. The ſilver is weighed, as before; and the ſame furnace, and muffler, the ſame fire, the ſame cuppel, uſed. Add, that lead is likewiſe put in the cuppel, proportioned to the quantity and quality of the ſilver to be *aſſayed*.

The lead being well melted, and clear, the ſilver is put in; and after it is brought to an opal colour, and fixed in a lump at the bottom of the cuppel, which happens in about half an hour; they let it cool, and cleanſe it: and, laſtly, weigh it again, as in gold. And, from its diminution, they eſtimate the quantity of alloy.

The alloy of ſilver with copper, may be examined by the cuppel in the following manner: firſt, have ready a touch-ſtone, and a ſet of touch-needles; wipe carefully both the touch-ſtone, and the metal to be examined, and rub the metal on the ſtone; compare its mark with the needles, and by that means make a gueſs at the quantity of copper contained, and of courſe know how much lead will be neceſſary for conſuming that quantity. But as the lead neceſſary for conſuming the copper is not in a quantity proportionable to that of the copper, when this is mixed with ſilver, we ſhall here give, from

Lazarus

Lazarus Ercker, the quantity to be added in every case. We shall take for our examples a series of touch-needles, made according to the mark, divided into half-ounces and grains. See TOUCH-NEEDLES.

¼ ounce silver,	¼ ounce copper,	Marks of lead to be added.
15 ¼ —	¼ —	4.
15 —	1 —	6.
14 —	2 —	8.
12 and 13 —	4 and 3 —	10.
9 — 12 —	7 — 4 —	14.
4 — 8 —	12 — 8 —	15.
1 — 4 —	15 — 12 —	16.

Every body may reduce this table to the needles, made according to the mark of the assaydpoise, or that of carats: nor is it neceſſary to proportion the quantities of lead to be added, ſo far as one half centner. Cramer.

In the mean time, let the metal to be tried with the needles undergo the operation of cuppelling, together with the quantity of lead indicated by the touching; and the fire muſt be made the gentler, as the ſilver is alloyed with a greater quantity of copper; and on the contrary, the ſmaller the quantity of the alloy of copper is, the ſtronger muſt be the fire to be uſed in the operation. When the lead, which muſt be firſt put into the cuppel, begins to ſmoke and boil, then the metal to be examined is to be added, and the fire continued till the copper is all conſumed, and reduced to a yellow ſcoria; and the bead of ſilver left in the centre of the cuppel muſt be weighed, which, ſubtracting the known quantity of ſilver in the lead uſed in the operation, will ſhew the quantity of ſilver, and conſequently that of the copper in the alloy.

ASSAYING *of lead*.—The *aſſay* of gold and ſilver being performed by means of lead; it is of the utmoſt importance the lead be free from any mixture of either of the two metals; otherwiſe the *aſſay* will be falſe, becauſe the gold and ſilver mixed with the lead will not evaporate like other kinds of alloy, but unite with the metal under *aſſay*.

To prevent this diſorder, and aſſure the operation, there is no way but firſt to *aſſay* the lead itſelf.

This *aſſay* is performed in the ſame furnace, and with the ſame cuppels, as thoſe of gold and ſilver; but the proceſs is incomparably more ſimple: as here required, when the cuppel is heated, being to put in the piece of lead to be *aſſayed*. If this lead evaporate entirely, it is fit for the purpoſe: on the contrary, if there remain any little grain of ſilver, &c. at the bottom, it muſt be ſet aſide.

ASSAYING *of tin*. See TIN.

ASSAY-MASTER, an officer, under certain corporations, entruſted with the care of making true *touch*, or *aſſays*, of the gold and ſilver brought to him; and giving a juſt report of the goodneſs or badneſs thereof.

Such is the *aſſay-maſter* of the mint in the Tower, called alſo *aſſayer of the king*.

The *aſſay-maſter* of the goldſmith's company is a ſort of aſſiſtant-warden, called alſo a *touch-warden*, appointed to ſurvey, *aſſay*, and mark all the ſilver work, &c. committed to him.—There are alſo *aſſay-maſters* appointed by ſtatute, at York, Exeter, Briſtol, Cheſter, Norwich, Newcaſtle, and Birmingham, for *aſſaying* wrought plate.

The *aſſay-maſter* is to retain eight grains of every pound Troy of ſilver brought to him; four whereof are to be put in the PIX, or box of deal, to be re-*aſſayed* the next year; and the other four to be allowed him for his waſte and ſpillings. 12 and 13 W. III. c. 4. 1 An. c. 9.

Note, The number of penny-weights ſet down in the *aſſay-maſter's* reports, is to be accounted as *per pound*, or ſo much in every pound of twelve ounces Troy.—For every twenty penny-weight, or ounce Troy, the ſilver is found by the *aſſay* to be *worſe* than ſtandard, or ſterling, ſix pence is to be deducted; becauſe every ounce will coſt ſo much to reduce it to ſtandard goodneſs, or to change it for ſterling.

In gold, for every carat it is ſet down to be *worſe* than ſtandard, you muſt account that in the ounce Troy it is worſe by ſo many times 3*d*. 8*d*. And for every grain it is ſet down worſe, you muſt account it worſe by ſo many times 11*d*. in the ounce Troy. And for every half grain 5*d*.; for ſo much it will coſt to make it of ſtandard goodneſs, &c. Touchſtone of Gold and Silver Wire, &c. p. 41, &c.

ASSAY-*balances*. The flat pieces of glaſs often placed under the ſcales of an *aſſay-balance*, ſeem, by their power of electricity, capable of attracting, and thereby making the lighter ſcale preponderate, where the whole matter weighed is ſo very ſmall. See Phil. Tranſ. N° 480, p. 245.

The electricity of a flat ſurface of about three inches ſquare, has been known to hold down one ſcale, when there were about two hundred grains weight in the other. See BALANCE and ELECTRICITY.

ASSAY *of weights and meaſures*, ſignifies the trial or examination of common weights and meaſures, by the CLERK *of the market*.

ASSEMBLAGE, the joining, or uniting, of ſeveral things together; or, the things themſelves ſo joined, or united.

The *aſſemblage* of two bones for motion, is called ARTICULATION.

Carpenters and joiners have various kinds and forms of *aſſemblages*; as, with mortiſes and tenons, with dovetails, &c. See DOVE-TAIL, MORTISE, &c.

The Europeans admire the CARPENTRY of ſome Indians, where the *aſſemblage* is made without either nails or pins. Herrera.

ASSEMBLAGE is alſo uſed, in a more general ſenſe, for a collection of ſeveral things, ſo diſpoſed together, as that the whole has an agreeable effect.—It is with diſcourſe as with bodies, which owe their chief excellency to the juſt *aſſemblage* and proportion of their members.

ASSEMBLY, a meeting of ſeveral perſons in the ſame place, and with the ſame common deſign.

The word is formed of *aſſimulare*; compounded of *ad*, *to*, and *ſimul*, *together*.

Aſſemblies of the clergy are called convocations, ſynods, councils; though that annual one of the kirk of Scotland retains the name *General Aſſembly*, &c.—The *aſſemblies* of judges, &c. are called *courts*, &c.—The *aſſemblies* of the Roman people were called *comitia*.—The *aſſembly* of a preacher, &c. is his audience.—The academies have their *aſſemblies*, or days of *aſſembly*.

Under the Gothic governments, the ſupreme legiſlative power was lodged in an *aſſembly* of the ſtates of the kingdom, held annually for the like purpoſes as our parliament.

Some feeble remains of this uſage ſtill ſubſiſt in the annual *aſſemblies* of the ſtates of Languedoc, Bretagne, and a few other provinces of France; but theſe are no more than ſhadows of the ancient *aſſemblies*. It is only in Great Britain, Sweden, and Poland, that ſuch *aſſemblies* retain their ancient powers and privileges.

ASSEMBLIES *of the campus Martii*, or *Maii*, *of the field of Mars*, or *May*; ſee FIELD *of Mars*, &c.—Rebellious *aſſembly*, ſee REBELLIOUS.—Unlawful *aſſembly*, ſee UNLAWFUL.

ASSEMBLY is particularly uſed in the *Beau-monde*, for a ſtated and general meeting of the polite perſons of both ſexes; for the ſake of converſation, dancing, and play.

ASSEMBLY is alſo uſed in the *Military Art*, for the ſecond beat of the drum, being that before the march.

On hearing this, the ſoldiers ſtrike their tents, roll them up, and then ſtand to their arms.—The third beating is called the *march*, as the firſt is called the *general*.

ASSENSU. *ſine*, *Capitali*. See SINE, &c.

ASSENSU *Regis*, ſee REGIS.

Dower ex ASSENSU *Patris*, ſee DOWER.

ASSENT, ASSENSUS, an agreement or acquieſcence of the mind to ſomething propoſed, or affirmed.—Thus, to *aſſent* to any propoſition, is to allow it to be true, or to perceive its truth.

Aſſent is diſtinguiſhed, like faith, into *explicit*, or *blind*; and *explicit*, or *ſeeing*, &c.—Others diſtinguiſh it into *actual* and *habitual*.

ASSENT, *actual*, is a determination of the mind, ariſing from the perception of the truth of any propoſition.

ASSENT, *habitual*, conſiſts in certain habits of aſſenting or acquieſcing, induced in the mind by repeated acts.

To this belongs faith, which is an *aſſent* ariſing from the authority of the perſon who ſpeaks.—Such alſo is opinion, which is defined an *aſſent* of the mind *cum formidine oppoſiti*, &c.

ASSENT, ſee the meaſures and degrees of, ſee DEMONSTRATION, EVIDENCE, PROBABILITY, &c.

Father Malebranche lays it down as an axiom, or principle of method, never to allow any thing for truth, from which we can forbear our *aſſent* without ſome ſecret reproach of our own reaſon.

ASSENT, *royal*, ſee ROYAL.

ASSERAC, among the Turks, ſee ASPER.

ASSERIDA, in *Botany*, a name given by the people of Guinea to a kind of ſhrub, the leaves of which being chewed are a cure for the colic, to which that people are very ſubject. Phil. Tranſ. N° 232.

ASSERTION, ASSERTIO, in the language of the ſchools, a propoſition which a perſon advances, and which he grows to be true, and is ready to maintain in public.

ASSESSOR, ASSESSOUR, an inferior or ſubordinate officer

of juſtice, chiefly appointed to aſſiſt the ordinary judge with his opinion and advice.

The word is formed of *ad*, *to*, and *ſedeo*, *I ſit*.

In this ſenſe the maſters in chancery are *aſſeſſors* of the lord chancellor.

There are two kinds of *aſſeſſors* in the imperial chamber, *ordinary* and *extraordinary*.—The ordinary are now in number forty-one, whereof five are elected by the emperor, viz. three counts or barons, and two *juriſconſulti*, or civil lawyers. The electors appoint ten, the ſix circles eighteen, &c. They act in quality of counſellors of the chamber, and have ſalaries accordingly.

ASSESSOR is alſo uſed for a perſon who *aſſeſſes* or lays *aſſeſſments* of taxes, and other public duties.

In this ſenſe, *aſſeſſors*, among us, are inhabitants of a town, or village, elected by the community, to *aſſeſs*, or ſettle the taxes, and other impoſitions of the year, to fix the proportion which each perſon is to bear, according to his eſtate, and to ſee the collection made.—Theſe are alſo called in our law *aſſeſſors*.—By the ſtat. 16 and 17 CAR. II. two inhabitants in every pariſh were made *aſſeſſors* for the royal aid.

ASSETS, (*Fr. aſſez*, i. e. *ſatis*, *enough*) in *Law*, ſignifies goods enough to diſcharge that burden which is caſt upon the executor or heir, in ſatisfying the debts and legacies of the teſtator or anceſtor. Bro. tit. *Aſſets*. *Aſſets* are real or perſonal; where a man hath lands in fee ſimple, and dies ſeiſed thereof, the lands which come to his heir, are *aſſets* real; and where he dies poſſeſſed of any perſonal eſtate, the goods which come to the executor, are *aſſets* perſonal. *Aſſets* are alſo divided into *aſſets per deſcent*, and *aſſets inter manes*; *aſſets* by deſcent, is where a perſon is bound in an obligation, and dies ſeiſed of lands, which deſcend to the heir, the land ſhall be *aſſets*, and the heir ſhall be charged as far as the land to him deſcended will extend: *aſſets inter manes*, is when a man inſtituted makes executors, and leaves them ſufficient to pay his debts and legacies; or where ſome commodity or profit ariſeth to them in right of the teſtator, which are called *aſſets* in their hands. Terms *de Ley*, 56. 77.

Leaſes are *aſſets* to pay debts, notwithſtanding the aſſent of the executor to the deviſe of them. 1 Lill. abr. 99. *Aſſets* in the hands of one executor, are *aſſets* in the hands of others; and if an executor hath goods of the teſtator in any part of the world, he ſhall be charged in reſpect of them. 6 Rep. 47. In actions againſt executors, the jury muſt find the value of the *aſſets*; for the plaintiff ſhall recover only according to the value of the *aſſets* found. 1 Rol. Rep. 58. A ſpecial judgment againſt *aſſets* only, ſhall have relation to, and bind the lands from the time of the filing the original writ or bill. Cunh. Rep. 245.

ASSEVERATION, an earneſt affirmation, or avouching.

ASSIDEANS, or rather HASIDEANS, in *Antiquity*, a ſect among the Jews thus called from the Hebrew חסידים, *hhaſidoim*, *merciful*, *righteous*.

The *Aſſideans* are recorded as holding works of ſupererogation neceſſary. They were the fathers and predeceſſors of the PHARISEES; and from them likewiſe aroſe the ESSENI.

ASSIDENT *ſign*, *ſignum aſſidens*, in *Medicine*, a ſymptom which uſually attends a diſeaſe, but not always.

Thus a dry tough tongue, thirſt, and watching, are *aſſident ſigns* in an ardent fever.

In this ſenſe, *aſſidents* differ from *pathognomics*, which are inſeparable from the diſeaſe.

ASSIDUUS, or ADSIDUUS, among the Romans, denoted a rich or wealthy perſon.

The word in this ſenſe is derived from *at*, *aſſe*, q. d. a monied man.

Hence we meet with *aſſiduous* ſureties, *aſſidui poſſeſſores*, anſwering to what the French now call city ſureties or ſecurities, *cautions bourgeoiſes*.

When Servius Tullius divided the Roman people into five claſſes, according as they were aſſeſſed, or taxed to the public; the richer ſort who contributed ASSES, were denominated *aſſidui*; and as theſe were the chief people of buſineſs, who attended all the public concerns: thoſe who are diligent in attendances came to be denominated *aſſidui*.

ASSIDUITY was alſo uſed for volunteers, or thoſe who ſerved in the army at their own expence.

ASSIENTO, or ASIENTO, in matters of *Commerce*, a contract or convention between the king of Spain and other powers, for furniſhing the Spaniſh dominions in America with negro ſlaves.

The term is originally Spaniſh, and ſignifies a *bargain*: accordingly the firſt *aſſiento* was a treaty or contract made with the French Guinea company, whereby they were put in poſſeſſion of this privilege, in conſideration of a certain duty which they were to pay to the king of Spain's farms, for every negro thus furniſhed.

The Spaniards, having almoſt deſtroyed the natural inhabitants of Spaniſh America, have been many years, and ſtill are, obliged to perform the work of their mines, and other laborious buſineſs, by negroes, of whom they could ſcarce ever obtain the number they have wanted: and it is certain, if they were fully ſupplied, they would get yearly above twice the ſilver perhaps they now do, or have done for many years paſt. It muſt be confeſſed, they have uſed variety of meaſures to obtain them. The Genoeſe undertook to ſupply them at a concerted price between them; for which end they formed a company called the *aſſiento*, who had their factors at Jamaica, Curaſoa, and Braſil: but by their ill management made nothing of this contract; nor did their ſucceſſors the Portugueſe. After them it fell into the hands of the French, who made ſo much of it, that they were enabled, by a computation made from the regiſters of Spain, to import into the French dominions, no leſs than 20,000,000 of pieces of eight. Yet they at length overſtocked the market, and became ſufferers towards the concluſion.

By the treaty of Utrecht, Philip V. being declared king of Spain by the allies; it was one of the articles of the peace between England and France, that the *aſſiento* contract ſhould be transferred to the Engliſh. Accordingly a new inſtrument was ſigned in May 1713, to laſt thirty years; and the furniſhing of negroes to the Spaniſh America was committed to the *South-ſea* COMPANY, juſt then erected: though the firſt convention for this purpoſe was made in or about the year 1680.

In virtue whereof they were yearly to furniſh 4800 negroes; for which they were to pay at the ſame rate as the French, with this condition, that during the firſt twenty-five years, only half the duty ſhall be paid for ſuch as they ſhall import beyond the ſtated number.

The laſt article gives them a farther privilege not enjoyed by the French; which is, that the Engliſh *aſſientiſts* ſhall be allowed, every year, to ſend to the Spaniſh America a ſhip of five hundred tons, loaden with the ſame commodities as the Spaniards uſually carry thither; with a licence to ſell the ſame, concurrently with them, at the fairs of Porto Bello, Carthagena, and Vera Cruz. This additional article was ſuppoſed as advantageous to the company, as the whole contract beſides; being granted contrary to the uſual Spaniſh policy, which has ever ſolicitouſly preferved the commerce of their America to themſelves.

Some new articles have been ſince added to the ancient *aſſiento*; as, that the Engliſh ſhall ſend their regiſter ſhip yearly, even though the Spaniſh flota and galleons do not go; and that, for the firſt ten years, the ſaid ſhip may be of 650 tons.

Finally, as the South ſea company had on the whole been loſers by their trade, and as at the time of the treaty of Aix-la-Chapelle, in 1748, they had only four years more of their *aſſients* term remaining (for war between Spain and England having commenced in 1739, and interrupted the continuance of it), which Spain was determined not to renew, at leaſt not on any promiſing terms; for theſe and other reaſons, it was concluded by the Britiſh court, to inſtruct her miniſter at Madrid, to obtain the beſt equivalent that could be procured for the remaining ſhort time of the company's *aſſients* contract.

The manner of valuing the negroes, in order to ſettle the king of Spain's duty, is the ſame as delivered under NEGRO.

ASSIGN, in *Common Law*, a perſon to whom a thing is *aſſigned*, or made over.

The word *aſſign* is ſaid to have been introduced in favour of baſtards; who, becauſe they cannot paſs by the name of *heirs*, are comprized under that of *aſſigns*.

ASSIGNABLE *Magnitude*, in *Geometry*, is uſed for any finite *magnitude*. And,

ASSIGNABLE *Ratio*, for the *ratio* of any finite quantities.

ASSIGNEE, in *Law*, a perſon to whom a thing is appointed, or *aſſigned*, to be occupied, paid, or done.

An *aſſignee* differs from a *deputy* in this, that the *aſſignee* poſſeſſes or enjoys the things in his own right; and a *deputy* in the right of another.

Aſſignee may be either by *deed*, or by *law*.

ASSIGNEE *by deed* is, when a leſſee of a term ſells and aſſigns the ſame to another: that other is his *aſſignee by deed*.

ASSIGNEE *by law*, is he whom the law ſo makes, without any appointment of the perſon.

Thus, an executor is *aſſignee by law* to the teſtator, who dies poſſeſſed of a leaſe made to him and his *aſſigns*.

ASSIGNEE under a commiſſion of bankruptcy, are perſons to whom the bankrupt's eſtate is *aſſigned*, for the benefit of

of the creditors: they are chosen at one of the three meetings appointed by the commissioners, and published in the Gazette, by the major part, in value, of the creditors, who shall then have proved their debts; but they may be originally appointed by the commissioners, and afterwards approved or rejected by the creditors: and no creditor shall be admitted to vote in the choice of *assignees*, whose debt does not amount to ten pounds.

The *assignees* may pursue any legal method of recovering the property vested in them, by their own authority: but cannot commence a suit in equity, nor compound any debts owing to the bankrupt, nor refer any matters to arbitration, without the consent of the creditors, or a major part of them in value, obtained at a Gazette meeting.

The *assignees* must, within twelve months after the commission issued, give one and twenty days notice to the creditors of a meeting for a dividend; and within eighteen months, a second and final dividend shall be made, unless all the effects were exhausted by the first.

ASSIGNING is used for the act of appointing a deputy; or the making over a right to another.

In this sense we say, such lands or estates were *assigned* or made over to such persons for such uses, &c.—In the stat. 20 Edw. I. we read of justices *assigned* to take assizes, &c.

ASSIGNING also signifies pointing out, or setting forth.—Thus we say, to *assign* the real cause of such an event, &c.

To assign error, is to shew in what part of a process at law an error is committed.

To assign false judgment, verdict, &c. is to declare how and where judgment, verdict, or the like, is unjust.

To assign waste, is to shew especially wherein the waste is committed.

ASSIGNMENT, the act of *assigning*, or transferring the interest or property a man has in any thing; or of appointing or setting over a right to another.

No estate of freehold or term of years shall be *assigned*, but by deed in writing signed by the parties, except by operation of law. Stat. 29 Car. II. cap. 3. If lessee for years *assigns* all his term in his lease to another, he cannot reserve the rent in the *assignment*; for he hath no interest in the thing by reason of which the rent reserved should be paid; and where there is no reversion, there can be no distress: but debt may lie on it as on a contract. 1 Lill. abr. 99. If an *assignment* is made by an assignee, the first assignee is not liable for the rent; for if he be accepted by the lessor, the admission of one assignee is the admission of twenty. Comp. Anom. 491. Bonds, &c. are assigned by power of attorney, to receive and sue in the assignor's name: but bills of exchange are assignable by indorsement; and the assignees may recover in their own name, by stat. 3 and 4 Anne. c. 9.

The *assignment of a dower*, is the letting out of a woman's marriage-portion by the heir.

ASSIGNMENT, *usual*, see NOVEL.

ASSIMILATION, the act of *assimilating*: an act whereby a thing is rendered similar, and like to another.

The word is compounded of *ad*, *to*, and *similis*, *like*.

ASSIMILATION, ASSIMILATIO, in *Physics*, is properly a motion whereby bodies convert other duly disposed bodies into a nature like, or homogeneous to their own.

Instances of this *assimilation* we see in flame, which converts the oily or other particles of fuel into its own fiery and luminous nature. The like also appears in air, smoke, and spirits of all kinds.

The like we see in vegetables, where the watery juices imbibed from the earth, being farther prepared and digested in the vessels of the plant, become of a vegetable nature, and augment the wood, leaves, fruit, &c.

So also, in animal bodies, we see the food *assimilated*, or changed into an animal substance, by digestion, chylification, and the other operations necessary to nutrition.

ASSIMILATION, in *Rhetoric*, see SIMILE.

ASSIRATUM, in *Antiquity*, a bloody draught, wherewith treaties were ratified.

It was made of wine and blood, called by the ancient Romans *assir*.

ASSIS, in *Physiology*, either denotes opium, or a powder made of hemp-seed, which being formed into boles about the bigness of chesnuts, is swallowed by the Egyptians, who are hereby intoxicated, and become ecstatic, and full of the most agreeable visions.

This is also called by the Turks *assirce*.

ASSISA, or ASSISIA, see the articles ASSISE, and TALLAGE.

ASSISA *cadere*, *to fall from the assise*, in *Law*, is to be nonsuited.

ASSISA *cadit in juratam*, is where the thing in controversy is so doubtful, that it must necessarily be tried by a JURY.

ASSISA *capi in modum assise*, is when the defendant pleads directly to the assise, without taking any exception to the count, declaration, or WRIT.

ASSISA *continuanda*, is a WRIT directed to the justices, to take an assise for the continuance of a cause, where certain records alledged cannot in time be procured by the party.

ASSISA *nouvelli*, is an assise of nuisance.

ASSISA *panis & cervisiæ*, denotes the power or privilege of assizing, or adjusting the weight and measure of bread and beer.

ASSISA *judicium*, in *Law*, signifies a judgment of the court, given either against the plaintiff or defendant, for default.

ASSISA *proroganda*, is a WRIT directed to the justices of assise, for the stay of proceedings, on account of the king's business, wherein the party is employed.

ASSISE, or ASSIZE, *assisa*, in *Law*, a sitting of judges, or justices, for the hearing or determining of causes.

The word is French, *assise*, or *assis*, *seated*: formed of the Latin *assides*, *I sit by*; which is compounded of *ad*, *to*, and *sedeo*, *I sit*.

ASSISE, *clerk of*, see CLERK.

ASSISE, or ASSIZES, was anciently used for certain extraordinary sittings of superior judges, in the inferior courts depending on their jurisdiction; to enquire whether the subaltern judges and officers did their duty; to receive the complaints preferred against them; and take cognizance of appeals from them. These are also called *maritimal assises*.

ASSISE was also a COURT or assembly, composed of several great persons of the realm: held occasionally in the king's palace, for the final decision of all affairs of importance.

This is more usually called, among our writers, *placita, motta publica*, or *curiæ generales*. Yet there is some difference between *assises* and *placita*.—The viscounts, or sheriffs, who originally were only lieutenants of the *comites*, or counts, and rendered justice in their place, held two kinds of courts, the one ordinary, held every day, and called *placitum*; the other extraordinary, called *assisa*, or *placitum generale*; at which the count himself assisted, for the dispatch of the more weighty affairs.

Hence the term *assise* came to be extended to all grand days of judgment, at which the trials and pleadings were to be solemn and extraordinary.

The modern constitution of *assises* is pretty different from that hitherto spoken of.—Our *assise* may be defined a court, place, or time, where and when writs and processes for either civil or criminal, or both, are considered, dispatched, decided, &c. by judges and jury.

In this sense we have two kinds of *assises*; *general* and *special*.

ASSISES, or ASSIZES, *general*, are those held by the judges twice a year, in their several circuits.

The nature of these *assises* is explained by lord Bacon, who observes, that all the counties of the kingdom are divided into six circuits; through each of which two learned men, assigned by the king's commission, ride twice a year, called *justices* or *judges of assise*, who have several commissions by which they sit; viz.

1. *A commission of over and terminer*, directed to them, and many others of the best account in their respective circuits. In this commission, the judges of *assise* are of the *quorum*; so that without them there can be no proceeding. This commission gives them power to transact matters relating to treason, murders, felonies, and other misdemeanors.

The second is of *gaol-delivery*, which is only to the judges themselves, and the clerk of the *assise* also.—By this commission, they have cognizance with every prisoner in gaol, for what offence soever.

The third is directed to themselves and the clerk of the *assise*, to take writs of possession, called also *assises*; and to do right and justice thereupon.

The fourth is to take the NISI PRIUS, directed to the *justices*, and the clerks of *assises*; whence they are also called *justices of nisi prius*.

The fifth is a *commission of peace*, in every county of their circuit; and all the justices of the peace, having no lawful impediment, are bound to be present at the *assises*, to attend the judges.

The sheriff of every shire is also to attend in person or by a sufficient deputy allowed by the judges, who may fine him if he fail.

This excellent constitution of judges, circuits, and *assises*, was begun in the time of Henry II. though somewhat different from what it is now.

The *grand assise*, or trial by jury, instituted by Henry II. as an alternative instead of judicial combats, is particularly

larly described by Glanvil, who was probably the adviser of the measure.

For this purpose, a writ *De magna assisa eligenda* was directed to the sheriff, to return four knights who were to elect twelve others to be joined with them; all these together formed the *grand assise*, ordained to try the matter of right.

The judges of *assise* came into use in the room of the ancient justices in eyre, *justitiarii itinerii*; who were appointed by the great council of the realm, A. D. 1176, 22 Hen. II. with a delegated power from the king's great court; and they made their circuit round the kingdom once in seven years, for the purpose of trying causes. They were afterwards directed by Magna Charta, c. 18. to be sent into every county once a year. Blackstone's Com. vol. iii.

ASSISE *special*, is a particular commission granted to certain persons to take cognizance of some one or two causes, as a diffeisin, or the like.—This was very frequently practised among our ancestors. Bracton, lib. iii. c. 12.

ASSISE is also used for a writ directed to the sheriff, for the recovery of possession of things immoveable, whereof a man's self, or ancestors, have been diffeised.

Lyttelton, and others, suppose these writs of *assise* to have given the denomination to the *assises*, or courts so called, and they assign several reasons of the name of the writs so,

1. Because such writs settle the possession, and right, in him that obtains by them. 2. Because originally they were executed at a certain time and place appointed, for by the Norman law, the time and place must be known forty days before the judges sit; and by our law there must be fifteen days preparation, except they be tried in the standing courts at Westminster.—But it is more natural to suppose the writs denominated from the courts; and that they were called *assises*, because anciently tried at special courts of *assise*, set and appointed for that purpose.—Though of latter days, these are dispatched at the general *assises*, along with the commission of oyer and terminer, &c.

This writ is as well of things corporal, as incorporeal rights, being of four sorts, viz.

ASSISE *of mort d'ancestor*, *assisa mortis antecessoris*, which lies where a tenant in fee-simple, fee-tail, or for life, is lately diffeised of his lands and tenements, rent-service, rent-fee, or rent charge, common of pasture, common way, &c.

To this may be added, the bill of frefh force, directed to the officers or magistrates of cities or towns corporate: being a kind of *assise* for recovery of possession in such places, within forty days after the force, as the ordinary *assise* is in the county.

ASSISE *of mort d' ancestor*, *assisa mortis antecessoris*, lies where a father, mother, brother, uncle, &c. dies seised of lands, tenements, rents, &c. held in fee-simple; and, after their death, a stranger abates. It is good as well against the abator, as any other in possession.

ASSISE *of darrein presentment*, *assisa ultimæ presentationis*, lies where a person, or his ancestor, have presented a clerk to a church; and after the church becomes vacant by death, or otherwise, a stranger presents his clerk to the same church, in disturbance of them.

These three *assises* were instituted by Henry II. in the place of duels; which, till then, had obtained on these occasions. See DUEL.

ASSISE *of novel fee* lies for a person against a layman, or for a layman against a parson, for a land or tenement, doubtful whether it be in lay-fee, or fee-alms. See TITHE.

ASSISE is also used, according to Lyttelton, for a jury.—This, that author supposes to be by a *metonymia effectis*, the jury being so called, because summoned by virtue of the writ of *assise*.

Yet it must be observed, that the JURY, summoned upon a writ of right, is likewise called the *assise*; but this may be said to be *secundum quid*, or absolutely so termed.—*Assise*, in this signification, is divided into *magna* & *parva*.

ASSISE is farther used, according to Lyttelton, for an ordinance, or statute, regulating the weight, fine, or dimensions of certain commodities.—Thus the ancient statute of bread and ale, *anno* 51 Hen. III. is termed the *assise of bread and ale*, *assisa panis & cervisiæ*.

ASSISE is farther used for the standing or quantity itself, prescribed by the statute.—When wheat is of such or such price, BREAD shall be of such *assise*.

We have divers statutes for fixing the *assise* of fish, cloths, wood, billets, faggots, and the like. Vide 34 & 35 Hen. VIII. c. 3. 9 Ann. c. 15. 10 Ann. c. 6. 19 Car. II. c. 3. 4 Jac. I. c. 2. 1 Geo. I. stat. 2. c. 18.

Fixing any *assise* of cloth, or prescribing what length, breadth, weight, &c. it shall have. Sir Josiah Child thinks, does more hurt than good. As the fashions and humours of mankind are variable, to supply all markets at all times, we must have all sorts, cheap and light, as well as heavier and better.—Stretching with tenters is essential to our drapery, and the precise degree or quantity of it cannot without injury be prescribed by any law; but must be left to the vender's or exporter's discretion.

ASSISE *of the forest*, is a statute or condition containing orders to be observed in the king's forest.—It is called an *assise*, because it sets down and appoints a certain measure, rate, or order, in the things it concerns.

ASSISE, *again*, is used for the whole process in court, founded on a writ of *assise*; and sometimes for a part of it, viz. the issue, or verdict of the jury.

Thus we read, that "*assises* of novel diffeisin shall not "be taken but in their shires; and after this manner, "&c." Mag. Chart. cap. 12.—So in Merton, cap. 4. Hen III. we meet with, "certified by *assise*, quitted by "*assise*, &c."

ASSISE, *continuance of*, see CONTINUANCE.—Justices of *assise*, see JUSTICE.—Limitation of *assise*, see LIMITATION.—Rents of *assise*, see RENT.

ASSISER, or ASSIZER *of weights and measures*, is an officer who has the care and oversight of those matters.

ASSISII, in *Ecclesiastical Writers*, denote persons beneficed in a cathedral church, not in a rank below that of canons. The *assisii* perhaps answered to our minor canons. They were thus called, either because they were allowed an *assise* or pension, or from *assidere*, *assessi*.

ASSISOR, the same with ASSESSOR.

In Scotland, *assisors* are the same with our JURORS.

ASSISTANCE, see AID.

ASSISTANT is used for a person or officer appointed to attend another principal officer, for the more easy and regular discharge of his function.—Such a bishop or priest had seven or eight *assistants*.

ASSISTANT, in Roman Catholic countries, is particularly applied to a kind of counsellors, or controllers, added to the generals or superiors of monasteries, &c. to take care of the affairs of the community.

The general of the jesuits has five *assistants*, of consummate experience, chosen by him out of all the provinces of the order, and denominated from the kingdoms or countries to which they belong, i. e. Italy, Spain, Germany, France, and Portugal.

In a like sense, most of our trading companies have their courts of *assistants*.

ASSISTANTS are also those condemned to *assist* in the execution of a criminal.

ASSISUS, in *Ancient Law-Writers*, denotes a thing demised, or farmed out for such an *assise*, or certain rent, in money or provisions. Hence *terra assisa* was commonly opposed to *terra dominica*; this last being held in DEMESNE, or occupied by the lord, whereas the former was let out to tenants. Hence also *redditus assisi* denotes the fet or standing rent.

ASSITHMENT, or ASSYTHMENT, in the *Law of Scotland*, is a compensation for a man slain.

Assithment is the same with what, in the *English Law*, is called *man-bote*.

ASSIUS *Lapis*, in *Physiology*; see LAPIS *Assius*.

ASSOCIATE, an ADJUNCT, partner, or member.

The word is compounded of *ad*, and *socius*, *companion*.

ASSOCIATION, ASSOCIATIO, the act of associating, or forming a society or company.

Association is properly a contract or treaty of partnership, whereby two or more persons unite together, either for their mutual assistance, or for the joint carrying on of an affair; or even for a more commodious manner of life.—The closest of all *associations* is that made by the band of matrimony.

ASSOCIATION *of ideas*, is where two or more ideas constantly and immediately follow or succeed one another in the mind, so that one shall almost infallibly produce the other; whether there be any natural relation between them, or not.

Where there is a real affinity or connexion in ideas, it is the excellency of the mind, to be able to collect, compare, and range them in order, in its inquiries: but where there is none, nor any cause to be assigned for their accompanying each other, but what is owing to mere accident or habit; this unnatural *association* becomes a great imperfection, and is, generally speaking, a main cause of error, or wrong deductions in reasoning. Thus, the idea of goblins and sprights has really no more affinity with darkness than with light: and yet let a foolish maid inculcate these ideas often on the mind of a child, and raise them there together, it is possible he shall never be able to separate them again so long as he lives.

fives, but darkness shall ever bring with it those frightful ideas.—Let custom, from the very childhood, have joined the idea of figure and shape to the idea of God, and what absurdities will that mind be liable to, about the Deity?

Such wrong combinations of ideas, Mr. Locke shews, are a great cause of the irreconcileable opposition between the different sects of philosophy and religion; for we cannot imagine, that all who hold tenets different from, and sometimes even contradictory to one another, should wilfully and knowingly impose upon themselves, and refuse truth offered by plain reason: but some loose and independent ideas are by education, custom, and the constant din of their party, so coupled in their minds, that they always appear there together: these they can no more separate in their thoughts, than if they were but one idea, and they operate as if they were so. This gives finite to jargon, demonstration to absurdities, consistency to nonsense, and is the foundation of the greatest, and almost of all the errors in the world. See IDEA and ABSTRACTION.

Association forms a principal part of Dr. Hartley's mechanical theory of the mind. He distinguishes it into synchronous and successive; and ascribes our simple and complex ideas to the influence of this principle or habit. Particular sensations result from previous vibrations conveyed through the nerves to the medullary substance of the brain; and these are so intimately *associated* together, that any one of them, when impressed alone, shall be able to excite in the mind the ideas of all the rest. Thus we derive the ideas of natural bodies from the *association* of the several sensible qualities with the names that express them, and with each other. The sight of part of a large building suggests the idea of the rest instantaneously, by a synchronous *association* of the parts; and the sound of the words, which begin a familiar sentance, brings to remembrance the remaining parts, in order, by successive *association*. Dr. Hartley maintains, that simple ideas run into complex ones by *association*; and apprehends, that by pursuing and perfecting this doctrine, we may some time or other be enabled to analyse those complex ideas, that are commonly called the ideas of reflection, or intellectual ideas, into their several component parts, i. e. into the simple ideas of sensation of which they consist; and that this doctrine may be of considerable use in the art of logic, and in explaining the various *phenomena* of the human mind. Observations on Man. vol. i. passim. See VIBRATIONS and VIBRATIUNCLES.

ASSOCIATION, in *Law*, is a patent by the king, either of his own motion, or at the suit of a party plaintiff, to the justices of assise; to have other persons *associated* to them, in order to take the assise.

Upon this patent of *association*, the king sends his writ to the justices of the assise, thereby commanding them to admit such as are by the patent.

The *clerk of the assise* is usually associate of course; in other cases some learned serjeants at law are appointed.

ASSOCIATION *of parliament*. In the reign of king William III. the parliament entered into a solemn *association* to defend his majesty's person and government against all plots and conspiracies: and all persons, bearing offices civil or military, were enjoined to subscribe the *association* to stand by king William, on pain of forfeitures and penalties, &c. by stat. 7 and 8 W. III. c. 27.

ASSOILE, in our *Ancient Law-Books*, signifies to absolve, deliver, or set free from an excommunication. See ABSOLUTION.

ASSONANCE, in *Rhetoric* and *Poetry*, a term used where the words of a phrase, or a verse, have the same sound or termination, and yet make no proper rhyme.

These are usually vicious in English; the Romans sometimes used them with elegancy: as *Militem comparavit; exercitum ordinavit, acies instruxit.*

The Latins call it *similiter desinens*; and the Greeks ὁμοιοτέλευτα.

ASSONANT *rhymes* is a term particularly applied to a kind of verses common among the Spaniards, where a resemblance of sound serves instead of a natural rhyme.

Thus, *ligera, cubierta, tierra, mesa*, may answer each other in a kind of *assonant* rhyme, because they have each an *e* in the penultimate syllable, and *a* in the last.

ASSRUMINA, in *History*, the name given by the people of Guinea to the shrub whose leaves they use as a cure for the long worms, which are found in their flesh in those parts of the world; they only bruise the leaves, and apply a large lump of the mass to the part where the worm is, and they are eased at once, without the pain and hazard of drawing it out. Phil. Trans. N° 232.

ASSUMPSIT, in *Law*, a naked CONTRACT; or a voluntary promise by word of mouth, by which a man *assumes* and takes upon him to perform, and pay any thing to another.

This term comprehends any verbal promise; and is variously expressed by the civilians, according to the nature of the promise; sometimes by *pactum*; sometimes by *promissio, sollicitatio*, or *constitutum*.

Where a man sells goods to another the law makes the *assumpsit*, and promises that he shall pay for them.

ASSUMPTION, a feast celebrated in the Romish church, in honour of the miraculous ascent of the Holy Virgin, as they describe it, body and soul, into heaven.

ASSUMPTION was also among our *Ancestors*, used for the day of the death of any saint: *Quasi ejus anima in cœlum assumitur.* See ANNIVERSARY.

ASSUMPTION, in *Logic*, is the minor, or second proposition in a categorical syllogism.

ASSUMPTION is sometimes also used for a CONSEQUENCE drawn from the propositions whereof an argument is composed.

Thus we say, the PREMISES are true, but the *assumption* is copious.

ASSUMPTIVE *arms*, in *Heraldry*. See ARMS.

ASSURANCE, *policy of*. See POLICY.

ASSURANCE, in *Commerce*. See INSURANCE.

We have several offices of *assurance* from fire.—As the Royal-Exchange *assurance*; the Sun-fire-office; the Hand-in-hand fire-office; the London *assurance*; &c. some for houses, others for goods, and some for both.

We have also *assurances for life*, in virtue whereof, when the person assured dies, a sum of money becomes payable to the person in whose behalf the policy of *assurance* was granted.

ASSURANCE *on lives*.—By ASSURING a life is meant obtaining security for a sum of money to be received should the life drop, in consideration of such a payment made to the *assurer*, as is a sufficient compensation for the loss and hazard to which he exposes himself.—The sum at which this compensation should be valued, depends

1. On the rate of interest at which money is improved: And 2. On the probability of the duration of the life to be assured.—If interest is *high*, and also the probability *high* of the duration of the life, the value of the *assurance* will be proportionably *low*. On the contrary, if the rate of interest is *low*, and the probability of living also *low*, the value of the *assurance* will be proportionably *high*.—In order to explain this: let 100*l.* be supposed to be assured on a life for a year to come; that is, let 100*l.* be supposed payable a year hence, provided a life of a given age fails in that time. Were the interest of money at 5 *per cent.* and the life *sure* of failing, the value of the *assurance* would be the same with the present value of 100*l.* payable at the end of the year, reckoning interest at 5 *per cent.* that is, it would be that sum, which being now put out to interest at 5 *per cent.* would produce 100*l.* at the end of the year, or 95*l.* 4*s.* 8*d.* See ANNUITIES. On the contrary, if it be an even chance, or the odds are equal, whether the life does or does not fail in the year, the value of the *assurance* will be half the former value, or 47*l.* 12*s.* 4*d.*—If the odds *against* its failing are *two to one*, that is, if it is to be expected, that some *one of three* lives, at the age of the given life, will fail in the year, the value of the *assurance* will be a *third* of the first value, reckoning the same interest, or 31*l.* 15*s.*—If the odds are 19 to 1, or if it may be expected, that some one out of twenty lives, at the age of the given life, will fail in a year; the value of the *assurance* will be a twentieth part of the first value, or 4*l.* 16*s.*—If the odds are 49 to 1, or only one out of fifty such lives as the given life can be expected to fail in the year, the value of the *assurance* will be a fiftieth part of the first value; that is, it will be 1*l.* 18*s.*—Now the odds of 3 to 1 are, according to Dr. Halley's Table of Observations (*see* LIFE-*Annuities*), the odds that a life aged 87, will not drop in a year. The odds of 19 to 1 are the odds, according to the same table, that a life aged 64, will not drop in a year. And the odds of 49 to 1 are the odds that a life aged 39 will not drop in a year. It follows, therefore, that the value of the *assurance* of 100*l.* for a year, on a life aged 87, is 31*l.* 15*s.* on a life aged 64, 4*l.* 16*s.* on a life aged 39, 1*l.* 18*s.* reckoning interest at 5 *per cent.* If interest is reckoned at 3 *per cent.* those values will be 32*l.* 7*s.*—4*l.* 17*s.* 2*d.* 1*l.* 18*s.* 10*d.*

The *assurances* most commonly practised are such *assurances* as these on single lives for single years; but *persons* assured, and also some assuring *offices*, being ignorant of the principles of calculation in this case, it has been the custom among them to pay no regard to any difference of ages, but to demand 5*s.* from all ages indifferiminately, for the *assurance* of 100*l.* for one year.—Nothing can be more absurd or inequitable; for it appears that this is *more* than the value of the *assurance* of a life at the age of 64, and that it is *more* than *double* the value of the *assurance* of a life aged 39, allowing the *assured* to make 5 *per cent.* of the money he advances.

When a life is assured for any number of years, the value may be paid either in *one single present* payment; in consequence of which the sum assured will become payable without any farther compensation, whenever, within the given term, the life shall happen to drop. Or the value may be paid in *annual payments*, to be continued till the failure of the life, should that happen within the term; or, if not, till the determination of the term.

The method of finding these values cannot be easily understood by those who are not acquainted with the doctrine of life-annuities, as it has been taught by mathematicians; but the following observations may be of use to give some general idea of the subject.

Let us suppose, that a person at 39 years of age wants to assure 100*l.* on his life for 26 years, or till he is 65 years of age; and that he chuses to advance the proper compensation for it in a *fixed annual* payment; the first is to be made immediately, and to be continued till either the term ends, or his life drops.—The value of the *assurance* for the *first* year is by what has been already shewn, *1l. 18s.* reckoning interest at 5 *per cent.* The value of the *assurance* for the last year of the term, supposing him to have lived to the beginning of it, or to have completed 64, is little else, by what has been already shewn, 4*s.* 10*d.* reckoning all along the same interest.—*It, therefore*, the value of *assurance* for the whole 26 years is to be one constant sum payable at the beginning of every year, that sum ought, it is obvious, to be *greater* than the *first*, and *less* than the last; or a sum, which is some mean between 1*l.* 18*s.* and 4*d.* 10*d.*—The rule for finding this mean, in all cases, is the following.

"From the value of an annuity *certain* for the given "term, found by Table III. under the article of ANNUITIES, subtract the value of the life for the given "term, found in the method explained under the article LIFE-*Annuities*, and reserve the remainder.—Multiply the value of 1*l.* due at the end of the given "term (found by Table I. under the article *Annuities*) "by the *perpetuity* (see PERPETUITY); and also by the "*probability* (see MORTALITY) that the given life shall "fail in the given term. The *product* added to the *reserved remainder*, and the *total* multiplied by the annual "interest of the sum to be assured, and afterwards divided by 1*l.* increased by its interest for a year, and "also by the value already mentioned, with unity added, "of the life for the given term, will be the required "value of the *assurance* in a *fixed annual* payment, till "either the life fails, or the term ends."

EXAMPLE.

Let the term be 26 *years*, the life aged 39, the sum 100*l.* and the interest 5 *per cent.*

SOLUTION.

The value of the life of a person whose age is 39, for 26 years, by reckoning interest at 5 *per cent.* and taking Mr. De Moivre's valuation of lives (11.613. See LIFE-*Annuities*. This value subtracted from 14.3755. (the value of an annuity certain for 26 years) (see Table III. under ANNUITIES) leaves 3.262, the remainder to be *reserved*.

The value of 1*l.* to be received at the end of 26 years, is .2812 by Table II. under the article ANNUITIES.—The probability that the life of a person aged 39 shall fail in 26 years, is by Dr. Halley's Table of Observations, (see LIFE-*Annuities*) .362. And the *perpetuity* is 20. These numbers multiplied by one another, and 3.262 added to the product, make 6.568, which multiplied by 5*l.* the annual interest of 100*l.* gives 32.84. This last sum divided by 1.05, or 1*l.* increased by its interest for a year, gives 31*l.* And 31*l.* divided by 12.113, the value of the life 26 years, with unity added, gives 2.56, or 2*l.* 11*s.* 2*d.*, which is the required value, *in fixed annual payments*, of the *assurance* of 100*l.* on the given life for 26 years, reckoning interest at 5 *per cent.*

The value of the same *assurance*, *in one present payment*, is, evidently, that sum which is the value of an annuity equal to the annual payment just determined) on the life for the given term. That is, it is the sum which is the value of an annuity of 2*l.* 11*s.* 2*d.* for 26 years on a life aged 39, the first payment of which is to be made immediately. The product, therefore, of the value of the life, for 26 years, with unity added, into 2.56, is the value of the *assurance* in a single present payment. It is, therefore, 31*l.* or the sum arising to the foregoing operation, before the division by the value of the life for the given term.

If the *assurance* is to be made for the whole possible duration of the life, the method of finding the value will be more simple, and the rule for this purpose is as follows. "From the perpetuity subtract the value of the given "life, and multiply the remainder by the product of the "given sum into the interest of 100*l.* for a year: and "this last product, divided by 100*l.* increased by its interest for a year, will give the value in a *single present* "*payment*. And this payment divided by the value of "the life, will give the value of the *assurance* in *annual* "*payments* during the continuance of the life."

EXAMPLE.

Let the age of the life be, as in the last example, 39: the sum to be assured for its whole duration, 100*l.* and the rate of interest 5 *per cent.*

The interest of 100*l.* for a year is 5*l.*—100*l.* increased by this interest is 105*l.* and the value of the life is, according to Mr. De Moivre's (See LIFE-*Annuities*) valuation of lives, 11.613.—The value of the life subtracted from the PERPETUITY (that is, from 20) gives 8.034, which multiplied by the product of 100*l.* into 5, or by 500, gives 4017; and this, divided by 105 (or by 100. increased by its interest for a year) gives 38.25, which is the value in a *single payment* of the *assurance* of 100*l.* for the whole duration of a life aged 39, reckoning interest at 5 *per cent.* And this payment divided by 11.666 is 3.196, the value of the same *assurance* in *annual payments* during the continuance of the life.

REMARK I.

If the value of the *assurance* is desired in annual payments, this rule supposes the *first* not to be made till the end of a year. If the first payment is to be made immediately, as was supposed in the former question, the value in a single payment (found as directed by the rule) must be divided by the value of the life *increased by unity*; that is, in the present instance, by 12.096, which will make the required value of the *assurance* 2.05, instead of 3.197, or 2*l.* 19*s.* instead of 3*l.* 3*s.* 11*d.*

The reason of directing that unity should be added to the values of lives taken from the tables, in order to find the values of *assurances* in *annual payments*, beginning immediately, is that, in all the tables, the values of annuities on lives are given on the supposition that the first payment is not to be made till the end of a year. If, therefore, the first yearly payment is to be made immediately, the value must exceed that in the tables one year's purchase.

REMARK II.

The PERPETUITY means the value of the *fee-simple* of an estate found by dividing 100*l.* by the rate of the interest. For example: if the rate of interest is 5 *per cent.* the perpetuity is 20; for 100*l.* divided by 5 gives 20.—In like manner, 25, 28.57, 33.333, may be found to be the *perpetuity*, when the rates of interest are 4, 3½, and 3 *per cent.*

REMARK III.

If instead of a *grass sum*, an *estate*, or a perpetual *annuity* is to be assured for the whole duration of a life, the value in a *single payment*, will be "the value of the life "subtracted from the perpetuity, and the remainder "multiplied by the annuity, or by the rent of the estate."—And the value, in *annual payments beginning immediately*, will be "the single payment divided by the value of the life increased by unity."—Universally. It ought to be remembered, that the *assurance* of an *estate* or *annuity* after any given life or lives, is worth as much more than the *assurance* of a corresponding sum, as 100*l.* increased by its interest for a year, is greater than 100*l.*—Thus, the present values, *in single and annual payments*, of the *assurance* of an estate of 5*l.* per ann. for ever, and of a 100*l.* in money, on the whole duration, or on any part of an assigned life, are to one another (interest being at 5 *per cent.*) as 105*l.* to 100*l.*—The reason of the difference is, that the algebraical calculations, by which these values are determined, suppose that the *grass sum*, and the first yearly payment of the *annuity* are to be received at the *same* time, after the extinction of the lives. It is easy to see, that this is a circumstance which must make the latter of most value.

This specimen is sufficient to explain the general nature and principles of *assurances* on single lives; and to teach the method of finding, in all cases, the values of such *assurances*. Those who may wish to know more on this subject, and to see the mathematical demonstrations of the rules we have here given, may consult Dr. Price's treatise, entitled, Observations on reversionary Payments; on the Method of calculating the Values of Annuities on Lives, &c. chap. 1.

Assurances may be made on any number of *joint* lives, or on the *longest* of any lives: that is, an assurer may bind himself to pay any sums at the extinction of any *joint* lives, or the *longest* of any lives, or at the extinction of any one or two of any number of lives. Rules for finding the values in all such cases, as far as two lives are

concerned, may be found in the treatise juſt referred to. There are farther *aſſurances* on ſurvivorſhips; by which is meant an obligation for the value received, to pay a given ſum or annuity, *provided* a given life ſhall ſurvive any other given life or lives. The method of finding theſe values will be given under the article SURVIVORSHIP.

All theſe different kinds of *aſſurances* are of the greateſt uſe; and the offices for making them are a particular advantage to the public. The principal of theſe offices in England are the London and the Royal Exchange *aſſurance* offices; the Amicable Society, incorporated for a perpetual *aſſurances* office; and the Society for equitable *Aſſurances* on Lives and Survivorſhips, near Black-Fryars Bridge.

The two firſt of theſe offices, having chiefly in view *aſſurances* on ſhips and houſes, do little in the way of *aſſurances* on lives; and all the buſineſs they tranſact in this way is at 5*l.* for every 100*l.* aſſured on a ſingle life for a ſingle year, without paying any regard to the ages of the lives aſſured.

The Amicable Society at Serjeant's Inn requires an annual payment of 5*l.* from every member during life, payable quarterly. The whole annual income hence ariſing is equally divided among the *nominees*, or *heirs*, of ſuch members as die every year; and this renders the dividends among the *nominees*, in different years, more or leſs, according to the number of members who have happened to die in thoſe years. But this ſociety engages that the dividends ſhall not be leſs than 150*l.* to each claimant, though they may be *more*.—None are admitted whoſe ages are *greater* than 45, or leſs than 12; nor is there any difference of contribution allowed on account of difference of age.—This ſociety has ſubſiſted ever ſince 1706, and its credit and uſefulneſs are well eſtabliſhed. Its plan, however, is liable to ſeveral objections.—Firſt, it is evident, that regulating the dividends among the *nominees*, by the number of members who die every year, is not equitable; becauſe it makes the benefit which a member is to receive to depend, not on the value of his contribution, but on a *contingency*; that is, the number of members that ſhall happen to die the ſame year with him.—Secondly, in requiring the ſame payments from all perſons under 45, is alſo not equitable; for the payment of a perſon admitted at 12, ought not to be more than *half* the payment of a perſon admitted at 45.—Thirdly, its plan is too narrow, as to confine its uſefulneſs too much. It can be of no ſervice to any perſon whoſe age exceeds 45. It is, likewiſe, by no means properly adapted to the circumſtances of perſons who want to make *aſſurances* on their lives for only one year, or a ſhort term of years. For example: the true value of the *aſſurance* of 150*l.* for five years, on the life of a perſon whoſe age is 39, may be found, by the firſt rule, to be nearly three guineas *per ann.* ſuppoſing intereſt at 3 *per cent.* and the probability of the duration of human life, as they are given in Dr. Halley's Table of Obſervations. But ſuch an *aſſurance* could not be made in this ſociety without an annual payment of 5*l.*

Neither is the plan of this ſociety at all adapted to the circumſtances of perſons who want to make *aſſurances* on particular ſurvivorſhips. For example: a perſon poſſeſſed of an eſtate or ſalary, which muſt be loſt with his life, has a perſon dependent upon him, for whom he deſires to ſecure a ſum of money payable at his death. But he deſires this only as a ſecurity againſt the danger of his dying *firſt*, and leaving a wife, or a parent, without ſupport. In theſe circumſtances he enters himſelf into this ſociety; and, by an annual payment of 5*l.* entitles his *nominee* at his death to 150*l.* In a few years, perhaps, his *nominee* happens to die; and having then loſt the advantages he had in view, he determines to forfeit his former payments, and to withdraw from the ſociety.—The right method, in this caſe, would have been to have taken from ſuch a perſon the true value of the ſum aſſured, "on the ſuppoſition of non-payment, provided "he ſhould ſurvive."—In this way, he would have choſen to contract with the ſociety; and had he done this, he would have paid for the *aſſurance* (ſuppoſing intereſt at 3 *per cent.* his age 30, the age of his *nominee* 30, and the values of lives as given by Mr. De Moivre) 3*l.* 8*s.* in annual payments, to begin immediately, and to be continued during the joint duration of his own life and the life of his *nominee*.

None of theſe objections are applicable to the plan of the ſociety which meets at Black-Fryars Bridge, and which has juſtly ſtyled itſelf the *Equitable Society for Aſſurances on Lives and Survivorſhips*. The buſineſs tranſacted by this ſociety is ſo extenſive, and it is governed ſo entirely by calculations, founded on the beſt rules and obſervations, that it cannot but prove one of the greateſt public benefits.

It was eſtabliſhed in the year 1762, in conſequence of propoſals which had been made, and lectures recommending ſuch a deſign, which had been read by Mr. Dodſon, the author of the Mathematical Repoſitory.—It aſſures any ſums or reverſionary annuities, on any life or lives for *any number* of years, as well as for the *whole continuance* of the lives; and in any manner that may be beſt adapted to the views of the perſons aſſured: that is, either by making the aſſured ſums payable *certainly* at the failure of *any* given lives; or on *condition* of ſurvivorſhip; and alſo, either by taking the price of the *aſſurance* in *one preſent payment*, or in *annual payments*, during any ſingle or joint lives, or any terms, leſs than the whole poſſible duration of the lives. Any perſon, or perſons, who depend on incomes which muſt be loſt when they die, or who are only tenants for life in eſtates, may, if they want to borrow money, be enabled to give ſufficient ſecurity, by aſſuring ſuch ſums as they want to borrow in this ſociety, and aſſigning the policy in conſequence of which, the lender will, during the term of the *aſſurance*, be guarded againſt all danger of loſing his principal by the death of the borrower.—In the ſame way, clergymen, counſellors, perſons holding any places of profit, traders, and others, who have families, whoſe ſubſiſtence depends on the continuance of their lives, may here be enabled to make ſome proviſion for their families after their deceaſe.—All perſons who enjoy annuities for the lives of others, may here ſecure themſelves againſt the loſs they would ſuſtain, ſhould they ſurvive the perſons on whoſe lives the annuities depend, by making *aſſurances* which ſhould entitle them to any ſums, payable on condition their ſurvivorſhip ſhould take place. Any perſon entitled to an eſtate, annuity, legacy, or office, after another perſon, provided he ſurvives, may here ſecure ſome equivalent for his family at his deceaſe, provided he does not ſurvive.—Huſbands may, in this ſociety, ſecure annuities for their wives, provided they ſhould leave them widows.—Parents, by aſſuring the lives of their children when infants, till they attain a given age, may ſecure for them, ſhould they live to that age, ſuch ſums as may be neceſſary to put them out to apprenticeſhips, or to make capitals or fortunes for them, with which to ſet out in buſineſs, or to marry.—Any perſons, apprehenſive of being left without ſupport in old age, when incapable of labour, may, in this ſociety, purchaſe an annuity, to commence at any future year of his life, and to continue during the remainder of his life; and he may do this at a very ſmall expence, if he is young, and willing to wait for the commencement of his annuity, till he is 55 or 60 years of age.

In ſhort, there are no kinds of *aſſurances* on lives and ſurvivorſhips, which this ſociety does not make. In doing this, it follows the rules which have been given by the beſt mathematical writers on the doctrine of *Life-Annuities* and *Reverſions*, particularly Mr. Simpſon; and, in order to gain ſuch a profit as may render it a *permanent* benefit to the public, and enable it to bear the expences of management, it takes the advantage of making its calculations at ſo low an intereſt as 3 *per cent.* and, from tables of the probabilities and values of lives in London, where (as in all great towns) the rate of human mortality is much greater than it is in common among mankind. This ſociety has lately made a particular enquiry into its own ſtate, as to *profit* and *loſs*, by all the buſineſs it has tranſacted from its firſt inſtitution. This enquiry was made in three different methods, propoſed to the directors by Dr. Price, the author of the Treatiſe on Reverſionary Payments; and the reſult has been, that it appears, that a much ſmaller proportion of the perſons aſſured have died, than *ſhould* have died according to the tables for London, from which the calculations have been made, or even according to Dr. Halley's table for Dublin; that, for this reaſon, the claims have been much leſs than they *ſhould* have been; and that the ſociety has for many years been enjoying an income, ſome thouſands *per ann.* greater than it wants, and a *ſurplus ſtock* of near 40,000*l.* over and above what is neceſſary to enable it to make good all its engagements.

In theſe circumſtances, the ſociety finding itſelf well ſecured againſt future hazards, and being unwilling to take from the public an extravagant profit, have determined to reduce all the *future* payments for *aſſurances one tenth*; and alſo to return to the perſons now aſſured *one tenth* of all the payments which they have made. And theſe is, it ſeems, reaſon to expect that this will be only a preparation for farther reductions. Nor need the public, we are informed, be apprehenſive of their going too far in making reductions; for in conſequence of the enquiry they have lately made, and of the order into which this enquiry has thrown their accounts, they will have it in their power to determine exactly from year to year what they are able to do, and always to keep under their view a clear ſtate of their own circumſtances.

From the preceding account of this Society it is manifeſt, that

that its business is such, that none but skilful mathematicians are qualified to conduct it. The interest of the society, therefore, absolutely requires, that it should make the places of those who manage its business so advantageous, as to induce the ablest mathematicians to accept them; and this will render it the more necessary for the society to take care, on any future vacancies, to pay no regard, in filling them up, to any other considerations than the ability and integrity of the candidates. The consequence of granting good pay will be a multitude of solicitations on every vacancy, from persons who, however unqualified, will hope for success from their connexions, and the interest they are able to make; and should the society, in any future time, be led by such causes to trust its business in the hands of persons not possessed of sufficient ability, as *calculators* and *mathematicians*, such mistakes may be committed as may prove, in the highest degree, detrimental.—We have reason to know, that at present the society is in no danger of this kind; and one of the great public advantages attending it, is, that it has established an *office*, where not only the business we have described is transacted with faithfulness and skill; but where also all who want solutions of any questions relating to life-annuities and reversions may apply, and be sure of receiving just answers.

TABLE of the rates of *assurance* on single lives in the Society for equitable Assurances near Black-Friars Bridge.

SUM assured 100*l.*

Age	One year		Seven years at an annual payment of		For the whole life, at an annual payment of	
	l.	*s.* *d.*	*l.*	*s.* *d.*	*l.*	*s.* *d.*
10	1	9 6	1	10 2	2	2 10
15	1	11 0	1	12 7	2	6 6
20	1	13 11	1	16 0	2	12 10
25	1	17 7	2	0 2	3	0 0
30	2	2 6	2	6 6	3	8 11
35	2	8 7	2	14 2	3	17 9
40	2	19 2	3	5 1	4	7 11
45	3	11 6	3	18 6	5	0 0
50	4	4 8	4	14 2	5	12 11
55	5	0 9	5	11 7	6	9 3
60	5	19 1	6	16 10	7	17 7
64	7	0 11	8	13 0	10	3 9

These rates are 10 *per cent.* lower than the true values, according to the decrements of life in London, reckoning interest at 3 *per cent.*; but at the same time, for all ages under fifty, they are near a *third* higher than all the true values, according to Dr. Halley's Table of the decrements of life at Breslaw, and Dr. Price's Tables of the decrements of life at Northampton and Worwich.—As, therefore, this society has lately found that the decreasements of life among its members have hitherto been lower than even those given in these last Tables, it may be reasonably expected, that they will in time reduce their rates of *assurance* to the true values, by these Tables.

ASSURANCE, *collateral*. See COLLATERAL.

ASSURGENT *leaves*, in *Botany*, denote such as are first bent down, and then rise erect towards the apex.

ASSUROR, a merchant, or other person, who assures, or makes out a policy of insurance for a ship, house, life, or the like.

Assurors are not answerable for what damages arise through the negligence, or other fault of the master or seamen; or even those which arise from any vice or defect in the thing assured.

ASSURRANI, or ASSURRANI, a branch of *Donatists*, in the middle of the fourth century. The *Assurrani* maintained, the Son inferior to the Father; they re-baptized their converts from the catholics, and asserted that the church is not composed of good and bad, but of the good alone.

ASSYRIAN *letters, literæ Assyriæ*, a denomination given by several Rabbins, and Talmudists, to the characters of the present Hebrew alphabet, as supposing them to have been borrowed from the Assyrians during the Jewish captivity in Babylon. Montfaucon.

ASTÆUS, a species of the *crab* insect.

ASTAKILLOS, a denomination given by Paracelsus to a malignant gangrenous ulcer in the leg, occasioned by a mercurial salt in the blood. This is also called by him *aranæus*, and *ulcus araneum*, the *spider's ulcer*.

ASTALIN, in *Ancient Writers*, the same with *astanda*.

ASTANDA, in *Antiquity*, a royal courier or messenger, the same with ANGARUS.

King Darius of Persia is said by Plutarch, in his book on the fortune of Alexander, to have formerly been an *astanda*.

ASTARTE, *Æ*, ASTHARITE, or ASTHAROTHITE, a name given by some to the Jews, who fell into the worship of Astaroth, or Astharoth, the goddess of the Sidonians, supposed the same with Astarte, or the moon.

ASTAROTH, in *Mythology*, an idol of the Philistines, which the Jews destroyed at the command of Samuel. It was also the name of a deity of the Sidonians, which was worshipped by Solomon in his idolatrous days.

ASTATI, in the ninth century, the followers of one Sergius, who renewed the errors of the MANICHEES.

The word is derived from the privative *a*, and *στημι, ſto, to ſtand*, and signifies any thing unſtable and inconſtant. They prevailed much under the emperor Nicephorus; but his ſucceſſor, Michael Curopalates, curbed them with very ſevere laws.

ASTEISM, from *ἀστειομαι, I uſe urbanity of diſcourſe*, in *Rhetoric*, a genteel way of irony, or handſome way of deriding another. Such is that of Virgil:

Cui Bavium non odit, amet tua carmina Mævi, &c.

ASTER, in *Botany*. See STAR-WORT.

ASTER, in *Mineralogy*, a denomination given to a ſpecies of Samian earth.

ASTER *thalaſſius*, the *ſtella marina*, or STAR-*fiſh*.

ASTER is alſo a denomination, in the *Ancient Pharmacy*, given to a kind of medicine, invented by Andromachus, againſt defluxions, and divers other pains.

ASTERIA, in *Ornithology*, a name by which ſome authors have called the *accipiter palumbarius*, or GOSHAWK.

ASTERIA is alſo the name of a gem, uſually called the cat's eye, or *oculus cati*. It has only two colours, a pale brown and a white, the brown ſcarring the ground, and the white playing about in it, as the fire colour in the opal. It is conſiderably hard, and will take a fine poliſh, but is uſually worn with its native ſhape and ſmoothneſs. It is found in the Eaſt and Weſt Indies, and in Europe. The iſland of Borneo affords ſome very fine ones, but they are uſually ſmall; they are very common in the ſands of rivers in New Spain; and in Bohemia they are not unfrequently found immerſed in the ſame maſſes of jaſper with the opal.

ASTERIA is alſo the name of a figured ſtone. See STAR-*ſtone*.

ASTERIA. See STAR-*fiſh*.

ASTERION, in *Aſtronomy*, one of the CANES VENATICI.

ASTERISCUS, *aſteroides lapidoſus*, in *Botany*. See OSMUND.

ASTERISK, a character in form of a ſmall ſtar, ſet over any word, or ſentence, to make it the more conſpicuous, or to refer to the margin, or elſewhere, for a quotation, explanation, or the like.

The word is a diminutive of *aſter*, a *ſtar*.

ASTERISM, ASTERISMUS, in *Aſtronomy*, the ſame with CONSTELLATION.

The word comes from *aſter, ſtellio, ſtar*.

ASTERN, denotes any diſtance behind a ſhip.

ASTEROPHYTON, from *ἀστηρ* and *φυω, I produce*, in *Natural Hiſtory*, a name given to a kind of STAR-*fiſh*, which is compoſed of a great number of cylindric rays, each branching out into ſeveral others, ſo as to repreſent the branched ſtalks of a very intricate ſhrub.

ASTEROPODIUM, in *Natural Hiſtory*, the name given by authors to a kind of extraneous foſſil, of an imbricated texture, compoſed of a number of ſmall convex or concave plates, and ſerving, when entire, as a baſe, or root, to the *aſteria*, or STAR-*ſtone*.

It is very plain, that this is the remains of ſome animal body, probably of the ſtar-fiſh kind, to which the *aſteria* have alſo once belonged; but our imperfect knowledge in the animal hiſtory, has not yet aſcertained us of the particular creature, the moſt probable conjecture is, that it is the Magellanic STAR-*fiſh*, the rays of which nicely and exactly repreſent ſome of the moſt perfect *aſteropodia*.

ASTHMA, *ἀσθμα*, in *Medicine*, a diſeaſe of the lungs, accompanied with a ſhortneſs and difficulty of reſpiration.

An *aſthma* is a difficulty of breathing, ariſing from a diſorder of the lungs; and uſually attended with violent motions of the diaphragm, abdominal and intercoſtal muſcles, to the very *ſcapulæ*, and the *pinnæ* of the noſtrils; as alſo with a rattling in the throat.

If reſpiration be only thick and quick, without the other ſymptoms, it is called a *dyſpnœa*.—And if it be ſo intenſe as to occaſion a violent motion of the muſcles of the thorax, ſo that the patient cannot be tolerably eaſy, except in an erect poſture, it is called an *orthopnœa*.

The *aſthma* is uſually divided into *moiſt* and *dry*, or *manifeſt* and *occult*, or *pneumonic* and *convulſive*: the firſt is attended with an expectoration of purulent matter; the latter is without.

The true or *pneumonic aſthma* is occaſioned by an abundance of ſcrofities, or of groſs, viſcous, or purulent humours,

mours, collected in the cavities of the lungs, which ſtop up or ſtraiten the paſſages of the air, and compreſs the *bronchia*.

Aſthmas may alſo be owing to empyemas, phthiſes, polypuſes, crudities in the ſtomach, cachexies, &c.

Dr. Mead obſerves, that whatever occaſions the ambient air to enter the lungs with leſs freedom than uſual, brings on this diſeaſe. Hence it may ariſe, 1ſt, From an impediment to the action of the diaphragm, or of the intercoſtal and abdominal muſcles. 2dly, From an obſtruction to the free paſſage of the air into the *aſpera arteria*, or its ramifications, whether it ariſes from a tumor, or from viſcid humors. 3dly, The air itſelf may be a cauſe, if it be much heavier, or lighter than uſual. 4thly, The tenderneſs of the lungs may ſometimes occaſion this diſtemper, as appears from thoſe who are ſubject to a difficulty of breathing upon removing from the thick air of the town into the clear air of the country. 5thly, The difficult paſſage of the air through the lungs may be reckoned among the cauſes of difficult reſpiration. And this may happen either from the weakneſs of the heart, or the too great thickneſs of the blood.

That kind called the convulſive *aſthma* is ſuppoſed to be occaſioned by an irregular motion of the animal ſpirits; and happens when the ſpirits do not flow faſt enough, or in ſufficient quantity, into the muſcles of the breaſt, either by reaſon of an obſtruction, or of ſome other obſtacle: the neceſſary conſequence whereof is a violent and painful reſpiration, in which nature's effort ſeems to be the relieving herſelf from the load of a *plethora*, by a ſpitting of blood, though ſhe fails in the attempt. The *convulſive aſthma* reſembles the *incubus*, or night-mare, in many particulars; but it never ſeizes any body, unleſs they are awake, whereas the other uſually attacks them when between ſleep and waking; and this is a much more laſting complaint, and more frequent, in the returns of its fits than the other. The *incubus* alſo prevents reſpiration in ſo violent a degree, that the perſon can form no articulate ſound. But the *convulſive aſthma* ſuffers ſomewhat more free reſpiration, and the uſe of the voice. The *incubus* is a diſeaſe of very little danger; the *convulſive aſthma*, on the contrary, is a very dangerous, and often fatal, diſorder. Juncker, Conſp. Med. p. 364.

ASTHMA, *convulſive, ſigns of it.* Theſe are a terrible ſhortneſs of breath, which differs from that of the ſuffocative catarrh only in this, that it is ſomewhat leſs violent, and is not attended with the ſame ſenſation of a ſtuffing up of the breaſt: this is attended with a numbneſs of the limbs, and a general laſſitude of the whole body; there is a violent compreſſion felt in the breaſt, and about the ſhoulders, with a great palpitation of the heart. The face is red in ſome parts, and ſeems tumid, and the temporal arteries are diſtended. The bowels are uſually coſtive, and there is a dimneſs often in the eyes, and ſometimes an alienation of the mind. Theſe ſymptoms uſually come on in an evening, and laſt an hour or two. Often, however, the fits are of much longer duration, and ſometimes they obſerve regular periods, at different diſtances of time.

ASTHMA, *convulſive, perſons ſubject to it.* Thoſe of plethoric habits are much more ſubject, than any other people, to this diſeaſe. It does not often ſeize young perſons, except in conſequence of other diſeaſes, and in that caſe it uſually is a very bad omen. It is moſt common to people of a middle age, and with them, ſometimes returns with frequent, but leſs violent fits, for many years together; ſometimes it is more violent, and takes them off in a very little time. People often fall into this diſeaſe, from having been uſed to periodic bleedings, or cuppings, and having afterwards neglected them; thoſe who change a buſy or laborious life, for an idle or ſedentary one, alſo often fall into it; as do thoſe who have had the gout thrown back by improper medicines. Women alſo ſometimes fall into it from ſuppreſſions or imminutions of the *menſes*; and men of hypochondriac habits, from ſuppreſſions of habitual evacuations of blood from the hæmorrhoidal veins. The cauſes of this diſeaſe are very various, and it is ſometimes an idiopathic, ſometimes a ſymptomatic, complaint; it very often attends malignant fevers, and arthritic complaints, and joins itſelf with other diſtemperatures of the breaſt.

ASTHMA, *convulſive, prognoſtics in it.* This, though not immediately deſtructive, is often a very dangerous complaint, and in a ſhorter or longer time, proves fatal to the patient. In middle-aged people it uſually brings on either acute fevers, or ſpitting of blood; and in old people, palſies, apoplexies, or ſuffocative catarrhs. Juncker.

The *aſthma* again, is either *continual*, or *periodical*, and *intermitting*; which laſt returns chiefly when a ſober *regimen* is not obſerved.

The *aſthma* is found to be the moſt violent when the patient is in bed, and in a prone poſture; the contents of the lower belly, in that caſe, bearing againſt the diaphragm, ſo as to leſſen the capacity of the breaſt, and to leave the lungs leſs room to move.

ASTHMA, *method of treatment.* The cure of the true or pneumonic *aſthma* is by bleeding; after which emetics may be uſed; and, if the paroxyſm returns, epiſpaſtics, with glyſters inſtead of purges.—Linctuſes alſo give ſome eaſe, millepedes, ſpirit of gum ammoniac, with ſal ammoniac, coffee, tincture of ſulphur, &c. are alſo greatly commended in *aſthmatic* caſes.

Sir John Pringle obſerves, that coffee made freſh and ſtrong, allowing about an ounce for one diſh, and repeated every quarter or half an hour, is the beſt abater of the paroxyſms of the periodic *aſthma*, which he has ever known.

For the convulſive kind, the cure is attempted by antiepileptics, antihyſterics, antiſpaſmodics, opiates, &c.—Externally, ſpirit of wine and camphor may be rubbed on the breaſt and ſhoulders, eſpecially where the patient has been uſed to cupping, and has neglected it; rubbing the ſhoulders with a flannel, often has a good effect alſo; and fumigations may be uſed of amber, ſtorax, and muſcle, with flowers of citrine ſtœchas. When the fit is off, the patient ſhould uſe frequent waſhing the feet in warm water, and ſhould be always blooded in the foot in ſpring and fall; he ſhould alſo take gentle purges at times, and if the neglect of habitual cuppings, or ſuppreſſions of the hæmorrhoids, or, in women, of the *menſes*, have occaſioned, great care is to be taken to bring all back to their old ſtate again, otherwiſe no radical cure can be expected. Beſides, a mixture of ſpirit of hartſhorn and tincture of ſalt of tartar, ſhould be given to promote an equal diſtribution of the blood to all parts of the body.

Bleedings in the time of the fit, though they always give relief, yet are as much to be avoided as poſſible, ſince they ſubject the patient to frequent returns, and make it always neceſſary to repeat them at the times; for as nature intends, by this *aſthma*, the relieving herſelf from a *plethora*, by a diſcharge of blood, where ſhe finds this intent anſwered by the opening a vein, ſhe will always afterwards bring on this diſeaſe, when at all moleſted by a *plethora*, and will never ſuffer it to go off but by the ſame means. In a firſt attack of this diſeaſe, bleeding is not abſolutely neceſſary, and is therefore always to be carefully avoided; but in caſes where cuſtom has made it neceſſary, it muſt be done, and a large quantity always taken away. Bleeding in the arm is found moſt ſerviceable in the time of the fit, and in the foot, by way of prevention. Vomits, in theſe caſes, are often very hurtful, and the more violent ones always dangerous, in conſideration of the ſpitting of blood, which there is always a greater or leſſer tendency to; yet, in caſes where a full meal has juſt preceded it, and where there is no immediate reaſon againſt it, a ſmall doſe of ſome gentle vomit may be properly given, after bleeding, and a glyſter. Dr. Akenſide recommends an emetic of ipecacuanha, to be uſed as ſpeedily in the fit, as attending circumſtances will admit. A ſweat very often ſucceeds the more violent fits of this diſorder, and is always obſerved to do the patient good; this is promoted by the nitrous and cinnabarine medicines. When this diſeaſe is attended with hypochondriac complaints, the *mixtura ſimplex*, well camphorated, is found of great uſe, as it diſpels the flatulencies, which, in this caſe, are joined with, and always greatly exaſperate the diſeaſe. The volatile ſalts are to be avoided in the time of the fit, and all anodynes, if given while the bowels are in a coſtive ſtate, bring on miſchief. The giving, in this caſe, the expectorating medicines, which are ſerviceable in other *aſthmas*, is not only uſeleſs, as there is in this caſe, nothing to be expectorated, but it is alſo dangerous. Finally, in caſes where there are hypochondriac complaints joined with this diſeaſe, the application of leeches to the hæmorrhoidal veins is attended uſually with great ſucceſs. Juncker, & Med. Tranſ. Lond. vol. i.

The method of cure in this diſtemper, ſays Dr. Mead, muſt vary with its cauſes. Blood-letting is, generally ſpeaking, uſeful in every ſpecies of it. Vomits are uſeful, if the ſtomach or lungs be loaded with tough phlegm. The body muſt be kept open with gentle cathartics. Flatulent food and drink ſhould be avoided; exerciſe uſed till wearineſs and friction, till a ſweat is ready to break out.

Oxymel of ſquills, and ſimple cinnamon water, or gentle, are good in caſe of viſcid and tough humours. But if the fault lie in the nervous juice, the ſtrong ſmelling gums are proper, eſpecially the milk of gum ammoniac. Anodynes are very hurtful in the firſt caſe, but ſerviceable in this, if joined with volatile ſalts or ſpirits. The pæregoric elixir is one of the beſt of this tribe.

As every ſpecies of this diſeaſe is attended with more or leſs efferveſcence in the blood, the bark will be found uſeful; and there have been inſtances where it has done

vaſt ſervice, mixed with the chumber of antimony. Mead. Mon. & Pract. Med. cap. 8.

Bliſters on the back give relief during the fit; and by keeping them open as long as poſſible may prevent returns.

In general, all ales, and eſpecially that prepared of wheat, are in this diſorder to be avoided. In *aſthmatic* caſes, the moſt proper liquor is old Rheniſh wine, mixed with three or four parts of pure ſpring water, or the Seltern waters. Beſide, infuſions by way of tea, prepared of hyſſop, Paul's betony, garden-crowfoot, ground-ivy, liquorice-root, the *uvæ* (ſea-grape), and the flowers of the daiſy, are highly beneficial in all *aſthmas*, from whatever cauſe they may ariſe. Such ſubſtances as are too ſweet, or prepared with ſugar or honey, are in every ſpecies of the *aſthma*, but more eſpecially thoſe of the ſerous, or hypochondriacal kind, to be carefully abſtained from. Hoffman.

ASTIPULATOR, in the Roman order, he by whoſe conſent and leave a man takes the religious habit. Du-Cange.

ASTORCHA, in *Botany*, a name by which ſome authors call the yellow *ſtoechas*, and others the purple, commonly called the Arabian.

ASTRÆA, from *aſtrum*, *ſtar*, in *Aſtronomy*, a name which ſome give to the ſign Virgo, by others called Frigone, and ſometimes Iſis.

The poets feign that Juſtice quitted heaven to reſide on earth, in the golden age; but, growing weary of the iniquities of mankind, ſhe left the earth, and returned to heaven, where ſhe commenced a conſtellation of ſtars, and from her orb ſtill looks down on the ways of men. Ovid. Met. lib. i. ver. 149.

ASTRAGAL, in *Anatomy*, a bone of the heel, having a convex head, articulated with the *tibia*, by *ginglimus*. See *Tab. Anat. (Oſteol.) fig. 7. a. a. fig. 3. n. 25. 25.*

The *aſtragalus*, called alſo talus, and popularly *os heſtiæ*, is the firſt bone of the *tarſus*, and the higheſt of all thoſe that belong to the foot.

This bone may be divided into two portions, one large and *poſterior*, the other ſmall and *anterior*; the firſt is, as it were, the body of the bone, the latter an *apophyſis*, though commonly called, the *anterior* portion. The body, or *poſterior* portion, has four ſides, one *ſuperior*, two lateral, and one *inferior*. The upper ſide is the largeſt; it is covered all over with a cartilage, and is cylindrically convex from before backward, with a depreſſion running through the middle of its breadth, which repreſents half a pulley, and is continuous with the two lateral cartilaginous ſides, of which the external is broader than the other. The upper ſide is articulated with the lower ſide of the *boſs* of the *tibia*, the internal lateral ſide with the inner ankle, and the external lateral ſide with the outer ankle; below the internal lateral ſide there is a great depreſſion without a cartilage, and ſeveral other inequalities. The lower ſide is likewiſe cartilaginous, and obliquely concave, for its articulation with the *os calcis*. At the very loweſt and *poſterior* part of the body of the *aſtragalus*, on the edge of the lower ſide, is a ſmall oblique ſmooth notch, or channel, for the paſſage of the tendons. The *apophyſis*, or *anterior* part of the *aſtragalus*, is diſtinguiſhed from the body, by a ſmall depreſſion on the upper part; and on the lower part by a long oblique unequal notch, very broad toward the outſide. The *anterior* ſide of this *apophyſis* is all cartilaginous, and obliquely convex, for its articulation with the *os ſcaphoides*. The lower ſide, which is likewiſe cartilaginous, is parted in two, and articulated with the *os calcis*, being diſtinguiſhed from the lower ſide of the body of the bone, by the long oblique notch already mentioned. Beſide theſe two cartilaginous ſides, there is a third below the *anterior*, towards the inner part, which, in the dried ſkeleton, touches nothing. Window.

Some alſo apply the name *aſtragalus* to the *vertebræ* of the neck.—Homer, in his Odyſſey, uſes the term in this ſenſe.

ASTRAGAL, in *Architecture*, from the Greek ἀστράγαλος, *the bone of the heel*, is a little round member, in form of a ring or bracelet; ſerving as an ornament at the tops and bottoms of columns.—See *Tab. Architect. fig. 40. lit. E. & fig. 2. 24. 25. 27.*

It is alſo uſed both above and below the liſtel, adjoining immediately to the ſquare or dye of the pedeſtal. It is frequently carved with beads and olives, which the French call *patte-noſtres*.

ASTRAGAL, in *Gunnery*, is a kind of ring or moulding on a piece of ordnance, at about half a foot diſtance from the mouth; ſerving as an ornament to the piece, as the former does to a column.

ASTRAGAL *tyes*. See Tyes.

ASTRAGALOIDES, in *Botany*, the *phaca* of Linnæus. See *Baſtard-Milk Vetch*.

ASTRAGALOMANCY, a ſpecies of divination performed by throwing ſmall pieces, with marks correſponding to the letters of the alphabet; the accidental diſpoſition of which formed the anſwer required. This kind of divination was practiſed in a temple of Hercules, in Achaia. Hiſt. de l'Acad. Inſcrip. tom. i. p. 122.

The word is derived from ἀστράγαλος, and μαντεία, *divination*.

ASTRAGALOTE, in *Natural Hiſtory*, a ſpecies of foſſile *ſhell*, thus called, from its reſembling a *talus*, or aſtle-bone; whence it is alſo denominated *talare*.

ASTRAGALUS, in *Botany*, a genus of the *diadelphia decandria* claſs, *wild liquorice*, *liquorice vetch*, or *milk vetch*. Its characters are, that it hath a butterfly-flower; the ſtandard, or *vexillum*, is upright, bluſh, and reflexed on the ſides; the wings, which are oblong, are ſhorter than the ſtandard; and the keel, which is bordered, is of the ſame length with the wings; at the bottom of the flower is ſituated a taper germen, which afterward becomes a pod having two cells, with a row of kidney-ſhaped ſeeds in each. Miller enumerates twenty ſpecies. The root of this plant, drunk in wine, ſtops a looſeneſs, and promotes urine. Dried to a powder, it is, with good effect, ſprinkled on old ulcers, and ſtops bleeding. Lemery.

According to ſome, it is good to increaſe the milk in wet-nurſes.

ASTRAL, ſomething belonging to the ſtars, or depending on the ſtars.

The word comes from *aſtrum*, of the Greek ἀστρον, *ſtar*.

ASTRAL, or ſidereal year. See Year.

ASTRANTIA, in *Botany*. See Master-*Wort*.

ASTRAPÆA, in *Natural Hiſtory*, a name given by the ancients to a ſtone, ſince called, improperly, *aſtropia*, and by ſome *aſtrapea*. The deſcription we have of it, is, that it was a blue, or blackiſh one, with white variegations, running in the form of waves and clouds in it. Some ſpecimens of the Perſian *lapis lunulæ* are of this kind, but they are rare. It is probable that the ancients meant theſe by the name, but as they were not a diſtinct ſpecies, they ought not to have confounded the ſame ſtone under two names.

ASTRARII, in *Middle Age Writers*, the ſame with *manſionarii*, thoſe who live in the houſe, or family, at the time, for inſtance, when a perſon dies. Du-Cange.

Theſe are alſo denominated *aſtrauddidii*, q. d. *tied to the hearth*.

ASTRARIUS *heres* is uſed, in our *Old Writers*, where the anceſtor, by conveyance, hath ſet his heir apparent, and his family, in a houſe, in his life-time.

Spelman carries the import of the word farther, as if it denoted an heir to whom the inheritance was given by his predeceſſor in his own life, by a writing in form.

The word is formed from *aſtre*, an ancient French term for the hearth of a chimney.

ASTRICTION, *aſtrictio*, in *Medicine*, an operation intendly partly to conſtringe the parts and pores of the body, when too looſe, and partly to reſtrain the courſe of the humours, when too fluid.

Aſtriction, with regard to the object, is of two ſorts; the firſt employed on the too much relaxed *ſolids*; the ſecond on the *fluids*, chiefly in hæmorrhages; intended to moderate or reſtrain the flux of the blood through the cuſtomary paſſages, as the noſe, *meatus*, *labia*, and the like; and ſometimes alſo to ſtop extraordinary and unuſual hæmorrhages, ariſing from violent cauſes.

ASTRICTOR *ani*. See Ani.

ASTRICUS *lapis*, in *Natural Hiſtory*, a kind of figured ſtone, broken or cut from the *cruſtacea*, after the ſame manner as the *trochites* from the *entrochi*.

ASTRILD, in *Ornithology*, a ſpecies of the Loxia.

ASTRINGENS *crocus martis*. See Crocus.

ASTRINGENTS, in *Medicine*, binding remedies; or ſuch as have the power of contracting the parts, and diminiſhing the pores thereof.

Aſtringents chiefly act either by the aſperity of their particles, whereby they corrugate the membranes, and make them draw up cloſer; or by thickening the fluids, whereby they cannot run off ſo faſt as before.

Hence, *aſtringents* are of the claſs of ſtrengtheners, or corroborants; the nature and operation whereof, ſee under the article Strengthener.

Aſtringents naturally ſtand oppoſed to *laxatives*. They only differ from what are called *ſuppreſſives*, in degree of efficacy.

Among ſimples, *mint*, red roſes, nettles, ſanicle, barberries, quinces, pomegranates, ſloes, cinnamon, blood-ſtone, alum, chalk, boles, coral, &c. are the principal *aſtringents*.

Aſtringent medicines are to be avoided in all inflammatory caſes, for they diſturb nature in the effort ſhe is making to relieve herſelf from a congeſtion of blood in the part, and prevent that free paſſage which the blood ought to have, and which alone can make a cure, or break through the obſtruction that is the real diſeaſe.

Mr. Petit concludes, from a great many experiments he made in covering pieces of fleſh with the different ſorts of *aſtringents* employed in hæmorrhages, that ſome act only

only as abſorbents; ſuch are earthy ſubſtances, moſt of the *aſtringent* plants, ſome gums, reſins, and animal ſubſtances. Other *aſtringents* abſorb, and, at the ſame time, their ſaline and ſulphureous particles, inſinuating themſelves into the fleſh, preſerve it from corruption. Vitriol and alum, which are acknowledged to be among the ſtrongeſt *aſtringents*, appeared, by his experiments, to abſorb moſt humidity. Mem. Acad. Scienc. an. 1732.

Aſtringents are beſt adminiſtered in ſmall doſes, with a large quantity of ſome proper liquid. Extracts made from *aſtringent* vegetables do not keep long. Dr. Percival, in his Medical Eſſays and Experiments, obſerves, that *aſtringents*, acid and vegetables, neutralize each other; that vegetable acids leſſen their attrition externally; but that mineral acids increaſe it both internally and externally. Vegetable *aſtringents* are the moſt powerful, as medicines; and of theſe one of the ſtrongeſt is galls.

From the infuſions of certain *aſtringent* vegetables, mixed with green vitriol, commonly called copperas, is produced a deep black liquor, of moſt extenſive uſe for dying and ſtaining black; to woollen and ſilk it gives a permanent colour, although from linen, and other vegetable bodies, this blackneſs is diſcharged by waſhing. Of ſuch *aſtringent* vegetables, the principal are, the excreſcences from the OAK, called GALLS, proceeding from the juices of the tree, iſſuing through ſmall wounds made by certain inſects, not found in this climate. Other kinds of excreſcences are found upon our oaks, occaſioned, perhaps, by inſects of another kind. There are many other vegetable ſubſtances that have a like effect in different degrees; all, in general, that are auſtere, *aſtringent*, or corrugating to the taſte, inſomuch, that turning a ſolution of vitriol black, is looked upon as a ſure teſt of *aſtringency* in vegetables. This power, by which they produce this BLACKNESS, and their *aſtringency*, or that quality by which they contract animal fibres, and by which they contribute to the TANNING of leather, ſeem to depend upon one and the ſame principle, and to be proportional to one another. This aſtringent and colouring matter is diſſolved and extracted from galls, acorns, the leaves, the bark, and wood of the oak; from the leaves, ſmall branches, and flowery cluſters of the ſumach-tree, balauſtine-flowers, pomegranate-peel, alder-bark, biſtort-root, &c. both by water and ſpirit of wine, and it does not exhale in the evaporation of liquors by heat. There are differences in the *phænomena* produced by different *aſtringents*. Commercium Phil. Techn. p. 344, p. 382, and p. 418.

See Neumann's chemical hiſtory of *aſtringent* vegetables, his account of their antiſeptic nature, of the methods of extracting their *aſtringency*, of their ſtriking colours with chalybeate vitriol, of their uſe in tanning, of their giving ſome durable dyes, and of their fixing others, in Dr. Lewis's edition of Neumann's Works, with his own additional obſervations, 4to. an. 1759. p. 362, *&* ſeq.

ASTROBOLISM, the ſame with *ſphæriſtic*; though properly applied to plants which are deſtroyed in the dog-days, as if blaſted by that ſtar.

The word is derived from ἀστὴρ, *ſtar*, and βάλλω, *I ſtrike*.

ASTRODICTICUM, an aſtronomical inſtrument invented by M. Weigbellius, by means of which many perſons ſhall be able at the ſame time to behold the ſame ſtar.

ASTROGNOSIA, from ἀστὴρ, *ſtar*, and γινώσκω, *I know*; the art of knowing the fixed ſtars, their names, ranks, ſituations in the conſtellations, and the like.

ASTROITES, *lapis* ASTROITES, ASTROCHITES, or ASTERIAS. See STAR-*ſtone*.

ASTROLABE, ASTROLABIUM, was originally uſed for a ſyſtem or aſſemblage of the ſeveral circles of the ſphere, in their proper order and ſituation with reſpect to each other.

The ancient *aſtrolabes* appear to have been much the ſame with our armillary ſphere.

The firſt and moſt celebrated of this kind was that of Hipparchus, which he made at Alexandria, the capital of Egypt, and lodged in a ſecure place, where it ſerved for divers aſtronomical operations. Ptolemy made the ſame uſe of it; but as the inſtrument had ſeveral inconveniencies, he contrived to change its figure, though perfectly natural, and agreeable to the doctrine of the ſphere; and to reduce the whole *aſtrolabe* upon a plane ſurface, to which he gave the denomination of the PLANISPHERE. Hence

ASTROLABE is uſed among the moderns for a PLANISPHERE; or a ſtereographic projection of the circles of the ſphere upon the plane of ſome great circle thereof.

The uſual planes of projection are that of the equinoctial, the eye being ſuppoſed in the pole of the world; that of the meridian, the eye being ſuppoſed in the point of interſection of the equinoctial and horizon; and that of the horizon.

Stoffler, Gemma Friſius, and Clavius, have treated at large of the *aſtrolabe*. For a farther account of the nature and kinds hereof, ſee PLANISPHERE.

ASTROLABE, or *Sea* ASTROLABE, more particularly denotes an inſtrument chiefly uſed for taking the altitude of the pole, the ſun, or ſtars, at ſea.

The word is formed from ἀστὴρ, *ſtar*, and λαμβάνω, *capio*, *I take*. The Arabs call it in their tongue, *alhartah*; a word formed by corruption from the common Greek name.

The common *aſtrolabe*, repreſented *Tab. Navigation. fig.* 22. conſiſts of a large braſs ring, about fifteen inches in diameter, whoſe limb, or a convenient part thereof, is divided into degrees and minutes; fitted with a moveable index, or label, which turns upon the centre, and carries two ſights. At the zenith is a ring A, to hang it by, in time of obſervations.

To uſe the *aſtrolabe*, turn it ſo to the ſun, as that the rays may paſs freely through both the ſights F and G; in which caſe the edge of the label cuts the altitude in the divided limb.

The *aſtrolabe*, though now grown into diſuſe, is at leaſt equal to any of the other inſtruments uſed for taking the altitude at ſea; eſpecially between the tropics, when the ſun comes near the zenith. There are a great many other uſes of the *aſtrolabe*, whereof Clavius, Hentius, &c. have written entire volumes.

ASTROLOGICAL *facts*. See FATE.

ASTROLOGY, the art of foretelling future events, from the aſpects, poſitions, and influences of the heavenly bodies.

The word is compounded of ἀστὴρ, *ſtar*, and λόγος, *diſcourſe*; whence, in the literal ſenſe of the term, *aſtrology* ſhould ſignify no more than the *doctrine or ſcience of the ſtars*; which we read was its original acceptation, and made the ancient *aſtrology*; though, in courſe of time, an alteration has ariſen: that which the ancients called *aſtrology*, being afterwards termed ASTRONOMY.

Aſtrology may be divided into two branches, *natural* and *judiciary*.

To the former belongs the predicting of natural effects; as, the changes of weather, winds, ſtorms, hurricanes, thunder, floods, earthquakes, &c.

This art properly belongs to PHYSIOLOGY, or *natural philoſophy*; and is only to be deduced, *a poſteriori*, from *phænomena* and obſervations.

Its foundation and merits the reader may gather from what we have ſaid under AIR, ATMOSPHERE, and WEATHER.

For this *aſtrology*, Mr. Boyle makes an apology in his Hiſtory of the Air.

ASTROLOGY, *judiciary*, or *judicial*, which is what we commonly call ſimply *aſtrology*, is that which pretends to foretell moral events; i. e. ſuch as have a dependence on the free will and agency of man; as if they were directed by the ſtars. This art, which owed its origin to the practices of knavery on credulity, is now univerſally exploded by the intelligent part of mankind.

The profeſſors of this kind of *aſtrology* maintain, "That "the heavens are one great volume or book, wherein "God has written the hiſtory of the world; and in "which every man may read his own fortune, and the "tranſactions of his time.—The art, ſay they, had its "riſe from the ſame hands as aſtronomy itſelf: while "the ancient Aſſyrians, whoſe ſerene unclouded ſky "favoured their celeſtial obſervations, were intent on "tracing the paths and periods of the heavenly bodies, "they diſcovered a conſtant, ſtated relation of analogy, "between them and things below; and hence were led "to conclude theſe to be the *Parcæ*, the Deſtinies, ſo "much talked of, which preſide at our births, and diſ-"poſe of our future fate.

"The laws therefore of this relation being aſcertained, "by a ſeries of obſervations, and the ſtate each planet "has therein; by knowing the preciſe time of any per-"ſon's nativity, they were enabled, from their know-"ledge in aſtronomy, to erect a ſcheme or horoſcope of "the ſituation of the planets, at that point of time; and "hence, by conſidering their degrees of power and in-"fluence, and how each was either ſtrengthened or tem-"pered by ſome other, to compute what muſt be the re-"ſult thereof."

Thus the *aſtrologers*.—But the chief province now remaining to the modern profeſſors, is the making of calendars and almanacks.

Judicial *aſtrology* is commonly ſaid to have been invented in Chaldæa, and thence tranſmitted to the Egyptians, Greeks, and Romans; though ſome will have it of Egyptian origin, and aſcribe the invention to Cham. But it is to the Arabs that we owe it. At Rome the people were ſo infatuated with it, that the *aſtrologers*, or, as they were then called, the *mathematicians*, maintained their ground in ſpite of all the edicts of the emperors to expel them out of the city. See GENETHLIACA.

Add, that the Bramins, who introduced and practiſed this

art

art among the Indians, have hereby made themselves the arbiters of good and evil hours, which gives them great authority: they are consulted as oracles; and they have taken care never to tell their answers but at good rates.

The same superstition has prevailed in more modern ages and nations. The French historians remark, that, in the time of queen Catharine de Medicis, *astrology* was in so much vogue, that the most inconsiderable thing was not to be done without consulting the stars. And in the reigns of king Henry III. and IV. of France, the predictions of *astrologers* were the common theme of the court conversation.

This predominant humour in that court was well rallied by Barclay, in his Argenis, lib. ii. on occasion of an *astrologer*, who had undertaken to instruct king Henry in the events of a war then threatened by the faction of the Guises.

ASTROLUS, in *Natural History*, a name given by authors to a white and splendid stone, small in size, and of a roundish figure, resembling the eyes of fishes.

ASTROMETEOROLOGIA, the art of foretelling the weather, and its changes, from the aspects and configurations of the moon and planets.

This makes a species of *astrology*, distinguished by some under the denomination of *meteorological astrology*.

ASTRONIUM, in *Botany*, a genus of the *decacia pentagynia* class; the calyx of which has five leaves, and the corolla has five petals.

ASTRONOMICAL, something that relates to *astronomy*.

ASTRONOMICAL *Calendar, Characters, Canons, Horizon, Hours, Months, Quadrant, Ring-Dial, Sector, Tables, Telescope, Time, Year.* See the several substantives.

ASTRONOMICAL *Observations.* See CORLESTIAL *Observations.*

The *astronomical* observations of the ancients, among which those of Hipparchus make a principal figure, are carefully preserved by Ptolomy in his Almagest.

In the year 880, Albategni, a Saracen, applied himself to the making of observations: in 1457, Regiomontanus undertook the province at Norimberg; and his disciples, J. Werner, and Ber. Walthous, continued the same from 1475 to 1504. Their observations were published together in 1544. In 1509, Copernicus, and after him the landgrave of Hesse, with his assistants Rothmannus and Byrgius, observed; and after them Tycho, at Uraniburgh, from 1582 to 1601. All the observations hitherto rehearsed, together with Tycho's *apparatus* of instruments, are contained in the Historia Coelestis, published in 1673, by order of the emperor Ferdinand.—Soon after, Hevelius, with a still more magnificent and better contrived apparatus of instruments, described in his Machina Coelestis, began a course of observations. It is objected to him, that he only used plain sights, and could never be brought to take the advantage of telescopic ones; which occasioned Dr. Hook to write animadversions on Hevelius's instruments, printed in 1674, wherein he too rashly despises them, on account of their inaccuracy: but Dr. Halley, who, at the instance of the Royal Society, went over to Dantzick in the year 1672, to inspect his instruments, approved of their justness, as well as of the observations made with them. See SIGHTS.

Jer. Horrox, and Will. Crabtree, two of our own countrymen, are famous for their observations from the years 1635 to 1645.—They were followed by Flamsteed, Cassini the father and son, Halley, de la Hire, Roemer, and Kirchius. See further under OBSERVATORY, CATALOGUE, &c.

ASTRONOMICAL *place* of a star or planet, is its longitude, or place in the ecliptic, reckoned from the beginning of Aries, in *consequentia*, or according to the natural order of the signs.

ASTRONOMICALS, a name used by some writers for sexagesimal fractions; on account of their use in *astronomical* calculations.

ASTRONOMICUS *radius.* See RADIUS.

ASTRONOMY, ASTRONOMIA, the doctrine of the heavens, and their *phenomena*.

The word is compounded of *astro*, *star*, and *nomos*, *law*, *rule*. *Astronomy* is properly a mixed mathematical science, whereby we become acquainted with the celestial bodies, their magnitudes, motions, distances, periods, eclipses, &c.

Some understand the word *astronomy* in a more extensive sense, including under it the theory of the universe, and the primary laws of nature; in which sense it rather seems a branch of physics than of mathematics.

The heavens may be considered two ways; either as they appear to the naked sense, or as they are discovered by the understanding; and hence *astronomy* is divided into two branches, SENSIBLE and THEORICAL.

The invention of *astronomy* has been variously assigned; and several persons, several nations, and several ages, have laid claim to it.—From the accounts given us by the ancient historians, it appears, that kings were the first inventors and cultivators of it: thus, Belus, king of Assyria; Atlas, king of Mauritania; and Uranus, king of the country situate on the shore of the Atlantic ocean, are severally recorded, as the persons to whom the world owes this noble science; to whom we may add, Fohi, Taut, and Zoroaster, as some of the most ancient of all the *astronomers* whose names are recorded.

This, at least, is pretty evident, that it was known to those nations long before it came into Greece: agreeably to which Plato tells us, it was a Barbarian who first observed the heavenly motions; to which he was led by the clearness of the weather in the summer season; as in Egypt and Syria, where the stars are constantly seen, there being no rain or clouds to interrupt the prospect. And the want of this clearness of atmosphere the same author lays down as the reason why the Greeks came so late to the knowledge of *astronomy*.

The generality of writers fix the origin of *astronomy* and allology in Chaldea; and accordingly among the ancients we find the word *Chaldean* frequently used for *astronomer*. Some choose, however, to attribute the invention to the ancient Hebrews; and some, even to the first men; building on the authority of Josephus, and what he mentions about Seth's pillars.

It may be worth noting, though there are no historical facts to support it, that Rudbeck, in his *Atlantica*, maintains *astronomy* to have been invented by the Swedes: his reasons are, the great diversity in the length of the days in that country, which must naturally lead the people to conclude the earth round, and that they lived near one of its extremes.

By Porphyry's account, *astronomy* must have been of a very ancient standing in the East: for he tells us, that when Babylon was taken by Alexander, there were brought thence celestial observations for the space of 1903 years, which therefore must have commenced within 115 years after the flood, or within fifteen years after the building of Babel.—Epigenes, according to Pliny, affirmed, that the Babylonians had observations of 720 years, engraven on bricks.—Achilles Tatius ascribes the invention of *astronomy* to the Egyptians; and adds, that their knowledge therein was engraven on columns, and by that means transmitted to posterity.

M. Bailly, in his elaborate Histoire de l' Astronomie Ancienne, &c. endeavours to trace the origin of *astronomy* among the Chaldeans, Egyptians, Persians, Indians, and Chinese, to a very early period. He maintains, that it was cultivated in Egypt and Chaldea 2800 years before the Christian æra; in Persia, 3209; in India, 3101; and in China, 2952 years before this æra: he also apprehends, that *astronomy* had been studied long before this distant period, and that we are only to date its revival from thence.

From the Egyptians, *astronomy* is commonly supposed to have passed to the Greeks: Laertius tells us, that Thales first, about the nineteenth Olympiad, and after him Eudoxus and Pythagoras, travelled into Egypt, to be instructed in this science; and that this last, in particular, living in a close community with the Egyptian priests for seven years, and being initiated into their religion, was instructed in the true system of the universe; which he afterwards taught in Greece and Italy.—He was the first, among the Europeans, who taught that the earth and planets turn round the sun, which stands immoveable in the centre: that the diurnal motion of the sun and fixed stars is not real, but apparent, arising from the earth's motion round its own axis, &c. Diogenes Laertius says, that Pythagoras taught that the world was round, containing the earth in the middle of it; and that Philolaus first maintained, that the earth moved in a circle.

Yet Vitruvius represents the introduction of *astronomy* into Greece, somewhat differently; maintaining, that Berosus, a Babylonian, brought it thither immediately from Babylon itself; and opened an *astronomical* school in the island of Cos. Pliny, lib. vii. cap. 37. adds, that in consideration of his wonderful predictions, the Athenians erected him a statue in the *gymnasium*, with a gilded tongue. If this Berosus be the same with the author of the Chaldee histories, he must have been before Alexander.

After Pythagoras, *astronomy* sunk into neglect; most of the celestial observations brought from Babylon were lost; and it was but a very small number that Ptolemy, in his time, was able to retrieve. However, some few of his followers continued to cultivate *astronomy*; among whom were Philolaus and Archarchus Somius, the latter of whom expressly affirms, that the fixed stars and the sun remain immoveable; and that the earth is carried in a circle round the sun, placed in the middle of its course. Nor is there any satisfactory evidence, though many claims have been set up, that the true system was understood or proposed before his time. Archimed. Aren. ed. Oxon. 1676.

At length, thoſe patrons of learning, the Ptolemies, kings of Egypt, founding an academy of *aſtronomy* at Alexandria, there aroſe ſeveral eminent *aſtronomers* from it; particularly Hipparchus, who, according to Pliny, undertook what would have been a great work even for a god to atchieve, viz. to number the ſtars, and leave the heavens as an inheritance to poſterity: he foretold the eclipſes both of the ſun and moon for 600 years; and on his obſervations is founded that noble work of Ptolemy, intitled Μεγαλη Συνταξις.

The Saracens, on their conqueſt of Egypt, got a tincture of *aſtronomy*, which they carried with them out of Africa into Spain; and by this means, *aſtronomy*, after a long exile, was at length introduced afreſh into Europe.

From this time, *aſtronomy* began to improve very conſiderably, being cultivated by the greateſt geniuſes, and patronized by the greateſt princes.—Alphonſus, king of Caſtile, enriched it with thoſe tables which ſtill bear his name. See TABLE.

Copernicus re-eſtabliſhed the ancient Pythagorean ſyſtem; and Tycho Brahe publiſhed a catalogue of 770 fixed ſtars, from his own obſervations.

Kepler, from Tycho's labours, ſoon after diſcovered the true theory of the world, and the phyſical laws by which the heavenly bodies move.

Galileo firſt introduced teleſcopes into *aſtronomy*, and by their means diſcovered the ſatellites of Jupiter; the various phaſes of Saturn, the mountains of the moon, the ſpots in the ſun, and its revolution about its axis. See SATELLITE, and TELESCOPE.

Add, that Hevelius, from his own curious obſervations, furniſhed a catalogue of fixed ſtars, much more complete than Tycho's. Huygens and Caſſini diſcovered the ſatellites of Saturn, and his ring. And Gaſſendus, Horrox, Bullialdus, Ward, Ricciolus, Gaſcoign, &c. each contributed very conſiderably to the improvement of *aſtronomy*.

The immortal Newton firſt demonſtrated, from phyſical conſiderations, the great law that regulates all the heavenly motions, ſets bounds to the planets' orbs, and determines their greateſt excurſions from the ſun, and their neareſt approaches to it. It was he that firſt taught the world whence aroſe that conſtant and regular proportion obſerved by both primary and ſecondary planets, in their circulation round their central bodies; and their diſtances compared with their periods. He has alſo given us a new theory of the moon, which accurately anſwers all her inequalities, and accounts for them from the laws of gravity and mechaniſm. See NEWTONIAN, and ATTRACTION.

Dr. Halley obliged the world with the *aſtronomy* of comets, and with a catalogue of the ſtars in the ſouthern hemiſphere; and was a very great benefactor to *aſtronomy*, by his obſervations: to which may be added, that he printed a new ſet of aſtronomical tables, more accurate than any before publiſhed.

Mr. Flamſteed upwards of forty years watched the motions of the ſtars; and has given us a great number of curious obſervations of the ſun, moon, and planets; beſides a noble catalogue of 3000 fixed ſtars; which is more than double the number in that of Hevelius.—Nothing ſeemed wanting to *aſtronomy*, but an univerſal and complete theory of the celeſtial *phænomena*, explained according to their true motions, and phyſical cauſes, which has been performed by Dr. Gregory.

ASTRONOMY is ſometimes divided, with reſpect to its different ſtates, into *new* and *old*.

ASTRONOMY, *ancient*, is ſuch as the art ſtood under Ptolemy, and his followers; with all the *apparatus* of ſolid orbs, epicycles, excentrics, deferents, trepidations, &c.

The ancient *aſtronomy* is delivered by Claud. Ptolemy, who died A. D. 147, in his Μαθησις Συνταξις; tranſlated, in 827, into Arabic; and by G. Trapezuntius into Latin. An epitome of it, for the uſe of learners, was made by Purbachius, and his ſcholar Regiomontanus, in 1550, containing the whole doctrine of the heavenly motions, their magnitudes, eclipſes, &c.—On the model hereof, Albategni, the Arab, compiled another work, on the knowledge of the ſtars, publiſhed in Latin in 1575.

ASTRONOMY, *new*, is ſuch as the art has been ſince Copernicus; by whom thoſe fictitious machines were thrown out; and the conſtitution of the heavens reduced to more ſimple, natural, and certain principles.

The modern *aſtronomy* is delivered by Copernicus, in his ſix books of Celeſtial Revolutions, publiſhed in the year 1566, wherein; by retrieving Pythagoras's and Philolaus's *dogma* of the motion of the earth, he laid the foundation of a juſter ſyſtem; in Kepler's Commentaries of the Motions of Mars, publiſhed in 1609, wherein, in lieu of the circular orbits admitted by all former aſtronomers, he propoſed the elliptic theory; which, in his epitome of the Copernican *aſtronomy*, publiſhed in 1635, he applied to all the planets: in Ith. Bullialdus's Aſtronomia Philolaica, publiſhed in 1645, wherein he endeavoured to amend Kepler's theory, and render the calculus more exact and geometrical: ſome errors committed by Bullialdus were pointed out by Dr. Seth Ward, in his Inquiry into the Philolaic Aſtronomy, Inquiſitio in Aſtronomiæ Philolaicæ Fundamenta, publiſhed in 1653, and corrected by himſelf in his Foundations of the Philolaic Aſtronomy more clearly explained, in 1657: in Ward's Aſtronomia Geometrica, publiſhed in 1656, wherein a geometrical method is propoſed of computing the planet's motions; though not conſiſtent with the true laws of their motions eſtabliſhed by Kepler. The ſame was propoſed the year following by the count de Pagan. The truth is, Kepler himſelf does not ſeem to have been ignorant of it; but he rather choſe to ſet it aſide, as finding it contrary to nature: in Newton's Aſtronomia Britannica, publiſhed in 1657, and Street's Aſtronomia Carolina, in 1661, both upon Ward's hypotheſis: in Vin. Wing's Aſtronomia Britannica, publiſhed in 1669, wherein, proceeding on Bullialdus's principles, he gives juſt examples of all the precepts in practical *aſtronomy*, well accommodated to the capacity of learners.

In Ricciolus's Almageſtum Novum, publiſhed in 1651, we have the ſeveral hypotheſes of all the aſtronomers, ancient as well as modern.—And in Dr. Gregory's Elementa Aſtronomiæ Phyſicæ & Geometricæ, in 1702, the whole modern aſtronomy, as founded on the diſcoveries of Copernicus, Kepler, and Sir Iſaac Newton.—The *Marrow* of the old *aſtronomy* is given by Tacquet; and of the new *aſtronomy* by Whiſton, in his Prælectiones Aſtronomicæ, in 1707. For novices in the art, Mercator's Inſtitutiones Aſtronomicæ, publiſhed in 1676, which contains the whole doctrine, both according to the ancients and moderns; and Dr. Keill's Introductio ad veram Aſtronomiam, in 1718, which only takes in the modern, are the beſt calculated: to which might be added, Long's, and Ferguſon's Aſtronomy, of more modern date.

ASTROPECTEN, in *Natural Hiſtory*, a name given by ſome authors, to a ſpecies of STAR-*fiſh*, compoſed of a body, or central *nucleus*, furrowed in the manner of the ſhells of the common ſcallop, and parting into five principal rays, from each of which there iſſue ſeveral tranſverſe proceſſes, covered with a hairy down.

ASTROPODIA, ſee ASTERIA, and STAR-*ſtone*.

ASTROSCOPE, ASTROSCOPIUM, a kind of aſtronomical inſtrument, compoſed of two cones, on whoſe ſurface the conſtellations, with their ſtars, are delineated, by means whereof the ſtars may eaſily be known.

The *aſtroſcope* is the invention of Wil. Schukhard, formerly profeſſor of the mathematics at Tubingen, who publiſhed a treatiſe expreſly on it, in 1698.

ASTROSCOPIA, from ἀστρον, *ſtar*, and σκοπεω, *I conſider*; the art of obſerving, and examining the ſtars, by means of teleſcopes, in order to diſcover their nature and properties.

Huygens improved this art conſiderably, in his Aſtroſcopia Compendiaria Tubi Optici mobimine liberata; where he ſhews how to manage the largeſt glaſſes without help of a tube. See TELESCOPE.

ASTROTHEMATA, in *Aſtrology*, the places or poſitions of the ſtars in a theme of the heavens. Vital. Lex. Math.

ASTROTHESIA, from ἀστρον, and τιθημι, *I place*; is uſed by ſome for a conſtellation, or image in the heavens, compoſed of ſeveral ſtars.

ASTRUM, or ASTRON, a conſtellation, or aſſemblage of ſtars. In which ſenſe it is diſtinguiſhed from *aſter*, which denotes a ſingle ſtar.

Some apply the term in a more particular ſenſe, to the Great Dog, or rather to the great bright ſtar in his mouth. Vital.

ASTURIS, in *Zoology*, a name by which ſome authors have called the *accipiter* PALUMBARIUS, or GOSHAWK. Ray.

ASTYNOMI, ſee AGORANOMUS.

ASYLUM, a ſanctuary, or place of refuge, where a criminal who ſhelters himſelf is deemed inviolable, and not to be touched by any officer of juſtice.

The word is compounded of the privative particle α, and συλαω, *I hurt*: becauſe no perſon could be taken out of an *aſylum*, without SACRILEGE.

The firſt *aſylum* was eſtabliſhed at Athens, by the deſcendants of Hercules, to ſhelter themſelves from the fury of his enemies.

The temples, altars, ſtatues, and tombs of heroes, were, anciently, the ordinary retreat of thoſe who found themſelves aggrieved by the rigour of the laws, or oppreſſed by the violence of tyrants: but temples were held the moſt ſacred and inviolable refuge. It was ſuppoſed, that the gods took upon them to puniſh the

criminal who thus threw himſelf upon them; and that it would be a great impiety in man to take vengeance out of the hands of the immortals.

The Iſraelites had their cities of refuge, which were of God's own appointment; where the guilty, who had not committed any deliberate crime, found ſafety and protection. As to the heathens, they allowed refuge and impunity even to the vileſt and moſt flagrant offenders, ſome out of ſuperſtition, and others for the ſake of peopling their cities; and it was by this means, and with ſuch inhabitants, that Thebes, Athens, and Rome, were firſt flocked. We even read of *aſylums* at Lyons and Vienne among the ancient Gauls; and there are ſome cities in Germany which ſtill preſerve the ancient right of *aſylum*.

Hence, on the medals of ſeveral ancient cities, particularly in Syria, we meet with the inſcription, ΑΣΤΑΟΙ, to which is added, ΙΕΡΑΙ. This quality of *aſylum* was given them, according to M. Spanheim, in regard to their temples, and of the gods revered by them.

The ſame quaſities have alſo been given to deities: thus Diana of Epheſus is called Ἄσυλος. Add, that the camp formed by Romulus and Remus was called *aſylum*, and afterwards became a city, in which was a temple erected to the god Aſylæus, Θεῷ Ἀσυλαίῳ.

The emperors Honorius and Theodoſius granting the like immunities to churches, the biſhops and monks laid hold of a certain tract or territory, without which they fixed the bounds of the ſecular juriſdiction: and ſo well did they manage their privileges, that convents, in a little time, became next akin to fortreſſes; where the moſt notorious villains were in ſafety, and braved the power of the magiſtrate.

Theſe privileges, at length, were extended not only to the churches and church-yards, but alſo to the biſhops houſes, wherein the criminal could not be removed without a legal aſſurance of life, and an entire remiſſion of the crime. The reaſon of the extenſion was, that they might not be obliged to live altogether in the churches, &c. where ſeveral of the occaſions of life could not be decently performed.

But, at length, theſe *aſyla*, or ſanctuaries, were alſo ſtripped of moſt of their immunities, becauſe they ſerved to make guilt and libertiniſm more bold and daring. In England, particularly, they were entirely aboliſhed. See SANCTUARY.

ASYLUS, in the *Hiſtory of Inſects*. See GAD-*fly*.

ASYMMETRY, a want of proportion, or correſpondence between the parts of a thing. See SYMMETRY.

The word is derived from the privative *a*, *ἀσυ*, *with*, and *μετρον*, *meaſure*, q. d. *without meaſure*.

In *Mathematics*, the term is particularly uſed for what we more uſually call *incommenſurability*; which is when between two quantities there is no common meaſure: as between the ſide, and diagonal of a ſquare. In numbers, ſurd roots, as $\sqrt{2}$, &c. are incommenſurable to rational numbers.

ASYMPTOTE, in *Geometry*, a line which continually approaches nearer and nearer to another; yet will never meet with it, though indefinitely prolonged. See LINE.

The word is compounded of the privative *a*, *ἀσυ*, *with*, and *πτωω*, from *πιπτω*, *I fall*; q. d. *inconcident*, or which never meet. Some Latin authors call theſe lines *inſectæ*.

Bertinus enumerates divers ſorts of *aſymptotes*; ſome ſtraight, others curve; ſome concave, others convex, &c. and farther, propoſes an inſtrument for deſcribing them. Though, in drictneſs, the term *aſymptotes* ſeems appropriated to right lines.

ASYMPTOTES, then, are properly right lines, which approach nearer and nearer to ſome curve, of which they are ſaid to be the *aſymptotes*; but which, though they and their curve were indefinitely continued, would never meet.

Aſymptotes may be conceived as tangents to their curves at an infinite diſtance.

Two curves are alſo ſaid to be *aſymptotical*, when they thus continually approach, without a poſſibility of meeting.

Thus two parabolas, whoſe axes are in the ſame right line, are *aſymptotical* to one another.

Of curves of the ſecond kind, that is, the conic ſections, only the hyperbola has *aſymptotes*, which are two in number, long ago demonſtrated by Apollonius Pergæus.

All curves of the third kind have at leaſt one *aſymptote*; but they may have three; and all curves of the fourth kind may have four *aſymptotes*.

The conchoid, ciſſoid, and logarithmic curve, though not reputed geometrical curves, have each alſo one *aſymptote*.

The nature of *aſymptotes* will be eaſily conceived in the inſtance of the *aſymptote* of a conchoid. Suppoſe MMAM, &c. (*Tab. Analyſis, fig.* 1.) be a part of a conchoid, C its pole, and the right line BD, ſo drawn that the parts QM, EA, OM, &c. of right lines drawn from the pole C, are equal to each other; then will the line BD be an *aſymptote* of the curve; becauſe the perpendicular MI, &c. is ſhorter than MO, and MR than MQ, &c. ſo that the two lines continually approach; yet the points M, &c. and R, &c. can never coincide, ſince there is ſtill a portion of a line to keep them aſunder; which portion of a line is infinitely diviſible, and conſequently muſt be diminiſhed infinitely before it becomes nothing.

ASYMPTOTES *of the* HYPERBOLA are thus deſcribed. Suppoſe a right line DE (*Tab. Conics, fig.* 20.) drawn through the vertex A of the hyperbola parallel to the ordinate M*m*, and equal to the conjugate axis, viz. the part DA, or AE to the ſemi-axis; then, two right lines drawn from the centre C of the hyperbola through the points D and E, viz. the right lines CF and CG, are *aſymptotes* of the curve.

If the hyperbola GMR (*fig.* 12. N° 2.) be of any kind whoſe nature with regard to the curve, and its *aſymptote*, is expreſſed by this general equation, $a^m \cdot y^n = x^m + {}^n$; and the right line PM be drawn any where parallel to the *aſymptote* CS, and the parallelogram PCOM, be completed: this parallelogram is to the hyperbolic ſpace PMGB, contained under the determinate line PM, the curve of the hyperbola GM indefinitely continued towards G, and the part PB of the *aſymptote* indefinitely continued the ſame way, as $m-n$ is to n: and ſo if m be greater than n, the ſaid ſpace is ſquareable; but when $m=n$, as it will be in the common hyperbola, the ratio of the foregoing parallelogram to that ſpace is as 0 to 1: that is, the ſpace is infinitely greater than the parallelogram, and ſo cannot be obtained: and when m is leſs than n, the parallelogram will be to the ſpace as a negative number to a poſitive one, and the ſaid ſpace is ſquareable.

ASYMPTOTE *of a logarithmic curve*. If MS (*fig.* 33.) be the logarithmic curve, PR an *aſymptote*, PT the ſubtangent, and MP an ordinate; then will the indeterminate ſpace RPMS $=$ PM $\times$ PT; and the ſolid, generated by the rotation of this curve about the *aſymptote* VP, will be half of a cylinder whoſe altitude is equal to the length of the ſubtangent, and the ſemidiameter of the baſe equal to the ordinate QV.

ASYMPTOTES, by ſome, are diſtinguiſhed into various orders.

An *aſymptote* is ſaid to be of the *firſt order*, when it coincides with the baſe of the curvilineal figure: of the *ſecond order*, when it is a right line parallel to the baſe: of the *third order*, when it is a right line oblique to the baſe: of the *fourth order*, when it is a common parabola, that has its axis perpendicular to the baſe: and, in general of the *order* $r+2$, when it is a parabola, the ordinate of which is always as a power of the baſe, whoſe exponent is r.

The *aſymptote* is oblique to the baſe, when the ratio of the firſt fluxion of the ordinate to the fluxion of the baſe, approaches to an aſſignable ratio, as its limit; but it is parallel to the baſe, or coincides with it, when this limit is not aſſignable.

The determination of the *aſymptotes* of curves, is a curious part of the higher geometry. Mr. de Fontenelle has given ſeveral theorems relating to the ſubject, in his Geometrie de l'Infini. But this matter is treated of with greater accuracy by Mr. Maclaurin, in his Fluxions, book 1. chap. 10. where he has been careful to avoid the modern paradoxes concerning infinites and infinitefimals. The areas bounded by curves, and their *aſymptotes*, though indefinitely extended, ſometimes have limits to which they may approach, ſo as to differ leſs from thoſe limits, than by any given quantity. This happens in hyperbolas of all kinds, except the firſt, or Apollonian. The ſame is alſo true of the area, compriſed between the logarithmic curve and its *aſymptote*. See LOGARITHMIC *curve*.

Thoſe who do not ſcruple to ſuppoſe the curve and its *aſymptote* to be infinitely produced, ſay, that the infinitely extended area becomes equal to its limit.

The *aſymptotical* area in the common or Apollonian hyperbola, and in many other curves, has no limit; and it is uſual to ſay, theſe areas are infinitely great; by which, however, no more is meant, than that the curve, and its *aſymptote*, may be extended, till the ſpace comprehended between them exceeds any given magnitude. Some authors, and Dr. Wallis among the reſt, have talked of ſome of theſe areas, as if they were more than infinite. This happened from an analogy they imagined between poſitive, nothing, and negative, and what is finite, infinite, and more than infinite. See HYPERBOLA.

Solids generated by hyperbolic areas, revolving about their *afymptotes*, have fometimes alſo their limits; and ſometimes they may be produced, till they exceed any given ſolid. See Art. 307, 309, of the above mentioned author.

When a curve, and its *afymptote*, are ſuppoſed to be produced infinitely, and the area comprifed between them, to revolve about the *afymptote*, the ſurface generated will be finite, or infinite, according as the area of the generating figure is finite or infinite.

For the *afymptotes* of curves, deſcribed by the interſections of right lines revolving about given poles, ſee Mr. Maclaurin's Fluxions, *art.* 313, *ſeq.*

ASYMPTOTE, *parabolic*; ſee PARABOLIC *afymptote*.

ASYMPTOTIC *ſpaces*; ſee HYPERBOLA.

ASYNDETON, a figure in *Grammar*, implying a defect, or want of conjunctions in a ſentence.

The word is derived from the privative *a*, and *συνδεω, colligo, I bind together*.

As, in the inſtance, *veni, vidi, vici, I came, I ſaw, I conquered*; where the copulative *et, and*, is omitted: or in that of Cicero concerning Catiline, *abiit, exceſſit, evaſit, erupit*: or in that verſe of Virgil,

Ferte citi flammas, date vela, impellite remos.

Aſyndeton ſtands oppoſed to *polyſyndeton*, where the copulatives are multiplied.

ATABULUS, in *Phyſiology*, a kind of wind in Apulia, of a dry pinching quality, and very noxious in its effects.

The ancient naturaliſts ſpeak of the *atabulus* in terms of horror, on account of the ravage it made among the fruits of the earth, which it ſcorched, or withered up.

ATAIR, ſee ALCAIR.

ATAMASCO *lily*, in *Botany*, ſee AMARYLLIS.

ATANTA, in *Botany*, a name given by the people of Guinea to a kind of *ſumach*, called, by Petiver, RHUS *Guineenſe trifoliatum ſerratum ſcabrum*, from its being trifoliate, and having rough and ſerrated leaves. This ſomewhat reſembles the hoary trifoliate African *ſumach* of Pluckenet; but it differs in this, that its leaves are edged with prickles, whereas thoſe of Pluckenet's kind are only deeply ſinuated. The people of Guinea are very fond of this, for its medicinal virtues; they give it as a reſtorative, boiled in water. Phil. Tranſ. N° 232.

ATARAXY, a term much uſed by the *Sceptics*, and *Stoics*, to denote that calmneſs, and tranquillity of mind, and that firmneſs of judgment, which ſets us free from any agitations or emotions ariſing from ſelf opinion, and the knowledge we imagine ourſelves poſſeſſed of.

The word is compounded of *αραξ, but*, and *ταξις, order*. In this *ataraxy*, they ſuppoſed the ſovereign good, or higheſt bliſs in this life to conſiſt.

ATAXY, a want of order or regularity.

The word is compounded of the privative *a*, and *ταξις, order*.

Ataxia is chiefly uſed in *Medicine*, where the order of the critical days, or other phenomena of a diſeaſe, are inverted.

The phyſicians have frequent recourſe to an *ataxy*, or irregularity of the ſpirits, when at a loſs to account for any diſorder in the body. The ſpirits, Dr. Drake obſerves, being always at hand, are forced to bear the blame of a thouſand things they are innocent of.

ATCHE, in *Commerce*, a ſmall ſilver coin, current in the ſtates of the Grand Seignor, equal to about a third part of the Engliſh penny.

The *atche* is the ſmalleſt coin uſed in Turky; where there is no copper money current, except in the province of Babylon.

Some call the *atche* the little *aſper*: it is ſtamped like the *para*, with Arabic characters. Three or four *atches* are commonly given in exchange for the *para*.

ATCHIEVEMENT, in *Heraldry*, the coat of arms of any perſon, or family, duly marſhalled, with its external ornaments, or ſupporters, helmet, wreath, creſt, and motto.

The word is formed of the French, *achevement, finiſhing, conſummation, perfection*.

Such are thoſe uſually hung out on the fronts of houſes after the death of ſome conſiderable perſon, now corruptly called HATCHMENTS.

ATEGAR, a weapon among the Saxons, which ſeems to have been a hand-dart. The word comes from the Saxon *aeten*, to *ſting*, or *throw*, and *gar*, *a weapon*.

ATELLANÆ, in *Antiquity*, a kind of comic and ſatiric pieces, repreſented on the Roman theatre; ſomewhat leſs ludicrous than the farces on the Engliſh ſtage, and yet leſs grave and ſerious than the Greek and Latin comedies and tragedies.

The *Atellanæ*, or *fabulæ Atellanæ* of the Romans, anſwered to the *ſatyræ* among the Greeks.

They were thus called from *Atella*, a city of Tuſcany, where they were firſt repreſented; and from whence, on account of their mirth and humour, they were introduced into Rome. But they became at length ſo licentious and impudent, that the ſenate was obliged to ſuppreſs them.

ATELEIA, denotes an exemption from tribute, taxes, or other burdens.

Ατελεια πατριμωνιαλις, is particularly uſed, in ſome *Ancient Laws*, for an exemption from offices, granted the Egyptian clergy by Conſtantius.

ATERGATIS, in *Mythology*, a goddeſs of the Syrians, ſuppoſed to be the mother of Semiramis. She was repreſented with the face and breaſts of a woman, but the reſt of her body reſembled a fiſh. Voſſius ſays the term ſignifies *without fiſh*, and conjectures that the votaries of this deity abſtained from fiſh.

ATH, ATHA, or ATHE, among our Anglo-Saxon anceſtors, ſignifies an *oath*, eſpecially that taken by way of purgation.

In this ſenſe we meet with breaking of *ath*, privilege of *ath*, *athe*, and *ordela*.

ATHAMADULET, or ATHEMADAULET, the prime or chief miniſter in the Perſian empire.

The *athamadulet* is much the ſame with the grand viſier in Turky: excepting that he has not the command of the army, which the viſier has.

The *athemadulet* is great chancellor of the kingdom, preſident of the council, ſuperintendant of the finances; and has the charge of all foreign affairs. He is in effect viceroy, or adminiſtrator of the kingdom: he iſſues the king's mandates, or orders, in this ſtyle. *Bende dergo ali il alia emadaulet*, that is, *I, who am the ſupport of the power, the creature of this port, the higheſt of all ports, &c.*

ATHAMANTA, in *Botany*, ſee SPIGNEL.

ATHANASIA, among the *Ancient Phyſicians*, an epithet given to a kind of antidotes ſuppoſed to have the power of prolonging life, even to immortality.

In the Auguſtan diſpenſatory we ſtill find a medicine under the appellation of *athanaſia magna*, commended againſt dyſenteries and hæmorrhagies.

ATHANASIA, in *Botany*, is uſed by ſome authors for TANSY.

ATHANASIAN *Creed*. See CREED, TRINITY, and TRINITARIANS.

ATHANATI, an order of ſoldiers among the ancient Perſians.

The word is Greek, and ſignifies *immortal*; being compounded of the privative *a*, and θανατος, *death*.

The *athanati* were a body of cavalry, conſiſting of ten thouſand men, always complete, becauſe, when any one of them died, another was immediately put into his place.—It was for this reaſon that they were called *athanati* by the Greeks, by the Latins *immortales*.

ATHANOR, in *Chemiſtry*, a large immoveable furnace, built of brick and earth, and covered with a tower at the top; proper to maintain a temperate and equal degree of heat, for a conſiderable time.

The word *athanor* is borrowed from the Arabs, who call an oven *tanneron*, from the Hebrew תנור, *tanour, an oven* or *furnace*: whence with the additional particle, *al*, אלתנור, *altanour*, &c.—Others chooſe to derive the name from αθανατος, *immortal*, becauſe of its durable fire.

The heat of the *athanor* is increaſed or diminiſhed by opening or ſhutting a regiſter. It is made to communicate its heat by tubes or apertures, at the ſide of the hearth, or fire-place, to ſeveral adjacent veſſels; by which means different operations are carried on at the ſame time.

The *athanor* is alſo called *piger Henricus*, *ſitno Harry*; becauſe chiefly uſed in the ſlower operations; and becauſe, when once filled with coals, it keeps burning a long time; whence the Greeks call it αεργος, q. d. *giving no trouble*, as it does not need to be continually attended. It is alſo called the *philoſophical furnace*, or *furnace of arcana*; ſometimes *uterus chymicus*, or *ſpagiricus*, and, popularly, *the tower furnace*, *furnus turritus*.

The *lamp* FURNACE, which is a true *athanor*, may be ſucceſsfully uſed in operations which do not require much heat.

ATHEIST, a perſon who does not believe the exiſtence of a God, nor a Providence; and who has no religion, true or falſe.

The word is derived from the privative *a*, and θεος, *God*.

In general, a man is ſaid to be an *atheiſt*, who owns no being ſuperior to nature, that is, to men, and the other ſenſible beings in the world.

In this ſenſe, Spinoſa may be ſaid to be an *atheiſt*, and it is an impropriety to rank him, as the learned commonly do, among *deiſts*; ſince he allows of no other God beſide nature, or the univerſe, of which mankind makes a part; and there is no *atheiſt* but allows of the exiſtence of the world, and of his own exiſtence in particular.

Plato

Plato diſtinguiſhes three kinds of *atheiſts*.—Some, who deny, abſolutely, that there are any gods; others, who allow the exiſtence of gods, but maintain that they do not concern themſelves with human affairs, and ſo deny a Providence; and others, who believe there are gods, but think they are eaſily appeaſed, and that they may remit the greateſt crimes for the ſmalleſt ſupplication.

Some diſtinguiſh *ſpeculative atheiſts*, or thoſe who are ſo from principle, and theory—from *practical atheiſts*, whoſe wicked lives lead them to believe, or rather to wiſh, that there were no God.

Cicero repreſents it as a probable opinion, that they who apply themſelves to the ſtudy of *philoſophy* believe there are no gods.—This muſt, doubtleſs, be meant of the *academic philoſophy*, to which Cicero himſelf was attached, and which doubted of every thing: on the contrary, the *Newtonian philoſophers* are continually recurring to a Deity, whom they always find at the end of their chain of natural cauſes. Some foreigners have even charged them with making too much uſe of the notion of a God in *philoſophy*, contrary to the rule of Horace:

Nec Deus interſit, niſi dignus vindice nodus.

Among us, the philoſophers have been the principal advocates for the exiſtence of a Deity. Witneſs the writings of Sir Iſaac Newton, Boyle, Ray, Cheyne, Nieuwentyt, &c. To which may be added divers others, who, though of the clergy (as was alſo Ray), yet have diſtinguiſhed themſelves by their philoſophical pieces, in behalf of the exiſtence of a God; e. gr. Derham, Bentley, Whiſton, Samuel and John Clarke, Fenelon, &c. So true is that ſaying of Lord Bacon, that though a ſmattering of philoſophy may lead a man into *atheiſm*, a deep draught will certainly bring him back again to the belief of God and Providence.

ATHELING, among our Saxon anceſtors, was a title of honour properly belonging to the heir apparent, or preſumptive, to the crown.

The word is formed from the Saxon *athelinge*, of *æthel*, *noble*.—It is ſometimes alſo written *adeling*, *elding*, *ethling*, and *atheling*.

King Edward the Confeſſor, being without iſſue, and intending to make Edgar, to whom he was great uncle by the mother's ſide, his heir, firſt gave him the honourable appellation of *Atheling*.

Antiquaries obſerve, that it was frequent among the Saxons to annex the word *ling* or *ing* to a Chriſtian name, to denote the ſon, or younger; as *Edmundling*, for the ſon of Edmund; *Edgarling*, for the ſon of Edgar: on which footing ſome have thought *Atheling* might primarily import the ſon of a nobleman or prince.—But, in reality, *Atheling*, when applied to the heir of the crown, ſeems rather to denote a perſon endowed with noble qualities than the ſon of a nobleman; and correſponds to the *nobilis Cæſar* among the Romans.

ATHENA, in the *Ancient Phyſic*, a plaſter, or liniment, commended againſt wounds of the head and nerves, of which we find deſcriptions given by Oribaſius, Ætius, and Ægineta.

ATHENÆA, a feaſt of the ancient Greeks, held in honour of Minerva, who was called *Athen*.

Theſe were afterwards called PANATHENÆA.

ATHENÆUM, in *Antiquity*, a public place wherein the profeſſors of the liberal arts held their aſſemblies, the rhetoricians declaimed, and the poets rehearſed their verſes.

The word is derived from *Athens*, a learned city, where many of theſe aſſemblies were held; or from the name of Pallas, *Athen*, *goddeſs of Sciences*; intimating, that *Athenæum* was a place conſecrated to Pallas, or ſet apart for the exerciſes over which ſhe preſides.

The *Athenæa* were built in form of *amphitheatres*; and were all encompaſſed with ſeats, which Sidonius calls *cunei*.

The three moſt celebrated *Athenæa* were thoſe at Athens, at Rome, and at Lyons; the ſecond of which, according to Aurelius Victor, was built by the emperor Adrian.

ATHENATORIUM, among *Chemiſts*, a thick glaſs cover, placed on a cucurbit, having a ſlender umbo, or prominent part, which enters like a ſtopple, within the neck of the cucurbit.

ATHENIPPUM, in the *Ancient Phyſic*, a collyrium, commended againſt divers diſeaſes of the eyes; thus denominated from its inventor Athenippus.

Its deſcription is given by Scribonius Largus, and by Gorræus after him.

Galen mentions another *athenippum*, of a different compoſition, by which it appears, this was a denomination common to ſeveral collyriums.

ATHERINA, in *Ichthyology*, a name given by Rondeletius, and ſome other authors, to the *hepſetus*, or *unguella*, a ſmall fiſh, common on the ſhores of the Mediterranean; but by Beilonius appropriated to a fiſh of a different genus. It is of the order of *abdominales* in the Linnæan arrangement, and comprehends two ſpecies, viz. the *hepſetus* and *menidia*; the latter of which is found in the freſh waters of Carolina, and is called by Garden, *ſilver-fiſh*.

ATHEROMA, in *Medicine*, a kind of tumor, of a poppy conſiſtence, without pain, or diſcolouring the ſkin.

The *atheroma* is contained in a *ceſtis*, or membranous bag; and does not give way when touched with the finger, nor retain any dent after preſſure.

The *atheroma* is thus called from ἄθηρα, a kind of pap, or pulp, which the matter of this tumor reſembles.—It is near akin to the *meliceres* and *ſteatoma*; and is cured, like them, by ſection.

ATHLETÆ, in *Antiquity*, perſons of ſtrength and agility, diſciplined to perform in the public games.

The word is formed from ἄθλος, *certamen*, *combat*; whence alſo ἄθλον, *the prize*, or *reward*, adjudged the victor.

Under *athletæ* were comprehended wreſtlers, boxers, runners, leapers, throwers of the diſk, and thoſe practiſed in other exerciſes, exhibited in the Olympic, Pythian, and other ſolemn ſports; for the conquerors in which there were eſtabliſhed prizes.

From the five uſual exerciſes, the *athletæ* were alſo denominated πενταθλοι, and by the Latins *quinquertiones*; at leaſt ſuch as profeſſed them all.

ATHLETIC *crown*, ſee CROWN.

ATHLETIC *habit*, denotes a ſtrong hale conſtitution of body, which was the object the *athletæ* aimed at, and to which their diet correſponded.

ATHLETIC *weights*, ſee WEIGHT.

ATHLIPTOS, in *Medicine*, from α negative, and θλίβω, *to preſs*. *Unoompreſſed abſceſs*, θλιβόμενον, as Galen ſays, is an expreſſion uſed by ſome to ſignify the approach of a feverith paroxyſm without compreſſions.

ATHLOTHETA, in *Antiquity*, an officer appointed to ſuperintend the public games, and adjudge the prizes.

The *athlotheta* was the ſame with what was otherwiſe called *æſymneta*, *brabeuta*, *agonarcha*, *agonotheta*, &c.

ATHNACH, the name of one of the principal of the Hebrew ACCENTS, which ſerves not only to regulate the voice, but to diſtinguiſh the members of a ſentence, whence its name *athnach*, i. e. *reſpiratio*: on this account it is called *king* and *pauſe*, and anſwers to our colon, and ſometimes to a note of interrogation: it is marked under a letter thus (ֲ).

ATHWART, in *Navigation*, is ſynonymous with acroſs the line of the courſe.

ATHWART *the fore-foot*, is a phraſe that denotes the flight of a cannon-ball from one ſhip acroſs the courſe of another, to intercept the latter, and oblige her to ſhorten ſail, that the former may come near enough to examine her.

ATHWART-*haufe*, expreſſes the ſituation of a ſhip, when ſhe is driven by wind or tide, or any other accident, acroſs the fore-part of another.

ATHWART-*ſhips*, reaching acroſs ſhips from one ſide to the other.

ATIA, ſee ODIO *d* ATIA.

ATIBAR; thus the inhabitants of the kingdom of Gago, in Africa, call gold-duſt; from which word the Europeans, and eſpecially the French, have compoſed the word *tibir*, which alſo ſignifies gold-duſt among thoſe who trade in that commodity.

ATINGA GUACU MUCU, in *Ornithology*, the name of a Braſilian bird of the ſtarling kind. It reſembles the thruſh in ſize. See *Tab.* III. *of Birds*, N° 31.

ATIZOE, in the writings of the *Ancient Naturaliſts*, a name of a ſtone uſed in the conſecration and anointing of kings. Pliny deſcribes it to have been of a lenticular figure, and of the ſize of three fingers, of a bright filvery colour, and of a pleaſant ſmell. He ſays it was found in India, and in ſome other places. Agricola is of opinion, it was a kind of bitumen.

ATLANTIC *Ocean*, ſee OCEAN.

ATLANTIDES, in *Aſtronomy*, a denomination given to the Pleiades, or ſeven ſtars, ſometimes alſo called *virgiliæ*. They are thus called, as being ſuppoſed by the poets to have been the daughters either of Atlas, or his brother Heſperus, who were tranſlated into heaven.

ATLANTIS, in *Antiquity*, an iſland ſpoken of by Plato, and many other writers, under ſome extraordinary circumſtances; and rendered famous by a controverſy among the moderns, concerning its place and exiſtence.

The *Atlantis* took its name from Atlas, Neptune's eldeſt ſon, who, they tell us, ſucceeded his father in the government of it.

The moſt diſtinct account of this celebrated country is given us in Plato's Timæus and Critias; which amounts, in a few words, to what follows. "The *Atlantis* was a "large iſland in the Weſtern ocean, ſituate before, or "oppoſite to, the ſtreights of Gades. Out of this "iſland there was an eaſy paſſage into ſome others, "which lay near a large continent, exceeding all Eu-"rope and Aſia. Neptune, ſettled in this iſland, which "he diſtributed among his ten ſons: to the youngeſt "fell the extremity of the iſland called *Gadir*, which in "the language of the country ſignifies *fortile*, or *abun-"dant in fruits*. The deſcendants of Neptune reigned "here from father to ſon, for a great number of ge-"nerations, in the order of primogeniture, during the "ſpace of 9000 years. They alſo poſſeſſed ſeveral other "iſlands; and paſſing into Europe and Africa, ſubdued "all Lybia as far as Egypt, and all Europe to Aſia Minor. "At length the iſland ſunk under water; and for a "long time afterwards, the ſea thereabouts was full of "ſlats and ſhelves."

The learned Rudbeck, profeſſor in the univerſity of Upſal, in an expreſs treatiſe, intitled, Atlantica, five Manheim, maintains, very ſtrenuouſly, that Plato's *Atlantis* is Sweden and Norway; and attributes to his country, whatever the ancients have ſaid of their *Atlantes*, or *Atlantic* iſland.—Others will have America to be the *Atlantis*; and hence infer, that the new world was not unknown to the ancients: but what Plato ſays, does by no means ſupport this ſuppoſition. America ſhould rather ſeem to be the weſt continent beyond the *Atlantes*, and the other iſlands mentioned by Plato.

Kircher, in his Mundus Subterraneus; and Beckman, in his Hiſtory of Iſlands, chap. 5. advance the moſt probable opinion.—The *Atlantis*, according to them, was a large iſland which extended from the Canaries to the Azores; and theſe iſlands are the remains thereof not ſwallowed up by the ſea.

ATLANTIS, *New*, is the name of a fictitious, philoſophical commonwealth, of which a deſcription has been given by lord Bacon.

The *New Atlantis* is ſuppoſed to be an iſland in the South-ſea, to which the author was driven, in a voyage from Peru to Japan. The compoſition is an ingenious fable, formed after the manner of the Utopia of Sir Thomas More, or Campanella's City of the Sun. Its chief deſign is to exhibit a model or deſcription of a college, inſtituted for the interpretation of nature, and the production of great and marvellous works, for the benefit of men, under the name of Solomon's houſe, or the college of the ſix days work. Thus much, at leaſt, is finiſhed; and with great beauty and magnificence. The author propoſed alſo a frame of laws, or of the beſt ſtate or model of a commonwealth. But this part is not executed. Bac. Works, vol. iii. p. 235.

ATLAS, in *Geography*, a celebrated mountain in Africa, which is ſo high that it ſeems to bear the heavens. Hence the fable, in which *Atlas*, the king of this country, is ſaid to bear the heavens on his ſhoulders; thus he is repreſented in the famous ſtatue at the Farneſe palace at Rome.

ATLAS, in *Architecture*, is a name given to thoſe figures, or half figures of men, ſometimes uſed inſtead of columns, or pilaſters; to ſupport any member of architecture, as a balcony, or the like.

Theſe are otherwiſe called TELAMONES.

ATLAS, in *Anatomy*, the name of the firſt *vertebra* of the neck, which ſupports the head. See *Tab. Anat.* (*Oſteol.*) *fig.* 6.

The *atlas* has no ſpinal *apophyſes*; becauſe the motions of the head do not turn on this *vertebra*, but on the ſecond. As it is obliged to turn about as often as the head moves round, had there been any ſpinal *apophyſes*, it would have incommoded the motion of the muſcles in the extenſion of the head.—It is alſo of a finer and firmer texture than the other *vertebræ*; and differs farther from them, in that thoſe receive at one end, and are received at the other; whereas this receives at both extremes; for two eminences of the *occiput* are inſerted within its two upper cavities, which makes its articulation with the head: and, at the ſame time, two other eminences of the ſecond *vertebra* are received within its two lower cavities, by means of which they are articulated together.

ATLAS is alſo a title given to books of univerſal geography, containing maps of the known parts of the world; as if they were viewed from the top of that celebrated mountain, which the ancients eſteemed the higheſt in the world; or rather on account of their holding the whole world like *Atlas*.

ATLAS, in *Commerce*, a ſilk ſattin manufactured in the Eaſt Indies.

It muſt be owned that the manufacture of theſe ſilks is wonderful, eſpecially of the flowered *atlaſſes*; in which the gold and ſilk are worked together in ſuch a manner as no workman in Europe can imitate: yet they are far from having that fine gloſs and luſtre, which the French know how to give their ſilks.

In the Chineſe manufactures of this ſort, they gild paper on one ſide with leaf gold, then cut it into long ſlips, and weave it into their ſilks; which makes them with very little coſt look very rich and fine. The ſame long ſlips are twiſted or turned about ſilk threads ſo artificially, as to look finer than gold thread, though it be of no great value.

ATLAS, a ſpecies of beetle.

ATMOSPHERE, an appendage of our earth; conſiſting of a thin, fluid, elaſtic ſubſtance, called *air*, which ſurrounds the terraqueous globe to a conſiderable height, gravitates towards its centre, on its ſurface, is carried along with it round the ſun, and partakes of all its motions both annual and diurnal.

By *atmoſphere* is uſually underſtood the whole maſs, or aſſemblage of ambient air: though, among ſome of the more accurate writers, the *atmoſphere* is reſtrained to that part of the air next the earth, which receives vapours and exhalations, and refracts the rays of light.

The farther or higher ſpaces, though perhaps not wholly deſtitute of air, are ſuppoſed to be poſſeſſed by a finer ſubſtance called *ether*, and are hence called *etherial regions*.

The word is formed of *ατμος*, *vapour*, and *σφαιρα*, a *ſphere*. See ETHER and HEAVENS. And for the nature, conſtitution, properties, and different ſtates and uſes of the *atmoſphere*, ſee the article AIR.

A late eminent author conſiders the *atmoſphere* as a large chemical veſſel, wherein the matters of all the kinds of ſublunary bodies is copiouſly ſtoring; and thus expoſed to the continual action of that immenſe furnace the ſun; whence proceed innumerable operations, ſublimations, ſeparations, compoſitions, digeſtions, fermentations, putrefactions, &c.

We have a large apparatus of inſtruments, contrived for indicating and meaſuring the ſtate and alterations of the *atmoſphere*; as ANEMOMETERS, BAROMETERS, HYGROMETERS, MANOMETERS, THERMOMETERS, &c.

The *atmoſphere* inſinuates itſelf into all the cavities of bodies; and thus becomes the great ſpring of moſt of the mutations here below; as GENERATION, CORRUPTION, DISSOLUTION, &c.

It is one of the great diſcoveries of the modern philoſophers, that the ſeveral motions attributed by the ancients to a *fuga vacui*, are really owing to the PRESSURE of the *atmoſphere*.

Galileo, having obſerved that there was a certain ſtated altitude, beyond which no water could be elevated by pumping, took an occaſion from thence to call in queſtion the doctrine of the ſchools, which aſcribed the aſcent of water in pumps, to the *fuga vacui*, and in the room whereof he happily ſubſtituted the hypotheſis of the air's preſſure and gravitation. It was to him, indeed, little better than an hypotheſis, ſince it had not then thoſe confirmations from experiments, which were afterwards found out by his ſcholar Torricellius, and other ſucceeding philoſophers, particularly Mr. Boyle.

ATMOSPHERE, *the electricity of it*. Beſide thoſe large quantities of the electric matter, with which the clouds are charged in a thunder-ſtorm, it has been obſerved, firſt by Mr. Monnier in 1752, and afterwards repeatedly and with peculiar attention by others, that the *atmoſphere* is ſeldom or ever wholly deſtitute of the electrical fluid; but the quantity is moſt conſiderable, and may moſt eaſily be drawn from the air, when it is in its drieſt ſtate. A perſon electrified negatively may ſatisfy himſelf of this, by extending his arm in the open air, and preſenting a long ſharp needle with its point upwards: for the electric matter collected from the remoter air will appear luminous, as it converges to the point of the needle. Mr. Canton's balls are likewiſe an excellent contrivance for the ſame purpoſe, and may be made uſe of, not only for determining the electricity of the *atmoſphere* in general, but the poſitive or negative quality of it. But there is no electrician, whoſe obſervations in this way have been conducted with greater accuracy, and farther purſued, than S. Beccaria. From him we learn, that the *atmoſphere* diſcovers no ſigns of electricity in windy and clear weather, nor in moiſt weather without rain, nor when the ſky is covered with diſtinct and black clouds with a ſlow motion; but he always obſerved a moderate, though interrupted electricity, for the moſt part of the poſitive kind, in a clear ſky when the weather was calm, and in rainy weather without lightning, a little before the rain fell, and during the continuance of it, till the rain was almoſt over. And the electricity was ſtronger, as his rods were higher, and the ſtrings which were extended and inſulated in the open air were

longer. Beccaria's Eſſay on Atmoſpheric Electricity, annexed to the Engliſh tranſlation of his Artificial Elect. p. 421, &c. See LIGHTNING, RAIN, VAPOURS, &c.

ATMOSPHERE, *figure of the.* The *atmoſphere* envelopes all parts of the ſurface of our globe; if therefore both the one and the other continued at reſt, and were not endowed with a diurnal motion round their axis, then the *atmoſphere* would be exactly ſpherical, according to all the laws of gravity; for all the points of the ſurface of a fluid in a ſtate of reſt, muſt be equally removed from its centre. But the earth and the ambient *atmoſphere* are inveſted with a diurnal motion, which carries both the one and the other round their axis. As the different parts of the earth have a centrifugal force, the tendency of which is more conſiderable, and that of the centripetal leſs, as the parts are more remote from the axis; the figure of the *atmoſphere* muſt become an oblate ſpheroid; becauſe the parts that correſpond to the equator, are farther removed from the axis, than the parts which correſpond to the poles.

Beſides, the *figure* of the *atmoſphere* muſt repreſent a ſpheroid, becauſe the ſun ſtrikes more directly the *air* which encompaſſes the equator, and is comprehended between the two tropics, than that which pertains to the polar regions. Whence it follows, that the maſs of *air*, or part of the *atmoſphere*, adjoining to the poles, being leſs heated, cannot expand ſo much, nor reach ſo high. Nevertheleſs, as the ſame force which contributes to elevate the *air*, diminiſhes its preſſure on the ſurface of the earth, higher columns of it at or near the equator, all other circumſtances being the ſame, may be no heavier than thoſe that are lower at or near the poles.

ATMOSPHERE, *weight of the.* Organical bodies are peculiarly affected by this preſſure: to this, in part, plants owe their VEGETATION; and animals their RESPIRATION, CIRCULATION, NUTRITION, &c.

To this alſo we owe ſeveral conſiderable alterations in the animal œconomy, with regard to health, life, diſeaſe, &c. See AIR.

And hence, a calculation of the preciſe quantity of this preſſure becomes a point worthy of attention.—Our bodies, then, are equally preſſed on by the incumbent *atmoſphere*; and the weight they ſuſtain is equal to a cylinder of air, whoſe baſe is equal to the ſuperficies of our bodies.—Now, a cylinder of air of the height of the *atmoſphere*, when greateſt, is known to be equal to a cylinder of water of the ſame baſe, and 35 feet high; or a cylinder of mercury 30½ inches, as appears from the Torricellian experiment; as alſo from the height to which water aſcends in pumps, ſyphons, &c.

Hence it follows, that every foot ſquare of the ſurface of our bodies, is preſſed by a weight of air equal to 35 cubical feet of water, or 30½ cubical inches of mercury; and a cubical foot of water being found by experiment to weigh 62½ pounds, the compaſs of a foot ſquare upon the ſurface of our bodies, ſuſtains a quantity of air equal to 2187½ pounds; for 62½ × 35 is = 2187½: and ſo many feet ſquare as the ſurface of our bodies contains, ſo many times 2187½ pounds does that body bear.

Hence, if a man's body contain 15 ſquare feet, which is near the truth, he will ſuſtain a weight equal to 32812½ pounds; which is above 14½ tons for the greateſt load, or the weight of air when it is the heavieſt.

Mr. Cotes has given us a computation of the *weight* of all the air which preſſes upon the whole ſurface of the earth. He finds this weight to be equal to that of a globe of lead of ſixty miles diameter. The computation proceeds on theſe principles: that the weight of a column of air, reaching to the top of the *atmoſphere*, is moſt commonly equal to a column of water, having the ſame baſis, and the altitude of 34 feet; that the ſemi-diameter of the earth is equal to 20,949,655 feet; and that the ſpecific gravity of water is to that of lead as 1000 to 11,325. Cotes's Hydroſt. Lect. p. 112.

By an eaſy calculation, ſuppoſing a column of mercury 29½ feet high at the mean denſity of the *atmoſphere*, and one inch thick, to weigh 15 pounds, there will be a preſſure on every ſquare foot of 144 × 15 = 2160 pounds: on the ſurface of a body of 15 ſquare feet, 32400lb. or more than 14½ tons. And as the earth's ſurface contains in round numbers 200,000,000 ſquare miles; there muſt be 5,575,680,000,000,000 ſquare feet on the earth's ſurface; which multiplied by 2160 pounds, the preſſure on a ſquare foot, gives 12,043,468,800,000,000,000 pounds for the preſſure or weight of the whole *atmoſphere*.

The difference of the weight of the air which our bodies ſuſtain at one time more than at another, is alſo very great.

The whole weight of air which preſſes upon our bodies when the mercury is higheſt in the barometer, is equal to 32812½ pounds. Whence the difference between the greateſt and the leaſt preſſure of air upon our bodies, may be proved to be equal to 3280½ pounds.

The difference of the air's weight, at different times, is readily meaſured by the different height to which the mercury is raiſed in the barometer: and the greateſt variation of the height of the mercury being three inches, a column of air of any aſſignable baſe equal to the weight of a cylinder of mercury of the ſame baſe, and of the altitude of three inches, will be taken off from the preſſure upon a body of an equal baſe, at ſuch times as the mercury is three inches lower in the barometer; ſo that every inch ſquare of the ſurface of our bodies is preſſed upon at one time more than another, by a weight of air equal to the weight of three cubical inches of mercury.

Now a cubical foot of water being 62½ pounds, a cubical foot of mercury is 875 pounds = 5040000 grains; and as 5040000 grains are to a cubical foot, or 1728 cubical inches, ſo are 2916 *grains* to one cubical inch; therefore a maſs of mercury of a foot ſquare = 144 ſquare inches, and three inches high, muſt contain 432 cubical inches of mercury, which multiplied by 2916, the number of grains in a cubical inch of mercury, gives 1259712 grains. And this weight does a foot ſquare of the ſurface of our bodies ſuſtain at one time more than at another.

Suppoſe again the ſurface of the human body = 15 feet ſquare, then would the body ſuſtain at one time more than at another a weight = 15 × 1259712 grains = 18895680 grains = 3280 pounds 6 ounces, which is near 1½ ton.

Hence, it is ſo far from being a wonder, that we ſometimes ſuffer in our health by a change of weather, that it is the greateſt wonder we do not ſuffer oftener and more by ſuch changes.—For when we conſider, that our bodies are ſometimes preſſed upon by near a ton and a half weight more than at another, and that the variation of the additional preſſure of many pounds, is often very ſudden; it is ſurpriſing that every ſuch change does not entirely break the frame of our bodies to pieces.

In effect, the veſſels of our bodies being ſo much ſtraitened, by an increaſed preſſure, would ſtagnate the blood, and the circulation would quite ceaſe, if nature had not wiſely contrived, that, when the reſiſtance to the circulating blood is greateſt, the *impetus* by which the heart contracts ſhould be ſo too.—For, upon an increaſe of the weight of the air, the lungs will be more forcibly expanded, and thereby the blood will be more intimately broken and divided, ſo that it becomes fitter for the more fluid ſecretions, ſuch as that of the nervous fluid; by which the heart will be more ſtrongly contracted. And the blood's motion towards the ſurface of the body being obſtructed, it will paſs in greater quantity to the brain, where the preſſure of the air is taken off by the *cranium*; upon which account alſo, more ſpirits will be ſeparated, and the heart on that account too be more enabled to carry on the CIRCULATION, through all poſſible canals; whilſt ſome others, towards the ſurface, are obſtructed.

The moſt conſiderable alteration made in the blood, upon the air's greater or leſſer preſſure on the ſurface of our bodies, is its rendering the blood more or leſs compact, and making it croud into a leſs, or expand into a greater ſpace, in the veſſels which it enters.—For the air contained in the blood always keeps itſelf *in æquilibrio* with the external air that preſſes upon our bodies; and this it does by a conſtant *niſus* to unbend itſelf, which is always proportionable to the compreſſing weight by which it was bent: ſo that if the compreſſion of weight of the circumambient air be ever ſo little abated, the air contained within the blood unfolds its ſpring, and forces the BLOOD to take up a larger ſpace than it did before.

The reaſon we are not ſenſible of this preſſure is explained in the following manner by Borellus, De Mot. Nat. a grav. &c. prop. 29, &c. After ſaying that ſand, perfectly rammed in a hard veſſel, is not capable, by any means of being penetrated or pared, not even by a wedge; and likewiſe that water, contained in a bladder compreſſed equally on all ſides, cannot yield or give way in any part; he proceeds, "In like manner, "within the ſkin of an animal are contained a diverſity "of parts, ſome hard, as bones; others ſoft, as muſ"cles, nerves, membranes, &c. others fluid, as blood, "fat, &c. Now it is not poſſible the bones ſhould be "broke or diſplaced in the body, unleſs the weight lay "heavier on one part than on another, as we ſome"times ſee in porters. If the preſſure be ſubdivided, "ſo that it lie equally all around, upwards, downwards, "and ſideways, and no part of the ſkin be exempt

"there-

" therefrom; it is evidently impoſſible any fracture or " luxation ſhould follow. The ſame may be obſerved " of the muſcles and nerves; which, though ſoft, yet " being compoſed of ſolid fibres, do mutually ſuſtain " each other, and reſiſt the common weight. The " ſame holds of blood, and the other humours; and as " water does not admit any manifeſt condenſation, ſo " the animal humours contained in their veſſels may " ſuffer an attrition from an impulſe made in one or " more particular places, but can never be forced out " of their veſſels by an univerſal compreſſion.—It fol- " lows, that as none of the parts undergo either ſepara- " tion, luxation, confuſion, or any other change of ſi- " tuation; it is impoſſible any ſenſe of pain ſhould en- " ſue, which can only be the effect of a ſolution of " continuity. This is confirmed by what we ſee in " DIVERS," &c.

The ſame is farther confirmed by Mr. Boyle; who, including a young frog in a veſſel half full of water, and intruding ſo much air as that the water might ſuſtain eight times the weight it otherwiſe would; yet the animalcule, notwithſtanding the great tenderneſs of its ſkin, did not ſeem to be at all affected thereby.

For the effects of the removal of the preſſure of the *atmoſphere*, ſee AIR-*pump*.—For the cauſe of the variations in the weight and preſſure of the *atmoſphere*, ſee BAROMETER.

ATMOSPHERE, *height of the*. The *height* of the *atmoſphere* is a point about which the modern naturaliſts have been very ſolicitous.—Had not the air an elaſtic power, but were it every where of the ſame denſity, from the ſurface of the earth to the extreme limit of the *atmoſphere*, like water, which is equally denſe at all depths; it being above obſerved, that the weight of the column of air, reaching to the top of the *atmoſphere*, is equal to the weight of the mercury contained in the barometer; and the proportion of weight likewiſe being known between equal bulks of air and mercury; it were eaſy to find the height of ſuch column, and conſequently that of the *atmoſphere* itſelf.—For a column of air, one inch high, being to an equal column of mercury as 1 to 11200; it is evident, that 11200 ſuch columns of air, that is, a column of 933 feet high is equal in weight to one inch of mercury: and conſequently the 30 inches of mercury, ſuſtained in the barometer, require a column of air 27990 feet high whence the height of the *atmoſphere* would only be 27990 feet, or little more than five Engliſh miles high.

But the air, by its elaſtic property, expands and contracts; and it being found by repeated experiments in England, France, and Italy, that the ſpaces it takes up, when compreſſed by different weights, are reciprocally proportional to thoſe weights themſelves; or, that the air takes up the leſs ſpace, the more it is preſſed: it follows, that the air in the upper regions of the *atmoſphere*, where the weight is ſo much leſs, muſt be much rarer than nearer the ſurface of the earth; and, conſequently, that the height of the *atmoſphere* muſt be much greater than is above aſſigned.

Mr. Cotes, in his Hydroſtatical Lectures, lect. ix. has demonſtrated, in a very familiar and intelligible manner, that, if any number of diſtances from the ſurface of the earth be taken in an arithmetical progreſſion, the denſities of the air at thoſe diſtances will be in a geometrical progreſſion. Let *a a x* (*Tab. Pneumatics, fig.* 22.) repreſent a veſſel reaching from the ſurface of the earth *a a* to the top of the *atmoſphere xx*; and let the ſide *a x* be divided into inches *a b*, *b c*, *c d*, &c. and let the lines *b k*, *c l*, *d m*, &c. be drawn parallel to *a a*. It is evident that the air contained between theſe parallel lines becomes rarer as we aſcend, becauſe every aſcending parallel ſucceſſively is preſſed by a leſs column of ſuperincumbent air than the next below it. Suppoſe then that the air *a k* is every where uniform, but denſer than the air *b l*, and ſo upwards. Let the air *b l* be reduced into a leſs ſpace by *B q*, ſo as to become of equal denſity with the air *a k*, by making the ſpace *b q* leſs than *b l*, in the proportion that the air *b l* is leſs denſe than the air *a k*. And let a ſimilar conſtruction be continued, ſo as to reduce every inch breadth of air to the ſame denſity with the air *a k*. The ſpaces *a k*, *b q*, *c r*, &c. will evidently be as the denſities of the ſeveral inches of air, *a k*, *b l*, *c m*, &c. and the quantity or weight of the ſuperincumbent air belonging to each of theſe ſpaces, and reaching to the top of the *atmoſphere*, will always be as the ſum of all the ſpaces ſituated above any ſpace propoſed: the quantity or weight, being, by the conſtruction of the figure, as the ſpace which it poſſeſſes. Since then the denſity of the air is as the force which compreſſes it, and this force is the quantity of ſuperincumbent air, the denſities of the air between *a a* and *b k*, *b k* and *c l*, *c l* and *d m*, &c. are to each other as the quantities of air above *a a*, *b k*, *c l*, &c. up to the extremity of the *atmoſphere*. But theſe denſities, by what we have already ſhown, are as the ſpaces *a k*, *b q*, *c r*, &c. and the quantities of ſuperincumbent air are as the ſpaces *x b q r i v u*, *x c r i v u*, *x d i v u*, &c.; therefore the ſpaces *a k*, *b q*, *c r*, &c. are to each other reſpectively as the ſpaces *x b q r i v u*, *x c r i v u*, *x d i v u*, &c. Now the former ſpaces *a k*, *b q*, *c r*, being the differences of the latter, and mutually proportional, are, by a well-known theorem in proportion, in a geometrical progreſſion; as the diſtances *a b*, *a c*, *a d*, are in an arithmetical progreſſion. And thus the denſities of the air belonging to every one of the inches, continued to the extremity of the *atmoſphere*, decreaſe in the ſame geometrical progreſſion; and every the leaſt variation of altitude will cauſe the ſame proportional variation of denſity in the air. As the rarity of the air is reciprocally as its denſity, we may conclude that if the diſtances from the earth increaſe in an arithmetical progreſſion, the different degrees of rarity of the air increaſe in a geometrical progreſſion. Whence it is obvious that the diſtances are every where proportional to the logarithms of the correſponding rarities.

This law was firſt obſerved and demonſtrated by Dr. Halley, from the nature of the hyperbola; and afterwards by Dr. Gregory, by means of the logarithmic line. See Phil. Tranſ. N° 181. or Abr. ibid. vol ii. p. 13. and Greg. Aſtron. lib. v. prop 3.

By this propoſition, having made two or three barometrical obſervations of the rarity of the air at two or three different heights, it is eaſy to find its rarity at any other height, or the height correſponding to any rarity; and conſequently the altitude of the whole *atmoſphere*, ſuppoſing the utmoſt degree of rarity known, beyond which the air cannot go.

Upon theſe principles the following table is calculated; ſuppoſing firſt as a mean of the obſervations at the Puy de Domme in France, and thoſe on Snowdon-hill in Wales, that at the altitude of ſeven miles, the air is four times rarer than at the ſurface of the earth.

At the altitude of	Miles above the ſurface of the earth, the air is	Times rarer than at the earth's ſurface.
7		4
14		16
21		64
28		256
35		1024
42		4096
49		16384
56		65536
63		262144
70		1048576
77		4194304
84		16777216
91		67108864
98		268435456
105		1073741824
112		4294967296
119		17179869184
126		68719476736
133		274877906944
140	Miles above the ſurface of the earth, the air is	1099511027776

It might be eaſily ſhewn, by purſuing the calculation in this table, that a cubic inch of the air we breathe would be ſo much rarefied at the altitude of 500 miles, that it would fill a ſphere equal in diameter to the orbit of Saturn.

But it is to be obſerved, that theſe computations of the rarity of the *atmoſphere*, at different heights, are founded on this principle, that the denſity of the air is every where proportionable to the ſuperincumbent weight: and this rule holds true only upon the ſuppoſition, that the heat is uniform, at different diſtances from the earth; for if the air be hotter in one part than in another, the air will be more rarefied in the hotter part, than it will be in the cooler, although preſſed by the ſame weight, or at the ſame altitude above the earth's ſurface.

It muſt not be here omitted, that ſome obſervations made by Caſſini, and his aſſociates, ſeem to render this method precarious.—In continuing the meridian line of the obſervatory at Paris, they meaſured the altitudes of ſeveral mountains with great accuracy; noting the height of the barometer at the top of each; and found, that the rarefactions of the air, as you aſcend from the level of the earth, are much greater than they ought to be, according to this proportion.

Suſpecting, therefore, the juſtneſs of the experiments, the Royal Academy made divers others, under great dilations of air, far exceeding the rarities found on the tops of the mountains; the reſult whereof was, that they all

all exactly answered the proportion of the incumbent weights. Whence it should follow, that the higher air about the tops of mountains is of a different nature, and observes a different law from that near the earth.

The reason hereof may be owing to the great quantity of grofs vapours and exhalations here, more than there; which vapours being lefs elaftic, and not capable of fo much rarefaction, as the pure air above, the rarefactions of the pure air increafe in a greater ratio than the weights diminifh.—M. Fontenelle, however, from fome experiments made by M. de la Hire, accounts for the *phænomena* in a different manner; alleging, that the elaftic power of air is increafed by the admixture of humidity therewith; and confequently, that the air near the tops of mountains, being moifter than that below, becomes thereby more elaftic, and rarefies in a greater ratio than naturally and in a drier ftate it would.—Hut Dr. Jurin fhews, that the experiments produced to fupport this fyftem are by no means conclufive. Append. ad Varenii Geograph.

M. Bouguer likewife, in the memoirs of the Royal Academy of Sciences at Paris for the year 1753, intimated his opinion, that the condenfations of the *atmofphere* did not obferve the fame law at different heights; and endeavoured to account for the variation, by fuppofing that particles of air at different heights are poffeffed of unequal degrees of elafticity. If this were the cafe, it would be impoffible to apply the barometer to the menfuration of heights with any degree of certainty. But M. de Luc has fhewn, by his more accurate experiments, that this pretended inequality of fpring in the particles of air does not fubfift; and that its condenfations and dilatations follow the fame law uniformly at all heights and in all climates, excepting only the differences that are caufed by heat, and other local circumftances. He has alfo given a rule for the meafurement of heights by the barometer, deduced from a greater number of experiments, and much more accurate, than any hitherto publifhed. In order to give the reader a juft idea of the method which he purfued in inveftigating and applying this rule, it is neceffary to obferve, that the difference of the elevation of any two places, will be as the logarithm of the ratio of the denfities of the air at each; and fince the denfity is every where as the compreffing force, and this again as the length of the column of quickfilver fuftained by it in the barometer, the difference of elevation will be as the logarithm of the ratio of the altitudes of the quickfilver at the fame time in the two different ftations, or as the difference of the tabular logarithms of the numbers by which thefe altitudes would be expreffed in any given meafure. This is an obvious confequence of the law of rarefaction already demonftrated, waving the confideration of the accelerative force of gravity, which may be conlidered as uniform at any diftances fubject to obfervation and experiment. Premifing this theorem, M. de Luc prepared a barometer of the fyphon kind, as beft adapted to correct the error arifing from the repulfion of the quickfilver by the glafs tube, by boiling the quickfilver after it was put into the tube, and by other precautions, in order to purge it of air and moifture; and in order to make proper allowances for the variations of the denfity of quickfilver by heat and cold, he provided two thermometers, one attached to the frame of the barometer itfelf, and the other made for being expofed to the open air, in order to fhew its degrees of heat. That he might be able to judge of the allowance requifite to be made for any variation of heat or cold, he heated the air in his room, in the winter feafon, to as great a degree as poffible, and noted the rife of the barometer, owing to the diminution of its fpecific gravity by heat; and he alfo obferved the height of the thermometer, both before and after the room was heated. The barometer in this experiment was at 27 French inches; and he infers from it, that an increafe of heat from freezing to that of boiling water, will raife the mercury in the barometer 6 lines, or $\frac{1}{27}$th part of the whole. If the barometer is higher than 27 inches, the variation will increafe in the fame proportion; therefore calling the height of the barometer B, the whole rife for an increafe of heat from freezing to boiling water, will be $\frac{B}{54}$; and as it will be lefs for a lefs difference of heat, if the number of degrees on the thermometer between boiling and freezing water be called K, and the rife of the thermometer from any given point be called H, the correfpondent rife of the barometer will be $\frac{B}{54} \times \frac{H}{K}$ by the increafe of heat from the given point by the number of degrees H. If the heat decreafed, then H would fignify the degrees of decreafe in heat, and the barometer would fink by $\frac{B}{54} \times \frac{H}{K}$. M. De Luc made the fixed temperature of heat, by means of which he reduced his obfervations of the barometer, $\frac{1}{4}$th of the interval from freezing to boiling water above the given point; and if the thermometer was higher than this degree, he fubtracted $\frac{B}{54} \times \frac{H}{K}$; if it was lower, he added it to the obferved altitude of the barometer; and thus obtained the exact height of the barometer, fuch as it would have been, if the denfity of its quickfilver had been the fame as anfwers to the fixed degree of temperature. He thus corrected the heights of his barometer, at the bottom and at the top of a hill, for the particular degree of heat indicated by the thermometer attached to the barometer at each ftation; and thefe corrected heights he made ufe of in his fubfequent calculations. The two altitudes of the barometer are reprefented by B and *b*, and the logarithms of thefe quantities are taken to the four firft places of figures after the characteriftic, or by conlidering the remaining figures as decimals; C is aflumed to reprefent the mean height of a thermometer, expofed to the air at the top and bottom of the hill, the freezing point being 0, and that of boiling water 80; and M. De Luc finds, by his experiments, that the height of the hill will be given in French toifes, when C is 161, by fimply taking the difference of the logarithms of the heights of the barometer, or it will be equal to log. B — log. *b*; and in any other degree of heat, it will be greater or lefs in proportion as the rarity of the air is greater or lefs than in the fixed temperature; or, greater or lefs by $\frac{1}{215}$th part of the whole for every degree of the thermometer reckoned from the fixed temperature 161. And therefore the height of the hill will be expreffed in French meafure by this *formula*,

$$\log. B - \log. b + \log. B - \log. b \times \frac{C - 161}{215} =$$

$$\log. B - \log. b \times 1 + \frac{C - 161}{215}$$

Mr. Maflkelyne and Dr. Horfley have reduced this *formula* to Engliih meafure, to the fcale of Fahrenheit's thermometer, and likewife to thermometers of different fcales. Dr. Horfley has evinced the agreement of M. De Luc's concluflons with the geometrical theory of the *atmofphere*, founded on the law of gravitation. The rule reluling from the *formula* adapted to Fahrenheit's thermometer, is thus expreffed by Mr. Maflkelyne in common language: take the difference of the tabular logarithms of the obferved heights of the barometer, at the two ftations, confidering the four firft figures exclufive of the index as whole numbers, and the remaining figures as decimals; fubtract or add $\frac{1}{215}$th of the difference of the altitude of the Fahrenheit's thermometer, attached to the barometer at the two ftations, as it was highell at the lower or upper ftation; and thus you will have the height of the upper ftation above the lower, in Engliih fathom, nearly. This height may be corrected by the following proportion: as 440 is to the difference of the mean altitude of Fahrenheit's thermometer expofed to the air at the two ftations from 40°, fo is the height of the upper ftation found nearly to the correction, which is to be added or fubtracted, as the mean altitude of the thermometer was higher or lower than 40°; and the fum or difference will give the true height of the upper ftation above the lower in Engliih fathoms: and multiply by 6, it will be had in Engliih feet.

The rule adapted to particular fcales will be as follows; from, or to the difference of the tabular logarithms, as in the former cafe, fubtract or add the difference of the altitude of the thermometer of a particular fcale, attached to the barometer, at the two ftations, as it was highell at the lower or upper ftation; the difference or fum will give the height nearly, in Engliih fathoms: then fay, as, 1000 is to the fum of the altitudes of the thermometer of a particular fcale expofed to the air at both ftations, fo is the height of the upper ftation above the lower, already found, to a fourth quantity; which added or fubtracted, as the aforefaid fum of the altitudes of the thermometer is pofitive or negative, will give the true height in fathom; and multiplying by 6, in Engliih feet. See THERMOMETER.

M. De Luc found that the height of the *atmofphere*, fuppofing its limits where the mercury in the barometer would ftand only at one line, and the thermometer indicating 0 in his fcale, 17° in that of Reaumur, and about 70° in Fahrenheit's, is 25105,450 toifes, or 11 leagues and 3 toifes: and in the fame circumftances, if the mercury in the barometer funk to $\frac{1}{2}$ of a line, the height of that part of the atmofphere would be 35105,450 toifes.

M. De Luc's Recherches ſur les Modifications de l'Atmoſphere, vol. ii. Phil. Tranſ. vol. lxiv. part i. N° 20 and 30. See BAROMETER.

M. De la Hire, after Kepler, has recourſe to the more ancient method of aſcertaining the height of the *atmoſphere*, viz. from the conſideration of the CREPUSCULA. It appears, from the obſervations of aſtronomers, of the duration of twilight, and of the magnitude of the terreſtrial ſhadow in lunar eclipſes, that the effect of the *atmoſphere* to reflect and intercept the light of the ſun, is ſenſible to the altitude of between 40 and 50 miles. So far then we may be certain that the *atmoſphere* reaches; and at that altitude we may collect, from what has been already ſaid, that the air is above 10,000 times rarer than at the ſurface of the earth. How much farther the *atmoſphere* may extend, we are altogether ignorant. Cotes's Hydroſt. Lect. p 123 and 125.

It is allowed by aſtronomers, that when the ſun is 18° below the horizon, we begin or ceaſe to ſee the TWILIGHT: now the ray whereby we ſee it can be no other than a horizontal line, or a tangent to the earth in the place where the obſerver is; but this ray cannot come directly from the ſun, which is under the horizon; and muſt therefore be a ray reflected to us by the laſt inner and concave ſurface of the *atmoſphere*. We are to ſuppoſe that the ſun, when 18° below the horizon, emits a ray which is a tangent to the earth, and ſtrikes upon this laſt ſurface of the *atmoſphere*, and is thence reflected to our eye, being ſtill a tangent, and horizontal.—If there were no *atmoſphere*, there would be no CREPUSCULUM; and conſequently, if the *atmoſphere* were not ſo high as it is, the *crepuſculum* would begin and end when the ſun is at a leſs diſtance from the horizon than 18°, and contrarily.—Hence we gather, that the largeneſs of the arch, by which the ſun is depreſſed when the *crepuſculum* begins or ends, determines the height of the *atmoſphere*. We are to note, however, that 2d muſt be ſubtracted from the arch of 18° for the refraction which raiſes the ſun ſo much higher than he would be; and 16′ more for the height of the upper limb of the ſun, which is ſuppoſed to ſend the ray above his centre, which is ſuppoſed to be 18° low. The remaining arch, therefore, which determines the height of the *atmoſphere*, is only 17° 10′. Two rays, one direct, and the other reflected, but both tangents to the earth, muſt neceſſarily meet in the *atmoſphere* at the point of reflexion, and comprehend an arch between them of 17° 10′, whereof they are tangents.—Hence it follows, from the nature of the circle, that a line drawn from the centre of the earth, and cutting the arch in two, will go to the point of concurrence of thoſe two rays; and as it is eaſy to find the exceſs of this line above the ſemi-diameter of the earth, which is known, it is eaſy to find the height of the *atmoſphere*, which is only that exceſs. See CREPUSCULUM.

On this principle M. De la Hire diſcovers the height of the *atmoſphere* to be 37223 fathoms, or near 17 French leagues. The ſame method was alſo made uſe of by Kepler, who only rejected it, becauſe it gave the height of the *atmoſphere* 20 times greater than he otherwiſe allowed it.

It muſt be added, that in this calculus the direct and reflected rays are ſuppoſed to be right lines; whereas, in fact, they are curves, formed by the perpetual refraction the rays undergo in paſſing through a ſeries of different denſities of air.—Computing them upon them, as two ſimilar curves, or rather as a ſingle curve, one extreme whereof is a tangent to the earth; its vertex, equally diſtant from both the extremes, determines the height of the *atmoſphere*; which, therefore, will be found ſomewhat lower than in the former caſe; the point of concurrence of two right lines, which are here only tangents to the curve, the one at one end, and the other at the other, being higher than the vertex of the curve. In this way, M. De la Hire finds the *atmoſphere* 36362 fathoms, or 16 leagues. Hiſt. de l'Acad. Roy. de Scien. an. 1713. p. 71. See REFRACTION, &c.

The *atmoſphere* has a refractive power, which is the cauſe of many *phenomena*. Alhazen the Arabian, who lived about A. D. 1100, ſeems to have been more inquiſitive into the nature of refraction than the preceding writers. But neither Alhazen, nor his follower Vitellio, knew any thing of its juſt quantity, which was not known to any tolerable degree of exactneſs, till Tycho Brahe, with incredible diligence, ſettled it.

Neither did Tycho, nor Kepler, diſcover in what manner the rays of light were refracted by the *atmoſphere*. Tycho thought the refraction was chiefly cauſed by denſe vapours, very near the earth's ſurface. Kepler placed the cauſe wholly at the top of the *atmoſphere*, which he took to be uniformly denſe; and thence he determined its altitude to be little more than that of the higheſt mountains. But the true conſtitution of the denſity of the *atmoſphere*, deduced afterwards from the Torricellian experiment, afforded a juſter idea of theſe refractions, eſpecially after it appeared, by a repetition of M. Lowthorp's experiment, that the air's refractive power is proportionable to its denſity. By this variation of the air's denſity, a ray of light, in paſſing through the *atmoſphere*, is continually refracted at every point, and thereby deſcribes a curve, and not a ſtraight line, as it would have done were there no *atmoſphere*, or were its denſity uniform.

This refractive power of the *atmoſphere* increaſes the altitude of the ſtars, and contracts their intervals; it alſo cauſes the ſun and moon to appear of an oval figure, when near the horizon. But it is to be obſerved, that the horizontal moon appears oval but rarely, eſpecially in the evenings of warm weather, the refractions being then ſmaller. Vide Smith's Optics. See alſo REFRACTION.

The *atmoſphere*, or air, has alſo a reflective power; and this power is the cauſe that enlightens objects ſo uniformly on all ſides. The abſence of this power would occaſion a ſtrange alteration in the appearance of things; their ſhadows would be ſo very dark, and their ſides enlightened by the ſun ſo very bright, that probably, we could ſee no more of them than their bright halves; ſo that, for a view of the other halves, we muſt turn them half round, or, if immoveable, muſt wait till the ſun could come round upon them. Such a peculiar unreflective *atmoſphere* would indeed have been very commodious for aſtronomical obſervations upon the courſe of the ſun and planets among the fixed ſtars, viſible by day as well as by night; but then ſuch a ſudden tranſition from darkneſs to light, and from light to darkneſs immediately, upon the riſing and ſetting of the ſun, without any twilight, and even upon turning from or to the ſun at noon-day, would have been very inconvenient and offenſive to our eyes.

Thus, though the *atmoſphere* is greatly aſſiſtant to the illumination of objects, yet it muſt alſo be obſerved, that it ſtops a great deal of light. By M. Bouguer's experiments, it ſeems that the light of the moon is frequently 2000 times weaker in the horizon, than at the altitude of 66 degrees; and that the proportion of her lights at the altitudes of 66 and 19 degrees, is about 3 to 2. The lights of the ſun muſt bear the ſame proportion to each other at thoſe heights; which M. Bouguer made choice of, as being the meridian heights of the ſun, at the ſummer and winter ſolſtices, in the latitude of Conſic in France. Smith's Optics, Rem. 95.

It has been ſaid that a ray of light, paſſing through the *atmoſphere*, deſcribes a curve. M. De la Hire took great pains to demonſtrate, that, ſuppoſing the denſity of the *atmoſphere* proportional to its weight, this curve is a cycloid: and he ſays, that if the ray be a tangent to the *atmoſphere*, the diameter of its generating circle will be the height of the *atmoſphere*; and that this diameter increaſes, till at laſt, when the rays are perpendicular, it becomes infinite, or the circle degenerates into a right line. This reaſoning ſuppoſes that the ſurface of the *atmoſphere* is a plane; but ſince it is a curve, he obſerves that theſe cycloids become in fact epicycloids. Hermannus has detected the error of M. De la Hire, and ſhewn that this curve is infinitely extended, and has an aſymptote: and Dr. Brook Taylor obſerves, that this curve is one of the moſt intricate and perplexed that can well be propoſed. Method. Increm. p. 108, &c.

This ingenious author computes the refractive power of the air to be to the force of gravity at the ſurface of the earth, as 320 millions to 1.

F. De Lana thought he had contrived an *aeronautic* machine for navigating the *atmoſphere*: Sturmius, who examined it, declared it not to be impracticable: but Dr. Hooke was of a different opinion, and detected the fallacy of the contrivance. Roger Bacon long before propoſed ſomething of the ſame kind. The great ſecret of this art, is to contrive an engine ſo far lighter than air, that it will riſe itſelf in the *atmoſphere*, and together with itſelf, buoy up and carry men with it. The principle on which it is to be effected, is by exhauſting the air of a very thin and light, yet firm, metalline veſſel, with an air pump.

But the hopes of ſucceſs in ſuch an enterprize will appear very ſmall, if it be conſidered, that if a globe were to be formed of braſs, of the thickneſs only of $\frac{1}{12}$ of an inch, that globe muſt be above 277 feet in diameter to ſwim in the air; and if, as De Lana ſuppoſes, the diameter of the globe were but 25 feet, the thickneſs of the metal could not exceed $\frac{1}{3}$ of an inch. Vide Herman. Phoronom. p. 158.

The method now practiſed is that of filling a globe, formed of taffety, &c. with an air or vapour rarer than common air. Inflammable air, produced from zinc by the acid of vitriol, which is about twelve times lighter than common air, is generally uſed for this purpoſe in the conſtruction of modern balloons.

ATMOSPHERE, *lunar*.—The moon was formerly thought to be ſurrounded, like the earth, with a changeable *at-*

atmosphere; but this is justly denied by modern aſtronomers, who, in watching the moon's appulſe to any ſtar in her way, have found that the ſtar retains its full brightneſs till the inſtant of its being hid by the edge of the moon: whereas, if the moon were ſurrounded with an *atmoſphere*, the ſtar (ſeen through it) would appear to grow dimmer and dimmer, as the moon came nearer and nearer to it, becauſe it would be gradually ſeen through parts of her *atmoſphere* more and more denſe, as they muſt be, the nearer they are to the moon.

For the reality of the *atmoſpheres* of the other planets, ſee PLANET.

For the *atmoſpheres* of comets, and the ſun, ſee COMET, SUN, MACULÆ, and ZODIACAL *light*.

ATMOSPHERE *of ſolid or conſiſtent bodies*, is a kind of ſphere formed by the effluvia, or minute corpuſcles, emitted from them.

Mr. Boyle endeavours to ſhew that all bodies, even the hardeſt and moſt coherent, as gems, &c. have their *atmoſpheres*. See GEM.

ATMOSPHERE, in *Electricity*, denotes that medium which was conceived to be diffuſed over the ſurface of electrified bodies, and to conſiſt of effluvia iſſuing from them; whereby other bodies immerged in it became endued with an electricity contrary to that of the body to which the *atmoſphere* belongs. This was firſt taken notice of at a very early period in the hiſtory of this ſcience, by Otto Guericke, and afterward by the academicians *del Cimento*, who contrived to render the electric *atmoſphere* viſible, by means of ſmoke attracted by, and uniting itſelf to a piece of amber, and gently riſing from it, and vaniſhing as the amber cooled. But Dr. Franklin exhibited this electric *atmoſphere* with greater advantage, by dropping roſin on hot iron plates held under bodies electrified, from which *the* ſmoke roſe and encompaſſed the bodies, giving them a very beautiful appearance. He made other obſervations on theſe *atmoſpheres*; he took notice that they and the air did not ſeem to exclude one another; that they were immoveably retained by the bodies from which they iſſued; and that the ſame body, in different circumſtances of diſtation and contraction, is capable of receiving or retaining more or leſs of the electric fluid on its ſurface. However, the theory of electrical *atmoſpheres* was not ſufficiently explained and underſtood for a conſiderable time; and the inveſtigation led to many very curious experiments and obſervations. Mr. Canton took the lead, and was followed by Dr. Franklin; Meſſ. Wilcke and Epinus proſecuted the inquiry, and completed the diſcovery. The experiments of the two former gentlemen prepared the way for the concluſion that was afterward drawn from them by the latter, though they retained the common opinion of electric *atmoſpheres*, and endeavoured to explain the *phenomena* by it. The concluſion was, that the electric fluid, when there is a redundancy of it in any body, repels the electric fluid in any other body, when they are brought within the ſphere of each other's influence, and drives it into the remote part of the body, or quite out of it, if there be any outlet for that purpoſe. By *atmoſphere*, M. Epinus ſays, no more is to be underſtood than the ſphere of action belonging to any body, or the neighbouring air electrified by it. Sig. Beccaria concurs in the ſame opinion, that electrified bodies have no other *atmoſphere* than the electricity communicated to the neighbouring air, and which goes with the air, and not with the electrified bodies. And Mr. Canton likewiſe, having relinquiſhed the opinion that electrical *atmoſpheres* were compoſed of effluvia from excited or electrified bodies, maintained that they only reſult from an alteration in the ſtate of the electric fluid contained in, or belonging to the air ſurrounding theſe bodies to a certain diſtance; for inſtance, that excited glaſs repels the electric fluid from it, and conſequently, beyond that diſtance makes it more denſe; whereas excited wax attracts the electric fluid exiſting in the air nearer to it, making it rarer than it was before. In the courſe of experiments that were performed on this occaſion, Meſſ. Wilcke and Epinus ſucceeded in charging a plate of air, by ſuſpending large boards of wood covered with tin, with the flat ſides parallel to one another, and at ſome inches aſunder: for they found, that, upon electrifying one of the boards poſitively, the other was always negative; and a ſhock was produced by forming a communication between the upper and lower plates. Beccaria has largely conſidered the ſubject of electric *atmoſpheres*, in his Artificial Electricity, p. 170, &c. Eng. edit. Dr. Prieſtley's Hiſt. of Electricity, vol. ii. ſect. 5. See CONDUCTOR, *luminous*.

ATOCION, ατοκιον, from α *privative*, and τικτω, *I bring forth*, in *Ancient Naturaliſts*, denotes an abortive medicine, or a medicament proper to expel the *fœtus* after conception.

ATOLLENS *oculi*, in *Anatomy*, a name given by Albinus to one of his *quatuor recti muſculi oculi*. This is the muſcle called by Molinett, and others, the *ſuperbus*, and by Cowper, the *elevator oculi*.

ATOM, in *Philoſophy*, a part, or particle of matter, ſo minute as to be indiviſible.

The word is formed of the privative α, and τεμνω, *I divide*.

Atoms are properly the *minima naturæ*, the laſt or ultimate particles into which bodies are diviſible; and are conceived as the firſt rudiments, or component parts of all phyſical magnitude; or the pre-exiſtent and incorruptible matter whereof bodies were formed.

The notion of *atoms* ariſes hence, that matter is not diviſible *in infinitum*.

And hence the Peripatetics are led to deny the reality of *atoms*, together with that of mathematical points: an *atom*, ſay they, either has parts, or it has none: if it hath none, it is a mere mathematical point; if it hath, then do theſe parts alſo conſiſt of others, and ſo on to infinity.

But this is to recede from the genuine character of *atoms*, which are not eſteemed indiviſible, becauſe of their want of bigneſs, or parts (for all phyſical magnitude muſt have three dimenſions, length, breadth, and thickneſs, and all extenſion is diviſible); but they are indiviſible on account of their ſolidity, hardneſs, and impenetrability, which preclude all diviſion, and leave no vacancy for the admiſſion of any foreign force to ſeparate or diſunite them.

As *atoms* are the firſt matter, it is neceſſary they ſhould be indiſſolvible, in order to their being incorruptible.—Sir Iſaac Newton adds, that it is alſo required they be immutable, in order to the world's continuing in the ſame ſtate, and bodies being of the ſame nature now as formerly.

Hence the ancients were alſo led to maintain *atoms* eternal: becauſe what is immutable, muſt be eternal.

They alſo added gravity; and, in conſequence thereof, motion to their *atoms*: and farther, obſerving that *atoms* thus falling perpendicularly, could not join or unite together; they ſuperadded a fortuitous or lide motion, and furniſhed them with certain hooked parts, in order to enable them to catch and hang the better together.—And from a caſual or fortuitous jumble of theſe *atoms*, they ſuppoſe the whole univerſe to be formed.

ATOMICAL *philoſophy* denotes the doctrine of atoms; or a method of accounting for the origin and formation of all things, from the ſuppoſition of atoms, endued with gravity and motion.

The *atomical* philoſophy was firſt broached and taught by Moſchus, a Sidonian, ſome time before the Trojan war.—Leucippus and Democritus probably learnt it from him.—But it was moſt cultivated and improved by Epicurus; whence it became alſo denominated the *Epicurean* philoſophy.

It has been ſince retrieved by Gaſſendus, and others; and is now eſpouſed and adhered to by a great part of the philoſophical world, under the denomination of the CORPUSCULAR *philoſophy*.

ATOMOS, a ſpecies of the *crab* inſect.

ATONEMENT. See EXPIATION, LUSTRATION, PROPITIATION, and SACRIFICE.

ATONICS, in *Grammar*, words unaccented. See ACCENT.

ATONY, in *Medicine*, &c. a want of tone or TENSION; or a relaxation of the SOLIDS of a human body; occaſioning a loſs of ſtrength, faintings, &c. See FIBRE, RELAXATION, &c.

The word is compounded of the privative α, and τονος, *tone*, of τεινω, *tendo*, *I ſtretch*.

ATRABILIARIÆ *copulæ*. See CAPSULÆ.

ATRABILIS, in the *Ancient Medicine*, black or aduſt bile. *Atra bilis* was one of the great humours of the ancient phyſicians; whence ariſe the *atrabilious*, one of their TEMPERAMENTS; anſwering to what we call MELANCHOLY. See BILE, and HUMOUR.

The ancients, ſays Dr. Percival, ſuppoſed the *atra bilis* to be derived either from the dregs of the blood, or from yellow bile highly concocted. A celebrated modern anatomiſt thinks it is blood which, having lodged ſome time in the inteſtinal canal, has acquired blackneſs and putridity. Is it not more probable that, in general, it is no other than gall become acrid by ſtagnation of the *veſica fellea*, and rendered viſcid by the abſorption of its fluid parts? When diſcharged into the *duodenum* in this ſtate, it occaſions univerſal diſorder, till evacuated by vomiting or purging. Eſſ. vol. ii. p. 110.

ATRA *dies*, in *Antiquity*, denotes a fatal day, whereon the Romans received ſome memorable defeat.

The word literally imports a *black day*; a denomination taken from the colour, which is the emblem of death, and mourning. Whence the Thracians had a cuſtom of marking all their happy days with white ſtones, or *calculi*;

calculi, and their unhappy days with black ones, which they caſt, at the cloſe of each day, into an urn. At the perſon's death, the ſtones were taken out, and from a compariſon of the numbers of each complexion, a judgment was made of the felicity or infelicity of his courſe of life.

The *dies atræ*, or *atri*, were afterwards denominated *nefaſti*, and *poſteri*.

Such, in particular, was the day when the tribunes were defeated by the Gauls, at the river Allia, and loſt the city; alſo that whereon the battle of Cannæ was fought; and ſeveral others marked in the Roman calendar, as *atræ*, or *unfortunate*.

ATRACTYLIS, in *Botany*. See *Diſtaff* THISTLE.

ATRAGENE, the name by which the *wiverne*, or *traveller's joy*, a ſmall winding ſhrub, common in hedges, is known in the ſhops. In the Linnæan ſyſtem, it is a genus of the *polyandria polygynia* claſs of plants, with a four-leaved calyx, twelve petals, and tailed ſeed.

ATRAMENTA, ſee INKS.

ATRAPHAXIS, in *Botany*, a genus of the *hexandria digynia* claſs. We have no Engliſh name for this plant. Its characters are, that the flower hath a permanent empalement, with two roundiſh ſituated petals larger than the empalement, which are permanent; it hath ſix capillary *ſtamina*; in the centre is ſituated a compreſſed germen, which afterward becomes a roundiſh compreſſed ſeed, ſhut up in the empalement. Miller and Linnæus mention two ſpecies.

ATRESIA, from *a* and τειρω, whence τετρω, *to perforate*; in *Medicine*, imperforation, or the ſtate of thoſe perſons who want ſome natural aperture.

ATRETI, thoſe perſons, of either ſex, in whom the *anus*, or genitals, are imperforate, or cloſe, whether naturally, or occaſioned by ſome accident, or diſeaſe, as the growth of ſome fleſhy excreſcence, or a membrane which ſtops the orifice.

ATRICAPILLA, in *Ornithology*, the name of a little bird, commonly known by the name of the *black-cap*, and called, by ſome other authors, *ficedula*, *ficalis*, or *melanchorypha*, and by the Italians *capenera*. See MELANCHORYPHUS.

ATRICES, or ATTRICES, in *Medicine*, ſmall tubercles about the *anus*, which ſometimes diſappear, and then return again, at leaſt while in their early ſtate.

The *atrices* are ranked in the number of *condylomata*, or *fici*. Some authors alſo give the denomination *atrici* to a kind of latent wounds in the extremity of the *rectum*, which however do not *perforate* the ſame.

ATRICILLA, in *Ichthyology*, a ſpecies of the LARUS.

ATRIENSES, in *Antiquity*, a kind of ſervants, or officers, in the great families at Rome, who had the care and inſpection of the *atria*, and the things lodged therein.

Theſe are otherwiſe called *atriarii*, though ſome make a diſtinction between *atrienſes* and *atriarii*; ſuggeſting that the latter were an inferior order of ſervants, perhaps aſſiſtants of the *atrienſes*, and employed in the more ſervile officers of the *atrium*, as to attend at the door, ſweep the area, &c.

The *atrienſes* are repreſented as ſervants of authority and command over the reſt: they acted as procurators, or agents, of their maſter in ſelling his goods, &c. To their care were committed the ſtatues and images of the maſter's anceſtors, &c. which were placed round the *atrium*; and, which they carried in proceſſion at funerals, &c.

In the villas, or country-houſes, the *atrienſes* had the care of the other furniture, and utenſils, particularly thoſe of metal, which they were to keep bright from ruſt. Other things they were to hang from time to time in the ſun, to keep them dry, &c. They were clothed in a ſhort white linen habit, to diſtinguiſh them, and prevent their loitering from home.

ATRIP, in *Nautical Language*, is applied either to the anchor or ſails. The anchor is *atrip*, when it is drawn out of the ground in a perpendicular direction, either by the cable or buoy-rope. The top-ſails are *atrip*, when they are hoiſted up to the maſt-head, or to their utmoſt extent.

ATRIPLEX, in *Botany*, ſee ORACH.

ATRIUM, in *Eccleſiaſtical Antiquity*, denotes an open place, or court, before a church, making part of what was called the *narthex*, or *ante-temple*.

The *atrium* in the ancient churches was a large area, or ſquare plat of ground, ſurrounded with a portico or cloyſter, ſituate between the porch or veſtible of the church, and the body of the church.

Some have miſtakenly confounded the *atrium* with the porch or veſtible, from which it was diſtinct; others with the *narthex*, of which it was only a part.

The *atrium* was the manſion of thoſe who were not ſuffered to enter farther into the church. More particularly, it was the place where the firſt claſs of penitents ſtood, to beg the prayers of the faithful, as they went into the church.

ATRIUM is alſo uſed, in the *Canon Law*, for the cemetery, or church-yard.

In this ſenſe we find a law, prohibiting buildings to be raiſed in *atrio eccleſiæ*, except for the clergy; which the gloſſary explains thus: id eſt *in cœmiterio*, which includes the ſpace of forty poles round a large church, or thirty round a little church, or chapel.

ATROPA, in *Botany*, ſee *Deadly* NIGHTSHADE.

ATROPHY, a diſeaſe wherein the body, or ſome of its parts, do not receive the neceſſary nutriment, but dwindle or waſte inſenſibly.

The word is compounded of the privative *a*, and τροφη, *I nouriſh*, q. d. *privation of nouriſhment*.

An *atrophy* is either nervous, or the effect of evacuations.

A nervous *atrophy* or conſumption, is that which owes its original to a bad and morbid ſtate of the ſpirits; and to the weakneſs or deſtruction of the tone of the nerves; from whence an imbecility, and an univerſal conſumption in the whole habit of the body, ultimately proceeding from a want of due aſſimilation of the nutritious juice: ſo from the beginning of the diſeaſe, there is to be found a want of appetite, and a bad digeſtion in the ſtomach, from an imperfect elaboration and volatilization of the chyle. Which ſort of *atrophy* may juſtly be reckoned one of the fatal ſymptoms of the ſcurvy.

An *atrophy* from inanition, is that which derives its original from a preternatural defect or ſubtraction of the nutritious juice, and that long and habitual; which differs according to the variety of the outlets formed in the body, either by nature or art, by which this precious liquor either has, or may run off and be waſted.

There is alſo a ſpecies of ſymptomatical conſumption, which though it immediately proceeds from a preternatural and ill ſtate of the blood and ſpirits, yet has a mediate dependence upon ſome other preceding diſeaſe, which impreſſed that morbid diſpoſition on the ſpirits and humours.

ATROPHY, *ſigns of it*. An *atrophy* is known by a general languor both of body and mind; a depraved and unhealthy look of the face; a light and unſettled ſleep; an uncertain appetite, ſometimes voracious, ſometimes nauſeating all things, but uſually moſt deſirous of cold foods; a ſtraitneſs of the breaſt, and an uneaſineſs after eating: great internal heat, and dryneſs of the tongue. The bowels are uſually lubricous and moiſt, and throw out the food half undigeſted; in ſome caſes, however they are obſerved to be dry and coſtive. The urine often appears to be a chylous matter: the abdomen is tumid and hard in the firſt ſtages of the diſeaſe, but afterwards it becomes more flaccid, and then on feeling it there may be ſeveral nodes and lumps perceived. The body by degrees waſtes away, and there is a continual feveriſhneſs and thirſt, and that eſpecially in the night-time: and theſe ſymptoms often increaſe to that violence, as plainly to reſemble a hectic, and bring on an equal loſs of ſtrength and ſpirits.

Sometimes the *atrophy* ariſes from worms, and then the whole face is always pale; the noſtrils are full of a mucous matter, and ſometimes become excoriated; the appetite is voracious, and the patient feels an inſufferable reſtleſneſs when hungry, which goes off, and generally becomes inclined to ſleep after a full meal. When this is the caſe in young ſubjects, the ſickets and ſwellings about the joints uſually ſucceed the other ſymptoms, and crookedneſs of the legs, gibboſity of the back, and various diſtortions of the ſpine, follow it: theſe often put an end to the *atrophy*; but as they continue and become laſting deformities, they are a very unhappy remedy.

ATROPHY, *perſons ſubject to atrophies*. Children, while young, are very ſubject to this diſeaſe, and often fall into it from improper food: the uſe of heavy and faculent malt liquors, and of acids, which coagulate the milk, that uſually makes a large part of their nutriment. The ſuppreſſion of their ſweats is another frequent cauſe of *atrophies*, eſpecially when occaſioned by large draughts of cold liquors when they are hot in the night, and ſometimes by an improper uſe of aſtringents to ſtop thoſe *diarrhœas* to which they are frequently ſubject. Youths more grown up are often thrown into an *atrophy* by eating voraciouſly of crude, thick, heavy, and obſtructent diet, or from the drinking ſpirituous liquors: ſometimes from their having been injudiciouſly treated in fevers, and ſometimes from their being violently infeſted with worms in their bowels. Men in more mature age uſually fall into it after being debilitated by other illneſſes, and by the remains of the cauſes of thoſe illneſſes being left in the body; and by nothing oftener are

reduced

reduced to this diſtempered ſtate, than by inordinate *hæmorrhages*. Perſons who are ſcrophulous, or have infarctions of the external glands, are alſo uſually at one time or other afflicted with this infarction of the internal ones, and few eſcape it that labour under any other violent conceſtions of the internal parts.

ATROPHY, *prognoſtics*. A recent *atrophy* is not difficult of cure; and even the moſt inveterate one, though ſtubborn enough, is always much leſs dangerous and difficult of cure than an hectic. The more complicated this diſeaſe is, the more difficult it always is in the cure; and it is hence that grown perſons are not ſo eaſily or ſo often cured as children, becauſe with them it is uſually complicated with many other diſorders; and, in general, that *atrophy* which is brought on by *hæmorrhages*, or by ill treated illneſſes, is much more difficult of cure than that which ariſes from a wrong diet. And, finally, in *atrophies* ariſing from worms, when they are deſtroyed, the diſeaſe uſually ceaſes.

ATROPHY, *method of cure*. All ſymptomatical conſumptions are evidently incurable, unleſs a particular reſpect be firſt had to the diſtempers upon which they depend; but if theſe are once removed by art, this kind of conſumption ceaſes of conſequence; and therefore the cure of this conſumption is to be ſought for in the cure of thoſe diſtempers which are the cauſes of it.

The firſt thing to be done in general is, to thoroughly abſterge and cleanſe the *primæ viæ* by gentle purges, among which nothing is ſo proper as calomel, aſſiſted by ſyrup of rhubarb, or the like; and theſe purgatives are afterwards to be repeated at different intervals, during the courſe of the cure. After the firſt purges, reſolvent and attenuating medicines are to be given; and, finally, the preparations of ſteel, decoctions of *arum* and pimpernel root, with ground-ivy, are very beneficial, as is alſo the juice of ground-ivy given alone; and the reſolvent ſalts, as tartar of vitriol, nitre, and the like, with ſome of the aperient tinctures of ſteel.

An *atrophy* differs from a hectic in this, that there is in it only an infarction of the meſenteric glands, whereas in the other caſe they are generally ulcerated: and in degree the difference alſo is manifeſt, all the ſymptoms being more violent in the hectic than in the ſimple *atrophy*.

It ſhould alſo be diſtinguiſhed from leanneſs, the rickets, and that weakneſs and conſumption of children, who pine away only for want of a due ſupply from the breaſt.

Dr. Thomas Short, in his New Obſervations, Moral, Natural, Medical, &c. recommends milk and cyder in the *atrophy*.

ATTACHING, or ATTACHMENT, in *Law*, the taking or apprehending a perſon or thing, either by commandment, or writ.

The word is formed of the French *attacher*, *to faſten, tye*; and that from the corrupt Latin *attachiare*, of *attexere*, *to weave to*; or rather, as others think, from the Celtic *tach*, *a nail*; and *tacha*, *to nail*; or the Saxon *tæcan*, *to take*.

Lambard makes this difference between an *arreſt* and an *attachment*; that an *arreſt* proceeds out of an inferior court by precept only, and an *attachment* out of a higher court, either by precept, or writ; and that a precept to *arreſt* hath theſe formal words, *duci facias*, &c. and a writ of *attachment* theſe, *præcipimus tibi quod attachies talem, & habeas eum coram nobis*.

By this it appears, that he who *arreſts* carries the party *arreſted* to another higher perſon, to be diſpoſed of forthwith; whereas he that *attaches* keeps the party *attached*, and preſents him in court at the day aſſigned in the *attachment*.

There is this farther difference, that an *arreſt* lies only upon the body of a man, and an *attachment* ſometimes on his goods too: for a man may be *attached* by an hundred ſheep.

Moreover, *attachment* is a kind of proceſs by which courts of law proceed againſt their own officers and others, in caſes of contempt, &c.

ATTACHMENT *by writ* differs from *diſtreſs* in this, that an *attachment* does not reach lands, as a *diſtreſs* does; and that a *diſtreſs* does not touch the body, which an *attachment* does.—Yet the two are frequently confounded together.

In the moſt common uſe, an *attachment* is an apprehenſion of a man by his body, to bring him to anſwer the action of the plaintiff.—A *diſtreſs*, with a writ, is the taking of a man; a *diſtreſs*, without a writ, is the taking of a man's goods for ſome real cauſe; as rent, ſervice, &c.

ATTACHMENT *out of the Chancery* is had of courſe, upon an *affidavit* made that the defendant was ſerved with a *ſubpœna*, and appears not; or it iſſueth upon not performing ſome order or decree.

After the return of this *attachment* by the ſheriff, *quod non eſt inventus in balliva ſua*; another *attachment*, with proclamation, iſſues: and if he appear not thereupon, a commiſſion of rebellion.

ATTACHMENT *of the Foreſt*, is one of the four courts held in the foreſt.

The loweſt court is called the court of *attachment*, or woodmote-court, the ſecond is the court of regard, or ſurvey of dogs, the third is that of ſwein-mote, the higheſt, the juſtice in eyre's ſeat. See COURTS *of Foreſt*, &c.

The court of *attachments* ſeems ſo called, becauſe the verderors of the foreſt have therein no other authority, but to receive the *attachments* of offenders againſt vert and venilon taken by the foreſters, and to inrol them, that they may be preſented or puniſhed at the next juſtice-ſeat.

This *attachment* is by three means: by goods and chattels; by body, pledges, and mainprize; or by body only. This court is held every forty days throughout the year; whence it is alſo denominated *forty days court*.

ATTACHMENT *of privilege* is, by virtue of a man's privilege, to call another to that court whereto he himſelf belongs, and in reſpect whereof he is privileged to anſwer ſome action.

ATTACHMENT, *foreign*, is an *attachment* of goods or money found within a liberty or city, to ſatisfy ſome creditor within ſuch city or liberty.

By the cuſtom of ſome places, particularly of London, a man may *attach* money or goods in the hands of a ſtranger: as, if A owes B 10*l.* and C owes A 10*l.* B may *attach* the 10*l.* in the hands of C, to ſatisfy himſelf.

ATTACHIAMENTA *bonorum*, in our *Ancient Law-books*, denotes a diſtreſs taken upon the goods or chattels of any perſon ſued for a perſonal eſtate, or debt, by the legal *attachitors* or bailiffs, as a ſecurity to anſwer the action.

ATTACHIAMENTA *de ſpinis & boſco*, ſignifies an ancient privilege granted to the other officers of foreſts, to take to their own uſe, thorns, bruſh, and windfalls, within their own precincts or liberties.

ATTACK, an attempt upon any perſon or thing; or the act of beginning a combat or diſpute.

ATTACK, in the *Military Art*, is an attempt or engagement to force a poſt, a body of troops, or the like.

We ſay to begin, to make, ſuſtain an *attack*, &c. Several authors have written of the art of *attack* and DEFENCE.

ATTACK *of a place*, is an effort made by the beſiegers with trenches, mines, galleries, &c. to make themſelves maſters of a fortreſs, in *attacking* one of its ſides. See FORTIFICATION, and SIEGE.

It is a rule always to *attack* on the weakeſt ſide; unleſs there be ſuperior reaſons for the contrary—as was the caſe at the ſiege of Liſle: in which the part where prince Eugene made his *attack*, was the ſtrongeſt in the whole place.

In ſieges there are ſometimes one, ſometimes two, or at moſt three *attacks*.—The *attacks*, where they are ſeveral, ought to have a communication.

ATTACK, *falſe*, is that which is not ſo vigorouſly proſecuted; ſerving only to make a diverſion among the beſieged, and to oblige them to divide their forces, that the true *attack* may be carried on with greater ſucceſs.

ATTACK *in flank*, is to *attack* both ſides of the baſtion.

ATTACK, *line of*, ſee LINE.

ATTAGEN, *ατταγας*, or *ατταγην*, in *Ornithology*, an Aſiatic partridge, called by ſome a *francolin*: a bird which is repreſented both by Martial and Ariſtophanes, as the ſweeteſt which was dreſſed at the public feaſts. From theſe circumſtances, the *attagen* appears to be the ſame with our *gor-cock*, *moor-cock*, or *red-game*.

Trallian recommends this bird in a *phthiſis*; Galen, in nephritic complaints; and Avicenna believed it increaſed the ſeminal ſecretions.—The inſide of the gizzard of this bird is extremely fragrant when freſh killed.

The *red-game* lives chiefly on vegetables, and uſes but little exercile, being ſcarcely ever on the wing, unleſs to avoid danger. Hence it does not abound with highly exalted ſalts. It is a very agreeable and wholeſome food.

ATTAINDER, in *Law*, is when a man has committed felony, treaſon, or other crime, and judgment is paſſed upon him for the ſame.

The children of a perſon attainted of treaſon cannot be heirs to him, or any other anceſtor; and if he were noble before, his poſterity are hereby degraded, and made baſe: nor can this corruption of blood be ſalved but by an act of parliament, unleſs the judgment be reverſed by a writ of error.

Our ancient laws make this difference between *attainder* and *conviction*, that a man was ſaid to be *convicted* preſently upon the verdict; but not *attainted* till it appeared he was no clerk, or being a clerk, and demanded by his

his ordinary, could not purge himſelf.—Add, that *attainder* is more extenſive than *conviction*; *conviction* being only by the jury, whereas *attainder* may alſo be by outlawry, confeſſion of the party, or the like.

A man is *attainted* two ways; by *appearance*, or by *proceſs*.

Attainder by appearance is either by confeſſion, by battle, or by verdict.—Confeſſion, from which *attaint* proceeds, is twofold; one at the bar before the judges, when the priſoner, upon his indictment read, owns himſelf guilty, never putting himſelf on his jury. The other is before the coroner, in ſanctuary; where he, upon his confeſſion, was in former times conſtrained to abjure the realm; which is alſo called *attainder by abjuration*.

Attainder by battle is when the party appealed by another, chooſing rather to try the truth by combat than by jury, is vanquiſhed.

Attainder by proceſs, otherwiſe called *attainder by default*, or *attainder by outlawry*, is where a party flies, or does not appear after being five times publicly called in the county-court, and at laſt, upon his default, is pronounced or returned outlawed.

Attainder by verdict, is when the priſoner at the bar, anſwering not guilty to the indictment, hath an inqueſt of life and death paſſed on him, and by the verdict of the jury pronounced guilty.

ATTAINDER, *bill of*, is a bill brought into parliament for *attainting*, condemning, and executing a perſon for high treaſon.

ATTAINT, ATTINCTA, in *Law*, a writ which lies after judgment, againſt a jury that hath given a falſe verdict, contrary to the evidence, in any court of record, be the action real or perſonal, if the debt or damages exceed 40*s*.

If the verdict be found falſe, the judgment anciently was, that the jurors meadows ſhould be ploughed up, their houſes broken down, their woods grubbed up, their lands and tenements forfeited to the king, their goods and chattels forfeited, their bodies be caſt into gaol, and that they ſhould become for ever infamous. But by the ſtatute 11 Hen. VII. c. 24. revived by 23 Hen. VIII. c. 30 a more moderate puniſhment was inflicted upon *attainted* jurors; viz. perpetual infamy; and if the cauſe of action were above 40*l.* value, a forfeiture of 20*l.* a-piece by the jurors; or if under 40*l.* then 5*l.* a-piece; to be divided between the king and the party injured.

If it paſſed againſt him that brought the *attaint*, he ſhall be impriſoned, and grievouſly ranſomed at the king's will.—But the practice of ſetting aſide verdicts upon motion, and granting new trials, has ſo far ſuperſeded the uſe of *attaints*, that no inſtance of it occurs later than 1593.

ATTAINT, among *Farriers*, ſignifies a knock or hurt in a horſe's leg; proceeding either from a blow with another horſe's foot, or from an over-reach in froſty weather, when a horſe, being rough-ſhod, or having ſhoes with long calkers, ſtrikes his hinder-foot againſt his fore-leg. The farriers diſtinguiſh *upper attaints*, given by the toe of the hinder-foot upon the ſinew of the fore-leg: and *nether attaints*, or over-reachers on the paſtern-joint, which are little bladders like wind-galls, coming either by a wrench, a ſtrain, an over-reach, or the like. The uſual place is in the heel or inſtep.

ATTAINTED, ATTAINTUS, or ATTINCTUS, in *Law*, is uſed for a perſon found guilty of ſome crime or offence, particularly of felony or treaſon, by due courſe of law.

Yet a man is ſaid to be *attainted* of perjury, *attainted* of diſceit; and ſo it is uſed in French; as, *eſtre atteint & convincu en aucun cas, is to be caſt in any cauſe*.

ATTELABUS, a genus of inſects belonging to the order of *coleoptera* in the Linnæan ſyſtem.

ATTALICÆ *veſtes*, in *Antiquity*, garments made of a kind of cloth of gold.

They took the denomination from Attalus, ſurnamed Philometer, a wealthy king of Pergamus, who was the firſt, according to Pliny, who procured gold to be woven into cloth. Hiſt. Nat. lib. iii. c. 48.

ATTALUS, and ATTALICUS, in the *Ancient Phyſic*, epithets given to certain medicines, deſcribed by Galen, but now out of uſe.

ATTELLANÆ, ſee ATELLANÆ.

ATTEMPERATION, in *Rhetoric*, &c. the calling a reſtriction, or ſoftening, on ſomething ſaid by the *formulæ, Forte dici, ut perhibent*, &c.

ATTENDANT, or ATTENDENT, in a general ſenſe; ſee ASSISTANT, RETINUE, and SATELLITE.

ATTENDANT, ATTENDENS, in *Law*, ſignifies one that owes duty or ſervice to another, or depends in ſome manner upon him.

Thus if there be lord meſne and tenant; and the tenant hold of the meſne by a penny; and the meſne hold over by two pence; if the meſne releaſe to the tenant all his right in the land, and the tenant die, his wife ſhall be endowed of the land, and ſhall be *attendant* to the heir of the third part of the penny, not of the third part of the two pence; the being to be endowed of the beſt poſſeſſion of her huſband.

Where the wife is endowed by the guardian, ſhe ſhall be *attendant* to the guardian, and to the heir at his full age.

ATTENTION, ATTENTIO, a due application of the ear, or the mind, to any thing ſaid, or done, in order to acquire a knowledge thereof.

The word is compounded of *ad*, *to*, and *tendo*, *I ſtretch*.

Attention of mind is not properly an act of the underſtanding, but rather of the will, by which it calls the underſtanding from the conſideration of other objects, and directs it to the thing in hand. Nevertheleſs, our *attention* is not always voluntary: an intereſting object ſeizes, and fixes it beyond the power of controul.

Attention, in reſpect of hearing, is the ſtretching or ſtraining of the *membrana tympani*, ſo as to make it more ſuſceptible of ſounds, and better prepared to catch even a feeble agitation of the air. Or it is the adjuſting the tenſion of that membrane to the degree of loudneſs or lowneſs of the ſound to which we are attentive.

ATTENUANTS, or ATTENUATING *medicines*, are ſuch as ſubtilize and break the humours into finer parts; and thus diſpoſe them for motion, circulation, excretion, &c.

Attenuants ſtand oppoſed to *incraſſants*, or thickeners, medicines which conſenſe, inſpiſſate, &c.

Theſe medicines are of the moſt importance in the practice of phyſic, as a little reflection upon their natures, qualities, and manners of operation, will eaſily convince us. To this claſs belong the roots of *arum*, *aſarabacca*, *aurum*, elecampane, and florentine *iris*; the leaves of brook-lime, ſcurvy-graſs, water-creſs, Indian creſſes, dittander, fumitory, marth-treſoil, ſmall centaury; all the ſpecies of garlic, onion, and leek, and the wood and bark of *guaiacum*; among the ſpices, pepper, and ginger; among the ſeeds, thoſe of muſtard, ſcurvy-graſs, and creſſes; among the gums, *galbanum*, *ammoniacum*, myrrh, and benjamin. Among the chemical preparations, the moſt powerful *attenuants* are calomel, *antimonium*, flower of brimſtone, the fixed alkaline ſalts, the ſalts of the purging waters, vitriolated tartar, regenerated tartar, and a ſolution of crabs eyes, nitre, and *ſal ammoniac*; the volatile ſalt and urinous ſpirit of *ſal ammoniac* alſo; to which may be added, oxymel of ſquills, and the acrid tincture of antimony. Medicated ſprings alſo belong to this claſs of medicines, becauſe they, beſide their diluting and aperient natures, are alſo highly *attenuating*. Infuſions in form of tea, from the quantity of warm water they conſiſt of, are alſo very efficacious *attenuants*, and are very powerful in the diſuniting coaleſcent molecules. Of this claſs alſo are ſweet whey, and a multitude of other leſs uſed and leſs powerful medicines.

Of theſe, ſome act upon the fluid, and others upon the ſolid parts of the human body. Thoſe which act upon the fluids, by mere contact, are very few in number, being only the watery diluents, which are of ſingular efficacy in colliquating the viſcid and glutinous humours. All the other medicines mentioned as *attenuants* act only on the ſolids, by increaſing their tone, augmenting their ſtrength, heightening their contractile force, and adding to the elaſticity and ſyſtolic motion of the veſſels; by which means they preſs and impel more vigorouſly their contained fluids, and by that means divide and break them, by driving them forcibly through ſmall paſſages.

Attenuating and *inciding* medicines are of very extenſive uſe in phyſic, and come under different denominations, according to the different effects they produce. Thus, when tenacious and viſcid juices not only ſtagnate in the cavities of the veſſels, but obſtruct the minute ducts of the *viſcera* and emunctories, theſe medicines, by their *inciding* and *attenuating* quality, diſcharge the humours, and remove the obſtructions; for which reaſon they are not improperly called *aperients*; and they deſerve alſo, in theſe caſes, the names of *antiſcorbutics*, and *ſweeteners of the blood*.

Attenuants produce ſo great a variety of effects, that it is proper we ſhould be well acquainted with their ſeveral kinds, as appropriated to the ſeveral diſorders, and know which will prove moſt ſerviceable in each. The diſſolving and *attenuating* of viſcid crudities in the ſtomach and *primæ viæ*, is well anſwered by the roots of *arum*, *aſarum*, pepper, ginger, and the like; as alſo by *ſal ammoniac*, vitriolated tartar, the fixed alkaline ſalts, and the ſimple or dulcified ſpirit of ſalt. When crude and unconcocted humours are to be evacuated by ſtool, this intention is very well anſwered by the neutral ſalts, as the ſalts of the purging waters, and the *ſal polychreſtum*, with a ſufficient quantity of a watery vehicle.

When viscid humours, occasioning disorders of the breast, are to be *attenuated* and expectorated, the intention is most effectually answered by elecampane and orrice roots; and by *gum ammoniacum*, myrrh, or benjamin, and balsam of Peru; or by regenerated tartar, oxymel of squills, a solution of crabs eyes in distilled vinegar, and the syrups of tobacco, and the like.

When the mass of blood is tainted by thick and tenacious *serum*, and the emunctories are by that means obstructed, and the humours contaminated by a saline sulphureous and scorbutic dyscrasy, the most efficacious of the *attenuants* are the horse-radish, scurvy-grass, water and garden cresses, mustard, *gum ammoniacum*, benjamin, myrrh, the oil of fixed nitre, oil of tartar *per deliquium*, solutions of nitre, spirit of *sal ammoniac*, salt of wormwood, with lemon-juice, and the teas of the medicinal waters.

When grumous or coagulated blood, occasioned by contusions or blows, is to be *attenuated*, and again dissolved, the intention is admirably answered by the roots of Solomon's seal, vinegar, and crab's eyes, the regenerated tartar, and nitre prepared with antimony.

And in cases where the lymph has acquired a preternatural thickness and viscidity, especially if from a venereal taint, the curative intention is most effectually answered by *guaiacum*, the acrid tincture of antimony, calomel, *æthiops* mineral, and the like; which, when skilfully used, are of singular efficacy in dissolving or *attenuating* the viscid juices impacted in the glands of the liver. Hoffman.

ATTENUATION, the act of *attenuating*; that is, of making any fluid thinner, and less consistent than it was before.

The word is compounded of *ad*, and *tenuis*, *thin*.

Attenuation is defined more generally by Chauvin, the dividing or separating of the minute parts of any body, which before, by their mutual nexus or implication, formed a more continuous mass.—Accordingly, among *Archemists*, we sometimes find the word used for pulverization, or the act of reducing the body into an impalpable powder, by grinding, pounding, or the like.

ATTERMINING, in our *Old Writers*, is used for a time, or term, granted for payment of a debt, according to Blount.

ATTESTATION, the giving testimony, or evidence, of the truth of any thing; especially in writing.

The word is compounded of *ad*, *to*, and *testis*, *witness*.

MIRACLES need be well *attested*, to gain credit.

ATTIC, something relating to Attica, or the city of Athens.—In matters of *Philosophy* we use, *Attic* salt, *sales Attici*, meaning a delicate, poignant kind of wit and humour, peculiar to the Athenian writers.—*Attic* witness, was a witness incapable of corruption; so an *Attic* muse was an excellent one, &c.

ATTIC is also used in *Architecture* for a kind of building, wherein there is no roof or covering to be seen; thus called, because usual at Athens.

ATTIC, or ATTIC *Order*, is also a kind of little order, after the manner of a pedestal, raised upon another larger order; by way of crowning, or to finish the building.—See *Tab. Archit. fig.* 40. (C.) which exhibits an *Attic order* with pilasters.

An *Attic* is sometimes also used for the conveniency of having a wardrobe, or the like, and instead of regular columns, has only pilasters of a particular form; and sometimes no pilasters at all.

These are also *Attics* used for high altars.—The order takes its name from Athens, where it was first practised.

ATTIC *of a roof*, is a little story or pedestal, either of stone or wood covered with lead, serving as a kind of parapet to a terrace, platform, or the like.

ATTIC *Base*, is a peculiar kind of base used by the *Ancient Architects*, in the Doric order; and which *Modern Architects* have given to the Doric column.

The *Attic base* is the same with Palladio's *Ionic base*.

The *Attic* is the most beautiful of all the bases. See BASE.

ATTIC *continued*, is that which encompasses the whole circumference of a building, without any interruption; following all the jets, the returns of the pavilions, &c.

ATTIC *in cupola*, is that situate between two tall stories, sometimes adorned with columns, or pilasters.

ATTIC *Year*, see YEAR.

ATTILLUS, a river-fish, of the STURGEON-kind, called by some *adeis*, *adans*, and *adrus*. It grows to a very large size, and when full-grown, casts its scales, and never has any fresh ones in their place, but remains perfectly smooth; in which it differs from the common *sturgeon*. But it seems not to differ in any essential point from the ROSA *Germanicus*. It is an eatable fish, but is greatly inferior in taste to the *sturgeon*. Willughby.

ATTINGA, a species of the *dioden* in the order of NASTES.

ATTIRE, in *Botany*, is used by some to denote the third part or division of the flower of a plant; the other two being the *empalement* and the *folution*.

The *attire* is of two kinds; *feminiform*, and *florid*.—The *feminiform attire* consists of two parts; chives, or *flamina*, and summits, or *apices*; one upon each *flamen*.

The *florid attire* is usually called the *thrums*, as in the flowers of marigold, tansy, &c.—Those thrums are called *fists*, which consist of two, but most times of three pieces.—And the outer part of the fuit is the *floret*, whose body is divided at the top like a cow-slip-flower into five parts, or distinct leaves.

ATTIRE, in *Hunting*, denotes the HEAD or horns of a deer.

The *attire* of a *stag*, if perfect, consists of bur, pearls, beam, gutters, antlers, fur-antler, royal, fur-royal, and crochets.—Of a buck, of the bur, beam, brow-antler, advancers, palm, and spellers.

ATTITUDE, in *Painting* and *Sculpture*, the posture, or gesture of a figure, or statue; or the disposition of its parts, by which we discover the action it is engaged in, and the very sentiment supposed to be in the mind of the person represented.

The word comes from the Italian *attitudine*, which signifies the *same*; and that from the Latin *aptitudo*, *fitness*.

The representing of the action and sentiment in a strong and lively manner, makes what they call a *good expression*.

ATTOLLENS, in *Anatomy*, a name common to several muscles, whose office or action is to raise the parts they belong to.

The word is compounded of the Latin *ad*, *to*, and *tollo*, *I lift*.

The *attollent*, or *attollent* muscles, are otherwise called *levators*, and *elevators*.

ATTMELLA; see ARMELLA.

ATTORNARE, in the original sense, signified to turn over money and goods, that is, to assign and appropriate them to certain persons, or use. This is properly called *attornare rem*.

ATTORNARE *personam*, denotes to depute a representative, or proxy, to appear and act for another.

Thus in trials at *Common Law*, the plaintiff, or defendant, retained *attornatum suum positum in loco sue ad lucrandum vel perdendum*.

ATTORNATO *faciendo vel recipiendo*, in the *Common Law*, a writ to command a sheriff, or steward, of a county-court, or hundred-court, to receive and admit an *attorney* to appear for the person that oweth suit of court. F. N. B. 156. Every person that owes suit to the county-court, court-baron, &c. may make an *attorney* to do his suit. Stat. 20 H. III. c. 10.

ATTORNEY, ATTORNATUS, or ATTORNATUS, in *Law*, a person appointed by another to do something in his stead; particularly to solicit and carry on a law-suit.

The word is compounded of the Latin *ad*, *to*; and the French *tourner*, *to turn*; q. d. *to turn a business over to another*.—The ancient Latin name, according to Bracton, is *responsales*.

Attorneys, in *Common Law*, are much the same with *procurators*, *proctors*, or *proxies*, in the *Civil Law*.

Attorneys are properly those who sue out writs or process, or commence, carry on, and defend actions, or other proceedings, in the names of other persons, in any of the courts of common law.—They are distinguished from *solicitors*, who do the like business in courts of equity; as the chancery, equity-court in the exchequer, chamber-court of the duchy, or the like.

None are to be admitted to act either as the one or the other, without having served a clerkship of five years, taken the oath provided in that case, and been enrolled.—Judges of the same courts of law are to examine into the capacity of the *attorneys*; and those of the courts of equity, into the capacity of the *solicitors*. 2 G. II. c. 23.

Anciently, those of authority, in courts, had it in their power whether or no to suffer men to appear or sue by another than themselves; as appears from Fitz. de Nat. Brev. in the writ, *Dedimus potestatem de attornata faciendo*; where it appears, that men were driven to procure the king's writs, or letters patent, to appoint *attorneys* for them: but it is since provided by parliament, that it shall be lawful to appoint an *attorney* without any circumlocution: as appears by several statutes. 20 H. III. c. 10. 6 Ed. I. c. 8. &c.

There is a great diversity of writs in the table of the register, wherein the king commands the judges to admit of *attorneys*; whereby there arose so many unskilful *attornies*, and so many mischiefs thereby, that for restraining them, it was enacted, 4 H. IV. c. 18. that the

judges

judges should examine them, and displace the unskilful; and again, 33 H. VI. c. 7. that there should be but a certain number of *attorneys* in Norfolk and Suffolk. And many subsequent statutes have brought them under farther regulations. 3 Jac. I. c. 7. 12 Geo. I. c. 29. 2 G. II. c. 23. 22 G. II. c. 46. 23 G. II. c. 26.

Attorney is either *general* or *special*.

ATTORNEY-*general*, is he who is appointed to manage the affairs, or suits of a community; or rather, he who is appointed to conduct all the suits in general, whether of a community, or a particular person.

Such is the *attorney-general* of the king, who is the same as the *procurator Cæsaris* in the Roman empire. See PROCURATOR.

* * * *

To him come warrants for making out patents, pardons, &c.

He is at the head of managing all law-affairs of the crown, either in criminal prosecutions, or otherwise; especially in matters of treason, sedition, &c. In all courts he pleads within the bar; but, when a privy counsellor, he cannot plead in any court, but on the king's affairs, without obtaining a privy-seal for so doing.

ATTORNEY-*special*, is he who is employed in one or more causes particularly specified.

Attorneys are also distinguished, with respect to the courts, into *attorneys at large*, and *attorneys special*, belonging to this or that court only.—No man can practise as an *attorney* in any particular court, unless he is admitted and sworn an *attorney* of that court.

ATTORNEY *of the duke's court of Lancaster, attornatus curiæ ducatus Lancastriæ*, is the second officer in that court; being there, for his skill in law, placed as assessor to the chancellor of the court.

ATTORNEY, *Letter of*. See LETTER.

ATTORNEY, *Warrant of*. See WARRANT.

ATTOURNMENT, or ATTORNMENT, in *Law*, a transferring of duty and service to another lord; or an acknowledgment which a tenant makes of homage and service to a new lord.

That, when one is tenant for life, and he in reversion grants his right to another, it is necessary the tenant for life agree thereto, which is called *attornment*; and without which nothing passes by the grant.—If the grant be by fine, in court of record, the tenant shall be compelled to *attorn*. See 27 H. VIII.

The words used in *attornment* are these: *I agree to the grant made to you*; or, more commonly, *I attorn to you by force of the same grant*; or, *I become your tenant*; *or deliver to the grantee a penny by way of attornment*. Lyttel. lib. 3.

Attornment is either by word, or by act; voluntary, or compulsory; by the writ *per quæ servitia*, or by distress. —It may be made to the lord himself, or to his steward in court.

There is also *attornment* in deed, and *attornment* in law. *Attornment* in law, is an act, which though it be not an express *attornment*, yet, in intendment of law, is of equal force.

This was a large topic in our *Common Law*; but now much of this learning is out of use: and by a late statute it is enacted, that all grants and conveyances of manors, lands, rents, reversions, &c. by fine or otherwise, shall be good without the *attornment* of the tenants of such lands, or of the particular tenant upon whose estate any such reversion, &c. shall be expectant or depending. But notice must be given of the grant to the tenant; before which he shall not be prejudiced by payment of any rent to the grantor, or for breach of the condition for non payment. Stat. 4 and 5 Ann. c. 16. And *attornments* of lands, &c. made by tenants to strangers, shall be void, and their landlord's possession not affected thereby. Though this shall not extend to vacate any *attornment* made pursuant to a judgment at law, or with consent of the landlord; or on a forfeited mortgage, &c. by 11 G. II. c. 19.

ATTRACTION, ATTRACTIO, or TRACTIO, in *Mechanics*, the act of a moving power, whereby a moveable is *drawn*, or brought nearer to the mover.

The word is compounded of *ad*, *to*, and *trahe*, *I draw*.

ATTRACTION and RE-ACTION are always equal, and contrary; it follows, that, in all *attraction*, the mover is drawn towards the moveable, as much as the moveable towards the mover.

ATTRACTION, or ATTRACTIVE *force*, in the *Ancient Physics*, denotes a natural power supposed to be inherent in certain bodies, whereby they act on other distant bodies, and draw them toward themselves.

This the Peripatetics call the *motion of attraction*; and on many occasions SUCTION; and produce various instances where they suppose it to obtain.—Thus the air, in respiration, is taken in, according to them, by *attraction or suction*; so is the smoke through a pipe of tobacco; and the milk out of the mother's breast: thus also it is, that the blood and humours rise in a cupping-glass, water in a pump, and smoke in chimneys; so vapours and exhalations are attracted by the sun, iron by the magnet, straws by amber, and electrical bodies, &c. But the later philosophers generally explode the notion of *attraction*; asserting, that a body cannot act where it is not; and that all motion is performed by a mere impulsion.—Accordingly, most of the effects which the ancients attributed to this unknown part of *attraction*, the moderns have discovered to be owing to more sensible and obvious causes; particularly by the pressure of the air. To this are owing the *phænomena* of inspiration, smoaking, sucking, cupping-glasses, pumps, vapours, exhalations, &c.

The power opposite to *attraction* is called REPULSION; which is also argued to have some place in natural things.

ATTRACTION, or ATTRACTIVE *power*, is more particularly used, in the *Newtonian Philosophy*, for a power, or principle, whereby all bodies, and the particles of all bodies, mutually tend towards each other.—Or, more fully, *attraction* is the effect of such power, whereby every particle of matter tends towards every other particle.

Attraction, its laws, *phænomena*, &c. form the chief subject of Sir Isaac Newton's philosophy. See NEWTONIAN *Philosophy*.

The principle of *attraction*, in the Newtonian sense of it, seems to have been first furnished by Copernicus: "As "for gravity," says Copernicus, "I consider it as no- "thing more than a certain natural appetence (*appetentia*) "that the Creator has impressed upon all the parts of "matter, in order to their uniting or conspiring into a "globular form, for their better preservation; and it is "credible that the same power is also inherent in the "sun, and moon, and planets, that those bodies may "constantly retain that round figure in which we be- "hold them." De Rev. Orb. Cœlest. lib. i. cap. 9. And Kepler calls gravity a corporeal and mutual affection between similar bodies, in order to their union. Aft. Nov. in Introd. And he pronounces more positively, that no bodies whatsoever were absolutely light, but only relatively so; and consequently, that all matter was subjected to the law of gravitation. Ibid.

The first in this country who adopted the notion of *attraction*, was Dr. Gilbert, in his book De Magnete; and the next was the celebrated lord Bacon. Nov. Organ. lib. ii. aphor. 36. 45. 48. Sylv. cent. i. exp. 33. In France it was received by Fermat and Roberval; and in Italy by Galileo and Borelli. But till Sir Isaac Newton appeared, this principle was very imperfectly defined and applied.

It must be observed, that though this great author makes use of the word *attraction*, in common with the School philosophers; yet he very studiously distinguishes between the ideas.—The ancient *attraction* was supposed a kind of quality inherent in certain bodies themselves; and arising from their particular or specific forms.

The Newtonian *attraction* is a more indefinite principle; denoting, not any particular kind or manner of action; nor the physical cause of such action; but only a tendency in the general, a *conatus accedendi*, to whatever cause, physical or metaphysical, such effect be owing; whether to a power inherent in the bodies themselves, or to the impulse of an external agent.

Accordingly, that author, in his Philosoph. Nat. Prin. Math. notes, "that he uses the word *attraction*, *impulse*, "and *propension* to the centre, indifferently; and cautions "the reader not to imagine, that by *attraction* he expresses "the *mode* of the action, or the efficient cause thereof; "as if there were any proper powers in the centres, "which in reality are only mathematical points; or, as "if centres could attract." Lib. i. p. 5.—So he "con- "siders centripetal powers as *attractions*; though, phy- "sically speaking, it were perhaps more just to call them "*impulses*." Ib. p. 147. He adds, "that what he calls "*attraction* may possibly be effected by impulse, though "not a common or corporeal impulse; or after some "other manner unknown to us." Optic. p. 322.

Attraction, if considered as a quality arising from the specific forms of bodies, ought, together with sympathy, antipathy, and the whole tribe of occult qualities, to be exploded. But when we have set these aside, there will remain innumerable *phænomena* of nature, and particularly the weight or gravity of bodies, or their tendency to a centre, which argue a principle of action seemingly distinct from impulse; where, at least, there is no sensible impulsion concerned. Nay, what is more, this action, in some respects, differs from all impulsion we know of: impulse being always found to act in proportion to the surface of bodies; whereas gravity acts according to their solid content, and consequently must arise from some

cause

cause that penetrates or pervades the whole substance thereof.—This unknown principle, unknown, we mean, in respect of its cause; for its *phenomena* and effects are most obvious, with all the species and modifications thereof, we call *attraction*; which is a general name, under which all mutual tendencies, where no physical impulse appears, and which cannot, therefore, be accounted for from any known laws of nature, may be ranged.

And hence arise divers particular kinds of *attraction*; as, GRAVITY, MAGNETISM, ELECTRICITY, &c. which are so many different principles, acting by different laws; and only agreeing in this, that we do not see any physical causes thereof: but that, as to our senses, they may really arise from some power or efficacy in such bodies, whereby they are enabled to act, even upon distant bodies; though our reason absolutely disallows of any such action.

Attraction may be divided, with respect to the law it observes, into two kinds.—1. That which extends to a sensible distance.—Such are the *attraction* of GRAVITY, found in all bodies: and the *attraction* of MAGNETISM, and ELECTRICITY, found in particular bodies.—The several laws and *phenomena* of each, see under their respective articles.

The *attraction* of GRAVITY, called also among mathematicians the *centripetal force*, is one of the greatest and most universal principles in all nature. We see and feel it operate on bodies near the earth, and find by observation, that the same power (i. e. a power which acts in the same manner, and by the same rules, viz. always proportionably to the quantities of matter, and as the squares of the distances reciprocally) does also obtain in the moon, and the other planets primary and secondary, as well as in the comets: and even that this is the very power whereby they are all retained in their orbits, &c. And hence, as gravity is found in all the bodies which come under our observation, it is easily inferred, by one of the settled rules of philosophizing, that it obtains in all others; and as it is found to be as the quantity of matter in each body, it must be in every particle thereof; and hence, every particle in nature is proved to *attract* every other particle, &c. See the demonstration hereof laid down at large, with the application of the principle to the celestial motions, under the articles CENTRIFUGAL, CENTRIPETAL, COMET, MOON, NEWTONIAN *Philosophy*, PLANET, SATELLITE, SUN, &c.

From this *attraction* arises all the motion, and consequently all the mutation, in the great world.—By this, heavy bodies descend, and light ones ascend; by this projectiles are directed, vapours and exhalations rise, and rains, &c. fall. By this rivers glide, the air presses, the ocean swells, &c. In effect, the motions arising from this principle make the subject of that extensive branch of mathematics, called MECHANICS, or STATICS; with the parts or appendages thereof, HYDROSTATICS, PNEUMATICS. See MATHEMATICS, PHILOSOPHY, &c.

2. That which does not extend to sensible distances.—Such is found to obtain in the minute particles whereof bodies are composed, which attract each other at, or extremely near, the point of contact, with a force much superior to that of gravity; but which at any distance from it decreases much faster than the power of gravity.—This power, a late ingenious author chooses to call the *attraction of* COHESION, as being that whereby the atoms or insensible particles of bodies are united into sensible masses.

This latter kind of *attraction* owns Sir Isaac Newton for its discoverer, as the former does for its improver.—The laws of motion, percussion, &c. in sensible bodies under various circumstances, as falling, projected, &c. ascertained by the late philosophers, do not reach to those more remote, intestine motions of the component particles of the same bodies, whereon the changes of the texture, colour, properties, &c. of bodies depend: so that our philosophy, if it were only founded on the principle of gravitation, and carried so far as that would lead us, would necessarily be very deficient.

But, beside the common laws of sensible masses, the minute parts they are composed of are found subject to some others, which have been but lately taken notice of, and are even yet very imperfectly known. Sir Isaac Newton, to whose happy penetration we owe the hint, contents himself to inhabith, that there are such motions in the *minima naturæ*, and that they flow from certain powers or forces, not reducible to any of those in the great world. —In virtue of these powers, he shews, "That the small "particles act on one another, even at a distance; and "that many of the *phenomena* of nature are the result "thereof. Sensible bodies, we have already observed, "act on one another divers ways; and as we thus perceive the tenour and course of nature, it appears highly "probable, that there may be other powers of the like "kind; nature being very uniform and consistent with "herself.—Those just mentioned reach to sensible distances, and so have been observed by vulgar eyes: but "there may be others, which reach to such small distances as have hitherto escaped observation; and it is "probable electricity may reach to such distances, even "without being excited by friction."

The great author just mentioned proceeds to confirm the reality of these suspicions from a great number of *phenomena* and experiments, which plainly argue such powers and actions between the particles, e. gr. of salts and water, oil of vitriol and water, *aqua fortis* and iron, spirit of vitriol and salt-petre. He also shews, that these powers, &c. are unequally strong between different bodies; stronger, e. gr. between the particles of salt of tartar and those of *aqua fortis*, than those of silver; between *aquafortis* and *lapis calaminaris*, than iron; between iron than copper, copper than silver, or mercury. So spirit of vitriol acts on water, but more on iron or copper, &c.

The other experiments which countenance the existence of such principle of *attraction* in the particles of matter, are innumerable: many of them the reader will find enumerated under the articles ACID, MATTER, MENSTRUUM, SALT, &c.

These actions, in virtue whereof the particles of the bodies abovementioned tend towards each other, the author calls by a general, indefinite name, *attraction*, which is equally applicable to all actions, whereby distant bodies tend towards one another, whether by impulse or by any other more latent power: and from hence he accounts for an infinity of *phenomena*, otherwise inexplicable, to which the principle of gravity is inadequate.—Such are COHESION, DISSOLUTION, COAGULATION, CRYSTALLIZATION, the ASCENT of fluids in capillary tubes, *animal* SECRETION, FLUIDITY, FIXITY, FERMENTATION, &c. See SPHERICITY, &c.

"Thus (adds our immortal author) will nature be found "very conformable to herself, and very simple; performing all the great motions of the heavenly bodies, "by the *attraction* of GRAVITY, which intercedes those "bodies, and almost all the small ones of their parts, by "some other attractive power diffused through the particles thereof. Without such principles, there never "would have been any motion in the world; and without the continuance thereof, motion would soon perish, "there being otherwise a great decrease or diminution "thereof, which is only supplied by these active principles." Optics, p. 373.

We need not say how unjust it is in the generality of foreign philosophers, to declare against a principle which furnishes so beautiful a view; for no other reason but because they cannot conceive how one body should act on another at a distance. It is certain, philosophy allows of no action but what is by immediate contact and impulsion (for how can a body exert any active power there, where it does not exist? to suppose this of any thing, even the Supreme Being himself, would perhaps imply a contradiction): yet we see effects without seeing any such impulse; and where there are effects, we can easily infer there are causes, whether we see them or no. But a man may consider such effects, without entering into the consideration of the causes; as, indeed, it seems the business of a philosopher to do: for to exclude a number of *phenomena* which we do see, will be to leave a great chasm in the history of nature; and to argue about actions which we do not see, will be to build castles in the air.—It follows, therefore, that the *phenomena* of *attraction* are matter of physical consideration, and as such intitled to a share in the system of PHYSICS; but that the causes thereof will only become so, when they become sensible, i. e. when they appear to be the effect of some other higher causes (for a cause is no otherwise seen than as itself is an effect, so that the first cause must from the nature of things be invisible): we are therefore at liberty to suppose the causes of *attractions* what we please, without any injury to the effects.—The illustrious author himself seems a little irresolute as to the causes, inclining, sometimes, to attribute *gravity* to the action of an immaterial cause; Optics, p. 343, &c. and sometimes to that of a material one. Ib. p. 350.

In his philosophy, the research into causes is the last thing; and never comes under consideration till the laws and *phenomena* of the effect be settled: it being to these *phenomena* that the cause is to be accommodated.—The cause even of any the grossest and most sensible action, is not adequately known: how impulse or percussion itself produces its effect, i. e. how motion is communicated by body to body, confounds the deepest philosophers; yet is impulse received not only into *philosophy*, but into *mathematics*; and accordingly the laws and *phenomena* of its effects make the greatest part of common *mechanics*.

The other species of *attraction*, therefore, in which no *impulse* is remarkable, when their *phenomena* are sufficiently ascertained, have the same title to be promoted from

from *physical* to *mathematical* conſideration; and this, without any previous inquiry into their cauſes, which our conceptions may not be proportionate to: let their cauſes be occult, as all cauſes, ſtrictly ſpeaking, are, ſo that their effects, which alone immediately concern us, be but apparent. See CAUSE.

Our noble countryman, then, far from adulterating philoſophy with any thing foreign, or metaphyſical, as many have reproached him with doing, has the glory of having thrown every thing of this kind out of his ſyſtem, and of having opened a new ſource of ſublimer *mechanics*, which, duly cultivated, might be of infinitely greater extent than all the *mechanics* yet known: it is hence alone we muſt expect to learn the manner of the changes, productions, generations, corruptions, &c. of natural things; with all that ſcene of wonders opened to us by the operations of *chemiſtry*.

Some of our own countrymen have proſecuted the diſcovery with laudable zeal: Dr. Keil, particularly, has endeavoured to deduce ſome of the laws of this new action, and applied them to ſolve divers of the more general *phænomena* of bodies, as *cohæſion*, *fluidity*, *elaſticity*, *ſoftneſs*, *fermentation*, *coagulation*, &c. And Dr. Friend, ſeconding him, has made a farther application of the ſame principles, to account at once for almoſt all the *phænomena* that *chemiſtry* preſents.—So that ſome philoſophers are inclined to think that the new mechanics ſhould ſeem already raiſed to a complete ſcience; and that nothing now can occur, but what we have an immediate ſolution of, from the *attractive forces*.

But this ſeems a little too precipitate; a principle ſo fertile ſhould have been farther explored; its particular laws, limits, &c. more induſtriouſly detected, and laid down, before we had proceeded to the application.—*Attraction*, in the groſs, is ſo complex a thing, that it may ſolve a thouſand different *phænomena* alike: the notion is but one degree more ſimple and preciſe than action itſelf; and till more of its properties are aſcertained, it were better to apply it leſs, and ſtudy it more.—It may be added that ſome of Sir Iſaac Newton's followers have been charged with falling into that error, which he induſtriouſly avoided, viz. of conſidering *attraction* as a cauſe or active property in bodies, not merely as a *phænomenon* or effect.

As a ſpecimen of the extent of the principle, and the manner of applying it, we ſhall here ſubjoin the principal laws and conditions of it; as deduced by Sir Iſaac Newton, Dr. Keil, Dr. Freind, &c.

Theor. I. Beſides that *attractive* power whereby the planets and comets are retained in their orbits, there is another, by which ſeveral particles wherever bodies conſiſt, attract, and are mutually attracted by, each other. This theorem, we have already obſerved, is demonſtrable from a great number of *phænomena*.—We ſhall here only mention a few eaſy and obvious ones: as, the ſpherical figure aſſumed by the drops of fluids, which can only ariſe from ſuch principle: the uniting and incorporating of two ſpherules of quickſilver into one, upon the firſt touch, or extremely near approach, of their ſurfaces; the riſing of water by the ſides of a glaſs bubble immerged therein, higher than the level of the other water, or of mercury up a ſphere of iron, or the like.

As to the juſt law of this *attraction*, it is not yet determined: only this we know in the general, that the force in receding from the point of contact, is diminiſhed in a greater proportion than that of the duplicate ratio of the diſtances, which is the law of gravity. Becauſe, if the diminution were only in ſuch duplicate ratio, the *attraction* at any ſmall aſſignable diſtance would be nearly the ſame as at the point of contact; whereas experience teaches, that this *attraction* almoſt vaniſhes, and ceaſes to have any effect, at the ſmalleſt aſſignable diſtance.—But whether to fix on a triplicate, quadruplicate, or ſome other proportion to the increaſing diſtance, is not aſcertained by experiment.

II. The quantity of *attraction*, in all bodies, is exactly proportional to the quantity of matter in the *attracting* body; as being in reality the reſult or ſum of the united forces of the *attraction* of all thoſe ſingle particles, of which it is compoſed; or, in other words, *attraction* in all bodies is, *cæteris paribus*, as their ſolidities.

Hence, 1. At equal diſtances the *attractions* of homogeneal ſpheres will be as their magnitudes.—And,

2. At any diſtance whatever the *attraction* is as the ſphere divided by the ſquare of the diſtance.

This law, it muſt be noted, only holds in reſpect of atoms, or the ſmalleſt conſtituent particles, ſometimes called *particles of the laſt compoſition*, and not of corpuſcles or compoſitions made up of theſe; for they may be ſo put together, as that the moſt ſolid corpuſcles may form the lighteſt particles, i. e. the unſolideſt of their ſurfaces for intimate contact may occaſion ſuch great interſtices, as will make their bulks large in proportion to their matter.

III. If a body conſiſt of particles, every one of which has an *attractive* power decreaſing in a triplicate, or more than a triplicate ratio of their diſtances; the force wherewith a particle is attracted by that body, in the point of contact, or at an infinitely little diſtance from the contact, will be infinitely greater, than if that particle were placed at a given diſtance from the body.

IV. Upon the ſame ſuppoſition, if the *attractive* force, at any aſſignable diſtance, hath a finite ratio to its gravity, this force in the point of contact, or at an infinitely ſmall diſtance, will be infinitely greater than its power of gravity.

V. But if in the point of contact the *attractive* force of bodies hath a finite ratio to their gravity, this force in any aſſignable diſtance is infinitely leſs than the power of gravity; and therefore it becomes nothing.

VI. The *attractive* force of every particle of matter, in the point of contact, almoſt infinitely exceeds the power of gravity, but is not infinitely greater than that power; and therefore, in a given diſtance, the *attractive* force will vaniſh to nothing.

This *attractive* power, therefore, thus ſuperadded to matter, only extends to ſpaces extremely minute, and vaniſhes at great diſtances; whence, the motion of the heavenly bodies, which are at a prodigious diſtance from each other, cannot be diſturbed by it, but will continually go on, as if there were no ſuch power in bodies.

Where this *attracting* power ceaſes, there, according to Sir Iſaac Newton, does a repelling power commence: or rather, the *attracting* does thence forward become a *repelling* power.

VII. Suppoſing a corpuſcle to touch any body, the force whereby that corpuſcle is impelled, that is, the force with which it cohæres to that body, will be proportionable to the quantity of contact; for the parts, farther removed from the point of contact, contribute nothing towards its COHESION.

Hence, according to the difference in the contact of particles there will be different degrees of cohæſion; but the powers of cohæſion are greateſt when the touching ſurfaces are plane; in which caſe, *cæteris paribus*, the force by which one corpuſcle adheres to others, will be as the parts of the touching ſurfaces.

Hence it appears why two perfectly poliſhed marbles, joined together by their plain ſurfaces, cannot be forced aſunder, but by a weight that much exceeds that of the incumbent air.

Hence alſo may be drawn a ſolution of that famous problem concerning the cohæſion of the parts of matter.

VIII. The power of *attraction* in the ſmall particles increaſes, as the bulk and weight of the particles diminiſhes. For, the forces only acting at or near the point of contact, the *momentum* muſt be as the quantity of contact, that is as the *denſity* of the particles, and the *largeneſs* of theſe ſurfaces; but the ſurfaces of bodies increaſe or decreaſe as the ſquares, and the ſolidities, as the cubes, of the diameters. Conſequently the ſmalleſt particles, having the largeſt ſurfaces in proportion to their ſolidities, are capableſt of more contact, &c. Thoſe corpuſcles are moſt eaſily ſeparated from one another, whoſe contacts are the feweſt and the leaſt, as in ſpheres infinitely ſmall.

Hence we have the cauſe of FLUIDITY.

IX. The force whereby any corpuſcle is drawn to another nearly adjacent body, ſuffers no change in its quantity, let the matter of the *attracting* body be increaſed or diminiſhed, ſuppoſing the ſame denſity to remain in the body, and the diſtance of the corpuſcle to continue the ſame.

For ſince the *attractive* powers of particles are diffuſed only through the ſmalleſt ſpaces, it is manifeſt, that the remoter parts at C, D, and E, (*Tab. Not. Hiſt. fig.* 22.) contribute nothing towards *attracting* the corpuſcle A: and therefore the corpuſcle will be attracted with the ſame force towards B, whether theſe parts remain, or be taken away; or, laſtly, whether others be added to them.

Hence, particles will have different *attractive* forces, according to their different ſtructure and compoſition; thus a particle perforated will not attract ſo ſtrongly as if entire. So, again, the different figures into which a particle is formed, will occaſion a diverſity of power; thus a ſphere will attract more than a cone, cylinder, &c.

X. Suppoſe a body of ſuch texture as that the particles of the laſt compoſition, by an external force, ſuch as a weight compreſſing them, or an impulſe given by another body, may be a little removed from their original contact, but ſo as not to acquire new ones; the particles by their *attractive* force tending to one another, will ſoon return to their original contacts.—But when the ſame contacts and poſitions of the particles which compoſe any body return, the ſame figure of the body will alſo be reſtored; and therefore bodies which have loſt their original figures, may recover them by *attraction*.

Hence appears the cause of ELASTICITY.—For, where the contiguous particles of a body have by any external violence been forced from their former points of contact, to extremely small diſtances; as ſoon as that force is taken off, the ſeparated particles muſt return to their former contact: by which means the body will reſume its figure, &c.

XI. But if the texture of a body be ſuch, that the particles, by an impreſſed force being removed from their contacts, come immediately into others of the ſame degree, that body cannot reſtore itſelf to its original figure. Hence we underſtand what texture that is, wherein the SOFTNESS of bodies conſiſts.

XII. The bulk of a body heavier than water may be ſo far diminiſhed, that it ſhall remain ſuſpended in water, without deſcending by its own gravity.

Hence it appears why ſaline, metallic, and other ſuch-like particles, when reduced to ſmall dimenſions, are ſuſpended in their *menſtrua*.

XIII. Greater bodies approach one another with a leſs velocity than ſmaller.—For the force with which two bodies A and B (*Vide Nat. Philoſ. fig.* 23. N° 2.) approach, reſides only in the neareſt particles; the more remote having nothing to do therein. No greater force, therefore, will be applied to move the bodies A and B, than to move the particles *a* and *b*; but the velocities of bodies moved by the ſame force are in a reciprocal ratio of the bodies: wherefore the velocity with which the body A tends towards B is to the velocity with which the particle *a* detached from the body would tend towards the ſame B, as the particle *a* is to the body A; conſequently the velocity of the body A is much leſs than would be the velocity of the particle *a* detached from the body.

Hence it is, that the motion of large bodies is naturally ſo ſlow and languid, that an ambient fluid and other circumjacent bodies generally retard them: whilſt the leſſer go on more briſkly, and produce a greater number of effects: ſo much greater is the *attractive* energy in ſmaller bodies than in the larger.—Hence again appears the reaſon of that chemical axiom: *ſalts do not act till they are diſſolved.*

XIV. If a corpuſcle placed in a fluid be equally attracted every way by the circumambient particles, no motion of the corpuſcle will enſue.—But if it be attracted by ſome particles more than others, it will tend to that part where the attraction is greateſt: and the motion produced will correſpond to the inequality of the *attraction*; viz. the greater the inequality, the greater the motion, and *vice verſa*.

XV. Corpuſcles floating in a fluid, and attracting each other more than the particles of the fluid that lie between them will force away the particles of the fluid, and ruſh to one another with a force equal to that by which their mutual *attractions* exceeds that of the particles of the fluid.

XVI. If a body be immerged in a fluid whoſe parts more ſtrongly attract the particles of the body than they do one another; and if there be a number of pores or interſtices in the body pervious to the particles of the fluid; the fluid will immediately diffuſe itſelf through thoſe pores. And if the connexion of the parts of the body be not ſo ſtrong, but that it may be overcome by the force of the particles ruſhing within it; there will be a diſſolution of the body.

Hence, for a *menſtruum* to be able to diſſolve any given body, there are three things required. 1. That the parts of the body attract the particles of the *menſtruum* more ſtrongly than theſe attract each other. 2. That the body have pores or interſtices open and pervious to the particles of the *menſtruum*. 3. That the coheſion of the particles, which conſtitute the body, be not ſtrong enough to reſiſt the irruption of the particles of the MENSTRUUM.

XVII. SALTS are bodies endued with a great attractive force, though among them be interſperſed many interſtices, which lie open to the particles of water: theſe are therefore ſtrongly attracted by thoſe ſaline particles, ſo that they forcibly ruſh into them, ſeparate their contacts, and diſſolve the contexture of the ſalts.

XVIII. If the corpuſcles be more attracted by the particles of the fluid than by each other, they will recede from each other, and be diffuſed through the whole fluid.

Thus, if a little ſalt be diſſolved in a deal of water, the particles of the ſalt, though ſpecifically heavier than water, will evenly diffuſe themſelves through the whole water, ſo as to make it as ſaline at top as bottom.—Does not this imply, that the parts of the ſalts have a *centrifugal*, or *repulſive* force, by which they fly from one another; or rather, that they attract the water more ſtrongly than they do one another? For as all things aſcend in water, which are leſs attracted than water by the gravity of the earth, ſo all the particles of ſalt floating in water, which are leſs attracted by any particle of ſalt than water is, muſt recede from the particle, and give way to the more attracted water. Newt. Opt. p. 363.

XIX. Corpuſcles, or little bodies, ſwimming in a fluid, and tending towards each other; if they be ſuppoſed elaſtic, will fly back again after their congreſs, till, ſtriking on other corpuſcles, they be again reflected towards the firſt; whence will ariſe innumerable other conflicts with other corpuſcles, and a continued ſeries of percuſſions and reboundings.—But, by the *attractive* power, the velocity of ſuch corpuſcles will be continually increaſed; ſo that the *inteſtine* MOTION of the parts will at length become evident to ſenſe.

Add, that in proportion as the corpuſcles *attract* each other with a greater or leſs force, and as their elaſticity is in a greater or leſs degree, their motions will be different, and become ſenſible at various times, and in various degrees.

XX. If corpuſcles that *attract* each other happen mutually to touch, there will not ariſe any motion, becauſe they cannot come nearer. If they be placed at a very little diſtance from each other, a motion will ariſe; but if farther removed, the force wherewith they *attract* each other will not exceed that wherewith they *attract* the particles of the intermediate fluid; and therefore no motion will be produced.

On theſe principles depend all the *phenomena of fermentation* and PUTREFACTION.

Hence appears the reaſon why oil of vitriol, when a little water is poured on it, roars, and grows hot: for the ſaline corpuſcles are a little diſjointed from their mutual contact, by the infuſed water; whence, as they *attract* each other more ſtrongly than they do the particles of water, and as they are not equally *attracted* on every ſide, there muſt of neceſſity ariſe a motion.

Hence alſo appears the reaſon of that uncommon ebullition, occaſioned by adding ſteel-filings to the aforeſaid mixture. For the particles of ſteel are extremely elaſtic; whence there muſt ariſe a very ſtrong reflexion.

Hence alſo we ſee the reaſon why ſome *menſtrua* act more ſtrongly, and diſſolve bodies ſooner, when diluted with water.

XXI. If corpuſcles mutually *attracting* each other have no elaſtic power, they will not be reflected back from each other; but will form a *congeries*, or little maſſes; whence a COAGULUM will ariſe.

If the gravity of the particles thus amaſſed exceed the gravity of the fluid, a PRECIPITATION will ſucceed.—Precipitation may alſo ariſe from an increaſe or diminution of the gravity of the *menſtruum* wherein the corpuſcles are immerged.

XXII. If corpuſcles ſwimming in a fluid, and mutually *attracting* each other, have ſuch a figure, as that in ſome given parts they have a greater *attracting* power than in others, and their contact greater in thoſe parts than in others; thoſe corpuſcles will unite into bodies with given figures; and thence will ariſe CRYSTALLIZATION.

XXIII. Particles immerged in a fluid moved with a ſwift or ſlow progreſſive motion, will attract each other in the ſame manner as if the fluid were at reſt; but if all the parts of the fluid do not move equally, the *attractions* will be diſturbed.

Hence it is, that many ſalts will not *cryſtallize*, till the water wherein they are diſſolved is cold.

XXIV. If between two particles of a fluid there happen to be a corpuſcle whoſe two oppoſite ſides have a ſtrong *attractive* power, that intermediate corpuſcle will agglutinate or faſten the particles of the fluid to itſelf.—And ſeveral ſuch corpuſcles diffuſed through the fluid will fix all its particles into a firm body; and the fluid will be frozen, or reduced into ice.

XXV. By the ſame principle of *attraction* and *repulſion*, moſt of the *phenomena* of ELECTRICITY may be accounted for.

It will in ſome degree appear in the courſe of this work, under the various articles referred to, or comprized in it, how far the principles contained in theſe ſeveral theorems, are well founded; where they will properly apply to the explication of the *phenomena* of nature, and how far any of them are confirmed and illuſtrated by later obſervations and diſcoveries.

ATTRACTION, *center of*. See CENTER.

ATTRACTION *of mountains*. According to the Newtonian theory of *attraction*, this principle pervades the minuteſt particles of matter, and the combined action of all the parts of the earth, forms the *attraction* of the whole. For the ſame reaſon, therefore, that a heavy body tends downwards in a perpendicular to the earth's ſurface, conſidered as ſmooth and even, it muſt be *attracted* towards the centre of a neighbouring mountain, by a force proportional to the quantity of matter contained in it; and the effect of this *attraction*, or the accelerative force produced by it, muſt depend on the nearneſs or diſtance of the mountain from the gravitating body, becauſe this force

force increases as the squares of the diſtances decreaſe. Upon theſe principles it is obvious, that the plumb-line of a quadrant, or of any other aſtronomical inſtrument, muſt be deflected from its proper ſituation, by a ſmall quantity, towards the mountain, and the apparent altitudes and zenith diſtances of the ſtars, taken with the inſtrument, be altered accordingly: e. gr. if the zenith diſtance of a ſtar on the meridian were obſerved at two ſtations under the ſame meridian, one on the ſouth ſide of a mountain, the other on the north; and the plumb-line of the inſtrument were *attracted* out of its vertical poſition by the mountain, the ſtar muſt appear too much to the north, by the obſervation at the ſouthern ſtation, and too much to the ſouth by that at the northern ſtation; and conſequently the difference of the latitudes of the two ſtations reſulting from theſe obſervations would be greater than it really is. If then the true difference of their latitudes be determined by meaſuring the diſtance between the two ſtations on the ground, the exceſs of the difference found by the obſervations of the ſtar above that found by this meaſurement, muſt have been produced by the *attraction* of the mountain; and the half of it will be the *effect* of ſuch *attraction* on the plumb-line at each obſervation, provided that the mountain attracts equally on both ſides.

The firſt hint for determining the quantity of this *attraction* was ſuggeſted by Sir Iſaac Newton in his Treatiſe of the Syſtem of the Worlds; and the firſt experiment for this purpoſe was conducted by M. Bouguer, and M. de la Condamine, in the year 1738. Whilſt they were employed in meaſuring three degrees of the meridian, near Quito in Peru, they endeavoured to aſcertain the effect of the *attraction* of Chimboraco, a mountain in that neighbourhood, which, by a rough computation, they ſuppoſed to be equal to about the 2000th part of the *attraction* of the whole earth. By obſerving the altitudes of fixed ſtars at two ſtations, one on the ſouth ſide of the mountain, and the other on the weſt, they found the quantity of 7$\frac{1}{2}$″ in favour of the *attraction* of the mountain by means of their obſervations; whereas the plumb-line, according to the theory, ſhould have declined from the true vertical line 1′ 43″. However, though the general reſult is favourable to the Newtonian doctrine, the experiment was performed under ſo many diſadvantages, as not to afford the ſatisfaction which was to be wiſhed. And M. Bouguer terminates his account of their obſervations, with expreſſing his wiſhes, that the experiment might be repeated under more favourable circumſtances either in France or in England. Figure de la Terre.

Nothing was afterwards done, till Mr. Maſkelyne, the aſtronomer royal, made a propoſal to the Royal Society for this purpoſe in the year 1772; and in 1774 he was deputed to make the trial, accompanied with proper aſſiſtants, and furniſhed with the moſt accurate inſtruments. He made choice of the mountain Schehallien, in Scotland, for the ſcene of his operations: the direction of which is nearly from eaſt to weſt, its mean height above the ſurrounding valley about 2000 feet, and its higheſt part above the level of the ſea 3550 feet. Two ſtations for obſervations were ſelected, one on the north, and the other on the ſouth ſide of the mountain. Every circumſtance that could contribute to the accuracy of the experiment was regarded; and from obſervations of ten ſtars near the zenith, Mr. Maſkelyne found the apparent difference of the altitudes of the two ſtations to be 54″,6; and from a meaſurement by triangles, formed from two baſes on different ſides of the mountain, he found the diſtance of their parallels to be 4364 feet, which, in the latitude of Schehallien, viz. 56° 40′, anſwer to an arch of the meridian of 42″, leſs by 11″,6 than that found by the ſector. Its half, therefore, or 5″,8, is the mean effect of the *attraction* of the mountain. From this experiment, conducted with great aſſiduity and accuracy, and terminated to the eſtabliſhment of the Newtonian theory, Mr. Maſkelyne infers, that the mountain Schehallien exerts a ſenſible *attraction*; and therefore that every mountain, and every particle of the earth, is endued with the ſame property, in proportion to its quantity of matter. The law of the variation of this force in the inverſe ratio of the ſquares of the diſtances is likewiſe confirmed by it; for if the force of the *attraction* of the hill had been only to that of the earth, as the matter in the hill to that of the earth, and had not been greatly increaſed by the near approach to its centre, the *attraction* muſt have been wholly inſenſible. And he infers alſo, that the mean denſity of the earth is at leaſt double of that at the ſurface, and conſequently, that the denſity of the internal parts of the earth is much greater than that of thoſe near the ſurface; and the whole quantity of matter in the earth will be at leaſt twice as great as if it were compoſed of matter of the ſame denſity with that at the ſurface; and therefore that the hypotheſis of thoſe naturaliſts, who ſuppoſe the earth to be only a great hollow ſhell of matter, is groundleſs. And finally, that the ſenſible deflections in the plumb-lines of aſtronomical inſtruments, by the denſity of the ſuperficial parts of the earth, muſt cauſe apparent inequalities in the menſurations of degrees in the meridian. He candidly acknowledges, after all, that a ſingle experiment is not ſufficient to aſcertain a matter of ſuch importance, and recommends other experiments of a ſimilar kind to be repeated in various places, and attended with different circumſtances. Schehallien may differ in its external conſtitution from other mountains, as there is no appearance of its ever having been a volcano, which is the caſe of many others. Phil. Tranſ. vol. lxv. part ii. N° 48 and 49.

ATTRACTIVE *power*, or *force*. See POWER and ATTRACTION.

The *attractive virtue* in loadſtone is communicable, by *touching*, to iron or ſteel.

ATTRACTIVES, *or* ATTRACTIVE *remedies*, denote medicines which are to be externally applied, and which by their activity and warmth penetrate the pores, and mix with and rarefy any obſtructed matter, ſo as to render it fit for diſcharge, upon laying open the part by a cauſtic or inciſion.

Attractives are the ſame with what we otherwiſe call *diuretics*, *ripeners*, *maturants*, and *digeſtives*.

The principal ſimples belonging to this claſs are, the ſeveral kinds of ſalts or *aſhes*, the dungs of pigeons and cows, bran, yeaſt, herring, meſſiot, tobacco, oil, pitch, roſin, frankincenſe, &c. See each under its proper article.

In many inſtances, as the matter rarefies and grows more fluid by means of ſuch medicines, the reſtleſs blood is apt to waſh it back into the common maſs; which ſometimes does great miſchief; or by making it take up more room upon its rarefaction, it occaſions it to diſtend more the parts in which it is contained: upon which a ſenſe of pain is excited, and thereby a great concourſe of fluid, and conſequently an increaſe of the tumor.—So that medicines under this denomination require the moſt careful management.

ATTRIBUTE, *from attribuo*, in a general ſenſe, that which agrees to ſome perſon, or thing: or a quality, which determines ſomething to be after a certain manner.

Thus, underſtanding is an *attribute* of mind; figure, an *attribute* of body, &c.—Spinoza makes the ſoul and the body to be of the ſame ſubſtance; with this only difference, that the ſoul is to be conceived under the *attribute* of thought, and the body under that of extenſion.

Of the ſeveral *attributes* belonging to any ſubſtance, that which preſents itſelf firſt, and which the mind conceives as the foundation of all the reſt, is called its *eſſential attribute*.

Thus, extenſion is by ſome, and ſolidity by others, made the eſſential *attribute* of body or matter.

The other *attributes* are called *accidentatones*: e. gr. roundneſs of wood, or burning in a man.—Mr. Locke endeavours to prove, that thinking, which the Carteſians make the eſſential *attribute* of the mind, is only an accidental one.

ATTRIBUTE, *in Logic*, is an epithet given to any ſubject; or it is any predicate thereof; or whatever may be affirmed or denied of any thing.

Every propoſition conſiſts of a ſubject, an *attribute*, and a *copula*, or conjunctive particle. See PROPOSITION.

Attributes are uſually divided into *poſitive*, which give a thing ſomewhat; as when we ſay of a man, that he is *animate*: and negative; as when we ſay of a ſtone, that it is *inanimate*.

Others, again, divide them into *common*, which agree to ſeveral different things; as *animal*, which agrees both to man and brute; and *proper*, as *thought*, &c. which agrees only to ſpirit, *rationality* to man, &c.

ATTRIBUTES, *in Theology*, denote the ſeveral qualities, and perfections, which we conceive in GOD; and which conſtitute his proper eſſence; as *juſtice*, goodneſs, wiſdom, &c.

The heathen mythologiſts divided the deity into as many diſtinct beings as he has *attributes*: thus the *power* of God was called *Jupiter*; the *wrath* of God, *Juno*; the abſolute *will* of God, *Fate*, or *Deſtiny*, to which even his very power is ſubject.

ATTRIBUTES, *in Painting and Sculpture*, are ſymbols added to figures and ſtatues, to denote their particular office and character.

Thus the *club* is an *attribute* of Hercules; the *palm* is an *attribute* of victory; the *peacock* of Juno; the *eagle* of Jupiter; the *trident* of Neptune; the *balance* of juſtice; the *olive* of Peace, &c.

ATTRIBUTIVES, *in Grammar*, are words which are ſignificant of *attributes*; and thus include adjectives, verbs,

and

and participles, which are *attributes* of substances, and adverbs, which denote the *attributes* only of *attributes*. Mr. Harris, who has introduced this distribution of words, denominates the former *attributives* of the first order, and the latter *attributives* of the second order. Harris's Hermes.

ATTRITION, *triture*, or *friction*, expresses such a motion of bodies against one another, as strikes off some superficial particles; whereby they gradually become less and less.

The word is formed of *atterere*, *to wear*.

The grinding and polishing of bodies is performed by *attrition*.

The effects of *attrition* in exciting heat, light, electricity, &c. see under ELECTRICITY, FIRE, HEAT, and LIGHT.

ATTRITION is also frequently used for the friction or rubbing of such simple bodies one against another, as will not wear out, but will occasion some particular determinations of the fluids they contain.

Thus, the various sensations of hunger, pain, or pleasure are said to be occasioned by the *attritions* of the organs formed for such impressions.

ATTRITION, among *Divines*, denotes a sorrow or regret for having offended God; arising from a sense of the odiousness of sin, and the apprehensions of punishment; *i. e.* of the loss of heaven, and the pains of hell.

Attrition is esteemed the lowest degree of repentance, being a step short of contrition, which supposes the love of God an ingredient or motive of our sorrow and repentance. See CONTRITION.

ATTROW, in *Botany*, a name given by the people of Guinea to a plant which they use in cases of swellings, boiling the leaves in water, and using the decoction by way of a fomentation.

It is a species of KALI, and is called by Petiver *kali Guinense fusis pubgant. floribus turbinatis in modum dispositis*, from its leaves resembling the common knot-grass, and its flowers growing in rundles round the stalks. Phil. Trans. N° 232.

ATTRUMMAPHOC, in *Botany*, a name given by the people of Guinea to a shrub which they use in medicine; they boil it in water, and give the decoction in the venereal disease. The juice of it, when fresh pressed out, is also used, snuffed up the nostrils, to promote sneezing, and cure several disorders of the head and eyes. Phil. Trans. N° 232.

It is a species of COLUTEA, called by Petiver COLUTEA *lanuginosa foribus parvis spicatis pilosis deorsum tendentibus*; and Dr. Herman calls it an *asbragalus*.

ATTURNATO *faciendo vel recipiendo*; see ATTORNATO, &c.

ATYPOS, from *a*, *negative*, and τυπος, *form or type*, *errans*, or *irregular*, a word used by the old writers in medicine, for such diseases as did not observe any regularity in their periods.

Others have also used the same word in a very different sense, namely, for deformities and irregularities in the limbs; and others, for persons, who from some defects in the organs of speech, cannot articulate certain particular sounds.

AVA AVA, a plant so called by the inhabitants of Otaheite, in the South Sea, from the leaves of which they express an intoxicating juice. It is drank very freely by the chiefs, and other considerable persons, who vie with each other in drinking the greatest number of draughts, each draught being about a pint: but it is carefully kept from their women. Hawkesworth's Voyages, vol. ii. p. 200.

AVANIA, in the *Turkish Legislature*, a fine for crimes, and on deaths, paid to the governor of the place. In the places where several nations live together under a Turkish governor, he takes this profitable method of punishing all crimes among the Christians, or Jews, unless it be the murder of a Turk. Pococke's Eg. vol. ii. part ii. p. 30.

AVANT, a French preposition, signifying *before*, or any priority either in respect of time, or place; sometimes used, in composition, in our language, but more usually compacted, and wrote *vaunt*, or *vant*, or even VAN.

AVANT *fosse*, &c. See VAN *fosse*.

AVANT *guard*, &c. See VAN GUARD, &c.

AVANTE, among the *Old Writers* in *Physic*, a name given to a disease, meaning, from their accounts of it, the same we call *hypochondriasm*.

AVANTURINE, in *Natural History*, a yellowish stone full of sparkles, resembling gold, very common in France. An artificial imitation of it is made by mixing sparkles of copper with glass, whilst it is in fusion, which is used by enamellers, and to sprinkle as sand upon writing.

AVARAMO TEMO, in *Botany*, the name of a siliquose tree, which grows in the Brasils. The bark is externally of a cinereitious, and internally of a deep red colour; and is the only part of the plant used by the skilful for medicinal purposes; though the same astringent qualities are by some applied to the leaves; for the bark, which is of a bitter taste, whether reduced to a powder, or boiled and used by way of fomentation, happily cures inveterate and obstinate ulcers, and, as it is said, has been found to cure cancers themselves, by means of its remarkably cleansing and drying nature.

Beside these purposes, it is also made use of on account of its effectually astringent quality, for baths designed to strengthen and invigorate the muscular parts of the body, when weakened, or too much relaxed. Ray says it is much used by courtezans for contracting the *pudenda*.

AVARIA, in the Turkish and Persian dominions, a sum of money exacted from the Christians or Europeans, to be quit of some false accusation framed on purpose.

AVAST, a term frequently used on board a ship, signifying to stop, hold, or stay.

The word is formed of the Italian *vasta*, or *basta*, *it is enough*, *it suffices*.

AVAUNCHERS, among *Hunters*, the second branches of a hart's horn.

AUBAINE, in the French *Customs*, a right vested in the king, of being heir to a foreigner, who dies within his dominions.

The word is formed of *aubain*, a *foreigner*; which Menage derives farther from the Latin, *alibi natus*; Cujas, from *advena*, which is the name foreigners bear in the capitularies of Charlemagne; Du-Cange, from *Albanus*, a Scot, or Irishman; because these were anciently much given to travelling and living abroad.

The king of France, by the right of *aubaine*, claims the inheritance of all foreigners in his dominions; exclusive of all other lords, and even of any testament the deceased could make. An ambassador, though not naturalized, is not subject to the right of *aubaine*. The Swiss, Savoyards, Scots, and Portuguese, are also exempted from the *aubaine*, as being reputed natives and regnicoles.

AUBIER, anciently AUBOR. Thus the French call that soft and whitish substance, which lies all round the tree between the bark and the solid wood; and for which we have no particular name in English. Mr. Barkley thinks it performs the office of veins. It may be considered as a third bark, and so some call it, whose fibres are less close or compact than those of the former; and is properly the land or fat of the tree. It hardens by means of the juice that discharges itself there, and of the sap which flows in it, so that it becomes by little and little as it were, imperceptibly a part of the woody substance of the tree; that is to say, it is converted into solid wood. There are few trees but have some of this *aubier*, or whitish substance, which is more or less thick, according to the situation in which the trees happen to be planted; for the more they are exposed to the hot rays of the sun, the less of that substance will be found in them. In the oak it is seldom above an inch, or an inch and a half thick. It has been observed that when a tree is cut down, or dies in the ground, the *aubier* remains always of the same consistency, without ever being turned into solid wood.

That substance is liable to rot; and therefore merchants, who cause timber to be squared, ought to be very careful that as little *aubier* be left upon it as possible.

AUBIN, in *Horsemanship*, a kind of broken gait, or pace, between an amble and a gallop; reputed a defect in a horse.

AUCTIO, AUCTION; this was originally a kind of sale, among the ancient Romans, performed by the public crier *sub hasta*, that is, under a spear stuck up on that occasion, and by some magistrate, who made good the sale by delivery of the goods.

This was termed *auctio*, q. d. *increase*; because, according to Sigonius, the goods were sold to him, *qui plurimum rem augeret*, who would bid most for them.

AUCTION *by inch of candle*. See CANDLE.

AUCTORATI, in Roman *Antiquity*, an appellation given to such as entered the list as gladiators, and who received wages; or who hired themselves, for money, to perform in the games, or spectacles.

The *auctorati* degraded themselves by the act; and became infamous.

AUCTORATI *milites* also denoted soldiers bound by oath, and the receipt of wages, to serve in war.

In this sense *auctorati* stand opposed to *exauctorati*, who were disbanded.

The stipend they received for their service, was denominated *auctoramentum*.

AUCTORITAS *senatus*, in the Roman *Antiquity*. See SENATUS *auctoritas*.

AUDIANISM, the system or sentiments of Audius, and his followers; particularly as to the belief of the human figure of the deity. See ANTHROPOMORPHITES.

AUDIENCE, in a general sense. See HEARING.

The

The word is formed of *audire*, *to hear*.

AUDIENCE, is alſo uſed for the ceremonies practiſed in courts, at the admiſſion of ambaſſadors, and public miniſters, to a hearing.

Such an ambaſſador ſent to demand *audience*; took his *audience* of leave to depart, &c.

In England, *audience* is given to ambaſſadors in the preſence chamber; to envoys and reſidents, in a gallery, cloſet, or any place, where the king happens to be.

At their admiſſion, the way, in all courts, is to make three bows: after which they cover, and ſit down, the king firſt covering, and ſitting down, and giving them the ſign to put on their hats. When the king cares not to have them be covered and ſit, he continues uncovered himſelf, and ſtanding all the while; which is taken as a ſlight and an affront.—After the firſt *audience*, it does not look well to be too haſty in demanding another.

At Conſtantinople, miniſters uſually have *audience* of the prime vizir; in his abſence the *caimacan* admits them to *audience*.

AUDIENCE is alſo the name of a court of juſtice, eſtabliſhed by the Spaniards in America; anſwering in effect to the parliaments of France.

They judge without appeal, and have each a certain diſtrict, which ordinarily takes in ſeveral provinces, called alſo *audiences*, from the names of the tribunal to which they belong.

Hence Sanſon divides Spain into as many of theſe *audiences* as there are of thoſe tribunals.—New Spain comprehends three *audiences*, thoſe of Guadalajara, Mexico, and Guatimala.

AUDIENCE is alſo the name of one of the eccleſiaſtical courts in England, which is held wherever the archbiſhop calls a cauſe to his own hearing.

The two archbiſhops have their courts of *audience*. That of the archbiſhop of Canterbury is under the direction of the dean of the arches, who is official of the *audience*, and keeps his court in the hall of Doctors Commons.

The court of *audience* is chiefly concerned in differences ariſing upon elections, conſecrations, inſtitutions, marriages, &c.

AUDIENCES, *chamber of*. See CHAMBER.

AUDIENDO & *terminando*, a writ, or rather commiſſion, directed to certain perſons, when an inſurrection or great miſdemeanour is committed in any place, for the appeaſing and puniſhment thereof.

AUDIENTS, or AUDITORES, in *Church Hiſtory*, an order of *catechumens*; conſiſting of thoſe who were newly inſtructed in the myſteries of the Chriſtian religion, and not yet admitted to baptiſm.

AUDIT, a regular hearing and examining of an account, by officers appointed for that purpoſe. See AUDITOR.

AUDITA *querela*, a writ which lies againſt him, who has taken a ſtatute-merchant, or a recognizance in the nature of a ſtatute-ſtaple, or a judgment, or a recognizance of another; and hath aſked, or obtained, execution of the ſame from the mayor and bailiffs, before whom it was entered; at the complaint of the party, who entered the ſame, upon ſuggeſtion of ſome juſt cauſe why execution ſhould not be granted; as a releaſe, or other exception.

To writs of execution the defendant cannot plead; ſo that if there be any matter ſince the judgment to diſcharge him of the execution, he is to have *audita querela*: upon which the juſtices ſhall hear the complaint, and do right; and *audita querela* cannot be brought on a releaſe, until judgment is entered of record. 1 Mod. 111.

This writ is granted by the lord chancellor, upon view of the exception ſuggeſted, to the judges of either bench, willing them to grant ſummons to the ſheriff of the county where the creditor is, for his appearance at a certain day before them.

But the indulgence now ſhewn by the courts in granting a ſummary relief upon motion, in caſes of evident oppreſſion, has almoſt rendered uſeleſs this writ, and driven it quite out of practice.

AUDITIONALIS *ſcholaſticus*, in *Middle Age Writers*, is uſed for an advocate who pleads cauſes for his clients in audiences. Du-Cange.

AUDITOR, a hearer, one who liſtens or attends to any thing.

AUDITORS, in *Church Hiſtory*. See AUDIENTS.

The *auditors* formed one branch of the Manichæan ſect, which was divided into *elect* and *auditors*; correſponding, according to ſome writers, to *clergy* and *laity*; and according to others, to the *faithful* and *catechumens* among the catholics. By the Manichæan rule, a different courſe of life was preſcribed to the *elect* from that of the *auditors*. The latter might eat fleſh, drink wine, bathe, marry, traffic, poſſeſs eſtates, bear magiſtracy, and the like; all which things were forbidden to the *elect*. The *auditors* were obliged to maintain the *elect*, and kneeled down to aſk their bleſſing. Beauſobre obſerves, that the *elect* were eccleſiaſtics, and in general ſuch as made profeſſion of obſerving certain counſels, called evangelic; ſuch as the clergy and monks; and they were called the *perfect* by Theodoret. The *auditors* were the laity, and ſo denominated, becauſe they heard in the church whilſt others taught and inſtructed.

AUDITOR is alſo uſed for ſeveral officers appointed to *audit*, or hear accounts, pleadings, &c.

Anciently the word *auditor* was alſo uſed for a *judge*, and even for an *inquiſitor*, appointed by judges to examine, and find out the truth of ſome matter in conteſt. *Notaries* are alſo frequently called *auditores*.

AUDITOR, in our *Law*, is an officer of the king, or ſome other great perſon, who yearly, by examining the accounts of under officers accountable, makes up a general book, with the difference between the receipts and charge, and their allowances or *allocations*.

AUDITORS *of the revenue*, or *of the exchequer*, are officers who take the accounts of thoſe who collect the revenues, taxes, &c. raiſed by parliament; as alſo of the ſheriffs, eſchеators, collectors, tenants, and cuſtomers; and ſet them down, and perfect them.

AUDITORS *of the preſt*, or *impreſt*, are officers in the exchequer, who take and make up the great accounts of Ireland, Berwick, the mint, cuſtoms, ward-robe, firſt-fruits, naval and military expences, and of all moneys impreſſed to any man for the king's ſervice.

AUDITOR *of the receipts* is an officer of the exchequer, who files the tellers bills, and makes an entry of them, and gives the lord-treaſurer a certificate of the money received the week before; who preſents the eſtimate or balance to the king.

He makes debentures to every teller, before they receive any money, and takes their accounts. He keeps the black book of receipts, and the treaſures's key of the treaſury, (where the ancient leagues of the realm, and many records of the king's bench, and common-pleas, are repoſited); and ſees every teller's money locked up in the new treaſury.

There are alſo *auditors* of the firſt fruits; of the principality of Wales; of the duchy of Cornwall, &c. See FIRST-*fruits*, &c.

AUDITOR *of the rota*, the apoſtolic chamber, the chatelet, &c. See ROTA, CHAMBER, &c.

AUDITORS *conventuals*, *collegiate*, &c. were officers formerly appointed among the religious, to examine and paſs the accounts of the houſe.

AUDITORY, in an adjective ſenſe, ſomething belonging to the ſenſe of HEARING.

AUDITORY, AUDIENCE, is alſo a collective name, denoting an aſſembly of perſons, hearing or attending to a perſon who ſpeaks in public.

AUDITORY is alſo uſed for the ſeat or bench where a magiſtrate, or judge, hears cauſes.

At Rome, the ſeveral magiſtrates had *auditories*, or ſeats of juſtice, according to their dignity.—Thoſe of the ſuperior officers were called *tribunals*; thoſe of the inferior, *ſubſellia*.

The *palatini* had their benches or *auditories* in the portico of the imperial palace.—Thoſe of the Hebrews, at the gates of cities.—The judges appointed by the ancient lords diſtributed juſtice under an elm, which was uſually planted before the manor-houſe, and ſerved them for an *auditory*.

AUDITORY, AUDITORIUM, in the *Ancient Churches*, was that part of the church where the *audients* ſtood to hear, and be inſtructed.

The *auditorium* was that part now called *navis eccleſiæ*. See NAVE.

In the primitive times, the church was ſo ſtrict in keeping the people together in that place, that the perſon who went from thence in ſermon-time was ordered by the council of Carthage to be excommunicated.

AUDITORIUS *meatus*, or AUDITORY paſſage, in *Anatomy*, is called alſo *aurium alveare*, on account of the *cerumen* collected in it. See MEATUS *auditorius*.

AUDITORY *nerves*, in *Anatomy*, a pair of nerves ariſing from the *medulla oblongata*, and diſtributed, the one to the ear, the other to the tongue, eye, &c. See *Tab. Anat.* (*Oſteol.*) *fig.* 5. *lit. p p.*

The ſoft and ſpongy branch of the *auditory nerve*, being diffuſed through the labyrinth and *tympanum* of the ear, is the immediate organ of the ſenſe of hearing.

The *auditory nerves* make the ſeventh conjugation, according to the way of reckoning of the moderns; and the fifth, according to the ancients.

Anatomiſts obſerve a ſingular mark of the wiſdom and contrivance of the Creator, in the *auditory nerves* being thus diſpatched to different parts; an admirable and uſeful conſent being hereby eſtabliſhed between them.—Hence it is, that moſt animals, upon hearing any uncouth

found, are found to erect their *ears*, and prepare them to catch it; to open their eyes; to stand upon the watch; and to be ready with the mouth to call out to testify their danger: accordingly most animals, when surprised or terrified, shriek or cry out, &c.

Dr. Willis (Anat. Cerebr. cap. 17.) observes a further use of this nervous communication between the ear and the mouth; which is, that the voice may correspond with the hearing, and be a kind of echo thereof; that what is heard with one of the two nerves, may be readily expressed by the voice, by the help of the other.

AVELLANA, in *Botany*. See CORYLUS and HAZEL-*nut*.

AVELLANA *purgatrix*, in the *Materia Medica*, the fruit of a species of RICINUS. See CATAPUTIA, BEN, and PINEI *Nuclei*.

AVELLANDA, in *Botany*, a name given by the Spaniards to the roots of the TARII, or sweet CYPERUS. These are esculent, and of a very delicious taste; they seem to have had the name from their likeness to the *avellana nux*, or hazle-nut. Garcias, and some others, have thought that the CURCAS of Malabar was the same with the *avellanda* of Europe. But this does not seem to be the case; for the *curcas* is a fruit probably the same with the fruit BEL, described by the Arabians; and though of the same size and shape with the *avellanda*, has a hard coat like the common filbert. The *curcas* of Egypt is indeed a root, but it is very different from these, being as long and as thick as a man's arm.

AVELLANE, or *cross* AVELLANE, in *Heraldry*, a form of cross, which resembles four filberds in their husks or cases, joined together at the great end. See CROSS.

Hence its name; a filberd in Latin being *nux avellana*.—Syl. Morgan says, it is this cross which enfigns the mound of authority, or the sovereign's globe.

AVE-MARIA, or AVE-MARY, the angel Gabriel's salutations of the Virgin, at his bringing her the tidings of the incarnation; thus called, as beginning with these words, *Ave, Maria*, q. d. *Hail, Mary*.

The *Ave-mary* is a prayer or formula of devotion very usual in the Romish church. It was added to their prayers by order of pope John XXII. in the fourteenth century.—Their chaplets and rosaries are divided into so many *Ave-marys*, and so many *Pater-nosters*, and hence the beads themselves, which indicate them, are also called *Aves*, or *Ave-marys*.

AVENA, in *Botany*. See OAT.

AVENS, in *Botany*. See HERB-*bennet*.

AVENAGE, in *Law*, a certain quantity of oats, paid to a landlord, in lieu of some other duties; or, as a rent, from the tenant.

The word is formed of the Latin, *avena, oats*.

AVENOR, an officer under the under of the horse; who, by order or warrant from him, swears in all the officers belonging to the royal stables. See MASTER *of the horse*.

The *avenor* also makes up the accounts of the stables, and issues debentures for paying the officers and servants.

In a stat. Car. II. we find the *avenor* mentioned, as an officer who provides oats for the stables.—In the Rot. Parl. Edw. III. we also read of *avenor* of the queen, of the prince, &c.

AVENTURÆ, in our *Ancient Writers*, signify TOURNAMENTS, or military exercises on horseback.

AVENTURE, or rather ADVENTURE, in our *Law Books*, a mischance, causing the death of a man, without felony; as, when he is suddenly drowned, or burnt by an accident or mischance, falling into the water or fire. See MISAVENTURE, and CHANCE-MEDLEY.

AVENUE, in *Fortification*, an opening or inlet into a fort, bastion, or the like place, or the passes and ways to and from it. See FORT and BASTION.

The word is formed of *avenir*, or *advenir, to arrive at*.

AVENUE, in *Gardening*, is a walk planted on each side with trees, and leading to some place.

All *avenues*, Mortimer says, should lead to the front of a house, garden-gate, highway-gate, or wood, and terminate in a prospect.—In an *avenue* to a house, whatever the length of the walk is, it ought to be as wide as the whole breadth of the front; and if wider it is so much the better: and *avenues* to woods and prospects ought not to be less than sixty feet wide.

The trees most proper for *avenues* with us, are the English elm, the lime, the horse-chestnut, the common chestnut, the beech, and the *abele*. The English elm will do in all grounds, except such as are very wet and shallow; and this is preferred to all other trees, because it will bear cutting, heading, or lopping in any manner, better than most others. The rough or smooth Dutch elm is approved by some, because of its quick growth; this is a tree which will bear removing very well; it is also green almost as soon as any plant whatever in spring, and continues so as long as any, and it makes an incomparable hedge, and is preferable to all other trees for lofty espaliers. The lime is valued for its regular growth, and fine shade: the horse-chestnut is proper for all places that are not too much exposed to rough winds. The common chestnut will do very well in a good soil, and rises to a considerable height, when planted somewhat close, though when it stands single, it is rather inclined to spread than to grow tall. The beech is a beautiful tree, and naturally grows well with us in its wild state, but it is less to be chosen for *avenues* than the before-mentioned, because it does not bear transplanting well, but is very subject to miscarry. Lastly, the *abele* is fit for any soil, and is the quickest grower of any forest tree. It seldom fails in transplanting, and succeeds very well in wet soils, in which the others are apt to fail. The oak is but little used for *avenues*, because of its slow growth.

The old method of planting *avenues* was with regular rows of trees, and this has been always kept to till of late; but we have now a much more magnificent way of planting *avenues*; this is by setting the trees in clumps, or platoons, making the opening much wider than before, and placing the clumps of trees at about three hundred feet distance from one another. In each of these clumps there should be planted either seven or nine trees; but it is to be observed, that this is only to be practised where the *avenue* is to be of some considerable length, for in short walks this will not appear so sightly as single rows of trees. The *avenues* made by clumps are fittest of all for parks. The trees in each clump should be planted about thirty feet asunder, and a trench should be thrown up round the whole clump, to prevent the deer from coming to the trees to bark them.

AVER-*land*, in our *Old Writers*, seems to have been such lands as the tenants did plough and manure, *cum averiis suis*, for the proper use of a monastery, or the lords of the soil.

AVERA, in *Domesday-Book*, denotes a day's work of a ploughman, or other labourer, which the king's tenants in his demesne lands were obliged to pay the sheriff.

AVERAGE, in *Agriculture*, a term used by the farmers in many parts of England, for the breaking of corn-fields, eddish, or roughings.

In this sense, it may be derived from *haver*, an English name for oats, or from *averia, beasts*, being as much as feeding for cattle or pasturage. Ray.

AVERAGE, AVERAGIUM, in *Law*, that duty or service which the tenant is to pay the king, or other lord, by his beasts and carriages.

The word is derived from the base Latin *averia, cattle* or *goods*; or the French *avoirs, wares*.

AVERAGE, or AVERIDGE, in *Navigation*, and *Commerce*, is used to denote the damage which happens to ships and their cargoes, from the time of their loading and sailing, till their return and unlading. It is divided into three kinds. 1. The simple *average*, which consists in the extraordinary expences incurred by the ship, such as the loss of anchors, masts, and rigging, by common accidents at sea; or for the merchandize, such as the damages which they have sustained by storms, capture, shipwreck, wet, or rotting; all which must be defrayed by the thing that suffered the damage. 2. The large and common *average*, being expences incurred, and damage sustained, for the common security, both of the merchandise and ship, which are to be borne by the ship and cargo: such are ransom-money, goods thrown overboard, expences of unlading, or entering into a river or harbour, and the provisions and hire of the sailors, when the ship is detained by embargo. 3. The small *averages*, which are charges of towing and piloting the ship, one third of which must be charged to the ship, and two thirds to the cargo.

AVERAGE is more particularly used for the quota or proportion which each merchant or proprietor in the ship or loading is adjudged, upon a reasonable estimation, to contribute to a common *average*.

Such sum shall be divided among the several claimers, by way of *average*, in proportion to their respective interests and demands. 10 Ann. cap. 17.

AVERAGE is also a small duty, which those merchants who send goods in another man's ship pay to the master thereof for his care of them, over and above the freight.

Hence, in bills of lading it is expressed.—Paying so much freight for the said goods, with *primage* and *average* accustomed.

AVER-CORN, in *Ancient Writings*, such corn as by custom is brought by the tenant's carriages, to the lord's granary.

AVERDUPOIS *pound*. See POUND.

AVERDUPOIS *weight*. See WEIGHT.

AVERIA, in our *Law Books*, properly signify oxen or horses used for the plough; but, in a general sense, any cattle.

When mention is made of one beast, they say, *quidam equus, vel quidam bos*: when of two or more, they do not say, *equi* or *boves*, but *averia*.

AVERIA,

AVERIA, *replegiare de* AVERIIS. See REPLEGIARE.

AVERIIS *captis in Withernam*, a writ for the taking of cattle to his use, who hath cattle unlawfully diſtrained by another, and driven out of the country where they were taken, ſo that they cannot be replevied by the ſheriff. Reg. Orig. 82. If the cattle are put into any ſtrong place in the ſame county, the ſheriff may take the *poſſe comitatus*, and break into it, to make the replevin. But when they are driven out of the county, he hath no authority to purſue them.

AVERMENT, in *Law*, uſually ſignifies an offer of the defendant to make good or juſtify an exception, pleaded in abatement or bar of the plaintiff's action.

The word alſo ſometimes ſignifies the act, as well as the offer of juſtifying the exception.

Averment is two-fold. *General* and *particular*.

AVERMENT, *general*, is the concluſion of every plea to the writ, or in bar of replications, or other pleadings (for counts, or avowries in nature of counts, need not to be *averred*) containing matter affirmative; and ought to be with theſe words, *hoc paratus eſt verificare*.

AVERMENT, *particular*, is, when the life of a tenant for life, or tenant in tail, is *averred*, &c.—An *averment* contains as well the matter as the form thereof.

AVERNI, among the *Ancient Naturaliſts*, certain lakes, grottoes, and other places, which infect the air with peſtilential ſteams or vapours; called alſo *mephites*.

The word is formed of the privative *a*, and *ornis*, *bird*; as intimating that birds could not fly over them, but dropped down dead. *Avernus*, q. d. *aornus*, *locus ſine avibus*.

Averni are ſaid to be frequent in Hungary, on account of the abundance of mines therein.

The Grotta del Cani, in Italy, is a famous one.

But the moſt celebrated *avernus* was a lake Baiæ, in Campania, by the modern Italians called Lago di Tripergola.—The fumes it emitted are repreſented by the ancients as being of ſo malignant a nature, that birds could not fly over it, but ſunk down dead; which ſome later writers have choſen to attribute to this, that the ſulphureous effluvia hereof not being of conſiſtence to ſuſtain the birds, they dropped by their own weight. This circumſtance, joined with the great depth of the lake, occaſioned the ancients to take it for the gate or entrance of hell; and accordingly Virgil makes Æneas deſcend this way into the infernal regions.—Vibius Sequeſter ſays, there is no bottom to be found of it. See HELL.

Next to the Baiæ, ſays Strabo, lies the Lucrine bay; and within it the lake *Avernus*; which is a deep, darkſome lake, with a narrow entry from the outer bay: it is ſurrounded with ſteep banks, that hang threatening over it, and is only acceſſible by the narrow paſſage through which you ſail in. Theſe banks were anciently quite overgrown with a wild wood, impenetrable by a human foot. Its gloomy ſhade impreſſed an awful ſuperſtition upon the minds of the beholders; whence it was reputed the ſeat of the Cimmerians, who dwelt in perpetual night. Whoever ſailed hither, firſt did ſacrifice; and endeavoured to propitiate the infernal powers, with the aſſiſtance of ſome prieſts, who attended upon the place, and directed the myſtic performance. Within, a fountain of pure water broke out juſt over the ſea; but no creature ever taſted of it, believing it to be a vein of the river Styx: ſomewhere near this fountain was the oracle: and the hot waters, frequent in theſe parts, made them think they were branches of the burning Phlegethon.

AVERPENNY, q. d. AVERAGE-PENNY, money contributed towards the king's averages; or money given to be freed thereof. See AVERAGE.

AVERRHOA, in *Botany*, the name of a genus of plants, of the *decandria pentagynia* claſs, the characters of which are theſe: the perianthium is ſmall, erect, and compoſed of five leaves; the flower is compoſed of five lanceolated petals, which ſtand erect on the lower part, and are expanded at the top. The ſtamina are ten ſetaceous filaments, half of which are of the length of the flower, and the other half ſhorter; theſe ſtand alternately together, and are terminated by roundiſh *apices*, or *antheræ*. The germen of the piſtil is oblong, and faintly pentangular; the ſtyles are five in number, and are ſetaceous and erect; and the ſtigmata are ſimple. The fruit is a turbinated pomum, obtuſely pentangular, having five cells, and in each of them ſeveral ſeeds of an angular form, ſeparated by membranes. There are three ſpecies.

AVERRHOISTS, a ſect of peripatetic philoſophers, who appeared in Italy ſome time before the reſtoration of learning, and attacked the natural immortality of the ſoul. They took their denomination from Averrhoes, a celebrated interpreter of Ariſtotle, born at Cordova in Spain, in the twelfth century, from whom they borrowed their diſtinguiſhing doctrine. The founder of this ſect, Averrhoes, is ſometimes called the Commentator, by way of eminence, as being ſuppoſed to have entered beſt of all the commentators into the ſentiments of the philoſopher; inſomuch that ſome have pretended the ſoul of Ariſtotle had migrated into the body of Averrhoes.

AVERRUNCIATION, from *averruncо*, *I prune*, in *Agriculture*, the act of cutting or lopping off the ſuperfluous branches of trees. See PRUNING.

AVERRUNCI, from *averruncо*, *I avert*, in *Antiquity*, an order of deities among the Romans, whoſe peculiar office was to avert dangers and evils.

The Egyptians had alſo their *dii averruncі*, or *apotropæi*, who were pictured in a menacing poſture, and ſometimes with whips in their hands.—Iſis was a divinity of this kind; as is ſhewn by Kircher. See Oedip. Ægypt. t. iii. p. 487.

AVERSION, abhorrence, diſlike. See ANTIPATHY.

The word is compounded of *a*, *from*; and *vertere*, *to turn*.

AVERSIONE *vendere*, or *locare*, in *Writers of the Civil Law*, ſeems to denote the ſelling, or letting things in a lump, without fixing particular prices for each piece.

AVERTI, in *Horſemanſhip*, is applied to a regular ſtep or motion enjoined in the leſſons.

In this ſenſe they ſay, *pas averti*, ſometimes *pas ecarté*, and *pas d'école*, which all denote the ſame.

The word is mere French, and ſignifies *adviſed*.

AVERY, a place where oats, or provender, are kept for the king's horſes. See AVERIA.

AUGES, in *Aſtronomy*, two points in a planet's orbit, otherwiſe called *apſides*. See APSES.

One of the *auges* is particularly denominated the *apogee*, the other *perigee*.

AUGITES, among *Ancient Naturaliſts*, a kind of gem, of a pale green colour, inferior in value to the topaz.

It is uſually ſuppoſed the ſame with the *callais*, or *calait*, though this was diſputed even in Pliny's time.

AUGMENT, in the Greek *Grammar*, an accident of certain tenſes; being either the prefixing of a ſyllable, or an increaſe of the quantity of the initial vowels. There are two kinds of *augments*.—*Temporale*, or *of a later*; when a ſhort vowel is changed into a long one; or a diphthong into another longer one: thus called, becauſe the time of its pronunciation is now lengthened.

Augmentum ſyllabicum, or *of a ſyllable*, is when a letter, viz. *e*, is added at the beginning of the word; ſo that the number of ſyllables is increaſed.

AUGMENTS, in *Mathematics*. See FLUXIONS and MOMENTS.

AUGMENTATION, in a general ſenſe, the act of *augmenting*; that is, of adding or joining ſomething to another, to render it larger, or more conſiderable.

The governors of the bounty of queen Anne, for the *augmentation of the maintenance of the poor clergy*, by virtue of the ſeveral acts of parliament, made for that purpoſe, are empowered to augment all livings not exceeding 50*l.* *per annum*; and the number of livings following were certified to be capable of *augmentation*.

1071	Livings not exceeding 10*l.* *per annum* which may be augmented (with the bounty alone) ſix times each, purſuant to the preſent rules of the governors, which will make 6426 *augmentations*.	6426
1467	Livings above 10*l.* and not exceeding 20*l.* *per annum*, may be augmented four times each, which will make 5868 *augmentations*.	5868
1126	Livings above 20*l.* and not exceeding 30*l.* *per annum*, may be aumented three times each, which will make 3378 *augmentations*.	3378
1049	Livings above 30*l.* and not exceeding 40*l.* *per annum*, may be augmented twice each, which will make 2098 *augmentations*.	2098
884	Livings above 40*l.* and not exceeding 50*l.* *per annum*, may be each once augmented, which will make 884 *augmentations*.	884
5597	Total number of *augmentations*, which muſt be made (by the bounty alone) before the livings already certified will exceed 50*l.* *per annum*.	18654

Computing the clear amount of the bounty to make 55 *augmentations* yearly, it will be 339 years, from the year 1714 (which was the firſt year in which any livings were augmented), before all the ſmall livings above certified can exceed 50*l.* *per annum*; and if it be computed, that one half of ſuch *augmentations* may be made in conjunction with other benefactors (which is very improbable) it will require 226 years before all the livings above certified will exceed 50*l.* *per annum*.

AUGMENTATION is alſo uſed for the *augment*, i. e. for the additament, or the thing added. Such a miniſter petitioned the king for an *augmentation* of ſalary, wages, &c.

AUGMENTATION, *court of.* See COURT, &c.

AUGMENTATIONS, in *Heraldry*, are additional charges to a coat armour, frequently given as particular marks of honour, and generally borne, either on an escutcheon, or a canton.—Such are the arms of Ulster, borne by all the baronets of England.

AUGRE, or AWORE, a carpenter's and joiner's instrument, ſerving to bore large round holes.

The *augre* conſiſts of a wooden *handle*, and an iron *blade*, terminated at bottom with a ſteel *bit*.

AUGSBURG *confeſſion.* See AUGUSTAN.

AUGUR, in *Antiquity*, a minister of religion among the Romans, appointed to take *auguries* or preſages concerning futurity from birds, beaſts, and the appearances of the heavens.

The word is by ſome derived from *avis*, *bird*, and, *garritus*, *chattering*; whence the original office of the *augurs* is ſuppoſed to have been to obſerve and take indications from the noiſe, calling, ſinging, chirping, and chattering, of birds. Agreeably to which, *augur* is commonly diſtinguiſhed from AUSPEX, as the latter was ſuppoſed employed in obſerving the flight of birds.—Peſtus derives it from the Celtic *au*, *liver*, and *gur*, *man*; ſo that according to him an *augur* was properly a perſon who inſpected the entrails, and divined by means of the liver. On which principle, *augur* would have been the ſame with AUSPICES.

The *augurs* made a college or community, which at firſt conſiſted of three perſons (one for each tribe); then of four (when Servius Tullius increaſed the tribes to that number); then of nine (four of them patricians, and five plebeians): laſtly, Sylla made the number fifteen.—Cato was of the college of *augurs*.

They bore an *augural* ſtaff, or wand, called *lituus*, as the enſign of their office and authority. No affair of moment could be reſolved on, without firſt conſulting them; and their advice, be it what it would, was, by a decree of the ſenate, appointed to be exactly and rigorouſly obſerved.

AUGURAL, ſomething relating to the AUGURS.

The *augural* inſtruments are repreſented on ſeveral ancient medals. Evelyn on Medals, chap. ii.

AUGURAL *ſupper*, *cæna auguralis*, that given by a prieſt on his firſt admiſſion into the order, called alſo by Varro *ad ſpecialia*. De Re Ruſtic. lib. iii. cap. 6.

AUGURAL *books*, *libri augurales*, thoſe wherein the diſcipline and rules of *augury* were laid down. Cic. de Divin. lib. i. cap. 33.

AUGURALE, the place in a camp where the general took *auſpicia*. This anſwered to the *auguratorium* in the city.

AUGURALE is alſo uſed, in Seneca, for the enſign or badge of an *augur*, as the *lituus*. De Tranquil. cap. xii.

AUGURATORIUM, a building on the Palatine Mount, where public *auguries* were taken.

This is alſo called *auguraculum*, and *arx*.

AUGURY, the diſcipline of the *augurs*, or the practice of conſulting the gods, and learning their will, by divers kinds of omens.

The obſervation of *auguries* is very ancient, as having been prohibited by Moſes in Leviticus.—The cup put in Benjamin's ſack, in Egypt, is ſaid to have been that uſed by Joſeph to take *auguries* by.

AUGURY, in its more general ſignification, compriſes all the different kinds of diviniation; which Varro diſtinguiſhes into four ſpecies of *augury*, according to the four elements.—*Pyromancy*, or *augury* by fire; *aëromancy*, or augury by the air; *hydromancy*, or *augury* by the water; and *geomancy*, or *augury* by the earth.

The particular branches are, *aleiteromancy*, *anthropomancy*, *belomancy*, *catoptromancy*, *capnomancy*, *gaſtromancy*, *gromancy*, *aruſpicina*, *libanomancy*, *lecanomancy*, *necromancy*, &c. See each deſcribed under its proper article.

AUGUST, AUGUSTUS, in a general ſenſe, ſomething majeſtic, venerable, or ſacred.

The title *Auguſtus* was firſt given by the Roman ſenate to Octavius, after his being confirmed by them in the ſovereign power.—It was conceived as expreſſing ſomething divine, or elevated above the pitch of mankind, being derived from the verb *augeo*, *I increaſe*, *tanquam ſupra humanam ſortem auctus*.

The ſucceſſors of Octavius aſſumed the ſame quality; ſo that henceforward EMPEROR and *Auguſtus* were the ſame thing: they became ſynonymous terms.

The preſumptive heir of the empire, or he who was deſtined to ſucceed to the dignity, was firſt created Cæſar; which was a ſtep neceſſary to arrive at that of *Auguſtus* or emperor.—Yet P. Pagi maintains the reverſe; viz. that it was neceſſary to be *Auguſtus* previous to the being CÆSAR.

The EMPRESSES alſo took the quality of *Auguſtæ*; and even ſome ladies of the imperial family, who had never been wives of emperors, but mothers or daughters.

On medals and coins, ſome of the ancient kings of France are alſo found with the appellation *Auguſti*; particularly Childebert, Clothaire, and Clovis: add, that the wife of this laſt, Chrotechilda, is alſo called by Herric, in his book of the miracles of St. Germain, indifferently, either *Auguſta*, or *queen*.

AUGUST, in reſpect of *Chronology*, denotes the eighth month of the Julian year.

This was called in the ancient Roman calendar, *ſextilis*, as being the ſixth from March, from which the Romans began their computation. The emperor Auguſtus changed the name, and gave it his own; not that it was the month in which he was born, but becauſe it had been fortunate to him, by ſeveral victories which he had gained in it.

Our Saxon anceſtors called it *Weed-monath*, that is, *weed-month*, on account of the plenty of weeds in this ſeaſon. Spelman.

This month is eſteemed one of the richeſt in the whole year, becauſe of the harveſt of the ſeveral ſorts of grain which is produced in that ſeaſon. Hence is to be derived the French proverb, *a man has made his Auguſt*; which proverb is much uſed among merchants to ſignify that a man has been ſucceſsful in trade, and got an eſtate.

AUGUST is alſo uſed, in *Middle Age Writers*, for a power, or licence, of going out of a city in harveſt-time to reap, &c. Du-Cange.

AUGUSTA, *Hiſtoria*, in the hiſtory of the Roman emperors from the time of Adrian to Carinus, that is, from the year of our Lord 157, to 285, compoſed by ſix Latin writers, Æl. Spartianus, Julius Capitolinus, Æl. Lampridius, Vulcatius Gallicanus, Trebellius Pollio, and Flavius Vopiſcus. Fabr. Bibl. Lat. cap. 6.

AUGUSTALES, or *Sodales* AUGUSTALES, or *Flamines* AUGUSTALES, were the prieſts of Auguſtus, appointed after the deification of that emperor by Tiberius, to perform the ſervice of the new god.

AUGUSTALIA, in *Antiquity*, a feaſt inſtituted in honour of the emperor Auguſtus.

This feſtival was firſt eſtabliſhed in the year of Rome 835, being the fourth after he had ended all his wars, and ſettled the affairs of Sicily, Greece, Aſia, Syria, and the Parthians. The day whereon he made his entry into Rome, being the 4th of the ides of October, was appointed to be kept a feaſt; and was called *Auguſtalia*.

AUGUSTALIA was alſo a name given to the games celebrated in honour of the ſame prince, on the 4th of the ides of October.

AUGUSTALIS, or *Præfectus* AUGUSTALIS, a Roman magiſtrate who was appointed to govern Egypt, with a power much like that of a proconſul in other provinces.

AUGUSTAN, relating to Auguſtus, or Auguſta.

AUGUSTAN *æra*. See ACTIAN.

AUGUSTAN *confeſſion* denotes a celebrated confeſſion of faith, drawn up by Luther and Melanchthon, on behalf of themſelves, and other ancient reformers, and preſented in 1530 to the emperor Charles V. at the diet of Auguſta or Augſburgh, in the name of the evangelic body. This *confeſſion* contains twenty-eight chapters, of which the greateſt part is employed in repreſenting, with perſpicuity and candor, the religious opinions of the proteſtants, and the reaſon in pointing out the errors and abuſes that occaſioned their ſeparation from the church of Rome.

AUGUSTATICUM, in *Middle Age Writers*, denotes a largeſs, or donative, of an emperor, to the people, or ſoldiery.

AUGUSTEUM *marmor*, in the *Natural Hiſtory of the Ancients*, a name given to the common green and white marble, ſo frequent in uſe with us for tables, &c. and called by our artificers Egyptian marble.

AUGUSTINE, AUGUSTINUS, of Janſenius, is a celebrated treatiſe of that author, biſhop of Ypres, entitled, Cornelii Janſenii, Epiſcopi Iprenſis, Auguſtinus, in three volumes, folio, printed at Louvain in 1640; the firſt tome whereof contains a diſcourſe againſt *Pelagianiſm*; and the ſecond, divers treatiſes of reaſon; the uſe of authority in theological matters; the ſtate of innocence; fall of nature by ſin; grace, &c.—From theſe ſeveral treatiſes were collected the five famous propoſitions, enumerated under the article JANSENISM.

AUGUSTINS, or AUGUSTINIANS, an order of religious; thus called from St. Auguſtin, whoſe rule they obſerve.

The *Auguſtins*, popularly alſo called *Auſtin Friars*, were originally hermits, whom pope Alexander IV. firſt congregated into one body, under their general Lanfranc, in 1256.

Soon after their inſtitution, this order was brought into England, where they had about thirty-two houſes at the time of their ſuppreſſion.

The *Auguſtins* are clothed in black, and make one of the four orders of mendicants.

From theſe aroſe a reform, under the denomination of *barefoot Auguſtins*, or *Minorites*, or *Friers Minor*.

There are alſo canons regular of St. *Auguſtin*, who are clothed in white, excepting their cope, which is black.

As Paris they are known under the denomination of, *les Religieux de Genevieve*; that abbey being the chief of the order.

There are also nuns and canonesses, who observe the rules of St. Augustin.

AUGUSTINIANS, are also those divines who maintain, on the authority of St. Augustin, that GRACE is essential from its nature, absolutely and totally, and not relatively and gradually. See EREMITICOUS.

They are divided into rigid and relaxed.

AUGUSTA-AN-NEUF, or AUGUSTANEBURG. See MELETO.

AVIARY, a house or apartment kept for the keeping, feeding, and propagating of birds.

The word is formed of *avis*, *bird*.

AVICENNIA, in *Botany*, a genus of the *didynamia angiospermia* class, the calyx of which is divided into five segments; the corolla is labiate, the capsule is conical-oval and shouldered, containing a single kind. There are two species.

AVIGNON-*berry*, called also *French berry*, is the fruit of a shrub by some authors called CELTIS; a growing plentifully near Avignon, and in other parts of France.

The berry is somewhat less than a pea; its colour is green, approaching towards a yellow; and it is of an astringent and bitter taste. It is much used by the dyers, who from it yield a colour with iron; and by the painters, who also make a fine golden yellow of it. See BUCKTHORN.

AVIS, *bird*, in Zoology. See BIRD.

AVIS *Indica*, See APUS.

AVIS *magna*, a name given by Nuremberg to the *calandra* of the Antients, a bird very remarkable for the sweetness of its singing.

AVIS *nigra*, a name under which Nuremberg has described an American bird, of the size of a thrush, brown and black on the back, and yellow under the belly; in contour the former resembles, and is called, by the natives, CROAN.

AVIS *variegata*, the name of an American bird, described by Nuremberg and called by the Indians *parmacani*. It is of the size of a pigeon, and in all over its body of the more beautiful colours of the peacock. There are, besides these species, three or four others. Mr. Ray has, however, ranged all these under the number of birds, the accounts of which he is either dubious about, or suspicious of the truth of.

AVIS *ficus*. See HOBCELL.

AVIS *frigoris*, the name of a bird, commonly called also, in English, the FORTIC *bird*, of the size of the common duck.

It usually found about the *arctic*, and thence has its name. See *Tab. Vol. of Birds*, N° 3.

AVIS *garri*, the bird of the wood. See HEATOTOTE.

AVIS *Paradisea*. See PARADISEA.

AVIS, *Knights of*, an order of knighthood in Portugal, established about the year 1162.

When the city of Evora was taken from the Moors, in the reign of the first king of Portugal, it was garrisoned by several persons who admired the rule of knights of St. Mary of Evora, which was soon after changed for that of knights of Avis, which the king gave them, and which they removed from Evora. The badge of this order is a green cross flory, and they observe the rule of St. Benedict.

AVISO, an advice, piece of intelligence, or advertisement, to notify some event or matter worthy of knowledge.

The word is Italian, *avviso*; and is chiefly used in matters of commerce.

AUK, in *Zoology*, a name given by some to a bird called the ALKA in Latin, and more commonly known among us by the name of the RAZOR-BILL, a well-known fowl, wanting the hinder toe.

AUL. See AOL.

AULA, in our *Ancient Law Books*, signifies a court baron. — *Sola curia nostra quæ in Anglia dicitur Aula.*

Aula curiæ, so is sometimes used for what we now call *curia regis*. See NAVE.

AULA *regia*, or *regis*, a court established by William the Conqueror in his own hall, composed of the king's great officers of state, who resided in his palace, and were usually attendant on his person. This court was regulated by the article which forms the eleventh chapter of Magna Charta, and established in Westminster-hall, where it had ever since continued. See COURT of *King's Bench*.

AULETES, among the *Antients*, a flute-player.

One of the Ptolemies, kings of Egypt, father of Cleopatra, bore this surname, or denomination, of *Auletes*.

AULIC, ARULICA, an epithet which a young divine maintains in some thesis in universities, upon the occasion of a new doctor of his order.

It is so called from the Latin, *aula*, a *hall*, it being in the hall of the university that this act is usually held.

The person who presides at the disputation, is the same that is to take the doctor's cap.

AULIC, AULICUS, is also an appellation, given to certain officers of the emperor, who compose a superior court of council, which has an universal jurisdiction, and without appeal, over all the subjects of the empire, in all processes entered thereon.

We say, *aulic council*, the *aulic court of chamber*, *aulic councellor*, &c.

The *aulic council* is established by the emperor, who nominates the other; but the Elector of Mentz has a right of voting it.—It is composed of a president, who is a catholic, a vice-chancellor, professed by the elector of Mentz, and of eighteen councellors or counsellors, nine whereof are Protestants, and nine Romanists. They are divided into two benches, one whereof is taken up by nobles, and the other by lawyers.—They hold their sittings in the presence of the emperor; and for that reason are called *Aulicum imperiale*, the *emperor's aulic council*, because their sittings are in the place where he is.—This court clashes a little with the imperial chamber of Spires; in that they are rivals in point of cognizance, it not being allowed to remove any cause from the one to the other.

Nor can the emperor himself hinder or *suspend* the decisions of either courts much less call any cause before himself, which has been once before them, without the consent of the States of the empire. Yet, in some cases, the same council submits making any peremptory conclusion, without the emperor's participation; and moderates thus, *Etsi rotam ad Cæsarem*; that is, make a report hereof to the emperor in the joint-council.

AULNEGER, or ALNAGER. See ALNAGER.

AULO, a Greek long measure. See MEASURE.

AULOS, in *Zoology*, a name by which several of the species of worms have called the SOLEN, or RAZOR-FISH.

AUMONE, or ALMS. See ALMS.

AUNCEL-*weight*, *scale*, *Hundred-weight*, an ancient kind of balances, consisting of scales hanging on hooks fastened at each end of a beam or shaft, which a man lifts up on his hand or fore-finger, and so discovers the equality or difference between the weight and the thing weighed.

There have been great deceits practised in these weights, they were prohibited by several statutes; and the even balance alone recommended.

The word is still used in some parts of England, to signify most fine by holding in the hand, without putting it into the scales.

AUNCIATOR, *Clerk of Alnet's*. See ALNAGER.

AUNCESTER-*Liberty*. See HAMAGE.

AUNE, in *Commerce*, a long MEASURE, used in France, and other countries, of different lengths in different places. See ELL.

AVOCADO, a name given to a species of bay. See BAY-*tree*.

AVOCATORIA, a mandate of the emperor of Germany, directed to some prince or subject of the empire, to stop his unlawful proceedings in any cause brought by way of appeal before him.

AVOIDANCE, in *Law*, has two significations: the one when a benefice becomes void or is incumbent; the other, when we lie in pleadings in chancery, confessed or avoided, traversed or denied, &c. See VOIDANCE.

AVOIRDUPOIS, or AVERDUPOIS *weight*, a kind of weight used in England; the pound whereof contains fifteen ounces. See WEIGHT.

The proportion of a pound *avoirdupois* to a pound *troy*, is as 17 to 144 or the *avoirdupois* pound contains 7000 grains, and the troy pound 5760.

All the larger and coarser commodities are weighed by *avoirdupois* weight; as groceries, cheese, wool, lead, lamps, &c.

AVOSETTA, in *Ornithology*. See RECURVIROSTRA.

VOWEL, ADVOCATION. See ADVOWEL, and ADVOCATE.

The *advowee* is he to whom the right of advowson of any church belongs, to that he may present thereto in his own name: he is thus called by way of distinction from those who sometimes present to another man's name, as a guardian, who presents in the name of his ward; as also from those who only have the bare advowson belonging to them for term of life or years, by reversion or shifting.

AVOWRY, in *Law*, is where one takes a distress for rent, or other thing; and the other sues replevin. In which case the taker shall justify in his own right, and say he took it, and if he took it in his own right, needs not to shew it; and so avows the taking; which is called his *avowry*. If he took it in the right of another, who also has avowed the taking, he is to make mention of the taking, as being a bailiff or servant to him in whose right he did it.

AU-FIS-ALLER, a French phrase, sometimes used among English writers, signifying, *at the very*.

AURA, among *Physicians*, an airy EXHALATION or VAPOUR.

The word is derived from the Greek αυρα, *gale*.

AURA, in *Chemistry*, a certain fine and pure spirit, found in every animal or vegetable body; but so subtle, as only to be perceptible by its smell and taste, or other effects, not found in any other but that body. This *aura* exhibits the proper character of the body, and is lodged in the oil of the body, to prevent its being dissipated and thrown off; and hence it is that all the ancient alchymists say spirit resides in sulphur. Boerhaave Ch. p. 168.

AURA, in *Ornithology*, a species of WRYNECK.

AURA, in *Mythology*, a name given by the Romans to the nymphs of the air. They are mostly to be found in the ancient paintings of etchings; where they are represented as light and airy; generally with long robes, and flying veils, of some lively colour or other, and fluttering about in the rare and pleasing element assigned to them. They are sportive and happy in themselves, and seek withers to mankind.

AURANTIUM, in *Botany*. See ORANGE-*tree*.

AURANTIUS *pisc.* in *Ichthyology*, a name given by Nieremberg to the DORADO, or dolphin, a species of the COBYTHUS, distinguished from the others by its forked tail.

AURARIA *stantes, pensiles* or *prestitui*, a tax or tribute so he paid in gold.

The collection hereof was denominated *subscriptor auraria, or exactio auraria*.

AURATA, in *Ichthyology*. See GILT-*head*.

AURATUS *mare*. See EQUUS.

AUREA, *Alexandrina*, in *Pharmacy*, a kind of opiate, or anodyne, compofed of a great number of ingredients, which was in great fame among the ancient writers.

It is called *aurea*, from the gold *aurum*, which is an ingredient in its compofition; and *Alexandrina*, as having been firft invented by a phyfician named Alexander.—It is reputed a good prefervative againft the colic and apoplexy.

AURELIA, in *Natural Hiftory*, the name of that ftate, otherwife called chryfalis, in which butterflies, and feveral other animals, paft the time between their caterpillar or other creeping ftate, and their winged one.

In this ftate no creatures afford fo beautiful a variety as the butterfly kinds; and they all pafs through this middle ftate, without one exception.

The figure of the *aurelia* or chryfalis, generally, approaches to that of a cone, or at leaft the hinder part of it is of this fhape; and the creature, while in this ftate, feems to have neither legs nor wings, nor has any power of walking. It feems, indeed, to have hardly fo much as life. It takes no nourifhment in this ftate, nor has it any organs for taking any; and indeed its paffarive part is all that feems animated, this having a power of giving itfelf fome motion. The external covering of the chryfalis is cartilaginous, and confiderably large, and is ufually fmooth and glofly; but fome few of them have a few hairs, fome are alfo as hairy as the caterpillars from which they are produced, and others are rough, or, as it were, fhagreened all over.

In all of thefe there may be diftinguifhed two fides; the one of which is the back, the other the belly of the animal; and in the anterior part of the latter, there may always be diftinguifhed certain little elevations running in ridges, and refembling the fillets wound about mummies. The part whence thefe have their origin, is efteemed the head of the animal; the other fide or back is fmooth, and is of a rounded figure in moft of the chryfalides; but fome have ridges on the anterior part and fides of this part; and thefe ufually terminate in a point, and make an angular appearance on the chryfalis.

From this difference is drawn the firft general diftinction of thefe bodies. They are by this divided into two claffes; the round and the angular kinds. The firft kind are by the French naturalifts called alfo *feves*, from the common cuftom of calling the *chryfalis* of the filk worm, which is round, by this name.

There is fomething more regular in this diftinction alfo than might be at firft conceived; for the divifion is continued from the fyftate: the rounded chryfalides being almoft all produced by the *phalenæ* or moths; and the angular ones by the *papiliones* or day-flies. There are feveral fubordinate diftinctions of thefe kinds, but in general they are lefs different from one another than the caterpillars from whence they are produced.

The head of thefe of the firft clafs ufually terminates itfelf by two angular parts, which ftand feparate one from the other, and refemble a pair of horns. On the back, eminences and marks are difcovered, which imagination may form into eyes, nofe, chin, and other parts of the human face.

There are a great variety, and a great deal of beauty in the figures and arrangement of the eminences and fpots on the other parts of the body of the chryfalis of different kinds. It is a general obfervation, that thofe chryfalides which are terminated by a fingle horn, afford diftinct butterflies of the kind of thofe which have buttoned antennæ, and whofe wings, in a ftate of reft, cover the under part of the body, and which ufe all their fix legs in walking, thofe of many other kinds ufing only four of them. Thofe chryfalides, which are terminated by two angular bodies, and which are covered with a great number of fpines, and have the figure of a human face on their back in the greateft perfection, afford butterflies of the day-kind, and of that clafs, the characters of which are, their walking on four legs, and ufing the other two, that is, the anterior part, in the manner of arms or hands. The chryfalides, which have two angular bodies on their heads, but fhorter than thofe of the preceding, and whofe back fhews but a faint fketch of the human face, and which have fewer fpines, and thofe left ftrong, always turn into that fort of butterfly, the upper wings of which are divided into fegments, one of which is fo long as to reprefent a tail, and whofe under-wings are folded over the upper part of the back. A careful obfervation will eftablifh many more rules of this kind, which are not fo perfect as to be free from all exceptions, yet are of great ufe, as they teach us in general what fort of fly we are to expect from the chryfalis, of which we know not the caterpillar, and therefore can only judge from appearances.

Thefe are the principal differences of the angular chryfalides; the round ones alfo have their different marks not lefs regular than thofe.

The greater number of the round chryfalides have the hinder part of their body of the figure of a cone, but the upper end, which ought to be its circular plane bafe, is ufually bent and rounded into a fort of knee: this is ufually called the head of the chryfalis; but there are alfo fome of this kind, the head of which is terminated by a nearly plane furface: fome of the creeping two-legged caterpillars give chryfalides of this kind, which have each of them two eminences that feem tending them towards the angular kind.

Among the angular chryfalides there are fome whofe colours feem as worthy our obfervation as the figure of the others. Many of them appear fuperbly clothed in gold. Thefe elegant fpecies have obtained the name of chryfalis and *aurelia*, which are derived from Greek and Latin words, fignifying gold; and from thefe all other bodies of the fame kind have been called by the fame names, though lefs or not at all entitled to them. As fome kinds are thus gilded all over, fo others are ornamented with this gay appearance in a more fparing manner, having only a few fpots of it in different places on their back and belly. Some fpecies alfo have filver in the place of gold, either extending itfelf all over them, or forming fome particular fpots upon their back and belly. Thefe obvious marks, however, are not to be depended upon as certain characters of diftinction, for accidents in the formation of the chryfalis may alter them; and thofe which naturally would have been gilded all over, may be fometimes only fo in parts, and either thefe or the others may be accidentally be formed of a fhew nothing of this kind at all, but be only of a dufky brown. Thofe, however, which have neither filver nor gold to recommend them to your eyes, do not want other colours, and thofe beautifully variegated. Some of them are all over of an elegant green, as is the chryfalis of the fennel-caterpillar; others of an elegant yellow, and fome of a bright greenifh tinge, variegated with fpots of a fhining black; we have a very beautiful inftance of this laft kind in the chryfalis of the elegant cabbage-caterpillar. The general colour of the chryfalis of the common butterflies, however, is brown.

Some alfo are of a fine deep black, and of thefe many are fo fmooth and glofly, that they are equal to the fineft Italian japan. The common caterpillar of the fparrow gives an inftance of one of thefe beautiful dufky ones; the caterpillar of the vine affords another of thefe fine black chryfalides.

The rounded chryfalides do not afford any thing of that variety of colouring fo remarkably beautiful in the angular ones: they are ufually of a dufky yellow, in different fhades, and are often variouſly fpotted with black: but thefe, as well as all other chryfalides, before they arrive at their fixed colour, paft through feveral other temporary ones, fome being of a different colour when firft produced from the caterpillar, from what they are a few days afterwards; and fome varying fo greatly, though only in degree, as not to be diftinguifhable, by the moft converfant eye, from what they were when firft produced. The green rough caterpillar of the cabbage has a chryfalis which is green at firft, and from that gradually goes through all the fhades of green to a faint yellow, which is its laſting colour; and one of the oak caterpillars yields a chryfalis beautifully fpotted with red at its firft appearance, but thofe fpots change to brown for their fixed co-

lour.

four, the third day from their formation usually frees these lasting colours; and if they are observed to turn black in any part after this time, it is a sign that they are dead or dying.

The several species of insects, as a fly, spider, and an ant, do not differ more evidently from one another, in regard to appearance, than do a caterpillar, its chrysalis, and a butterfly produced from it; yet it is certain that these are all the product of the same individual egg: and nothing is more certain than that the creature which was first a while a caterpillar, is, after a certain time, a chrysalis, and then a butterfly. These great changes produced in so sudden a manner, seem like the *metamorphoses* recorded in the fables of the ancients; and indeed it is very probable that those fables first took their origin from such changes.

The parts being distinguishable in the chrysalis, we easily find the difference of the species or class of the fly that is to proceed from it. The naked eye shews whether it be one of those that have, or of those that have not a trunk, and the assistance of a microscope shews the *antennæ* so distinctly, that we are able to discern whether it belongs to the day or night class; and often to what genus, if not the very species; nay, in the plumose horned kinds, we may see by the *antennæ* whether a male or female phalæna is to be produced from the chrysalis, the horns of the female being in this state evidently narrower, and appearing less elevated above the common surface of the body, than those of the male.

All these parts of the chrysalis, however, though seen very distinctly, are laid close to one another, and form to form only one mass, each of them is covered with its own peculiar membrane in this state, and all are surrounded together by a common one, and it is only through these that we see them, or rather we see on these the figures of all the parts moulded within, and therefore it requires attention to distinguish them. The chrysalis is first when first produced, and is wetted on the front with a viscous liquor; its skin, though very tender at first, dries and hardens by degrees; but this viscous liquor, which surrounds the wings, legs, &c. hardens almost immediately, and in consequence fastens all those limbs, &c. into a mass, which were before loose from one another; this liquor as its hardens loses its transparence, and becomes brown; so that it is only while it is yet moist that these parts are to be seen distinct.

It is evident from the whole, that the chrysalis is no other than a butterfly, the parts of which are laid under certain membranes, which fasten them together, and when the limbs are arrived at their due strength they become able to break through these membranes, and then expand and arrange themselves in their proper order.

The first *metamorphosis* therefore differs in nothing from the second, except that the butterfly comes from the body of the caterpillar in a weak state, with limbs unable to perform their offices; whereas it comes from the chrysalis perfect.

M. Reaumur has given us many curious observations on the structure and uses of the several coverings that attend the varieties of the caterpillar kind in this state.

The creatures in general remain wholly immoveable in this state, and seem to have no business in it, but a patient attendance on the time when they are to become butterflies; and this is a change that can happen to them only as their parts, before extremely soft and weak, are capable of hardening and becoming firm by degrees, by the transpiration of that abundant humidity which before kept them soft; and this is proved by an experiment of M. Reaumur, who, enclosing some chrysalises in a glass tube, found, after some time, a small quantity of water at the bottom of it, which could have come there no other way but from the bottom of the enclosed animal. This transpiration depends greatly on the temperature of the air: it is augmented by heat, and diminished by cold; but it has also its peculiarities in regard to the several species of butterfly to which the chrysalis belongs.

According to these observations, the time of the duration of the animal in the chrysalis state must be in different species very different; and there is indeed this wide difference in the extremes, that some species remain only eight days in this state, and others eight months.

We know that the caterpillar changes its skin four or five times during its living in that state; and that all these skins are at first produced with it from the egg, lying closely over one another. It parts with or throws off all these one by one, as the butterfly, which is the real animal all this time within, grows more and more perfect in the several first changes. When it throws off one, it appears in another skin of exactly the same form; but at its final change from this appearance, that is, when it throws off the last skin, as the creature within is now arrived at such a degree of perfection as to need no farther taking of nourishment, there is no farther need of teeth, as the other of the parts of a caterpillar. The creature in this last change proceeds in the very same manner as in all the former, the skin opening at the back, and the animal making its way out in this shape. If a caterpillar, when about to throw off this last skin, be thrown into spirit of wine, and left there for a few days, the membranes within will harden, and the creature may be afterwards carefully opened, and the chrysalis taken out, in which the form of the tender butterfly may be traced in all its lineaments, and its eyes, legs, &c. extremely seen. It is not necessary however to leave upon this exact time for proving the existence of the chrysalises butterfly in the caterpillar; for if one of these animals be thrown into spirit of wine, or into vinegar, some days before this time, and left there for the flesh to harden, it may afterwards be dissected, and all the lineaments of the butterfly traced out in it; the wings, legs, *antennæ*, &c. being as evident here, and as large as in the chrysalis. Reaumur's Hist. Insect. vol. I. p. 2. 28.

It is very plain from this, that the change of the caterpillar into a chrysalis is not the work of a moment, but is carrying on for a long time before, even from the very hatching of the creature from the egg. The parts of the butterfly are not however disposed in exactly the same manner while in the body of the caterpillar, as when left naked in the form of the chrysalis; for the wings are prominently longer and narrower, being wound up into the form of a cord, and the *antennæ* are rolled up on the head: the trunk also is rolled up, and laid upon the head; but this is in a very different manner from what it is in the perfect animal, and very dissimilar from that which it is in within the chrysalis; so that the full formation of the butterfly in the caterpillar by time arrives at a proper change of the disposition of its parts, in order to its being a chrysalis. The very eggs, hereafter to be deposited by the butterfly, are also to be found not only in the chrysalis, but in the caterpillar itself, arranged in their natural, regular order. They are indeed in this state very small and pellucid; but after the change into the chrysalis, they have their proper colour.

As soon as the several parts of the butterfly therefore are arrived at a state proper for being exposed to the more open air, they are thrown out from the body of the caterpillar, surrounded only with their membranes; and as soon as they are arrived after this at a proper degree of strength and solidity, they labour to break through these thinner coverings, and to appear in their proper and natural form. The time of their duration in this state of chrysalis is very uncertain, some remaining in it only a few days, others several months, and some almost a year in appearance. But there is a fallacy in this, that many are not aware of. It is natural to think, that as soon as the creature has enclosed itself in its shell, be that of what nature it will, it undergoes the change into the chrysalis state. And this is the case with the generality; yet there are some which are eight or nine months in the shell before they become chrysalises, so that their duration in the real chrysalis state is much shorter than it naturally appears to be. M. Reaumur carefully watched the articulated caterpillar of the oak into its several changes, and particularly from its chrysalis, which is of this last kind, into the fly, and has given an account of the method of this, as an instance of the general course of nature in these operations.

The membranes which envelope the creature in this chrysalis state are at first tough and firm, and immediately touch the several parts of the enclosed animal; but by degrees, as these parts harden, they become covered, some with hairs, and others with scales. These, as they continue to grow, by degrees fall off the several particular membranes which cover the parts on which they are placed, to a greater distance, and by degrees wholly loosen them from the limbs. This is one reason of those membranes drying and becoming brittle.

The middle of the upper part of the corcelet is usually marked with a line, which runs in a longitudinal direction; and this part is always more elevated than the rest, even in the conic kinds, which are no otherwise angular. This line is in some very bold and plain, in others it is so faint as not to be distinguishable without glasses; but it is always in the midst of that line that the shell begins to open. The motion of the head of the butterfly backwards first occasions this crack, and a few repetitions of words first motions open it the whole length of the line.

The clearing itself however entirely is a work of more time in this case, than is the pulling of the chrysalis out of the body of the caterpillar. In that case there is a crack sufficiently large in the skin of the back, and the whole chrysalis being loose comes out at once. But in this case every particular limb, and part of the body, has its separate case; and though these are almost inconceivably fine and tender, yet it is necessary that every part be drawn out of them before it appear naked to the open

air. As soon as all this is effected, and the animal is at full liberty, it either ascends from those stems the remains of its coverings, or creeps a little way off from it, and there rests. The wings are what we principally admire in this creature. These are at this time so extremely tender and small, and placed in so curious a manner, that the creature seems to have none at all; but they by degrees expand and unfold themselves, and, finally, in a quarter of an hour, or half an hour at the utmost, they appear in their full size, and in all their beauty. The manner of this sudden unfolding of the wings is that the fluid in all the parts of the body, which before filled every vessel to its utmost extent, and rendered even its wings have no strength or stiffness till they extend themselves; but they then dry by degrees, and with the other parts become rigid and firm. But if any accident prevents the wings from expanding at their proper time, that is, as soon as the creature is out of its shell, they never afterwards are able to extend themselves, but the creature continues to wear the miserable contracted and shrivelled shells and very often when the wings are in part extended before from an accident happens, it flops them in a part of a revolution, and the creature must be contented to pass its whole life with them in that manner.

M. Reaumur has proved that heat and cold make great differences in the time of hatching of the butterfly from the chrysalis state: and this he particularly tried with great accuracy and attention, by putting them in vessels in warm rooms, and in coolhouses, and it seemed wholly owing to the less moving or retarding the evaporation of the abundant humidity of the animal in the chrysalis state, that it formed so late appeared in the butterfly form. He examined over some chrysalises, in order to see what would be the effect of thus wholly preventing their evaporation; and the consequence was, that the butterfly came forth from their two months later than their natural time. Time was the duration of the animal in this state lengthened, that is, its existence was lengthened; but this without any advantage to the creature, how it was in the time of its state of inaction, and probably of insensibility.

Though this was of no consequence, M. Reaumur deduces from it a hint that seems to be of some use. He observes that the silk-worm, of which we make so many uses, and eat in so many forms, are properly a sort of chrysalis of the animal; shut up, after they are impregnated by the moth, containing the young animal asleep, and waiting only a due degree of warmth to be hatched and appear in its own form. Eggs transpire, without undergoing the variations of their shells; and when they have been long kept, that is a void found near one of their ends, between the shell and the internal membrane; that is a waste of their living fluid, and is the effect of an evaporation of part of their humidity: and the same vanishing which had been used to the chrysalises, being tried on eggs, was found to preserve them for two years, as fresh as if laid but the same day, and such as the sheell alone could not distinguish from those that were so. See Eggs.

It is not yet known how much farther this useful speculation might be carried, and whether it might not be of great use even to human life, to invent something that should act in the manner of this varnish, by being rubbed over the body, as the *nitida* did of old, and the Indies of the West Indies do at this time, without knowing why. But to return to the insects which are the subjects of this article: their third state, that in which they are winged, is always very short, and seems destined for no other action but the propagation of the species. See Generation and Parturition.

AURELIANA, in *Botany*, a name given by Gesner to a species of Tussilago. See Gnaphalium.

AURELIA, the vessel of glory, given by painters and statuaries to saints, martyrs, and confessors, as a mark of the victory which they have obtained.

F. Sermond says, this custom was borrowed from the heathens, who used to encompass the heads of their deities with such rays.

AUREUS, the Roman gold coin, equivalent to 25 denarii, or 100 *sesterces*. Suet. in Oct. c. 41. Tacit. Hist. lib. 1. Beverin. de Ponder. p. 45. seq.

In *Medera* and *Madeira Islands*, it is called *fidalco*, or *fidalco ounces*.

The *aureus*, according to Arbuthnot, generally weighed double the denarius whence it must have been worth, according to the first proportion of coinage mentioned by Pliny, *l. 1. 40. 3. l.* sterling.—According to the proportion that now obtains among us, *l. 0. 9d.* Plin. lib. xxxiii. c. 3. Arbuth. Tab. 25.—Ainsworth, however, makes the *aurei denarii* of the higher empire, weigh only five penny-weights; and under the lower empire, little more than half so much.

The weight of the *aurei* was gradually diminished by the emperors. The consular *aurei* weighed at a mean 226 troy grains, 40 of them being contained in the Roman pound: the imperial *aurei*, being 45 to the pound, weighed 122 grains; and the *solarei*, being 72 to the pound, weighed 70 grains. Phil. Trans. vol. lxi. part ii. art. 47. See Coin, and Denarius.

AURICHALCUM, see Orichalcum.

AURICLE, Auricula, in *Anatomy*, the external ear; or that part of the ear which is prominent from the head.

The word is a diminutive of *auris*, *ear*; q. d. *little ear*.

For the structure and variety of the *auricle*, with the several parts thereof, their names, &c. see Ear.

Auricle is also applied to two appendages of the heart; being two muscular cups, covering the two ventricles thereof; thus called from the resemblance they bear to the external ear.

They move regularly, like the heart, only in an inverted order; their *systole* corresponding to the *diastole* of the heart, and *vice versa*. See Circulation (*Systemic*) *fig.* 12. *fol.* 6. See also further of their structure and office under the article Heart.

AURICULA, in Agriculture, &c. in *Botany*, a species of primula in the Linnæan system. To encourage the varieties of this plant, would be almost endless and impossible; for every year produces new varieties of new flowers, different in shape, size, and colours in the leaves of their plants also; there is as great a variety, to that the artist finds it scarce any skill distinguishing the particular sorts thereby.

But as it seldom happens that both of such flowers as are at one time in great esteem, continue in the neighbourhood for years after (there being still finer or larger flowers produced from seeds, which are what the florists chiefly seek after) it would be needless to mention any of them. Suffice it therefore to give the characters of a good auricula. 1. The form of the flower should be fully and strong. 2. The footstalk of the single flower should be finer, that the umbel may be regular and close. 3. The pipe or neck of each flower should be short, and the flowers large, and regularly spread; being so when examinable to eye. 4. The colours should be very bright and well mixed. 5. The eye of the flower should be large, round, and of a good white or yellow: and the rube or meal not too wide.

All the flowers of this kind that want any of the above mentioned properties, are now rejected by every good florist; for as the varieties every year increase from seeds, so the bad ones are turned out to make room for better.

The time for sowing the seed is commonly in August; but if it be sown before Christmas, it will be time enough. The best soil is to a good light fresh fatty mould, mixed with very rotten neat's dung, or very rotten dung from the top of an old hot bed.

The manner of propagating these flowers when obtained, is from off-sets or slips, taken from the old roots in April, when the flowers are in bloom. Those plants which have strong single heads, always produce the largest clusters of flowers; therefore the auricula should pull off the off-sets, as soon as it can be done satisfactory to the plant, to encourage them to flower the stronger.

There are the rules for propagating these plants; but in order to have them flower in perfection, the following rules must also be observed.

1. The plants must be protected from too much wet in winter, and must have free air, and not too much sun. 2. In the beginning of February, if the weather be mild, the earth in your stone-pots must be taken out as far as may be, without disturbing the roots, and new fresh earth laid in its place. 3. The pots must be covered with matting in the night, to defend them from frosts while the plants are budding. 4. When the buds begin to be large, they must be defended from hasty rains, yet not kept too much under cover, which draws up the stalk too long, and makes it weak: and they must be watered frequently, a little at a time, and none of the pots must be suffered to fall on the plants. Lastly, when the flowers begin to open, the pots should be removed to a stage of timbers, one over another, placed under cover, open to the morning-sun, but sheltered from the mid-day's sun. How they may remain till their flowers are past, and then they must be let out to have the benefit of the rains and free air, for the opening of the seed, which must be saved carefully, and spread on papers, and laid to dry. Miller.

Though this herb is seldom kept in the house, it never-

theless ſtands recommended as a vulnerary, and as ſuch is found of ſervice, both for internal and external purpoſes. Mixed with ointments and plaiſters, it is reckoned good in ruptures. Four or ſix ſpoonfuls of the water, in which it has been boiled, taken every morning, is ſaid, to cure coughs and ulcers of the lungs. The juice of its flowers removes ſpots of the face, and beautifies the ſkin; and with the ſame intention ſome diſtil a water from it. James.

AURICULA, in *Zoology*; ſee EARWIG.

AURICULA *Judæ*, or *Jew's ear*, a kind of *fungus*, or muſhroom, ſomewhat reſembling, in figure, a human ear.

It grows on old elder-trees, the tree on which, as ſome pretend, Judas hanged himſelf; and hence, they think, the name is derived.

This *fungus* ſteeped in water, and applied to the eyes, is ſaid to free them of inflammations: but its chief uſe is under the form of a gargle in decoctions, againſt inflammations of the throat, or ſwelling of the tonſils.

AURICULÆ *Alveariun*, ſee ALVEARIUM.

AURICULÆ *primus muſculus*, in *Anatomy*, the name given by Fallopius to one of the muſcles of the head, called by Albinus the *attollens auriculam*, and by Winſlow the SUPERIOR *auriculæ*.

AURICULÆ *ſecundus muſculus*, in *Anatomy*, a name given by Fallopius, and others, to the muſcles of the ears, called, by Albinus, *retrahentes auriculam*. Theſe are three in number, and ſo like one another, that they are eaſily miſtaken for one. Riolanus calls them the *proprii auris externæ*.

AURICULÆ *retrahens*, ſee RETRAHENS.

AURICULAR, ſomething that relates to the ears.

Thus we ſay, an *auricular* witneſs, *auritus teſtis*, *a witneſs by hearſay*.

AURICULAR *Confeſſion*, is that made in the ear, privately.

AURICULAR *Medicines*, are ſuch as are ſuited to the cure of the diſtempers of the ear.

AURICULARIS *Abductor*, ſee ABDUCTOR.

The finger next the little finger is alſo called *auricularis*, by the Greeks ὠτίτης, becauſe uſed in picking the ear.

AURICULATED *Leaf*, in *Botany*, is a leaf which has a lobe on each ſide towards the baſe.

AURIFLAMMA, in the *French Hiſtory*, properly denotes a flag, or ſtandard, belonging to the abbey of St. Denniſ, ſuſpended over the tomb of that ſaint, which the religious, on occaſion of any war in defence of their lands, or rights, took down, with great ceremony, and gave to their protector, or advocate, to be borne at the head of their forces. Du-Cange.

AURIFLAMMA is alſo ſometimes uſed to denote the chief flag, or ſtandard, in any army.

AURIGA, in *Aſtronomy*, the *Waggoner*; a conſtellation of ſtars in the northern hemiſphere: whoſe ſtars, in Ptolemy's catalogue, are 14 in Tycho's, 27; in Hevelius's, 40; in the Britannic Catalogue, 66: the names, ſituations, longitudes, latitudes, magnitudes, &c. whereof, are as follow:

Names and ſituations of the ſtars.	Bayer's Char.	Longitud.		Latitude. North.		Magnitudes.
		°	′	°	′	
Preced. over the north. foot.	*f*	0 11	22	14	52	33 5
Mid. and ſouth. over the foot.	*e*	11	49	45	14	01 47 5.6
In the heel of the north. foot.	*i*	12	19	33	20	24 53 6
Laſt of three over the foot.	*a*	13	18	41	15	04 00 5
		13	41	47	16	32 23 6
5.						
		13	44	35	16	48 06 6
In the preced. cubit.	*n*	14	34	40	20	54 24 4
Againſt the hand, preced. Hœdus.	*ζ*	14	18	58	18	10 10 4
		16	20	04	28	35 29 6.5
Subſeq. Hœdus.	*η*	15	26	52	28	15 14 5
10.						
South of three in the loins.	*m*	16	15	16	15	23 18 5
		17	32	35	13	15 02 4
Bright one of the fore-ſhoulder, Capella.	*α*	17	31	41	22	51 48 1
		16	10	50	9	33 56 5
Middle one in the loins.	*λ*	17	28	54	16	58 39 5
15.						
Nebuloſæ againſt the hips.	South	16	49	17	10	13 20 6
	Middle	16	53	04	10	35 44 7.6
Northern ones in the fame.	Preced.	17	07	16	10	48 26 6
	Subſeq.	17	15	23	10	46 20 6
North of three in the loins.	*φ*	18	10	5	18	34 23 6
20.						
Subſeq. in the hip.	*o*	18	25	48	14	07 31 5.6
		17	39	8	5	42 51 6
Bright one in the ſouth. foot.	*γ*	18	23	36	5	21 33 2
In the fore-thighs.	*ψ*	18	53	40	11	10 50 5.6
In the fore-knee.	*χ*	19	59	20	8	50 43 5.6
25.						

Names and Situations of the ſtars.	Bayer's Char.	Longitud.		Latitude. North.		Magnitudes.
		°	′	°	′	
		21	02	46	7	05 24 6
In the neck	*s*	23	09	55	16	22 39 6
		23	26	46	16	04 34 7
Preced. in the hind-arm.	*τ*	23	30	12	15	43 41 5.6
North. in the head.	*ξ*	24	50	05	32	13 32 7.6
30.						
In the hind-thigh.	*ε*	23	50	38	13	50 35 6
Subſeq. in the hind-arm.	*ι*	23	57	35	15	48 00 5
South of two in the head.	*δ*	25	30	23	30	49 04 5
Brighter one in the hind-ſhoulder.	*β*	25	35	31	21	22 21 2
A leſſer one contiguous to that.	*ω*	25	40	12	22	27 52 6
35.						
		25	52	25	24	25 21 6
In the wriſt of the hinder hand.	*θ*	25	36	45	13	44 19 4
		26	19	09	19	31 48 0 .7
		26	40	06	19	51 14 9 .7
Inform. following the eaſtern arm	♊	27	00	05	5	00 59 6
40.						
		27	48	43	25	15 32 6
		28	58	02	22	50 32 6
		29	05	56	22	56 34 6
Inform. under the hind-knee.	*κ*	29	02	45	6	04 47 4 .5
		29	27	23	30	02 55 6
45.						
	♋	0	12	40	25	54 20 5
		1	17	55	25	30 56 6
		1	52	17	7	09 56 6
Æ. of Gemini 22d.		3	28	15	4	46 26 5 .6
		3	30	23	29	16 35 5 .6
50.						
		3	36	46	16	10 35 5 .6
		3	26	25	16	40 44 5
Æ. of Gemini 25th.		4	16	10	5	46 56 6
Æ. of Gemini 27th.		4	24	48	5	04 33 6
		3	55	0	21	21 22 5
55.						
		4	29	14	20	26 32 6
		4	18	57	25	40 00 6
		5	38	54	18	45 08 4 .5
		6	21	56	15	52 47 6
Inform. behind Auriga towards Gemini, and the hither feet of Urſa major.		6	26	15	25	28 07 6
60.						
		6	35	28	15	31 22 6
		7	42	21	15	11 33 6 .7
		10	02	53	16	43 35 4 .5
		11	06	34	18	26 35 5
		12	30	02	14	28 11 5
		12	20	53	18	24 21 5

AURIGRAPHUS, from *aurum*, *gold*, and γράφω, *I write*; in *Middle Age Writers*, a copiſt, or calligrapher, who wrote in gold letters.

AURIPIGMENTUM, called alſo ORPIMENT.

AURIS, the ear. See EAR.

AURIUM *abſciſſio*, cutting off the ears, was a puniſhment inflicted, by the Saxon laws, on thoſe who robbed churches; and, afterwards, on every thief; and, at length, on divers other criminals.

AURIS *aſini*, *aſi's ear*, a name given, by *Naturaliſts*, to a ſpecies of ſea-ſhell, ſuppoſed to reſemble the ear of an aſs. See MUREX.

AURIS *marina*. See EAR-*ſhell*.

AURIS *porci*, *hog's ear*, in *Natural Hiſtory*, a name given by authors to a ſea-ſhell, a ſpecies of the MUREX kind.

AURIS *elevator*; ſee ELEVATOR.—*Auris externus*, ſee EXTERNUS.—*Auris obliquus*, ſee OBLIQUUS.—*Auris tinnitus*, ſee TINNITUS.

AURISCALPIUM, an inſtrument wherewith to pick and cleanſe the ear from wax; and ſerving alſo for ſome other operations relating to diſorders of that part.

The word is compounded of *auris*, *ear*, and *ſcalpo*, *I ſcratch*, or *prick*.

AURORA, the morning twilight; or that faint light which begins to appear in a morning, when the ſun is within eighteen degrees of the horizon.

The poets have perſonified, and even made it a goddeſs; repreſenting her with a chariot, roſy fingers, &c. Accordingly *Aurora* is the daughter of Titan and Terra.

AURORA *Borealis*, or AURORA *Septentrionalis*, the northern dawn, or light, is an extraordinary METEOR, or luminous appearance, ſhewing itſelf in the night-time, in the northern part of the heavens.

It is uſually of a reddiſh colour, inclining to yellow, and ſends out frequent corufcations of pale light, which ſeem to riſe from the horizon in a pyramidal undulating form, and ſhoot, with great velocity, up to the zenith.

The *Aurora borealis* appears moſt commonly in form of an arch; chiefly in the ſpring and autumn; after a dry year.—The arch is partly bright, partly dark; but generally

rally transparent. And the matter of which it consists is also found to have no effect on the rays of light which pass through it. Dr. Hamilton observes that he could plainly discern the smallest speck in the Pleiades through the density of those clouds which formed part of the *Aurora borealis* in 1763, without the least diminution of its splendour, or increase of twinkling. Phil. Essays, Ess. iii. p. 106.

Sometimes it produces an *iris*.—M. Godin judges, that most of the extraordinary meteors and appearances in the skies, related as prodigies by historians, e. gr. battles, and the like, may be probably enough reduced to the class of AURORÆ *borealis*. Vide Hist. Acad. R. Scienc. an. 1762. p. 405.

This kind of METEOR never appears near the equator, and was so rare in England, that none are recorded in our annals since that remarkable one, November 14, 1574, till the surprising *Aurora borealis*, March 6, 1716, which appeared for three nights successively, but by far more strongly on the first.—Indeed, in the years 1707, and 1708, five small ones were observed in little more than eighteen months.

Hence it should seem, that the air, or earth, or both, are not at all times disposed to produce this *phenomenon*, for though it is possible it may happen in the day-time, in bright moon-shine, or in cloudy weather, and so pass unobserved; yet that it should appear so frequent at some times, and so seldom at others, cannot well this way be accounted for.—That in March 1716, was visible to the west of Ireland, and the confines of Russia, and to the east of Poland; extending at least near 30° of longitude, and from about the 50th degree in latitude, over almost all the north of Europe; and in all places at the same time, it exhibited the like wondrous appearances.

Many attempts have been made to assign the cause of this *phenomenon*.—Dr. Halley imagines the watery vapours, or *effluvia*, rarefied exceedingly by subterraneous fire, and tinged with sulphureous fleams, which many naturalists have supposed to be the cause of earthquakes, may also be the cause of this appearance: or that it is produced by a kind of subtile matter, freely pervading the pores of the earth, and which, entering into it nearer the southern pole, passes out again with some force into the *ether* at the same distance from the northern; the obliquity of its direction being proportioned to its distance from the pole. This subtile matter, by becoming some way or other more dense, or having its velocity increased, may be capable of producing a small degree of light, after the manner of *effluvia* from electric bodies, which, by a strong and quick friction, emit light in the dark: to which sort of light this seems to have a great affinity. Phil. Trans. N° 347.—See Mr. Cotes's description of this *phenomenon*, and method of explaining it, by streams emitted from the heterogeneous and fermenting vapours of the atmosphere, in Smith's Optics, p. 69, &c. or Phil. Trans. abr. vol. vi. part ii.

The celebrated M. de Mairan, in an express treatise on the *Aurora borealis*, published in 1731, assigns its cause to be the ZODIACAL *light*, which, according to him, is no other than the sun's atmosphere; this light happening, on some occasions, to meet the upper parts of our air, on the side of the limits, where universal gravity begins to act more forcibly towards the earth than towards the sun, falls into our atmosphere, to a greater or less depth, as its specific gravity is greater or less, compared with the air through which it passes. Vide Tract. Phys. & Hist. del Aurore Boreal. Suite des Mem. del Acad. R. des Scienc. ann 1731. p. 3. seq.—There is an abstract of Mr. Mairan's Physical and Historical Treatise of the *Aurora borealis*, in the Phil. Trans. N° 433. or Abrig. vol. viii. p. 540.

Mr. Euler thinks the cause of the *Aurora borealis* not owing to the zodiacal light, as Mr. de Mairan supposes; but to particles of our atmosphere, driven beyond its limits by the impulse of the light of the sun. On this supposition, he endeavours to account for the *phenomena* observed concerning this light. He supposes the zodiacal light, and the tails of comets, to be owing to a similar cause. See TAIL *of comets*, and ZODIACAL *light*. This light appears sometimes remarkably red, as it happened Dec. 5, 1737, of which we have very full accounts from divers parts of Europe, in the Phil. Trans. N° 459. sect. 7. p. 583—606.

Ever since the identity of lightning, and of the electric matter, has been ascertained, philosophers have been naturally led to seek the explication of aerial meteors in the principles of electricity; and there is now no doubt but most of them, and especially the *Aurora borealis*, are electrical *phenomena*. Beside the more obvious and known appearances which constitute a resemblance between this meteor and the electric matter whereby lightning is produced, it has been observed, that the *Aurora* occasions a very sensible fluctuation in the magnetic needle; and that, when it has extended lower than usual into the atmosphere, the flashes have been attended with various sounds of rumbling and hissing, taken notice of both by Sig. Beccaria and M. Messier. Mr. Canton soon after he had obtained electricity from the clouds, offered a conjecture, that the *Aurora borealis* is occasioned by the flashing of electric fire from positive towards negative clouds at a great distance, through the upper part of the atmosphere where the resistance is least. And he supposes, that the *Aurora*, which happens at the time when the magnetic needle is disturbed by the heat of the earth, is the electricity of the heated air above it; and this appears chiefly in the northern regions, as the alteration in the heat of the air in those parts will be the greatest: nor is this hypothesis improbable, when it is considered, that electricity is the cause of thunder and lightning; that it has been extracted from the air at the time of an *Aurora borealis*; that the inhabitants of the northern countries observe it to be remarkably strong, when a sudden thaw succeeds very severe cold weather; and that the *tourmalin* is known to emit and absorb the electric fluid only by the increase or diminution of its heat. Positive and negative electricity in the air, with a proper quantity of moisture to serve as a conductor, will account for this and other meteors, sometimes seen in a serene sky. Mr. Canton has since contrived to exhibit this meteor by means of the *Torricellian* vacuum, in a glass tube about three feet long, and sealed hermetically. When one end of the tube is held in the hand, and the other applied to the conductor, the whole tube will be illuminated from end to end; and will continue luminous without interruption for a considerable time, after it has been removed from the conductor. If, after this, it be drawn through the hand either way, the light will be uncommonly intense, and without the least interruption from one hand to the other, even through its whole length. And though a great part of the electricity is discharged by this operation, it will still flash at intervals, when held only at one extremity, and kept quite still; but if it be grasped by the other hand at the same time in a different place, strong flashes of light will hardly ever fail to dart from one end to the other, and these will continue twenty-four hours and longer, without any fresh excitation. An arched double barometer, of a considerable height, is an improvement of this contrivance, for exhibiting the appearance of an *Aurora borealis*, by means of the electric fire. Signior Beccaria, who has pursued his observations on atmospherical electricity farther than any of his associates in these inquiries, conjectures that there is a constant and regular circulation of the electric fluid from north to south; and he thinks, that the *Aurora borealis* may be this electric matter performing its circulation in such a state of the atmosphere as renders it visible, or approaching nearer to the earth than usual. Dr. Franklin supposes, that the electrical fire discharged into the polar regions from many leagues of vaporised air rafied from the ocean between the tropics, accounts for the *Aurora borealis*; and that it appears first, where it is first in motion, i. e. in the most northern part, and the appearance proceeds southward, though the fire really moves northward. Franklin's Exper. and Obs. 1769. p. 49. Phil. Trans. vol. xlviii. part i. p. 358, part ii. p. 784. lb. vol. li. part i. p. 203. Lettre dell' Illettrissimo, p. 269; or Priestley's Hist. of Electricity, vol. i. See also an ingenious solution of this *phenomenon*, on the same principles, by Dr. Hamilton, Phil. Essays, Ess. iii.

We read of an *Aurora Australis*, a kind of light seen in the sky, towards the south, somewhat resembling those often seen towards the north. See Phil. Trans. N° 401. sect. 23, 24, and 25. and vol. liv. N° 53.

AURORA *fixata*, a phrase used by *Alchemists*, to express the multiplicative virtue of the philosophers stone.

AURUM, in *Natural History*, denotes gold. See GOLD.

The word is chiefly used among us as applied to certain chemical preparations, whereof gold is the base, or principal ingredient.—Such are the *aurum potabile*, *aurum fulminans*, &c.

AURUM *fulminans* is a preparation of gold; thus called, because when cast in the fire, it produces a violent noise, like thunder. It consists of gold dissolved in *aqua regia*, and precipitated by oil of tartar *per deliquium*, or volatile spirit of *sal ammoniac*. The powder being washed in warm water, and dried to the consistence of a paste, is afterwards formed into little grains of the bignefs of hemp-seed.

It is inflammable, not only by fire, but also by a gentle warmth; and gives a report much louder than that of gun-powder.

Its effect is commonly said to be principally downwards; in opposition to gunpowder, which is chiefly upwards: but this rather seems a vulgar error.

A fcruple of this powder acts more forcibly than half a pound of gunpowder: a fingle grain laid on the point of a knife, and lighted at a candle, goes off with a greater noife than a muſquet.—It is ſaid to conſume even to the very laſt atom.—Dr. Black attributes the increaſe of weight, and alſo the explofive property of this powder, to adhering fixable air.

This is a very dangerous preparation, and ſhould be uſed with great caution.

AURUM *muſaicum*, *muſicum*, or *muſivum*, a preparation in *Pharmacy*; thus called from its golden colour and appearance. It is made of mercury, tin, *ſal ammoniac*, and flowers of ſulphur; by grinding, mixing, and then ſetting them three hours in a ſand-heat.—The dirty ſublimate being taken off, the *aurum muſaicum* is found at the bottom of the matraſs, as the *caput mortuum*.

It is recommended in moſt chronical and nervous caſes; and particularly convulſions of children.—Its doſe is from four grains to a ſcruple.

Aurum muſaicum is tin ſublimated by means of mercury, which receives its golden colour merely by the degree of heat proper for the operation. No other metal is ſublimated in this manner, except zinc, which may be ſubſtituted in place of the tin, and which led M. Homberg to ſay, that zinc contains tin.

Aurum muſaicum weighs about one-twelfth more than the tin originally employed. It is uſed as a pigment, and for mixing with glaſs, to imitate the ſpangles of the LAPIS *lazuli*; for which laſt purpoſe, ſhining *talc* is alſo made uſe of.—The *aurum muſaicum* is alſo called *aurum muſivum*.—See ſome very curious experiments to ſhew the nature of this preparation, in the Phil. Tranſ. vol. lxi. 1771. N° 15. where the curious may find various recipes for making it, and a deſcription of the cheapeſt apparatus.

AURUM *potabile*, or *tincture of gold*; a medicine formerly in great requeſt, but at preſent rarely if ever uſed. It is prepared by mixing eſſential oil of roſemary with a ſolution of gold in *aqua regia*, and after ſhaking the veſſel, the gold will be retained in the oil, ſwimming on the top. This oil is ſeparated by inclination, and afterward digeſted for a month, in highly-rectified ſpirit of wine.

But after all, this is not a genuine tincture of gold; being only the gold divided into very ſmall parts by the *ſpiritus* of the *aqua regia*, ſwimming in the oil of roſemary. Nor can there be any radical tincture of gold, which may not, by evaporating the oil, be reduced to a powder; and the powder by melting, reduced into gold. The virtues of this tincture are entirely owing to the oil of roſemary.

The very name of *potable gold* impoſes on a great many people, and gives an opportunity to empirics to cheat them with impunity; for they draw tinctures from ſome ingredients whoſe colours come near to that of gold, and ſell them at an exorbitant rate, under the title of *aurum potabile*. This ſort of deceit is what generally ſucceeds beſt; for patients are prepoſſeſſed in favour of ſuch medicines as coſt much, carry great names, and have a ſpecious appearance. It often happens that theſe tinctures, which go by the name of *aurum potabile*, produce ſome good effects, becauſe they can make them with ſuch ſpirituous *menſtrua*, as comfort the heart, and expel all humours by perſpiration: then the effect is extolled for a miracle, and attributed to the imaginary gold.

AURUM *regina*, ſee QUEEN-*gold*.

AURUM *ſophiſticum*, *mimic gold*, a chemical preparation, made as follows: take fine diſtilled verdigriſe, eight ounces; crude Alexandrian tutty, four ounces; borax, twelve ounces; ſalt-petre, one ounce and a half; pulverize and mix them all together, tempering them with oil to the conſiſtence of a plaiſter; then put a German crucible into a wind-furnace, heat it red-hot, and putting your maſs into it, let it be covered, and the furnace filled with coals over the crucible. When the maſs is melted, let it cool of itſelf, then break the crucible, and you will find at the bottom a fine *regulus*, like gold, weighing about four ounces, which being malleable, may be wrought into any form.

AURUM *vegetabile*, a name given to SAFFRON.

AUSCULTARE, in *Ancient Cuſtoms*.—Becauſe the reading of prayers with a graceful tone, or accent, makes ſome impreſſion on the hearers; there was anciently a perſon appointed, in *monaſteries*, to hear the monks read and ſing, who inſtructed them how to perform, before they were admitted to read or chant publicly in the church, or before the people.—This was called *auſcultare*, q. d. *to hear*, or *liſten*.

AUSPEX, a name originally given to thoſe who were afterwards denominated AUGURS.

In which ſenſe, the word is ſuppoſed to be formed from *avis*, *bird*, and *ſpicere*, *to inſpect*; *auſpex*, q. d. *auſpicium*.

Some will therefore have *auſpices* properly to denote thoſe who foretold future events from the flight of birds.

AUSPICIUM, AUSPICY, the ſame with AUGURY.

Servius, indeed, diſtinguiſhes between *auſpice* and *augury*; making *auſpice* comprehend the conſideration of all things; *augury* only of certain things: he adds, that the former was allowed a man any where abroad, whereas the latter might only be performed in his native place. And it is certain, that conſuls, generals, and others, who took omens out of Rome, were properly ſaid *auſpicare*: nevertheleſs, cuſtom appears to have over-ruled this diſtinction.

AUSTERE, implies a rough aſtringent taſte; ſuch as that of vitriol, alum, &c.

The word comes from αυστηρος, which ſignifies the ſame. *Auſtere* things differ from *acerb*, or ſour ones, in that they conſtringe the mouth and tongue ſomewhat leſs, and are devoid of acidity.

AUSTERITY, *Auſterneſs of taſte*, that which denominates a ſapid body AUSTERE.

AUSTERITY, among *Moral Writers*, ſometimes denotes *rigour* in the inflicting of puniſhments.

We ſay, *auſterity* of manners; the *auſterities* of the monaſtic life. The *auſterity* of the Roman cenſors kept the people in their duty. The greateſt *auſterity* of the Carthuſians is perpetual ſolitude.

AUSTIN-*Friers*. See HERMITS.

AUSTRAL, *Auſtralis*, the ſame with *ſouthern*.

The word is derived from *auſter*, *ſouth wind*.

Thus *auſtral ſigns* are the ſix laſt SIGNS of the zodiac; ſo called, becauſe they are on the ſouth ſide of the equinoctial.

AUSTRALIS *Corona*, ſee CORONA *Auſtralis*.

AUSTRALIS *Piſcis*, is a conſtellation of the ſouthern hemiſphere, not viſible in our latitude; whoſe ſtars, in Ptolemy's Catalogue, are 18; and in the Britannic Catalogue, 24: the longitudes and latitudes, &c. of which are as follow:

Situation of the Stars.		Bayer's Char.	Longitud.		Latitude		Magnitude.
			°	′	°	′	
			4	5	10	14	57	12	5
			4	55	29	14	58	20	6
			7	55	28	10	55	40	6
			7	35	20	15	36	7	4-5
			9	56	0	15	22	56	0
	5.								
			9	57	40	18	15	14	6
			11	12	10	17	43	27	6
In the northern fin.		ε	11	56	18	11	12	54	4-5
		ϑ	12	54	28	18	17	15	4
		δ	14	19	30	16	21	18	4
	10.								
			17	57	48	14	21	20	6
			17	55	20	15	13	40	5
In the ſouthern fin.		γ	18	8	20	16	51	45	6
			17	45	56	20	2	0	4
	15.		18	16	30	19	45	20	5-6
In the belly.		λ	21	3	20	15	40	40	4-5
In the ſouthern part of the head.		β	22	49	55	21	18	30	3
In the gill.		ι	26	58	40	17	14	18	3-4
			26	22	50	19	30	50	5
	20.		28	45	50	16	0	10	6
			28	13	16	20	26	36	6
In the head.		ψ	26	58	26	15	36	10	5
		ω	27	50	25	21	56	5	5
In the mouth.		π	29	29	0	21	4	50	5

AUSTRIACA *Sydera*, a name given by Mauperтuis to the ſpots in the ſun, as ſuppoſing them to be ſmall ſtars between the ſun and us.

AUSTRO *Africus*, the ſouth-ſouth-weſt point, or wind.

AUSTROMANCY, *Austromantia*, properly denotes ſoothſaying, or a vain method of predicting futurity, from obſervations of the winds.

AUSTURCUS, and OSTURCUS, a GOSHAWK; from whence we uſually call a falconer, who keeps that kind of hawks, an *oſtringer*. In ancient deeds, there has been reſerved as a rent to the lord, *unum auſturcum*.

AUTER *droit*, in *Law*, is where perſons ſue, or are ſued, in another's right; as executors, adminiſtrators, &c.

AUTER *vie*; a perſon who holds an eſtate by the life of another, is uſually called tenant *per auter vie*. Lytt. ſect. 56.

AUTER-

AUTERFOITS *acquit*, in *Law*, a plea by a criminal, that he was heretofore *acquitted* of the same treason or felony. For one shall not be brought in danger of his life, for the same offence more than once. 3 Inst. 213. But by ſtat. 3 Hen. VII. c. 1. this plea ſhall be no bar to the proſecution of any *appeal*.

AUTERFOITS *attaint*, a plea of former attainder, which is a good plea in bar, whether it be for the ſame or any other felony, under ſome exceptions; ſo that this plea is never good, but when a ſecond trial would be quite ſuperfluous.

AUTERFOITS *convict*, a plea upon a former conviction for the ſame identical crime, though no judgment was, or ever will be given: and this is a good plea in bar to an indictment.

AUTHENTIC, ſomething of received authority. It alſo ſignifies ſomething ſolemn, and celebrated; clothed in all its formalities; and atteſted by proper perſons to whom credit has been regularly given.

AUTHENTICATING, the puniſhing an adulteſs, by public whipping, and ſhutting her up in a convent for two years, after which, if the huſband be not willing to take her back, ſhe is ſhaven, veiled, and ſhut up for life.

It is thus called, as being the puniſhment preſcribed in the *authentics*.

If the huſband die within the two years, ſhe ſeems to have a right to petition the court for her liberty; at leaſt, another man, willing to marry her, may petition, and probably obtain it.

AUTHENTICS, AUTHENTICÆ, in the *Civil Law*, is a name given to the Novels of Juſtinian. See NOVEL.

The reaſon of the denomination is not well known.—Alciat will have it to have been firſt given them by Accurſius. The Novels were originally compoſed in Greek, and afterwards tranſlated into Latin by the patrician Julian, who alſo reduced them into fewer words, and leſs compaſs. And in the time of Bulgarus, there was a ſecond verſion made, more exact and literal, though not quite ſo elegant as the former.

This tranſlation, ſays the author juſt cited, being preferred by Accurſius, he called it *authentica*, by way of preference to that of Julian, as being more conformable to the original. They are hereby diſtinguiſhed from ſome other publications of later imperial conſtitutions, which are not regarded as of much authority.

AUTHOR, AUCTOR, properly denotes one who created or produced any thing; and is applied, by way of eminence, to the firſt cauſe; viz. God.

The word is formed of αυτος, *ipſe*; or rather from the Latin participle *auctus*, of *augeo*, *I increaſe*.

We ſay the *Author* of nature; *Author* of the univerſe, &c.

The term *author* is ſometimes uſed in the ſame ſenſe with *inſtitutor* or *inventor*.—Polydore Virgil has wrote eight books of the *authors* or *inventors* of things, &c. See INVENTION.—Pythagoras is held the *author* of the *dogma* of *metempſychoſis*.

AUTHOR, in matters of *Literature*, denotes a perſon who has wrote or compoſed ſome book or writing.

We ſay the ſacred *authors*; anonymous *authors*; ancient and modern *authors*; the Latin *authors* pillaged the Greeks, &c.—An original *author*, is he who firſt treated on any point or ſubject; who did not follow any other perſon, or imitate any model either in the matter or the manner of what he has wrote. See ORIGINAL.

AUTHORITY, AUCTORITAS, in a general ſenſe, denotes a right or power to command, and make one's ſelf obeyed.

In this ſenſe we ſay, the ſupreme or ſovereign *authority*; abſolute or deſpotic *authority*; the royal *authority*; the epiſcopal *authority*; the *authority* of the church, of a father, &c. The *authority* of Scripture, of a creed, confeſſion, or the like.

AUTHORITY is alſo uſed for the teſtimony of an author or writing.

The word is alſo particularly underſtood of an apophthegm, or ſentence of ſome great or eminent perſon, quoted in a diſcourſe, either by way of proof, or embelliſhment.

Authority alſo includes rules, laws, canons, decrees, deciſions, &c. alledged in confirmation of a matter in diſpute.

Paſſages quoted from Ariſtotle were of great *authority* in the ſchools: texts of ſcripture are of deciſive *authority*.

Authorities make a ſpecies of arguments called by rhetoricians *inartificial*, or *extrinſic arguments*.

For the uſe and effect of *authorities*, ſee EVIDENCE, FAITH, PREJUDICE, PROBABILITY, REASON, REVELATION, &c.

AUTHORITY, in *Law*, is a power to do ſomething, conveyed by word or writing; as alſo by writ, warrant, commiſſion, letter of attorney, &c. and ſometimes by law.

AUTHORITY, or AUTHORITIES, likewiſe denote the treatiſes of ancient authors, ſuch as Glanvil, Bracton, Britton, the author of the book Fleta, Lyttleton, Thelwall, Coke, and others, which are cited as authority; and furniſh evidence that caſes have formerly been ſo, in which particular points were determined, which are now become ſettled and firſt principles.

AUTO *de fe*. See ACT *of Faith*.

AUTOCABDALI, in *Antiquity*, an order of muſicians, who wore an ivy crown, or garland.

Scaliger ſeems to rank them in the number of *mimi*.

AUTOCEPHALUS, a perſon who is his own ruler or maſter, and who has no other over him.

The word is compounded of αυτος, *ipſe*, and κεφαλη, *caput*, *head*.

This denomination was given, by the Greeks, to certain archbiſhops, who were exempted from the juriſdiction of patriarchs.—Such was the archbiſhop of Cyprus, by a general decree of the council of Epheſus, which freed him from the juriſdiction of the patriarch of Antioch.

There were ſeveral other biſhops in the Eaſt, who were *autocephali*; and in the Weſt, thoſe of Ravenna pretended to the ſame right.—The ſixth council, canon 39. ſays, that the *autocephali* have the ſame authority with patriarchs; but this is not to be underſtood in the full latitude of the words; but only as intimating, that the *autocephali* have the ſame authority over their biſhops that patriarchs had over their archbiſhops: in which ſenſe, only, they are equal to patriarchs.

AUTOCHTHONES, from αυτος, *ipſe*, and χθων, *terra*; an appellation aſſumed by ſome nations, importing, that they ſprung, or were produced, from the ſame ſoil which they ſtill inhabited.

In this ſenſe, *autochthones* amounts to the ſame with *aborigines*.

In this ſenſe it was that the Greeks, and eſpecially the Athenians, pretended to be *autochthones*, and, as a badge thereof, wore a golden graſshopper woven in their hair, an inſect ſuppoſed to have the ſame origin.

AUTOCRATOR, from αυτος, and κρατος, *power*; a perſon veſted with an abſolute independent power, by which he is rendered unaccountable to any other for his actions.

The power of the Athenian generals, or commanders, was uſually limited; ſo that at the expiration of their office, they were liable to render an account of their adminiſtration. But, on ſome extraordinary occaſions, they were exempted from this reſtraint, and ſent with a full and uncontroulable authority: in which caſe, they were ſtyled αυτοκρατορες.

The ſame people alſo applied the name to ſome of their ambaſſadors, who were veſted with a full power of determining matters according to their own diſcretion, and reſembled our *plenipotentiaries*.

AUTOCRATOR was alſo a title given to the Roman emperors, firſt to Julius, and afterwards to his ſucceſſors, like that of Cæſar, or Auguſtus.

AUCTODIDACTUS, from αυτος, and διδασκω, *I teach*; a perſon ſelf-taught.

It is uſed in divers ſenſes, ſometimes to denote a perſon who received his knowledge immediately from heaven, without any help or ſtudy. In which ſenſe the word occurs in Homer, and Clemens Alexandrinus.—Sometimes for him who acquires his knowledge without either inſtruction by word of mouth, or reading of books. Such were the inventors of ſciences and laws.—Sometimes, and that moſt uſually, for him who arrives at learning by the uſe of books alone, without the aſſiſtance of any maſter, or inſtruction *viva voce*.

AUTOGLYPHUS *lapis*, a ſtone, mentioned by Plutarch and ſome other of the ancients, as having naturally impreſſed on it the figure of Cybele. It is ſaid to have been found in Sagaris, a river of Perſia. Doubtleſs, if any ſuch ſtone ever exiſted, the prieſts had got it made to deceive the people.

AUTOGRAPHUM, the very hand writing of any perſon; or the original of a treatiſe, or diſcourſe.—The word is uſed in oppoſition to a *copy*.

The word is formed of αυτος, and γραφω, *ſcribo*.

AUTOLITHOTOMUS, he who cuts himſelf for the ſtone. See LITHOTOMY.

Of this we have a very extraordinary inſtance given by Reiſelius, in the Ephemerides of the Academy Naturæ Curioſorum, an. 3. obſ. 190.

AUTOMATON, or AUTOMATUM, a ſelf-moving engine; or a machine which has the principle of motion within itſelf.

The word is compounded of αυτος, *ipſe*, and μαομαι, *I am excited*, or *ready*; whence αυτοματος *ſpontaneus*.

Such were Archytas's flying dove, mentioned by Aulus Gellius, Noct. Att. lib. x. c. 12. and Regiomontanus's wooden eagle, which, as hiſtorians relates, flew forth from the city, met the emperor, ſaluted him, and returned;

ly; as alſo his iron fly, which, at a feaſt, flew out of his hand, and, taking a round, returned thither again. Chew. Apol. c. x. ſect. 1.

Among *automata* are alſo reckoned all mechanical engines which go by ſprings, weights, &c. included within them: ſuch are clocks, watches, &c. Vide Bapt. Port. Mag. Nat. c. 19. Scalig. Subtil. 326.

AUTONOMIA, from *αὐτὸς, ſelf*, and *νόμος, law*, a power of living, or being governed by our own laws and magiſtrates.

The liberty of the cities which lived under the faith and protection of the Romans, conſiſted in their *autonomia*, i. e. they were allowed to make their own laws, and elect their own magiſtrates; by whom juſtice was to be adminiſtered, and not by Roman preſidents or judges, as was done in other places, which were not indulged the *autonomia*.

AUTOPHOSPHORUS, is, by ſome, uſed to denote *phoſphorus*, on account of its kindling as it were of itſelf.

AUTOPRACTI, from *αὐτὸς*, and *πρᾶξαι, I exact*, in the *Civil Law*; thoſe indulged this privilege, that they ſhould not be ſummoned or compelled to pay taxes, or tributes, by the collectors, but ſhould be left to their own free will. Du-Cange.

Of this number were men of diſtinguiſhed dignity, and thoſe eminent for their probity and honour.

AUTOPSY, ocular inſpection; or the ſeeing of a thing with one's own eyes.

The word is compounded of *αὐτὸς, one's ſelf*, and *ὄψις, ſight*.

AUTOPYROS, from *αὐτὸς*, and *πυρὸς, wheat*, in the *Ancient Diet*, an epithet given to a ſpecies of bread, wherein the whole ſubſtance of the wheat was retained, without retrenching any part of the bran.

Galen deſcribes it otherwiſe, viz. as bread where only the coarſer bran was taken out.—And thus, it was a medium between the fineſt bread, called *ſimigineus*, and the coarſeſt, called *furfuraceus*.

This was alſo called *autopyrites*, and *ſyncomiſtus*.

AUTOUR, in *Natural Hiſtory*, a ſort of bark which reſembles cinnamon, but is paler and thicker; it is of the colour of a broken nutmeg, and full of ſpangles. It comes from the Levant, and is an ingredient in the carmine dye.

AUTUMN, the third ſeaſon of the year; being that wherein the harveſt, and the fruits of the ſummer, are gathered. *Autumn* begins on the day when the ſun's meridian diſtance from the zenith being on the decreaſe, is a mean between the greateſt and the leaſt; which in theſe countries is ſuppoſed to happen when the ſun enters Libra. Its end coincides with the beginning of *winter*.

Divers nations have computed the year by *autumns*; the Engliſh Saxons, by *winters*.—Tacitus tells us, the ancient Germans were acquainted with all the other ſeaſons of the year, but had no notion of *autumn*.

Autumn has always been reputed an unhealthy ſeaſon. Tertullian calls it *tentator valetudinum*; and the ſatiriſt ſpeaks of it in the ſame light.

Autumnus Libitinæ quæſtus acerbus.

AUTUMN, in *Aſtrology*, the time or ſeaſon when the operation of the philoſophers ſtone is brought to maturity and perfection.

AUTUMNAL, ſomething peculiar to *Autumn*.

AUTUMNAL *point*, is one of the equinoctial points; being that from which the ſun begins to deſcend towards the ſouth pole.

AUTUMNAL *equinox*, is the time when the ſun enters the *autumnal point*. See EQUINOX.

AUTUMNAL *flowers*. See FLOWER.

AUTUMNAL *ſigns*, are thoſe through which the ſun paſſes during the ſeaſon of AUTUMN; Libra, Scorpio, and Sagittarius.

AUVERNAS, a very deep-coloured heady wine, made of black raiſins ſo called, which comes from Orleans. It is not fit to drink before it is above a year old; but if kept two or three years, it becomes excellent.

AUX, in *Aſtronomy*, ſee AUGES.

Some uſe *aux* to denote the arch of the ecliptic, intercepted between the firſt point of *Aries*, and the point wherein the ſun, or a planet, is at its greateſt diſtance from the earth. Wolf. Lex. Math. p. 221.

AUXESIS, in *Aſtrology*, a goddeſs worſhipped by the inhabitants of Egina, and mentioned by Herodotus and Pauſanias.

AUXESIS, *αὔξησις, increaſe*, in *Rhetoric*, a figure whereby any thing is magnified too much. See AMPLIFICATION, and INCREMENT.

AUXILIARY, AUXILIARIES, any thing that is helping or aſſiſting to another.

We ſay, *auxiliary* troops; a prince is ſaid to truſt more to his own ſoldiers than to *auxiliary* troops, &c.

AUXILIARY *verbs*, in *Grammar*, are ſuch as help to aſcertain or limit the ſenſe of others; that is, are prefixed to them to form or denote their moods or tenſes.

Such, in Engliſh, are *have, am*, or *be*; in French, *ayez*, and *avoir*; in Italian, *ho*, and *fare*, &c.—The *auxiliary* can ſupplies the want of PASSIVES in our language.

All the modern languages we know of, make uſe of *auxiliary verbs*.—The reaſon is, that the verbs thereof do not change their terminations or endings, as thoſe of the Latin and Greek, to denote the different tenſes or times of being, doing, or ſuffering; nor the different moods or manners of their ſignifying: ſo that, to ſupply this defect, recourſe is had to different *auxiliary verbs*.

Beſides the perfect *auxiliary verbs*, we have ſeveral defective ones; as *do, will, ſhall, may, can*, and *have*; which by changing the terminations, ſave the neceſſity of changing thoſe of the verbs they are added to.—Thus, inſtead of *ego uro, tu uris, ille urit*, &c. we ſay I *do* burn, thou *doſt* burn, he *doth* burn, &c.

AUXILIUM, in *Law*, ſee AID.

AUXILIUM *curiæ*, ſignifies an order of court, for the ſummoning of one party at the ſuit of another.

AUXILIUM *ad filium militem faciendum, vel filiam maritandam*, was a writ directed to the ſheriff of every county, where the king or other lord had any tenants, to levy of them reaſonable aid, towards the knighting of his eldeſt ſon, or the marriage of his eldeſt daughter.

AUXO, in *Mythology*, the name of one of two GRACES, worſhipped by the Athenians. See HEGEMONE.

AUXY; the French give the name of *auxy* wool, to that which is ſpun in the neighbourhood of Abbeville, by thoſe workmen who are called *boſſiers*. It is a very fine and beautiful wool, which is commonly uſed to make the fineſt ſtockings.

AWAIT, in our old *Statutes*, is uſed to ſignify what we now call *waylaying*, or lying in *await*, to execute ſome miſchief. In ſtat. 13 R. II. c. 1. it is ordained, that no charter of pardon ſhall be allowed before any juſtice for the death of any man ſlain by *await*, or malice prepenſed, &c.

AWARD, in *Law*, the judgment of ſome perſon who is neither aſſigned by law, nor appointed by the judge, for ending a matter in controverſy; but is choſen by the parties themſelves that are at variance.

AWEIGH, ſee AYEAP.

AWK, ſee AUK.

AWL, or AUL, a ſhoemaker's inſtrument, wherewith holes are bored in leather, to facilitate the ſtitching or ſewing of the ſame.—The *blade* of the awl is uſually a little flat, and ſtanding; and the point ground to an acute angle.

AWME, or AUME, a Dutch MEASURE of capacity for liquids; containing eight *ſtockans*, or twenty *virgis*, or *vertels*: anſwering to what in England is called a FIRKIN, or one-ſixth of a *ton* of France, or one-ſeventh of an Engliſh *ton*. Arbuth. Tab. 33.

AWN, in *Botany*, ARISTA; the beard growing out of the huſk of corn or graſs. It is ſometimes uſed to ſignify a ſharp point terminating a leaf.

AWNING, on board a *ſhip*, is when a ſail, a tarpaulin, or the like, is hung over any part of the *ſhip*, above the decks, to keep off the ſun, rain, or wind.

In the long-boat they make an *awning*, by bringing the ſail over the yard and ſtay, and booming it out with the boat-hook.

AX, a carpenter's inſtrument, ſerving to hew wood.—The *ax* differs from the joiner's hatchet, in that it is made larger, and heavier, as ſerving to hew large ſtuff; and its edge tapering into the middle of its blade. It is furniſhed with a long handle or helve, as being to be uſed with both hands.

AXAMENTA, in *Antiquity*, a denomination given to the verſes or ſongs, of the *ſalii*, which they ſung in honour of all men.

The word is formed, according to ſome, from *axere*, q. d. *ſeminare*. Others will have the *carmina ſaliaria* to have been denominated *axamenta*, on account of their being written in *axibus*, or on wooden tables.

The *axamenta* were not compoſed, as ſome have aſſerted, but only ſung by the *ſalii*. The author of them was Numa Pompilius; and, as the ſtyle might not be altered, they grew in time ſo obſcure, that the *ſalii* themſelves did not underſtand them. Varro ſays they were ſeven hundred years old. Quint. Inſt. Or. lib. i. c. 6.

AXAMENTA, or AXAMENTA, in *Ancient Muſic*, hymns or ſongs performed wholly with human voices.

AXILLA, or ALA, in *Anatomy*, the cavity under the upper part of the arm; commonly called the ARM-*pit*.

The word is a diminutive of *axis*, q. d. *little axis*.

Abſceſſes in the *axillæ* are uſually dangerous, on account of the many blood-veſſels, lymphatics, nerves, &c. thereabout, which form ſeveral large PLEXUS.—By the ancient laws, criminals were to be hanged by the *axillæ*, if they were under the age of puberty.

AXILLA, in *Botany*, is the ſpace comprehended between the ſtems of plants and their leaves.

Hence we ſay, thoſe flowers grow in the *axillæ* of the

leaves; i. e. at the base of the leaves or just within the angle of their pedicles.

AXILLARY, in *Anatomy*, something that belongs to the *axillæ*, or lies near them.

AXILLARY *artery*, is a ramification of the trunk of the subclavian artery; which, passing under the arm-pits, changes its name, and is called *axillary*.

AXILLARY *vein*, is one of the subclavian veins; which, passing under the arm-pits, divides itself into several branches; *superior, inferior, external, internal*, &c. which are spread over the arm.—See *Tab. Anat. (Angeiol.) fig. b. lit. m.*

AXILLARY *nerve*, called also the *auricular nerve*, arises from the last two cervical pairs; runs in the hollow of the *axilla*, behind the head of the *os humeri*, between the *musculos teres major & minor*, &c.

The second *vertebra* of the back is sometimes also called the *axillary vertebra*; because it is nearest to the arm-pits.

AXILLARY *glands*, see HIRCUS, and GLANDS.

AXILLARY *leaves*, in *Botany*, express such as grow out of the angles formed by the branches and the stem.

AXINOMANCY, AXINOMANTIA, from ἀξινη, *securis*, and μαντεια, *divinatio*; an ancient species of divination, or a method of foretelling future events by means of an ax or hatchet.

This art was in considerable repute among the ancients; and was performed, according to some, by laying an agate stone on a red-hot hatchet; and also by fixing a hatchet on a round flake, so as to be exactly poised: then the names of those who were suspected were repeated, and he at whose name the hatchet moved was pronounced guilty.

AXIOM, AXIOMA, from ἀξιοω, *I am worthy*, a self-evident truth; or a proposition whose truth every person receives at first sight.

Thus, that the whole is greater than a part; that a thing cannot be and not be at the same time; and that from nothing, nothing can arise, are *axioms*.

By *axioms*, called also *maxims*, are understood all common notions of the mind, whose evidence is so clear and forcible, that a man cannot deny them without renouncing common sense, and natural reason.

The rule of *axioms* is this, that whatever proposition expresses the immediate clear comparison of two ideas without the help of a third, is an *axiom*.—On the other hand, a truth which does not arise from an immediate comparison of two ideas, is no *axiom*.

Axioms in effect, strictly speaking, are no other than identic propositions.—Thus, to say that all right angles are equal to each other, is as much as to say, all right angles are right angles: such equality being implied in the very definition, or the very name.

Lord Bacon proposes a new science, to consist of general *axioms* under the denomination of *Philosophia prima*.

For the reason of the evidence of *axioms*, it may be observed, that knowledge being only the perception of the agreement or disagreement of ideas; where that agreement or disagreement is perceived immediately by itself, without the intervention or help of any other ideas, there our knowledge is self-evident: which being so, not only those usually allowed for *axioms* or *maxims*, but an infinite number of other propositions, partake equally with them in this self-evidence. Thus, that a circle is a circle, or that blue is not red, are as self-evident propositions as those general ones, what is, is; and it is impossible for the same thing to be, and not to be. Nor can the consideration of those propositions add any thing to the evidence or certainty of our knowledge of them.

As to the agreement or disagreement of co-existence, the mind has an immediate perception of this but in very few. And therefore in this sort we have very little intuitive knowledge; though in some few propositions we have. Two bodies cannot be in the same place, is a self-evident proposition; the idea of fitting a place equal to the contents of its superficies, being annexed to our idea of body.

As to the relations of modes, *Mathematicians* have framed many *axioms* concerning that one relation of equality: as, that equals being taken from equals, the remainders will be equal, &c. which, however, received for *axioms*, yet have not a clearer self-evidence than these, that one and one are equal to two; that if from the five fingers of one hand you take two, and from the five fingers of the other hand two, the remaining numbers will be equal. As to real existence, since that has no connexion with any other of our ideas, but that of ourselves, and of a first being; we have not so much as a demonstrative, much less a self-evident knowledge, concerning the real existence of other beings.

For the influence of *axioms* or general maxims on the other parts of our knowledge; the rules established in the schools, that all reasonings are *ex præcognitis & præconcessis*, seem to lay the foundation of all other knowledge in these maxims, and to suppose them to be *præcognita*; which implies two things, viz. that these *axioms* are those truths first known to the mind; and that on them the other parts of our knowledge depend.—But, first, that these *axioms* are not the first known to the mind, is evident from experience; for who knows not, that a child perceives that a stranger is not its mother, long before he knows it impossible for the same thing to be and not to be? and how many truths are there about numbers, which the mind is perfectly acquainted with, and fully convinced of, before it ever thought on those general maxims.

Hence it follows, that these magnified *axioms* are not the principles and foundations of all our other knowledge; for if there be a great many other truths as self-evident as they, and a great many that we know before them, it is impossible that they should be the principles from which we deduce all other truths.—Thus, that one and two are equal to three, is as evident, and easier known, than that the whole is equal to all its parts.—Nor, after the knowledge of this *axiom*, do we know that one and two are equal to three, better or more certainly than we did before. For if there be any odds in these ideas, the ideas of whole and parts are more obscure, or at least more difficult to be settled in the mind, than those of one, two, or three. Either, therefore, all knowledge does not depend on *præcognita*, or general maxims, called *principles*; or else such as these, that one and one are two, that two and two are four, &c. and a great part of numeration, are *axioms*. To these, if we add all the self-evident propositions that may be made about all our distinct ideas, principles will be almost infinite; and a great many innate principles many men never come to know all their lives.

General maxims, or *axioms*, then, may be of use in disputes, to stop the mouths of wranglers: but they are of little in the discovery of unknown truths. Several general maxims are no more than bare verbal propositions, and teach us nothing but the, respect and import of names one to another; as the whole is equal to all its parts: what real truth does this teach us more, than what the signification of the word *totum*, or whole, does of itself import? If rightly considered, we may say, that where our ideas are clear and distinct, there is little or no use at all of maxims, to prove the agreement or disagreement of any of them. He that needs any proof to make him certain, and give his assent to this proposition, that two are equal to two, or that white is not black; will also have need of a proof to make him admit, that what is, is; or, that it is impossible for the same thing to be and not to be. But as maxims are of little use, where we have clear and distinct ideas; so they are of dangerous use, where our ideas are confused, and where we use words that are not annexed to clear and distinct ideas. Locke.

AXIOM is also an established principle in some art or science.

Thus, it is an *axiom* in *Physics*, that nature does nothing in vain; that effects are proportional to their causes, &c. So it is an *axiom* in *Geometry*, that things equal to the same third are also equal to one another; that if to equal things you add equals, the sums will be equal, &c. It is an *axiom* in *Optics*, that the angle of incidence is equal to the angle of reflection, &c. It is an *axiom* in *Medicine*, &c. that there is no sulcene acid in the human body, &c.

In this sense, the general laws of motion are called *axioms*: as, that all motion is rectilineal, that action and reaction are equal, &c.

These particular *axioms*, it may be observed, do not immediately arise from any first notions or ideas, but are deduced from certain hypotheses: this is particularly observable in physical matters, wherein, as several experiments contribute to make one hypothesis, so several hypotheses contribute to one *axiom*.

AXIOM, in *Rhetoric*, is used by Hermogenes to denote grandeur, dignity, and sublimity of style.

AXIOS, a form of acclamation, anciently used by the people in the election of bishops. When they were all unanimous, they cried out ἀξιος, *he is worthy*, or ἀναξιος, *unworthy*.

AXIOSIS, in *Rhetoric*, denotes the third part of an exordium; sometimes also called προσωποποιια, and containing some new proposition more nearly relating to the matter in hand, than the *epitasis*.

Thus in Cicero's oration *pro Milone*, the *protasis* is, *Non possum non timere, judices, ne hæc nova judicii forma; the καταστασις, Nec enim ea res est confessa vestre cinctus est, quo fidebat; the αξιωσις, Sed me recreat Pompei consilium, cujus sapientia non fuerit, quem sententiis judicum prodidit, tribi militum dederit; the βασις, Quamobrem adeste animis, judices, & timorem, si quem habetis, deponite.*

AXIS properly signifies a line, or a long piece of iron or wood passing through the centre of a sphere, which is moveable upon the same.

In this sense we say, the *axis* of a sphere, or globe; the *axis*, or *axle-tree* of a wheel, &c.

These is now a sort of improved iron *axle-trees* made for coaches and chaises, which will go in all roads, wider or narrower. Some screw to the end, after the French manner.

AXIS, in *Anatomy*, is the second *vertebra* of the neck, reckoning from the skull.—See *Tab. Anat. (Osteol.) fig.* 9. It is thus called because the first *vertebra*, with the head, move thereon as an *axis*. See CARDO.

AXIS, *spiral*, in *Architecture*, is the *axis* of a twisted column, drawn spirally, in order to trace the circumvolutions without. See COLUMN, *twisted*.

AXIS *of the world*, in *Astronomy*, is an imaginary right line, which is conceived to pass through the centre of the earth, and terminating at each end in the surface of the mundane sphere.

About this line, as an *axis*, the sphere, in the Ptolemaic system, is supposed daily to revolve.

This *axis* is represented by the line PQ, *Tab. Astron. fig.* 52.—The two extreme points hereof in the surface of the sphere, viz. P and Q, are called its *poles*.

AXIS *of the earth*, is a right line, upon which the earth performs its diurnal rotation from west to east.

Such is the line PQ, *Tab. Geog. fig.* 7.—The two extreme points hereof are also called *poles*.

The *axis* of the earth is a part of the *axis* of the world.—It always remains parallel to itself, and at right angles with the EQUATOR. See ANGLE, INCLINATION, and PARALLELISM.

AXIS *of a planet*, is a line drawn through the centre thereof, about which the planet revolves.

The sun, moon, and all the planets, except Mercury and Saturn, are known, by observation, to move about their several *axes*; and the like motion is easily inferred of those two.

AXIS *of the* HORIZON, the EQUATOR, ECLIPTIC, ZODIAC, &c. are right lines drawn through the centres of those circles, perpendicular to their planes. See CIRCLE.

AXIS, in *Botany*, a taper column placed in the centre of some flowers or katkins, about which the other parts are disposed.

AXIS, in *Geometry*.—*Axis* of rotation, or circumvolution, is an imaginary right line, about which any plain figure is conceived to revolve, in order to generate a solid.

Thus, a sphere is conceived to be formed by the rotation of a semicircle about its diameter or *axis*, and a right cone by that of a right angled triangle about its perpendicular leg, which is here its *axis*.

AXIS *of a circle* or *sphere*, is a line passing through the centre of the circle or sphere, and terminating at each end, in the circumference thereof.

The *axis* of a circle, &c. is otherwise called the *diameter* thereof. Such is the line AE, *Tab. Circ. fig.* 27.

AXIS is yet more generally used for a right line proceeding from the vertex of a figure to the middle of the base thereof.

AXIS *of a cylinder* is properly that quiescent right line, about which the parallelogram turns, by whose revolution the cylinder is formed.

Though both in right and oblique cylinders, the right line joining the centres of the opposite bases is also called the *axis of the cylinder*.

AXIS *of a cone*, is the right line or side upon which the right angled triangle forming the cone makes its motion. Hence it follows, that only a right cone can properly have an *axis*; because an oblique one cannot be generated by any motion of a plain figure about a right line at rest.

But because the *axis* of a right cone is a right line drawn from the centre of its base to the vertex; in analogy hereto, the writers of conics do likewise call the like line, drawn from the centre of the base of an oblique cone to the vertex, the *axis* thereof.

AXIS *of a conic section*, is a right line passing through the middle of the figure, and cutting all the ordinates at right angles, and into two equal parts.

Thus if AP, *Tab. Conics, fig.* 31. be drawn perpendicularly to FF, so as to divide the section into two equal parts; it is called the *axis of the section*.

AXIS, *transverse*, called also the *first* or *principal axis* of an *ellipsis*, is the *axis* AP, last defined: being thus called in contradistinction to the *conjugate* or *secondary axis*.

The *transverse axis* in the *ellipsis* is the longest; and in the *hyperbola* it cuts the curve in the points A and P, *fig.* 32.

AXIS, *conjugate*, or, *second* AXIS *of the ellipsis*, is the line FF, *fig.* 31, drawn through the centre of the figure C, parallel to the ordinate MN, and perpendicularly to the transverse *axis* AP; being terminated at each extreme by the curve.

The *conjugate* is the shorter of the two *axes* of the *ellipsis*; and is not only found in the *ellipsis*, but in the *hyperbola*.

AXIS, *conjugate*, or *second* AXIS *of an hyperbola*, is the right line FE, *fig.* 32. drawn through the centre parallel to the ordinates MN, MN, perpendicularly to the transverse *axis* AP.—The *axis* of a *parabola* is of an indeterminate length; that is, is infinite.—The *axis* of the *ellipsis* is determinate. The *parabola* has only one *axis*: the *ellipsis* and *hyperbola* have two.

AXIS *of a magnet*, or *magnetical* AXIS, is a line passing through the middle of a magnet, lengthwise; in such manner, as that however the magnet be divided, provided the division be made according to a plane, wherein such line is found, the load-stone will be made into two load-stones.

The extremes of such lines are called the *poles* of the stone.

AXIS, in *Mechanics*.—The *axis* of a balance is the line upon which it moves or turns.

AXIS *of oscillation*, is a right line parallel to the horizon, passing through the centre, about which a PENDULUM vibrates.

AXIS *in peritrochio*, or *wheel* and *axle*, is one of the five mechanical powers, or simple machines; contrived chiefly for the raising of weights to a considerable height. It consists of a circle, represented AB (*Tab. Mechanics, fig.* 44), concentric with the base of a cylinder, and movable together with it, about its *axis* EF.—This cylinder is called the *axis*; and the circle the PERITROCHIUM; and the *radii*, or spokes, which are sometimes fitted immediately into the cylinder, without any circle, the *potentiæ*.—Round the *axis* winds a rope, whereby the weights, &c. are to be raised.

The *axis in peritrochio* takes place in the motion of every machine, where a circle may be conceived described about a fixed *axis*, concentric to the plane of a cylinder, about which it is placed: as in CRANE-wheels, MILL-wheels CAPSTANS, &c.

AXIS *in peritrochio, the doctrine of it*.—1. If the power applied to the *axis in peritrochio*, in the direction AL, *fig.* 7. perpendicular to the periphery of the wheel, or to the *spoke* or spoke, be to a weight G, as the *radius* of the *axis* CE is to the *radius* of the wheel CA, or the length of the spoke: the power will just sustain the weight, i. e. the weight and the power will be in *equilibrio*.

2. If a power, applied in F, pull down the wheel, according to the line of direction FD, which is oblique to the *radius* of the wheel, though parallel to the perpendicular direction; it will have the same proportion to a power which acts according to the perpendicular direction AL, which the whole line has to the line of the angle of direction DFC.

Hence, since the distance of the power in A is the *radius* CA; the angle of direction DFC being given, the distance DC is easily found.

3. Powers applied to the wheel in several points, F and K, according to the directions FD and KI, parallel to the perpendicular one AL, are to each other as the distances from the centre of motion CD and CI, reciprocally.

Hence, as the distance from the centre of motion increases, the power decreases; & *vice versa*.—Hence also, since the *radius* AC is the greatest distance, and agrees to the power acting according to the line of direction, the perpendicular power will be the smallest of all those able to sustain the weight G, according to the several lines of direction.

4. If a power acting according to the perpendicular AL, raise the weight G, the space passed through by the power, will be to the space passed through by the weight, as the weight to the power.

For, in each revolution of the wheel, the power passes through its whole periphery; and in the same time the weight is raised a space equal to the periphery of the *axis*: the space of the power, therefore, is to the space of the weight, as the periphery of the wheel to that of the *axis*: but the power is to the weight, as the *radius* of the *axis* to that of the wheel. Therefore, &c.

5. A power, and a weight, being given, to construct an *axis in peritrochio*, whereby it shall be sustained and raised: Let the *radius* of the *axis* be big enough to support the weight without breaking. Then, as the power is to the weight, so make the *radius* of the wheel, or the length of the spoke to the *radius* of the *axis*.

Hence, if the power be but a small part of the weight, the *radius* of the wheel must be vastly great.—E. g. Suppose the weight 3000, and the power 50, the *radius* of the wheel will be to that of the *axis* as 60 to 1.

This inconvenience is provided against by increasing the number of wheels and *axes*; and making one turn round another, by means of teeth or pinions.

AXIS *of a trifle*, is that quiescent right line passing through the middle thereof, perpendicularly to its base, and equally distant from its sides.

AXIS, in *Optics*.—*Optic axis*, or, *visual axis*, is a ray passing through the centre of the eye: or it is that ray which proceeds

proceeding through the middle of the luminous cone, falls perpendicularly on the crystalline humour, and consequently passes through the centre of the eye.

AXIS, *common*, or *mean*, is a right line drawn from the point of concourse of the two optic nerves, through the middle of the right line, which joins the extremity of the same optic nerves.

AXIS *of a lens*, or *glass*, is a right line passing along the *axis* of that solid, whereof the *lens* is a segment.

Thus, a spherical convex *lens* being a segment of some sphere, the *axis* of the *lens* is the same with the *axis* of the sphere; or it is a right line passing through the centre thereof. Or, the *axis* of a glass is a right line joining the middle points of the two opposite surfaces of the glass.

AXIS *of incidence*, in *Dioptrics*, is a right line drawn through the point of INCIDENCE, perpendicularly to the refracting surface.—Such is the line DB, *Tab.* IV. *Optics fig.* 56.

AXIS *of refraction*, is a right line continued from the point of incidence or refraction, perpendicularly to the refracting surface, along the farther medium. Such is the line BE.

Or, it is that made by the incident ray, perpendicularly prolonged on the side of the second medium.

AXIS, in *Zoology*, the name of a very remarkable animal, of the deer kind in all respects, except that neither the male nor female have horns; the tail is considerably long, and the whole shape and make extremely like those of the fallow deer. The female is smallest than the male, and both are of a reddish tawny colour, variegated with spots of white; the belly is white. The voice is much more loud and shrill than that of the deer. It is very plain that this creature is neither of the red nor fallow deer kind, whence Bellonius, who saw it at Cairo in Egypt, was induced to call it the AXIS. Ray.

AXLE-*tree*, see AXIS.

AXOLOTI, in *Ichthyology*, a singular fish found in the lake of Mexico. It has four feet like the lizard, no scales, a matrix like a woman, and the menstrual flux. It has the taste of an eel.

AXUNGIA, a kind of fat, the hardest and driest of any in the bodies of animals.

The word is supposed to be formed *ab axe rotarum quæ ungantur*, from its being used as the grease of wheels.

The Latins distinguish fat into *pinguedo*, and *adeps*, or *sevum*; which last, when old, is particularly called *axungia*: but many of our modern writers confound them.

Physicians make use of the *axungia* of the goose, the dog, the viper, and some others, especially that of man, which is held by some to be of extraordinary service in the drawing and ripening of tumors, &c.

AXUNGIA *of glass*, called also the *gall*, and *salt of glass*, is a scum taken from the top of the matter of glass before it be thoroughly vitrified. It is used in cleansing the teeth, and by farriers for clearing the eyes of horses.

AXUNGIA *humæ*, an affected name given by the German chemists to the *terra* GOLBERGENSIS, from their imagining that it contains some particles of silver, and owes to them its virtues in medicine.

AXUNGIA *solis*, is used for the TERRA *Sibiricæ*, and held to be good against the plague, pestilential fevers, &c. Boyle.

AXYRIS, in *Botany*, a genus of the *monœcia triandria* class of plants. The calyx of the male flowers is a perianthium, composed of four patent, obtuse leaves, divided into three segments, without a corolla: in the female flowers the calyx is compacted of five obtuse, concave, connivent, and permanent leaves, with the two exterior ones shorter than the rest, without a corolla or pericarpium: the seed is single, oblong, compressed, obtuse, and contained in the cup. There are four species.

AYEL, Fr. in *Law*, a writ which lies, where the grandfather was seised in his demesne the day he died, a stranger enters the same day and disposesses the heir.

AYENIA, in *Botany*, a genus of the *pyramidria pentandria* class, with a five-leaved calyx; the petals form a star with long shoots, under which are five *antheræ*; the capsule has five cells. There are three species.

AYGULA, in *Zoology*, a species of ape.

AYRY, or AERY of HAWKS, a nest or compave of *hawkes* so called from the old French word *aire*, which signifies the same.

AYSIAMENTA, or AYZIAMENTA. See EASEMENT.

AZAB, in the *Military Orders of the Turks*, signifies a particular body of the soldiery taken in, or added first to the *janizaries*, but now become a separate body from them.

The word, in the Oriental languages, signifies an unmarried person, and the original order of these was, that they should be single men.

The *azabs* in Egypt have been great rivals to the *janizaries*, and sometimes they have got the better. Their institution and officers are the same with those of the *janizaries*; but with this difference, that from *azabs* they are made *serbajees*, and from that *cusse cassi*, and come into the *divan*. On the contrary among the *janizaries*, when any one is made a *serbajee*, it is laying him aside, and he is no farther advanced. Pococke.

AZABE-KABERI, from *kaber*, *sepulchre*, and *azabe*, denotes a temporary punishment which, as the Mahometans say, the wicked must suffer after death for their crimes are hereby expiated, and Mahomet opens the gate of paradise to all who believe in him.

AZALEA, in *Botany*, *American upright honeysuckle*, a genus of the *pentandria monogynia* class: the characters are that it hath a coloured empalement, which is permanent, cut into five acute parts at the top: that the flower is funnel-shaped, having a long naked tube, cut into five parts, the two upper segments being reflexed backward, the two sides bent inward, and the lower one turned downward: that it hath five slender *stamina* of unequal lengths, with a round *germen*, which afterwards becomes a roundish *capsule*, having five cells filled with roundish small seeds. There are two species which grow naturally on moist grounds in North America. Linnæus enumerates six species.

AZAMOGLANS, see AGEMOGLANS.

AZAPES, see ASAPES.

AZARECAH, a sect of heretical Mussulmans, who acknowledge no punishment, temporal or spiritual.

AZAROLA, see SERVICE-*tree*.

AZARUM, a small, dry, blackish, stringy, medicinal root, much used in France as a specific for the farcy in horses.

The *azarum*, called also *nardus silvestris*, grows in the Levant, Candia, and about Lyons in France. The first is reputed the best. It is given in powder, from the quantity of an ounce to two.

AZAZEL, in *Jewish Antiquity*. See SCAPE-GOAT.

AZED, in the *Materia Medica*, a name given by the Arabian writers to a kind of camphor, which they make the third in value, placing it after the *alcanfari* and *abrigay*. The first of these was the finest of all the kinds of camphor, and was collected tolerably pure from the tree, as it grew in Canfur, the place whence it was named. The *abrigay* was the same camphor, rendered yet more pure by sublimation: this was a discovery of one of the kings of that country, and the camphor was named from him. The third kind, or *azed*, was the same with what we now receive from the Indies, under the name of crude or rough camphor. The word *azed* signifies only *large*, and was used to express the camphor formed into such large cakes as it is also at this time. Avicenna says this camphor was gross, of a dusky colour, and much less bright and pellucid than the other kinds.

AZEDARACH, in *Botany*, see BEAD-*tree*.

AZELFOGE, in *Astronomy*, a fixed star of the second magnitude, in the SWAN's *tail*.

AZIMUTH, in *Astronomy*. The *azimuth* of the sun, or a star, is an arch of the HORIZON, comprehended between the meridian of the place, and any given vertical, in which the sun or star is.

The word is pure Arabic, which signifies the same thing. The *azimuth* is the complement of the eastern or western amplitude to a quadrant.

The *azimuth* is found trigonometrically, by this proportion; as *radius* is to the tangent of the latitude, so is the tangent of the sun's altitude to the cosine of the *azimuth* from the south, or the line of the equinox. To find the *azimuth* by the globe, see GLOBE.

AZIMUTH, *magnetical*, is an arch of the horizon contained between the sun's *azimuth* circle, and the magnetical meridian; or it is the apparent distance of the sun from the north or south point of the compass.

It is found, by observing the sun with an *azimuth*-compass, when he is about 10 or 15 degrees high, either in the forenoon or afternoon.

AZIMUTH *compass*, is an instrument used at sea for finding the sun's magnetical *azimuth*.

The description and use of the *azimuth compass*, see under *Azimuth* COMPASS.

AZIMUTH *dial*, is a DIAL whose style or *gnomon* is at right angles to the plane of the HORIZON.

AZIMUTHS, called also *vertical circles*, are great circles intersecting each other in the zenith and nadir, and cutting the horizon at right angles in all the points thereof. The HORIZON being divided into 360, there are usually reckoned 360 *azimuths*. These *azimuths* are represented by the rhumbs on common sea-charts.

On the globe these circles are represented by the quadrant of altitude, when screwed in the zenith.

On these *azimuths* is reckoned the height of the stars, and the sun, when he is not in the meridian; that is, the *azimuths* shew what distance these are from the HORIZON.

AZOGA *ships*, are those Spanish ships commonly called *quicksilver ships*, from their carrying quicksilver to the Spanish West Indies, in order to extract the silver out of the mines in Peru and Mexico. But it is a great mistake to imagine that these ships are absolutely laden with quicksilver only; for though, strictly speaking, they are to carry no goods, unless on the king of Spain's account, they are generally full laden, notwithstanding this regulation,

tion, by reason that the merchants procure special licences of the king to load, upon paying a consideration for such licences.

AZONI, in *Mythology*, a term anciently applied to such of the gods as were not the private divinities of any particular country or people; but were acknowledged as gods in every country, and worshipped by every nation. See GOD.

The word is derived from the privitive *a*, and ζωνη, *zone, country*.

These *azoni* were a degree above the visible and sensible gods, which were called *zonici*; who inhabited some particular part of the world, and never stirred out of the district or zone that was assigned them. Such in Egypt were Serapis, Osiris, and Bacchus; and in Greece, the Sun, Mars, the Moon, and Pluto. They were called by the Romans *dii communes*.

AZOOPHAGUS, from *a*, ζωον, *animal*, and φαγω, *I eat*; in *Natural History*, a term used by authors to express such insects or animals as feed on herbs, never eating the flesh of any living creature.

AZOTH, among the *Ancient Chemists*, signified the first matter of metals; or the mercury of a metal, more particularly that which they call the *mercury of the philosophers*, which they pretend to draw from all sorts of metallic bodies.

Paracelsus's *azoth*, which he boasted of as an universal remedy, is pretended to have been a preparation of gold, silver, and mercury: a quantity of this he is said to have always carried with him in the pommel of his sword.

AZOTH is also a name given by some to the *philosophers stone*. When the Arabs began to cultivate the study of chemistry, the metaphorical and hieroglyphical manner of writing, which obtained among them, seems to have given rise to a practice of calling the means made use of for bringing metals to perfection, by the name of medicines, and imperfect metals by the name of sick men, and gold by that of a sound and lively person. From hence the ignorant fall into the error of supposing, that these were to be understood in a literal sense, especially upon finding the impurities of the baser metals called by the name of leprosies, the most incurable of all diseases; and hence rose that opinion, which has since spread itself far and wide, that the imperfect metals might be turned into gold, and the bodies of sick men into sound ones by the same preparation. To this preparation they gave the name *azoth*, or the *philosophers stone*, and to its possessors the name of ADEPTS. Boerhaave's Chem.

AZURE, the blue colour of the sky.

AZURE, in *Heraldry*, signifies the blue colour on the coats of arms of all persons under the degree of a baron.

In the escutcheons of noblemen, blue is called *sapphire*; and in those of sovereign princes, *Jupiter*.—In engraving it is represented by strokes, or hatches drawn horizontally, as represented in *Tab. Heraldry, fig.* 3.

The French prefer this colour to all others, because the field of the arms of their kings is *azure*.

AZURE is also used for a mineral colour, better known by the name of *ultramarine*: this is prepared from the LAPIS *lazuli*.

In propriety, however, *azure* should rather denote a bright blue colour, made from the *lapis Armenus*; by our painters more usually call LAMBERT's *blue*.

AZURE is also generally applied to the blue glass made from the earth of COBALT, and vitrifiable matters. This glass, which is called SMALT when in masses, is called *azure* only when it is reduced to a fine powder. Several kinds of *azure* are distinguished according to its degree of beauty, by the names of *fine azure, powdered azure*, and *azure of four fires*. In general the greater the intensity of colour, and the fineness of powder, the more beautiful and dear it is.

Azure is employed to colour STARCH; hence it has also been called *starch*-BLUE.

It is used for painting with colours, and for a blue enamel. See ZAFFRE.

AZURIUM, a hard chemical mass, produced from two parts of mercury, a third part of sulphur, and a fourth of SAL *ammoniac*.

AZYGOS, in *Anatomy*, a vein arising out of the *cava*, otherwise called VENA *sine pari*, because single, whence its name. See *Tab. Anat. (Splanch.) fig.* 12. *litt. bb*, and also see VEIN.

The VENA *azygos* is the third branch of the ascending trunk of the *cava*.—It descends through the right side of the cavity of the *thorax*, and at its arrival at the eighth or ninth *vertebra* begins to keep the middle, and sends forth on each side intercostal branches to the interstices of the eight lower ribs; and there is divided into two branches, the larger of which is inserted sometimes into the *cava*, but oftener into the *emulgent*; the other enters the *cava*, commonly a little below the *emulgent*; but is seldom joined to the *emulgent* itself.

Morgagni gives this name to a muscle of the palate which is usually called STAPHYLINUS.

AZYMITES, they who communicate in bread not leavened, or fermented. See AZYMUS.

This appellation is given by Cerularius to those of the Latin Church, upon his excommunicating them in the eleventh century. Du-Cange.

The Armenians and Maronites do also make use of *azymus*, or unleavened bread, in their office; on which account some Greeks call them *azymites*.

AZYMUS, something not fermented, or that is made without leaven.

The word is composed of the privative *a*, and ζυμη, *ferment*.

The term *azymus* is much used in the disputes betwixt those of the Greek, and Romish church; the latter of whom contend, that the bread in the mass ought to be *azymus, unleavened*, in imitation of the paschal bread of the Jews and of our Saviour, who instituted the sacrament on the day of the passover; and the former strenuously maintaining the contrary, from tradition, and the constant usage of the church.

This dispute was not the occasion of the rupture between the Greek and Latin churches; Photius having broken with the popes 200 years before: though it is urged that before the time of Photius, A. D. 806, *azymus* was used in the Romish church; and that it was more generally used through the West, for which the authority of Alcuin, who died in 794, is alleged.

St. Thomas, in 4 Sent. dist. 2. q. 11. art. 2. quæstiunc. 3. relates, that during the first ages of the church, none but unleavened bread was used in the eucharist, till such time as the Ebionites arose, who held that all the observances prescribed by Moses were still in force: upon which, both the eastern and western churches took to the use of leavened bread; and, after the extinction of that heresy, the western church returned to the *azymus*; the eastern pertinaciously adhering to the former usage.

This account is controverted by father Sirmond, in a dissertation on the subject; wherein he shews that the Latins had constantly communicated in leavened bread, till the tenth century. And cardinal Bona, Rerum Liturgic. c. 23. p. 183, greatly distrusts what St. Thomas alleges.—In the council of Florence it was decreed, that the point lay at the discretion of the church; and that either leavened or unleavened bread might be used: the western church has preferred the latter.

AZZALUM, in the *Ancient Physiology*, a species of iron, reputed the most excellent of all, supposed to have been brought from India, whence it was called *Indicum*, but, in reality, according to some, brought from China. Plin. Hist. Nat. lib. xxxiv. c. 14.

B.

B, The second letter of our alphabet, and of most others.

This observation fails in the ancient Irish alphabet; where B is the first, and A the seventeenth; and in the Abyssinian, where A is the thirteenth.

B is the first consonant, and first mute, and in its pronunciation is supposed to resemble the bleating of a sheep; upon which account Pierius tells us, in his Hieroglyphics, that the Egyptians represented the sound of this letter by the figure of that animal.

B is also one of those letters which the eastern grammarians call *labial*, because the principal organs employed in its pronunciation are the lips. It has a near affinity with the other *labials* P and V, and is often used for P, both by the Armenians, and other Orientals; as in *Betrus* for *Petrus*, *apbens* for *absens*, &c. and by the Romans for V, as in *amabit* or *amovit*, *berna* for *verna*, &c. whence arose that jest of Aurelian on the emperor Bonosus, *Non ut vivat natus est, sed ut bibat.* See V.

B requires an entire closure and pressure of the lips, and is pronounced by forcing them open with a strong breath. This letter also, if it pass through the nose, becomes an M; as appears by those who have the nostrils stopt by a cold or otherwise, when they endeavour to pronounce the letter M; for instance, *many men*, is by such a one sounded *bany ben*. See M.

With the ancients, B stood for 300, as appears by this verse:

Et B *trecentum per se retinere videtur.*

When a line was drawn above it, B, it stood for 3000: and with a kind of accent below it, for 200; but among the Greeks, as well as Hebrews, this letter signified only 2.

B. F. in the preface to the Decrees, or Senatus-consulta of the old Romans, signified *bonum factum*. It is often found on medals, to mark the epochs or year.

Plutarch observes, that the Macedonians changed φ into B, and pronounced *Bilip*, *Berenice*, &c. for *Philip*, *Pherenice*, &c. and that those of Delphos used B, instead of H: as *Balbar* for *βαλλω*, *Bapon* for *ιερευς*, &c. See P.—The modern Greeks call the *beta*, *vita*.

The Latins call *βουλομαι*, *opimus*, for *bolumus*, *obpimus*, and pronounced *optimus*, though they write *optimus*, as Quintilian has observed.—They also used B for F or PH: thus, in an ancient inscription, mentioned by Gruter, OBERNDARIO is used for OFFERNDARIO. See F, &c.

In *Mus.* b is used to denote a flat, or the lowering of a sound by a semi-tone minor. Thus A^b or ^bA is the flat of A, or the semi-tone minor below A.

B, b, *quadro* or ♮, in the scale of musical notes, signifies the sound which is a tone above A, and a semi-tone below C.

In the works of the musicians of former ages, we often meet with the mark ♮ alone, to signify the same sound as b ♮. The letter B, among them, signified what we now call B flat: but among modern musicians, B is more commonly used for the sound which is a tone above A; and to denote B flat, or the semi-tone major above A, B^b or ^bB is used.

B is also used as an abbreviation of *basso* or *baß*. Hence, B. C. stands for *baß continuo*, or the *thorough baß*.

B, in the chemical alphabet, denotes *mercury*, according to Raymond Lully.

B on some French coins denotes, that they were struck at Rouen.

B is also used as a contraction for *Bachelor*; as B. A. *Bachelor of Arts*; B. LL. and B. D.

BAAL, in *Antiquity*, the supreme Being among the Phœnicians.

The descendants of Ham first worshipped the sun under this title, which they afterward ascribed to the patriarch who was the head of their line; making the *sun* only an emblem of his influence and power. See DÆMON.

BAALIM, in *Antiquity*, inferior deities among the Phœnicians. See DÆMON.

BAALTIS, a goddess among the Phœnicians. Some suppose that she was the same with the Diana of the Greeks.

BAAL-BERITH, in *Ancient Mythology*, derived from *baal*, *sovereign*, and *berith*, *covenant*; a deity acknowledged under this title by the Carthaginians and Phœnicians in their alliances.

BAAL-GAD, BAGAD, or BEGAD, in *Ancient Mythology*, an idol of the Syrians, whose name was composed of *baal*, *lord*, and *gad*, *chance* or *fortune*; the god of chance or fortune. After the god of *thunder*, the god of *chance* was one of the first worshipped by mankind. See Phil. Transf. vol. lvi. N° 2. an. 1766.

BAANITES, the followers of Baanes, who adopted and disseminated the Manichean notions of the ninth century, about the year 810.

BAARAS, BANARAS, or BACHARAS, an extraordinary kind of root, said to grow on mount Lebanon, in a valley called *Baaras* (whence the name), near the city Macheron.

By the account which Josephus gives of it, it seems to be a sort of vegetable phosphorus; for he represents it as of a flame colour, emitting rays of light in the night, and disappearing by day.

BAAT, in the language of the Siamese, answering to *taal* in that of the Chinese, denotes a weight and coin current in those kingdoms. It weighs about half an ounce.

BABBLING, among *Hunters*, is when the hounds are too busy after they have found a good scent.

BABOON, in *Zoology*, a large kind of ape, common in the East and West Indies. The head is large, and the mouth in a particular manner furnished with whiskers: the face is naked, but the back part of the head hairy. It has a very short tail, and is of a dark olive colour. See PAPIO, and SIMIA.

BABYLONIAN, BABYLONIC, or BABYRONISH, *epocha*, *annus*, *hora*, &c. See EPOCHA, GEMARA, HOUR, &c.

The *Babylonian* monarchy, history, &c. is the same with what is otherwise denominated the *Chaldean*, or *Assyrian*, &c.

In *Ancient Writers*, we find frequent mention of *Babylonica textura*, a rich sort of weavings, or hangings, denominated from the city *Babylon*, where the practice of interweaving divers colours in their hangings first obtained. Plin. Hist. Nat. lib. viii. c. 48.

Hence also *Babylonic* garments, *Babylonic* vests, *Babylonic* carpets, hangings, &c.

Babylonica lodices, coverings laid over couches, &c. painted with gold, purple, and other colours.

BABYLONIAN, *Babylonius*, is also used in some *Ancient Writers* for an astrologer, or any thing relating to astrology.

Hence *Babylonia cura*, the art of casting nativities; and *numeri Babylonii*, the computations of astrologers. Hor. lib. i. od. 12.

BABYLONICS, in *Literary History*, a fragment of the ancient history of the world, ending at 267 years before Christ; and composed by Berosus, a priest of Babylon, about the time of Alexander. Stanley Hist. Phil.

The *Babylonians* were very conversant with Scripture, as Josephus and the ancient Christian chronologers affirm; whence the author is usually supposed to have consulted the Jewish writings. There now remain only a few imperfect extracts, preserved chiefly by

Josephus and Syncellus. They were forged by Annius of Viterbo. Fabr. Bib. Græc.

BABIROUSSA, in *Zoology*, the name of an animal, called *porcus pinnis indicus*, or the Indian hog. It is of the size and shape of a hog. Its head and tail resemble those of a hog; and its legs and feet, the goat's. But besides all their singularities, there is another thing in which it differs from all the other known animals, which is, that it has four *dentes canini*, or long and crooked tusks, two of which arise from the lower jaw, and the other two from the upper, making their way through the flesh. Some have chose to call them horns, but they are certainly more properly distinguished by the name of teeth, as they have each their *alveolus*, from which they grow just in the manner of teeth, and are of the substance of ivory, not of horn. The creature is found in the island of Borneo.

This animal is a species of the SUS in the Linnæan system.

BAC, in *Navigation*, is used for a PRAAM, or ferry-boat. The word is French.

BAC, in *Brewing*, see BACK.

BACANTIBI, in *Ecclesiastical Antiquity*, wandering clerks, who strolled from church to church. Bingham.

The word seems formed by corruption from *vacantes*.

BACCÆ *Hermodactyli*, in the *Materia Medica*, the name of the fruit of berries of the *hedysarum* or *sucpberry tree*.

BACCALARIA in *Middle Age Writers*, denotes a kind of country-farms, consisting of several manses. Du-Cange.

BACCALARIA *dominicata*, or *indominicata*, was more particularly used for a farm belonging to the lord, and kept in his own hands.

BACCHUS, in *Antiquity*, the priestess of Bacchus, who celebrated the *orgia*, or mysteries of that god.

The word was also used for the ivy crowns or garlands worn by the priests of Bacchus, in offering sacrifices to him.

BACCHANALIA, a religious feast, in honour of Bacchus celebrated with much solemnity among the ancients, particularly the Athenians, who even computed their years thereby, till the commencement of the Olympiads.

The *bacchanalia* are sometimes also called *orgia*, from the Greek ὀργὴ, *fury*, on account of the madness and enthusiasm wherewith the people appeared to be possessed at the time of their celebration.

They were held in autumn, and took their rise from Egypt; whence, according to Diodorus, they were brought into Greece by Melampus.

The form and disposition of the solemnity deprended, at Athens, on the archon, and was, at first, exceeding simple; but, by degrees, it became incumbered with a number of ridiculous ceremonies, and attended with much dissoluteness and debauchery; insomuch that the Romans, who grew ashamed of them, suppressed them by a *senatus-consultum* throughout all Italy.

The women had a great share in the solemnity, which is said to have been instituted on their account: for a great number of them attending Bacchus to the conquest of the Indies, and carrying in their hands the *thyrsus*, i. e. a *little lance*, covered with ivy and vine-leaves, singing his victories and triumphs wherever they went; the solemnity was kept up after Bacchus's deification under the title of *Bacchanalia*, and the women were installed priestesses thereof, under that of *Bacchæ*, or *Bacchantes*.

Their priestesses, at the time of the feast, ran through the streets, and over the mountains, covered with tygers skins, their hair dishevelled, their thyrsus in one hand, and torches in the other, howling and shrieking. Ευοι Σαβοι, και Βακχος ω Ευαγης, ω Σαβαζ.

Men and women met promiscuously at the feast, all perfectly naked except only for the vine-leaves, and clusters of grapes, which bound their heads and hung here they danced and jumped tumultuously, and with strange gesticulations, sung hymns to Bacchus, till, being weary and giddy, they tumbled down.

BACCHANALIA, *bacchanals*, is also a name given to pictures, or *basso relievos*, where on the feast is represented, consisting chiefly of dancings, nudities, and the like.

There are antique *bacchanals*, still seen on several ancient friezes. The *bacchanals* painted by Poussin are excellent.

Some writers call the Romish CARNAVAL, the *Christian Bacchanalia*.

BACCHARACH *wine*, a name of a particular kind of wine, by some esteemed a kind of Rhenish; but Pontius, who has written expressly on the subject, observes that it differs from all the common Rhenish wine, in colour, odour, taste, and virtue.

BACCHARIS, *groundsel-tree-leaved*, in *Botany*, a genus of the Linnæan *syngenesia polygamia superflua* class. Its characters are, this the flower is compounded of many hermaphrodite and female florets, which are included in one common cylindrical scaly empalement; that the hermaphrodite flowers are funnel shaped, and have five deeper *flamina* with an oval *germen*, which afterward becomes a single short seed crowned with a long down: that the female flowers have no *flamina*, but in other respects are the same. Linnæus enumerates seven, and Miller two sorts, which grow naturally in North and South America.

Though this plant is but seldom used, yet some account it a good vulnerary, and useful in bruises, contusions, ruptures, and inward wounds, pains in the side, and difficulty of breathing.

BACCHARIS was also the name of a sweet ointment among the ancients, so called, perhaps, from this herb's being a principal ingredient in it.

BACCHIL, in *Mechanics*, a kind of ancient machines, in form of goats, used by Jupiter in his wars against the giants.

Rudbeck describes two kinds of *bacchi*, one made like the battering-ram, wherewith Jupiter demolished the enemies fortifications; the other contrived to cast fire out of, from whence the Greeks are conjectured to have framed their idea of *chimera*.

BACCHIC, something relating to the ceremonies of Bacchus.

The celebrated *intaglio*, called Michael Angelo's ring, is a representation of a *bacchic* feast.

Bacchic song, is sometimes used for a *chanson à boire*, or composition to inspire jollity. But in a more proper sense, it is restrained to a dithyrambic ode, or hymn.

BACCHICA, in *Botany*, is used for *hedera* ort vr.

BACCHIUS, in the *Latin Poetry*, a kind of foot, consisting of three syllables, whereof the first is short, and the two latter long; as *scribis*.

The *bacchius* is the reverse of a dactyl, and takes its name from that of Bacchus, because frequently used in the hymns composed of his honour. It was was also called among the ancients, *ovatrius*, *tripedius*, *fallax*; and by the Greeks, παιων Ε'πι.

BACCHUS, in *Mythology*, the name of two gods among the ancients: that in Egypt the son of Ammon, and the same with Osiris; and that of Thebes, the son of Jupiter and Semele. The latter is the god of wine; and is represented under the figure of a jolly beardless youth, crowned with ivy and vine leaves; a spear wrapped with the same, in one hand; and with grapes, or a cup, in the other. See BACCHANALIA.

BACCHUS, in *Ichthyology*, a name given by some to the MUXON, a fish of the mullet-kind, remarkable for the red colour of its lips, and the extremity of the covering of the gills. See MUGIL.

BACCIFEROUS *Plants*, are such as bear berries, i. e. fruit, covered with a thin membrane, wherein is contained a pulp, which grows soft and moist when ripe, and encloses the seed within its substance.

The *baccifera*, trees Mr. Ray divides into four kinds, 1. Such as bear a caliculate, or naked berry; the flower and *calyx* both falling off together, and leaving the berry bare, as the sallafras-tree, &c.

2. Such as have a naked monopyrenous fruit, that is, containing in it only one seed; as the *arbutus*, the *terebinthus*, *lentiscus*, &c.

3. Such as have a naked, but a polypyrenous fruit, that is, containing two or more kernels or seeds within it; as the *ligustrum*, *ligustrum*, &c.

4. Such as have their fruit composed of many *acini*, or round soft balls, set close together like a bunch of grapes; as the *uva marina*, the *rubus vulgaris*, *rubus Idæus*, and the *rubus minor fructu carulco*.

BACCINUM, or BACCINET, a baton or vessel to hold water to wash the hands.—The holding of the baton, or washing at the baton, on the day of the king's coronation, was an ancient tenure in serjeantry. Lib. Rub. Scaccar. f. 137.

BACCOFOE, in *Botany*, the name of a fruit very common in Guinea. It is like the banana, except that it is whiter, thicker, and shorter. The taste and smell are both very agreeable, and some pretend, that on cutting it through transversely, there is the figure of a crucifix on each side of it. Phil. Trans. N° 168.

BACHELOR, or BATCHELOR, BACCALAUREUS, in *Middle Age Writers*, was a denomination given to those who had attained to knighthood, but were not rich enough, or had not a sufficient number of vassals to have their banner carried before them in battle; or, if they were of the order of bannerets, were not yet of age to display their own banner, but obliged to march to war under the banner of another.

Camden and others define *bachelor*, a person of a middle degree, between a knight and an esquire; of less age and standing than the former, but superior to the latter.

Others will have *bachelor* to have been a common name for all degrees between a mere gentleman and a baron.—Thus we find the lord admiral, when he was neither an earl nor baron, denominated a *bachelor*.—" Any it is to " wete, that when the *admiral* rideth to assemble a flippe " of war, or other, for the busines and affairs of the

" realm

" realm, if he be a *bachelor*, he ſhall take for his day-" wages four ſhillings ſterling; if he be an earl, or baron, " he ſhall take wages after his eſtate and degree."

BACHELOR was more peculiarly a title given to a young cavalier, who had made his firſt campaign, and received the military girdle accordingly.

BACHELOR was alſo a denomination given to him who had overcome another in a tournament, the firſt time he ever engaged.

BACHELORS, *Knights*, were anciently ſo called, *quaſi bas chevaliers*, as being the loweſt order of knights, and inferior bannerets, &c.

At preſent theſe are called *equites auruti*, from the gilt ſpurs that are put on them at the time of their creation.—The dignity was at firſt confined to the military men, but afterwards was conferred on men of the long robe.

The ceremony is exceedingly ſimple; the candidate kneeling down, the king touches him lightly with a naked ſword, and ſays, *Sois chevalier, au nom de Dieu*; and afterwards, *Aceuis, chevalier*.

BACHELOR is alſo uſed, in a college-ſenſe, to denote a perſon poſſeſſed of the *baccalaureate*, which is the firſt degree in the liberal arts or ſciences.

The degree of *bachior* was firſt introduced in the thirteenth century by pope Gregory IX. but it remains ſtill unknown in Italy. At Oxford, before a perſon is initiated to the degree of *bachelor of arts*, he muſt have ſtudied three four years: three years more to become *maſter of arts*; and ſeven more to commence *bachelor of divinity*.

At Cambridge, to commence *bachelor of arts*, he muſt have been admitted near four years; and above three years more before he commence *maſter*; and ſeven more ſtill to become *bachelor of divinity*. He may commence *bachelor of law* after having ſtudied it ſix years.

At Paris, to paſs *bachelor in theology*, a perſon muſt have ſtudied two years in philoſophy and three years in theology, and held two acts of examination in the Sorbonne.—*Bachelors in the canon law* are admitted after two years ſtudy in the ſame, and ſuſtaining an act according to the forms.

A *bachelor of phyſic* muſt have ſtudied two years in medicine, after having been four years maſter of arts in the univerſity, and have ſtood an examination; after which he is inveſted with the fur, in order to be licenſed.

In the univerſity of Paris, before the foundation of divinity-profeſſorſhips, thoſe who had ſtudied divinity ſix years, were admitted to go through their courſe, whence they were called *baccalarii curiores*; and as there were two courſes, the firſt employed in explaining the Bible, during three ſucceſſive years: the ſecond, in explaining the maſter of the ſentences for one year; thoſe who were in their Bible-courſe, were called *baccalarii Biblici*; and thoſe arrived at the ſentences, *baccalarii ſententiarii*. And laſtly, thoſe who had gone through both, were denominated *baccalarii formati*, or *formed bachelors*.

At preſent, *formed bachelor* denotes a perſon who has taken the degree regularly after the due courſe of ſtudy and exerciſes, required by the ſtatutes; by way of oppoſition to a *current bachelor*, who is admitted in the way of grace, or by diploma.

We alſo find mention of *bachelors of the church*, *baccalarii eccleſiæ*.—The biſhop with his canons and *baccalarii*, *cum conſilio & conſenſu eorum canonicorum ſuorum & baccalariorum*.

There is ſcarce any word whoſe origin is more controverted among the critics, than that of *bachelor*, *baccalarius*, or *baccalaureus*; the two different acceptations of the word, literary and military, above recited, have each of them their advocates, who aſſert each to be the primitive ſenſe, and derive the word accordingly.

Among thoſe who hold the military *bachelor* to be the more ancient, are Cujas, who derives the word from *baccellarius*, a kind of cavalry, anciently in great eſteem. Du-Cange deduces it from *baccalaureus*, a kind of fees or farms, conſiſting of ſeveral pieces of ground, each whereof contained 12 acres, or as much as two oxen would plough; the poſſeſſors of which *baccalaria* were called *bachelors*.

Caſeneuve, and Alraſerra, derive *bachelor* from *bachus*, or *bachlus*, a ſtaff, becauſe the young cavaliers exerciſed themſelves in fighting with ſtaves. Martinius derives it from *baccalaureus*, i. e. *bacca laurea ornatus*, in alluſion to the ancient cuſtom of crowning poets with laurels; *bacca laurea*, as was the caſe with Petrarch at Rome in 1341. Alciat and Vives are of the ſame opinion: nor is this etymology improbable.

BACHELORS, in the livery companies in London, are thoſe not yet admitted to the livery.

Theſe companies generally conſiſt of a maſter, two wardens, the livery, and the *bachelors*, who are yet but in expectation of dignity in the company, and have their function only in attendance on the maſter and wardens: they are alſo called yeomen.

BACHELOR is alſo a name given in the ſix companies of merchants at Paris to the elders, and ſuch as having ſerved the offices, have a right to be called by the maſters and wardens to be preſent with them, and aſſiſt them in ſome of their functions, particularly in what relates to the *chef-d'œuvres*, or maſter-pieces of ſuch as are candidates for being admitted maſters.

BACHELOR is alſo particularly uſed for a man not married, or who is yet in a ſtate of celibacy.

The Roman cenſors frequently impoſed fines on old *bachelors*. Dion. Halicarnaſſeus mentions an old conſtitution, by which all perſons of full age were obliged to marry. But the moſt celebrated law of this kind was that made under Auguſtus, called the *lex Julia de maritandis ordinibus*; by which *bachelors* were made incapable of legacies or inheritances by will, unleſs from their near relations.

The Rabbins maintain, that, by the laws of Moſes, every perſon except ſome few, is obliged in conſcience to marry at twenty years of age: this makes one of their 613 precepts. Hence thoſe maxims ſo frequent among their caſuiſts: That he who does not take the neceſſary meaſures to leave heirs behind him, is not a man, but ought to be reputed a homicide. Lycurgus was not more favourable: by his laws, *bachelors* are branded with infamy, excluded from all offices civil and military, and even from the ſhews and public ſports. At certain feaſts they were forced to appear, to be expoſed to the public deriſion, and led naked round the market-place. At one of their feaſts, the women led them in this condition to the altars, where they obliged them to make *amende honorable* to nature, accompanied with a number of blows, and laſhes with a rod at diſcretion. To complete the affront, they forced them to ſing certain ſongs compoſed in their own deriſion.

The Chriſtian religion is more indulgent to the *bachelor* ſtate: the ancient church recommended it as preferable to, and more perfect than the matrimonial ſtate.

In the *Canon Law*, we find injunctions on *bachelors*, when arrived at puberty, either to marry or turn monks, and profeſs chaſtity in earneſt.

BACILLI, or BACULI, in *Medicine*, ſuch compoſitions as are made up in a cylindrical figure, like a ſtick; thus called from the Latin *baculus*, a *ſtaff*. See LOZENGE.

BACK. See DORSUM.

BACK-*bone*. See SPINE.

BACK, in the *Manage*, and among *Farriers*. A horſe's *back* ſhould be ſtraight, not hollow, which is called *ſaddle-backed*; horſes of this kind are generally light, and carry their heads high, but want in ſtrength and ſervice. A horſe with a weak *back* is apt to ſtumble.

In the French riding-ſchools to mount a horſe *a dos*, is to mount him bare-backed, without a ſaddle.

BACK, in *Brewing*, a large flat kind of tub, or veſſel, wherein the wort is put to ſtand and cool before boiling.

The ingredients of beer paſs through three kinds of veſſels. They are maſhed in one, worked in another, and cooled in a third, called *backs* or *coolers*.

To gauge a brewer's BACK. Moſt *backs* have their ſides ſtraight; in caſe, however, they be not, but make either an acute or obtuſe angle with the bottom, the true length and breadth muſt be carefully taken in the middle of every inch in depth; from whence the area may be found upon every tenth. For finding the area of the *back*, this rule muſt be obſerved, to multiply the length by the breadth, and divide by 282; which gives the contents in ale gallons.

To find the true dip of a BACK. Becauſe *backs* are not placed level, but ſloping, for convenience of drawing off the wort; therefore, were the dip taken in too deep a place, the ſubject would be wronged; as would the king, if it were taken in too ſhallow a part: to guard againſt which, as many dips as are thought convenient muſt be taken; theſe being added together, and divided by the number of dips, will give a mean depth. When this is done, trial being made in different parts of the *back*, until one is found which anſwers exactly to the mean depth; ſet a mark or notch be made at the ſide of the *back*, to point it out as the true dipping-place for the future.

The bottom of large *backs* ought to be every where equally and well ſupported, to ſecure them from warping, which elſe they will do, more and more as they grow older.

BACK, in the *Diſtillery*, a veſſel in which liquor is put to be fermented.

BACK *of the poſt*, in *Sea-language*. See STERN-*poſt*.

BACK-*board*, in *Maritime Affairs*, is of a ſemicircular figure, placed tranſverſely in the after part of a boat, like the back of a chair, to recline againſt while ſitting in the ſtern-ſheets.

BACK *the ſails*, to put them in a ſituation that will occaſion the ſhip to retreat or move aſtern.

BACK-*painting*, is uſed by ſome for the art of paſting of prints and other deſigns on glaſs.

The art conſiſts chiefly in laying the print upon a piece of

brown-glass, of such a size as fits the print. In order to do this, the print muſt be ſoaked in clean water for forty-eight hours, if it be on very ſtrong, cloſe, and hard gummed paper; but on a ſoft ſpongy paper two hours will ſometimes be ſufficient. The picture being well waſhed, muſt be laid between four ſheets of paper, two over and two under it, that the moiſture may be drawn out of it. In the mean while, let the glaſs upon which the print is to be laid be warmed at the fire; then with a hog's hair bruſh dipped in melted Straſburgh turpentine, ſpread the turpentine ſmoothly and evenly on the glaſs. Then lay the print upon the glaſs, rubbing it gently from one end to the other, that it may lie cloſe. With the finger, rub off the paper from the back-ſide of the print, till nothing can be ſeen but the print, like a thin film left upon the glaſs, and ſet it aſide to dry. When it is dry, varniſh it over with ſome white tranſparent varniſh, that the print may be ſeen through it, which is now fit for painting.

Having prepared a variety of oil colours, which muſt be ground very fine, and tempered very thin, lay ſuch colours on the tranſparent print as each particular part requires, the maſter-lines of the print guiding the pencil; and thus each colour will appear fair to the eye on the other ſide of the glaſs, and look almoſt as well as a painted piece, if it be done neatly. The chief care to be uſed in this part of the work, is that of laying the colours on thick enough, that they may be ſtruck plainly through the glaſs.

BACK. *Iron* BACK is a large plate of caſt iron, frequently adorned with figures in low relievo, intended to preſerve the ſtone work of a chimney-back, and to reflect the heat of the fire.

BACKBEROND, or BACKBEREND, in *Law Writers*, denotes a criminal caught carrying off ſomething on his back.

In this ſenſe Bracton uſes it for a ſpecies of what the civilians call manifeſt theft, *furtum manifeſtum*.

In the *Foreſt Laws*, *backberend* is one of the four circumſtances, or caſes, wherein the foreſter may arreſt the body of an offender againſt vert or veniſon in a foreſt. The others are, *bake-bond*, *dry-handed*, and *bloody-handed*.

BACKING *a colt*, the operation of breaking him to the ſaddle, or bringing him to endure a rider.

To *back* a colt, they uſually take him into ploughed ground, trot him a while, to rid him of his wantonneſs; then having one to ſtay his head, and govern the chaſing rein, the maſter mounts his back, not ſuddenly, but by degrees, firſt making ſeveral offers; or half-riſings; when he bears theſe patiently, he mounts in earneſt, and ſettles in his place, cheriſhing him, &c.

BACKING *Warrants*, in *Law*, denotes the ſigning of ſuch as have been iſſued by a juſtice of the peace in one county, by a juſtice of peace in another county, which is neceſſary before they can be executed there. This practice is authoriſed by ſtatutes 23 Geo. II. c. 26 and 24 Geo. II. c. 55. See WARRANTS.

BACKS, among dealers in leather, denote the thickeſt and beſt tanned hides, uſed chiefly for ſoles of ſhoes.

BACKS *of a ſhip*, ſee SHIP.

BACK *gammon*, a game played with dice and tables, to be learned only by obſervation and practice.

BACK *horſe*, a machine long uſed in ſeveral parts of England, particularly in Hampſhire, Wiltſhire, and Suſſex, for winnowing corn. An improved conſtruction of this machine, illuſtrated by a figure, was propoſed by Dr. Hales, in the year 1747, which, he ſays, will not only render it fit for winnowing corn ſooner and better than by any other means hitherto uſed, but alſo for cleaning it of the very ſmall corn, ſtalks, ſtones, balls, &c. to ſuch perfection, as to make it proper for ſeed-corn. See Hales's Uſes of Vegetables, part II. p. 227, &c.

BACK-*nails*, ſee NAIL.

BACK-*ſtaff*, in *Navigation*, an inſtrument by the French called the *Engliſh quadrant*. It was invented by capt. Davis; and is of good uſe in taking the ſun's altitude at ſea.—It conſiſts of three vanes, A, B, and C, and of two arches (*Tab. Navigation, fig.* 6.) The vane at A, called the *horizon-vane*; that at B, the *ſhade-vane*; and that at C, the *ſight-vane*. The leſſer arch B is of 60 degrees, and that of C (or FG) of 30 degrees.

To *uſe the* BACK-*ſtaff*. The ſhadow-vane B is ſet upon the 60 arch, to an even degree of ſome latitude, leſs by 10 or 15 degrees than you judge the complement of the ſun's altitude will be: the horizon-vane is put on at A, and the ſight-vane on the 30 arch FG: the obſerver's back being then turned to the ſun (whence the name of *back-ſtaff*, or *back-quadrant*), he lifts up the inſtrument, and looks through the ſight vane, raiſing or falling the quadrant, till the ſhadow of the upper edge of the ſhade-vane fall on the upper edge of the ſlit in the horizon-vane; and then if he can ſee the horizon through the ſame ſlit, the obſervation is well made: but if the ſea appears inſtead of the horizon, the ſight-vane muſt be moved lower towards F: if the ſky appear, it muſt be moved upwards towards G, and thus tried till it comes right: then he obſerves how many degrees and minutes are cut by that edge of the ſight-vane which anſwers to the ſight-hole, and to them adds the degrees cut by the upper edge of the ſhade-vane; the ſum is the ſun's diſtance from the zenith, or the complement of his altitude. To find the ſun's meridian, or greateſt altitude on any day, continue the obſervation as long as the altitude is found to increaſe, which you will perceive by the appearance of the ſea inſtead of the horizon, removing the ſight-vane lower: but when you perceive the ſky appear inſtead of the horizon, the altitude is diminiſhed; therefore, reſt from farther obſervation at that time, and add the degrees upon the 60 arch to the degrees and minutes upon the 30 arch, and the ſum is the zenith diſtance, or co-altitude of the ſun's upper limb.

And becauſe it is the zenith diſtance, or co-altitude of the upper limb of the ſun, not the centre that is given by the quadrant, in obſerving by the upper end of the ſhade-vane, add 16 minutes, the ſun's ſemi-diameter, to that which is produced by your obſervation, and the ſum is the true zenith diſtance of the ſun's centre. If you obſerve by the lower part of the ſhade of the ſhade-vane, then the lower limb of the ſun gives the ſhadow; and, therefore, you muſt ſubtract 16 minutes from what the inſtrument gives: but conſidering the height of the obſerver above the ſurface of the ſea, which is commonly between 16 and 20 feet, you may take 5 or 6 minutes from the 16 minutes, and make the allowance but of 10 minutes, or 12 minutes, to be added inſtead of 16 minutes.

Mr. Flamſteed contrived a glaſs *lens*, or double convex, to be placed in the middle of the ſhade vane, which makes a ſmall bright ſpot on the fit of the horizon vane, inſtead of the ſhade; which is a great improvement, if the glaſs be truly made; for, by this means, the inſtrument may be uſed in hazy weather, and a much more accurate obſervation made in clear weather than could be by the ſhadow. See QUADRANT.

BACK-*ſtays of a ſhip*, are ropes belonging to the main-maſt and foremaſt, and the maſts belonging to them, ſerving to keep them from pitching forwards, or over board.—See *Tab. Ship, fig.* 1. n. 105. 63. 25.—They are divided into *breaſt-back-ſtays*, and *after-back-ſtays*.

BACK-*worm*, a name given by ſportſmen to a diſeaſe very common to hawks; and called alſo the STRANGLES. The worms are lodged between the ſkin and the fleſh, and grow to a great length, ſome of them being not leſs than half a yard long. They are very troubleſome to the bird, and will at length kill it, if they be not deſtroyed in time. Their uſual place is under the ſkin of the lower part of the back towards the rump.

There are ſeveral ſymptoms which diſcover the bird to be troubled with this diſeaſe; the principal are the ſtinking of its breath, the croaking and mourning in the night, ruffling and writhing the tail, and the ſmallneſs of the dung.

The beſt method of cure is this: ſqueeze out the juice of ſome ſtrong and well-grown wormwood, put into it as many cloves of garlic as it will conveniently cover; let the cloves be well cleaned of the ſkins, and pierced with holes; this is to ſtand a few nights, and afterwards one of the cloves is to be given, freſh taken out of the liquor every evening, for four nights together, and after a reſt of a few days, the ſame number given again, and ſo on till the diſeaſe is removed. Others give a ſcouring of waſhes alone, inſtead of, and again, of ſuch equal quantities.

BACOBA, in *Botany*, a name by which ſome authors call the banana tree, or *muſa paradiſiaca*. See *Muſa*.

BACON, ſwine's fleſh, ſalted and dried in the chimney. Writers on this branch of œconomics give rules for the hanging, the ſalting, and curing of *bacon*, landing with *bacon*, &c.

This appears to be in general an extremely improper and unwholeſome aliment, eſpecially for people who do not uſe great exerciſe; for thoſe who do may almoſt eat any thing without injury. Swine's fleſh conſidered as an aliment is none of the beſt; and when hardened by ſalt, and dried by ſmoak, it is rendered more indigeſtible, and in conſequence of that, productive of obſtructions in a very great degree. We may add, that the fat of *bacon* frequently becomes rancid, and acrimonious, and often even excoriates the mouth and throat.

BACON-*ſcore*, denotes the thick outer ſkin taken off the lard or fat. Old hiſtorians and law writers ſpeak of the *ſervice of the bacon*, a cuſtom in the manor of Withchenovre in Staffordſhire, and priory of Dunmow in Eſſex; in the former of which places, by an ancient grant of the lord, a flitch of *bacon*, with half a quarter of wheat, was to be given to every married couple, who could *ſwear*, that having been married a year and a day, they would never

within that time have once exchanged their mate for any other person on earth, however richer, fairer, or the like. But they were to bring two of their neighbours to sweat with them, that they believed they swore the truth. On this the lord of another neighbouring manor of Rudlow, was to find a horse saddled, and a sack to carry the bounty in, with drums and trumpets, as far as a day's journey out of the manor: all the tenants of the manor being summoned to attend, and pay service to the *bacon*. Plott's Hist. Staff. chap. i.

The *bacon of Dunmow*, first erected under Henry III. was on much the same footing; only the tenor of the oath was, that the parties had never once repented, or wished themselves unmarried again. Ib. chap. x. sect. 80.

BACTRIANUS, in *Zoology*, a species of the CAMEL.

BACTROPERATA, an ancient appellation given to philosophers by way of contempt, denoting a man with a staff and a budget.

The word is also written *bactroperata*. It is compounded of *bactrum*, *staff*, and *pera*, *bag* or *budget*.

BACULARES, a sect of ANABAPTISTS, so called, as holding it unlawful to bear a sword, or any other arms, besides a staff.

BACULARIUS, in *Writers of the Middle Age*, an ecclesiastical appariteur, or verger; who carries a staff, *baculus*, in his hand, as a badge of his office.

BACULE, in *Fortification*, a kind of portcullis or gate, made like a pit-fall with a counterpoise, and supported by two great stakes. It is usually made before the *corps de guard*, advancing near the gate.

BACULI, see BACILLI.

BACULI *St Pauli*, or batoons of St. Paul, a kind of figured stones, of the same substance with those resembling the bristles of some American *echini*, called by Dr. Plott *lapides Judaici*.

BACULOMETRY, the art of measuring accessible and inaccessible distances, by the help of *bacili*, staves, or rods. Schwenner has explained this art in his Geometria Practica; the rules of it are also laid down by Wolfius, in his Elements; Ozanam also gives an illustration of the principles of *baculometry*.

BACULOSUS *sacrificulus*, in some *Ancient Laws*, is used for a bishop or abbot, dignified with the pastoral staff, or crozier.

BACULUS *divinatorius*, or *virgula divina*, a branch of hazel-tree, of a forked figure, used for the discovery of mines, springs, &c. See VIRGULA *divina*.

BADGE, in *Naval Architecture*, signifies a sort of ornament placed on the outside of small ships, very near the stern, containing either a window, for the convenience of the cabin, or a representation of it. It is commonly decorated with marine figures, martial instruments, or such like emblems.

BADGER, *meles*, or *taxus*, in the Linnæan system of *Zoology*, is a species of *ursus*, or *bear*, with very long fore-claws.

The *badger* is called in some parts of England, the *brock*, the *gray*, and the *pate*. The Greeks had no name for this animal, unless their HYÆNA was the same creature.

The body of the *badger* is short and thick; its neck very short; and its hairs long, and very rigid, and stiff like hog's bristles. Those on the back are of a pale yellow near the root, brown or black in the middle, and at the extremities yellowish again; so that the creature appears, upon the whole of a mixt colour, or what we call grey, on the back. The sides and belly are covered with hairs, which are all over of a pale yellowish hue; and the legs and shoulders, as also the belly, are wholly black. It has a broad white line from the top of the head to the nose; and on each side of this a very regular pyramidal black mark reaching up to the ears; and below these the jaws are whitish, so that the creature's face looks very oddly variegated. Its eyes are small, and its snout wholly like a dog's. The teeth are like those of a dog also: and the legs short; its fore-feet have sharp claws, with which it digs itself burrows in the earth. Its face is very like that of the fox, being broad at the top of the forehead, and sharpening to a point at the nose, so as to appear triangular in shape; and its cheeks are tumid, and furnished with strong muscles, whence it bites very hard. It feeds on insects and small animals, and on the roots of vegetables. We have them in many parts of England, particularly in the counties of Essex, Sussex, and Warwickshire.

This animal has a very strong smell, and, like the dormouse, grows fat by sleeping. Under the tail it has a bag of secreted matter which is very fœtid.

The *badger*'s skin is of some use in commerce. Their fat is sold by the druggists, as a remedy against disorders of the kidneys and the *sciatica*; and their hair, for the making of pencils for painters and gilders.

BADGER, from *bajare*, *barrer*, a licensed huckiller, or person privileged to buy corn, or other provisions, and to carry them from one place to another to make profit without being reputed an ingroffer.

In the statutes he is also called a *kidder*, or *regrater*, 5 and 6 Ed. VI. c. 14. 5 El. c. 12.—We also find *badgers*, or retailers of *salt*, 9 W. III. c. 6.

BADGER-*hunting*, see HUNTING.

BADIAGA, in the *Materia Medica*, the name of a fine spungy plant, common in the shops in Moscow and other northern kingdoms.

The use of it is the taking away of the livid spots, blows and bruises, which the powder of this plant is said to do in a night's time.

We owe the knowledge of this medicine, and its history, to the accurate Buxbaum. He observes, that the plant is always found under water, and is of a very singular and peculiar nature.

It somewhat resembles the *alcyonium*, and somewhat the spunges, but differs greatly from both, in that it is full of small round granules, resembling seeds. It is of a loose, light, and spungy structure, and is made up of a number of fibres of an herbaceous matter, and is dry, rigid, and friable between the fingers.

This may serve as the generical character of the *badiaga*, of which this accurate observer has found three different species.—Linnæus makes it a species of spunge.

BADIAN, or BADIANA, the seed of the anise-tree that grows in China.

BADIGEON, a mixture of plaister and free-stone, well ground together, and fitted; used by statuaries to fill up the little holes, and repair the defects in stones, wherever they make their statues and other work.

The same term is also used by joiners, for saw-dust mixed with strong glue, wherewith they fill up the chaps, and other defects in wood, after it is wrought.

BADOUCE, in *Natural History*, the East Indian name of a fruit very common in that part of the world. It is round, and of the size of one of our common apples: it is yellow on the outside, and white within. It resembles the *mangosta*n; but its pulp is more transparent: its taste is very agreeable, and has some resemblance to that of our gooseberries.

BÆCKEA, in *Botany*, a genus of the *polyandria monogynia* class of plants; the calyx of which is a permanent perianthium, consisting of a single funnel-shaped leaf, cut into five segments at the brim; the corolla consists of five roundish spreading petals inserted into the cup; the pericarpium is a globose capsule, made up of four valves, and containing four cells, in which are a few roundish angular seeds. There is one species.

BÆTIS, in *Ichthyology*, a name given by Aristotle, and other of the ancient Greeks to the fish called by the Latin writers *cottus*; particularly to that species of it which we call the *bull-head*, or the *miller's-thumb*.

BÆTYLOS, or BÆTYLION, in *Antiquity*, a kind of stones worshipped among the Greeks, Phrygians, and other nations of the East: supposed by modern naturalists to be the same with our *cerauniæ*, or thunder-stone.

The priests of Cybele carried a *bætylos* on their breast, representing the mother of the gods. But it is a mistake to suppose, that this was the only representation of the goddess that they carried about with them.

BAETAS, or BAITAS, a cloth made entirely of coarse white cotton thread, which comes from the East Indies. Those of Surat are the best.

BAG, in *Commerce*, a term used to signify different quantities of certain commodities.

A *bag* of almonds, for instance, is about 3 hundred weight; of aniseeds, from 3 to 4 hundred; of pepper, from 1 to 3 hundred; of goats-hair, from 2 to 4 hundred; of cotton-yarn from 2 to 2½, &c.

BAG, *fomital*, in *Medicine* and *Pharmacy*, denotes a kind of fomentation, prepared of proper ingredients, enclosed in a *bag*, to be applied externally to a part diseased, for present relief.

Dispensatory writers describe cordial *bags*, used in frequency *bags* for the side, for the stomach, in weakness of the stomach; anodyne *bags* to ease pain in any part. Wines and ales are frequently medicated by putting into them *bags* full of proper ingredients.

Sweet *bags* are compositions of perfumes, scented powders, and the like, enclosed in *bags*, to give a fragrancy to cloaths, &c.

BAG, in *Farriery*, see *Chewing* BALLS.

BAG, *oil*, see OIL.

BAG *of fetty*, see PETTY.

BAG, *fand*, see SAND.

BAGADAT, a name by which some call the CARRIER pigeon, the *columba tabellaria* of Mosley. This name is probably a corruption of the word Bagdat, the name of the city from whence they are sometimes brought to Europe; being originally brought thither from Barbora.

BAGATINS, or *courriers*, a name given to the *pigeon* CARRIER.

BAGAUDÆ, or BACAUDÆ, an ancient faction of peasants, or malecontents, who ravaged Gaul.

The Gauls being oppressed with taxes, rose, about the year of Christ 290, under the command of Amand and Elian; and assumed the name *Bagaudæ*, which, according to some authors, signified in the Gallic language, *forced rebels*; according to others, *tributi*; according to others, *robbers*, which last signification others allow the word had, but then it was only after the time of the *bagaudæ*, and doubtless took its rise from them. Du-Cange.

BAGAUZE, is the name which is given, in the Antilles islands, to the sugar-canes, after they have passed through the mill. They are dried, and used for boiling the sugar.

BAGGAGE is particularly used in the *Military Art*, for the necessaries, utensils, apparel, &c. of the officers and soldiers. The *baggage* includes also women, children, sutlers, &c.

The *baggage* is well called by Roman writers, *impedimenta*, on account of the great trouble and expence attending it. Unless strict discipline be kept, great inconveniences may arise from it; whence several military laws and ordinances relating to the *baggage*.

The *baggage-waggons* before a march are appointed a rendezvous, where they are marshalled by the waggon-master-general, according to the rank the several regiments bear in the army. On a march, they are sometimes ordered to follow the respective columns of the army, sometimes to follow the march of the artillery, and sometimes to make a column of themselves. The general's *baggage* is generally first. If the army march from the right, the *baggage* of that wing has the van; if from the left, the *baggage* of the left has the van. Each waggon has a distinguishing flag, to shew to what regiment it belongs.

Packing up the BAGGAGE, *vasa colligere*, was a term among the Romans, for preparing to go to the war, or to be ready for an expedition.

The *formula* whereby the soldiers declared they were in readiness, was, *vasa succlamare*.

The Romans distinguished two kinds of *baggage*, a *greater* and *lesser*: the *lesser* was carried by the soldier on his back and called *farcinæ*; consisting of the things most necessary to life, and which he could not do without. Hence *milites farcinati*, packing up the *baggage*, is used for decamping, *castra movere*.

The *greater* and heavier was carried on horses and vehicles, and called *onera*. Hence *onera vehicularia*, *farcinæ hominum*. The *baggage*-horses were denominated *jumentarii equi*.

The Roman soldiers in their marches, were heavy loaden, insomuch, that they were called by way of jest, *muli mariani*, and *arumnæ*. They had four sorts of baggage, which they never went without, viz. corn, or *bucellatum*, utensils, *vasa*, and arms.—Cicero observes, that they used to carry with them above half a month's provisions; and we have instances in Livy, where they carried provisions for a whole month. Their utensils comprehended whole proper for gathering fuel, dressing their meat, and even for fortification, or intrenchment; and what is more, a chain for binding captives.

For arms, the foot carried a spear, shield, sword, helmet, *pattuny*, hatchet, *bowe*, *falx*, &c. Also stakes or poles, *valli*, for the sudden fortifying of a camp: sometimes two, or even twelve of their poles were carried by each man, though generally, as Polybius tells us, only three or four. On the Trajan columna we see soldiers represented with this family of corn, utensils, poles, &c. gathered into a bundle, and laid on their shoulders.

Thus inured to labour, they grew strong, and able to undergo any fatigue in battle; the greatest heat of which never tired them, or put them out of breath. In after-times, when discipline declined, this baggage was thrown on carriages, and put to shoulders.

The Macedonians were not less inured to fatigue than the Romans: when Philip first formed an army, he forbid all use of carriages: yet, when all things lost, they would march in a summer's day twenty miles, in military rank.

BAGGING *of hops*. See HOPS.

BAGNIO, an Italian term, signifying a bath: it is used by us for a house, with conveniencies for bathing, sweating, and otherwise cleansing the body; and often for worse purposes.

BAGNIO is also become a general name in Turkey for the prisons where their slaves are enclosed; it being usual in those prisons to have baths.

BAGNOLENSES, or BAGNOLIANS, a sect in the eighth century, who were thought Manichees, though they denied their errors.—They rejected the Old Testament, and part of the New; held the world to be eternal; and affirmed, that God did not create the soul when he infused it into the body.

They derive their name from *Bagnols*, a city in Languedoc, where they were chiefly found.

BAGOI, among the *Ancient Persians*, were the same with those called by the Latins, *spadones*, viz. a species of eunuchs, in whom the canal of the *penis* was so contorted by a tight *encolure*, that they could not emit the *semen*.

BAGPIPE, a musical instrument of the wind-kind, chiefly used in country places, especially in the North.—It consists of two principal parts; the first a leathern bag, which is blown up like a foot ball, by means of a port-vent, or little tube, fitted to it, and stopped by a valve.

The other part consists of three pipes, or flutes; the first called the great pipe or drone, and the second the little one, which puts the wind only out at the bottom; the third has a reed, and is played on by compressing the bag under the arm, when full, and opening or stopping the holes, which are eight, with the fingers. The little pipe is ordinarily a foot long, that played on thirteen inches, and the port-vent fix.

The *bagpipe* takes in the compass of three octaves.

This instrument was called by the Romans *utricularis tibia*, and the players thereon, *utricularii*. The invention of it is derived by some from Tubal; others ascribe it to Pan; others to Mercury, to Faunus, to Marsyas, and to the young Sicilian shepherd Daphnis, who first composed pastorals.

An anonymous French author has published a treatise of the *bagpipe*, Traité de la Musette, with a new method of learning to play on it without a master. Fol. Par. 1672.

BAGRE, in *Ichthyology*, a small bearded fish of the anguilliform kind, of which there are several species. It has no scales, but is covered over the whole body with a soft mucous skin of a silvery whiteness, and the beard, the head, and fins, are all of the same colour; the eyes are large, the mouth small, and without teeth. It is caught in the American seas, and is eaten; but if any body is wounded by its thorns, it generally gives great pain and is difficult to cure.

In the Linnæan system, this fish is a species of the SILURUS.

BAGRE *de Rio*, a name by which some call the fish more frequently known by the name of SHANDIA.

BAGUETTE, in *Architecture*, a little round mould less than an astragal; sometimes carved and enriched with foliages, pearls, ribbands, laurels, &c.—See *Tab. Architect.* fig. 2. and 11.

According to M. le Clere, when the *baguette* is enriched with ornaments, it changes its name, and is called CHAPLET; and unornamented, it is a *bead*.

BAHAR, or BARE, a weight used at Ternate, Moca, in the Moluccas, Achem, and divers other parts of the East Indies.

There are two kinds, the *great*, wherewith spice is weighed, equal to 524lb. 9 oz. avoirdupois. The *little bahar* serves for the weighing of quicksilver, vermilion, ivory, silk, musk, and other precious wares, equal to 437lb. 9 oz. avoirdupois weight.

BAHIRA, among the *Arabs*, a name given to one of the five kinds of camels or sheep, which, for some reasons of their religion, were turned out at liberty, with an earmark, no longer to be used for service like other cattle.

The *hâmi*, with the *sâiba*, *wasîla*, and *hami*, were abolished by Mahomet, as no ordinance of God.

Authors are not agreed as to the character of the *bâhira*.

BAIL, in *Law*, the setting at liberty of one arrested, or imprisoned upon an action either civil or criminal, under sureties taken for his appearance at a day and place assigned.

It is called *bail*, because hereby the party confined is *bailed*, from the French *bailler*, delivered into the hands of those who bind themselves for his forthcoming: or from *bail*, used in the sense of a guardian, into whose hands the party is put for security sake.

Manwood distinguishes between *bail* and *mainprize*; that is *bail* is imprisoned is said to be at large, and to go about at his liberty, without ward, till the time of appearance; whereas he who is let to *bail* to two or more men, is always accounted by law to be in their ward and custody for the time; and they may, if they please, actually keep him in prison.

In civil cases every defendant is *bailable*; but in criminal matters it is otherwise. By the ancient common law, before and since the Conquest, all felonies were *bailable*, till murder was excepted by statute. But the stat. Westm. 1. 3 Edw. 1. cap. 15. takes away the power of bailing in treason, and divers instances of felony. And the statute 1 and 2 Ph. & Mar. cap. 13. further regulates this matter: so that now, no justices of the peace can bail, upon an accusation of treason, or murder, or manslaughter, if the prisoner be clearly the slayer, or an indictment be found against him: nor of felony, against those who have broken prison. Outlawed persons, and those who have abjured the realm, approvers, and persons accused by them, persons taken with the *mainour*, or in the fact of felony, perfons

sons charged with *arson*, and excommunicated persons, are also inadmissible to *bail*. Those who must be *bailed*, on offering sufficient security, are persons of good fame, charged with a suspicion of manslaughter, or inferior homicide; such persons, charged with petit larceny, or any felony, not before specified, or with being accessary to any felony. Moreover, it is agreed that the court of king's bench (or any judge thereof, in time of vacation) may *bail* for any crime whatsoever, be it treason, murder, or any other offence, according to the circumstances of the case; such persons only excepted, who are committed by either house of parliament during the session, or such as are committed for contempt by any of the king's superior courts of justice.

The refusal or delay of *bail* to persons *bailable*, is an offence by the common law, as well as by the statute Westm. 2. 3 Edw. I. cap. 15. and the *habeas corpus* act, 13 Car. II. cap. 2. And it is expressly declared by statute 1 W. & M. stat 2. cap. 1. that excessive *bail* ought not to be required; though it is left with the courts to determine what *bail* is excessive. If the magistrate takes insufficient *bail*, he is liable to be fined, if the criminal does not appear.

Bail is either *common* or *special*.

BAIL, *common*, is that given in actions of small prejudice, or slight proof; in which cases any nominal sureties are taken; as John Doe, and Richard Roe: this being no other than a form of appearance.

BAIL, *special*, is given in cases of greater moment, where it is required that the sureties be subsidy-men at the least, and according to the value of the matter in question.

It was enacted a few years ago, in compassion to the poor, that no person should be held to special bail in any action brought for less than ten pounds.—This is observed as to writs issued out of the courts of Westminster-hall: and extended to all inferior courts by 19 Geo. III. c. 70.

BAIL *above*, or BAIL *to the action*, succeeds the return of the writ, or the appearance of the person *bailed*. The persons who put in this *bail*, must at the least two in number, and enter into a recognizance, whereby they do jointly and severally undertake, that if the defendant be condemned in the action, he shall pay the costs and condemnation, or render himself a prisoner, or that they will pay it for him; which recognizance is transmitted to the court in a slip of parchment, called the *bail piece*. And, if required, the *bail* must justify themselves by swearing that they are housekeepers, and each of them worth double the sum for which they are *bail*, after payment of all their debts.

BAIL-*bond*, is a bond or obligation entered into by one or more sureties, upon putting in *bail* to the sheriff, insuring the defendant's appearance at the return of the writ.

BAIL *in error*, expresses the bail given by a person who brings a writ of error after verdict, or who is plaintiff in error.

BAIL-*piece*. See BAIL *above*.

BAILE, *clerk of the*, is an officer belonging to the court of king's bench. He files the bail-pieces taken in that court and attends for that purpose.

BAILE, or BALE, in the *Sea Language*.—The seamen call lading or casting the water by hand out of a boat or ship's hold with buckets, cans, or the like, *bailing*.

When the water is thus *bailed* out, then say *the boat is freed*.

They also call those boons that beat upon the tail of the boat, its *bailes*.

BAILEMENT, a term in Law, signifying the delivery of things, whether writings or goods, to another; sometimes to be delivered back to the bailor, that is, to him who delivered them; sometimes to the use of him to whom they are delivered, and sometimes to a third person.

This delivery may be simple, as to keep for my use; or conditional, to be redelivered, when money is paid, &c. Upon *bailment*, or delivery of goods, these things are to be observed: if they are delivered to a man to be safely kept: and after, those goods are stolen from him, as he undertook to keep them safely, this shall not excuse him; but he is undertook to keep them as his own, he shall be excused. 2 Inst. 89. 4 Rep. 83. 1 Rol. Abr. 33.

BAILIAGE is used for the office of a bailiff, for the place or time he keeps his sent, and for the territory subject to his jurisdiction; which last is also denominated *bailiwick*.

BAILIALE, *water*, or BALIAGE, is an ancient duty received by the city of London, for all goods and merchandizes brought into or carried out of the port.

BAILIFF, in a general sense, denotes an officer appointed for the administration of justice within a certain district, called *bailiwick*.

The word is also written *bailie*, *baily*, *bayly*, *baylie*, and *bailiff*, in Latin *ballivus*.—It is formed from the French *bailler*, of *bail*, an old word denoting a guardian, or governor of a youth, originally derived from the Latin *bajulus*, which signified the same.

Paſquier maintains, that *bailiffs* were originally a kind of commissioners, or judges delegate, sent into the provinces to examine whether or no justice were well administered in the counts, who were their ordinary judges. This is not with more probability, refers the origin of *bailiffs* to the usurpation and infidelity of the great lords, who having got the administration of justice into their own hands, and being weary of the burden, turned it over to their stewards, whom they called *bailiffs*.

These *bailiffs* had at first the superintendence of the administration of justice, and of the finances; but abusing their power, they were by degrees stripped of it, and the greatest part of their authority transferred to their lieutenants, who were to be men of the long robe. It is true, in France they have still some prerogatives, as being reputed the heads of their respective districts: in their name justice is administered, contracts and other deeds passed, and to them is committed the command of the militia.

From these the English *bailiffs* originally took both their name and their office: for as the French have eight parliaments, which are supreme courts, whence no appeal lies, within the precincts of the several parliaments, or provinces, and to which justice is administered by *bailiffs*, at least, by their lieutenants, so in England are several counties wherein justice was administered by a viscount or sheriff, who appears likewise to have been called *bailiff*; and his district or county, *bailiwick*. Farther, the counties were again subdivided into hundreds; within which it is manifest justice was anciently rendered by officers called *bailiffs*. But those hundred courts are now swallowed up by the county-courts, certain franchises alone excepted, and the *bailiffs* name and office are sunk into such contempt, at least these *bailiffs* of hundreds, that they are now no more than bare messengers, and mandatories within their liberties, to serve writs, and such mean offices.

Bailiffs are of two kinds, viz. *bailiffs errant* or *itinerant*, and *bailiffs of franchises*.

BAILIFFS *errant*, are those whom the sheriff appoints to go up and down the country to serve writs and warrants, summon county courts, sessions, assizes, &c. The sheriff being answerable for the misdemeanor of these *bailiffs*, they are usually bound in an obligation for the due execution of their office, and thence called bound-*bailiffs* which is vulgarly corrupted into a much more homely appellation.

BAILIFFS *of franchises* are those who are appointed by every lord within his liberty, to do such offices therein, as the *bailiff* errant does at large in the county.

There are also *bailiffs of the forest* and *bailiffs of manors*, who direct the husbandry, sell trees, gather rents, pay quit-rents, &c.

The word *bailiff* still retains some of its ancient significancy: being applied also to the chief magistrates of several corporate towns, as Ludlow, Leominster, &c.—And again, the government of some of the kings castles is committed to persons called *bailiffs*; as, the *bailiff* of Dover Castle.

We also meet with divers other species and denominations of *bailiffs* in these and the neighbouring countries; as *provincial*, *royal itinerant*, and *hereditable bailiffs*; *bailiffs* of France, of the empire, of boroughs, of courts baron, manors, &c.

BAILIFF, *provincial*, *bailivus provincialis*, an ong the French, was an officer appointed to administer justice in a certain province, or county, with an authority somewhat like that of our justice of assize, instituted by the dukes and counts in their several territories, after they had procured the hereditance of them. These acted in the name, and by authority, not of the king, as judiciaries, but of the dukes or counts, who appointed them, and whose deputies they were. Spelman takes them to be the same with what, among our Saxon ancestors, were denominated *dikereves of counties*, and *graves or reves*, which afterwards became *vice-comites*, and sheriffs.

Appeals lay from these to the *bailiffs of* France, *baillivi Franciæ*, who were those appointed over the provinces originally belonging to the crown.

BAILIFFS, *royal*, *ballivi regii*, were those over provinces afterwards annexed to the crown. Something like these fell to be established in Scotland, under the title of hereditable *bailiffs*; as those of Cunningham, Carrick, and Kyle, the first in the families of the earls of Eglinton, the second of the earl of Cassils, the third of the earl of London.

BAILIFFS *of boroughs*, *ballivi burgorum*, were magistrates anciently in cities and towns, answering, in some measure, to what of later times was called *portgrave*, *mayor*, &c. Canterbury was a *bailiff* town five-hundred years before it was made a mayor town. Westminster, Southwark, Scarborough, &c. are still governed by *bailiffs*.

Bailiffs differ in this from mayors, that the latter are always single in one place, whereas there were usually two *bailiffs* to a city, as formerly at London, and sometimes four, as at Norwich.

BAILIFF *of the empire* was anciently the vicar or regent of the empire; as appears from a letter of Henry of Flanders to pope

pope Innocent III. wherein he says, the princes, barons, and knights, have elected me *bailiff of the empire, bailivus imperii.*

BAILIFF, *water*, is an officer anciently established in all port-towns, for the searching of ships; as appears from 28 Hen. VI. cap. 5.

There is such an officer still on foot in the city of London, who supervises and searches all fish brought thither; and gathers the toll arising from the river of Thames.—He attends also on the lord-mayor in his expeditions by *water*, and hath the particular care of marshalling the guests at the table.—He also arrests men for debt, or other personal or criminal matters on the river of Thames, by warrant of his superiors, &c.

BAILIWICK, BAILYWICK, or BAYLYWICK, the territory of a bailiff; or the place within which his jurisdiction is terminated.

BAILO, or BAILO, a name given at Constantinople, to the ambassador of Venice residing at the Porte; who also does the office of consul of his nation.

The word is doubtless the remains of the word *baronio*, which the modern Greeks and Turks have formed into *bailo*.

The Venetian consuls at Aleppo, Alexandria, Smyrna, and other parts of the Levant, are also denominated *bailo*.

BAIOCCO, a money in modern Rome, equivalent to a tenth part of the *julio*, or a hundredth part of the ducat.

The *baiocco* is worth about nine deniers, French money.

BAIRAM, a name given to the great annual feast of the Mahometans.

The word is also written, by some authors, more conformably to the oriental orthography, *beiram*. It is originally Turkish, and signifies literally, a *feast-day*, or *holiday*.

The Mahometans have two *bairams*, the *great*, and the *less*, which Scaliger, Erpenius, Rycaut, Hyde, Chardin, Bobovius, and other European writers, commonly intercharge, giving the appellation *great* to that which the Turks call *little*, and *vice versa*.

This feast commencing with the new moon, the Mahometans are very scrupulous in observing the time when the new moon commences: to which purpose, observers are sent to the tops of the highest mountains, who, the moment they spy the appearance of a new moon, run to the city and proclaim *mevedabat, vedeme mevi*; as it is the signal for beginning the festivity.

The ceremonies are described at large by Rycaut and Tournefort.

BAIRAM, the *little*, is properly that held by the pilgrims at Mecca, commencing on the tenth of Dhu Hajis, when the victims are slain, and lasting three days. This is called by the Arabs *id al adha*, that is, the feast of the sacrifice, as being celebrated in memory of the sacrifice of Abraham, whole son God redeemed with a great victim. By European writers it is called the *lesser bairam*, as being less taken notice of by the generality of the people, who are not struck with it, because the ceremonies attending it are performed at Mecca, the only scene of the solemnity. Sale's Prel. Diff.

The little *bairam* lasts for three days, during which no work is done; but persons visit from one to another, with many other manifestations of joy. If the day after Ramadan should prove cloudy, as to prevent the sight of the new moon, the *bairam* is put off to the next day, when it begins, though the moon be still obscured. When they celebrate this feast, after numerous ceremonies, or rather strange mimickries, in their mosques, they end it with a solemn prayer against the sultan, to root out Christian princes, or to arm them one against another, that they may have an opportunity to extend the borders of their law.

BAIT, *edible*, in *Ichthyology*, a small fish, which is caught in great plenty from August 1. to October 1. by the Greeks, Turks, and other nations, under the name of *atherina*, which is esteemed very delicious. These are the fry of some fish, and have been variously attributed to the smelt, to the frost, the sprat, and the black fish. Pennant observes, that this belongs to the genus of *gasterosteus*, because it has only three branchiostegous rays, and one dorsal fin; its body is compressed like that of the blenk; its usual length is two inches, and the under jaw is the longest; the sides are silvery, and the pupil black; the dorsal fin consists of about fourteen rays, the loins line is straight, the tail forked, and the tips black. Zoology, vol. iii. p. 372.

BAIT, in *Fishing*. Bait make a capital article in angling; on the choice whereof much of the sport depends; different seasons, and different game, having their appropriate baits. The red, or earth-worm, is good for the small fry most of the year round; and small fish are good *baits* for pikes at all times; sheeps blood and cheese are good *bait* in April; the bobs, dried wasps, and bees, are for May, brown flies for June; maggots, hornets, wasps, and bees, for July; snails in August; grashoppers in September; corn, bramble-berries, and seeds, at the fall of the leaf; artificial pastes are for May, June, and July, and frogs for March.

Baits are either natural or artificial.

BAITS, *natural*, include all kinds of worms, as the red worm, maggot, &c. also frogs, grashoppers, hornets, bees, snails, roaches, bleak, gudgeon, and loaches, &c.

These *baits* are to be kept each fort separate, and fed with those things which they like best.

The red worm is to be kept in rich black mould, with a little fennel chopped among it; a little ox or cow dung, newly made, is also a very acceptable thing to them. They may be kept in a box with small holes in it, or in a bag. Red worms, and all other forts, scour quickly, and grow very tough and bright, on putting them into a thin clout, greased with fresh butter, or greafe, before they are put into mofs.

This is the best of all things to keep them in; but the mofs muft beforft very well waflied, and the water fqueezed out again. As to food, a fpoonful of cream, dropped into the mofs once in three or four days, is better than any thing elfe. The mofs is to be changed every week, and kept in a cool place.

White large maggots are an excellent *bait* for many forts of fifh, and they are to be kept on sheep's guet and liver, chopped fmall.

Frogs and grafhoppers are to be kept in wet mofs, and long grafs; and, on moiftening this afreth every evening, it will keep a long time. They are to have their legs and wings cut off when they are ufed.

Live flies muft be ufed as they are caught; but wafps, bees, hornets, and humble-bees, may be preferved dry.

The beft method of drying them, is putting them in an oven after the bread is drawn. Care muft be taken that they are not fcorched; and when they are taken out, they are to have the heads dipped in sheep's blood. This is to be fuffered to dry out, and then they are to be preferved in a box. They will keep for three or four months.

BAITS, *artificial*, are flies of all kinds and fhapes, made of filk, feathers, and the like: the variety of which is very great; there being not only different ones for every feafon and month of the year, but almoft for every fifh. There are feveral *artificial baits*, for intoxicating of fowl, and yet without tainting or hurting the flefh, fo as to make it unfit to eat.

BAITS, *dead*, are paftes of divers forts, made of corn, cheefe, fruits, wafps, sheeps blood, boiled beans, &c.

BAIT, *ledger*, is that which remains fixed in one certain place, while the angler may be abfent; ufed efpecially in fifhing for pike.

BAIT, *walking*, is that which the angler attends while he keeps moving from place to place, in queft of the fifh.

BAITS *of hemp*, denote bundles of that plant, pulled and tied up ready for fteeping in water. *See* FLY-FISHING.

BAITING, or rather BATING, in *Falconry*, is when a hawk flutters with her wings, either from perch or fift, as if it were ftriving to get away.

BAITING alfo denotes the act of fmaller or weaker beafts attacking and harraffing greater and ftronger ones.

In this fenfe, we hear of the *baiting* of bulls and bears by maftiff or bull dogs, with fhort nofes, that they may take the better hold. Whales are baited by a kind of fifh called orke, or killer; nor do twelve of which will attack a young whale at once, and not leave him till he is killed. Philofoph. Tranfact. N°. 283. p. 265.

Houghton gives us the hiftory of *bull-baiting*, a fport peculiar to England, and favouring, like fome others, of our ancient Gothicifm. Some of our countrymen are fabl to be fond enough of it, to buy bulls on purpofe, and travel with them, at great charge, to all the chief towns around. The *beaver* of this animal makes his flefh tender and more digeftible: in reality, it difpofes it for putrefaction, fo that unlefs taken in time, *baited* flefh is foon bad.

BAJULATIO, the office of a *bajulus*, or bailiff.

BAJULUS, an ancient officer in the court of the Greek emperors, whereof there were feveral degrees: at the grand *bajulus*, who was preceptor of the emperor, and the fimple *bajuli*, who were fub-preceptors.

Hence the Italians ufe the word *bajulato* for a kingdom, in the fame fenfe with *precettor* of a kingdom among the Englifh. The word is derived from the Latin verb *bajulare*, to carry, or bear a thing in the arms or on the fhoulders.

Children, and efpecially thofe of condition, had anciently befide their nurfe, a woman called *gerula*, as appears from feveral paffages of Terentian; when weaned, or ready to be weaned, they had men to carry them about and take care of them, who were called *geruli*, and *bajuli a gerendo & bajulando*.

BAJULUS is alfo ufed by Latin writers in the feveral other fenfes, wherein *bailiff* is ufed among us.

BAJULUS was alfo the name of a convential officer in the ancient monafteries, to whom belonged the charge of gathering and diftributing the money and legacies left for maffes and obits; whence they alfo denominated *bajulus obituum monetarius*.

BAIZE, in *Commerce*. *See* BAYE.

BAKER's *central rule*. *See* CENTRAL *rule*.

BAKING, the art of preparing bread, or of reducing meals of any kind, whether simple or compound, into bread.

The forms of baking among us may be reduced to two; the one for unleavened, the other for leavened bread.

The learned are in great doubt about the time when *baking* first became a particular profession, and *bakers* were introduced. It is generally agreed they had their rise in the East; and passed from Greece to Italy after the war with Pyrrhus, about the year of Rome 583. Till which time every housewife was her own *baker*: for the word *pistor*, which we find in Roman authors before that time, signified a person who ground or pounded the grain in a mill or mortar to prepare it for *baking*, as Varro observes. According to Athenæus, the Cappadocians were the most applauded *bakers*, after them the Lydians, then the Phœnicians.

To the foreign *bakers* brought into Rome were added a number of freed-men, who were incorporated into a body, or, as they called it, a *college*; from which neither they nor their children were allowed to withdraw.—They held their effects in common, and could not dispose of any part of them. Each bake-house had a *patronus*, who had the superintendency thereof; and these *patroni* elected one out of their number each year, who had the superintendence over all the rest, and the care of the college. Out of the body of the *bakers* one was occasionally admitted among the senators.

To preserve honour and benefit in the college of *bakers*, they were expressly prohibited all alliance with comedians and gladiators: each had his shop or bakehouse, and they were distributed into fourteen regions of the city. They were excused from guardianships, and other offices, which might divert them from their employment.

By our own statutes, *bakers* are declared not to be handicrafts.—No man for using the mysteries or sciences of *baking*, brewing, surveying, or writing, shall be interpreted a handicraft. 22 H. VIII. cap. 13.

The *bakers* of London make the nineteenth company. They were incorporated about the year 1307, and consist of a master, four wardens, thirty assistants, and one hundred and forty-nine on the livery, beside the commonalty. The *bakers* of London are under the jurisdiction of the lord-mayor and aldermen.

A penalty is inflicted on *bakers* selling at a higher price than is set by the lord-mayor. See 3 Geo. II. cap. 29 and by 22 Geo. II. cap. 46. *bakers* are to set their marks on their bread. The assize of bread is regulated by several statutes. See 8 Ann. cap. 18. 31 Geo. II. cap. 29. 32 Geo. II. cap. 18. 3 Geo. III cap. 6. and 11.

The manner of *baking* at Otaheite, and in many islands of the South-sea, is as follows. They make fire by rubbing the end of one piece of dry wood upon the side of another, just as our carpenters when a chiffel: they then dig a pit in the ground about half a foot deep, and two or three yards in circumference; they have the bottom of it with large pebble stones, which they lay very smooth and even, and then kindle a fire in it with dry leaves, and the husks of the cocoa-nut. When the stones are properly heated, they take out the embers, and rake up the ashes on every side, then cover the stones with a layer of green cocoa-nut tree leaves, and wrap up the animal that is to be dressed, in the leaves of the plantain. If it be a small hog, or dog, they wrap them up whole; if large, they split them. When placed in the pit, they cover it with hot embers, and lay upon them bread fruit and yams wrapped up in like manner in the leaves of the plantain. Over these they spread the remainder of the embers, mixing among them some of the hot stones, with more cocoa-nut tree leaves, and then close up all with earth, so that the heat is kept in. After a time proportioned to what is dressing, the oven is opened, and the meat taken out, tender, full of gravy, and, as captain Wallis thought, better in every respect than when it is dressed any other way. Having no vessels in these islands that could bear the fire, the inhabitants of them had no idea of hot waters, or its effects, and therefore always roasted or baked their meat in the manner above related. Hawkesworth's Account of Voyages into the Southern Hemisphere, vol. i. p. 482.

BAKING is used for the exposing of a substance, enclosed in a kind, to the fire.

This makes an operation in pharmacy, used in the making of an oil of certain worms, commended against arthritic, shooting pains. The worms having stood some time to putrefy, are covered up, together with the vessel they are in, with a wooden cruft, and set in the oven; by which they are converted to a thick yellow oily liquor.

BAKING *porcelain*. See PORCELAIN.

BALA, in *Botany*, a name used by some authors for the *musa*, or plantane tree, called also the *banana* and *fenides* by others.

BALAAMITES, the name of a sect in the heritage of Christianity, of the same import in the Hebrew language with Nicolaitans, in the Greek. See NICOLAITANS.

BALAENA. See WHALE.

BALAM PULLI, in *Botany*, a name used by some authors for the tree whose fruit is the tamarind of the shops.

BALANCE, or BALLANCE, *libra*, one of the five mechanic powers in *Mechanics*, used principally for determining the equality, or difference of weights in heavy bodies, and consequently their masses or quantities of matter.

The *balance* is of two kinds, viz. the *ancient* and *modern*.

The *ancient* or *Roman*, called also *ſtatera Romana*, or *ſteel-yard*, conſiſts of a lever or beam, moveable on a centre, and ſuſpended near one of its extremes: on one ſide the centre are applied the bodies to be weighed, and their weight is meaſured by the diviſion marked on the beam; on the other ſide is the place where a weight moveable along it keeps the *balance* in equilibrio.

The *modern balance*, now ordinarily in uſe, conſiſts of a lever or beam ſuſpended, exactly by the middle; to the extremes whereof are hung ſcales, or baſons.

In each caſe, the beam is called the *jugum*, and the two moieties thereof on each ſide the axis, the *brachia*, or *arms*; and the handle whereby it is held, *ſcutum*; the fine on which the beam turns, or which divides its brachia, is called the *axis*; and, when conſidered with regard to the length of the brachia, is eſteemed but a point, and called the centre of the *balance*; and the places where the weighs are applied, the *points of ſuſpenſion or application*.—That ſtender part perpendicular to the *jugum*, whereby either the *equilibrium*, or preponderancy of bodies is indicated, is called the *tongue of the balance*.

In the Roman *balance*, therefore, the weight uſed for a counterbalance is the ſame, but the points of application are various; in the common *balance*, the counterpoiſe is various, and the points of application the ſame.

The principle on which each is founded is the ſame, and may be conceived from what follows.

BALANCE, *doctrine of the*.—The beam AB (*Tab. Mechanics, fig.* 9.) the principal part of the *balance*, is a lever of the firſt kind, which (inſtead of reſting on a *fulcrum* at C, its centre of motion) is ſuſpended by ſomewhat faſtened to C its centre of motion. So that the mechaniſm of the *balance* depends on the ſame theorem as that of the lever. Hence, as the known weight is to the unknown, ſo is the diſtance of the unknown weight from the centre of motion to the diſtance of the known weight, where the two weights will counterpoiſe each other; conſequently, the known weights ſhew the quantity of the unknown.

Or thus: the action of a weight to move a *balance* is by ſo much greater, as the point preſſed by the weight is more diſtant from the centre of the *balance*; and that action follows the proportion of the diſtance of the ſaid point from that centre. When the *balance* moves about its centre, the point B deſcribes the arch B*b* (*fig.* 10); whilſt the point A deſcribes the arch A*a*, which is the biggeſt of the two: therefore in the motion of the *balance*, the action of the ſame weight is different, according to the point to which it is applied: hence it follows, that the proportion of the ſpace gone through by the point at A is as A*a*, and at B as B*b*, but thoſe arches are to one another, as CA, CB.

BALANCE, *varieties in the application of the*.—If the brachia of a *balance* be diviſied into equal parts, one ounce applied to the ninth diviſion from the centre, will equiponderate with three ounces at the third; and two ounces at the fifth diviſion act as ſtrongly as three at the fourth, &c.

Hence it follows, that the action of a power to move a *balance* is in a *ratio* compounded of the power itſelf, and its diſtance from the centre: for that diſtance is as the ſpace gone through in the motion of the *balance*.

It may be here obſerved, that the weight equally preſſes the point of ſuſpenſion at whatever height it hangs from it, as if in the ſame manner as if it was fixed at that very point: for the weight at all heights equally ſtretches the cord by which it hangs.

A *balance* is ſaid to be in *equilibrio*, when the actions of the weighs upon the brachia to move the *balance*, are equal, ſo as mutually to deſtroy each other. When a *balance* is in equilibrio, the weights on each ſide are ſaid to be equiponderant: unequal weights may alſo *equiponderate*, but then the diſtances from the centre muſt be reciprocally as the weights. In which caſe, if each weight be multiplied by its diſtance, the products will be equal; which is the foundation of the ſteel-yard.

Thus in a *balance* whoſe brachia are very unequal, a ſcale hanging at the fifteenth, and the longeſt divided into equal parts: if ſuch a weight be applied to it, as at the firſt diviſion ſhall equiponderate with one ounce in the ſcale; and the body to be weighed be put into the ſcale, and the above-mentioned weight be moved along the longeſt *brachium*, till the *equilibrium* be found; the number of diviſions between the body and the centre ſhews the number of ounces that the body weighs, and the ſubdiviſions the parts of an ounce.

On the ſame principle alſo is founded the *deceitful balance*, which cheats by the inequality of the *brachia*: for inſtance, take two ſcales of unequal weights, in the proportion of 9 to 10, and hang one of them at the tenth diviſion of the

balances above described, and another at the ninth division; so that there may be an *equilibrium*; if then you take any weights, which are to one another as 9 to 10, and put the first in the first scale, and the second in the other scale, they will equiponderate.

Several weights, hanging at several distances on one side, may equiponderate with a single weight on the other side: to do this it is required, that the product of that weight, by its distance from the centre, be equal to the sum of the products of all the other weights, each being multiplied by its distance from the centre.

To demonstrate which, hang three weights of an ounce each, at the second, third, and fifth divisions from the centre, and they will equiponderate with the weight of one single ounce applied to the tenth division of the other *brachium*: and the weight of one ounce at the sixth division, and another of three ounces at the fourth division, will equiponderate with a weight of two ounces on the other side at the ninth division.

Several weights, unequal in number, on either side, may equiponderate: in this case, if each of them be multiplied by its distance from the centre, the sums of the products on either side will be equal; and if those sums be equal, there will be an *equilibrium*.

To prove which, hang on a weight of two ounces at the fifth division, and two others, each of one ounce, at the second and seventh; and on the other side hang two weights, each also of one ounce, at the ninth and tenth divisions; and these two will equiponderate with those three. A *balance* of this kind, the arms of which are equally divided, has been sometimes called an *arithmetical balance*; because the arithmetical operations of addition, subtraction, multiplication, division, and the rule of three, may be easily performed by it. 'sGravesande, Physices Elementa Math. vol. i. p. 50.

To the justness of a *balance* it is required, that the points of suspension be exactly in the same line as the centre of the *balance*; that they be precisely equidistant from that point on either side: that the brachia be as long as conveniently they may; that there be as little friction as possible in the motion of the beam and scales; and lastly, that the centre of gravity of the beam be placed a little below the centre of motion.

Mr. Ludlam has contrived a *balance* of a new construction for the woollen manufacturers. Their thread is made into skains of the same length; and the fineness of it is denominated from the number of skains which go to a pound; the coarsest being about twelve to the pound, and the finest near sixty. This machine is designed for weighing the skains, in order to determine their respective fineness. It resembles the beam of a common pair of scales; at one end of it is fixed a weight, called the counterpoise, and at the other end a hook, on forting, the skein to be examined is put upon the hook, and sinks down more or less, according to its weight, till the counterpoise, by rising, balances it; and then the index, or cock of the beam, points out on a graduated arch, the number of skains of that sort which goes to the pound.

A scale, instead of the hook, might be used for weighing money, if the arch were properly divided for that purpose. See a drawing of this machine, and the explanation of the theory of it, in Phil. Trans. vol. lx. N° 23. p. 277.

BALANCE *of the air*, or wind, denotes the weight of that fluid, whereby, according to its known property, it presses where it is least rarified, till it be equally adjusted in all parts.

BALANCE, *spring*, is a new *balance* used in determining the exact weight of minute bodies. Its structure is very little different from that of the common sort; except that it is made of the best steel, and fitted for receiving with the smallest weight.

BALANCE, in *Horology*. See LEVER.

BALANCE *of a clock or watch*, is that part of either, which by its motion regulates and determines the beat.—The circular part of it is called the *rim*, and its spindle the *verge*: there belong to it also two *pallets* of ruby, which play in the fangs of the crown-wheel in pocket-watches, that strong stud in which the lower pivot of the verge plays, and in the middle of which one pivot of the crown-wheel runs, is called the *balance*: the wrought piece which covers the *balance*, and in which the upper pivot of the *balance* plays, is the COCK: the small spring in the new pocket-watches is called the REGULATOR.

BALANCE, *hydrostatical*, is an instrument for determining the specific gravities of bodies. See HYDROSTATICAL.

BALANCE, in the *Accounts of Merchants*, is when the debtor and creditor sides of any distinct account are equal. In such case the account is said to be *balanced*.

Balance of a merchant's books. This is a branch of the art of accountantship. In the method of keeping the books of traders, according to that excellent art of charge and discharge by double entry, such books, if correctly kept, will always be fit for a general *balance*. For such is the excellency of that method, that the books of themselves must necessarily *balance* on the whole, though not in every distinct account throughout the ledger.

BALANCE, among *Painters*. See EQUILIBRIUM.

BALANCE *of power*, in the *Politick System*, originates from and is maintained by the alliances of different nations, as their circumstances and interests may require.

BALANCE *of trade* denotes an equality between the value of commodities bought of foreigners, and the value of the native productions transported into other nations.

It is necessary that this *balance* be kept in trading nations; and if it cannot be made in commodities, it must in specie. Hereby it is, that we know whether a nation gains or loses by foreign trade, or any branch thereof; and consequently whether that nation grows richer or poorer.

There are divers methods of arriving at this knowledge.

1. That most received, is by taking a strict survey of what proportion the value of the commodities exported, bears to those imported. If the exports exceed the imports, it is concluded that nation is in a gaining way, it being supposed that the overplus is imported in bullion, and so increases the treasure of the nation.—But this method is very uncertain: by reason of the difficulty of obtaining a true account either of the exports or imports. (1.) Custom-house books are no rule in this case: by reason of the running of goods, especially many fine commodities of small bulk, but great value: as point, lace, ribbands, silk, jewels, fine linens, &c. also wines, brandies, teas, and the like. (2.) To which add various accidents which affect the value of the stock either sent out or brought in: as losses at sea, markets, bankrupts, seizures, &c. (3.) Then, as to particular trades, there are divers countries to which the manufactures we send out are inconsiderable, yet the goods we import are necessary to the carrying on our trade in general; as the trade to Norway, &c. for timber and naval stores. Also the East India company, whose imports much exceed their exports: yet is their trade highly advantageous to the nation: as we sell much of these imports to foreigners, and wear others, e. gr. callicoes, and silks, in lieu of linen and silks from other countries, which would cost us dearer.

2. The second method is, by observing the course of exchange, which, if generally above the intrinsic value or par of the coins of foreign countries, shews that we not only lose by such exchanges, but that we lose by the general course of our trade.—But this method is imperfect; since we trade to many countries, with which there is no settled course of exchange.

3. A third way is, by observing the increase and diminution of our coin and bullion.—But this is the least obvious and palpable of any; for the money seems to vulgar eyes most plentiful when there is the least occasion for it; and more scarce as the occasions for employing it are more numerous and advantageous: by which means we seem to have most money when we have least trade. Thus, e. gr. when the East India company have a great sale to make, money is generally found to be scarce in London: because the occasion engages people to employ quantities which they had provided for that purpose. So, a high rate of interest will make money seem low, because every man as soon as he can make up a small sum, employs it in the purchase of stock.

The fourth method, which is Sir Jos. Child's, is derived from the increase, or the diminution, of our trade and shipping in general: for if these diminish, whatever profit particular men may make, the nation loses; and *vice versa*. He lays it down as an infallible rule, that in all parts of the world wherever trade is great, and continues so, and grows daily greater, and the shipping increases for a succession of ages, that trade must be nationally profitable. Even in the case of a merchant, who, by driving a great trade, ruins himself; though he lose, what a multitude are gainers by him! as the king, and custom-house officers; besides ship-rights, butchers, brewers, bakers, ropemakers, porters, carmen, manufacturers, mariners, &c.

BALANCE, *to*, in *Sea Language*, signifies to contract a sail into a narrower compass, in a storm, by retrenching or folding up a part of it at one corner.

BALANCE *of the fore-main-sail*, is performed, after all its reefs are taken in, by rolling up a similar portion of the foot-roll, or aftmost lower corner, called the *clue*, and fastening it strongly to the boom, securing it from being fretted by the cord that fastens it.

BALANCE *of the mizen* is thus performed: the *mizen-yard* is lowered a little, a small portion of the sail is rolled up at the *peek*, or upper corner, and fastened to the yard, about a fifth inward from the outer end, or yard-arm, towards the mast.

BALANCE-*fish*, in *Ichthyology*, an English name for the fish called the *xyræna* by authors, and by some the *sphyræna* and *sparus*, or *lucius*. It is, according to the new Artedian system, a species of the *sparulus*, and is distinguished by that author, by the name of the *sparulus* with a very broad and transverse head, resembling a hammer.

BALANCERS,

BALANCERS, in *Natural Hiſtory*, are two ſmall oblong bodies, placed under the wings of the two-winged flies, and, in ſome meaſure, ſupplying the office of the two other wings, which thoſe of the four-winged claſs are poſſeſſed of.

BALANCIER, a machine uſed in the ſtriking of coins, medals, counters, and the like. See COINAGE.

BALANI, in *Natural Hiſtory*, the name of a genus of ſhell-fiſh, belonging to the claſs of muſcles, approaching to the ſhape of an acorn (*balanus*), and uſually growing to the ſhells of the larger ſort of ſea ſhell-fiſh: they are commonly called in Engliſh, centre ſhells. See the figure in *Table of Shells*, N° 26.

It is a very common error to miſtake the names of the multivalve ſhells, ſo far as to confound the *balani* and *conchæ anatiferæ*, as they are called, together; though they be extremely different.

The *balani* are found affixed in cluſters to a thouſand different ſubmarine things; ſuch as the harder ſea-plants, all ſorts of teſtaceous, and cruſtaceous ſea-animals, rocks, and timber. They may be arranged under the two ſubdiſtinctions of wide and narrow-mouthed, including ſeveral ſpecies.

The ſmall fiſh which nature has covered with this ſhell, is of a very admirable ſtructure. Leewenhoeck acknowledges, that he never met with any animal, in which ſo many objects of wonder lay open to the naked eye as in this. It has twelve legs or arms, which are crooked, and garniſhed with a great number of hairs: theſe twelve they elevate on all occaſions; and, beſide theſe, they have eight others, which are much ſmaller, and ſtand lower. Their body is, in all reſpects, like that of the *concha anatifera*. It is cartilaginous, and mucous, and of an ill taſte. The ſhell ſhapes itſelf, at the baſe, to the figure of the ſurface of whatever it grows to, and ſticks very firmly to it.

The *balanus*, in the Linnæan ſyſtem, is a ſpecies of the LEPAS.

BALANITES, in *Natural Hiſtory*, a name given by the ancients to a ſtone, ſeeming to have been one of the ſemipellucid gems. They deſcribe two ſpecies of it; the one of which was yellow, and the other green, but each having veins of a ſtone colour. Their deſcriptions are too ſhort for us to be able to aſcertain, what ſtones, among thoſe known at that time, they meant.

Some think the *balanites* to have been the *lapis Judaicus*, on account of its acornſhike figure and ſize. Plin. Nat. Hiſt. lib. xxxvii. cap. 10. Ed. Hardouin.

BALANUS, BALANOS, or GLANS, is ſometimes uſed by anatomiſts for the nut of the yard. Sometimes alſo the clitoris is ſo called.

BALANUS is ſometimes alſo uſed for a SUPPOSITORY.

BALANUS MYREPSICA, in the *Materia Medica*, the oily acorn. The whole nut is of a purging quality; and the dry preſſing or powder after the oil is taken out, is of a cleanſing and drying nature.

BALASS, or BALLAS, a precious ſtone, of the ruby kind; whence it is alſo denominated *ballas-ruby*.

BALATITI, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands to a ſpecies of bird, by the flight of which they divine the event of things.

BALAUSTINES, BALAUSTIA, from *Βαλαυστιον*, in *Pharmacy*, the flowers of the wild pomegranate, or *malus punica ſylveſtris*, which are very rough to the tongue and palate, and very aſtringent; and on that account are frequently uſed in diarrhœas, and other fluxes, hernias, &c.

BALBUSARDUS, in *Ornithology*, the name uſed by authors, for the bird called in Engliſh the *baſe-harpard*. It is of the long-winged and hawk-kind, and has been deſcribed by Aldrovandus, and ſome other authors, under the name of the *haliætus* and *morphnos*, two kinds of the eagle.

It frequents the ſhores of ponds and rivers, and ſometimes of the ſea, where it preys on fiſh. It builds on the ground among reeds, and lays three or four large white eggs, little leſs than hen's eggs.

BALCONY, from the French *balcon*, in *Architecture*. *Balconies* are a kind of open galleries without the walls of buildings, contrived chiefly for the convenience of looking around, ſeeing proceſſions, cavalcades, and the like.

Where there is but one, it is uſually in the middle of the front of the edifice, and level with the firſt floor; ſometimes they are made of wood, ſometimes of caſt iron; the former ſurrounded with a rail, or balluſtrade, the latter wrought in various figures in *demi-relievo*. Some are alſo made of bar iron, faſhioned in caſt-work, or flouriſhes of divers fancies.

BALCONY, in a ſhip, denotes a gallery either covered or open, made aloft, either for ornament or convenience of the captain's cabin.

BALDACANIFER, corruptly alſo written *baldamifer*, denotes a ſtandard-bearer; chiefly in the ancient order of knights Templars.

BALDACHIN, or BALDAQUIN, a piece of architecture in form of a canopy, ſupported with columns, and ſerving as a crown or covering to an altar.

The word comes from the Italian *baldachino*, which ſignifies the ſame.

BALDACHIN or BALDAKIN, or BALDEKIN, popularly BARDEKIN, in *Middle Age Writers*, denotes a rich kind of cloth made of gold warp and ſilk woof, variouſly figured. It took the denomination from its being formerly brought into theſe countries from *Baldaeia*, or Babylon.

BALDMONIE, an old Engliſh name for gentian, the root of which is uſed in medicine; ſome alſo have called the *meum*, or ſpignel, by this name.

BALDNESS, CALVITIES, in *Medicine*, a falling of the hair, eſpecially that of the ſcalp, without being able to grow again; the moiſture of the head, which ſhould feed it, being dried up by ſome diſeaſe, old age, or the immoderate uſe of powder, &c.

It differs from *alopecia*, *area*, *aphiaſis*, and *tinea*, as theſe all ariſe from ſome vice in the nutritious humour; *baldneſs*, from the defect of it. But the diſtinction is not always obſerved by modern phyſicians.

When the eyeſhids ſhed their hairs, it is called a *ptiſis*.

Among the cauſes of *baldneſs*, immoderate venery is reputed one of the chief: old age uſually brings it on of courſe. Some will have the proximate cauſe of *baldneſs* to be the dryneſs of the brain, and its ſhrinking from the *cranium*; it having been obſerved, that in *bald* perſons there is always a vacuity or empty ſpace between the ſkull and the brain.

Calvus, *bald-pate*, was a frequent term of reproach among the Romans; among whom this defect was in great diſcredit. Hence divers arts to conceal it, as falſe hair, *galericulus* contrived on purpoſe.

The later Romans, however, ſeem to have been reconciled to *baldneſs*; for we find among them a kind of officers, or ſervants, called *glabratores*, or *glaberarii*, whoſe buſineſs was to take off the hair from all parts, even from the head. In an ancient inſcription, theſe are mention of one Diophantus, TI. CÆSARIS, ORNATOR GLABR. that is, *ornator glabrarius*. See ALOPECIA.

BALDWIN'S *ſhipwright*. See PUDDINGS.

BALE, in *Commerce*, a term denoting a quantity of merchandize wrapped or packed up in cloth, and corded round very tight, after having been well ſecured with hay or ſtraw, to keep it from breaking, or to preſerve it from the weather. Moſt of the merchandize, capable of this kind of package, that are ſent to ſales, or intended for exportation, ought to be in *bales*; and too much care cannot be taken in packing them, to ſecure them from damage.

To ſell goods in the *bale* is to ſell them in the lump, on ſhewing a ſpecimen, without unpacking or taking off the cordage. Thus it is the Eaſt India company ſell their *bale*-goods.

BALE-*goods*, in the Eaſt India *Trade*, the bulky goods, as ſaltpetre, pepper, red-earth, tea, &c.

The *bale* goods ſtand oppoſed to piece-goods.

BALES *of cambit*, at Smyrna, are called tables, on account of their flat ſquare figure.

A *bale* of cotton yarn is from three to four hundred weight: of raw ſilk, it is from one to four hundred: of lockram or dowlas, either three, three and a half, or four pieces, &c.

BALE *of paper*, denotes a certain number of reams packed together in a bundle.

Three are *bales* of ſmall and fewer reams. Thoſe ſent from Marſeilles to Conſtantinople uſually contain twelve reams.

A *bale* of bullen of brown paper, manufactured in ſome parts of Provence, conſiſts of fourteen reams, and is ſold to the Levant for Venice paper.

BALE *of dice*, denotes a little packet or paper, containing ſome dozens of dice for playing with.

BALENGER, BALINGARIA, in *Middle Age Writers*, a kind of veſſel of war, but what in particular ſeems not well known. Blount ſays, that by the ſtat. 28 Hen. VI. cap. 5. *balenger* ſeems to have been a kind of barge.

BALESTRA, in *Aſtrology*, a name by which Sabian and ſome other authors have called the fifth more uſually known by the name of CAPRICORN.

BALISTA. See BALLISTA.

BALISTES, in *Zoology*, a genus of the ſwimming amphibia, comprehending eight ſpecies.

BALIVIS, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands to the common duck of that part of the world; this is ſomewhat ſmaller than our wild-duck, and much more beautifully coloured.

BALIVO *amovendo*, a writ to remove a bailiff from his office, for want of ſufficient land in the bailiwick.

BALK, in *Agriculture*, are ridges or banks between two furrows or pieces of arable land: the word is ſometimes alſo uſed for the poles or rafters over out-houſes or barns; and among bricklayers for great beams, ſuch as are uſed in making ſcaffolds.

BALKS, among *Builders*, large pieces of timber, brought from abroad in floats.

BALKS are a ſort of beams imported, from five to twelve inches ſquare.

The greateſt *balks* are accounted timber, if above eight inches ſquare.

In

In some parts of England, *bâlk*, or *bawk*, denotes the ſummer beam of a building.

BALKS, or *bowks*, alſo denote poles laid over a ſtable, or other building, for the roof.

BALKERS, in the *Fiſhery*, perſons placed on rocks, and eminences at ſea, to ſpy the herring droves, and give notice to the fiſhermen by waving boughs, what way they go, and where they may be found. 1 Stat. Jac. I. cap. 23.

BALL gives the denomination to a ſpecies of game or ſport frequent among the ancients.

The Romans had four kinds of *pilæ*, or *balls*; the firſt called *trigon*, or *trigonalis*, becauſe the three gameſters, as it were placed in a triangle, caught and toſſed the *ball*, taking great care not to let it fall to the ground.

The ſecond called *folles*, made of leather, blown up like our foot-balls: the largeſt ſort of theſe were ſtruck with the arm, the ſmaller with the fiſt: the former ſeem to have been diſtinguiſhed by the appellation *paganica*, as being much uſed in country villages: the fourth was the *harpaſtæ*, a kind of ſmall *balls*, ſo called, becauſe the gameſters endeavoured to ſnatch it from each other.

Galen has an entire treatiſe on the exerciſe of the *leſſer ball*.

BALL, *pila*, is alſo the denomination of a form of medicines. We meet with *balls* for the tooth-ach; ſpitting *balls*, uſed to promote a diſcharge of ſaliva, &c.

BALL is alſo uſed in Cornwall, &c. for a tin mine.

In this ſenſe, Godolphin's *ball* is ſaid to be the moſt famous of all the *balls* or mines in Cornwall, for quantity of metal. Phil. Tranſ. N° 138, p. 951.

BALL is alſo uſed, in a well known ſenſe, for an aſſembly of both ſexes who dance to the ſound of inſtruments.

BALLS, in *Architecture*, are repreſented at C, *fig.* 40. (*Tab. Archit.*) and are uſed for ſupporting attic pedeſtals.

BALLS, *billiard*, are ivory-*balls* uſed in the game of billiards. Moxon deſcribes the method of turning hollow ivory *balls*, one within another. Mechan. Exerc. p. 219.

BALLS, in *Brewing*. They are either *brown* or *pale*, and uſed to fine, feed, preſerve, and colour MALT-*drinks*, wines, and ciders. See the compoſition of them deſcribed under BREWING.

BALLS, *chewing*, are thoſe which the horſe is to keep champing or maſticating in his mouth, a conſiderable time, without ſwallowing. Theſe are chiefly uſed for loſt appetite: a thing very incidental to horſes.

They are uſually made of *aſſa-fœtida*, liver of antimony, juniper, bay-wood, and pellitory of Spain, beaten and incorporated into a maſs with verjuice. The method of adminiſtration is to wrap one of the *balls* in a linen cloth, and having a ſtring faſtened to it, make the horſe chew it two or three hours at a time.

BALLS, *cryſtalline*. There are two ſorts of foſſile bodies mentioned in authors by this name, and diſtinguiſhed into the echinated, and concave.

The firſt are roundiſh nodules of ſtrong matter, covered over with points of cryſtal; and the other, flints and other ſtones, having cavities in their middles, which are lined, or cruſted over with theſe cryſtals.

BALL *of the fort of a dog*, is the prominent part of the middle of the foot, called by Latin writers of the middle age, *poleta*, which is to be taken away in EXPEDITATION. Du-Cange Gloſſ. Lat.

BALLS, in *Electricity*. Mr. Canton's *balls* are two pieces of cork or pith of elder, nicely turned in a lathe, to the ſize of a ſmall pea, and ſuſpended by fine linen threads; intended as ELECTROMETERS, and of excellent uſe to diſcover ſmall degrees of *electricity*, to obſerve the changes of it from *poſitive* to *negative*, and *vice verſa*; and to eſtimate the force of a ſhock before the diſcharge, ſo that the operator ſhall always be able to tell very nearly before the diſcharge, by knowing how high he has charged his jars, what the exploſion will be. Dr. Prieſtley's Hiſt. of Elect. 3d edit. 8vo. vol. iii. p. 121.

BALLS, *fire*, are bags of canvaſs filled with gunpowder, ſulphur, ſalt-petre, pitch, &c. to be thrown by the ſoldiers, or out of mortars, in order to fire houſes, incommode trenches, advanced poſts, or the like.

The Greeks had divers kinds of *fire-balls*, made of wood, ſometimes a foot, or even a cubit long; their heads being armed with ſpikes of iron, beneath which were hemp, pitch, and other combuſtibles, which being ſet on fire, were caſt among the enemy.

The preparation of *fire-balls*, among the moderns, conſiſts of ſeveral operations, viz. making the bag, preparing the compoſition, tying, and laſtly dipping the *ball*.

The bags for this purpoſe are either oval or round.

The compoſition where with *fire-balls* are filled, is various. To ten pounds of meal gun-powder, add two of ſaltpetre, one of ſulphur, and one of colophony: or to ſix pounds of gunpowder, add four of ſaltpetre, four of ſulphur, one of powdered glaſs, half a pound of antimony, as much camphor, an ounce of ſal ammoniac, and four of common ſalt, all pulverized. Sometimes they even fill *fire balls* with hand granados.

For tying the *fire-balls*, they prepare two iron rings, one fitted around the aperture, where the *ball* is to be lighted, the other near its baſe. A cord is tied to theſe rings, in ſuch manner as that the ſeveral turns repreſent ſemicircles, or meridians of the ſphere, cutting the globe through the poles: over the cords, extended according to the length of the *ball*, others are tied, cutting the former at right angles, and parallel to each other, making a knot at each interſection. Laſtly, putting in a leaden boller, the reſt of the ſpace is filled with tow or paper. Thus completed, the *fire-ball* remains to be dipped in a compoſition of melted pitch, colophony, and linſeed-oil, or oil of turpentine; after dipping, they cover it round with tow, and dip again, till it be brought to the juſt diameter required.

BALLS *of fire* in the air, are meteors ſometimes ſeen paſſing over countries, and computed by philoſophers to be often, at leaſt, thirty miles high. They ſometimes burſt at that height; and though the air muſt be exceeding rare there, yet the exploſion is heard at that diſtance, and for ſeventy miles round on the ſurface of the earth, &c. Does not this look as if a rare atmoſphere, almoſt a *vacuum*, was no bad conductor of ſound? Dr. Franklin's Works, p. 437.

BALLS, *gluſs*. See GLASS-*balls*.

BALLS, *Lodoiſts* ſpeak of a ſort of *balls* of hair covered over with a ſmooth, ſhining coat, or ſhell, found in the ſtomachs of oxen, cows, calves, horſes, ſheep, and goats, particularly the chamois, or *rupicapra*. See ÆGAGROPILUS.

Some alſo have been found in the *uterus*, and ovaries of females. Sir Hans Sloane gives the hiſtory of a *ball* found in the inteſtines of a man, much afflicted with the colic, ſix inches in circumference, of a ſpungy ſubſtance, and which when viewed with a microſcope, appeared made up of ſmall tranſparent hairs or fibres, wrought together like the *teſtæ betinæ*: in the middle was a common plum-ſtone, which made, as it were, the core or *nucleus*, around which the fibrous matter had gathered *ſtratum ſuper ſtratum*. Phil. Tranſ. N° 300. p. 2387. Sloan, in Phil. Tranſ. N° 282. p. 1283, ſeq. See HAIR.

Others have been found with plum-ſtones, and cherry-ſtones, in the centres. Bezoars have uſually ſome feed for a *nucleus*. The origin and formation of theſe *balls* is conteſted. Bartholin, and after him Dr. Plott, and others, attribute them to the creatures licking themſelves, and ſwallowing the hair, which being elaborated in the *reticulum*, become compacted together much after the manner that the wool of a hat is by the hand of the workman; and lying long in the ſtomach, have a thick, tough coat, ſuperinduced by the plenty of ſlime it there meets with. Plott, i. c. § 72.

The Royal Academy of Sciences at Paris ſubſtitute another origin. In diſſecting a chamois, a *ball* was found in the third ventricle, which did not ſeem compoſed of hair, but of woody fibres, as appeared from their inequality, which were neither uniform in figure nor ſize, as hairs are. Add, that the like *balls* are found in horſes, which are not animals that lick themſelves, and where of conſequence they muſt be formed of ſomething elſe than hair. Hence the generality of naturaliſts, particularly Geſner and Camerarius, take theſe *balls* to be formed of the reſidue of the plants, which the animals have eaten, the harder fibres whereof remain undigeſted. Thoſe of the *rupicapra*, in particular, are ſuppoſed to be the fibres of the plant *doronicum*, reputed by ſome a ſpecies of ACONITE. Phil. Tranſ. N° 189, p. 373.

BALLS, or BALLETS, in *Heraldry*, make a frequent bearing in coats of arms, though never ſo called; but having according to their ſeveral colours ſeveral names: as *bezants*, when the colour is or; *plates* when argent; *hurts* when azure; *torteaux* when gules; *pomets* when vert; *pellets* or *ogreſſes* when ſable; *golpes* when purple; *orenges* when tenné; and *guzes* when ſanguine.

BALLS, *Hero's*, *pilæ Heronis*, is a kind of artificial fountain, wherein the water is made to ſpout out of a hollow *ball*, or globe.

It takes the denomination from the inventor Hero of Alexandria, who has left the deſcription of it in his Spiritalia. See FOUNTAIN.

BALLS, *horſe*, among *Farriers*, a kind of cordial medicines, adminiſtered in form of *balls*, ſuppoſed of great virtue for feeding and ſtrengthening found, as well as healing and raiſing unſound horſes.

BALLS, *Markham's horſe*, are a preparation of anile-ſeeds, carthamus, eleccampane, and other ingredients, wrought into a ſtiff paſte, and thence formed into *balls*. They are cleanſing and emollient, efficacious in colds, ſurfeits, and hard labour, and eſpecially uſeful where any of the chief *viſcera* are decayed: nothing raiſes a lean jade ſo ſoon, being partly food, partly phyſic.

BALLS, *land*, those which being thrown out of a mortar, fall to the ground, burn and burst there. The ingredients are much the same as in the water *balls*, only the specific gravity is not attended to.

BALLS, *light*, are such as diffuse an intense light around; or they are *balls* which being cast out of a mortar, or the hand, burn for some time and illuminate the adjacent parts.

Those for the hand are made of ground powder, saltpetre, brimstone, camphor, and borax, all sprinkled with oil, and moulded into a mass with flax, common and Greek pitch, to the size of an ordinary grenade: this is wrapped up in tow, with a sheet of strong paper over it. To fire it, a hole is made into it with a bodkin, into which is put some priming, that will burn slow. Its use is to be cast into any works that are to be discovered in the night time.

For the *larger light balls*, or those to be thrown to a greater distance, they are prepared by melting equal quantities of sulphur, turpentine, and pitch; and by dipping in this composition an earthen, or stone *ball*, of a diameter much less than that of the mortar out of which the fire-*ball* is to be cast: then rolling it in gun-powder, and covering it round with gauze, the dipping is repeated till it comes to fit the cavity of the mortar: lastly, it is sprinkled around with gun-powder. This being once kindled, will strongly illuminate all round the place where it is thrown, and give opportunity for examining the state and condition thereof.

BALLS, *martial*, in *Chemistry*, a mixture of filings of iron, and cream of tartar, formed into a solid consistence, and the form of a ball, used to impregnate water, or other liquids, with iron, dissolved by the tartareous acid.

They are of the same nature as the TINCTURE *of Mars tartarized*; and therefore these preparations may be substituted for each other.

To make *martial balls*, take one part of filings of iron, and two parts of powdered cream of tartar; mix them well together, and put them into an earthen or iron vessel with some water; stir the mixture from time to time, till it becomes almost dry; add more water, and stir it as before, till it acquires, when nearly dry, somewhat of the consistence and tenacity of softened rosin; then it is rolled into the form of a *ball*, generally kept tied up in a rag, and when it is used, infused into water, till it gives some colour to that liquid. Mac. Chem. Dict. Eng. ed.

BALLS, *mercurial*, in *Chemistry*, an amalgam of mercury and tin, sufficiently solid to be moulded, and to preserve a given form.

To make *mercurial balls*, add mercury to melted tin, and pour the fluid mass into a round and hollow mould.

These *balls* are used to purify water in which they are boiled; for which purpose travellers often carry some along with them. Macquer.

BALL, in the *Military and Pyrotechnical Arts*, is a composition of divers ingredients, generally of the combustible kinds, serving to burn and destroy, give light, smoak, flame, or the like.

In this sense, we read of fire-*balls*, light-*balls*, smoak-*balls*, stink-*balls*, fly-*balls*, water-*balls*, hand-*balls*, &c.

Balls are likewise used for all sorts of fire-arms; those for cannon are made of iron, and those for muskets, &c. of lead.

BALL *of a pendulum*, the weight at the bottom. In shorter pendulums, this is called the *bob*.

BALL, among *Printers*, a kind of wooden funnel stuffed with wool, contained in a cover of sheep's skin, which is nailed to the wood; with which the ink is applied on the forms, to be wrought off.

The pressmen holding one of these balls in either hand, first daubs them on the ink-block, then working them on each other, he applies them afterwards on the forms, which retain the ink necessary to make an impression.

BALL, *puff*. See LYCOPERDON.

BALLS *of silk worms and spiders* are little cases or cones woven of silk, wherein those insects deposit their eggs. See SILK.

Spiders are extremely tender of their *balls*, which they carry about with them, adhering to the papillæ about their *anus*. Grew speaks of *balls* or bags of a species of silk-worms in Virginia, as big as bens eggs, and containing each four *ounces*. Phil. Transf. N° 367. p. 1077.

BALLS, *fly*, those cast on high out of mortars, and which, when arrived at their height, burst like rockets, and afford a spectacle of decoration. *Sky-balls* are made of a wooden shell, filled with various compositions, particularly that of the stars of rockets.

These are sometimes intermixed with crackers, and other combustibles, making rains of fire, &c.

BALLS, *smoak, or dark*, those which fill the air with smoak, and thus darken a place, to prevent discovery. To prepare a darkening *ball*, make an oval, or spherical bag; melt rosin over the coals, and add an equal part of saltpetre not purified, also of sulphur, and a fifth part of charcoal. The whole being well incorporated, put in tow first fired, and fill the bag with this composition, and dip it after the same manner as a fire-*ball*.

BALL-*soap*. See SOAP.

BALL *and socket*, a machine contrived to give an instrument full play, and motion every way.

It consists of a *ball* or sphere of brass, fitted within a concave semi-globe, so as to be moveable every way, horizontally, vertically, and obliquely. It is carried by an endless screw, and is principally used for the managing of surveying instruments; to which it is a very necessary appendage.

The ancient *balls* and *sockets* had two concaves, or channels, the one for the horizontal, the other for the vertical direction.

BALLS, *stink*, those which yield a great stench where fired, to annoy the enemy.

Their preparation is thus: melt ten pounds of pitch, six of rosin, twenty of saltpetre, eight of gun-powder, and four of colophony; to these add two of charcoal, six of horse-hoofs cut small, three of *asa fœtida*, one of stinking farthen, and any other offensive ingredients. Then proceed as in making *smoak* and *fire-balls*.

BALL, *tennis*, is a little globe, made and covered with cloth, or leather, used in playing at the game of tennis.

BALLS, *treacle*, sometimes also called in a more especial manner, *cordial balls*, are made of juniper-berries, beaten, boiled, pressed, and strained; then the liquor boiled up a second time to the consistence of broth, and mixed with the cordial powder known among farriers, made of anise, fennel, liquorice, &c. adding to the whole some of the grains of kermes powdered. The mass being made into *balls*, is commended against disorders of the stomach, breast, wind, &c. and is by some called the treacle of the Germans.

BALLS, *vegetable*, in *Natural History and Botany*, a very particular kind of plant of a deep green colour, of an irregularly spherical shape, hollow within, and of different sizes, from an inch and a half to three inches in diameter. It probably belongs to the CONFERVA genus, in the class of mosses; though Mr. Ray has ranged a similar plant under the genus of ALCYONIUM. See CORAL. Phil. Transf. vol. xlvii. art. 83. ao. 1752.

BALL-*iron*, in *Mineralogy*, a name given by the miners in Suffex to a sort of iron ore, common there, and wrought to considerable advantage. It yields not any great quantity of metal, but what it has runs freely in the fire; it is usually found in loose masses, not in form of strata, and is often covered with one or more crusts. It generally contains some sparkling particles, and is usually of a circular form, in the perfect masses, thickest in the middle, and gradually thinner as it approaches the sides. The ores of Suffex in general are poor, but they require very little trouble in the working; so that a considerable profit is annually made from them.

BALLS, *water*, those which swim, and burn a considerable time in the water, and set up a flame there.

These are made in a wooden shell, the cavity of which is filled with a composition of refined saltpetre, sulphur, sawdust boiled in water of saltpetre, and dried; to which sometimes other ingredients are added, as iron filings, Greek pitch, amber dust, glass powdered, and camphor. The ingredients are to be ground and mixed up, and moistened with linseed-oil, nut-oil, olive-oil, hempseed-oil, or petrol. At the bottom is placed an iron coffin, filled with whole gun-powder, that the *ball* may at last burst with a great noise; and lastly, the *ball* is, by the addition of lead, or otherwise, made of the same specific gravity with water.

BALLS, *wool*. See WOOL.

BALLAD, or BALLET, a popular song, containing the recital of some action, adventure, or intrigue.

The French confine their *ballads* to stricter terms. A *ballad*, according to Richelet, is a song consisting of three strophes, or stanzas, of eight verses each, besides a half strophe; the whole in rhime, of two, three, or four verses, with a burthen repeated at the end of each strophe, as well as of the half strophe.

In the old English version of the Bible, the book of Canticles is entitled the *ballad of ballads*; which has given scandal to some Romish writers, as commemorating the opinion of those who hold that book a *ballad* of love, or a recital of the amours between Solomon and his concubine, as Castalio and some others have conceived it to be.

Some have suggested, that a collection of *ballads* is necessary to a minister, in order to learn the temper and inclinations of a people, which are here frequently uttered with great simplicity. The great Cecil, chief minister to queen Elizabeth, is said to have made a most ample collection of *ballads*, on this account.

A very ingenious political writer, Mr. Fletcher of Saltoun, says,

says, that if he could but make the *ballads* of a nation, he would care very lit[tle] who made the *religion* of it. There is a very curious collection of old Engliſh and Scottiſh Ballads, publiſhed in 3 vols. 8vo. by Dr. Percy; in which, and in a diſſertation prefixed to Aikin's Collection of Songs, &c. the curious in this way may find abundance of entertainment and information concerning old *ballads*, and ballad-makers.

BALLAST, in *Navigation*, any heavy matter uſed to ſink a veſſel to its proper depth in water, or to give it a juſt weight and counterpoiſe, and enable it to bear ſail upright, without overturning.

The word comes from the Flemiſh *beloſt*, formed of *be*, and *loſt* or *loſt*. The French call it ſimply *loſt*. In the Mediterranean, *quanelage*. In Latin writers of the lower age it is denominated *laſtagium*.

The ordinary *ballaſt* is ſand or ſtones, ſtowed in the bottom, or hold, next the falſe keel of a veſſel: ſometimes, lead, corn, or other heavy goods, ſerve for *ballaſt*.—The *ballaſt* is ſometimes one half, ſometimes a third, and ſometimes a fourth part of the burden of the veſſel. Flat veſſels require the moſt *ballaſt*.—Ships are ſaid to be in *ballaſt*, when they have no other loading.

Maſters of veſſels are obliged to declare the quantity of *ballaſt* they bear, and to unload it at certain places. They are prohibited unloading their *ballaſt* in havens, roads, &c. the neglect of which has ruined many excellent ports. See 19 Geo. II. cap. 22.

That *ballaſt* is beſt which is heavieſt, lies cloſeſt and faſteſt, and drieſt, both for the ſhip, bearing a ſail, ſtowing of goods, health of the company, and ſaving of cables and other goods. If a ſhip have too much *ballaſt*, ſhe will draw too much water; if too little, ſhe will bear no ſail.

BALLAST, *to trench the*, denotes, to divide the *ballaſt* into two ſeveral parts, or more, in the ſhip's hold, commonly done to find a leak in the bottom of the ſhip, or to unlock her.

BALLAST, *the ſtarts*, that is, runs over from the one ſide to the other. Hence it is that corn, and all kinds of grain, is dangerous lading, for that is apt to *ſtart*. To prevent which, they make *ſtarters*, that is, bulk-heads of boards, to keep it up ſaft, that it may not run from ſide to ſide, as the ſhip heels upon a tack.

BALLASTAGE. See LASTAGE.

BALLATOONS, large, heavy, loggage-boats carrying goods by the river from Aſtracan and the Caſpian ſea to Moſcow. Theſe will carry from a hundred to two hundred tuns; and have from a hundred to a hundred and ten, or twenty men, employed to *tow*, and tow them along.

BALLERUS, in *Ichthyology*, a name given by ſome authors to a ſpecies of freſh water fiſh of the leather-mouthed kind, which appears to be the ſame with the CARCASSIUS, or, as authors call it, the *carcaſſius tertium genus*.

BALLERUS is alſo a name given by Ariſtotle to that ſpecies of *cyprinus* called *bleca* and *pleyſta*, *pallirus*, by the modern writers.

BALLET, or BALET, BALETTO, a kind of dramatic poem, repreſenting ſome fabulous action or ſubject, divided into ſeveral entries; wherein ſeveral perſons appear, and recite things under the name of ſome deity, or other illuſtrious character.

BALLET, from *ballare*, *to dance*, is more particularly uſed for a kind of comic dance, conſiſting of a ſeries of ſeveral airs of different kinds of movements, which together repreſent ſome ſubject or action.

F. Meneſtrier has a treatiſe expreſs on ancient and modern *ballets*, according to the rules of the ſtage; wherein he explains the nature of dancing according to Ariſtotle and the ancients.

BALLET, in Engliſh *Poetry*, &c. See BALLAD.

BALLIAGE, a ſmall duty paid to the city of London, by aliens, and even denizens, for certain commodities exported by them; which they claim by their charter, dated the 5th of September, in the ſixteenth of Charles II. confirmed by the twentieth rule of the Book of Rates; and by 2 W. and M. cap. 8.

BALLISTA, a military engine in uſe among the ancients, ſomewhat like our croſs-bow, though much larger, and more forcible; it was uſed in the beſieging of cities, to throw in ſtones, or ſometimes darts and javelins.

The word is alſo frequently written, leſs conſiſtently with its etymon, *baliſta*, ſometimes *baliſtra*. It is formed from the Greek βαλλω, *jacio*, being chiefly uſed in caſting of darts and arrows, in which it differed from the CATAPULTA, which was uſed only for caſting ſtones; in other reſpects they were alike, and were each bent in the ſame manner.

Marcellinus deſcribes the *baliſta* thus; a round iron cylinder is faſtened between two planks, from which reaches a hollow ſquare beam placed croſs-wiſe, faſtened with cords, to which are added ſcrews; at one end of this ſtands the engineer, who puts a wooden ſhaft with a big head, into the cavity of the beam; this done, two men bend the engine, by drawing ſome wheels: when the top of the head is drawn to the utmoſt ends of the cords, the ſhaft is driven out of the *baliſtæ*, &c.

The generality of authors confound the *baliſta* with the *catapulta*, attributing to the one what belongs to the other. According to Vitruvius, the *baliſta* was made after divers manners, though all uſed to the ſame purpoſe: one ſort was framed with levers and bars; another with pullies; another with a crane; and others with a toothed wheel.

The *baliſta* is ranked by the ancients in the ſling kind, and its ſtructure and effect reduced to the principles of the ſling; whence it is called by Hero, and others, *funda*, and *funibulus*. Gunntherus calls it *Balearica machina*, as a ſling peculiar to the Balearic iſlands.

Perrault, in his notes on Vitruvius, gives a new contrivance of a like engine for throwing bombs without gunpowder.

BALLISTA, in *Practical Geometry*, the geometrical croſs, called alſo *Jacob's ſtaff*. See CROSS-*ſtaff*.

BALLISTA, or Os BALLISTÆ, is a denomination given by ſome anatomiſts to the firſt bone of the *tarſus*, otherwiſe called *talus* and *aſtragalus*.

BALLISTARII, or BALLISTRARII, in *Antiquity*, ſlingers in the ancient armies, or ſoldiers who fought with the *baliſtæ*.

There were two kinds of *baliſtarii milites*; the former caſt ſtones, and other miſſive weapons, with the hand, called *manuballiſtarii*; ſometimes ſimply, *manuballiſtæ*. The latter called *carroballiſtarii*; ſometimes only *carroballiſtæ*, made uſe of a machine. Some ſpeak of a third kind, called *arcuballiſtarii*; but theſe are better reduced to the ſecond.

The *baliſtarii* were ſcarce heard of before the age of Conſtantine.

BALISTARIUS is alſo uſed, in *Middle Age Writers*, for a croſs-bowman, or *arbalaſtier*.

BALLISTES, in *Ichthyology*. See BALISTES.

BALLISTEUM, or BALLISTRA, in *Antiquity*, a military long or dance uſed on occaſions of victory.

The *baliſtea* were a kind of popular ballads compoſed by poets of the lower claſs, without much regard to the laws of metre.

BALLISTICA, BALLISTICS, is uſed for the art of throwing heavy bodies. F. Mericennus has publiſhed a treatiſe on the projection of bodies, under this title.

BALLOON, or BALLON, in *Chymiſtry*, denotes a large round ſhort-necked matraſs, or veſſel, uſed in chemiſtry, to receive what is diſtilled or drawn off by means of fire. They are generally round like hollow ſpheres, or like foot-balls, called in French *ballons*, whence they derive their name. When chemiſts have occaſion to drill holes in their *balloons*, or glaſs veſſels, the operation is beſt performed by a copper drill and emery: a ſteel inſtrument makes vibrations which are apt to break the glaſs.

BALLOON is alſo uſed in *Architecture*, for a round ball, or globe placed on the top of a pillar, or the like, by way of acroter or crowning. That on the top of St. Peter's at Rome is of braſs ſuſtained by an iron arming within; and, being at the height of ſixty-ſeven fathoms, is above eight feet in diameter.

BALLOON alſo denotes a kind of game ſomething reſembling tennis.

The *balloon* is played in the open field, with a great round ball of double leather blown up with wind, and thus driven to and fro with the ſtrength of a man's arm, fortified with a brace of wood.

BALLOON, or BALOON, is more particularly uſed among *Voyagers*, for the ſtate barges of Siam.

The *balloons* are a kind of brigantine, managed with oars, of very odd figures, as ſerpents, ſea-horſes, &c. but by their ſharpneſs and number of oars, of incredible ſwiftneſs. The *balloons* are ſaid to be made of a ſingle piece of timber, of uncommon length; they are raiſed high, and much decorated with carving at head and ſtern; ſome are gilt over, and carry a hundred and twenty, or even a hundred and fifty rowers on each ſide. The oars are either plated over with ſilver, or gilt, or radiated with gold; and the dome or canopy in the middle, where the company is placed, is ornamented with ſomewhat ſhell, and furniſhed with a ballaſtrade of ivory, or other coſtly matter, enriched with gilding. The edges of the *ballon* juſt touch the water, but the extremities riſe with a ſweep to a great height. Some are adorned with a variety of figures, made of pieces of mother of pearl inlaid: the richer ſort, inſtead of a dome, carry a kind of ſteeple in the middle; ſo that conſidering the ſlenderneſs of the veſſel, which is uſually a hundred, or a hundred and twenty feet long, and ſcarce ſix broad, the height of the two ends, and of the ſteeple, with the load of decorations, it is a wonder they are not overſet.

BALLOTADES, in the *Manage*, the leaps of a horſe between the pillars, or upon a ſtraight line; ſo that when his forefeet are in the air, he only ſhews his hind ſhoes, without yerking out.

A horſe naturally takes to *balloting*, after putting him on capriols

espriotes; when the fire and mettle of the capriotes is over, he falls of course to *ballotades*, and then to CROUPADES, unless a pointon is a hard hand make him yerk out, and continue the air of CAPRIOLES.

BALLOTE, in *Botany*. See *Black* HORSEHOUND.

BALLOTING, a method of voting at elections, &c. by means of little balls, which are usually of different colours, by the French called *ballotes*; which are put into a box privately.

BALLUSTER, or BALLISTER, a small kind of column or pillar, whereof BALLUSTRADES are formed.

The word is French, *balustre*, which fignifies the fame; formed from the Latin *balaustium* or *balaustrium*, a place among the ancients where the baths were railed in.

Balluſters are of divers forms, as well as matters, according to different occafions, and different orders of architecture.

BALLUSTER of the Ionic capital, denotes the lateral part of the volute, anſwering to what Vitruvius calls *puluinata*, on account of its refemblance to a pillow.

BALLUSTRADE, in *Architecture*, an aſſemblage of one or more rows of balluſters, high enough to reſt the elbow on, fixed upon a terrace, or the top of a building, by way of fecurity; fometimes alſo to make a ſeparation between one part and another, as thoſe around altars, fonts, &c. See *Tab. Archit. fig.* 40 (G).

BALM, or BALSAM. See BALSAM.

BALM. See BAUM.

BALM *of ſulphur*. See SULPHUR.

BALMING. See EMBALMING.

BALNEARII *ſervi*, in *Antiquity*, ſervants or attendants belonging to the baths.

Some were appointed to heat them, called *fornicatores*; others were denominated *capſarii*, who kept the cloaths of thoſe that went into them; others *alipta*, whoſe care it was to pull off the hair; others *unctuarii*, who anointed and perfumed the body.

BALNEARIUS *fur*, in *Antiquity*, a kind of thief who practiſed ſtealing the cloaths of perſons in the baths; ſometimes alſo called *fur balnearum*.

The crime of thoſe thieves was a kind of ſacrilege; for the hot baths were ſacred: hence they were more ſeverely puniſhed than common thieves, who ſtole out of private houſes. The latter were acquitted with paying double the value of the thing ſtolen; whereas the former were puniſhed with death.

BALNEUM, is a word much uſed by chemiſts, generally ſignifying a veſſel filled with ſome matter, as ſand, water, or the like, in which another is placed that requires a more gentle heat than the naked fire.

BALNEUM *ſancti*, a bath, in which a body is laid to digeſt in moiſt hay, whoſe heat is likewiſe directed by the application of water.

BALNEUM *Mariæ* is by ſome ſo called as being ſuppoſed to have been firſt invented by the bleſſed Virgin; but by others, with more propriety, it is called *balneum marii*, or *ſea-bath*, in regard the veſſel here ſtoutest it were in a ſea. Here the cucurbit is placed in hot water, which warms the matter contained, and diſpoſes it for riſing, or exhalation. A ſand-heat is ſometimes alſo called *balneum ſiccum*, or *arenoſum*. See BATH.

BALNEUM *minerale*, or mineral bath, is uſed by ſome chemiſts for *aqua regia*.

BALNEUM *retti*, or *rectum*, is a furnace where the cucurbit, or diſtilling veſſel, is only ſuſpended over the vapour of water, and not in contact with the water itſelf.

This is alſo denominated *balneum vaporarium*, or a *vapour-bath*.

BALNEUM *ventris equini*, or a horſe-dung bath, is when a body is laid to digeſt in horſe-dung, the heat whereof is managed by the affuſion of hot water.

BALONICH, in the *Materia Medica* of the ancients, a name given by Avicenna, Aveſhoes, and others, to a kind of camphor, which they deſcribe as coarſe, brown, and of leſs value than the other ſorts. This is probably the ſame with our rough camphor, as brought over to us from the Eaſt Indies.

BALSAM, BALSAMUM, properly denotes an oily, reſinous, and odorous ſubſtance, oozing from inciſions in certain plants; of ſovereign virtue in the cure of wounds, and divers other diſorders. They are liquid, but ſomewhat thick, and flow ſpontaneouſly from certain trees. If pure *balſam* be dropped on a woollen cloth, it may be waſhed off without leaving the leaſt ſtain, but adulterated *balſam* ſticks to the place. Pure *balſam* congulates with milk, but adulterated *balſam* will not. True *balſam* dropped into water diſcovers its genuineneſs by ſpreading on the ſurface, imparting its taſte and ſmell; it is ſo thick, that the groſs parts at the top may be taken off with a needle. Theſe are called natural *balſams*, to diſtinguiſh them from compoſitions of the ſame name.

Balſams are only RESINS in their liquid ſtate which, when combined with any conſiderable proportion of gum, are, called *gummy* RESINS. They are ſoluble in vinous ſpirits and oils, not acted upon by water, not volatile in the heat of boiling water, fuſible in a ſmall degree of heat, and readily inflammable on the contact of any flaming or ignited body.

Balſams by yolk of eggs are rendered ſoluble in water; more elegantly ſtill by ſugar; and moſt elegantly, as eſſential oils alſo are, by the intervention of gums and mucilages; the ſolutions thus procured are moſt permanent. Gum is the medium employed by nature herſelf to unite the reſinous and balſamic with the watery juices of vegetables.

Of themſelves they have no ſmell; but they often retain, or have preſerved in them induſtriouſly, a part of the odorous principle, and are nevertheleſs looked upon as pure RESINS.

They derive both their liquidity and ſmell from a greater or leſs quantity of eſſential oil, which they contain, and which may be extracted by diſtillation.

Balſams may even be conſidered as true *eſſential* OILS, which have loſt ſome of their odoriferous principle, and of their fineſt and moſt volatile parts. When they are deprived of their remaining part of volatile oil, their *reſidua* exactly reſemble thoſe which remain after the rectification of *eſſential* OILS. Theſe *reſidua* are true RESINS, from the analyſis of which the ſame principles are obtained, as from *natural reſins*, which are themſelves nothing elſe but *balſams* exhauſted by time, or by the action of the air, and of the ſun, of all their odoriferous and volatile parts. Neumann. Lewis. Macquer.

Balſamic medicines are of a nature ſomewhat hot and acrid. Under this denomination come what we commonly call cephalic, nervous, apoplectic, and antiparalytic medicines; as alſo ſpirituous cordials, and other ſubſtances of ſimilar natures and properties. But of all the medicines belonging to the *balſamic* claſs, the moſt noted and efficacious are aloes wood, together with its reſin and eſſence; yellow ſanders with its eſſence, reduced to a liquid *balſam*; ambergris; liquid amber; balm of Gilead; amber; benzoin; ſtorax, with its reſin; the ladaniferous ſhrub, with its reſin; the *balſams* of Peru, and Tolu; *balſam* of Caſcur; and that called the red American *balſam*; the true Peruvian bark; the bitter *oſtrus*; Indian bark; cinnamon; cloves; cardamoms; cubebs; mace; nutmegs; ſavory; thyme; rue; mother of thyme; lavender; our *origanum*, and that of Crete; marjoram; our own, and Turkiſh lovem; Roman chamomile; Syrian beth maſtich; baſil; fouthernwood; ſpikenard; camel's hay; bay and myrtle leaves; together with the genuine fragrant and unadulterated oils diſtilled from them. The compound *balſamics* are, the apoplectic *balſam* of Crollius: the *balſamum cellenſe*; that of Scherzerus, and the liquid *balſam* of life; ſpirit of Peruvian *balſam*; ſpirit of amber and maſtich; the apoplectic water of Schnertus; the *aqua Arbolina*; true eſſence of amber, and volatile oily ſpirits, impregnated with oil of cinnamon, mace, and cedar.

Balſams are of great ſervice in medicine and ſurgery. To uſe them, they are uſually liquefied with ſpirit of wine, or oil, and ſometimes mixed up with the yolk of an egg. They are to be uſed cautiouſly and in moderate doſes by young people, and patients of choleric and delicate conſtitutions, as alſo in caſes where the body abounds with blood and humours.

Balſamics labour under this defect that they muſt make a vaſt progreſs in moſt inſtances, before they can arrive at the intended ſcene of action; by which means they not only come ſlowly, and in ſmall quantities, but much altered, and variouſly modified, by the action of the blood-veſſels, and the intermixture of its humours.

In the intentions where *balſamics* are chiefly given, the ſeat of the diſorder is generally in the *extrema*; where a medicine can only arrive by the common conveyance of the blood; and how long, from its being taken into the ſtomach, muſt ſuch a medicine be, and how many alterations muſt it undergo in the divers parts of the body it paſſes through, before it comes to the place deſired? Though the lungs are, by their ſituation ſo near the ſtomach, a medicine cannot arrive there, till it has taken its courſe through the lacteals, paſſed all the meanders of the meſentery, gone up with the chyle into the ſubclavian vein, and there entered the blood: and, after all, it has only the chance of coming to the part in ſuch a quantity, as, with regard to the whole medicine which entered the blood, bears the ſame proportion, as the blood in the pulmonary artery bears to all the blood in the other arteries.

Hence nothing is to be expected from *balſamics*, in a ſhort time, or a few days: they muſt be repeated, and followed, till the animal juices are ſufficiently charged therewith, to afford a continual ſupply.

Add, that *balſamics* generally load and clog the ſtomach; and hence, have often bad effects. This conſideration led the biſhop of Cloyne to prefer tar-water to all other *balſamics*.

BALSAM, or *balm of Gilead*, is in the greatest esteem, though there are some who hold that of Peru equal to it in virtue. It is drawn by incision from a tree of the same name growing in Egypt and Judea, but chiefly in Arabia Felix, and which is held so precious, that it makes part of the special revenue of the grand signior, without whose permission none are allowed to be planted or cultivated. See Dr. Lewis's Mater. Medic. p. 422.

Its smell is agreeable, and very brisk: its taste bitter, sharp, and astringent; it eaſily diſſolves in the mouth, and leaves no ſtain on woollen cloth.

At preſent there are three ways of obtaining it, and according to theſe, there are three kinds of the *balſam*. The firſt kind is that obtained from the natural cracks, or wounds made in the bark, as by the ancients, which is the beſt and moſt precious kind. But there is ſo little procured this way, that it ſcarcely ſupplies the ſeraglio, and the great officers; and hardly a drop of it is ever ſent out of the country. The ſecond kind is called by ſome the Conſtantinople *balſam*; this alſo rarely comes to us, unleſs in ſmall quantities preſented by the great men of the Porte, and is prepared by boiling. They fill large veſſels with the young twigs and leaves of the *balſam* thrub; and adding a large quantity of water, they boil them gently. During the boiling, there riſes to the ſurface of the liquor an oily and balſamic matter, which they ſkim off and preſerve for uſe. After all this fine matter is raiſed, they increaſe the fire, and a large quantity of ſomewhat thicker *balſam* riſes more like turpentine; this they alſo ſeparate, and preſerve by itſelf; and this is principally what is brought into Europe.

It is unqueſtionably a very noble detergent and balſamic; is of the ſame uſe with *copaiva* in gonorrhœas, and is excellent in ulcers of the kidneys and bladder. It is by ſome eſteemed a cure for conſumptions; and though it does not abſolutely deſerve that title, yet with proper management it may do great ſervice in them. Externally it has been always deſervedly famous for curing wounds of all kinds; where the wound is indeed a ſimple ſolution of continuity, and there is no blood with it, the cures with *balſams* of this kind are very ſudden.

For internal uſe it may be either given in boluſſes, or dropped on ſugar; or finally diſſolved, by means of the yolk of an egg, into emulſions.

There is likewiſe a *balſam* of Mecca, which is a dry, white gum, reſembling white copperas, eſpecially when old. It is brought from Mecca, by the returns of the caravans of pilgrims and Mahometan merchants, who travel thither out of devotion to the birth place of their prophet. It has all the virtues of the *balm* of Gilead, or Judea; and is probably the ſame, only hardened, and its colour altered.

BALSAM, *Lucatello's*, is compoſed of oil, two parts, and turpentine and wax, each one part; the red ſanders only contributing to its colour and ſmell.

BALSAM *of Peru* is of three kinds; or rather, it is one and the ſame *balſam*, having three ſeveral names, viz. *balſam of inciſion*, which is a white glutinous reſin, coming at an inciſion in the tree, and afterwards thickened and hardened. This is excellent for green wounds, and much reſembles the opobalſamum, excepting in ſmell, which diſtinguiſhes it.—*Dry balſam*, which is diſtilled from the tips of branches cut off, to which are fattened little veſſels to receive the liquor, which at firſt is like milk, but reddens by being expoſed to the ſun. Its chief uſe is in the compoſition of the lac virginale, which is made much better with this, than with ſtyrax or benjoin.—Laſtly, the *balſam of Tolu*, which is blackiſh, and is drawn from the bark, root, and leaves of the tree, minced and boiled together. This is uſed in wounds like the white *balſam*; and, on account of its excellent ſmell, by the perfumers.

The virtues of this *balſam* as a cordial, pectoral, and diuretic, are very great. It is given with ſucceſs from four to eight drops for a doſe, in conſumptions, aſthmas, nephritic complaints, obſtructions of the viſcera, and ſuppreſſions of the menſes. It has alſo externally all the virtues of the *balm* of Gilead, and conſolidates wounds in the ſame remarkable manner. It is beſt taken dropped on ſugar; the yolk of an egg will indeed diſſolve it, and it may that way be made into an emulſion, but it is more acrid in that form than when taken ſingly. It is often made an ingredient in boluſſes and electuaries; and is in ſome of the officinal compoſitions.

BALSAM *of Copaiba*, or *Copaiva*, vulgarly *Capivi*, comes from Braſil, in earthen bottles. There are two ſorts, the one bright and thin, the other thick: the firſt white, of a reſinous ſmell; the other a little more on the yellow: both are admirable for wounds; and the Jews uſe this *balſam* after circumciſion to ſtop the blood.

Many of the Americans call all odoriferous reſins, and ſweet-ſcented gums, *copal*; and the word *iba*, or *yva*, is the name for a tree; by which the etymology of *copaiva* eaſily appears.

It is a great cleanſer of the urinary paſſages; on which account it obtains much in gonorrhœas, and all obſtructions and ulcerations in thoſe parts. It is efficacious in the *fluor albus*, and in gleets. It is alſo reputed a powerful balſamic, and, as ſuch, uſed in many diſtempers of the breaſt.

But its heat and acrimony render it hurtful in inflammatory caſes, *phthiſes*, diſorders of the kidneys, &c.

The *balſam of Copaiba* is frequently adulterated with oil of ſweet almonds, and oil of turpentine; the near reſemblance it bears to this laſt has occaſioned them to be ſometimes confounded. They may be diſtinguiſhed by the conſiſtence as well as by colour; turpentine being thicker, and of a nitrous ſcal, but the *balſam* whiter, and more inclining to a yellow; add, that it is more odorous, as well as ſharper and bitterer to the taſte.

Beſide the common uſes of this *balſam*, the art of the modern chemiſts has found a new and very profitable one, that is the debaſing and adulterating of the dearer eſſential oils with it, as the ſmell in its oil is much ſweeter than that of turpentine or deal wood.

This *balſam* yields a very large proportion of eſſential oil, by diſtillation with water, even to the quantity of five or ſix ounces from a pound; and the chemiſts who know this, adulterate their oils, either by mixing them with the oil of *Copaiba*, or more artfully, by putting a proper quantity of this *balſam* with the ingredients into the ſtill, and ſo drawing off the oil of both mixed intimately together. There ſeems no eaſy way of detecting this fraud: the nice uſe of a hydroſtatical balance indeed would do it; and it is worth obſerving whether the oils thus adulterated will not, on long keeping, diſcharge the ink of their written label, as the eſſential oils, adulterated with the oil of turpentine, are known to do, on account of the acid vapour which continually exhales from that oil. See COPAIBA.

BALSAM *of Tolu* is at firſt a liquid reſin, which as it grows old, becomes of the colour and conſiſtence of Flanders glue. It comes by inciſion from ſome trees growing in New Spain; where the inhabitants receive it in little veſſels of black wax: in taſte and ſmell it reſembles balm of Gilead; as it grows old, it takes the conſiſtence of a dry *balſam*. It is an excellent balſamic, and reſtorative; and good in all decays, eſpecially of the lungs. It ſoftens and thickens the blood, and cures catarrhs, and coughs, from tickling deſtillations, &c. Its healing virtues extend even to the ſeminal parts, where it is good in old gleets, &c. There is a ſyrup of it in the ſhops; but the beſt form of adminiſtering it is in pills, or in a ſolution in ſome ſpirituous *menſtruum*.

It takes its denomination from a place called Tolu, ſituated between Carthagena and Nombre de Dios. See TOLUIFERA.

BALSAM, *Hungarian*, *baliſamum*, is a ſpecies of oil, or liquid reſin, oozing from a coniferous tree growing on the Carpathian mountains, to which the Hungarians attribute many virtues. Vide Ephem. Acad. N. C. Cent. 7. Obſ. 2. p. 4.

The virtues of *this balſam*, internally taken, or externally applied, are ſaid to be very great, and not inferior to thoſe of the *oriental balſam*. But whether either deſerve the commendation beſtowed on them, and how far they excel the common turpentine, is a queſtion which muſt be left to impartial practitioners.

BALSAM *of liquid amber*, is a clear reddiſh reſin produced by a tree in New Spain, called by the natives *aſtoſi*; in ſome degree reſembling ambergriſe in ſmell, whence its name. This *balſam* is liquid; in which ſtate it is called *oil of liquid amber*; and when old, *balſam of liquid amber*; it comes from both the Spains, in barrels, but the genuine is very rare among us.

BALSAM, *ſeru*, reſembles *balſam* of Tolu in ſmell and colour, and is procured in the manner of oil of bays, from a red fruit in the iſland of St. Domingo. It is found excellent for wounds and ulcers; eſpecially for fiſtulas *in ano*.

BALSAM is alſo applied to a mineral ſubſtance, of a fragrant, healing quality; extracted from a kind of foſſile diſcovered in a mine near Bergamo in Italy. Vide Phil. Tranſ. N° 279. p. 30595. or Abridg. vol. iii. p. 460.

This is more particularly called, by way of diſtinction, the *mineral balſam*.

The diſcoverer was ſig. Caſtagna. Its chief uſe is in diſorders of the *uterus*, on which account it is in great eſteem among the Genoeſe, to reſtore women after labour. Some have alſo found it of great benefit in the phthiſis. Phil. Tranſ. N° 127. p. 674.

BALSAM is alſo applied to certain factitious ſubſtances, made by chemiſts and apothecaries, chiefly of balſamic and healing ingredients, in imitation of the native *balſams*.

Their are called, by way of diſtinction, *factitious*, or *artificial balſams*.

We have two different compoſitions of *balſam*, in imitation of the tree, or Egyptian *balſam*; one by Matthiolus, the other by Euricus Cordus. Pomet has alſo given a method of imitating many of the native *balſams*.

BALSAMS, *artificial*, are, by ſome divided into ſimple and compound;

compound: to the claſs of *ſimple* belong the rectified oils of wax, turpentine, linſeed, *hyperieum*, roſes, *ſolanum*, and *trifolium aburatum*; to which Boerhaave adds freſh butter.

BALSAMS *compound* are numerous; the diſpenſatory writers furniſh a great number of forms, as magiſterial, chalybeat, paralytic, nephritic, and polycreſt, *balſams*; red, green, Spaniſh, and Samaritan *balſams*; *balſam of Arcæus*, of amber, of pitch, &c.

Beſides theſe, chemiſts and alchemiſts ſpeak of *balſams of antimony, of life*, &c. See ſome remarks on the uſe of *balſams* in the cure of *conſumptions*; Lond. Med. Obſer. &c. vol. iv. p. 231. by Dr. Fothergill, who is of opinion that all medicines poſſeſſed of heating, ſtimulating qualities, are in general improper in the treatment of this diſorder.

BALSAM *of antimony*, a famous medicine deſcribed by Baſil Valentine in his *Currus antimonii triumphalis*. This author has related many incredible things in its praiſe; but Kerkring, in his commentaries on that work, declares, that all he has ſaid of it, is ſhort of its real praiſe; and that, in particular, cancers were to be cured by it; himſelf having, as he informs us, performed a perfect cure on a breaſt condemned to be cut off, by anointing it with this *balſam*, and giving the common internals.

BALSAM *of life*. The firſt medicine known by this pompous name was the preparation of antimony, ſo highly extolled by Baſil Valentine, and after him, by Kerkring. Theſe gentlemen are very cautious of giving the proceſſes for this and the like medicines, in intelligible terms; but they acknowledge, that it contains all the virtues of antimony, and all that can be done by the ſpagyric art.

The famous Frederic Hoffman ſpeaks of a *balſam of life*, of his own invention, to which he aſcribes great virtues; but we know not if ever he publiſhed the proceſs for making it. That given in the Straſburg and Ratiſbon diſpenſatories, under the name of *Balſamum vitæ Hoffmanni*, is taken from the notes on Poterius, and is not the ſame with that *balſam*, which the late learned Fred. Hoffman prepared in his own houſe.

BALSAM is alſo applied to certain preparations of ſpirit of wine, with balſamic and aromatic ſpices, fragrant reſins, and the like. Theſe are otherwiſe called elixirs. Among theſe, the *elixir balſamicum Hoffmanni*, otherwiſe called his *balſamum vitæ*, is famous; but its preparation ſeems not known.

BALSAMS, *ſobriferous*, are a fragrant kind of unguents, generally of a thick conſiſtence, compoſed of ſome fatty, denſe juice, joined with ſome diſtilled oils of divers kinds. Theſe are alſo called *ſweet-ſcented*, or *appoſitive balſams*.

Theſe *balſams* are prepared as rich perfumes, to raiſe the languid ſpirits; and the nobleſt and richeſt of the eſſential oils ſhould alſo be uſed in them. The oils principally directed by Boerhaave to this purpoſe, are thoſe of baum, *calamus aromaticus*, cinnamon, cedar, citron, cloves, jaſmine, lavender, white lilies, marjoram, mace, nutmeg, *origanum*, oranges, both thoſe of China and Seville, roſes, *rhodium*, and yellow ſanders; to which may be added, the natural balſams of Peru and Gilead; theſe two being ſpontaneouſly fragrant without diſtillation.

BALSAMS, *diſtilled*, are only eſſential oils diſſolved in ſpirit of wine.

BALSAMS, *unguentarious*, are, properly, unguents compoſed of divers reſins, gums, and oils, fuſed into one maſs with ſpirit of wine, oil of turpentine, or the like; intended to cleanſe, preſerve from putrefaction, heal, mitigate, reſolve, &c.

BALSAM is alſo uſed in *Pharmacy*, as the name of one of the forms of medicines; of a conſiſtence ſomewhat greater than that of oils, but leſs than that of an unguent.

BALSAMUM *ſanctum*, of Paracelſus, is a ſalt of tartar dulcified, by diſtilling ſpirit of wine from it, till the ſalt be ſufficiently ſaturated with its ſulphur, and till it ſuffer the liquor to be drawn off, as ſtrong as when it was poured on.

BALSAM *of ſulphur* is a ſolution of the flowers of ſulphur in ſome oil: it is made by boiling the two together over a ſoft fire the ſpace of an hour, or till the ſulphur be totally incorporated with the oil into a red balſam.

The *balſams of ſulphur* are named from the particular oils which enter into their compoſition. Thus if it be made with the eſſential oil of turpentine, it is called *terebinthinated balſam of ſulphur*; if made with the eſſential oil of aniſeed, it is called the *balſam* of ſulphur with oil of aniſeed; theſe are the two moſt in uſe. When it is made with the oil of nuts, it is called *Rulland's balſam of ſulphur*. It is recommended both for external and internal uſes, as being warm and mollifying in caſes of wounds, ſanious ulcers, ſiſtulas, &c. and cutative even of ulcers of the lungs.

Helmont, its inventor, extols it for all diſeaſes of the breaſt; yet Boerhaave rejects all internal uſe of it, as too hot, and acrimonious. Bartholin alſo obſerves, that it ſometimes cauſes a cardialgy.

BALSAM *of Saturn* is a ſalt, or ſugar of lead, diſſolved in oil or ſpirit of turpentine, juniper, or the like, digeſted, till the matter hath acquired a red tincture. This is found to reſiſt the putrefaction of humours, and is good to cleanſe and cicatrize ulcers.

BALSAM, or BALM, among *Alchemiſts*, ſometimes denotes the ſpirit of common ſalt extracted in a particular manner. The preparation is thus: they diſſolve the ſalt, and place the ſolution of it, well clariſied, in horſe-dung, to putrefy, for the ſpace of two or three months, and then diſtill it ſtrongly with a ſand heat; upon which there ariſes a precious unctuoſity, wherein things the moſt corruptible being ſteeped, are ſaid to remain entire, eternally.

It is ſaid, that it was by this means ſome of the ancients preſerved dead bodies entire, without reducing them to mummy: and particularly that of the woman mentioned by Voltaterranus to be found in a *ſepulchrum* near Albano, in the time of pope Alexander VI. which was by his order thrown ſecretly into the Tiber, to prevent idolatry; the being found as freſh as when alive, though ſhe had been dead 1300 years.

We read of a *balſam* of this kind called

BALSAM, *dead*, a liquor prepared of myrrh and aloes, diſſolved in ſpirit of wine, chiefly uſed for drying and abſorbing the humours of dead bodies.

BALSAM *of the philoſophers*, *balſamum philoſophorum*, is one of thoſe enigmatical terms, whereby they expreſs *aurum potabile*.

BALSAM is alſo ſometimes uſed, in *Eccleſiaſtical Writers*, for the ſacred chryſm.

This is otherwiſe denominated *balſamelæum*.

BALSAMUM, *traumaticum*, *vulnerary balſam*, a form of medicine preſcribed in the London Diſpenſatory, intended to ſupply the place of the tincture, commonly called the Friar's *balſam*, ſo famous for curing freſh wounds. It is made thus: take of Benjamin, three ounces; ſtrained borax, two ounces; balſam of Tolu, one ounce; ſuccotorine aloes, half an ounce; rectified ſpirit of wine, a quart; digeſt them together, till as much as may be of the gums are diſſolved, and then ſtrain off the ſpirit.

BALSAM *apple*, *malo*, *momardica*, in *Botany*, a genus of the *monœcia ſyngeneſia* claſs. Its characters are theſe: it hath male and female flowers upon the ſame plant; and the male flowers have an open concave empalement of one leaf. It has three ſhort awl ſhaped ſtamina, which are compreſſed in a body, and have a reflexed line containing the *farina*. The female flowers have the ſame empalement and petal as the male, but ſit upon the germen; theſe have three ſhort filaments, without ſummas. The germen ſupports one taper like ſtyle, crowned by three oblong, gibbous ſtigmas, and afterwards turns to an oblong fruit, opening with an elaſticity, having three membranaceous cells filled with compreſſed ſeeds. Linnæus enumerates eight, and Miller four ſpecies, one of which is known by the name of the wild, or ſparting cucumber, from its caſting out its ſeeds, together with the viſcid juice in which they are lodged, with a violent force, if touched when ripe; and from hence it has ſometimes obtained the name of *noli me tangere*, or *touch me not*.

This plant grows naturally in ſome of the warm parts of Europe; but in England it is cultivated in gardens for the fruit, which is uſed in medicine, or rather the *faculæ* of the juice of the fruit, which is the *elaterium* of the ſhops.

BALSAM-*tree*. See TURPENTINE-*tree*.

BALSAMATION, BALSAMATIO, is uſed by ſome writers, for the art or act of embalming dead bodies.

Dr. Hook ſpeaks of an univerſal *balſamation*, or method of preſerving all kinds of bodies from corruption, invented by Dr. Elſhot.

BALSAMELÆON, in the *Materia Medica*, a name given by ſome authors to the balm of Gilead, or true *balſamum Judaicum*.

BALSAMIC, a term in phyſic, ſignifying that property in a medicine, whereby it is rendered ſoft, gently attenuating, and ſomewhat agglutinant; and is often applied to things healing or vulnerary.

In this ſenſe, phyſicians ſpeak of the *balſamic* virtues of iron: hence alſo the denomination, *balſamic ſyrups*, given to Dr. Eaton's liquor. Mem. Acad. Scienc. 1713. p. 247. Phil. Trand. N° 285. p. 110.

BALSAMICS are medicines endowed with a balſamic, that is, a reſtoring, healing, and cleanſing power.

The chief remedies in the claſs of *balſamics*, are the more balſams which give the denomination to all the reſt.

BALSAMICS are divided into emollients, reſtoratives, vulneraries and detergents.

BALSAMICS, again, are either internal or external; ſoft and acrid, or mild and temperate. The acrimonious kind are dangerous internally, and not to be given without the greateſt caution, where there is any diſpoſition to inflammation or fever; as in *phthiſes*, vomicæ, gonorrhœas, urinous diſorders, ſtone, *cephalæa*, &c.

BALSAMINA *ſcandens*, a name given to the large-fruited white briony of Ceylon.

BALSAMINE, *female*, BALSAMINA, or *balsam*, in *Botany*, the name given by Tournefort to a genus of plants, called by Linnæus *impatiens*, and belonging to the class of *syngenesia monogamia*; the characters of which are these: the flower has a two-leaved small empalement; it hath five petals, which are unequal, and shaped like a lip-flower. It hath a *nectarium* at the bottom of the flower, shaped like a hood or cowl, which is oblique to the mouth, rising on the outside, whose base ends in a tail or spur, and five short stamina, which are incurved. In the bottom is situated an oval, sharp-pointed germen, which afterwards becomes a *capsula* with one cell, opening with an elasticity in five valves, which twist spirally, and contain several roundish seeds fixed to a column. Linnæus describes seven, and Miller three *species*. The varieties of this plant, kept in the gardens, are all raised from seeds sown on hotbeds in the spring, and afterwards planted out into pots and borders; though there are two or three of the hardier kinds, as the common white, red, and purple kinds, which will come up in common ground, without any artificial heat, and will be stronger, and flower better so, than if raised on hot-beds. But the fine double large kind, or immortal cockscomb flower, as it is called, requires to be set on a fresh hot-bed, after it has been raised on one, in order to bring it forwards; else it does not get into flower till late in the year, and will not ripen its seeds. There are two kinds of this beautiful species, one brought from the West Indies, known by the name of the *cock's spur*: this produces large and strong plants, but flowers very late. The other is from China, and is what is most commonly called the *immortal cockscomb flower*, and is one of the finest annual plants we have, producing very large double flowers, and continuing a long time in flower, if sheltered from violent winds and rain. This produces seeds very well with us; but these are apt to degenerate, after a few years, into single flowers.

When the young plants are pulled in a hot bed, and are to be planted out into pots, such are always to be preferred as have stalks finely spotted with red; for these always produce red and double flowers. Miller.

BALSAMITA, a name given by some to a species of TANSY.

BALTAGI, among the Turks, porters, and hewers of wood, in the court of the grand signior; who also mount on horseback, when the emperor rides out. Part of them also, who, for that purpose, must be cultivated, keep watch at the gates of the first and second courts of the seraglio. These last are called *capigi*, and their commander *capigi pascha*.

BALTHEUS *Orionis*, *belt of Orion*, in *Astronomy*, a part of the constellation of ORION, consisting of three bright stars of the second magnitude, placed nearly in a right line in Orion's girdle.

BAMBELE, in *Ichthyology*. See RUTILUS.

BAMBOU, in *Commerce*, an East India measure, containing five English pints.

BAMBOU, in *Natural History*. See REED.

The Indian *bambou* is the largest kind of cane that is known. It is of an extraordinary height and bigness, when it bears no blossom: each cane is often, toward the bottom, of the size of a man's thigh, decreasing gradually to the top, where it bears a blossom or flower like our reeds in their proper season. The *bambou* grows in all the maritime countries in the East-Indies.

With these canes of *bambou* the Indians build their houses, and make all sorts of furniture in a very ingenious manner. The wood of these canes is so hard and strong, that they serve very well to make piles for supporting their little houses built over rivers, which have a gentle course. They also make with this wood all sorts of utensils in their kitchens and tables. They serve to make the sticks, or poles, with which the slaves carry those sorts of litters called *palanquins*, which are so common in all the East. They likewise make of them a kind of pails, in which the water keeps extremely cool. The small shoots of them serve to make walking canes.

A decoction is made of the leaves, of use for dispersing coagulated blood; and of the pithy part in the middle they also make a medicine against the strangury.

BAMBOO *habit*, a Chinese invention, by which a person, who cannot swim, may easily keep himself above water. Four *bamboos*, two before, and two behind their bodies, are placed horizontally, and project about twenty-eight inches. They are confined on each side by two others, and the whole properly secured, leaving a space for their body. It is put over their heads, and tied secure in two minutes. Its shape as here represented.

BAN, a sort of smooth fine muslin, which the English import from the East Indies. The piece is a yard broad, and cuts about twenty yards and a half.

BAN and BANS. See BANN and BANNS.

BAN, *Arriere*. See ARRIERE.

BANANA, a name used by many authors for the MUSA, or plantain tree, of the common kind; but more frequently, with us, understood to mean another species of the same genus, which the Portuguese call *paneiras*, and we particularly the *banana* tree.

The difference between the two is this; the *musa* has a green stalk, and a long, crooked, angular fruit, resembling a crooked cucumber; the *banana*, a spotted stalk, and a round fruit.

The fruit of this tree is said to be nourishing, to excite urine, and to be a provocative to venery.

The abbé Poyart describes two trees under the name of *bananas*, which he met with in Africa. The one, which is rather a plant than a tree, rises to the height of between twelve and fifteen feet, on a stalk or trunk of eight or ten inches in diameter. The fruit shoots forth from the trunk in a cluster, containing between one and two hundred *bananas*, each an inch thick, and eight or nine inches in length. As soon as one cluster is produced the plant dies, and several new plants spring up in the room of the old one. The trunk of the tree is encompassed with several sprigs, of the rind of which the negroes make cords. The leaves of this plant are seven or eight feet long, and twenty inches broad; as strong as parchment, and are used for umbrellas and other purposes. The other tree is the *figbanana*, or fig-tree of Adam, and differs from the former only in the nature and qualities of its fruit. The produce of the former is a kind of bread, which is dry and mealy; that of the latter a delicious fruit, which is soft and moist. Hiltoire de Loango, &c. vol. i. 1776. Paris.

BANC, BANCUS, or BANE, in *Law*, denotes a seat, or bench of judgement. See COURT.

BANCI, *jus*, or the privilege of having a bench, was anciently only allowed to the king's judges, *qui summam administrant justitiam*. Inferior courts, as courts-baron, hundred courts, &c. were not allowed that prerogative; and even at this day the hundred court at Prestbridge in Norfolk is held under an oak at Gey-wood; and that of Woolfry, in Herefordshire, under an oak, near Ashton in that county, called Hundred-oak.

BAND, in a general sense, some small, narrow ligament, wherewith a thing is tied, or fastened.

We say, a *flay-band*, a *brew-band*, a *hat-band*, &c.

BAND, in *Architecture*, denotes any flat, low member, or moulding.

This amounts to the same with what is otherwise called *face*, from the Latin *fascia*, which Vitruvius uses for the same thing, and sometimes *fillet*, *plinth*, &c.

BANDS *of columns*, properly denote a kind of embossments surrounding the shafts of fluted columns, at certain distances, by way of decoration.

These are sometimes plain, sometimes picked, or vermiculated, and sometimes carved with decorations of low relievo, which are different in every different *band*.

Columns enriched with these *bands*, are sometimes called *banded columns*.

BAND, in *Surgery*, denotes a fillet, swath, or piece of linen cloth, wherewith either to cover or surround certain parts, that stand in need of assistance.

Bands are the same with what are otherwise called *rollers*.

A *band* or *roller*, when applied, becomes a BANDAGE.

BAND, *bandum*, is used in *Middle Age Writers*, for a flag or banner.

BAND, also gives the denomination to a military order in Spain, instituted by Alphonsus XI. king of Castile, in the year 1332.

It takes its name from the *bands*, *band*, or red ribband, which comes across over the right shoulder, and under the left arm, of the knight.

This order is for none but the younger sons of nobles; the eldest sons of grandees are excluded; and, before admittance, it is requisite to have served at least ten years, either in the army, or at court. They are bound to take up arms for the catholic faith against the infidels.

The king himself is grand-master of the order.

BAND *of soldiers*, so many as fight under the same flag, or ensign.

Thus Romulus called those who fought under the same manipule (a handful of hay being then used for a flag) *manipuli militum*.

Formerly *bands* especially denoted bodies of foot; and the French still call their infantry *bandes Françoises*.

BAND *of pensioners*, is still retained, to denote a company of gentlemen, who receive a yearly allowance of 100*l.* for attending the king on solemn occasions.

BANDS, *trained*. See TRAINED *bands*.

BAND, in matters of *Artillery* denotes a hoop of iron used about the carriage of a gun.

Such

Such are the nave *bands*, which are iron hoops binding the nave at both ends.

BANDS *of a saddle*, denote two flat narrow pieces of iron, nailed on each side the bows of the saddle, to retain those bows in the situation which makes the form of a saddle.

BAND, *to put a bow in the*, is to nail down the two ends of each *band* to each side of the bow.

Besides the two great *bands*, the fore-bow has a small one, called the *nether-band*, and the hinder-bow another to strengthen it.

BANDAGE, in *Surgery*, the application of a band, swath, roller, or fillet, to a part of the body; or the act of rolling, or tying a *swath* or band, round a part affected, and the parts adjacent, with compresses, plasters, and the like.

Of *bandages* there are two sorts; wherof one sort are remedies of themselves.—The other, being intended only to keep the medicaments on the part, are called more particularly *executive bandages*.

Bandages are a very necessary part of the *apparatus* in dressing and binding up of wounds. They are not only of greater service than compresses and plasters, in securing the other dressings, but are also of excellent use in restraining dangerous hæmorrhages, and in joining fractured or dislocated bones.

Almost all *bandages*, used in dressing of wounds, ulcers, or fractured or dislocated bones, should be made of clean linen cloth, softened by wearing, but strong.

They are to be made of a proper length and breadth for the occasion; and, that they may be strong, examine the course of the threads, and tear the cloth lengthways. Darns, seams, and large hems in the cloth, are, as much as possible, to be avoided, that no inconvenience may be brought on by the roughness or irregularity of the roller.

There are different sorts of *bandages*, for different uses. Some are common; others are proper. These last are only to be applied to particular parts; the others may be applied to any.

Bandages may be distinguished also into *simple* and *compound*; the *simple* are those which are formed of one entire piece of linen; the *compound* of several pieces, sewed together in different manners.

The most simple of all *bandages*, is that usually not rolled up, but left loose, and used in phlebotomy.

The next to this, is that called the *single-headed bandage*, which is rolled up at one end only. Next to that, the *double-headed bandage*, or that rolled up at both ends.

After these come those *bandages*, which are made out of one piece of linen, but are divided at both ends, almost as far as the middle; these are usually called, by the surgeons, *four-headed bandages*.

Another sort is somewhat shorter, and narrower, than the last described, and is divided at one end, and perforated at the other. It is usually employed in dressings to the *penis*, or to one of the fingers.

Another kind is, from its use, called the *uniting bandage*; it is a double-headed *bandage*, divided about the middle, and serves to unite wounds that are made lengthways, without requiring the suture.

There is also another *bandage*, provided with an opening in the middle, through which the head may easily pass; the extreme parts of the *bandage* hanging, one over the breast, the other over the back. The chief use of this *bandage* consists in this, that, in dressing wounds of the *thorax* or *abdomen*, it is capable of supporting another *bandage*, something wider, made of a cloth four or six times doubled, and bound round the breast or belly.

There remains still to be considered, a compound *bandage*, made of two pieces of cloth, almost in form of the letter T. The upper part of this is to be brought round the belly, and fastened by a knot; but the lower part passes under the body, between the thighs, and, being brought up again, is fastened to the upper part upon the back. This *bandage* plainly appears to be designed for the security of such dressings, as shall be thought proper to be applied to the *anus*, or parts of generation. Some, from the inventor, call this *Hildanus's bandage*. Others, from its shape, denominate it the *T bandage*; and from the division that is frequently made in the lower part of it, it is sometimes called the double T.

As to *bandages* for the head, notwithstanding that surgeons have formerly invented different kinds of them, for every wound that could be inflicted on that part, yet there is but one form that seems necessary; and this alone will answer all the ends that can be proposed from this kind of application. It is made in the following manner: take a handkerchief, napkin, or any square piece of linen; double it up in a triangular form, and apply it as we frequently do in hot weather, when we lay aside the usual coverings of the head.

But there is another method of *bandage* in use, called *creeping bandages*, and, in the French schools, *rampants*. These creeping, or, as we sometimes call them, *serpentine bandages*, are used to secure *cataplasms*, or compresses, upon a diseased part.

The place of beginning and ending these *bandages* is also to be determined. When the arm is to be dressed, the beginning is formed by two or three circular windings on the wrist, according, by loose spires, up to the cubit, or shoulder, as the nature of the case shall require. But when the beginning is to be on the foot, it is to be formed by three or four circular windings of the *bandage* round the *instep*, and *metatarsus*; then proceeding in a serpentine course, up to the knees, *or*, if the case requires it, up to the head of the thigh, and then, as it sometimes happens, descending again.

We should not omit to mention, that the beginning of the *bandage* is sometimes applied to the diseased part, as in several kinds of fractures; sometimes near it, above it, or below it; and sometimes at a great distance from it, according to the disposition of the wound. On the contrary, the extremity of the *bandage* is scarce ever fastened on the diseased part, but rather on a sound one, to avoid giving pain.

Besides the double and four-headed *bandages*, Surgeons sometimes make use of the *eight-headed bandage*. Its figure may be learnt from Heister's Surgery, *Tab.* IX. *fig.* 4.

BANDAGE, *knitted*, a *bandage* for the head, called *knitted*, from its many crossings on the temples; and *fillet*, or *jolar*, from its directions in rads. It is a very useful *bandage*, when the temporal artery is divided, either in *arteriotomy*, or by an accidental wound, and hardly ever failing of success in suppressing the hæmorrhage. For the application vide Heist. Surg. p. 3. c. 2. § 7.

BANDAGE, *incarnative*, is the same as the *uniting bandage*. Vide Heister's Surgery, p. 3. c. 2.

BANDAGES, *expulsive*, are such as are used to reduce, and prevent the enlargement of tumors. They are frequently applied with this intention, to swelled legs, and also to discharge the offensive matter in *fistulæ* and sinuous ulcers. Vide Heister's Surgery.

BANDAGE, *retentive*, is proper for the neck, as it serves to keep on the dressings, and topical remedies, applied to the neck after bleeding, &c. This *bandage* is generally composed of two simple bands, one of which is about a Paris ell, and the other an ell and a half in length; the first being of a thumb's breadth, and the last of three fingers.

As to the application, vide Heister's Surgery.

BANDAGE *for Trachotomy*. Vide Heister's Surgery, p. 3. c. 3.

BANDAGE, *Arnaud's*, is a *bandage* contrived by Mr. Arnaud of Paris, for *fistulæ* and abscesses of the *anus*, and is, by Garengeot, highly commended. But Heister thinks, that the common T *bandage* has the same advantages, provided the scapulary be made strong.

Few of the common *bandages* are capable of restraining a profuse hæmorrhage, after cutting for the *fistula* of the *anus*, or for the stone. What Heister has contrived for this purpose, may be seen in his Surgery, p. 3. c. 5.

Besides Heister, there are many other writers on *bandages*. That author, in his introduction, § 28. mentions Galen, translated by Vidus Vidius, with figures; Verduc on *bandages*, in French; and Solingen: but he thinks the best writers of all, are Le Cleve, in his *Appareil commode*, and Bassius, in High Dutch. For other *bandages*, as the *spica*, *scapulary*, &c. see them in their alphabetical places.

There is a dissertation on the manner of stopping blood in hæmorrhages, with the description of a machine, or *bandage*, for consolidating vessels after amputations, by compression only, by M. Petit, in the Mem. of the A. D. S. an. 1731. p. 85. See also observations on a new *bandage*, by Helvetius, and on a compressive *bandage* for the cure of the lachrymal tumor. Ibid. an. 1742. Hist. 153, and an. 1744. p. 152.

BANDALEER, or BANDELEER, a large leathern belt, thrown over the right shoulder, and hanging down under the left arm; worn by the ancient musqueteers both for the sustaining of their fire-arms, and for the carriage of their musquet charges; which being put up in the little wooden cases, coated with leather, were hung, to the number of twelve, to each *bandaleer*.

The word is originally French, *bandoulier*, formed apparently from *bandoulier*, a kind of bandittі particularly infesting the Pyrenees; who were formerly distinguished by this piece of furniture; and were themselves so denominated, *quasi bandæ volueres*, a *knot of robbers*.

The French soldiery still retain the *bandaleer*; their horse, their musqueteers and common guards, wearing it indifferently; excepting for some difference in its garniture.

BANDELET, or BANDLET, in *Architecture*, any little band, or flat moulding encompassing a column, like a ring; as that which crowns the Doric architrave. See *Tab. Archit. fig.* 25. N° 4. and 11.

It is also called *tænia*, which Vitruvius uses for the same thing; sometimes *fillet*, *diadema*, &c.

it is sometimes used for the three parts which compose the architrave, called, by Vitruvius, *taenia*; and which are sometimes also denominated *bands*, or *plat-bands*.

BANDERET, the name appropriated to the commanders of the militia of the canton of Bern.

BANDEROLL, a little flag in form of a guidon, extended more in length than breadth, used to be hung out on the masts of vessels, &c.

BANDITTI, from the Italian *banditi*, persons proscribed, or, as we call it, outlawed; sometimes denominated *banniti* or *foris-banniti*.

BANDITTI or BANDITI, is also a denomination given to highwaymen, and robbers, who infest the roads in troops, especially in Italy and France.

The term is also applied to a sort of freebooters, who pillage in the islands of the Arch pelago.

BANDOLEERS, from the French *bandoulieres*, in the *Military Art*, denote small wooden cases covered with leather; each of which contains a sufficient charge of powder for a musket.

BANDORE, the name of a musical instrument with strings, resembling a lute, and said to be invented in the fourth year of queen Elizabeth, by John Rose, a citizen of London. See a figure of it in Hawkins's History of Music, vol. iii. p. 345.

BANDY-*legs*, from the French *bander, to bend*, a distortion of the legs, when they turn either inward or outward, on either side; arising from some defect in the birth, or imprudence in the nurse, endeavouring to make a child stand or walk before his legs were strong enough to sustain the weight of his body.

Beside the use of emollients, it is proper to apply a kind of strong boots proportioned to the limbs.

BANE *berry*. See HERB *Christopher*.

BANGLE *ears*, an imperfection in a horse's ears, remedied in the following manner: place his ears in such a situation as they are wanted to stand; bind them with two small boards, so fast as not to stir; and then clip away the empty wrinkled skin close by the head.

BANGUE, a species of opiate, in great use throughout the East for drowning cares and inspiring joy.

This, by the Persians, is called *beng*; by the Arabs, *afsar*, corruptly *assisal*, and *dussirth*; by the Turks, *bangisie*, and vulgarly *mosiack*; by the European naturalists, *bangue*, or *bange*.

The Indians, says Acosta, eat the seed and leaves to increase their vigour, and to excite an appetite to their food. The nobles, and chief military officers, when they are disposed to forget their toil, and to sleep in perfect ease and security, take of the powder of the seed and leaves, as much as they think sufficient; and thereto add an areca, or green Indian *barle-nut*; with as much opium as they think fit, and eat them all together with sugar. If they desire to be entertained with variety of scenes, and images of things in their fancy, they add some of the choicest camphor, cloves, nutmegs, and mace. If they have a mind to be merry, witty, and to indulge their amours, they add ambergrise and musk, and make them all into an electary with sugar. It is by many affirmed, that the seed and leaves promote lust; whence, says J. Bauhine, it appears that this herb has no affinity with hemp, though it be very much like it; since hemp, according to Dioscorides, is of a hot and dry nature, and extinguishes amorous desires.

Ray, from whom this account is taken, says, he learned from Sir Hans Sloane, that it is a different plant from hemp. It grows in Indostan, and other parts of the East Indies, where it is principally in use.

Bangue, in reality, is a *succedaneum* to wine, and obtains in those countries where Mahometanism is established; which prohibiting the use of that liquor absolutely, the poor mussulmen are forced to have recourse to *succedanea*, to roufe their spirits. The principal are *opium*, and this *bangue*.

BANIAN-*days*, in *Marine Language*, is a cant term among sailors, to signify those days on which they have no flesh meat. It seems to be derived from the practice of the people mentioned in the following article.

BANIANS, a religious sect in the country of the Moguls, who believe a *metempsichosis*, and will therefore eat no living creature, nor even kill noxious animals, but endeavour to release them if they see them in the hands of others.

The *Banians* are said to be so fearful of having communication with other nations, that they break their cups, if one of a different religion has drunk out of them, or even touched them; and empty the water out of a pond where he has washed himself. It is added, that if they happen to touch one another, they must wash and purify themselves before they eat, or enter their own houses. They carry, hanging at their necks, a stone called *tamberan*, as big as an egg, and perforated in the middle, through which run three strings: this stone, they say, represents their great god, and upon this account they have great respect shewn them by all the Indians.

The proper *Banians* are called, in the SHASTER, or book of their Law, by the name of *Buddey*, under which are comprehended all who live after the manner of merchants, or that deal and transact for others, as brokers; exclusive of the mechanics or artificers, who make another caſt, called *Wyſe*. Theſe *Banians* have no peculiar ſect or religion, unleſs it be, that two of the eight general precepts given by the legiſlator, Beemaw, to the Indian nation, are, on account of the profeſſion of the *Banians*, ſuppoſed more immediately to relate to them, viz. thoſe which enjoin veracity in their words and dealings, and avoiding all practices of circumvention in buying and ſelling.

The *Banians* and the Chineſe are the greateſt traders in the Indies, to whom muſt alſo be added the Jews and Armenians, who are greatly diſperſed over thoſe parts. But the moſt conſiderable trade is carried on by the *Banians*, in the whole peninſula on this ſide the Ganges. They are extremely ſkilful and cunning in commerce. Moſt of them follow brokerage, and moſt of the brokers of the Engliſh, Dutch, and French companies, are of that nation. For the reſt, they are very honeſt, and have almoſt conſtantly in their hands the ſtock and caſh of thoſe companies.

They are likewiſe bankers; and there are few places in the Eaſt Indies, for which they cannot furniſh bills of exchange. They have alſo a ſort of ſtanding caſh or bank, where perſons may depoſit their money, and take it out again whenever they pleaſe.

Their form of contract, in buying and ſelling, is remarkable; being done in the profoundeſt ſilence, only by touching each other's fingers: the buyer laying his *pantarin*, or girdle, ſpreads it on his knee; and both he and the ſeller having their hands underneath, by the intercourſe of the fingers, mark the price of pounds, ſhillings, &c. demanded, offered, and at length agreed on. When the ſeller takes the buyer's whole hand, it denotes a thouſand, and, as many times as he ſqueezes it, ſo many thouſand pagods, or roupees, according to the ſpecies in queſtion, as demanded: when he only takes the five fingers, it denotes five hundred, and when only one, one hundred: taking only half a finger, to the ſecond joint, denotes fifty: the ſmall end of the finger to the firſt joint, ſtands for ten. See CURAWATH.

BANILLA, in the *Materia Medica*, a name uſed by ſome for the *vanillos*, or vanilloes, uſed in making the ſcented chocolate.

BANISHMENT, EXILE, among us, is of two kinds: the one voluntary, and upon oath; the other by compulſion, for ſome offence or crime.

The former, properly called *abjuration*, is now ceaſed; the latter is chiefly enjoined by judgment of parliament. Yet outlawing and tranſportation may alſo be conſidered as ſpecies of exile.

By Magna Charta, none ſhall be outlawed or baniſhed his country, but by lawful judgment of his peers, or according to the law of the land. 9 Hen. III. cap. 29. And by the common law no perſon ſhall be baniſhed, but by authority of parliament; or in caſe of ABJURATION for felony, &c. But this is taken away by ſtatute, 3 Jaſ. I. cap. 5. Star. 1 Jac. I. cap. 25.

BANISTERIA, in *Botany*, a genus of plants belonging to the *decandria trigynia* claſs of Linnæus; the characters of which are theſe. The flower hath five petals, which are ſhaped like thoſe of the papilionaceous tribe, but ſpread open; having in ſome ſpecies one, in others two, and in ſome ſeveral nectarious glands, with ten ſhort ſtamina. There are in ſome ſpecies three, and in others but one germen, which afterward become ſo many winged fruit, like thoſe of the maple; each containing a ſingle ſeed. Linnæus enumerates ſeven ſpecies of this genus.

Theſe plants are all of them natives of warm countries, and therefore cannot be preſerved in England, unleſs in a bark ſtove.

BANK, in *Commerce*, is a denomination given to certain ſocieties, or communities, who take on them the charge of the money of private perſons to improve it, or to keep it ſecure. The word *bank*, in this ſenſe, comes from the Italian *banco*, formed of the Spaniſh *banco*, a bench, whereon the ancient money-changers ſat in the public markets; or, as others think, a table whereon they told their money; for the Spaniſh *banco* ſignifies a table as well as a bench; as among the Greeks the word τραπεζα ſignified a bench as well as a *table*; whence the word τραπεζιτης, *a banker*.

It cannot be doubted but that the beginning of traffic was by exchanging one commodity for another, as men could beſt ſuit each other's occaſions. But the neceſſities of men being ſo various and different, in reſpect of the quantity and quality of requiſites, money was inſtituted as the moſt convenient medium for commerce; wherein people might procure whatſoever they ſtood in need of, in quantities, according to their exigencies.

This changed the term of bartering into that of buying and ſelling; yet all trading at length reſolves into a general barter. For he who ſells any thing to receive money for it, purchaſes what he requires with the ſame money. Mo-

ney then becoming the principal engine for circulating the bulk of commerce, its application to trade is proper to be conſidered.

Money is uſed in the minuter kinds of dealings, as retailing, &c. when it is commuted for all kinds of labour, and to furniſh the neceſſary proviſions for daily uſe. This requires its being divided into the ſmalleſt denominations of the pieces, as into ſhillings and pence: ſo that this way of dealing is not capable of being tranſacted by bills and aſſignments.

Money is alſo employed in the more extenſive and wholeſale way of trade, wherein large ſums are negociated; and this occaſions frequent payments from one tradeſman to another. In which payments, although ſtrictly ſpeaking ready caſh be required, as often as contracts are made, yet as commerce in general conſiſts in the mutual dealings and tranſactions of many traders, it may often ſo fall out, by means of interchangeable debts and credits, that divers traders may ſatisfy each other's occaſions, without making any payments in ſpecie, by tranſferring their debts to each other.

But when ſuch mutual conveniences do not occur, traders uſually receive their money in ſpecie, and ſo pay it from one to the other. Yet this way of payment is attended with many inconveniences; as the trouble in counting the money, hazard in ſecuring it from the attempts of robbers, and loſs from truſting it with unfaithful ſervants: for the prevention of all which, cities of large commerce have very naturally introduced the uſe of *banks*.

A *bank* then may be properly defined a common repoſitory, where many perſons agree to keep their caſh, to be always ready at their call, or direction.

There are ſeveral of theſe *banks* eſtabliſhed in the ſeveral principal trading cities in Europe; as in Venice, Genoa, London, Amſterdam, Hamburg, Paris, &c. But of all *banks* that of Venice is the moſt conſiderable, as being the moſt ancient, and that whereon the others are modelled.

BANK is alſo applied, in a more particular manner, to ſocieties inſtituted for lending money on pledges. Of theſe there are ſeveral in Holland, particularly at Amſterdam, where it is called the *bank van lening*, or, *bank of loan*. Private perſons are here furniſhed with money, on the depoſit of effects as a ſecurity, and on payment of a certain intereſt regulated by the burgo-maſters. This *bank* is otherwiſe called the *Lombard-bank*, or *Lombard-houſe*, or, ſimply *Lombard*; which is the name it is moſt commonly known by, in moſt of the towns in Holland.

BANK, or BANCO, *of Venice*, commonly called *banco del giro*, was eſtabliſhed in the middle of the twelfth century, and is properly a board of public credit and intereſt; or a general and perpetual purſe for all merchants and traders; eſtabliſhed by a ſolemn edict of the commonwealth, which enacts, that all payments of wholeſale merchandize, and letters of exchange, ſhall be in *banco*, or *bank* notes; and that all debtors and creditors ſhall be obliged, the one to carry their money to the *bank*, the other to receive their payments at *banco*: ſo that payments are performed by a ſimple tranſfer from the one to the other: he who was before creditor on the *bank* books becoming debtor as ſoon as he has reſigned his right to another, who is entered down as creditor in his place; in that the parties only change name, without any effective payment being made. Indeed there are ſometimes actual payments made, eſpecially in matters of retail, and when foreigners are diſpoſed to have ready money to carry off in ſpecie; or when particular traders chooſe to have a ſtock by them to negociate in bills of exchange, &c. The neceſſity of theſe effective payments has given occaſion to the opening a fund of ready money; which is found ſo far from diminiſhing the ſtock, that this liberty of withdrawing money at pleaſure rather augments it. By means of this *bank*, the republic, without encroaching on the freedom of commerce, or without paying any intereſt, is maſter of 5,000,000 ducats, to which the capital of the *bank* is limited, to be in readineſs on any preſſing occaſion; the republic being ſecurity for the capital.

BANK *of England* was firſt eſtabliſhed in the year 1694, partly for the convenience of commerce, and partly alſo for the emolument of the proprietors. The ſcheme was projected by Mr. W. Paterſon, a merchant, and debated for a long while in the privy-council, till at length, by an act of 5 and 6 William and Mary, cap. 20. it was enacted, that their majeſties might grant a commiſſion to take particular ſubſcriptions for 1,200,000*l.* of any perſons, natives or foreigners, whom their majeſties were hereby empowered to incorporate, with a yearly allowance of 100,000*l.* viz. 96,000*l.* or 8 *per cent.* for intereſt till redeemed, and 4000*l.* to be allowed the intended *bank* for management. The corporation was to have the name of the governor and company of the *bank* of England; their ſaid fund to be redeemable upon a year's notice, after the firſt of Auguſt, 1705, and payment of the principal, and then the corporation to ceaſe. The company was enabled by this act to purchaſe lands, &c. unlimitedly, and to enjoy the other uſual powers of corporations; their ſtock was to be tranſferrable. They were reſtricted from borrowing more than 1,200,000*l.* except on parliament fund, and from trading in any merchandize, except in bills of exchange, and in bullion, and in the ſale of ſuch goods as were the produce of lands purchaſed by the corporation: and all bills, obligatory under the ſeal of the ſaid corporation, were made aſſignable by indorſement. The charter of incorporation was executed July 27, 1694; which directs, that there be a governor, deputy-governor, and twenty-four directors; and ſpecifies the qualifications of voters and of directors, together with other regulations, which have been farther amended and enlarged by ſubſequent ſtatutes.

The buſineſs of the *bank* is, for the moſt part, that of dealing in bullion of gold and ſilver, diſcounting bills, and vaneing money to the public on the credit of acts of parliament, circulating their own notes, &c. and exchequer bills for the government; beſide the management of thoſe funds which are immediately under its care, and which conſtitute a principal part of the *national* DEBT.

BANK, *agents of*. See AGENT.

BANK *bills*. See BILL.

BANK, *days in*. See DAY.

BANK *of France* was firſt projected by Mr. Law, a native of Scotland, with a view of paying off the public debts of France, by drawing its creditors into the newly projected Miſſiſippi and India companies, and erected in the year 1716. It was taken into the king's hands in 1718, and denominated the *Royal Bank*; and by its union with both the companies above mentioned, formed a bubble, which occaſioned great confuſion and diſtreſs in the year 1720.

BANK, *million*, derives its name from king William's *million* lottery in the year 1695; the proprietors agreed in partnerſhip to purchaſe tickets in this lottery. They afterwards purchaſed many reverſions of the 14 *per cent.* annuities, and admitted many proprietors of annuities to purchaſe their joint ſtock, which amounted, and ſtill amounts, to 500,000*l.* They are a partnerſhip by deed enrolled in chancery, in the year 1721. They divided 5 *per cent.* till Lady-day, 1728, when they reduced their annual dividend to 4 *per cent.* and it was again raiſed to 5 *per cent.* which is ſtill continued.

BANK *of Scotland* was erected by act of parliament in 1695. Its capital ſtock is 101,000*l.* ſterling.

BANK, *royal, of Scotland*, was incorporated by charter of king George I. in the year 1727. Its capital is 251,000*l.* ſterling; and the public revenues of Scotland are paid into this *bank*.

BANK, or BENCH, in *Law*. See BANC.

BANK, *fine*. See BANQUETTE.

BANK, in *Natural Hiſtory*, denotes an elevation of the ground or bottom of the ſea, ſo as ſometimes to ſurmount the ſurface of the water, or, at leaſt, to leave the water ſo ſhallow, as uſually not to allow a veſſel to remain afloat over it.

In this ſenſe, *bank* amounts to much the ſame with flat, ſhoal, &c.

There are *banks* of ſand, and others of ſtone, called alſo ſhelves or rocks. In the north ſea, they alſo ſpeak of *banks* of ice, which are large pieces of that matter floating. Vapours at ſea occaſion ſometimes ſuch a *deceptio viſus*, that mariners imagine they ſee land, with trees, &c. They call ſuch deceptions fog-*banks*. See a remarkable deception of this kind related in Dr. Hawkſworth's Account of the Voyages to the Southern Hemiſphere, vol. i. p. 10.

A long narrow *bank* is ſometimes called a *reef*.

The *bank* abſolutely ſo called, or the *main bank*, or *great bank*, denotes that of Newfoundland, the ſcene of the cod-fiſhery.

It is called the *great bank*, not only by reaſon of its vaſt extent, being, according to the Engliſh computation, two hundred miles long, and according to the French, one hundred leagues, or three hundred miles; but alſo on account of ſeveral leſſer *banks* near it, where cod are alſo caught. Theſe laſt the French call *bonquenoux*.

This is one of thoſe *banks* which have water enough to float a ſhip, and which on this account, are not dangerous.

Banks are uſually diſtinguiſhed by a buoy, poſt, or the like. On charts, ſand-*banks* are uſually marked by little dots, and *banks* of ſtone by croſſes. The colours of the buoys are alſo varied accordingly; ſand-*banks* being denoted by light-coloured buoys, and rocks by black ones.

In large rivers, as the Elbe, &c. ſand-*banks*, by high tides and inundations, are liable to change places; care is therefore taken to ſhift the buoys from time to time, to ſhew the true channel of the river.

An exact knowledge of the *banks*, their extent, and the depth of water on them, makes the moſt eſſential part of the ſcience of a pilot, and a maſter of a ſhip: if the veſſel be large, and draw much water, great attention will be neceſſary to keep clear of the *banks*: on the contrary, if it

be

be small, the same *banks* afford a sure *asylum*, where it may brave the largest and stoutest vessels, which dare not follow it here. By means of this barrier, many a small craft has escaped its enemy.

BANK, in vessels which go with oars, is used for the bench where the rowers are seated; popularly called, by our seamen, the *thwarts*.

In this sense, we read of *banks* of gallies, or galeasses, of galliotes, or brigantines, and the like.

The Venetian gondolas have no *banks*; for the watermen row standing.

The common gallies have twenty-five *banks*, that is, twenty five on each side, in all fifty *banks*, with one oar to each *bank*, and four or five men to each oar. The galeasses have thirty-two *banks* on a *side*, and six or seven rowers to a *bank*. See DOUBLE-*banked*.

BANK also denotes an elevation of earth, stones, fluken, or other materials, in form of a wall, or causeway, to stop the waters, and prevent inundations.

These, on other occasions, are denominated *dams*, and *seawalls*, &c. and by the ancients, *aggeres*: those on the coasts of Holland are more particularly denominated *dykes*.

The best *bank* in the opinion of Dr. Halес is that contrived by Dr. Wark of Scotland. A quantity of furze is fixed to the bottom of the channel of such a breadth as is proportioned to the force which it is to resist. The sand, or slime, will soon settle in the furze, and when this is covered, another bed of furze is to be laid on as before, and so on till the *bank* is raised to a sufficient height.

BANK, is also used, in several games, for the stock or fund of him who undertakes the game.

BANK *at basset*, a sum of money laid down by the *tailleur*, before the gamesters, to answer all the winning cards that shall turn up in his coarse of dealing. Yet it is to be observed, that what the *bankers* gain *per cent.* of all the money adventured at pharo, is greater than at basset; it being two pounds nineteen shillings and ten pence *per cent.* in the first, and but fifteen shillings and three pence in the second. Vide de Moiv. Doctr. Chance. p. 93.

BANKER, in *Commerce*. The history of private *banks* is as follows. The royal mint in the Tower of London had for some years before the year 1640, been made use of as a kind of *bank*, or deposit, for merchants to lodge their cash in. But king Charles the First having in that year made free with their money, the mint lost its credit. After this, the merchants and traders of London generally trusted their cash with their servants, until the breaking out of the civil war, when it was very customary for their apprentices and clerks to leave their masters and go into the army. Whereupon in such unsettled times, merchants not daring longer to confide in their apprentices, began first, about the year 1645, to lodge their necessary cash in goldsmiths hands, both to receive and pay for them; until which time the whole and proper business of London goldsmiths was, to buy and sell plate, and foreign coins of gold and silver, to melt and cull them, to coin some at the mint, and with the rest to supply the refiners, platemakers, and merchants, as they found the price to vary. This account of the matter we have from a scarce and most curious small pamphlet, published in 1676, intitled, the Mystery of the new fashioned Goldsmiths, or Bankers discovered, in only eight quarto pages.

Bankers on their first establishment allowed to those who entrusted their money in their hands a moderate interest for the same, and hereby their business was very considerably increased, and rose to great reputation in the year 1667, when the Dutch burnt our ships at Chatham; but this event caused a *run* on the *bankers*, which hurt their credit; and in the year 1672 king Charles II. shut up the exchequer, and seized the money which the *bankers* had lent him at 8 *per cent.* interest, the whole sum amounting to 1,328,526*l.* The king was afterwards necessitated to pay 6 *per cent.* interest for this debt out of his hereditary excise, but the principal was never paid. However, the parliament of 12 William, cap. 12. provided for a large arrear of interest, and settled an interest of 3 *per cent.* for the future. The debt was hereby made redeemable, on paying one moiety of the principal sum, viz. 664,263*l.* farther confirmed by an act of 2 and 3 Anne, cap. 15. which moiety now became the proper debt of the public; and being reduced from 6 to 5 *per cent.* in 1717, was finally subscribed into the South-sea capital stock in the year 1720.

Bankers now allow no interest, and by investing a certain proportion of it in the funds, or laying it out on other sufficient security, and trafficking with it in the stocks, in discounts, &c. reap very considerable advantage from it; and by negociating bills, &c. on the part of their creditors, greatly contribute to the convenience and dispatch of business.

In Italy the employment of a *banker*, especially in republics, does not derogate from nobility; and hence it is, that most of the cadets or younger sons of persons of condition, undertake it for the support of their family.

The ancient *bankers* were called *argentarii*, and *nummularii*.

Their chief business was to put out the money of private persons to interest; they had their boards and benches for this purpose, in all the markets and public places, where they took in the money from some, to lend it to others.

The Romans had two kinds of *bankers*, though their office was much more extensive than that of the *bankers* among us; theirs being that of public officers, in whom were united the functions of a broker, agent, *banker*, and notary; managing the exchange, taking in money, assisting in buying and selling, and drawing the writing, necessary on all these occasions.

BANKERS *to the court of Rome*, are persons authorized, exclusive of all others, to solicit and procure, by their correspondents at Rome, all bulls, dispensations, and other acts dispatched at the papal datary, or in the legateship of Avignon; they are dispersed in all the cities of France, where there is a parliament, or a presidial; and were erected into a regular and hereditary office, by an edict in 1673.

They owe their origin to the Guelphs, who took shelter at Avignon, and in other cities within the obedience of the pope, in the times of the civil wars in Italy. The favour they were in with the pontifs, for having espoused the papal cause, occasioned their being employed in procuring expeditions of the court of Rome. But the heavy extortions they practised towards their clients, soon rendered them odious, and occasioned several denominations of reproach, as *usurarii*, *usurieri*, *cahorsini*, *caersini*, &c. from the city Cahors, the native place of pope John XXII. in whose pontificate they were in their highest power.

BANKER, in *Bricklaying*, a piece of timber whereon they cut the bricks.

The *banker* is six feet long, or more, according to the number of men to work at it, and nine or ten inches square: it is to be laid on two piers of timber, three feet high from the floor they stand on.

BANKER, in *Sea Language*, signifies a vessel employed in the cod-fishery, on the banks of Newfoundland.

BANKING, the making of *banks* to oppose the force of the sea, rivers, or the like, and secure the land from being overflowed thereby.

With respect to the water which is to be kept out, this is called *banking*; with respect to the land, which is hereby to be defended, *imbanking*.

BANKING, in a salt-work, the raising of a fence against the sea, whereby its waters may be kept out, excepting so much as is necessary for the preparation of the salt.

BANKRUPT, a dealer, who having gotten other mens goods, or money, in his hands, absconds to defraud his creditors; or being so reduced or involved, that he can conduct his business no longer, is desirous of being legally discharged from farther demands and trouble.

The word is formed of the ancient Latin *bancus*, a *bench*, *or table*, and *ruptus*, *broken*.

Bank, we have elsewhere observed, originally signified a *bench*, which the first bankers had in the public places, in markets, fairs, &c. on which they told their money, wrote their bills of exchange, &c. Hence, when a banker failed, they broke his bank, to advertise the public, that the person to whom the bank belonged, was no longer in a condition to continue his business. As this practice was very frequent in Italy, it is said, the term *banqueroute* is derived from the Italian *banca rotta*, *broken bench*.

Cowel rather chooses to derive the word from the French *banque*, *table*, and *route*, *vestigium*, *trace*, by a metaphor from the sign left in the ground, of a table once fastened to it, and now gone. On this principle he traces the origin of *bankrupts* from the ancient Roman *mensarii*, or *argentarii*, who had their *tabernæ* or *mensæ* in certain public places; and who, when they fled, or made off with the money, that had been trusted to them, left only the sign or shadow of their former station behind them.

And it is observable, that the title of the first English statute concerning this offence, 34 Hen. VIII. cap. 4 "against such persons as do make *bankerupt*," is a literal translation of the French idiom, *qui font banque route*.

By stat. 1 Jac. I. cap. 15. a *bankrupt* is thus described. All and every person who shall use the trade of merchandise by way of bargaining, exchange, bartering, or otherwise in gross, or by seeking his or her thing by buying and selling, who shall depart his house, or absent himself, or suffer himself to be arrested for any debt, or other things, not grown due for money delivered, *wares sold*, or other good consideration; or shall suffer himself to be outlawed, or go to prison, or fraudulently procure himself to be arrested, or his money or his goods attached; or make any fraudulent conveyance of his lands, goods, or chattels, whereby his creditors may be defeated in the recovery of their just debts; or being arrested for debt, shall lie in prison six months or more, upon such arrest or detention, shall be judged a *bankrupt*.

There are several subsequent statutes relating to *bankrupts*,

viz. 21 Jac. I. cap. 19.—4 Anne, cap. 17.—5 Anne, cap. 22.—7 Geo. I. cap. 31.—5 Geo. II. cap. 30. See ASSIGNEES, CERTIFICATE, DIVIDEND, PETITION, and SUPERSEDING.

In some places *bankrupts* are condemned to wear a green cap; in others an orange cap.

BANKRUPTCY, the failure, absconding, and relinquishing of traffic in a merchant, a banker, or any other trader.

The French make this difference between a *banqueroute* and a *faillure*; that the first is supposed voluntary and fraudulent, and the latter constrained and necessary, by means of accidents, &c.

A failing, breaking, or stopping of payment, diminishes the merchant's credit; but does not note him with infamy, as *bankruptcy* often does.

When a merchant, &c. fails to appear at the exchange, &c. without apparent reason, it is called *a failing of presence*; the *bankruptcy* becomes open from the day he absconds, or when the seal is affixed to his effects.

BANKRUPTCY, *commission of*. See COMMISSION.

BANLEUGA, or BANNILEUGA, or BANLIEUE, in *Middle Age Writers*, the territory within which the jurisdiction of municipal magistrates, or ordinary judges of a city, *town*, or the like is confined.

It is thus called, because within this tract they may make their proclamations, prohibitions, and other acts of justice and policy, comprised under the name of BAN, or BANNUM.

BANN, or BAN, BANNUM, or BANNUS, in the *Feudal Law*, a solemn proclamation, or publication of any thing.

The origin of the word is uncertain: some deduce it from the Britith *ban*, *clamour*, *noise*; others from the Saxon *pan*, a thing spread; whence *ban*, and *band*, used for a flag.

Bracton mentions *bannus regis* for a proclamation of silence anciently made by the court, before the encounter of the champions in a combat.

BANN is also used for a solemn convocation of the nobility of a province, to attend the king in his army, conformably to their several tenures.

Bann, in this sense, differs from *rear-bann*; as the former respects those who hold mediately of him. But the words are now confounded; and *bann* and *rear-bann*, denote a summons to all the feudal tenants, mediate and immediate, to go to war in the king's service.

BANN also denotes the assembly, or body of nobility and gentry thus convocated.

In this sense they say, the *bann* and *rear-bann* are long in getting into the field; the *bann* and *rear-bann* were assembled, &c.

The French nobility appear to have served the king, in the way of *bann* and *rear-bann*, from the beginning of the monarchy: though the usage was not regularly settled, till the time of the investiture of feuds.

BANN is more particularly used to denote a proscription or banishment for a crime proved; because anciently published by sound of trumpet; or, as Vossius thinks, because those who did not appear at the above mentioned summons were punished by proscription.

Hence, *to put a prince under the* bann *of the empire*, is to declare him divested of all his dignities.

The sentence only denotes an interdict of all intercourse, and offices of humanity, with the offender; the form of which seems taken from that of the Romans, who banished persons, by forbidding them the use of fire and water.

Sometimes also cities are put under the imperial *bann*; that is, stripped of their rights and privileges.

BANN also denotes a pecuniary mulct, or penalty, laid on a delinquent for offending against a *bann*.

BANNS *of marriage*, are certain solemn notices of matrimonial contracts made in the parish-church, before the marriage; that if there be any objections to either party as to prior engagements, &c. there may be an opportunity of making them. The publication of *bans* (popularly called *asking in the church*) was intended as an expedient to prevent clandestine marriages: but a licence or dispensation is now easily procured, to that their use is defeated.—By the laws of the church, *banns* are to be published thrice, on three distant days, in the places where the parties live, on pain of nullity of marriage; and excommunications are threatened against those, who knowing impediments conceal them. But see 26 Geo. II. cap. 33. and MARRIAGE. The use of matrimonial *banns* is said to have been first introduced in the Gallican church, though something like it obtained even in the primitive times; and it is this Tertullian is supposed to mean by *trinundina prænuntatio*.

BANN is also used for a solemn *anathema*, or excommunication, attended with curses, &c.

In this sense we read of *papal banns*, &c.

BANN *of God*, *bannus Dei*, or the judgment of God. Spelman takes it for excommunication.

BANN is also used for a prohibition.

In which sense, the *bann* of harvest, of vintage, &c. in the French customs, imports a prohibition to reap, or gather the grapes, without leave of the lord.

The former is now taken away, and the peasant may reap his corn when he pleases; but the latter still remains, persons not being allowed to open the vintage, till publication is made by the officers of the place for that purpose.

BANN-*wine*, in the French *Customs*, a privilege enjoyed by lords, of selling the wine of their own growth, during a certain time, exclusive of all other persons within the compass of their fees or lordships.

The same right, in some places, extends also to other liquors; and even to hogs, cows, and other animals.

BANNALIS *molæ*, or *bannal mill*, a kind of feudal service, whereby the tenants of a certain district are obliged to grind their corn to be ground at a certain mill, and to be ready at a certain oven, for the benefit of the lord.

BANNER properly denotes a square *flag*, fastened to a correct to a lance.

Menage derives the word from the Latin *bandum*, or *flag*; and supposes *banniere* to have been first used for *bandiere*; which is confirmed by this, that we meet with the word *banderia*, used, in the same sense, by Latin writers of the barbarous age.

A *banner* differed from a *pennon*, or *guidon*, which had a long tail, or train; the cutting of which, in the ceremony of creating a BANNERET, converted it into a *banner*.

Most of the ancient lords are represented, on their seals, with *banners* in their hands; in which guise they entered the lift in tournaments.

Arms BANNER-*wise*, or *en banniere*, are those borne square; ftill ufed in Bretagne, to denote families defcended from BANNERETS. Favyn fuppofes the ufage to have been brought thither from England.

It was reputed more honourable for a perfon to bear his arms in a *banner*, than in an *efcutcheon*.

BANNER is alfo ufed to denote the flag under which all the tenants of the fame fief were to muiter themfelves, when their fervice was required in the army.

BANNER is alfo ufed for the chief flag, or ftandard of a prince, lord, baron, or the like.

BANNER, *the, of France*, was the largeft and richeft of all the flags borne by the ancient kings, in their great military expeditions. St. Martin's cap was in ufe fix hundred years, as the *banner* of France; it was made of taffety, painted with the image of that faint, and laid out two or two days on his tomb, to prepare it for ufe. This was fucceeded by the famous AURIFLAMMA, or *oriflamme*. Though fome make a difference between the *banner* of France and the *oriflamme*; making it the diftinguifhing character of the former, to be hung out at the window, wherever the king was; whereas the latter was only ufed in extraordinary wars.

About the year 1100 was introduced a more pompous *apparatus*; the mode of which was borrowed from Italy; the *banner* royal was faftened to the top of a maft, or fome tall tree planted on a feaffold, borne on a chariot drawn by oxen, covered with velvet houfings, decorated with devices, or cyphers of the reigning prince. At the foot of the tree was a prieft, who faid mafs early every morning. Ten knights mounted guard on the feaffold, night and day, and as many trumpets, at the foot of the tree, never ceafed flourifhing, to animate the troops. This cumberfome machine, the mode of which was brought from Italy, continued in ufe about a hundred and thirty years. Its poft was in the centre of the army. And here it was the chief feats were performed, to carry off and defend the royal *banner*: for there was no victory without it; nor was an army reputed vanquifhed till they had loft this *banner*.

BANNER is alfo ufed, in *Middle Age Writers*, for any flag or enfign.

But the word is out of ufe in this fenfe, except in fpeaking of former times, or foreign nations. In the Levant they ftill fay the Engliih *banner*, the Venetian *bannor* &c. The French alfo retain the denomination *banniere* in fpeaking of eccleiaftical proceffions; where the people bearing each a crofs, march under a *banner*, repreienting the church militant; to denote themfelves foldiers of the church.

BANNERS *of the Romans*. See SIGNA.

BANNERETS, an ancient order of knights, or feudal lords who, poffeffing feveral large fees, led their vaffals to battle, under their own flag, or banner, when fummoned thereto by the king.

The word feems formed from *bannus*, a fquare flag, or from *band*, which anciently alfo denoted a flag.—*Bannerets* are alfo called in ancient writers, *milites vexillifferi*, and *vexillarii*, *bannerarii*, *banderii*, *&c.*

Anciently there were two kinds of knights, *great* and *leffer*; the firft whereof were called BANNERETS, the fecond BACHELORS; the firft compofed the upper; the fecond, the middle nobility.

The *banneret* was a dignitary allowed to march under his own flag, whereas the *bachelor* muft followed that of another.

To be qualified for a *banneret*, one muft be a gentleman of family,

family, and must have a power to raise a certain number of armed men; with estate enough to subsist at least twenty-eight or thirty men. This must have been very considerable in those days, because each man, besides his servant, had two horsemen to wait on him, armed, the one with a cross-bow, the other with a bow and hatchet.

As he was not allowed to be a baron who had not above thirteen knights-fees, so he was not admitted to be a *banneret*, if he had less than ten.

Banneret, according to Spelman, was a middle order between a baron, and a simple knight; called sometimes also *vexillarius minor*, to distinguish him from the greater, that is, from the baron, to whom alone properly belonged the *jus vexilli*, or privilege of the square flag.

Hence the *banneret* was also called *bannerettus, quasi baro minor*, a word frequently used by English writers in the same sense as *banneret* was by the French; though neither of them occur before the time of Edward II.

Some will have *banneret* to have originally been persons who had some portion of a barony assigned them; and enjoyed it under the title of *baro proximus*, and that with the same prerogatives as the baron himself.

Some again find the origin of *banneret* in France; others in Brittany; others in England. Those last attribute the institution of *banneret* to Conan, lieutenant of Maximus, who commanded the Roman legions in England under the empire of Gratian, in 383. This general, say they, revolting, divided England into forty cantons, and in these cantons distributed forty knights, to whom he gave a power of assembling on occasion, under their several banners, as many of the effective men as were found in their respective districts: whence they are called *bannerets*.

However this be, it appears from Froissart, &c. that anciently each of the military men as were rich enough to raise and subsist a company of armed men, and had a right to do so, were called *bannerets*. Not, however, that these qualifications rendered them knights, but only *bannerets*; the appellation of knight being only added thereto because they were simple knights before.

Bannerets were second to none but knights of the Garter; they were reputed the next degree below the nobility; and were allowed to bear arms with supporters, which none else may, under the degree of a baron. In France, it is said, the dignity was hereditary; but in England it died with the person that gained it. The order dwindled on the institution of *baronets* by king James I. and at length became extinct. The last person created *banneret* was sir John Smith, made so after Edghill-fight, for refusing the standard of king Charles I.

The form of the *banneret*'s creation was this: on a day of battle, the candidate presented his flag to the king or general, who, cutting off the train, or skirt thereof, and making it a square, returned it again, the proper banners of *bannerets*; who are hence sometimes called *knights of the square flag*.

There seem to have been *bannerets* created, either in a different manner, or by others than the sovereign; since king James, in the patent of baronets, gives them precedence to all knights *bannerets*, except such as are created by the king himself in the field; which implies, either that there are some of this order created out of the field, or by inferior persons.

BANNERET is also the name of an officer, or magistrate of Rome, towards the close of the fourteenth century.

The people of that city, and throughout the territory of the church, during the disputes of the antipopes, had formed a kind of republican government; where the whole power was lodged in the hands of a magistrate, called senator, and twelve heads of quarters, called *bannerets*, by reason of the banners which each raised in his district.

BANNIMUS, q. d. *we banish*, from the obsolete *bannir*, the form of expulsion of any member from the university of Oxford, by affixing the sentence up in some public place, as a denunciation or promulgation of it.

BANNOCK, in *Law*, is an oat-cake kneaded only with water, and baked in the embers. These are common in Lancashire, and some other counties.

BANNUS, or BANUS, a title anciently given to the governor or viceroy of Croatia, Dalmatia, and Sclavonia.

BANNUS *episcopalis*, was a mulct paid to the bishop by those guilty of facrilege and other crimes.

BANNUM *capitis*, was a mulct paid in cattle.

BANOY, the name given, by the people of the Philippine islands, to a kind of hawk, somewhat larger than our sparrow-hawk, and of a yellowish colour on the back and wings, and white under the belly. It is the most common of all the kinds of hawk in that part of the world, and is very voracious animals.

BANQUET, in the *Manege*, denotes that small part of the branch of a bridle under the eye; which, being rounded like a small rod, gathers and joins the extremities of the bit to the branch, in such a manner, that the *banquet* is not seen, but covered by the cap, or that part of the bit next the branch.

BANQUET-*line*, is an imaginary line drawn by the bit-maker along the *banquet*, in forging a bit, and prolonged upward and downwards, to adjust the designed force or weakness of the branch, in order to make it stiff, or easy. For the branch will be hard and strong, if the sevil-hole be on the outside of the *banquet*, with respect to the neck; and it will be weak, and easy, if the sevil-hole be on the inside of the line, taking the centre from the neck.

BANQUETING-*room*, or *house*. See XENIA, SALOON, &c. The ancient Romans lapped in the *atrium*, or vestibule, of their houses; but in after times, magnificent saloons, or *banqueting-rooms*, were built, for the more commodious and splendid entertainment of their guests. Lucullus had several of these, each distinguished by the name of some god; and there was a particular rate of expence appropriated to each. Plutarch relates with what magnificence he entertained Cicero and Pompey, who went with design to surprise him, by telling only a slave who waited, that the cloth should be laid in the Apollo. The emperor Claudius, among others, had a splendid *banqueting-room*, named Mercury. But every thing of this kind was outdone by the luftre of that celebrated *banqueting-house* of Nero, called *domus aurea*, which, by the circular motion of its partitions, and ceilings, imitated the revolution of the heavens, and represented the different seasons of the year, which changed at every service, and showered down flowers, essences, and perfumes, on the guests. Heliogabalus, nevertheless, is said to have improved as much upon Nero, as the latter had done on Lucullus. Senec. Ep. 90.

BANQUETTE, in *Fortification*, is a little foot-bank, or an elevation of earth forming a path which runs along the inside of a parapet; by which the musqueteers get up, to discover the counterscarp, or to fire on the enemies in the moat, or in the covert-way.

The *banquette* is generally between two and three feet high, and three feet broad, and four feet and a half lower than the parapet, having two or three steps to mount it by.—Where the parapet is very high, they make a double *banquette* one over the other.

BANSTICLE, in *Ichthyology*, a name given by us to the GASTEROSTEUS.

The *banstickle* is otherwise called *prickle-bag*, or *prickle-back*.

BANTAM-*work*, a kind of Indian painting, and carving on wood resembling Japan work, only more gay, and decorated with a great variety of gaudy colours.

Bantam-work is of less value among connoisseurs, though sometimes preferred by the unskilful, to the true Japan work. Formerly it was in greater use and esteem than at present; and the imitation of it much practised by our japanners.

There are two sorts of *Bantam*, as well as of Japan work; as, in the latter, some are flat, lying even with the black; and others high, or embossed; so, in *Bantam-work*, some is flat, and others in-cut, or carved into the wood, as we find in many large screens; with this difference, that the Japan artists work chiefly in gold and other metals, and the *Bantam* generally in colours, with a small sprinkling of gold here and there.

For the flat *Bantam-work*, it is done in colours, mixed with gum-water, proper for the thing designed to be imitated. For the carved, or in-cut kind, the method of performing it is thus described by an ingenious artist. 1. The wood is to be primed with whiting and size, so often till the primer be near a quarter of an inch thick; then it is to be worn down smooth, &c. rubbed with a fine wet cloth, and, some time after, brushed very smooth, the blacks laid on, varnished up with a good body, and polished well, though with a gentle hand. This done, the design is to be traced out with vermilion, and gum-water, exactly in the manner wherein it is intended to be cut; the figures, trees, buildings, &c. in their due proportions. Then the gravet is applied, with other tools of proper shapes, differing according to the workman's fancy. With these he cuts deep or shallow, as is found convenient, but never deeper than the whiting lies; the wood being never to feel the edge of the instrument. Lines, or parts of the black, are still to be left, for the draperies and other out-lines, and for the distinction of one thing from another; the rule being to cut where the white is, and leave the black untouched. The carving being finished, they then use the pencil, with which the colours are laid into the cut-work. After this, the gold is to be laid in those places which the design requires; for which purpose, a strong, thick gum-arabic water is taken, and laid with a pencil on the work; and, while this remains wet, leaf-gold is cut with a sharp smooth-edged knife, in little pieces, shaped to the bigness and figure of the places where they are to be laid. These being taken up with a little cotton, they dab them with the same cloth to the gum-water, which affords a rich lustre. The work thus finished, they clear up the black with oil, taking care not to touch the colours. The European workmen, in lieu of leaf gold, ordinarily use brass-dust, which is felt bright and beautiful. Park. Treat. of Japan.

BAOBAB, in *Natural History*, the name of an African fruit, described by Prosper Alpinus. It is of the size of a lemon, but it resembles a gourd, and contains several black seeds, whose extremities are a little crooked. Its substance also much resembles that of the gourd; and, when first pulled off, is moist, red, and of a grateful acid taste. The people of Æthiopia, where it is plentiful, are very fond of it, in the scorching heats of summer; and the richer sort add sugar to it to correct its acidity. It is a great cooler, and very agreeably quenches thirst; and has also some medicinal use, as it is good in contagious and pestilential fevers. The people of Cairo, where the fresh fruit is not to be had, use its pulp dried and powdered; and it is so used at Senegal in pestilential fevers, the dysentery, and bloody flux. The dose is a drachm, taken either in common water, or in an infusion of the plantain.

The *baobab* tree has been lately very minutely and accurately described by Mr. Adanson, in the Memoirs of the Academy of Sciences at Paris. It is found at Senegal in Africa; and its bulk so enormous, that it has more the appearance of a forest than of a single tree. Its trunk, which seldom exceeds twelve feet in height, measures between seventy and eighty feet in circumference, and is crowned with a number of branches, remarkable for their thickness and their length, which is from fifty to sixty feet. They mostly shoot out in a horizontal direction, and give to the trunk the appearance of an hemisphere from sixty to seventy feet high, and about a hundred and forty feet in diameter. The bark is an inch thick, of an ash-coloured grey, greasy to the touch, bright and very smooth; the outside is covered with a varnish, and the inside is green, speckled with red; the wood is white and soft; the leaves are oval, pointed at the end, and about five inches long, and two and a half broad: seven of these are generally attached to one pedicle. The tree produces flowers much larger than any hitherto known; the calyx of the flower consists only of one piece, the lower part of which forms a short tube, which spreads into the shape of a saucer, having its edge divided into five equal parts of a triangular figure. The petals are five in number, of the same length with the calyx. From the same centre, and within the petal, rises a cone, which spreads into about seven hundred filaments, each having a small substance in form of a kidney at the end of it. the convex part of which opens into two cells, which shed a dust, consisting of small white transparent particles. The pistil rises from the centre of the calyx, and consists of an ovary, a stylus, and several stigmata, in number from ten to fourteen. The ovary becomes a very considerable fruit. The tree flowers in July, and the fruit ripens in October and November. The bark and leaves are dried, and powdered by the negroes of Senegal, and used like pepper and salt. M. Adanson used it as a preservative from the epidemic fever of the country, and found it of great benefit in promoting perspiration, and attempering the excessive heat of the blood. The woody bark of the fruit, and the fruit itself, supply the negroes with an excellent soap, which they prepare by drawing a ley from the ashes, and boiling with it palm oil that begins to be rancid. The decaying trunks are hollowed out into burying places for persons most esteemed by the negroes; such as poets, musicians and buffoons; and their bodies shut up in these trunks become perfectly dry, without rotting, and form a kind of mummies, without the help of embalment. The African *baobab* has been sometimes confounded with the American CALABASH.

BAPHE, in the *Writings of the Ancients*, a word used to express that fine red colour, with which they used to illuminate the capital letters in manuscripts, at the beginning of chapters. It is also called, by some, *encaustum sacrum*, and, by others, *cocca*, and *cinnabaris*. It was a very elegant colour, and is said to have been prepared of the purple colour taken from the *murex*, and some other ingredients. It was called *encaustum*, from its resembling very much the fine bright red used in enamels.

BAPTÆ, in *Antiquity*, an effeminate, voluptuous kind of priests at Athens, belonging to the goddess Cotytus; thus called, from their stated dippings and washings by way of purification. It seems, they were to be made very clean and pure, that they might wallow and defile themselves, with the less reserve; for their rites were performed in the night, and consisted chiefly of lascivious dances.

Eupolis having composed a comedy to expose them, entitled Βαπται, they threw him into the sea, to be revenged; and the same fate is also said to have befallen Cratinus, another Athenian poet, who had written a comedy against the *Baptæ*, under the same title.

Others deduce the denomination *Baptæ*, from the practice of dying and painting their bodies, especially their eyebrows, and officiating at the service of their deity with the parade and demureness of women. Juvenal describes them in this light. Sat. ii. ver. 91.

BAPTES, in *Natural History*, a name given by the ancients to a fossile substance used in medicine; they have left us but very short descriptions of it. Pliny only tells us, that it was soft, and of an agreeable smell. Hence *Agricola* judges, that it was probably one of the bituminous.

BAPTISCULA, in *Botany*, a name given by some authors to the blue cornflower, called the CYANUS; or bluebottle.

BAPTISM, in *Theology*, formed from the Greek βαπτισμος, of βαπτω, *I dip* or *plunge*, a rite or ceremony by which persons are initiated into the profession of the Christian religion.

The Jews practised a ceremony, which they called *baptism* after circumcision, on the proselytes, long before the coming of Jesus Christ.—In the primitive times this ceremony was performed by immersion, as it is to this day in the oriental churches, according to the original signification of the word. The practice of the western churches is, to sprinkle the water on the head or face of the person to be baptized, except in the church of Milan, as to which a ritual it is ordered, that the head of the infant be plunged three times into the water; the minister at the same time pronouncing the words "*I baptize thee in the name of the Father, the Son, and the Holy Ghost*;" imparting thus by this ceremony the person baptized is received among the professors of that religion, which God, the Father of all, revealed to mankind by the ministry of his son, and confirmed by the miracles of his spirit.—A triple immersion was first used, and continued for a long time: this was to signify either the three days that our Saviour lay in the grave, or the three persons in the Trinity. But it was afterwards laid aside, because the Arians used it: it was then thought proper to plunge but once.—Some are of opinion, that sprinkling in *baptism* was begun in cold countries. It was introduced into England about the beginning of the ninth century. At the council of Celchyth, in 816, it was ordered, that the priest should not only sprinkle the holy water upon the head of the infant, but likewise plunge it in the font.—There are abundance of ceremonies delivered by ecclesiastical writers, as used in *baptism*, which are now disused; as the giving of milk and honey to the baptized in the East; wine and milk in the West.

The quakers disallow the perpetuity of *baptism* in the Christian church. See QUAKERS.

It was also wholly rejected by the Valentinians, Manichees, Paulicians, and many other sects.

Several of the Socinians have maintained, that *baptism* was only to be used by those who are converted to Christianity from a different profession; and that though the children of such proselytes were to be baptized with their parents, all who be converted from them were to be considered as baptized in them; and they urge the practice of proselyte *baptism* among the Jews in support of this opinion.

Theological authors distinguish three kinds of *baptism*; 1. *Water baptism*, which is that above mentioned. 2. *Baptism of fire*, which is the perfect love of God, joined with an earnest desire to be baptized; called also the *baptism of the Holy Ghost*: on occasion this may supply the place of *water baptism*. 3. *Baptism of blood*, which is the martyrdom of a catechumen.

Baptism, in the primitive times, was only administered at Easter and Whitsuntide, except in cases of necessity. The catechumens were not forward in coming to *baptism*: St. Ambrose was not baptized before he was elected bishop of Milan; and some of the fathers not till the time of their death. Some deferred it out of a tender conscience; and others out of too much attachment to the world; it being the prevailing opinion of the primitive times, that *baptism*, whenever conferred, washed away all antecedent stains and sins. Divers of the fathers rallied this superstitious delicacy to such a degree, that they introduced a different extreme; the ridiculous zeal of some people carrying them to baptize even the dead, by proxy.

The opinion of the necessity of *baptism* in order to salvation, is grounded on these two sayings of our Saviour: *He that believeth, and is baptized, shall be saved*; and, *Except a man be born of water, and of the spirit, he cannot enter into the kingdom of God.*

Mr. Dodwell maintains, that the ordinance of *baptism*, if administered by persons duly ordained, conveys an immortalizing spirit; whereas persons dying unbaptized are not immortal. See PÆDO-BAPTIST.

BAPTISM *of the dead*, a custom which anciently prevailed among some people in Africa, of giving *baptism to the dead*. The third council of Carthage speaks of it, as a thing that ignorant Christians were fond of. Gregory Nazianzen also takes notice of the same superstitious opinion prevailing among some who delayed to be baptized. In his address to this kind of men, he asks, whether they think to be baptized after death? Philastrius also notes it as the general error of the Montanists or Cataphrygians, that they baptized men after death.

The practice seems to be grounded on a vain opinion, that when men had neglected to receive *baptism* in their lifetime, some compensation might be made for this default, by receiving it after death.

BAPTISM *of the dead*, was also a sort of vicarious *baptism*, formerly in use, where a person dying without *baptism*, another was baptized in his stead; a practice founded on 1 Cor. xv. 29. concerning the sense of which passage critics have been much divided. Several catholics understand it of the baptism of tears, penance, and prayers, which the living undergo for the dead, and allege it as the proof of the belief of purgatory in the apostle's days. See Heinsius's Exerc. ad Nov. Test. lib. vii. cap. 13.

BAPTISM, *Lay*, seems to have been allowed in the rubric of the English liturgy, till the time of king James I. though there were great disputes among the bishops at the Hampton-court conference, whether the words of the liturgy imported such allowance or not. The bishop of Worcester allowed them to be doubtful; but that the contrary practice of the church, which censured women for conferring *baptism*, shewed, that the compilers of the book did not intend them as a permission: they had indeed propounded them ambiguously, because otherwise, perhaps, the book would not have passed the parliament. The archbishop of Canterbury insisted, that the administration of private *baptism* by women and laymen, was not allowed in the practice of the church, but, on the contrary, censured by the bishops in their visitations. He even added, that the words of the liturgy do not infer any such meaning. To which king James excepted; urging and pressing the words of the book, that they could not but intend a permission of women, and private persons to baptize.

At present, the English divines condemn it as invalid; and Burnet, bishop of Sarum, was severely handled by some of them, for asserting, that faith in the Trinity gives every man a right to baptize. Collins's Disc. on Free-Think. p. 73.

BAPTISM, *Clinic*. See CLINIC.

BAPTISM is also applied, abusively, to certain ceremonies used in giving names to many inanimate things.

BAPTISM, in *Sea-Language*, is a ceremony in long voyages aboard merchant ships; practised both on persons and vessels which pass the tropic, or line, for the first time. That of vessels is simple, and consists only in the washing them throughout with sea-water: that of passengers is ludicrous: but neither the one or the other is done without making the crew drunk; the seamen, on christening the ship, pretending to a right of cutting off the boat-head unless redeemed by the master or captain.

BAPTISM *of bells*, see BELL.

BAPTISMAL *font*, see BAPTISTERY.

BAPTISMAL *presents* are in use in Germany, made by the sponsors to the infant, consisting of money, plate, or even sometimes fiefs of lands; which, by the laws of the country, are to be kept for the child till of age, the parents having only the trust, not the right of disposing of them.

An anonymous author has published a discourse expressly on this occasion, entitled, De Pecunia Lustrica.

BAPTISMAL *vow*, or *covenant*, a profession of obedience to the laws of Christ, which persons, in the ancient church, made before baptism.

It was made by turning to the East, but for what mystical reasons it is not well agreed.

BAPTISTERY, in *Ecclesiastical Writers*, a place or edifice where water is preserved for persons to be baptized in.

Anciently, in the churches which baptized by immersion, the *baptistery* was a kind of pond where the catechumens were plunged; though in many places the next river served for a *baptistery*, which was the case in the time of Justin Martyr, and of Tertullian. And the *baptisteries* continued separate from the church till the sixth century.

In after-times, the *baptistery* was a little building adjoining to the church, purposely appointed for the administration of this ceremony.

There were several fonts and altars in each *baptistery*, because then they baptized a number at once, all of whom received the eucharist immediately after.

At first, these *baptisteries* were only in the great cities, where bishops resided, who alone had the right of baptizing; but they afterwards allowed parishes to have fonts, for the more commodious administration of baptism. This right was confined to parishes alone; and in any monasteries were found with baptismal fonts, it was because they had baptismal churches in another place: though the bishops sometimes granted them to monks, upon condition that they would have a secular priest along with them to take care of the people; but they afterwards found means to throw off the priest, and make themselves masters of the church, and attach it, with its baptismal fonts, to their own monastery.

BAPTISTERY is also used for a baptismal or parochial church.

BAPTISTERY is also used, by the Armenians, for the feast of Epiphany, when the anniversary of Christ's baptism is celebrated.

BAPTISTERY is also used for a church-book, wherein the prayers and ceremonies of baptism were particularly described. Some take the *baptisterium* to have contained the order of all the sacraments, except the eucharist.

BAPTISTS, in *Ecclesiastical History*, from βαπτίζω, *I baptize*; a denomination of Christians, distinguished from other Christians by their particular opinions respecting the mode and the subjects of baptism.

Instead of administering the ordinance by sprinkling or pouring water, they maintain that it ought to be administered only by immersion. Such, they insist, is the meaning of the word βαπτίζω; so that a command to baptize is a command to immerse. Thus it was understood by those who first administered it. John the Baptist, and the apostles of Christ, administered it in Jordan and other rivers, and places where there was much water. Both the administrators and the subjects are described as going down into, and coming up again out of the water. And the baptized are said to be buried in baptism, and to be raised again: which language could not, they say, be properly adopted on supposition of the ordinance's being administered in any other manner than by immersion. Thus also, they affirm, it was in general administered in the primitive church. Thus it is now administered in the Russian and Greek church; and thus it is, at this day, directed to be administered in the church of England, to all who are thought capable of submitting to it in this manner. With regard to the subjects of baptism, the *Baptists* say, that this ordinance ought not to be administered to children or infants at all, but to grown up persons in general; but in adults only of a certain character and description. Our Saviour's commission to his apostles, by which Christian baptism was instituted, is to go and teach all nations, baptizing them: that is, say they, not to baptize all they meet with; but first to instruct them—to teach all nations, or to preach the gospel to every creature—and whoever receives it, him to baptize in the name of the Father, and of the Son, and of the Holy Ghost. To such persons, and to such only, baptism appears to have been administered by the apostles, and the immediate disciples of Christ. They are described as repenting of their sins, as believing in Christ, and as having gladly received the word. Without these qualifications, Peter acquaints those who were converted by his sermon, that he could not have admitted them to baptism. Philip holds the same language in his discourse with the eunuch. And Paul treats Lydia, the jailor, and others in the same manner. Without these qualifications, Christians in general think it wrong to admit persons to the Lord's supper; and, for the same reasons, without these qualifications, at least a profession of them, the *Baptists* think it wrong to admit any to baptism. Wherefore they withhold it, not only from the impenitently vicious and profane, and from infidels who have no faith, but also from infants and children, who have no knowledge, and are incapable of every action civil and religious. They further insist, that all positive institutions depend entirely upon the will and declaration of the institutor; and that therefore reasoning by analogy from previous abrogated rites is to be rejected, and the express commands of Christ respecting the mode and subjects of baptism ought to be our only rule.

The *Baptists* in England form one of the three denominations of Protestant Dissenters. They separate from the establishment for the same reasons as their brethren of the other denominations do, with whom they are united; and from additional motives derived from their particular tenets respecting baptism. The constitution of their churches, and their modes of worship, are congregational or independent: in the exercise of which they are protected in common with other dissenters, by the act of toleration. Before this act they were liable to pains and penalties as nonconformists, and often for their peculiar sentiments as *Baptists*. A proclamation was issued out against them, and some of them were burnt in Southfield in 1538. They bore a considerable share in the persecutions of the last, and of the preceding centuries; and, as it should seem, in those of some centuries before; for there were several among the Lollards and the followers of Wickliff, who disapproved of infant baptism. There were many of this persuasion among the protestants and reformers abroad. In Holland, Germany, and the North, they went by the names ANABAPTISTS and MENNONITES; and in Piedmont and the South, they were found among the ALBIGENSES and WALDENSES. See the Histories of the Reformation, and the above articles in this Dictionary.

The *Baptists* subsist under two denominations, viz. the *Particular* or Calvinistical, and the *General* or Arminian. The former is by far the most numerous. Some of both denominations allow of mixed communion, others disallow it: and some of them observe the seventh day of the week as the sabbath, apprehending the law that enjoined

it, not to have been repealed by Christ or his apostles. But a difference of opinion respecting these and other matters, is not peculiar to the *Baptists*; it is common to all Christians, and to all bodies of men who think and judge for themselves. See PÆDOBAPTISTS, under which article an account will be given of the principal arguments in favour of infant baptism.

BAR, in *Architecture*, a long slender piece of wood or iron used to keep things close and fast together.

In this sense, we speak of *bars* of windows, of doors, and the like.

BARS *of iron* are made of the metal of the fows and pigs, as they come from the furnaces.

These pass through two forges, called the *fineries* and the *chaufery*; where, undergoing five several heats, they are formed into bars. Phil. Trans. N° 138. p. 954. See IRON and FORGE.

BAR, in a court of justice, denotes an enclosure made with a strong partition of timber, three or four feet high, where the counsel are placed to plead causes.

This the French call *barre d'audience*, and in some places *auditoire*. It answers to what, among the Romans, was denominated *cancellus*.

It is called *bar*, because enclosed with a barrier, called also in Latin writers *cancelli* and *caulæ*, by a metaphor taken from sheep-folds.

The denomination BAR is also given to the benches, where the lawyers or advocates are seated.—The appellation arose hence, that anciently there was a *bar*, or barrier, to separate the counsellors and pleaders from the attorneys and others.

Hence our lawers who are called to the *bar*, or licenced to plead, in other countries called *licentiati*, are termed *barristers*.

BAR, or BARRE, BARRA, in *Common Law*, denotes a peremptory exception against a demand or plaint.

The author of the Terms of the Law defines *bar*, a plea brought by the defendant in an action, whereby the action of the plaintiff is destroyed for ever.—But the modern writers extend the use of the word farther, dividing *bars* into *perpetual* and *temporary*.

BAR, *perpetual*, is that which overthrows the action for ever.

BAR, *temporary*, or *bar pro tempore*, is that which is allowed good for the present, but may fail, or be set aside hereafter.

BAR, in *Geography*, is used for a heap of sand or mud, or a chain of rocks, which block up the mouth of a river, or port, so that there is no entrance except at high water.

The *bar* of Siam is a remarkable bank of mud, gathered in the mouth of the river, which allows not above thirteen feet of water, when the tide is highest.

BAR *of a port*, in *Marine Fortification*, see BOOM.

BARS, in the *Manege*, denote the ridges or upper part of the gums, between the tushes and grinders of a horse; the under and outward sides retaining the name gums.

The *bars* should be sharp-edged and lean; for since all the subjection a horse suffers, proceeds from those parts, if they have not those qualities, they will be very little, or not at all sensible; so that the horse can never have a good mouth; for if the *bars* be flat, round, and insensible, the bit will not have its effect; and consequently, such a horse can be no more governed by his bridle, than if one took hold of his tail.

To BAR *or ferke a vein*, among *Farriers*, an operation performed on the veins of a horse's legs, or other parts of his body, in order to stop the course, and lessen the quantity of malignant humours prevailing there.

It is thus performed: the farrier opens the skin, after disengaging the vein, ties it above and below, and then strikes between the two ligatures.

BARS, in *Music*, denote strokes drawn perpendicularly across the lines of a piece of music, including between each two, a certain quantity or measure of time, which is various as the time is triple or common.

The use of *bars* in music is a modern invention. They cannot be traced higher than the year 1574, and seem not to have been in general use till the year 1653; so that probably this improvement is owing to Mr. Henry Lawes, who published his Airs and Dialogues in that year.

In common time, between each two *bars*, is included the measure of four crotchets; in triple time, three crotchets. Their principal use is to regulate the beating, or measure of the musical time in a concert. See TIME.

BAR, BARR, BARRE, in *Heraldry*, denotes an ordinary nearly resembling the FESS; from which it only differs by its narrowness, and by this, that the *bar* may be placed in any part of the field, whereas the *fess* is confined to a single place.

The *bar* itself has its diminutives, which are the *closet* and *barrulet*.

The *bar* of legitimate cadets proceeds from right to left; that of bastards, from left to right.

BAR-*gemel*, denotes a double *bar*, or where the *bars* are placed in couples, at a small distance, and more than two in the field, in every number.

BAR, among *Printers*, denotes a piece of iron with a wooden handle, whereby the screw of the press is turned in printing.

BAR-*master*, in *Mining*, he who keeps the gage, or dish, to measure all tributers ore; he, or his servant, being always to be present when it is measured.

BAR-*shot*; see SHOT.

BARACK, or BARRACK, BARAQUE, a hut, or little lodge for soldiers in a camp.

The word comes from the Spanish *barraccas*, little cabins which fishermen make on the sea-shore.

Those for the horse were formerly called *barracks*, and those for the foot *huts*; but *barack* is now used indifferently for both.

Barracks are generally made by fixing four forked posts in the ground and laying four others across them; and towards they build up the walls with sods, wattles, &c. as the place affords: and the top is planked, thatched, or covered with turf, as they have convenience.

When the army is in winter quarters, the soldiers usually build *barracks* in the summer they are content with bevouacs.

BARACKS is also more generally applied to buildings to lodge soldiers in fortified towns, or others. Thus are say the *barracks* of the Savoy, of Dublin, &c.

Barracks, when damp, are greatly prejudicial to the health of the soldiers lodged in them; occasioning dysenteries, intermitting fevers, coughs, rheumatic pains, &c. For which reason quarter-masters ought to be careful in examining every *barrack*, offered by the magistrates of a place; rejecting all ground-floors in houses that have either been uninhabited, or have any signs of moisture.

BARALIPTON, a term in *Logic*, denoting the *fifth* indirect MODE of the first FIGURE of syllogisms.

A syllogism in *baralipton* is when the two first propositions thereof are universal affirmatives, and the third a particular affirmative; the middle term being the subject of the first, and the attribute of the second.—For example:

BA *Every soul ought to be feared*:
RA *Every wicked spelling is an evil*:
LIP *Therefore something that ought to be feared is a wicked person.*

See letters A and I, and SYLLOGISM.

BARALLOTS, BARELOTTI, the name of a sect at Bologna in Italy, who had all things in common, even their wives and children.—They gave, it is said, into all manner of debauchery, and were also termed *complices*.

BARANGI, officers among the Greeks of the lower empire, whose business it was to keep the keys of the city-gates where the emperor resided.

Codinus says, *barangi* were those who stood guard at the door of the emperor's bed-chamber and dining room.

Codinus and Curopalata observe, that the name is English, formed from *bar*, to *bar*; and that the *barangi* were Englishmen, by country; Anglo-Danes, who, being driven out of England, were received into the service of the emperor of Constantinople, and made guards or protectors of his person. Whence they are called in Latin, by Cujacius, *protectores*; by others, *securigeri*, as being armed with a battle-ax, *securis*. Codinus adds, that they still spoke the English tongue. Anna Comnena says, the *barangi* came from the island Thule; by which is, doubtless, meant our island. Yet Nicetas makes them Germans; a mistake easy to be made at that distance, considering the relation the Anglo-Saxons bore to Germany. There were *barangi* as early as the emperor Michael Paphlagonius, in the year 1035, as appears from Cedrenus; but they were then only common soldiers, not a life guard.

Their commander was called *anabates*, as importing a person who always followed the emperor.

BARA-*picken*, bread made of fine flour kneaded with barm, which makes it very light and spongy: *bara* being the Welch for bread.

BARATHRUM, from βαραθρον, signifying the fame, among the Ancient Athenians, a deep pit into which condemned criminals were cast headlong.

The *barathrum* was a dark noisome hole, having sharp spikes at the top, to prevent any escape, and others at the bottom to pierce and lacerate the offender.

From its depth and capaciousness, the name came to be used proverbially for a miser, or a glutton, always craving. In which sense, the word *barathro* is used among the Latin poets.

BARATHRUM is also used, in *Physiology*, to denote certain baleful caverns, inaccessible on account of their fetid, or poisonous fumes.

These amount to the same with what others call *fossæ chaonitæ*.

BARATRY, or BARETRY, in *Law*, signifies the moving and maintaining of suits in disturbance of the peace; and the taking and detaining of houses, lands, &c. by false inventions. The word *barratrie* in French signifies *misdemeanor, fraud, deceit*: it is derived from the old word

barat, which ſignifies any impoſition; whence alſo they ſaid *barattor*, *to impoſe on any one*. 8 Rep. 31.

BARATRY, in a *Marine Senſe*, is the matter of a ſhip, or the mariners cheating the owners or inſurers, whether it be done by running away with the ſhip, ſinking her, deſerting her, or embezzling the cargo.

Baratry of mariners is ſo epidemical on ſhip-board, that it is rare if the maſter, be his induſtry ever ſo great, can prevent it, by reaſon of the encouragement one knaviſh ſailor gives another; yet the law, in ſuch caſes, imputes the offences of the mariners to the negligence of the maſter, and from him the merchant is to ſeek for remedy for all goods or merchandize loſt, embezzled, or otherwiſe damnified.

By the French ordonnances, inſurers are not obliged to make good the loſs or damage accruing to a veſſel, or its lading, by the fault of the maſter or crew, unleſs, by the terms of the policy, they be made accountable for the *baratry* of the patron. A maſter who, without neceſſity, takes up money on the body, proviſion, or tackling of a ſhip, or ſells the effects on board, or, in his account of average, ſets down fictitious expences, ſhall pay the value, be declared unworthy of being maſter, and baniſhed the port where he ordinarily reſides. In ſome caſes, he is alſo ſubject to corporal puniſhment, and even to death, where it appears he willingly threw away the ſhip.

BARATRY is alſo uſed for bribery or corruption in a judge, giving a falſe ſentence for money.

BARATRY is alſo uſed in *Middle Age Writers*, for fraud or deceit in making of contracts, ſales, or the like.

BARB is uſed for the *Barbary pigeon*, called alſo by Moore, the *columba Numidica*.

This is but a ſmall pigeon, and has a very ſhort beak like a buſhinch, with a ſmall wattel, and a naked circle of tubercle red fleſh round the eyes; the *iris* of the eye is of a pearl-colour, and the broader and redder this circle round them is, the more the pigeon is valued; but this is always narrow while they are young, and does not arrive at its full breadth till they are four years old. Some of this ſpecies have a toft of feathers behind their head, and others not. The red circle round their eyes grows pale and whitiſh if they become ſick; but always recovers its redneſs as they grow well: their proper colour is black, or dun. There are likewiſe pyed ones; but they are of a mixed breed, and not ſo valuable.

BARBA *Aron*. in *Botany*, a name given by ſome authors to the common great houſe-leek.

BARBA *Capræ*, in *Botany*, ſee SPIRÆA.

Of this genus Mr. Tournefort allows only one ſpecies, the common *barba capræ*, or, as it is called by ſome, *dryopogon*.

BARBA *Jovis*, in *Botany*, the name of a ſpecies of *anthyllis*. See LADY'S *finger*.

BARBACAN, or BARBICAN, properly denotes an outer defence or fortification to a city, or caſtle; uſed eſpecially as a fence to the gates, or walls.

In which ſenſe, *Barbacan* amounts to the ſame with what is otherwiſe called, *antemurale*, *promurale*, *murus exterior*, or *outer wall*.

BARBACAN is alſo uſed for a fort at the entrance of a bridge, or in the outlet of a city, having a double wall with towers. Such is that at one end of the wooden bridge at Rouen, which is ſtill called by ſome *Barbicane*.

BARBACAN is alſo uſed for an aperture in the walls of a city, through which to fire with muſquets on the enemy. See EMBRASURE.

BARBACAN, in *Architecture*, denotes a long narrow canal, or opening, left in the walls for water to come in and go out at, when edifices are raiſed in places liable to be overflowed; or to drain off the water from a terrace, or the like.

BARBADOES *cherry*, ſee CHERRY.

BARBADOES *ſtraw-ſence*, *jamaicenſis*, in *Botany*, a genus of the *decandria monogynia* claſs. Its characters are theſe: the empalement of the flower is compoſed of five oblong concave leaves, which fall off. The flower has five unequal petals, four of them nearly equal and roundiſh, but the fifth larger, deformed and indented. It hath ten long, briſtly, riſing ſtigmas, terminated by oblong ſummits; and an awl-ſhaped declining *germen*, which ſits upon the ſtyle, and is crowned by an acute ſtigma. The *germen* afterwards becomes an oblong compreſſed pod, with ſeveral tranſverſe partitions, in each of which is lodged a ſingle ſtriated ſeed.

This plant grows naturally in both Indies. It is planted in hedges, to divide the lands in Barbadoes, from whence it had the title of *ſtraw-fence*; it is alſo called Spaniſh *carnation* by ſome of the inhabitants of the Britiſh iſlands.

Theſe plants muſt conſtantly remain in the bark-ſtove, where in warm weather they ſhould have a large ſhare of air; but they muſt not be expoſed to cold; if damp ſeizes their top, it very often kills the plants, or at leaſt occaſions the loſs of their heads. With proper management, they will grow much taller here than they uſually do in Barbadoes, but their ſtems will not be larger than a man's finger, which is occaſioned by their being drawn up by the glaſſes of the ſtove.

BARBADOES *tar*, *Petroleum Barbadenſe*, is a bitumen of a reddiſh black colour, and thick conſiſtence, approaching to that of common tar. It is found in ſeveral of the American iſlands, and particularly in *Barbadoes*; where it is greatly eſteemed as a ſudorific, in diſorders of the breaſt, and as an external diſcutient and anti-paralytic. It is leſs inflammable than the other PETROLEA, and leaves, on being burnt, a conſiderable quantity of aſhes. The oil obtained from it on diſtillation, and a balſam prepared by boiling it with one fourth its weight of flowers of ſulphur, are directed by the London college to be kept in the ſhops. Lewis's Mat. Med.

BARBARA, in *Logic*, the firſt mode of the firſt figure of ſyllogiſms.

A ſyllogiſm in *barbara*, is that whereof all the propoſitions are univerſal and affirmative; the middle term being the ſubject in the firſt propoſition, and attribute or predicate in the ſecond.—For example.

BAR	*Whoever ſuffers a man to ſtarve, whom he ought to ſuſtain, is a murderer:*
BA	*Whoever is rich, and refuſes to give alms, ſuffers thoſe to ſtarve, whom he ought to ſuſtain:*
RA	*Therefore, whoever is rich, and refuſes to give alms, is a murderer.*

BARBARIAN, a name given by the ancient Greeks to all thoſe who were not of their own country, or who did not ſpeak the Greek language.—In which ſenſe the word ſignified with them, no more than *foreigner*, and did not carry that odium with it as it does now.

Strabo derives the word βαρβαροι from βαρβαρυζειν, *balbutire*, becauſe foreigners coming to Athens uſed to ſtammer, or ſpeak confuſedly: others derive it from βαρβαρ, a word that foreigners frequently ſtumbled on, which yet had no meaning.

BARBARICARII, in *Antiquity*, a kind of *artiſts*, who, with threads of divers colours, expreſſed the figures of men, animals, and other things; or, as others deſcribe them, thoſe whoſe buſineſs it was to gild and decorate ſhields and helmets with gold and ſilver.

The *barbaricarii* were ſo called, becauſe they learned this kind of painting from the Phrygians, who were particularly denominated *barbarians*, in regard to their oppoſition to the Greeks; though the name is ſometimes alſo written *brunbariarii*.

BARBARICARII ſeem alſo to have been uſed for ſoldiers or officers who wore maſks or vizards, thus adorned with gold and ſilver.

BARBARICUM, in *Ancient Writers*, is uſed for a military ſhout, raiſed by the ſoldiers on point of engagement.

This is called *barbaricum* from the barbarians, in whoſe armies this method of ſhouting much obtained.

The ſame appellation was given to a war, or expedition, undertaken againſt the barbarians.—*Quoniam ad ipſum tempus quo barbaricum extorſum eſt inter nos & vos.*

BARBARICUM was alſo uſed for an armoury, or magazine, wherein the Greek emperors kept the ſpoils, and donaries, taken from the barbarians in the time of war or peace.

BARBARICUM is alſo an appellation given by the modern Greeks to rhubarb.

It is thus called from the *Sinus Barbaricus*, by the way of which this root was firſt brought to them.

BARBARISM, in *Grammar*, denotes an offence againſt the purity of ſtyle or language.

A *barbariſm* differs, according to Iſidore, from a *barbarous term*, as the former, for inſtance, is Latin, though corrupt or miſuſed; whereas the latter, which this writer, calls *barbarologia*, is a word merely foreign, intruded into Latin ſpeech.

In general, under *barbariſms*, are comprehended things written, ſpoken, declined, or conjugated wrong; or uſed in a wrong quantity, or to an unuſual ſenſe; as when a word is uſed which is foreign to the language, and not received by the better and purer ſort of writers therein. Such are *ſapa* for *ſapor*, *ſpiſſida* for *ſpiſſitudo*, *patri* for *patris*, *ſui* for *ſibi*, *homus* for *proſcriptis*, &c.

Barbariſms is often charged, with great juſtice, on modern writers in the learned languages. The Latin books of late ages are full of Angliciſms, Galliciſms, Germaniciſms, &c. according to the country of the author. But what ſhall we ſay to Caſp. Scioppius, who accuſes Cicero himſelf of *barbariſms* in his own language?

There are great diſputes among critics concerning *barbariſms* in the New Teſtament.

Divers pious perſons are ſtartled at the apprehenſion of any thing like a *barbariſm* in the inſpired books, as ſuppoſing it an objection to the inſpiration of them; yet this

does not hinder but many of the Jews, after Aharbanel and others, ſtill maintain *barbariſms* in the Old Teſtament; in which they are ſeconded by M. Simon, Le-Clerc, and others. Divers of the prophets are ſaid to have been unacquainted with the language they wrote in, particularly Jeremiah.

BARBARISM, *barbaries*, is alſo uſed for that rudeneſs of mind, wherein the underſtanding is neither furniſhed with uſeful principles, nor the will with good inclinations.

BARBAROUS, in a general ſenſe, ſomething that partakes of the quality of BARBARISM.

In this ſenſe we ſay, a *barbarous* nation, age, writer, word, or the like.

Barbarous Latin words are innumerable; the ſchoolmen are full of them: the chemiſts, phyſicians, lawyers can ſcarce write intelligibly without them. Du-Cange has given two large volumes in folio of *barbarous* Latin words, and as many of *barbarous* Greek words.

The modern or vulgar Greek is ſometimes called *barbarous* Greek, *barbaro-Græca*, or *Græco-barbara-lingua*. Langius has publiſhed Philologia Barbaro-Græca, Grammatica Barbaro-Græca, et Gloſſarium Barbaro-Græcum.

BARBATED *leaf*, in *Botany*, is a leaf terminated by a bunch of ſtrong hairs.

BARBATINA, or SEMEN *contra*, a ſeed which is efficacious in extirpating worms from the human body, to which children are chiefly liable: it comes from Perſia, and from the borders of Muſcovy.

This ſeed, to be good, ought to be plump, of an agreeable ſcent, and very green; ſpecial care muſt be taken that it be not dyed green, and that the ſeed of ſouthernwood be not ſold inſtead of it.

BARBATULA, in *Ichthyology*, a ſpecies of the COBITIS.

BARBATUS *Piſcis*, in *Ichthyology*, a name given by Salvian, and ſome others, to the MULLUS, called in Engliſh, the *ſhoat-fiſh*; the *glaucus* of Pliny, and the ancients. This Artedi deſcribes under the name of the *ſilurus* with four *cirri*, or beards, at the mouth. By this it is diſtinguiſhed from the fiſh called the *lake*, or *oliviſſa*, which, though a genuine ſpecies of *ſilurus*, has only one beard.

BARBE, or BARB, in *Commerce*, a kind of horſe brought from Barbary, much eſteemed for its beauty, vigour, and ſwiftneſs.

Barbs are uſually of a ſlender make, and their legs far apart. It is a maxim, that *barbs* grow ripe, but never old; becauſe they retain their vigour to the laſt, which makes them prized for ſtallions: their mettle, according to the duke of Newcaſtle, never ceaſes but with their lives. It is ſaid, they were anciently wild, and ran at large in the deſarts of Arabia; and that it was in the time of the Cheq Iſhmael, that they firſt began to tame them. It is ſaid, there are *barbs* in Africa, that will outrun oſtriches: ſuch are ordinarily ſold according to Dapper, for 1000 ducats, or 100 camels. They are fed very ſparingly, Dapper ſays, with camel's milk. It is added, that in Barbary they preſerve the genealogy of their *barbs*, with as much care as the Europeans do thoſe of their noble families; and that to ſtill them, they always produce their titles of nobility.

The race of horſes is much degenerated in Numidia; the Arabs having been diſcouraged from keeping it up, by the Turkiſh officers, who were ſure to be maſters of them.

At preſent, the Tingitanians, and Egyptians, have the reputation to preſerve the beſt breed, both for ſize and beauty.

The ſmalleſt of theſe laſt are uſually ſixteen hands high, and all of them ſhaped, according to their phraſe, like the antelope.

The *good* qualities of a Barbary horſe (beſides the ſuppoſed one of never lying down, and of ſtanding ſtill when the rider drops his bridle) are to have a long walk, and to ſtop ſhort, if required, in a full career.

The *barb* is very lazy and negligent in all his motions; he will ſtumble in walking upon the ſmootheſt ground; his trot is like that of a cow, and his gallop very low, and very eaſy to himſelf: this fort of horſe is, however, for the moſt part, ſinewy, nervous, and excellently winded; he is therefore good for a courſe, if not over-weighted.

The *mountain barbs* are accounted the beſt, becauſe they are the largeſt and ſtrongeſt: they belong to the Allarbes, who value themſelves much upon them, and are as fond of them as other nations are; for which reaſons it is not eaſy to get at any of them. The common *barbs* are not uncommon among our people of faſhion. They may uſually be bought in Provence and Languedoc in France, at a moderate price, and many of the Engliſh have them from thence.

Barbs, among us, fall ſhort of that ſwiftneſs attributed to them in their native country. This may be accounted for, partly from the ſmallneſs and lightneſs of their riders, and partly from their not being loaded with heavy ſaddles and bridles as in Europe, nor even with ſhoes. An Arab ſaddle is only a cloth girt round, with a pair of light ſtirrups, and a fort of pummel to ſuſtain them.

Baſtard-BARBS, thoſe deſcending from the Engliſh mares, covered by *barb*-ſtallions, are, by experience, conſtantly found both better ſhaped and fitter for the ſaddle, and ſtronger for ſervice than their ſires. Phil. Tranſ. N° 105.

BARBE, or BARBET, in the *Military Art*.—*To fire in* BARBE, is to fire the cannon over the parapet, inſtead of through the embraſures; in which caſe the parapet muſt not be more than three feet and a half high.

BARBE, or BARDE, is alſo an old term for the armour of the horſes of the ancient knights, and ſoldiers, who were accoutred at all points.

Della Cruſca ſays, the *barde* is an armour of iron or leather, wherewith the neck, breaſt, and ſhoulders of the horſe are covered.

BARBED, in *Heraldry*, is underſtood of a cock, when the comb and wattles are of a different colour from the reſt of the body. In which caſe he is ſaid to be *barbed and creſted*.

A Cock BARBED, *crois barbée*, is that whoſe extremities are faſhioned like the barb of an iron ſpear, or inſtruments uſed for ſtriking fiſh, &c.

BARBEL, in *Ichthyology*, ſee BARBUS.

BARBELICOTÆ, an ancient ſect of Gnoſtics, ſpoke of by Theodoret. The doctrine of the *Barbelicotæ* was, that one of the æons, poſſeſſed of immortality, had commerce with a virgin ſpirit named *Barbeloth*, who demanded of him, firſt preſcience, then incorruptibility, and laſtly eternal life; all which were granted to her: that being one day in a gayer humour than ordinary, ſhe conceived, and afterwards brought forth light, which being perfected by the unction of the ſpirit, was called *Chriſt*: the child Chriſt deſired to have underſtanding, ſo, and obtained it: after which, underſtanding, reaſon, incorruptibility, and Chriſt, united together; and from their union aroſe autogenes, *αυτογενης*. To theſe fables they add divers others. They were alſo denominated *Barbaritæ*.

BARBERRY-*tree*, *berberis*, or the *pipperidge-buſh*, in *Botany*, a genus of plants belonging to the claſs of *hexandria monogynia*, the characters of which are theſe: the flower hath a coloured empalement, compoſed of ſix concave leaves; the flower is of ſix leaves, which are roundiſh and concave. It hath two coloured nectariums, faſtened to the baſe of each petal; and ſix *ſtamina*, with two ſummits faſtened on each ſide their *apex*. The *germen* is cylindrical, and afterwards becomes an obtuſe cylindrical umbilicated berry, having a punctuate and one cell, enclaſing two cylindrical ſeeds. There are three ſpecies; the common *barberry*; the Canada *barberry*, with very broad leaves; and the *barberry* with a ſingle flower on each foot-ſtalk.

The common *barberry*-buſh grows naturally in the hedges in many parts of England, but is alſo cultivated in gardens for its fruit, which is pickled and uſed for garniſhing diſhes. The flowers come out from the wings of the leaves, in ſmall ramoſe bunches, like thoſe of the currant buſh, which are yellow; theſe are ſucceded by oval fruit, which are firſt green, but when ripe, turn to a fine red colour. The flowers appear in May, and the fruit ripens in September.

The box-leaved ſort is at preſent very rare in England, and while young the plants are ſomewhat tender, ſo have frequently been killed by ſevere froſt. This never riſes higher than four or five feet in England.

The *barberry* is a ſhrub, whoſe berries, as well as bark, are of medicinal uſe; known by the name of *oxyacantha Gulani*.

Its berry is red, and oblong, of an agreeable, cooling, aſtringent taſte, chiefly uſed in the way of conſerve; under which form it quenches thirſt, ſtrengthens the ſtomach, and is good againſt diarrhœas and dyſenteries. We alſo read of ſyrups, eſſential ſalt, and lozenges, made of the juice of the *barberry*.

The bark, on the contrary, is opening and deterſive; and, though rarely found in diſpenſatory compoſitions, is much uſed in common preſcriptions, as well as in medicated ales, againſt the jaundice, and other diſtempers from obſtructions and ſtoneleſs of the *viſcera*.

The only officinal preparation from this tree, is the conſerve of the fruit.

BARBET, in *Natural Hiſtory*, a name given by M. Beaumur, and other of the French writers, to a peculiar ſpecies of the worms which feed on the *ſycamore*.

This worm is more particularly called *barbet blanc*, as alſo *heriſſon blanc*, or *white hedgehog*, from its being covered with oblong white tufts of filaments, which ſtand in the manner of the quills of a hedgehog or porcupine.

This creature is of the ſize of a ſmall fly without its wings; but this tufted covering ſo much increaſes the bigneſs, that it appears of the ſize of a fly of the largeſt kind.

The *barbet* lives about a fortnight in that form, and then becomes

becomes a chrysalis; from which, after a month, there comes out a small beetle, of the size of our cow-lady, but of a flatter figure, and, in general, of a dusky brown colour.

BARBICAN, see BARBACAN.

BARBICANAGE, *barbicanagium*, in our *Old Writers*, money given for the maintenance of a *barbican*, or watch-tower; or a tribute towards repairing or building a bulwark.

BARBILLONS, in the *Natural History of Insects*, are certain bodies, usually two in number, placed under the creature's head, and movable at pleasure, somewhat resembling hands or fingers placed on a short or broken arm.

The word is a diminutive of the French *barbe*, *beard*.

BARBING is sometimes used in *Ancient Statutes* for thereing. Cloth is not to be exported till it be *barbed*, rowed, and thorn. 3 Hen. VII. c. 11.

BARBITOS, or BARBITON, an ancient instrument of music, mounted with three, others say seven strings, much used by Sappho and Alcæus; whence it is also denominated *Lesbium*.

The *barbiton* is said to have differed from the lyre and *cithara*; but wherein the precise difference lay, does not appear. Strabo makes it the same with the *sambuca*. It is represented as yielding a grave, deep sound, and, on that account, peculiarly fitted for Doric compositions. Anacreon is said to be the inventor of the *barbiton*.

BARBLE, or BARBEL, in *Ichthyology*, see BARBUS.

BARBLES, in the *Manege*, knots of superfluous flesh growing in the channels of a horse's mouth; that is, in the intervals which separate the bars, and obstruct his eating. These are also called *barbi*; and obtain in black cattle as well as horses.

For the cure, they cast the beast, take out his tongue, and clip off the *barbles* with a pair of scissars, or cut them with a sharp knife; others choose to burn them off with a hot iron.

BARBONI, in *Ichthyology*, a name given by many to the MULLUS BARBATUS, a fish greatly esteemed at table, and caught in the Mediterranean, and some other seas.

BARBOTINE, a seed, otherwise called *semen santonicum*, and *semen contra vermes*, in English, WORMSEED.

BARBULÆ, in *Botany*, a name given by Pliny to the SEMI-FLOSCULI.

BARBUS, in *Ichthyology*, the fish called in English the *barbel*, and by some writers in natural history, *mullus fluviatilis*, a species of the CYPRINUS.

The *barbel* is a fish commonly known, and so called, on account of the barb or beard under its nose, or chaps. It is of the leather-mouthed kind.

This is but a moderately well-tasted fish. The male is esteemed better than the female, but neither of them is very much valued. The worst season for them is April. They usually swim together in great shoals, and love to be among weeds, where there is a hard gravelly bottom. In summer they frequent the strongest and swiftest currents of the water; as deep bridges, weirs, and the like places, and are apt to get in among the piles, weeds, and other shelter; but in winter, they retire into the deepest and stillest waters.

The time for taking this fish is very early in the morning, or late in the evening: the place should be baited with chopped worms some time before; and no bait is so good for the hook as the spawn of the salmon, or some other fish: in defect of these, lob-worms will do; but they must be very clean and nice, and the hook carefully covered, otherwise he will not touch them. Old cheese steeped in honey is also a very fine bait. The best season for angling for this fish is from May to August.

BARBYLA, in *Botany*, a name by which Theocritus and other of the early writers, have called the common damask prune.

BARCALAO, a Spanish word which the French pronounce *baccalo*, or *baccalau*. By this last name the Basques most commonly call the fish which we style cod; and those people call also the island which we call Newfoundland, the island of *Bacallaos* (*Cod island*), because of the great plenty of cod catched there. There is, however, a league to the west of that large island, another small one, which is more particularly called *Bacalaos*.

BARCALON, an appellation given to the chief minister of the emperor of Siam, to whom belongs the care of trade both within the kingdom and out of it, the superintendency of the royal magazines, the receipt of the revenues, and the management of foreign affairs.

BARCA-LONGA, a large Spanish fishing-boat, navigated with lug-sails, and having two or three masts. These are very common in the Mediterranean.

BARCES, or BURCHES, were formerly a kind of ship-guns, not unlike fakers, only shorter, thicker in metal, and wider bored.

BARCONE, a short broad vessel, of a middle size, used in the Mediterranean sea for the carriage of corn, wood, salt, and other provisions, from one place to another.

BARD is used, in the *Culinary Art*, for a broad slice of bacon used to cover fowls before they are roasted, baked, or otherwise dressed.

BARDANA, in *Botany*, see BURDOCK.

BARDARIOTÆ, in *Antiquity*, were a kind of ancient guard attending the Greek emperors, armed with rods, whereby they kept off the people from crowding too near the prince, when on horseback.

Their captain, or commander, was denominated *princeps virgini*.

The word was probably formed from the *bardus* or housings on their horses.

BARDED, in *Heraldry*, is used in speaking of a horse that is caparisoned.

He bears sable, a *cavalier d'or*, the horse *barbed*, *argent*.

BARDELLE, in the *Manege*, denotes a saddle made in form of a great saddle, but only of cloth stuffed with straw, and tied tight down with packthread, without either leather, wood, or iron. *Bardelles* are not used in France; but in Italy they trot their colts with such saddles; and those who ride them are called *corvettatori*, or *scotani*.

BARDE, see BARRE.

BARDESANISTS, a sect thus denominated from their leader Bardesanes, a Syrian of Edessa, in Mesopotamia, in the second century.

He adopted the oriental philosophy concerning the two principles; maintaining that the supreme God is free from all evil and imperfection, and that he created the world and its inhabitants pure and incorrupt: that in process of time the prince of darkness, who is the fountain of all evil and misery, enticed men to sin; in consequence of which, the supreme God permitted them to be clothed of those ethereal bodies with which he had endued them, and to fall into sluggish and gross bodies formed by the evil principles: and that Jesus descended from heaven, clothed not with a real but aerial body, in order to recover mankind from that body of corruption which they now carry about them: and that he will raise the obedient to mansions of felicity, clothed with aerial vehicles, or celestial bodies.

Strunzius has given the history of the *Bardesanists*.

BARDS, BARDI, ancient poets among the Gauls and Britons, who described and sung in verse the brave actions of the great men of their nation; with design to inculcate and recommend virtue, and even sometimes to put an end to the difference between armies at the point of engagement.

Bochart derives the word from *parad*, *to sing*. Camden agrees with Pelloutier, that *bardus* originally signifies a *singer*: and adds, that the word is pure British. Others derive the word from *Bardus*, a druid, the son of Dryas, and the fifth king of the Celtæ.

The *bards* differed from the *druids*, in that the latter were priests and teachers of the nation, but the former only poets and writers.

Larrey, Boulin, and Pasquier, indeed, will have the *bards* to have been priests, as well as philosophers: and Cluverius, rather too: but without much foundation in antiquity.—Strabo divides the sects of philosophers among the Gauls and Britons into three, viz. the druids, *bardi*, and *vates*. The *bards*, adds he, are the singers and poets; the *vates*, the priests and natural philosophers; and the druids to natural philosophy add also the moral. Hornius however reduces them to two sects, viz. *bardi*, and druids; others to one, and make a druid a general name comprehending all the others. Cluverius will have it, that there were *bardi* also among the ancient Germans; because Tacitus makes mention of their songs and poems, which contained their history.

Almost all history, Celtic and Chaldean, as well as Greek and Roman, had its foundation in poetry. Whether we shall find the rules of their prosody to agree with those laid down by captain Middleton in his Hardiments, or Art of Welch Poetry, we know not: but how methodically they ordered their *triawdhs* or tribes, Sylas, Taplot, and Rowland have at large informed us.

It was customary to sing their compositions in the presence of their nobles, and at their chief festivals and solemnities.

Among the ancient British *bards*, the most celebrated is the great Merlyn, whose true name, according to Llhuyd, is *Aberddyn*. The genealogical records of the Irish *bards* are still the chief foundations of the ancient history of Ireland. In the Highlands of Scotland there are considerable remains of many of the compositions of their old *bards* still preserved. But the most genuine entire and valuable remains of the works of the ancient *bards*, and perhaps the noblest specimen of uncultivated genius, are the poems of Ossian the son of Fingal, a king of the Highlands of Scotland, who flourished in the second or third century, lately collected by Mr. Macpherson, and by him translated from the Erse or Gaelic language into English.

BARE in a general ſenſe, ſignifies not covered. Hence we ſay *bare*-headed, *bare*-footed, &c.

The Roman women, in times of public diſtreſs and mourning, went *bare*-headed, with their hair looſe.

Among both Greeks, Romans, and Barbarians, we find a ſect called *nudipedalia*, at which perſons were to attend *bare*-footed.

The Abyſſinians never enter their churches but *bare*-footed; not on account of Moſes, who was commanded to put off his ſhoes on Mount Sinai, but in reverence of the place; as is alſo done by them in entering the palaces of kings and great men.

Sagittarius has a diſſertation expreſs on thoſe who went *bare*-footed among the ancients, De Nudipedalibus Veterum; wherein he treats of ſuch as went *bare*-footed in journeys or otherwiſe, either out of choice, or neceſſity: alſo of *bare*-footed religious, of mourners or penitents, who went *bare*-footed; and, laſtly, of the *laviri*.

BARE, in reſpect of *Manufacture*. A cloth is ſaid to be *bare* or naked, when the nap is too ſhort, as having been ſhorn too near, or not being ſufficiently covered with wool by the texzel.

BARE is alſo uſed for a ſort of bowling-ground, not covered with green ſwarth.

BARE-*foot* CARMELITES, and *Auguſtines*, are religious of the order of St. Carmel and St. Auguſtin, who go without ſhoes, like the Capuchins.

There are alſo *bare*-foot Fathers of Mercy. Formerly there were *bare*-foot Dominicans, and *bare*-foot nuns of the order of St. Auguſtin.

BARE-*footed Trinitarians*, ſee TRINITARIAN.

BARE-*pump*, ſee PUMP.

BAR-FEE, a fee of twenty pence, which every perſon acquitted of felony pays the gaoler.

BARGAIN, a CONTRACT either for the ſale, purchaſe, or exchange of a *thing*.

The word is formed from the French *barguigner*, *to barter*, or *haggle*.

He that ſells is the *bargainor*, and he that buys the *bargainee*.

BARGAIN *and Sale*, in *Law*, is properly a CONTRACT made of manors, lands, and other things, transferring the property thereof from the *bargainor* to the *bargainee*, for a conſideration of money.

It is a good contract for land, and the fee paſſes, though it be not ſaid in the deed, to have and to hold to him and his heirs, and though there be no livery and ſeiſin given, by the *vendor*, ſo it be by deed indented, ſealed, and inrolled, either in the county where the land lies, or in one of the king's courts of record at Weſtminſter, within ſix months after the date of the deed.

This manner of conveying lands was created and eſtabliſhed by the 27 Hen. VIII. cap. 10. which executes all uſes raiſed; and as this introduced a more ſecret way of conveying than was known to the policy of the common law, therefore the inrolment of the deed of *bargain and ſale* was made neceſſary by the 16th chapter of that ſtatute.

BARGAINS, in *Commerce*, are of divers kinds: *verbal*, thoſe made only by word of mouth, and giving earneſt; *written*, thoſe where the terms are entered in form on paper, &c.

At Amſterdam they diſtinguiſh three kinds of *bargains*.

BARGAINS, *conditional*, for goods which the ſeller has not yet in his poſſeſſion; but which he knows have been bought for him by his correſpondents abroad, and which he obliges himſelf to deliver to the buyer, on their arrival, at the price and the conditions agreed on.

BARGAIN, *firm*, that wherein the ſeller obliges himſelf to deliver to the buyer a certain quantity of goods, at the price and in the time agreed on.

BARGAINS, *optional*, thoſe wherein a dealer obliges himſelf, in conſideration of a *premium* received in hand, either to deliver or take a certain quantity of goods at a fixed price, and within a time limited; but with a liberty, nevertheleſs, of not delivering, or not receiving them, if they think proper, upon forfeiture of their *premium*.

BARGAINS, *forfeited*, are thoſe wherein goods are bought or ſold, in order to be delivered at a certain time afterwards, ſome part of the price being advanced.

BARGE, a kind of ſtate, or pleaſure-boat, or large luggage-boat, uſed chiefly in the navigation of rivers, which lead to great cities.

Barges are of various kinds, and acquire various names, according to the variety of their uſes and ſtructures: as,

A company's barge,	*A Severn trow*,
A navy barge,	*A Ware barge*,
A royal barge,	*A lighter horſeman*,
A ſand barge,	*A Weſt-country barge*.

A *barge* differs from a bark, as being ſmaller, and uſed only on rivers; whereas the latter goes out to ſea.

There are alſo *barges* belonging to men of war, ſerving to carry generals, admirals, and chief commanders.

BARGE-*courſe* is uſed by workmen, to ſignify a part of the tiling, which projects over the gable of a building, and is made up with mortar.

BARGE, in *Ornithology*, a name uſed by ſome authors for the *godwit*, or, as it is called in ſome places, the *ſtone-plover*, the ŒDICNEMUS.

BARGH, is uſed in ſome places of England for a ſteep horſe-way up a hill.

It ſeems to come from the German *bargh*, *a hill*.

BARGH-*maſter*, BARMER, or BAR-*maſter*, in the *Royal Mines*, the ſteward or judge of the BARGHMOTE.

The word is formed of the German, *berg-meiſter*, q. d. *maſter of the mines*.

The *bar-maſter* is to keep two great courts of barmote yearly, and every week a ſmall one, as occaſion requires.

BARGHMOTE, or BARMOTE, a court which takes cognizance of cauſes and diſputes between miners.

Some ſuppoſe it thus called from a *bar*, at which the ſuitors appear; others, with more probability, derive the word from the German *berg*, *a mine*.

By the cuſtom of the mines, no perſon is to ſue any miner for ore-debt, or for ore, or for any ground in variance, but only in the court of *barmote*, on penalty of forfeiting the debt, and paying the charges at law.

BARILLARIUS, an ancient officer in monaſteries and great houſeholds, who had the care of the caſks and veſſels of wine, &c. in the cellars.

BARILLIA, or BARIGLIA, in the *Glaſs Trade*, a ſort of pot-aſhes imported from Spain, inferior in goodneſs to that of the Levant, called *potverine* when looſe, ſmall, and in powder, and *rochetta* when in hard, rocky lumps. The frit made of theſe makes fine and clear cryſtal glaſs, eſpecially that from the *rochetta*, or the *potverine* in lumps; but the *barillia* of Spain, though it be uſually fatter, yet makes not a glaſs ſo white, but uſually inclining a little to a bluiſh colour.

BARING *of trees*, in *Agriculture*. ſee ABLAQUEATION.

BARITONO, in *Muſic*, denotes a voice of low pitch, between a tenor and baſs.

BARK, the exterior part of trees, ſerving them for a ſkin, or covering.

In *Writers of the Laſt Age*, this is ſometimes alſo called *boſt*. Vide 15 Car. II. c. 2.

The *bark* of trees in general is of a ſpongy texture, and, by many little fibres which paſs through the capillary tubes, whereof the wood conſiſts, it communicates with the pith; ſo that the proper nutriment of the tree, being imbibed by the roots, and carried up through the fine arterial veſſels of the tree, by the warmth of the ſoil, &c. to the top of the plant, is uſually ſuppoſed to be there condenſed by the cold air, and in that form returns by its own gravity down the veſſels, which do the office of veins, lying between the wood and inner *bark*; leaving, as it paſſes by, ſuch parts of its juice as the texture of the *bark* will receive, and requires for its ſupport. See CIRCULATION *of ſap*.

That ſoft whitiſh rind or ſubſtance between the inner *bark* and the WOOD, which Mr. Bradley thinks to do the office of veins, ſome account a third *bark*, only differing from the others in that its fibres are cloſer; it is this contains the liquid ſap, gums, &c. found in plants in the ſpring and ſummer months. It hardens by little and little, by means of the ſap it tranſmits, and is converted imperceptibly into the woody part of the tree. There are few trees without it; yet it is ſtill found in leſs quantity as the tree is more expoſed to the ſun: that of the oak is ordinarily about an inch thick. It is here that the corruption of trees generally begins: whence thoſe who fell and cut out trees, ought always to take care to leave as little of it on as poſſible.

The *bark* of roots is ſometimes yellow, as in dock; ſometimes red, as in biſtort; but ofteneſt white. It is derived from the ſeed itſelf, being only the extenſion of the *parenchyma* of the radicle. It is variouſly fixed, being ſometimes very thin, as in the Jeruſalem artichoak, and in moſt trees. Sometimes it is thicker, and makes the greater part of the ſubſtance of the root, as in aſparagus and dandelion. In beet-root, the *bark* ſcarce exceeds a good thick ſkin; whereas in a carrot, it is half the ſemidiameter of the root, being in ſome places above an inch over. This too is found common to the generality of roots, that their *barks* are proportionably thicker at bottom than at top.

The inner part of the *bark*, we have obſerved, annually lignifies, or turns to wood: the *bark* of a tree is found each year to divide and diſtribute itſelf two contrary ways: the outer part gives towards the ſkin, till it becomes ſkin itſelf, and at length falls off, like the ſcales or dandriff of our body, or the *exuviæ* of ſerpents; while the inmoſt portion is yearly diſtributed and added to the wood.

The *bark* is found truly continuous to the body of a tree, as the ſkin of our body is to the fleſh; contrary to the common opinion, which imports, that the *bark* only ſurrounds

surrounds the tree, as a scabbard does a sword, or a glove the hand; which seems confirmed by the eafy flipping of the bark of willow, and moft other trees, when full of fap, from the wood. Their continuity is effected by means of the *parenchyma*, which is one entire body, running from the *bark* into the wood, and thus uniting both together. The reafon why the *bark* flips fo eafily from the wood is, that moft of the parenchymous parts are young veffels, formed every year fucceffively between the wood and the *bark*, and are much in the condition of the tender veffels or fibres of the embryos in a womb, or egg: a thoufand of which are broke with the fmalleft force That trees only live by the afcent of the fap in or between the *bark* and the wood, and that if a circle be drawn round any tree (except, perhaps, afh) by incifion to the timber, how thin foever the knife be, provided no part of the thickneſs of the *bark* remain uncut, the tree will die from that part upwards, has been the ſtanding doctrine of naturaliſts of all ages, and is delivered for fact by Pliny, and others. Dr. Plott aſſerts this to be a popular error, from the inſtance of a large old elm in Magdalen-college grove, quite diſbarked around, at moſt places two feet, at ſome four feet, from the ground, which yet grew and flouriſhed many years, as well as any tree in the grove. Beſides, it was entirely without pith, being hollow within as a drum: and the ſame is confirmed from the hiſtory of the elm in the Thuilleries, related by M. Parent, which lived, and put out leaves, though entirely ſtripped of *bark* from top to bottom. Add, that the plane and cork trees diveſt themſelves yearly of all their old *bark*, and acquire a new one, as ſnakes do their ſkins: and in the change from one to the other, it is evidently not by the bark that they are nouriſhed. Some infer from hence, that the *bark* never feeds the WOOD. Dr. Plott is more reſerved in his concluſion, arguing only, that hence it ſeems to follow, that there muſt be other veſſels, beſides the ſap-veſſels of the *bark*, capable of the office of conveying ſap. It is probable when the ordinary conveyance fails, ſome of the woody part, which had all once been ſap-veſſels, reſumes its ancient office; or, as the author laſt mentioned conjectures, they ſtill ſo far retain their office of conveying ſap, as to keep a tree alive, though not to augment it; which may, perhaps, be one different uſe of thoſe ſap veſſels in the wood from thoſe in the *bark*, the former being ſufficient for the continuation of a tree, and the latter ſerving only for its augmentation. Plin. Hiſt. Nat. lib. xvii. c. 24. Phil Tranſ. N° 43. Hiſt. Acad. Scien. 1709, and 1711. Plott's Nat. Hiſt. Oxf. chap. vi. § 65.

M. Brotherſton has given ſome new experiments, which ſeem to decide the controverſy, and ſhew, that the *bark* is not the veſſels of vegetation. He barked a cherry-tree round with a hatchet, quite beſides cutting off the *bark*, to cut pretty deep into the wood, for the breadth of about four inches; yet the ſame year it was obſerved to increaſe very conſiderably in thickneſs above the ſaid barking, and to ſhoot in length of wood about one foot: the next year it alſo grew conſiderably, and ſhot in length five inches: the third year it died to the very root. The like was found in another tree, part of whoſe *bark* was cut off by the canker; the lower part ſhoot without increaſe, and by degrees the wood rotted: the upper part increaſed to the third year, and then died alſo.

The ſame author found, that, in the branches of Scotch fir, the joints above the rings *barked* would grow much bigger in three years than in five, if the rings were not cut off. A ring of *bark* three inches broad being cut off a Scotch fir, near the bottom of the ſtem, below the uppermoſt knot or joint, it was found to grow and ſhoot out at its top half a yard, and all the parts above the ring to increaſe in thickneſs the ſame year, much more than they would have done, had not the ſection been made; but all the part of the ſtem between the ring and the next knot below it grew not at all: the part below the ring next under that increaſed ſomewhat, though leſs than it would have done if the *bark* had not been cut off. The ſecond year the increaſe was alſo conſiderable; but the third it died. Phil. Tranſ. N° 185.

M. Magnol mentions an olive tree, from which a circular ring of *bark* being cut away, the tree that year bore, above the place of inciſion, double the quantity of flowers and fruit which it uſed to bear. Mr. Reneaume relates a fact near a-kin to this. In the country about Aix and Marſeilles, when an olive tree grows old, and almoſt ready for felling, they have a method of making it firſt yield all the fruit which it is capable of producing, by cutting a ſimilar ring of *bark*, an inch broad, from one of its young branches, and in its place putting an equal ring of *bark* taken from the branch of a young bearing olive-tree; the effect of this engraftment is, that the branches of the old tree bear plentifully the enſuing year, and thoſe of the young one die away. Hiſt. Acad. Sc. 1711.

From the whole, Mr. Brotherſton concludes, that the ſap moſt of it, if not all, aſcends in the veſſels of the woody part, and not by the *bark*, nor between the *bark* and the wood. Phil. Tranſ. N° 187. p. 312.

Mr. Leewenhoeck, on the other hand, has given ſeveral experiments and obſervations with the microſcope to ſhew that the *bark* of trees is produced from the wood, and not the wood from the *bark*. Philoſ. Tranſact. N° 202.

It is very remarkable, that trees ſtripped in the time of the ſap, and ſuffered to die, afford timber heavier, more uniformly denſe, ſtronger and fitter for ſervice, than if the tree had been cut down in its healthy ſtate. Some thing of a like nature has been obſerved by Vitruvius and Evelyn. Mem. Acad. Science. 1738.

As animals are furniſhed with a *panniculus adiposus*, uſually replete with fat, which inveſts and covers all the fleſhy parts, and ſcreens them from external cold: plants are encompaſſed with a *bark* replete with fatty juices by means whereof the cold is kept out, and in winter-time, the *ſiticulæ* of ice prevented from ſtiffing and freezing the juices in the veſſels: whence it is, that ſome ſort of trees remain ever green the year round; becauſe their *barks* contain more oil than can be ſpent and exhaled by the ſun, &c. Ray's Wiſd. of God, &c. part i. p. 103.

Boerhaave mentions eight different ſpecies of juices lodged in the *bark*, viz. the watery ſap or chyle, an oil, balm, pitch, reſin, colophony, gum, and gummous reſin.

The *bark* has its peculiar diſeaſes, and is infected with inſects peculiar to it. Moſs is a diſeaſe of the *bark*. Wounds of the *bark* often prove mortal. See CANKER.

Of the *bark* of willows and linden trees is ordinarily made a kind of ropes. The Siameſe make their cordage of the *bark* of the cocoa tree, which is alſo the caſe in moſt of the Aſiatic and African nations. In reality, flax and hemp, with all their toughneſs, are only the ſap-veſſels, or ligneous fibres of the *bark* of theſe plants.

There are a great many kinds of *bark* in uſe in the ſeveral arts: ſome in *Medicine*, as the QUINQUINA, or JESUIT'S *bark*, *mazer*, *chacorilla*, &c. others in *Dying*, as the *bark* of the alder; others in *Grocery*, as CINNAMON, *caſſia lignea*, &c. the *bark* of oak in *Tanning*; others on other occaſions, as *cork*; that of a kind of birch is uſed by the Indians for canoes, capable of holding twenty-four perſons.

The ancients wrote their books on *barks*, eſpecially thoſe of the aſh, and *tilia* or lime-tree; ſome on the exterior or outer *bark*, but on the inner and finer, called *phloios*; which are of ſo durable a texture, that there are manuſcripts on it, ſtill extant, a thouſand years old.

In the Eaſt Indies they manufacture the *barks* of a certain tree into a kind of ſtuff or cloth. It is ſpun and dreſſed much after the manner of hemp. The long filaments ſeparated from it, upon beating and ſteeping it in water, compoſe a thread, of a middle kind between ſilk and common thread; neither ſo faſt nor bright as ſilk, nor ſo hard or flat as hemp. See Neumann's Works, p. 428. note. Some of theſe ſtuffs are pure *bark*, and are called pinaſſes, biambonnes, &c. In others they mix ſilk with the *bark*, and call them ginghams and allaas: the fountainguees too are part ſilk, part *bark*, and are only diſtinguiſhed by being ſtripped.

Bark alſo makes a good manure, eſpecially that of oak, which is rich in ſalt; but the better ſort is reſerved for tanning.

BARK, *Indian*, *Thuris cortex*, a medicinal *bark*, brought from the Eaſt, rolled up like cinnamon, of a ruſty colour, a warm aromatic, bitter taſte, and pleaſant ſmell; ſometimes uſed in fumigation againſt fits of the mother.

BARK-*mill*, ſee MILL.

BARK, *grafting*, ſee ENGRAFTING.

BARK, in *Navigation*, denotes a little veſſel for the ſea, uſually with pointed or triangular ſails, in number two, or three at the moſt. The term is uſually appropriated by ſeamen to thoſe ſmall ſhips which carry three maſts without a mizen-top-ſail. Our northern mariners in the continuance, apply the term to a broad-bottomed ſhip, which carries no ornamental figure on the ſtem or prow.

The word is derived by ſome from the Latin *barca*; Feminicr, from *Barca*, a city in Africa; and Tolerianus, from *Barcelona*.

Some authors uſe the word *bark* for any veſſel that has no maſts.—Of *barks*, there are various kinds: as,

A lighter,	*A ſkiff*,
A ſkit,	*A ſkuff*,
A ſcow,	*A ſcuffer*.

BARK, *wood*, a kind of fire-ſhip, filled with combuſtibles, uſed both for making ſallies, and to attack galleries, and bar the paſſage over them.

BARK, *long*, is a ſmall veſſel without deck, longer and lower than the common *barks*, being ſharp before, and

commonly going both with ſails and oars. It is built after the manner of a ſloop, and in many places is called a *double ſloop*.

BARKE, *water*, are little veſſels uſed in Holland for the carriage of freſh water to places where it is wanted, as well as for the fetching of ſea-water to make ſalt of. They have a deck, and are filled with water up to the decks.

BARK-*binding*, a diſtemper incident to trees, cured by ſlitting the *bark*, or cutting it along the grain, viz. in apple-trees by cutting ſtraight down.

BARK *galling*, is when trees are galled by thorns, or by being bound to ſtakes, &c. It is cured by clay laid on the galled place, and bound on with hay.

BARKARY, denotes a tan-houſe, or place to keep *bark* in, eſpecially for tanners.

It is otherwiſe called a *heath houſe* in old writers.

BARKING *of trees* is the peeling off or ſtripping the bark from the wood.

The month of May is the ſeaſon for *barking of trees*, becauſe then the ſap looſens the bark from the wood; which it is very hard to effect at any other time, unleſs the ſeaſon be very wet; heat and dryneſs being always oppoſite thereto.

Maliciouſly *barking* of apple-trees, or other fruit-trees, is made felony by 37 Hen. VIII. c. 6.

By the French laws, all dealers are forbid to bark their wood while growing, on the penalty of 500 livres.

This law was the reſult of ignorance; it being now found, that *barking* of trees, and letting them die, increaſes the force of timber.

BARKING is alſo a name given to the cry of dogs and foxes.

The term is alſo applied to certain quaint noiſes, made by ſick perſons in ſome diſeaſes.

In cynic ſpaſms, and epileptic fits, the patient ſometimes ſnarls, howls, and barks, with all the notes of a dog. But it is in the *hyperſphalia* that barking has been oftneſt obſerved: perſons ſeized with this, are apt to rave, bite, fruct, and make a hiſſing noiſe in their throats, which is called *barking*.—Vide Phil. Tranſ. N° 280. N° 323. N° 367. and N° 242.

BARLAAMITES, in *Church Hiſtory*, the followers of a Calabrian monk, afterwards biſhop of Emont, the great opponent of Greg. Palama and the Heſychaſts. Fabr. Bib. Græc.

The *Barlaamites* are the ſame with thoſe otherwiſe denominated *Acindynites*.

BARLERIA, in *Botany*, a genus of plants of the *didynamia angiſpermia* claſs; called by the inhabitants of Jamaica, *ſnap-dragon*. The characters are, that the flower is nearly of the lip-kind, of one leaf, funnel-ſhaped, and divided into five parts at the top: that it hath four ſlender *ſtamina*, two ſhort, and two longer: that an oval *germen* is placed in the centre, which afterwards becomes an oblong membranaceous veſſel, with two cells, which is very elaſtic containing two roundiſh compreſſed ſeeds. There are four ſpecies.

BARLEY, in *Botany*, a gramineous, frumentaceous herb, whoſe ſeeds are of the larger ſort, being covered with a huſk growing in a ſpike, and the grains bearded.

Barley, through neglect and poverty, is ſaid to degenerate into oats and darnel. Dr. Plott ſpeaks of *barley* and rye growing in the ſame ear alternately.

The principal uſe of *barley* among us is for making beer, in order to which it is firſt malted.

Barley has alſo its medicinal virtues, in which it reſembles oats: the wort of malt is an excellent antiſcorbutic.

All the ſorts of *barley* are ſown in the ſpring of the year, in dry weather; in ſome very dry light land, it is ſown early in March, but in ſtrong clayey ſoils, it is not ſown till April, and ſometimes not until the beginning of May; but when it is ſown ſo late, if the ſeaſon doth not prove favourable, it is very late in autumn before it is fit to mow; unleſs it be the rath ripe ſort, which is often ripe in nine weeks from the time of ſowing. Some have ſteeped the ſeed before it is ſown.

Some people ſow *barley* upon land where wheat grew the former year; but where this is practiſed, the ground ſhould be ploughed the beginning of October, in a dry time laying it in ſmall ridges, that the froſt may mellow it the better; which will improve the land greatly; and if it can be ploughed again in January, or the beginning of February, it will break and prepare the ground better. In March it ſhould be ploughed again deeper, and be laid even where it is not very wet: but in ſtrong wet land the ground ſhould be laid round and the furrows be made deep to receive the wet. When this is finiſhed, the common method is to ſow the *barley*-ſeed with a broad caſt at two ſowings, the firſt being harrowed in once, the ſecond is harrowed until the ſeed be buried. The common allowance of ſeed is four buſhels to an acre.

After the *barley* is ſown and harrowed in, the ground ſhould be rolled after the firſt ſhower of rain, to break the clods and lay the earth ſmooth; which will render it better to mow the *barley*, and alſo cauſe the earth to lie cloſer to the roots of the corn, which will be of great ſervice to it in dry weather.

Where *barley* is ſown upon new broken up land, the uſual method is to plough up the land in March, and let it lie fallow until June, at which time it is ploughed again, and ſown with turneps, which are eaten by ſheep in winter, by whoſe dung the land is greatly improved; and then in March following the ground is ploughed again, and ſown with *barley* as before.

There are many people who ſow clover with their *barley*; and ſome have ſown lucern with it; but neither of theſe methods is to be commended: for where there is a good crop of *barley*, the clover or lucern will be ſo weak as not to pay for ſtanding. The better way is to ſow the *barley* alone, and then the land will be at liberty for any other crop when the *barley* is taken off the ground. The clover has been ſometimes ſown a month after the *barley*, and found to anſwer very well.

When the *barley* has been up three weeks or a month, it will be a very good method to roll it with a heavy roller, which will preſs the earth cloſe to the roots, and keep the ſun from penetrating the ground in dry ſeaſons: and this rolling if before it ſtalks will cauſe it to ſend out a greater number of ſtalks; ſo that if the plants ſhould be thin, this will cauſe them to ſpread ſo as to fill the ground, and likewiſe ſtrengthen the ſtalks.

The time of cutting of *barley* is when the red colour of the ears is off, when the ſtraw turns yellow, and when the ears begin to hang down. In the north of England they always reap their *barley*, and make it up into theaves, as is practiſed here for wheat; by which method they do not loſe near ſo much corn, and it is alſo more convenient for ſtacking: but this method cannot be ſo well practiſed where there are many weeds among the corn, which is too frequently the caſe in the rich lands near London, eſpecially in moiſt ſeaſons. Therefore when this is the caſe, the *barley* muſt lie on the ſwarth till the weeds are dead: but as it is apt to ſprout in wet weather, it muſt be ſhook up and turned every fair day after rain to prevent it. When it is carried it ſhould be thoroughly dry, for if it be ſtacked wet, it will turn muſty; and if too green, it is ſubject to burn in the mow.

The common produce of *barley* is two and a half, or three quarters, on an acre; but a much greater produce is ſometimes found. Laws relating to *barley*, ſee HORDEUM and WHEAT-

Pearl BARLEY, and *French* BARLEY: theſe are *barley* freed of the huſk by a mills the diſtinction between the two being that the *pearl barley* is reduced to the ſize of ſmall ſhot, all but the very heart of the grain being ground away.

BARLEY *water* is a decoction of either of theſe, reputed ſoft and lubricating, of frequent uſe in phyſic.

This well-known decoction is a very uſeful drink in many diſorders: and is recommended, with nitre, by ſome authors of reputation, in flow fevers.

There is a diſſertation of Hoffman's De Cura Avenacea.

BARLEY-*corn* is uſed to denote a long meaſure, containing in length the third part of an inch, and in breadth the eighth.

The French carpenters alſo uſe *barley-corn*, *grain d'orge*, as equivalent to the line, or the twelfth part of an inch.

BARLEY-*corn*, *grain d'orge*, is alſo uſed, in *Building*, for a little cavity between the mouldings of joiner's work, ſerving to ſeparate or keep them aſunder; thus called becauſe made with a kind of plane of the ſame name.

BARLEY-*ſugar*, ſee SUGAR.

BARM, otherwiſe called YEAST, the head or workings produced by the fermentation of ale or beer. It is the froth that forms on the ſurface of beer or wine of grains during their fermentation; which mixed with dough, raiſes it more quickly and better than LEAVEN, and makes the lighteſt bread.

BARMINE denotes ſuch mine or ore, as is adjudged at a court of BARGHMOTE.

BARN, in *Huſbandry*, a covered place or houſe, with air-holes in the ſides, for laying up any ſort of grain, hay, or ſtraw.

BARNABITES, an order of religious, thus called from the church of St. Barnabas at Milan, where they were firſt eſtabliſhed; and not, as ſome have imagined, becauſe St. Barnabas was their patron: in reality, St. Paul is the patron of the *Barnabites*.

The *Barnabites* are regular prieſts of the congregation of St. Paul. Their habit is black, and the ſame with what they

they wore when firſt eſtabliſhed, in 1533, by the expreſs bulls of pope Clement VII. and afterwards confirmed by Paul III. Their office is to inſtruct, catechize, and ſerve in miſſions.

BARNACLE, in *Natural Hiſtory*, a bird of the gooſe kind, frequent in the Weſtern iſles of Scotland; concerning whoſe origin and ſpecies many fables have been advanced.

The word is alſo written *barnacle*, agreeably to its ſuppoſed etymon, from the Saxon *bearn*, *a child*.

Several authors have repreſented the *barnacle* as the product of a marine animal, or ſhell-fiſh: but the latter naturaliſts, on better grounds, refer it to the natural manner of generation of the feathered kind; making it a real gooſe, produced like others *ab ovo*. See a deſcription and draught of it in Sir Rob. Sibbald's Nat. Hiſt. Scut.

The *barnacle* is the ſame with what is otherwiſe called the *Soland gooſe*, in Latin *anſer Scoticus*; ſome will have it the ſame with the French *macreuſe*, or *macreuſe*; and others with the *diable de mer*, but erroneouſly: Dr. Robinſon aſſigns the difference, making the *barnacle* to be of the gooſe, the *macreuſe* of the duck, and the *diable de mer* of the moor-hen kind.—The ſame author holds, that the *macreuſe* is no other than the *ſcoter*, or *anas niger minor*, deſcribed by Mr. Ray and Mr. Willughby, contrary to the opinion of M. Cattier, who took it for the greater *coot* of Bellonius: and alſo of others, who miſtook it for the *puffin* of the Scillies, and Ile of Man; and of others, with whom it paſſed for a ſort of *columbus* or *dowter*. See Ray Syn. Meth. Avium, p. 141.

BARNACLE is alſo a name given to a kind of ſhell-fiſh, which is found cleaving to the bottoms and ſides of ſhips in certain ſeas; ſometimes alſo to the fins and tails of whales, and the like.

In this ſenſe, *barnacle* is the ſame with what is called by ſailors *clam*; by naturaliſts, *concha anatifera*.

There are divers ſpecies of ſhell-fiſhes included under the denomination *barnacles*: ſome reduce them to two, *viz.* the *balanus* and *pinna marina*.

See an account of ſeveral rare ſpecies of *barnacles*, by John Ellis, Eſq. Phil. Tranſ. vol. 50. part ii. N° 113.

BARNACLES, in *Farriery*, alſo denote an inſtrument which farriers apply to horſes noſes, when they will not ſtand quietly to be ſhod, bloodled, dreſſed, or the like. They are alſo called *horſe-twitchers*, *or brakes*.

Barnacles differ from pinchers, as the latter have handles whereby to hold them; whereas the former are faſtened to the noſe with a lace or cord.

There is another meaner ſort of *barnacles*, uſed in defect of the former, called *taller barnacles*, or *wood-twitchers*, which are only two rollers of wood bound together, with the horſes noſe between them.

BARNFIARD, in *Ornithology*, the name of a bird uſually ſeen at ſea, and looked on as a foreteller of bad weather. It is about the ſize of a ſparrow, its neck and back are black, and its breaſt and belly grey; its feet are red, and its bill black and ſomewhat broad. It ſkims very nimbly along the ſurface of the water.

BAROCO, in *Logic*, denotes the fourth mode of the ſecond figure of ſyllogiſms.

A ſyllogiſm in *baroco* has the firſt propoſition univerſal and affirmative, but the ſecond and third particular and negative; and the middle term, the attribute in the two firſt.—For example:

BA	*Every virtue is attended with diſcretion:*
RO	*Some kinds of zeal are not attended with diſcretion:*
CO	*Therefore ſome kinds of zeal are not virtues.*
BAR	*Nullus homo non eſt bipes:*
OC	*Non omne animal eſt bipes:*
O	*Non omne animal eſt homo.*

BAROMETER, a machine for meaſuring the weight of the atmoſphere, and the variations therein, in order chiefly to determine the changes of weather, and the heights of mountains, &c. to which uſe it was firſt applied by M. Paſcal, in leſs than four years after the invention of it.

The word is compounded of *βαρος*, *weight*, and *μετρον*, *meaſure*.

The *barometer* is frequently confounded with the *baroſcope*, though ſomewhat improperly; the latter in ſtrictneſs being a machine that barely ſhews an alteration in the weight of the atmoſphere: but it is one thing to know that the air is heavier at one time than another, and another to meaſure how much that difference is; which is the buſineſs of the *barometer*.

The *barometer* is founded on the Torricellian experiment, as it is called from its inventor TORRICELLI, in 1643; which is no more than a glaſs tube filled with mercury, hermetically ſealed at one end; the other open and immerged in a baſon of ſtagnant mercury. Now, as the weight of the atmoſphere, nimmiſhes, the mercury in the tube will here deſcend; on the contrary, as it increaſes, the mercury will again aſcend: the column of mercury ſuſpended in the tube being always equal to the weight of the incumbent atmoſphere.

BAROMETER, *common, the conſtruction of it.*—A glaſs tube AB (*Tab. Pneumatics, fig.* 1.) hermetically ſealed in A, having its diameter about one tenth of an inch, and its length, at leaſt, thirty one inches, is filled with mercury ſo juſtly, as not to have any air over it, nor any bubbles adhering to the ſides of the tube; which is beſt done by means of a glaſs funnel, with a capillary tube. If a ſmall bubble of air be moved backwards and forwards in the tube, it will help to clear the mercury, which will appear, when pure, like a poliſhed rod of ſteel. The orifice of the tube, filled after this manner, ſo as to overflow, is then cloſely preſſed by the finger, ſo as to exclude any air between it and the mercury, and thus immerged in a veſſel of a convenient diameter, ſo, however, as not to touch the bottom: at the diſtance of twenty-eight inches from the ſurface of the mercury are fixed two plates, CE, and DF, divided into three inches, and theſe again ſubdivided into any number of ſmall parts. Laſtly, the tube is incloſed in a wooden frame, to prevent its being broken; the baſon, though open to the air, ſecured from duſt; and the *barometer* is complete.

As the common *barometer* is the beſt, and moſt to be depended upon in accurate obſervations, it may be proper to add ſome directions for preparing it; they are collected from the obſervations of Muſchenbroeck, Delaguliers, and De Luc on this ſubject. It appears from many experiments, that the mercury ſtands higher in tubes of a larger than in thoſe of a narrower bore; and therefore when obſervations are made with different *barometers*, ſome regard ſhould be paid to the difference of their diameters; and it would be deſirable to have them conſtructed of tubes of the ſame diameter. The bore of the tube ſhould be large, in order to prevent the effects of the attraction of coheſion; not leſs than one fourth of an inch; but if they are one third of an inch diameter, they are better. If a ciſtern be uſed as a reſervoir for the ſtagnant mercury, it ſhould be large in proportion to the diameter of the tube, at leaſt ten times greater. The tube ſhould be preſerved free from duſt till it is uſed; and for this purpoſe it may be hermetically ſealed at both ends, and one end may be opened with a file, when it is filled. If this precaution has not been obſerved, the inſide ſhould be well cleanſed, by waſhing it with alcohol highly rectified, and rubbing it with a little piſton of ſhammy leather faſtened to a wire. The mercury ſhould be pure; and may be purged of its air, by previouſly boiling it in a glazed earthen pipkin covered cloſe; and when the tube has been uniformly heated and rendered electrical by rubbing it, the hot mercury ſhould be poured into it in a regular current, through a glaſs funnel with a long capillary tube, ſo that the air may not have room to paſs between the pores of the quickſilver. *M.* de Luc directs, as Mr. Orme had practiſed many years ago in the conſtruction of his improved *diagonal barometers*, that the mercury ſhould be boiled in the tube, as the moſt effectual method of purging it of its air and moiſture. The proceſs is briefly this: he chuſes a tube of 2½ lines or 3 lines bore, and not exceeding half a line in thickneſs; he fills it with mercury within two inches of the top, and holds it with the ſealed end loweſt in an inclined poſition over a chafing-diſh of burning charcoal, preſenting firſt the ſealed end to the fire, and moving it obliquely over the chafing-diſh. As the mercury is heated, the air-bubbles appear like ſo many ſtuds on the inner ſurface of the tube, and gradually running into one another, aſcend towards the higher part of the tube, and at length eſcape. The mercury is hereby freed from all the heterogeneous particles contained in it, together with their ſurrounding atmoſpheres, and the air which lines the inſide of the tube, which cannot be eaſily expelled in any other way, is diſcharged; when this laſt mentioned ſtratum of air is thus expelled, the tube may be afterwards emptied, and filled even with cold mercury, and will be found nearly as free from air as before. The mercury in the tubes thus prepared by a determinate quantity of heat, will riſe higher than in thoſe of the common ſort, and the *barometers* will more nearly correſpond with each other; whereas there will be a difference of ſix or eight lines in the aſcent of the mercury in common *barometers*.

Barometers of this kind roſe uniformly in a heated room; whilſt the mercury in thoſe that had been prepared in the common way deſcended, and in different proportions. When the room cooled, the former deſcended uniformly, and correſponded with each other; the latter roſe with the

the ſame irregularity with which they had before deſcended, nor were they found at the cloſe of the experiment, to ſtand at the ſame relative heights as they did at the beginning of it. The reaſon of which is obvious, from the effects of heat on the air remaining in unequal quantities in the tubes in the one caſe, and on the pure mercury in the other.

M. De Luc has alſo contrived to eſtimate the effects of heat on the quickſilver in the *barometer*, when it is uſed for accurate obſervations, by means of a thermometer; the ſcale of which is divided in ſuch a manner as to indicate, with little labour of calculation, the correction to be made on account of heat. As an increaſe of heat that is ſufficient to raiſe the mercury in the thermometer from the freezing to the boiling point, will lengthen the column of mercury in the *barometer* ſix lines, he divides each line in the ſcale of the *barometer* into four parts, each of which may be eaſily ſubdivided into four more parts, or ſixteenths of a line. The ſcale of a thermometer marking the interval between the freezing and boiling points, and anſwering to the ſix lines of the *barometer*, is divided into ninety-ſix equal parts; each of which will correſpond to the ſixteenth of a line in the motion of the mercury in the *barometer* dilated by heat. M. De Luc prepared two *barometers* with their reſpective thermometers graduated in the manner above explained; he placed one pair in the cellar of one houſe, and the other pair in the upper room of another houſe in a lower ſituation, ſo as to be exactly on a level with the cellar: he found that the thermometer in the room roſe nine degrees, and the *barometer* $\frac{7}{16}$ of a line higher than thoſe in the cellar; whence he ſhews, that, without allowing for the effect of heat, the difference in the heights of theſe two *barometers* would have indicated a difference of about 45 feet in the heights of theſe two places, though they were exactly on the ſame level. See ATMOSPHERE.

M. Pitt, an artiſt in Holland, has made an improvement in the reſervoir of the ſimple *barometer*, by means of which, the mercury contained in it is conſtantly kept at the ſame level; but the conſtruction is difficult, and therefore it has not been generally adopted. De Luc's Recherches, &c. vol. i. p. 35.

The *barometer* has been rendered more convenient for carriage, and leſs expenſive, by bending the lower end of the tube in form of a ſyphon, and leaving the mercury in the recurved part open to the preſſure of the atmoſphere: and *barometers* of this conſtruction are preferred by M. De Luc, as being the moſt favourable for indicating the real weight of the atmoſphere, and correſponding invariably with each other. But he acknowledges, that this is not ſo convenient for a ſtationary *barometer*, and for the common purpoſes of a weather-glaſs. The ſcale is hereby diminiſhed one half, and therefore this part was afterwards made conſiderably larger in diameter than the tube, ſo that the variations in the tube might be attended with *no* ſenſible variations in this part.

Many attempts have been made to render the changes in the *barometer* more ſenſible, and ſo to meaſure the atmoſphere more accurately; which has given riſe to a great number of *barometers* of different ſtructures.—Hence the *tubed barometer*, *diagonal barometer*, *horizontal barometer*, *pendant barometer*, &c.

Des Cartes ſuggeſted the firſt method of increaſing the ſenſibility of the *barometer*, though he did not live to execute it. He propoſed a tube AB (*fig.* 2.) about twenty-ſeven inches long, terminating in a cylindric veſſel CD; one half of which veſſel, connected above with a long tube of a very ſmall bore, ſealed at top, and exhauſted of its air, was to be filled with water extending up into the ſmall tube; the other part of the veſſel, and the lower part of the tube, were to be filled with mercury. Whenever the mercury roſe in the cylinder, it would force up a proportional quantity of water into the narrow tube, where it would have a conſiderably larger range than that of the mercury in the cylinder: neglecting the weight or preſſure of the water, the motion of the water and of the mercury would be in the inverſe ratio of the ſquares of the diameters of the veſſels containing them. But the water preſſes on the mercury according to its height; and therefore if the whole range of the mercury in the cylinder, or in a common *barometer*, were ſuppoſed to be two inches, the ſpecific gravity of water to that of mercury as 1 to 14, and the difference between the diameters of the cylinder and tube a *maximum* or infinite, then the entire ſcale of variation of this inſtrument would be twenty-eight inches; or the extent of this ſcale would be to that of the common *barometer* in the inverſe ratio of the ſpecific gravity of water to that of mercury. It is evident that, in practice, it would be ſomewhat leſs than twenty-eight inches. Huygens conſtructed a *barometer* of this kind.

But here, though the column ſuſpended was larger, and conſequently the variation greater, yet the air impriſoned in the water getting looſe by degrees, filled the void ſpace in the top, and ſo ruined the machine.

Huygens then bethought himſelf of placing the mercury at top, and the water at bottom, in the manner following: ADG (*fig.* 3.) is a bent tube hermetically ſealed in A, and open in G; the cylindric veſſels BC and FE are equal, and about twenty-nine inches apart; the diameter of the tube is about a line, that of each veſſel fifteen lines, and the depth of the veſſels is about ten; the tube is filled with mercury (the common *barometer* ſtanding about twenty-nine inches) which will be ſuſpended between the middle of the veſſel FE, and that of the veſſel BC; the remaining ſpace to A being void both of mercury and air; laſtly, common water, tinged with a ſixth part of *aqua regia*, to prevent its freezing, is poured into the tube FG, till it riſes a foot above the mercury in DF.

When the mercury riſing above the level of that contained in FE, through the tube AD, becomes a balance to the weight of the atmoſphere; as the atmoſphere increaſes, the column of mercury will increaſe, conſequently the water will deſcend; as the atmoſphere again grows lighter, the column of mercury will deſcend, and the water aſcend. This *barometer*, therefore, which is nearly the ſame with that of Dr. Hooke, will diſcover much minuter alterations in the air than the common one: for, inſtead of two inches, the fluid will here vary two feet; and by enlarging the diameters of the cylinders, that variation may be ſtill increaſed: but it has this inconvenience, that the water will evaporate, and ſo render the alterations precarious; though the evaporations be, in ſome meaſure, prevented by a drop of oil of ſweet almonds ſwimming at top: the colour of water will likewiſe be ſenſibly affected by heat and cold.—On account of theſe and ſuch defects, others have had recourſe to a

BAROMETER, *horizontal*, or *rectangular*, ABCD (*fig.* 4.) the tube whereof is bent in form of a ſquare BCD; at top of its perpendicular leg it is joined to a veſſel or ciſtern AB; and its variations accounted on the horizontal leg CD.

Now here the interval, or ſpace of variation, may be made of any extent at pleaſure, and ſo the minuteſt change in the air becomes ſenſible. For the diameter of the tube CD being given, it is eaſy to find the diameter of the veſſel AB, ſo as that the ſcale of deſcent in the tube DC ſhall have any given proportion to the ſcale of aſcent in the veſſel AB; the rule being, that the diameter of the veſſel is to that of the tube in a ſubduplicate reciprocal ratio of their ſcales.

The diameters then of CD and AB being given, together with the ſcale of aſcent of the mercury in the veſſel, the ſcale of mercury in the tube is found thus: as the ſquare of the diameter of the tube is to the ſquare of the diameter of the veſſel, ſo, reciprocally, is the ſcale of mercury in the veſſel, to the ſcale of mercury in the tube.

Caſſini was the firſt inventor of this kind of *barometer*, though the ſame conſtruction had been thought of, and firſt publiſhed by M. J. Bernouilli, in the year 1710.

This and the preceding contrivance of Huygens are founded on a theorem of hydroſtatics; viz. that fluids, having the ſame baſe, gravitate according to their perpendicular altitude, not according to the quantity of their matter; whence the ſame weight of the atmoſphere ſupports the quickſilver that fills the tube ACD, and the ciſtern B, as would ſupport the mercury in the tube alone.

This laſt, however, with its excellencies, has great defects; for, by reaſon of the attraction between the parts of the glaſs and of the mercury (which Dr. Jurin has ſhewn to be conſiderable), with the length of the ſcale (conſequently the quantity of motion), and the attrition againſt its ſides, eſpecially in ſudden riſes and deſcents, the mercury breaks, ſome parts of it are left behind, and the equability of its riſe and fall ruined.—Some therefore prefer the

BAROMETER, *diagonal*, of ſir Samuel Morland, where the ſpace of variation is conſiderably larger than in the common one, and yet the riſe and fall more regular than in the others.—Its foundation is this; that in a Torricellian tube BC (*fig.* 5.) inclined at any angle to the horizon, the cylinder of mercury equivalent to the weight of the atmoſphere, is to a cylinder of mercury equivalent to the ſame in a vertical tube, as the length of the tube BC to the perpendicular height DC.

Hence, if the height DC be ſubtriple, ſubquadruple, &c. of the length of the tube, the changes in the *diagonal barometer* will be triple or quadruple, &c. of the change in the common *barometer*. This *barometer* will ſcarce allow its tube to be inclined to the horizon at a leſs

less angle than 45°, without undergoing the inconvenience of the horizontal one.

Mr. Orme, in order to obviate some of the objections to which the diagonal construction of the *barometer* is liable, purified the quicksilver from its dross and earthy particles by distillation; and when the tube was filled with a certain quantity of mercury, discharged the remaining air by an intense heat sufficient to make the mercury boil; and he continued this operation for four hours. In the process, an innumerable quantity of small particles were emitted, and when no more bubbles rose in the tube, the mercury appeared extremely bright, but sunk lower in the tube than when it was first put in, by two inches. Phil. Transf. abr. vol. viii. p. 453.

BAROMETER, *wheel*. This was a contrivance of Dr. Hooke, in 1668, to make the alterations in the air more sensible; the foundation of this is the *common vertical barometer*, with the addition of a compound weight A and B (*fig.* 5. N° 2) hanging in a pulley, the one of them playing at liberty in the air, the other resting on the surface of the mercury in the tube, and rising and falling with it.

Thus is the motion of the mercury communicated, by means of the pulley, to an index which turns round a graduated circle; and thus the three inches of vertical afcent are here improved to five, or six, or more, at pleasure.

But the friction of the pins, in the pulley and index, is fo considerable, that unless the machine be made with a great deal of accuracy, it does not answer.

An instrument of this kind, with considerable improvements, has been constructed by Mr. Fitzgerald, F. R. S. It is furnished with two pulleys that move on friction-wheels; each of which turns an index on the centre of a graduated circle. The smaller circle is four inches in diameter, and divided into three equal parts, each of which is again subdivided decimally; and the changes correfponding to the rife or fall of the mercury from 28 to 31 inches, are marked on the margin of it, as they are on the scales of common *barometers*. The larger circle is divided into 300 equal parts; and being about 30 inches in circumference, the index belonging to it will mark diftinctly the 600th part of an inch in the rife or fall of the mercury. On the centre of this circle two regifters are fixed, which are placed along the index when the inftrument is adjufted; one of them is carried round with the index, and left behind on its return; fo that their diftance will determine the limits of the variation from one obfervation to another. Phil. Trans. vol. lii. part 1. N° 29. Ibid. vol. lx. N° 10.

BAROMETER, *pendant*, invented by M. Amontons, in 1695, is a machine rather pretty and curious, than useful. It conffits of a conical tube, placed vertically, its upper and fmaller extreme hermetically fealed; it has no veffel or ciftern, its conical figure fupplying that defect: for when filled, like the reft, there will be as much mercury fuftained as is equivalent to the weight of the atmofphere; and as that varies, the fame mercury takes up a different part of the tube, and fo becomes of a different weight.

Thus, when the weight of the atmofphere is increafed, the mercury is driven up into a narrower part of the tube; by which means its column is lengthened, and, for the reafon juft given, its weight increafed. Again, the atmofphere decreafing, the mercury finks into a wider part of the tube; by which means its column is again fhortened, and its preffure accordingly weakened. Thus, the fame mercury is ftill a balance to the atmofphere under all its variations.

The inconvenience in this *barometer* is, that to prevent the mercury and air from changing places, the bore of the tube muft be very fmall; which fmallnefs of the bore renders the friction fo fenfible, as to impede its playing.

BAROMETER, *marine*, is likewife a contrivance of Dr. Hooke, in 1700, to be ufed at fea, where the motion of the waves renders the others impracticable. It is nothing more than a double thermometer, or a couple of tubes half filled with fpirit of wine; the one hermetically fealed at both ends, with a quantity of common air enclofed; the other fealed at one end, and open at the other.

Now the air, we know, is able to act on the fpirit of wine, and raife it, two ways; the one by its gravity, as in the Torricellian tube; the other by its heat, as in the thermometer. If then the two tubes be graduated, fo as to agree with each other at the time when the air is enclofed, it will eafily follow, that, wherever the two agree afterwards, the preffure of the atmofphere is the fame, as at the time when the air was enclofed. If in the thermometer open to the air the liquor ftand higher, conffdering withal how much the other is rifen or fallen from the other cauffe of heat or cold, the air *is heavier*; on the contrary, when it is lower, compared with the other, the air is lighter than at the time when the inftrument was graduated.

Here the fpaces anfwering to an inch of mercury will be greater or lefs, according to the quantity of the air enclofed, and the fmallnefs of the tubes; and they may be increafed, almoft, in any proportion.

But it muft be remembered, that the denfity and rarity of the air, on which this machine is founded, do not only depend on the weight of the atmofphere, but alfo on the action of heat and cold. This, therefore, can never be a juft *barometer*; but may properly enough be called a *manifcope*, or inftrument to fhew the denfity of the air. See MANOSCOPE.

Nevertheless, the inftrument is faid to be of good ufe in giving notice of all bad weather at fea, as alfo of feerable weather, and of the neighbourhood of ice. Phil. Transf. N° 420. p. 133.

Mr. Nairne, an ingenious artift in London, conftructed a *marine barometer* for Capt. Phipps, in his Voyage to the North Pole: the upper part of which was a glafs tube about three tenths of an inch in diameter, and four inches long, to which another glafs tube was joined with a bore about $\frac{1}{10}$th of an inch in diameter. Thefe two glafs tubes formed the tube of this *barometer*, which was filled with mercury, and inverted into a veffel of the fame. The inftrument was fixed in gimmals, and kept in a perpendicular poffition by a weight faftened to the bottom of it, and was not liable to the inconvenience attending the common *barometer* at fea. Voyage to the North Pole p. 123.

M. Paffement, another ingenious artift at Paris, accommodates the *barometer* to nautical ufes, by twifting the middle part of the common *barometer* into a *fpiral* conffting of two revolutions; by this contrivance, the impulfes which the mercury receives from the motions of the fhip, are deftroyed by being tranfmitted in contrary directions. De Luc's Recherches, &c. vol. i. p. 34.

BAROMETER, *fallacious*, or BAROSCOPE, ufed by Mr. Boyle, Otto de Guerric, &c. is fallacious, and liable to be acted on by a double cauffe: it conffts of 2 large glafs bubble, balanced by a brafs weight, in a nice pair of fcales: for thefe two bodies being of equal gravity, but unequal bulk, if the medium in which they equiponderate be changed, there will follow a change of their weight; fo that if the air grows heavier, the greater body, being lighter in fpecie, will lofe more of its weight than the leffer and more compact: but if the medium grow lighter, then the bigger body will outweigh the leffer. See Collect. Acad P. Etr. tom. ii. p. 41.

The moft accurate *barometer* yet invented feems to be that of Mr. Caswell; the ftructure whereof he defcribes as follows: Suppofe ABCD (*fig.* 6.) a bucket of water, wherein is the *barometer* $abcdefg$, conffting of a body $abcd$, and a tube $defg$. The body and tube are both concave cylinders, communicating with each other, made of tin, or rather glafs. The bottom of the tube, n, f, has a lead weight to fink it, fo that the top of the body may juft fwim even with the furface of the water, by the addition of fome grain weights at the top. The water, when the inftrument is forced with its mouth downwards, gets up into the tube to the height fg. There is added on the top a fmall concave cylinder, which we call the *pipe*, to diftinguifh it from the other at bottom, which we call the *tube*; this pipe is to fuftain the inftrument from finking to the bottom, m is a wire, m S and d s two threads oblique to the furface of the water, performing the office of diagonals. Now, while the inftrument finks more or lefs, by the alteration of the gravity of the air; there, where the furface of the water cuts the thread, is formed a fmall bubble, which afcends up the thread, as the mercury of the common *barometer* afcends, and *vice verfa*.

This inftrument, as appears from a calculation which the author gives, fhews the alterations in the air more accurately than the common *barometer*, by no lefs than 1200 times. He obferves, that the bubble is feldom known to ftand ftill a minute; that a fmall blaft of wind that cannot be heard in a chamber, will make it fink fenfibly; and that a cloud always makes it defcend, &c.

Mr. Bowning has contrived a compound *barometer*, in which the fcale of variation fhall bear any proportion to that of the common one. ABC (*Vide Enumeratas, fig.* 7.) is a compound tube hermetically fealed at A, and open at C; empty from A to D, filled with mercury from thence to B, and from thence to E with water. It appears from the nature of a fyphon, that if H, B, G be in the fame horizontal line, the column of mercury DH will be in equilibrio with the column of water GE, and a column of air of the fame bafe, and will therefore vary with the fum of the variations of

these. He has subjoined a calculation, whence it appears, that if the tubes AF and FC are of an equal bore, the variation in this is less than that of the common *barometer* in the proportion of 7 to 133; but if the diameter of AF be to that of FC as 5 to 1, the variations will be to those in the common *barometer* as 175 to 133; but if the proportion of the diameters be greater, the variations will be infinite in respect to those of the common *barometer*. Bowning's Nat. Phil. part ii. diff. 4.

Whilst some have endeavoured to enlarge the variations of the *barometer*, others have endeavoured to make it more convenient, by reducing the length of the tube. M. Amontons, in 1688, first proposed this alteration in the structure of *barometers*, by joining several tubes to one another, alternately filled with mercury and with air, or some other fluid; and the number of these tubes may be increased at pleasure: but the contrivance is more ingenious than useful.

M. Mairan's reduced *barometer*, which is only three inches long, serves the purpose of a *manometer* in discovering the dilatations of the air in the receiver of an air pump; and instruments of this kind are now generally applied to this use. See AIR-*pump*.

BAROMETER, *portable*, is so contrived, that it may be carried from one place to another without being disordered. The tube is tied up in a leathern bag not quite full of mercury; which being prefled by the air forces the mercury into the tube, and keeps it fuspended at its proper height. This bag is commonly enclofed in a box, through the bottom of which paffes a ferew; by means of this ferew, the mercury may be forced up to the top of the tube, and prevented from breaking the tube by dafhing againft the top of it when the inftrument is removed from one ftation to another. A contrivance of this fort we are indebted for to Mr. Patrick. But the *portable barometer* has received various improvements fince: however, the moft complete of this kind is defcribed, together with the apparatus belonging to it, the method of conftruction and ufe, and the advantages attending it, by M. De Luc, and illuftrated by drawings, in his Recherches, &c, vol. ii. p. 5. &c.

BAROMETER, *phenomena of*. The *phenomena* of the *barometer* are various; the caufes afligned for them, by fevcral authors, are widely different; nor is its ufe, in predicting the weather, yet perfectly afcertained.

On the top of Snowdon-hill, 1240 yards high, Dr. Halley found the mercury to be lower, by three inches eight tenths, than at the foot thereof; whence it appears, that at every 30 yards the mercury finks one tenth of an inch. Dr. Derham, from fome experiments he made at the top and bottom of the Monument, allows 32 yards perpendicular afcent to a fall of the mercury of one tenth of an inch: whence we have not only a foundation for determining the height of the atmofphere; which, on this foundation (were it equally denfe every where), would not be found more than 5 miles and one tenth; but alfo a very accurate method of meafuring the height of mountains. Thus, if on the furface of the earth the mercury be at 30 inches, at 1000 feet high it would be at 28.91 inches, at 2000 feet, 28.865 at 3000, 26.835 at 4000, 25.874 at 5000, 24.931 at 1 mile, 24.67 5 at 2 miles, 20.291 at 5 miles, 11.28 5 at 10 miles, 4.245 at 15 miles, 1.603 at 20 miles, 0.595 at 30 miles, 0.08 5 at 40 miles, 0.011: though, it muft be obferved, this is on a fuppofition that the ATMOSPHERE is equally heavy every where.

Dr. Nettleton made feveral experiments in the neighbourhood of Halifax, in order to afcertain the elevations anfwering to given heights of the *barometer*. The following table fhews the refult:

	Altitude of $\frac{1}{10}$ of an inch.		
Height.	Bottom.	Top.	Difference for 30
Tower of Halifax,	102 - 29.78 -	29.66 -	0.12 - 85
Coal mine	140 - 29.48 -	29.32 -	0.16 - 87
Another ditto,	236 - 29.50 -	29.23 -	0.27 - 87
A fmall hill,	312 - 29.81 -	29.45 -	0.36 - 86
Halifax hill,	587 - 30.00 -	29.45 -	0.55 - 91

Whence by the theorem, demonftrated under the article ATMOSPHERE, viz. that the elevations are as the logarithms of the height of the mercury reciprocally: fuppofing 30 inches the ftandard altitude, and 85 feet the elevation, corresponding to one tenth of an inch, he made the following proportion: as the logarithm of $\frac{1}{299}$ is to 85, fo is the logarithm of $\frac{1}{295}$ to the elevation, which will make the mercury to fall half an inch; and fo for any other. In this way he compiled the following tables:

A TABLE fhewing the Number of Feet afcending, required to make the Mercury fall to any given Height in the Tube from 30 to 26 Inches. As alfo the Number of Feet defcending required to make the Mercury rife from 30 to 31 Inches.

Inches.	Afcent. Feet.	Dec.	Inches.	Defcent. Feet.	Dec.
30.0	0	0	30.0	0	0
29.9	85	0	30.1	85	0
29.8	170	0	30.2	170	0
29.7	255	0	30.3	255	0
29.6	341	0	30.4	341	0
29.5	427	0	30.5	427	0
29.4	513	0	30.6	513	0
29.3	600	0	30.7	600	0
29.2	687	0	30.8	687	0
29.1	774	0	30.9	774	0
29.0	863	0	31.0	863	0
28.9	951	0	31.1	951	0
28.8	1039	2	31.2	1040	2
28.7	1127	5	31.3	1129	5
28.6	1216	7	31.4	1218	7
28.5	1305	8	31.5	1308	8
28.4	1394	9	31.6	1398	9
28.3	1485	1	31.7	1489	1
28.2	1575	2	31.8	1580	2
28.1	1666	3	31.9	1671	3
28.0	1758	4	32.0	1763	4
27.9	1850	5	32.1	1855	5
27.8	1943	7	32.2	1948	7
27.7	2036	0	32.3	2042	0
27.6	2130	2	32.4	2136	2
27.5	2225	1	32.5	2231	1
27.4	2320	3	32.6	2326	3
27.3	2416	2	32.7	2422	2
27.2	2513	2	32.8	2519	2
27.1	2610	3	32.9	2617	3
27.0	2708	4	33.0	2715	4
26.9	2807	6	33.1	2815	6
26.8	2907	0	33.2	2915	0
26.7	3007	2	33.3	3016	2
26.6	3108	5	33.4	3118	5
26.5	3210	8	33.5	3221	8
26.4	3313	2	33.6	3325	2
26.3	3417	7	33.7	3430	7
26.2	3523	3	33.8	3536	3
26.1	3630	0	33.9	3643	0
26.0	3738	0	34.0	3751	0

A TABLE fhewing the Number of Feet required to make the Mercury fall one tenth of an inch from any given height in the Tube, from 31 to 26 Inches.

Inches.	Feet.	Dec.	Inches.	Feet.	Dec.
31.0	85	1	29.0	87	6
30.9	86	3	28.9	88	9
30.8	87	5	28.8	90	2
30.7	88	8	28.7	91	5
30.6	90	1	28.6	92	8
30.5	91	4	28.5	94	2
30.4	92	7	28.4	95	6
30.3	94	1	28.3	97	0
30.2	95	5	28.2	98	4
30.1	96	9	28.1	99	8
30.0	98	3	28.0	101	3
29.9	99	7	27.9	102	8
29.8	101	2	27.8	104	3
29.7	102	7	27.7	105	8
29.6	104	2	27.6	107	4
29.5	105	8	27.5	109	0
29.4	107	4	27.4	110	6
29.3	109	0	27.3	112	2
29.2	110	6	27.2	113	9
29.1	112	3	27.1	115	6
29.0	113	9	27.0	117	3
28.9	115	6	26.9	119	0
28.8	117	4	26.8	120	8
28.7	119	1	26.7	122	6
28.6	120	9	26.6	124	4
28.5	122	7	26.5	126	2
28.4	124	5	26.4	128	0
28.3	126	3	26.3	129	9
28.2	128	2	26.2	131	8
28.1	130	0	26.1	133	7
28.0	131	9	26.0	135	6

M. De Luc has given an hiftorical and critical detail of the various attempts that have been made at different times for applying the motion of the mercury in the *barometer* to the meafurement of acceffible heights, beginning with the firft trials propofed by Pafcal and Des Cartes, and concluding with the more accurate experiments of M. Bouguer, and the other French academicians in Peru. He has added a table, exhibiting, in French meafure, the heights of the atmofphere corresponding to thofe of the mercury in the *barometer*, calculated on the principles and rules of Mariotte, Halley, Maraldi, Scheuchzer, J. Caffini, D. Bernouilli, Horteboe, and Bouguer, from 28 inches, the height obferved by the French academicians on the fea-fhore of Peru, to 15 inches 10 lines, the height of the mercury obferved by M. de la Condamine on the top of Corocon, one of the Cordeliere mountains. The height of this hill above the level of the fea was found, by geometrical meafure, to be 14820 feet. The *barometrical* height deduced from the principles of Mariotte, is 12087 feet two inches; from a rule afterwards propofed by him, 13167 feet 4 inches; from Halley's rule, 12486 feet 1 inch; from Maraldi's, 19491 feet; from the principles of J. Scheuchzer, 12380 feet 5 inches; from the rule of J. Caffini, 16090 feet; from the hypothefis of D. Bernouilli, 16905 feet 3 inches; from Horteboe's rule, 14334 feet 4 inches; and from Bouguer's, 14359 feet 11 inches. De Luc's Recherches, &c. vol. i. p. 184.

The greateft height the mercury has been known to ftand at in the *barometer*, at London, is 30 inches three eighths, its leaft 28 inches; its greateft height, at the obfervatory of Paris, has been found 28 inches four tenths, and its leaft 26 inches four tenths of the Paris foot, which exceeds the London foot by $\frac{7}{72}$: with thefe obfervations agree others, made at Hall, in Saxony, by Wolfius. At Algiers it *rifes* to 30 inches two tenths or three tenths, with a northerly wind, though attended with the greateft rains and tempefts. Shaw's Trav. p. 218. The greateft height, obferved by Sir George Shuckburgh, Dec. 26, 1778, in London, was 30.948 inches; and this, he fays, is the neareft height which, as far as he has been able to collect, it has been feen to ftand at in any country where obfervations have been made and recorded fince the firft invention of this inftrument. Phil. Tranf. vol. lxviii. p. ii. p. 380.

It is true there is an experiment wherein the height of the mercury is found furprifingly to exceed thefe numbers; mercury perfectly purged being fufpended in a tube, in the Torricellian way, at the height of 55 inches; though by the leaft fhake it falls down to its ordinary height. See an account of this *phenomenon* under the word TORRICELLIAN.

The *phenomena* of the *barometer*, Mr. Boyle obferves, are fo very precarious, that it is exceedingly difficult to form any general, certain rules about the rife and fall thereof.

Even

Even that which seems to hold most universally, viz. that, when high winds blow, the mercury is the lower, sometimes fails.

Dr. Halley gives us the following observations; that in calm weather, when the air is inclined to rain, the mercury is commonly low; in serene good settled weather, high. That on great winds, though unaccompanied with rain, the mercury is the lowest of all, with regard to the point of the compass the wind blows on. That, *cæteris paribus*, the greatest heights of the mercury are on easterly and north-easterly winds. That after great storms of wind, when the mercury has been low, it rises again very fast. That in calm frosty weather it stands high.

That the more northerly places find greater alterations than the more southern; and that within the tropics, and near them, there is little or no variation of the height of the mercury at all.

For instance, at Naples it hardly ever exceeds an inch; whereas, at Upminster it is 2.5 inches, at Peterburgh 3.51. Phil. Trans. N° 234 p. 407.

Dr. Beal, who adopted the opinion of M. Pascal, observes, that, *cæteris paribus*, the mercury is higher in cold weather than in warm; and, usually, in the morning and evening higher than at mid-day.

That, in settled and fair weather, the mercury is higher than either a little before or after, or in the rain; and that it generally descends lower after rain than it was before it. And he ascribes these effects to the vapours with which the air is charged in the former case, and which are dispersed by the falling rain in the latter. If it chance to rise higher after rain, it is generally followed by a settled serenity.

That there are frequently great changes in the air, without any perceptible alteration in the *barometer*.

For the use of BAROMETERS, an ingenious author observes, that, by their means, we may regain the knowledge which flies settled in them, and which we forfeited by not continuing in the open air, as they generally do: and, by our intemperance, corrupting the *crasis* of our organs of sense.

The following are Mr. Patrick's observations on the rising and falling of the mercury: they are very full, and are to be accounted for on the same principles with those of Dr. Halley. 1. The rising of the mercury presages, in general, fair weather; and its falling, foul weather; as rain, snow, high winds, and storms. 2. In very hot weather, the falling of the mercury indicates thunder. 3. In winter, the rising presages frost; and in frosty weather, if the mercury falls three or four divisions, there will certainly follow a thaw: but in a continued frost, if the mercury rises, it will certainly snow. 4. When foul weather happens soon *after* the falling of the mercury, expect but little of it: and on the contrary, expect but little fair weather, when it proves fair shortly after the mercury has risen. 5. In foul weather, when the mercury rises much and high, and so continues for two or three days before the foul weather is quite over, then expect a continuance of fair weather to follow. 6. In fair weather, when the mercury falls much and low, and thus continues for two or three days before the rain comes; then expect a great deal of wet, and probably high winds. 7. The unsettled motion of the mercury denotes uncertain and changeable weather. 8. You are not to strictly to observe the words engraved on the plates (though for the most part it will agree with them), as the mercury rising and falling; for if it stands at much rain, and then rises up to changeable, it presages fair weather, although not to continue so long as it would have done, if the mercury were higher; and on the contrary, if the mercury stood at fair, and falls to changeable, it presages foul weather, though not so much of it, as if it had sunk down lower.

From these observations it appears, that it is not so much the height of the mercury in the tube, that indicates the weather, as the motion of it up and down: wherefore, in order to pass a right judgment of what weather is to be expected, we ought to know whether the mercury is exactly rising or falling, to which end the following rules are of use.

1. If the surface of the mercury is convex, standing highest in the middle of the tube than at the sides, it is generally a sign that the mercury is then rising. 2. If the surface of the mercury is concave, or hollow in the middle, it is sinking. And, 3. If it is plain or level, or rather if it is a little convex, the mercury is stationary; for mercury being put into a glass tube, especially a small one, will naturally have its surface a little convex; because the particles of mercury attract each other more forcibly than they are attracted by glass. Farther, 4. If the glass be small, shake the tube; and if the air be grown heavier, the mercury will rise about half the tenth of an inch higher than it stood before: if it is grown lighter, it will sink so much. This proceeds from the mercury sticking to the sides of the tube, which prevents the free motion of it, until it is disengaged on the shock. Therefore, when an observation is to be made by such a tube, it ought always to be shaken first: for sometimes the mercury will not vary of its own accord, until the weather it ought to have indicated be present.

Cause of the phenomena of the BAROMETER. Those, which have been enumerated, are the chief *phenomena* of the *barometer*: to account for which, the *hypothesis* that have been framed are almost infinite. Indeed, as the weight of the atmosphere is generally allowed to be the foundation of the *barometer*, so it is generally granted, that the alterations in the weight of the air are the occasions of those in the *barometer*; and yet even this does not obtain universally. *Dr.* Lister, for instance, accounts for the changes of the *barometer* from the alterations of heat and cold. This, he says, he has often observed, that in storms, &c. when the mercury is at the lowest, it breaks, and emits small particles, which he calls a kind of *fretting*: and argues, that in all times of its descent, it is more or less on the fret. In this disorder, he thinks, its parts are contracted, and brought closer together, and, for that reason, descend: besides, in the fretting they let go little particles of air, before enclosed in them; and these rising into the top of the tube, the mercury must sink, both from the column's being shortened by their escape, and by their lying upon it. Mercury, therefore, he adds, rises either in very hot or very cold weather, between the tropics, &c. as being then in its natural state: and, again, in the intermediate degrees of heat and cold it falls, as being contracted, and, as it were, convulsed, and drawn together. Phil. Trans. N° 165.—But his account, however ingenious, yet comes far short of accounting for the *phenomena*: nay, in some respects, it contradicts them.

The changes in the weight of the atmosphere, therefore, must be laid down as the cause of those in the *barometer*; but then, for the cause of that cause, or whence those alterations arise in the atmosphere, it will be no easy matter to determine; there being, perhaps, no one principle in nature that will account for such a variety of appearances, and those too so irregular. It is probable, the winds, as driven this or that way, have a great share in them; some share too, vapours and exhalations, rising from the earth, may have; some, the changes in the air of the neighbouring regions; and some, the flux and reflux occasioned in the air by the moon, though this is too inconsiderable to be regarded, as it is not perceptible by the nicest *barometer*.

Dr. Halley thinks the winds and exhalations sufficient; and on this ground, gives us a very probable *rationale* of the *barometer*. The substance of what may be said on that head, is as follows:

1st, Then, the winds must necessarily alter the weight of the air in any particular country; and that, either by bringing together and accumulating a greater quantity of air, and so loading the atmosphere of any place; which will be the case, as often as two winds blow at the same time, from opposite points toward the same point: or by sweeping away a part of the air, and removing some of the load, and thus giving room for the atmosphere to expand itself; which will be the case, when two winds blow at the same time, and from the same point, opposite ways: or, lastly, by cutting off the perpendicular pressure of the atmosphere; which happens, as often as any single wind blows briskly any way: it being found, by experiment, that a strong blast of wind, even made by art, will render the atmosphere lighter; and accordingly, the mercury, in a tube under which it passes, as well as in another at a distance from it, will subside considerably. See Phil. Trans. N° 292.

2dly, The cold nitrous particles, and even air itself condensed in the northern parts, and driven elsewhere, must load the atmosphere, and increase its pressure.

3dly, Heavy dry exhalations from the earth must increase the weight of the atmosphere, and heighten its elastic force, as we find the specific gravity of manifactums increased by diffused salts, and metals.

4thly, The air being rendered heavier from these and the like causes, is thereby the more able to support the vapours; which being likewise intimately mixed with it, and swimming every where equably through it, make the weather serene and fair: again, the air being made lighter, from the contrary causes, it becomes unable to support the vapours wherewith it is replete; these, therefore, precipitating, are gathered into clouds; and those, in their progress, coalesce into drops of rain.

These things observed, it appears pretty evident, that the same causes which increase the weight of the air, and make it more able to support the mercury in the *barometer*, do likewise occasion a serene sky, and a dry season; and the same causes which render the air lighter, and less able to support the mercury, do likewise generate clouds and rain. Hence, 5th, When the air is lightest, and the mercury in the *barometer* is lowest, the clouds are very low, and move swiftly;

ſwiftly; and when, after rain, the clouds break, and a calm ſky again ſhines forth, being purged of the vapours, it appears exceedingly bright and tranſparent, and affords an eaſy proſpect of remote objects.

2dly, When the air is heavier, and the mercury ſtands higher in the tube, the weather is calm, though ſome what leſs clear, by reaſon the vapours are diſperſed every where equally; if any clouds now appear, they are very high, and move ſlowly, and when the air is heavieſt of all, the earth is frequently found enveloped in pretty thick clouds, which appear to be formed out of the groſſer exhalations, and which the air is then able to ſuſtain, though a lighter atmoſphere could not.

3dly, Hence it is, that with us the mercury ſtands higheſt in the coldeſt ſeaſons, and when the wind blows from the north or north-eaſt corner: for, in that caſe, there are two winds blowing towards us at the ſame time; and from oppoſite corners; there being a conſtant weſt wind found at the Atlantic ocean, at the latitude correſponding to ours. To which we may add, that in a north wind, the cold condenſed air of the northern parts is brought hither.

4thly, Hence, in the northern regions, the variation of the mercury is more ſenſible than in the ſouthern ones; the winds being found both more ſtrong, more frequent, more various, and more oppoſite to each other in the former, than the latter.

Laſtly, Hence it is, that between the tropics, the variation of the mercury is ſcarce ſenſible; the winds there being extremely gentle, and uſually blowing the ſame way.

But this account, however well adapted to many of the particular caſes of the *barometer*, ſeems to come ſhort of ſome of the principal and moſt obvious ones; and is, beſides, liable to ſeveral objections.

For, 1ſt. If the wind were the ſole agent in effecting theſe alterations, we ſhould have no alterations without a ſenſible wind, nor any wind without ſome alteration of the mercury; both which are contrary to experience.

2dly, If two winds be ſuppoſed blowing from the ſame place, viz. London, oppoſite ways, viz, N. E. and S. W. there will be two others, blowing from oppoſite points, viz. N. W. and S. E. to the ſame place; which two muſt will balance the firſt, and bring as much air towards the point, as the others ſwept from it. Or thus, in proportion as the air is carried off N. E. and S. W. the adjacent air will croud in from the other points, and form a couple of new currents in the direction N. W. and S. E. to fill up the vacancy, and reſtore the equilibrium. This is a neceſſary conſequence from the laws of fluids.

3dly, If the wind were the ſole agent, the alterations in the height of the mercury would only be relative, or topical; there would be ſtill the ſame quantity ſupported at ſeveral places taken collectively: thus, when a tube at London loſt, another at Paris, or at Piſa, or at Zurich, &c. would at the ſame time gain. But we find the very contrary true in fact: for, from all the obſervations hitherto made, the *barometers* in ſeveral parts of the globe riſe and fall together; ſo that it muſt be ſome alteration in the abſolute weight of the atmoſphere, that accounts for the riſe and fall of the mercury.

Laſtly, ſetting aſide all objections, theſe popular phenomena, the mercury's fall before, and riſe after rain ſeem to be inexplicable on the ground of this hypotheſis: for, ſuppoſe two contrary winds ſweeping the air from over London, we know that few, if any, of the winds reach above a mile high; all, therefore, they can do, will be to cut off a certain part of the column of air over London: if the conſequence of this be the fall of the mercury, yet there is no apparent reaſon for the rain's following it. The vapours indeed may be let lower, but it will only be ſtill they come into an air of the ſame ſpecific gravity with themſelves; and there they will ſtick as before.

M. Leibnitz endeavours to ſupply the defects of this hypotheſis with a view one of his own. He aſſerts, that a body immerſed in a fluid only weighs with that fluid while it is ſuſtained thereby; ſo that when it ceaſes to be ſuſtained, i. e. when let fall, its weight ceaſes to make a part of that of the fluid, which by this means becomes lighter. Thus, adds he, the watery vapours, while ſuſtained in the air, increaſe its weight; but, when let fall, they ceaſe to weigh along with it. Thus the weight of the air is diminiſhed; and thus the mercury falls, and rain enſues.

But M. Leibnitz's principle, notwithſtanding the experiment he brings to confirm it, is falſe, as has been evidently made appear by a counter experiment of Dr. Deſaguliers. For a body, whether ſpecifically equal, or lighter, or heavier, than a fluid, while it is immerged in it, whether it be at reſt, or in motion, adds to the fluid a weight equivalent to that of an equal bulk of the fluid; as follows from that law in hydroſtatics, that fluids gravitate according to their perpendicular altitudes. However, were M. Leibnitz's principle true, yet it is defective; and that in the ſame reſpect with Dr. Halley's: nor would it account for the phenomena more than the other. For, ſuppoſing the vapours by being condenſed, to be put in a motion downwards, and ſo ceaſing to gravitate with the atmoſphere; they will therefore fall, till they reach a part of the atmoſphere of the ſame ſpecific gravity with themſelves; and there they will hang as before. If the mercury fall, it will only be during the time of that deſcent; for theſe once fixed, the former gravity is retrieved; or, were it not retrieved, yet no rain would ſucceed the fall of the mercury.

If it might be allowed to add any thing after ſuch great men, it ſhould be as follows. Suppoſe any number of watery veſicles floating in any part of the atmoſphere, over any determinate portion of the globe; for inſtance, over AB, *fig.* 21. if the upper veſicles be condenſed by the cold of the ſuperior regions, their ſpecific gravity will be increaſed, and they will deſcend: the horizontal claſs 1, v. gr. to 2, 2 to 3, &c. where meeting with other veſicles, not ſo precipitated, they will coaleſce, or run into larger veſicles, by the known laws of attraction. Or, if we rather chooſe to have the wind acted, let it drive either horizontally, or obliquely; in the former caſe, the veſicles, claſs 8. will be driven againſt 9, thoſe againſt 10, &c. or the oblique claſs 7, driven againſt 8, 8 againſt 9, &c. by which means likewiſe will the particles coaleſce, and form new and larger veſicles, as before; ſo that their number, which before was ſuppoſed a million, will now be reduced, v. gr. to a hundred thouſand.

But by the ſame coalition whereby their number is diminiſhed, their ſpecific gravity, if we may ſo call it, is increaſed, i. e. they come to have more matter in the ſame ſpace, or under an equal ſurface; as may be eaſily proved from principles of geometry: for in augmenting the maſs of any homogeneous body, the increaſe of ſurface does not keep pace with that of the ſolidity; but that of the former is as the ſquare of the diameter, and that of the latter as the cube of the ſame.

But ſince the ſame quantity of matter is now in a leſs ſpace, or under leſs dimenſions, it will loſe leſs of its weight by the reſiſtance of the medium. This is evident: for a body immerſed in a fluid loſes nothing of its weight but by the friction of its parts againſt thoſe of the fluid; but the friction is evidently as the ſurface; therefore, when the ſurface is leſſened, the reſiſtance muſt be ſo too. Conſequently, the veſicles, whoſe gravity before the coalition was equal to the reſiſtance of the medium, now that reſiſtance is diminiſhed, will deſcend; and that with a velocity in the ratio of the increaſe of the maſs to the increaſe of the ſurface.

In their deſcent, as they arrive at the denſer part of the atmoſphere, v. gr. at 4, 5, &c. their maſs and ſurface again will be increaſed by new coaliſions; and thus, by conſtant freſh acceſſions, more than equal to the conſtant reſiſtances, they will be enabled to purſue their journey through all the ſtages of the air, till they reach the earth; their maſſes exceedingly magnified, and in the form of rain.

Now that the vapours are got down, let us conſider how the *barometer* muſt have been affected during theſe paſſage. Before any of the veſicles began to ſubſide, either from the action of the cold, or of the wind, they all floated in the portion of the atmoſphere ABCD, and all gravitated towards the centre E. Here now, each reſpectively reſiding in a part of the medium of the ſame ſpecific gravity with itſelf will loſe as much of its weight, as is equal to that of a part of the medium of the ſame bulk with itſelf, i. e. each will loſe all its weight. But then, whatever weight each loſes, it communicates to the medium, which now preſſes on the ſurface of the earth AB, with its own weight, and that of the veſicles, conjointly. Suppoſe, then, this united preſſure keeps up the mercury in the *barometer* at thirty inches: by the coalition of the veſicles from the cauſes aforeſaid, their ſurfaces, and conſequently their friction, are leſſened; therefore they will communicate leſs of their weight to the air, i. e. leſs than the whole; and conſequently they will deſcend with the exceſs, i. e. with a velocity equal to the remainder, as before obſerved. Now, as the veſicles can act no otherwiſe on the ſurface of the earth AB, but by the meditation of the interjacent air, in proportion as their action on the medium is leſs, their action on the earth will be leſs. It is alſo evident, that the ſurface of the earth AB muſt be now leſs preſſed than before; and that in proportion as the veſicles receive more of their weight uncommunicated to the medium, to promote their own deſcent, i. e. in proportion to the velocity of the falling veſicles; which is again, in proportion to their bulks. Thus, as the veſicles deſcend, the bulks continually increaſing, the friction, and therefore the preſſure on the earth, and, laſtly, the height of the mercury, will continually decreaſe, during the whole time of the fall. Hence we ſee, both why the veſicles, when once beginning to fall, puſhe on; why the mercury begins to fall at the ſame time; and why it continues and ceaſes to fall together with them; which were the great *deſiderata* in the philoſophy of the *barometer*.

There is one objection that evidently lies against this theory, viz. that the vesicles being put in motion, and striking against the particles of the *medium* and one another with some moment, will meet with a considerable resistance from the *vis inertiæ* thereof; by which means their descent will be retarded, and the pressure of the atmosphere retrieved; the impetus of the moving vesicles being supposed to compunctise for their loss of surface. Thus a heavy body suffained in a fluid by a hair, and moved up and down therein, presses more on the bottom, than when held at rest; which additional pressure will be the greater, as the velocity of the falling vesicles is greater; a greater impulse being required to break through the *vis inertiæ* of the contiguous particles in a less time than in a larger.

But we have both reason and experiment against this objection; for the velocity of the vesicles, in these circumstances, must necessarily be very small, and their impulse inconsiderable; besides, the *vis inertiæ* of the air must be exceedingly weak, by reason of its extreme subtility; and it must be a very improper vehicle to convey an impulse to a distance, by reason of its elasticity; we also find, that a piece of lead, which is a ponderous body, falling with great moment, gravitates considerably less, in its descent through water, which is a gross unelastic medium, than when suffained at rest therein: in which the several experiments of Reaumur, Ramazzini, and Desaguliers, all agree.

M. de Luc supposes, that the changes observed in the weight of the atmosphere are principally produced by the presence or absence of vapours floating in it. Others have attributed the effect to vapours, but have given a different explication of it. It is his opinion, that vapours diminish the specific gravity, and consequently the absolute weight of those columns of the atmosphere, into which they are received, which, notwithstanding this admixture, remain of an equal height with the adjoining columns that consist of pure or dry air. He afterwards more largely explains and vindicates this theory, and applies it to the solution of the principal phænomena of the *barometer*, connected with, or produced by the varying density and weight of the atmosphere.

See a summary of the numerous hypotheses that have been framed for explaining the variations of the *barometer*, by Pascal, Beal, Wallis, Gascin, Garden, Lister, Halley, Garsten, de la Hire, Mariotte, Le Cat, Woodward, Leibnitz, de Malram, Hamberger, D. Bernoulli, and Muschenbroek, in M. de Luc's Recherches sur les Modifications de l'Atmosf. vol. i. chap 3. See on the subject of this article, both volumes of that excellent work, *passim*.

BAROMETERS, *Animal*, *see* SEA-ANEMONIES.

BAROMETRICAL *observations*, make a branch or species of those called meteorological observations.

Modern philosophers speak much of the importance of *barometrical* observations. Dr. Wallis, Dr. Beal, Cruquius, de la Hire, and others, have published collections of *barometrical* observations, made at Oxford, Leyden, Delft, Paris, Zurich, in China, &c. Phil. Trans. N° 55. N° 249. N° 256. N° 381, &c.

Dr. Jurin has published an inviatory paper, for making *barometrical* observations by joint consent. Phil Trans. N° 379. p. 423.

BAROMETRICAL *phosphorus*, See PHOSPHORUS.

BARON, a person who holds a barony.

Baron is a term whose origin and primary import is much contested. Some will have it originally denote a *man*, *vir*; some a *hero*, or *valiant man*; some a *illustrious*, or *freeman*; some a *great or rich man*; some a *noble or stout man*.—Menage derives it from the Latin *baro*, which we find used in the pure age of that language for *vir*, a *stout* or *valiant man*; whence, according to this author, it was, that those placed next the king in battles were called *barones*, as being the bravest men in the army; and as princes frequently rewarded the bravery and fidelity of those about them with fees, the word came to be used for any noble person who holds a fee immediately of the king.—Hislore, and after him Camden, take the word, in its original sense, to signify a *mercenary soldier*. Mesieurs of the Port Royal derive it from βαρος, *weight*, or *authority*. Cicero uses the word *baro* for a stupid, brutal man; and the old Germans make mention of *buffeting a baron*, i. e. a *villain*; as the Italians still use the word *barone*, to signify a *beggar*.—M. De Marca derives *baron* from the German *bar man*, or *freeman*; others derive it from the old Gaulish, Celtic, and Hebrew languages: but the most probable opinion is, that it comes from the Spanish *varo*, a *stout*, *noble person*; whence wives come to call their husbands, and princes their tenants, *barons*. In the Salic law, as well as the laws of the Lombards, the word *baron* signifies a man in the general; and the old glossary of Philomenes translates *baron* by ανηρ, *vir*.

BARON, is more particularly used, among us, for a lord, or peer of the lowest class; or a degree of nobility next below that of a viscount, and above that of a knight or a baronet.

Barons are lords of parliament, and peers of the realm, and enjoy all the privileges of such.—They are not girt with a sword at their creation, nor had they any CORONETS till the reign of king Charles II. who gave them a circle of gold with six pearls set close to the rim.

In ancient records, the word *barons* included all the nobility of England, because regularly all noblemen were *barons* though they had also a higher dignity.—And therefore the charter of king Edward I. which is an exposition of what relates to *barons* in *Magna Charta*, concludes, *istilibus archiepiscopis, episcopis, baronibus, &c.* And the great council of the nobility, when they consisted, besides earls and *barons*, of dukes, marquises, &c. were comprehended under the name *de la counsel de baronage*.

BARONS *by tenure* were those who held by certain territories of the king, who still reserved the tenure in chief to himself. We also read of *barons by tenure of service*, who are such as hold honours, castles, manors, as heads of their *barony*, that is, by grand serjeanty; by which tenure they were anciently summoned to parliament. But at present a *baron* by tenure is no lord of parliament, till he be called thither by writ.

The *barony* by tenure, after the Conquest, were divided into *majores* and *minores*, and were summoned accordingly to parliament, the *majores*, or greater *barons*, by immediate writ from the king; the *minores*, or lesser *barons*, by general writ from the high sheriff, at the king's command.

The ancients distinguished the greater *barons* from the less, by attributing high, and even sovereign jurisdiction, to the former, and only inferior jurisdiction over smaller matters to the latter.

BARONS *of the Exchequer* are judges, four in number, one of whom is called the chief *baron*, and the other three puisne *barons*, to whom the administration of justice is committed in causes between the king and his subjects, touching matters belonging to the exchequer; and the king's revenue. They are called *barons*, because *barons* of the realm were used to be employed in that office.

Their office is also to look to the accounts of the king; to which end they have auditors under them; as well as to decide causes relating to the revenue, brought by any means into the exchequer: to that, of late, they have been constantly persons learned in the law; whereas formerly they were *mystes, & discretiores in regni, sive de clero essent sive de curia*. See COURT *of Exchequer*.

BARONS *of the Cinque Ports*, are members of the house of commons elected by the five ports, two for each port. See CINQUE-*Ports*.

Those who have been mayors of Corfe-castle in Dorsetshire, are also denominated *barons*.—As were formerly, likewise, the chief citizens of London.

BARON is also used for the husband, in relation to the wife; which two, in law, are called *baron* and *feme*. See HUSBAND and WIFE.

BARON *and feme*, in *Heraldry*, is when the coats of arms of a man and his wife are borne *per pale* in the same escutcheon; the man's being always on the *dexter* side, and the woman's on the *sinister*.—But here the wife is supposed not an heiress; for then her coat must be borne by the husband on an inescutcheon, or escutcheon of pretence.

BARON, *court*. See COURT.

BARON, *prender de*. See PRENDER.

BARONET, among *Modern Writers*, denotes a dignity, or degree of honour, next beneath a baron and above a knight; having precedency of all knights, excepting those of the Garter.

The dignity of *baronet* is given by patent, and is the lowest degree of honour that is hereditary. The order was founded by king James I. at the suggestion of sir Robert Cotton, in 1611, when two hundred *baronets* were created at once; to which number, by the patent, they were always to be restrained. Though, it is said, there are now four times that number.

They had several considerable privileges given them, with an *habendum* to them and their heirs male. They were allowed to charge their coat with the arms of Ulster, which are, in a field argent, a hand gules; and that upon condition of their defending the province of Ulster, in Ireland, against the rebels, who then harassed it extremely: to which end they were each to raise and keep up thirty soldiers, at their own expence, for three years together; or to pay into the exchequer a sum sufficient to do it; which, at 8*d.* *per* day *per* head was 109*l.*

Baronets take place according to the dates of their patents; by the terms of which no honour is to be erected between *barons* and *baronets*.

The title *sir* is granted them by a peculiar clause in their patents, though they be not dubbed knights.—But both a *baronet*, and his eldest son, being of full age, may claim knighthood.

BARONIA *capax*. See CAPUT.

BARONY, BARONIA, or BARONAGIUM, the lordſhip, or fee of a baron, either temporal or ſpiritual.

In which *ſenſe barony* amounts to the ſame with what is otherwiſe called *honour*.

A *barony* may be conſidered as a lordſhip held by ſome ſervice in chief of the king, coinciding with what is otherwiſe called *grand ſergeanty*.

Baronies, in their firſt creation, moved from the king himſelf, the chief lord of the whole realm, and could be holden immediately of no other lord. For example: the king enfeoffed a man of great feigneurie in land; to hold to the perſon enfeoffed and his heirs, of the king and his heirs, by baronial ſervice, to wit by the ſervice of twenty, forty, ſixty knights, or of ſuch other number of knights, either more or leſſer, as the king by his enfeoffments limited or appointed.—In the ages next after the Conqueſt, when a great lord was enfeoffed by the king of a large feigneurie, ſuch feigneurie was called a *barony*; but, more commonly, an *honour*: as, the *honour* of Gloucester, the *honour* of Wallingford, the *honour* of Lancaſter, the *honour* of Richmond, and the like. There were in England certain *honours*, which were often called by Norman or other foreign names; that is to ſay, ſometimes by the Engliſh, and ſometimes by the foreign name. This happened when the ſame perſon was lord of an *honour* in Normandy, or ſome other foreign country, and alſo of an *honour* in England. For example: William de Forz, de Forez, or de Fortibus was lord of the *honour* of Albemarle in Normandy; he was alſo lord of two *honours* in England, to wit, the *honour* of Holderneſſe, and the *honour* of Skipton in Craven. Theſe *honours* in England were ſometimes called by the Norman name, the *honour* of Albemarle, or the *honour* of the earl of Albemarle. In like manner the earl of Britannie was lord of the *honour* of Britannie in France, and alſo of the *honour* of Richmond in England; the *honour* of Richmond was ſometimes called by the foreign name, the *honour* of Britannie, or the *honour* of the earl of Britannie. This ſerveth to explain the terms, *honour* of Albemarle in England, *honor Albemarliæ*, or *comitis Albemarliæ in Anglia*; *honor Britanniæ*, or *comitis Britanniæ in Anglia*, the *honour* of Britannie, or the earl of Britannie in England. Not that Albemarle or Britannie were in England, but that the ſame perſon reſpectively was lord of each of the faid *honours* abroad, and each of the ſaid *honours* in England.

The *baronies* belonging to biſhops are by ſome called *regalia*, as being held ſolely on the king's liberality. Theſe do not conſiſt in one *barony* alone, but in many; *ita cram baroniæ, quæ magna prædia*.

A *barony*, according to Bracton, is a right indiviſible: wherefore, if an inheritance here be divided among co-parceners, though ſome capital meſſuages may be divided, yet, if the capital meſſuage be the head of a county, or *barony*, it muſt not be parcelled; and the reaſon is, leſt by this diviſion, many of the rights of counties and *baronies*, by degrees, come to nothing, to the prejudice of the realm; which is ſaid to be compoſed of counties and *baronies*.

BAROPTIS, or BAROPTINUS LAPIS, a name given by the ancient naturaliſts to a ſpecies of ſtone, ſuppoſed to have wonderful virtues againſt venomous bites, externally applied. Pliny has left us but a very ſhort deſcription of it: he ſays, it was black in colour, but variegated with large ſpots of red and white.

BAROSCOPE, a machine contrived to ſhew the alterations in the weight of the atmoſphere. See BAROMETER.

The word is derived from βαρος, *onus*, and σκοπεω, *video*.

BARQUETTE, or BARCHETTA, in the Mediterranean, denotes a leſſer ſort of barks, uſed for the ſervice of gallies, much as boats and ſhallops are for other ſhips, as to fetch proviſions, water, carry perſons aſhore, and the like.

BARR. See BAR.

BARR, BARRA, or BARRO, in *Commerce*, denotes a Portuguese long meaſure, uſed in the menſuration of cloths, ſtuffs, and the like, ſix whereof are equivalent to ten *varaſ* or *cubidos*; each *cavido* equal to 4 of a Paris ell.

BARRA, *the Spaniſh*, is the ſame with the yard of Seville.

BARR *of Valentia* is equal to $\frac{5}{8}$ of the Paris ell.

BARR *of Caſtile* is equal to $\frac{5}{9}$ of a Paris ell.

BARR *of Arragon*, is equal to$\frac{5}{8}$ of the Paris ell. Savar. Dict. Com. p. 273.

BARR is alſo uſed by the Portugueſe in the Eaſt Indies for a weight, more frequently called BAHAR.

BARR-*dice*, a ſpecies of falſe dice, ſo formed, as that they will not eaſily lie on certain ſides, or turn up certain points. *Barr-dice* ſtand oppoſed to flat dice, which come up on certain points oftener than they ſhould do.

BARRACKS. See BARACKS.

BARRACCL, in *Ichthyology*, a name given by Artedi, from the Venetians, to expreſs the ſpecies of ray-fiſh, called by Bellonius and Geſner *navalitus*, and by others *raja scabra laevis*.

The ſpecific name of Artedi carries in it a much better character of the fiſh; he calls it the RAY, with a ſmooth back and belly, and with the eyes ſurrounded with a ſeries of ſpines, and three other rows of them on the tail.

BARRAGAN, or BARRACAN, in *Commerce*, a kind of ſtuff belonging to the claſs of camblets, only of a grain much coarſer than the reſt, manufactured in divers parts of France and Flanders, chiefly at Abbeville, Amiens, Rouen, and Liſle, and now in England.

The word is barbarous Latin, formed, as ſome ſuppoſe, from *burra*, q. d. *burratum formam referens*. Du-Cange. The chief uſe of *barragans*, called alſo by the French *bouracans*, is for ſurtouts, or upper garments againſt the rain, being, when good, of ſo cloſe a grain, that the water will not ſoke through, but only run upon them.

For the woof, its thread is ſingle, twiſted, and fine ſpun; that of the warp is double or triple, i. e. compoſed of two or three threads well twiſted together. The uſual matter it is made of, is wool; though there are ſome made at Rouen, where the warp is hemp, and the woof wool. Some *barragans*, again, are made of wool, dyed before it comes to the loom; others are woven white, and dyed afterwards, red black, blue, brown, &c. They are uſt fulled, but only boiled two or three times in fair water, when they come from the loom; then calendered to make them ſmooth and even; and laſtly made into rolls, called pieces of *barragan*.

BARRAIL, *barrel*, an appellation given to the Carmelites, after they were obliged to lay aſide the white cap, and wear cowls ſtriped black and white.

BARRATRY is uſed for bribery or corruption in a judge, giving a falſe ſentence for money.

BARRATRY is alſo uſed, in *Middle Age Writers*, for fraud or deceit in making of contracts, ſales, or the like. See BARATRY.

BARRE. See BAR.

BARREL, an oblong veſſel, of a ſpheroidal, or rather a cylindroidal figure, uſed for the holding of divers ſorts of both liquid and dry.

Barrels are of divers uſes in artillery, as for powder, ſmall-ſhot, flint, ſulphur, ſalt-petre, roſin, pitch, quick-match, and many other things.

Barrels, filled with earth, ſerve to make a parapet to cover the men, like gabions and canvaſs bags.

BARRELS, *fire*, are caſks of divers capacities, filled with bombs, grenadoes, fire pots, mixed with great quantities of tow ſoaked in petrol, turpentine, pitch, &c. uſed by the beſieged to defend breaches. Theſe are ſometimes alſo called *thundering barrels*, being to be rolled down on the enemy on their entering the breach.

BARREL is alſo uſed for a certain quantity, or weight of ſeveral merchandizes; which is various as the commodities vary.

The Engliſh *barrel*, wine meaſure, contains the eighth part of a tun, the fourth part of a pipe, and the moiety of a hogſhead, that is, thirty-one gallons and a half; of beer it contains thirty-ſix gallons; and of ale thirty-two gallons. The *barrel* of beer, vinegar, or liquor preparing for vinegar, is to contain 34 gallons, according to the ſtandard of the ale quart. 10 and 11 W. III. cap. 21.

The *barrel* of herrings is to contain 32 gallons, wine meaſure; being about 28 gallons, old ſtandard: uſually amounting to about 1000 full herrings, 13 *Eliz.* cap. 11.

The *barrel* of ſalmon is to contain 42 gallons, 5 Geo. cap. 18.—And the *barrel* of eels the ſame, 22 Ed. IV. cap. 2.

The *barrel* of ſoap is to contain 256 pounds, 10 A. cap. 19.

The *barrel* or *barrille* of Florence is a liquid meaſure containing 20 fiaſques, flaſks, or one third of a ſtar or ſtaio.

The *barrel*, *barique* of Paris, contains 210 pints, or 26 ſeptiers and an half; four bariques make three muids, or one tun.

BARREL, in *Anatomy*, denotes a pretty large cavity ſituated behind the drum of the EAR, lined with a membrane in which there are ſeveral veins and arteries. It is ſaid to be full of a purulent matter in children; and, in its cavity, there are four ſmall bones, viz. the *malleus*, the *incus*, the *ſtapes*, and the *os orbiculare*.

BARREL *of a clock* is a cylindrical part, about which the ſtring is wound, and varying to what in watches is properly called the *fuſee*.

BARREL *of a jack* is the cylindrical part whereon the line is wound.

BARREL *of a pump* is the wooden tube, which makes the body of the engine, and wherein the piſton moves.

BARRELLINO, the art of putting up certain commodities in caſks or barrels.

Gun-powder for the land-ſervice is often *barrelled* double, the barrel it is put in being enclоſed in another barrel, partly to prevent the powder catching moiſture in the ſubterraneous places it is kept in, and partly to enable it the better to bear the motion and jolting of carriages, when it is to be conveyed to another place.

BARRELLING *of herrings* imports the cutting off their heads, as they are thrown into the buſs, and afterwards pulling

out the guts, falting them, and putting them up in barrels.

There are two forts of *barrelled herrings*; one wherein they are laid orderly, layer over layer, called by fome *packed herrings*; the other wherein they are thrown at random, called *herring in wrack*.

The difference arifes thus: as faft as the fifhermen catch the herrings, they throw them on the deck of the veffel; where having gutted and falted them, they throw them at random into the barrel, to be carried home: this is the herring *in wrack*.

When arrived afhore, they take the fifh out of thefe barrels, call them into a tub, and falting them anew, range them handfomely in their barrels again, laying falt over them, to preferve them: thefe are the *packed herrings*. And in this ftate it is there are ufually fold.

BARREN *ground*, that which being fowed, produces no crop, or, at moft, fo ſlender a crop, that it will not defray the charge of its tillage.

BARREN *money* is ufed, in the *Civil Law*, for that which is not put out to intereſt.

BARREN *corn*, the name given to a diſtemper in corn by M. Aimen, who firſt obſerved it. It is moſt common in wheat and rye; the ears of which are long, lean, and white; in ſome the ſtamina are dry, tranſparent, and horned; the female organs are ſmall, whiter, and leſs velvetty than in healthy ears; in others the filaments are ſmaller, the apices are void of farina, and the ſtigmata badly unfolded. It is owing either to the too ſudden growth of the corn in ſtrong, or to hot gleams of ſun-ſhine after hard ſhowers; and ſometimes, though very rarely, to inſects. Count Gimmi imputes this diſeaſe of corn to the dampneſs of the ſoil; and he recommends particular attention to the amendment of it, by ſuch means as are beſt ſuitable to its nature; and he alſo directs to change the ſeed every year.

BARREN *ſpring*, a name given by huſbandmen to thoſe whoſe waters are injurious to land. Such are moſt of thoſe that flow from coal mines, or through beds of ſulphureous minerals.

BARRENNESS. See STERILITY.

BARRENWORT, EPIMEDIUM, in *Botany*, a genus of the *tetrandria monogynia* claſs. Its characters are theſe. The flower hath a three-leaved cup; no petals; but hath four obtuſe petals, and four nectariums, which are cup-ſhaped, and as large as the petals; with four ſtamina and an oblong germen, which afterward becomes an oblong pod, with one cell, enclofing many oblong ſeeds.

The root and leaves are the parts uſed in medicine. The leaves triturated, and made into a cataplaſm with oil, and ſo applied to the breaſts, prevent their further growth; the root cauſes barrenneſs. The leaves triturated, and drank to the quantity of five drams, in urine, for five days together, after the menſtrual purgation, *Diſcorides* ſays, effectually prevents conception.

BARRICADE, or BARRICADO, a military term for a fence, or retrenchment, haſtily made with veſſels, or baſkets of earth, cars, trees, paliſades, or the like, to preſerve an army from the enemy's ſhot, or aſſault.

The moſt uſual matter of *barricades* is pales, or ſtakes, which are croſſed with buttoons, and ſhod with iron at the feet; uſually ſet up in paſſages, or breaches, to keep back as well the horſe as foot.

BARRICADE, in the *Marine*, is a ſtrong wooden rail, ſupported by pillars, and extending, as a fence, acroſs the foremoſt part of the quarter-deck. In ſhips of war, the intervals between the pillars are commonly filled with cork, junks of old cable, or plaited cordage. About a foot above the rail, there extends a double rope-netting, ſupported by cranes of iron; and between the two parts of the netting are ſtuffed hammocks, filled with the ſeamen's bedding, to intercept ſmall ſhot fired by ſwivel guns and muſkets, in time of battle.

BARRIER, a kind of fence made at a paſſage, retrenchment, gate, &c. to ſtop up the entry thereof. See DEFENCE.

It is uſually made of great ſtakes, about four or five feet high, placed at the diſtance of eight or ten feet from one another, with overthwart rafters; ſerving to ſtop either horſe or foot that wouldruſh in.—In the middle is a moveable bar of wood, which opens and ſhuts at pleaſure.

BARRIERS has been likewiſe uſed to ſignify a martial exerciſe of men, armed, and fighting together with ſhort ſwords, within certain rails, or bars, wherein they were incloſed from the ſpectators.

BARRIERS, or BARRIERES. Thus they call in the chief cities of France, and particularly at Paris, the places where the cuſtom-houſes are eſtabliſhed; and where the officers receive the duties of importation, according to the tariff ſettled by the king's council. They are called *barrieri*, becauſe the paſſages through which the carriages and merchandiſes liable to pay duties are to paſs, are ſhut up with a wooden bar, which turns upon a hinge, and is opened and ſhut at the will of the cuſtom-houſe officers.

There are at Paris forty of thoſe *barrieri*, all placed at the entrance of the ſuburbs.

BARRING *a vein*, an operation performed by farriers on the veins of horſes legs, and of other parts, in order to ſtop the courſe, and leſſen the quantity, of the malignant humours which prevail there.

It is done by opening the ſkin above the part, and, after diſengaging it, and tying it both above and below, ſtriking between the two ligatures.

When horſes have got traverſe mules, or kibed heels, and rat-tails, or arreſts in the hinder legs, it is common to BARE *a vein*.

BARRISTER, a perſon qualified and impowered to plead, and defend the cauſes of clients in the courts of juſtice.

The word is formed from *bar*, *barra*, a name given the place where they ſtand to plead.

Barriſters, in the Engliſh law, amount to the ſame with *counſellors*, and *advocates*, in other countries and courts, where the civil, &c. laws obtain.

Anciently they were denominated among us, *apprentices of the law*, *apprentici juris*; now uſually *counſellors at law*. They ſeem to have been firſt appointed by an ordinance of king Edward I. in parliament, in the twentieth year of his reign.

To make *barriſters* they were formerly obliged to ſtudy eight years, now only ſeven, and ſometimes fewer. The exerciſe required was twelve grand moots, performed in the inns of chancery in time of the grand readings, and twenty-four petty moots at the inns of chancery in term-time, before the readers of the reſpective inns of chancery.

Barriſters, according to Forteſcue, might be called to the ſtate and degree of *ſerjeants*, when they were of fifteen years ſtanding.

Utter barriſters, according to ſome, are pleaders without the bar; they are thus called to diſtinguiſh them from benchers, or thoſe who have been readers, who are admitted to plead within the bar, hence called *inner barriſters*, 2 Ed. cap. 1.

BARRIUS, in *Antiquity*, a military ſhout, raiſed by the Roman ſoldiers at the firſt charge on the enemy.

BARROW, in the Engliſh *Topography*, denotes a large hillock or mount of earth raiſed or caſt up by art; ſuppoſed to have been one of the Roman *tumuli*, or ſepulchres.

Dr. Plott takes notice of two ſorts of *barrows* in Oxfordſhire; one placed on the military ways, the other in the fields, meadows, woods, &c.

The former were doubtleſs of Roman erection; the latter more probably erected by the Britons or Danes.

Some of theſe *barrows* appear rude, and erected only of earth; others are more regular, trenched round; ſome with two or three circumvallations, and ſurmounted with monumental ſtones. Plott's Nat. Hiſt. Oxford. chap. 10. § 42.

They are to be met with in ſeveral parts of England; thoſe in Wiltſhire are well known. We have an examination of the *barrows* in Cornwall by Dr. Williams, in the Phil. Tranſ. N° 458. from whoſe obſervations we find, that theſe *barrows* are compoſed of foreign or inventitious earth, that is, ſuch as does not riſe on the place, but is fetched from ſome diſtance.

It has been thought, that theſe *barrows* were erected for ſepulchres; and this conjecture ſeems well confirmed by the urn found in one of them. This urn is made of burnt or calcined earth, very hard, and very black in the inſide: it has four ſmall handles, and in it were found ſeven quarts of burnt bones and aſhes.

That it was the ancient practice to burn the dead, is well known; and from theſe *barrows* it appears, how the nations that practiſed this way of burial, expreſſed their regard for the dead. It was by erecting over their aſhes theſe *barrows*, or *tumuli*, compoſed of earth and ſtone brought from diſtant places; and the *barrow* was generally in proportion to the greatneſs, rank, and power of the deceaſed perſon. Each ſoldier or friend might bring ſome of the earth or ſtones from diſtant places where they lived, and thus compoſe the *tumulus*. Many paſſages might be quoted from ancient authors to this purpoſe. Phil. Tranſ. loc. cit. See an account of the numerous *tumuli*, or *barrows*, diſcovered in the ſouthern part of Siberia, in the Archæologia, vol. II.

BARROWS, in the *Salt Works*, are caſes made with flat cleft wickers, in the ſhape almoſt of a ſugar-loaf, with the bottom uppermoſt, wherein the ſalt is put, as it corns, and ſet to drain. Phil. Tranſ. N° 53. p. 1065. Hought. Collect. N° 211. p. 81.

BARROWISTS, in *Eccleſiaſtical Hiſtory*. See BROWNISTS.

BARRULET, in *Heraldry*, is the half of the cloſet, or the quarter of the bar.

BARRY, in *Heraldry*.—When an eſcutcheon is divided barways into an even number of partitions, and conſiſts of two or more tinctures, interchangeably diſpoſed, it is expreſſed in blazon, by the word *barry*, and the number of pieces is to be ſpecified.—E. gr. *barry* of ſo many pieces.

If the divisions be odd, the field muſt be firſt named, and the number of bars expreſſed.

BARRY-BENDY is when an eſcutcheon is divided evenly both bar and bend-ways, by lines drawn tranſverſe and diagonal, interchangeably varying the tinctures of which it conſiſts.—Thus, he bears *barry-bendy, or and ſable* —See *Tab. Heraldr. fig.* 4.

BARRY-PILY is when a coat is divided, as repreſented in *Tab. Herald. fig.* 5. which is blazoned, *barry-pily* of eight pieces.

BARRY, *counter*. See COUNTER.

BARSANIANI, in *Church Hiſtory*, a ſect who held all the errors of the Severians and Eutychians.

BARSE, in *Ichthyology*, an Engliſh name for the common *perch*, PERCA, a well known freſh-water fiſh. It is alſo the name now in uſe for the ſame fiſh in the Saxon language, and is one of the many Saxon words we have yet retained.

BARTERING, the act of trucking or EXCHANGING one commodity for another of like value.

The word comes from the Spaniſh *barator*, *to deceive, or circumvent* in bargaining; perhaps becauſe thoſe who deal this way uſually endeavour to over-reach one another.

This is alſo called *barery*, 13 Eliz. cap 7.

In order to ſolve all queſtions that occur under this article, find the value of that commodity, the quantity of which is given, and then find how much of the other commodity will amount to that ſum at the rate propoſed.

BARTHOLOMEW's *Hoſpital*. See HOSPITAL.

BARTON, in Devonſhire, and the weſt of England, is uſed for the demeſne-lands of a manor. Alſo for the manor-houſe.—And, in ſome places, for out-houſes, fold-yards, &c.

BARTRAMIA, in *Botany*, a genus of the *decandria monogynia* claſs of plants; the calyx of which is a perianthium, cut into five parts; the corolla conſiſts of five wedge-ſhaped petals: the fruit is globular, and the ſeeds are four in number, convex on one ſide, and angular on the other.

BARTSIA, in *Botany*, the name of a genus of plants of the *didynamia angioſpermia* claſs, which ſeems of a middle nature between the *euphraſia*, *pedicularis*, and *rhinanthus*. The characters are theſe: the perianthium conſiſts of one leaf, and is tubular and permanent; it is bifid at the extremity, and the ſegments are emarginated, and are coloured at the points; the flower conſiſts of one petal, and is of the ringent kind; the upper lip is erect, narrow, undivided, and longer than the cup; the ſtamina are four ſetaceous filaments of the length of the upper lip of the flower, but two of them are ſhorter than the other; the antheræ are oblong, and ſtand cloſe together, under the top of the upper lip of the flower; the germen of the piſtil is oval; the ſtyle is capillary, and longer than the ſtamina; and the ſtigma is obtuſe and nutant; the fruit is an oval capſule, of a compreſſed ſhape, and pointed, is compoſed of two valves, and divided by a membrane into two cells within, the ſeeds are numerous, and ſmall.

BARULES, in *Church Hiſtory*, a ſect which maintained that the Son of God had only a phantom of a body; that ſouls were created before the world, and that they lived all at one time.

BARUTH, an Indian meaſure, containing ſeventeen gantans; it ought to weigh about three pounds and a half, avoirdupois.

BARYPYCNI, *βαρυπυκνοι*, in the *Ancient Muſic*, was a name given to ſuch chords as formed the graveſt notes of the ſeveral SPECIES. There were five *barypycni* in the ſcale. See PYCNI.

BARYTONUM, from *βαρυς*, *grave*, and *τονος*, *accent*, in the Greek *Grammar*, denotes a verb, which having no accent marked on the laſt ſyllable, a grave accent is to be underſtood.

In the Italian muſic, *baritono* anſwers to our common pitch of baſs.

BAS-*reliefs*. See BASSO-*relievo*.

BASAAL, in *Botany*, the name of an Indian tree growing about Cochin. Ray's Hiſt.

BASALT, *artificial*, or *black porcelain*, a compoſition, having nearly the ſame properties with the natural *baſalt*, invented by Meſſrs. Wedgwood and Bentley, and applied to various purpoſes in their manufactures.

BASALTES, a kind of ſtone, deſcribed by the ancient naturaliſts, as of the hardneſs and colour of iron.

Pliny, and others after him, write the word *baſaltes*. Salmaſius corrects it, *baſanites*. Its ſpecific gravity is to that of water, as 3000 or upwards to 1000.

The largeſt block of this ſtone that ever was ſeen, Pliny ſays, was placed by Veſpaſian in the temple of Peace: in it was repreſented the figure of Nilus, with ſixteen children playing about it, denoting ſo many cubits of its riſe: he adds, that the ſtatue of Memnon, in the temple of Serapis, at Thebes, which reſounded at the riſing of the ſun, was alſo made of this ſtone. How this miraculous kind of reſonance was cauſed, ſeems indicated by Juvenal, Sat. xv. ver. 5.

— Dimidio magicæ reſonant ubi Memnone chordæ—

Moſt of the antique Egyptian figures remaining, are alſo apparently of the ſame ſtone.

Some of the ancients call it *lapis Lydius*, from Lydia, the place where it was found in moſt abundance; and among the moderns it is denominated the TOUCH-STONE, as being uſed for the trial of gold and ſilver.

It is hard, heavy, cloſe, black, and reſiſts the file; and had its name from *baſed, iron*; or *βασανιζω, diligenter examino*.—Dalechampius ſays, there are ſtones of the ſame kind near Gallion in Normandy; others are brought from Ethiopia and Germany.—The Giants Cauſeway in Ireland is compoſed of the *baſaltes*.

The deſcriptions the ancients have agreed to give of the *baſaltes*, as carefully collected by De Boet, give us a very juſt and accurate deſcription of the Giant's Cauſeway, though that author has never ſeen or heard of it, the appearance of this marble in all parts of the world being the ſame, and theſe accounts plainly evincing, that the immenſe pile of the *baſaltes* in Ireland is no miracle, nor work of art, but, perhaps, the nobleſt collection of that body which the world has to ſhew.

The origin and formation of this marble has much puzzled the world; but we may conſider, that many of the known foſſile bodies have a property, like ſalts, of arranging themſelves into different figures at the time of their firſt coaleſcence into a maſs. This is from the ſame laws in nature with that of ſalts: and we are well aſſured by daily experience, that cryſtal and ſpar, according to this natural determination, even form regularly angular figures, when all the proper accidents have concurred to their concretion.

The moſt common figures of cryſtals are the hexangular columns; and thoſe of ſpar, either trigonal columns, or parallelopipeds. The combinations and mixtures of theſe, in different degrees, may naturally produce mixt figures, according to theſe degrees: and a third ſubſtance, though in itſelf not diſpoſed by nature to aſſume or arrange itſelf into any particular figure, if mixed with theſe, may be able to ſpread, extend, and enlarge the figures they concrete into, or otherwiſe alter them.

This ſubſtance has been referred by Da Coſta, and others, in imitation of the ancients, to the genus of marbles; though differing from them in many eſſential qualities. The *baſaltes* is vitreous, analogous in ſubſtance to the horny ſtones. It reſiſts aqua fortis, and the chiſſel, and only yields to a violent fire, and the engraver's wheel. When wrought in this manner it acquires the poliſh of the ancient *baſaltes*; named by the Italians *marmo paragone*. M. Deſmareſt, having accurately examined the *baſaltes*, which are found in great quantities at Auvergne, attributes their origin to the matter of volcanoes refrigerated from fuſion; and he was naturally led to this hypotheſis, by diſcovering that they were placed on beds of *lavas*, and *ſcoria*, cloſe to the opening of an extinguiſhed volcano. M. Raſpe has adopted this hypotheſis, and confirmed it by his own obſervations on the *baſalt* hills, in the neighbourhood of Caſſel, and in other places; this ſubſtance being generally found near the lavas of volcanoes; and the whole iſland of Sicily, chiefly on the ſide of mount Ætna, abounding with it. This opinion is farther ſupported by the vitreous ſubſtance of theſe ſtones; the want of marine bodies, and from the circumſtance attending ſome melted metals, which, when hardened, appear in cryſtallizations, not unlike thoſe of watery congelations. Hiſt. de l'Acad. Roy. des Sciences, at Paris, for 1751. Phil. Tranſ. vol. lxi. N° 54. Ferber's Travels through Italy, tranſlated by Mr. Raſpe, 1776.

BASANITES, in *Natural Hiſtory*, a name given by many authors to the TOUCHSTONE, uſed for trying gold, &c. Pliny ſpeaks of a *baſanites* which yielded a bloody juice, and was good againſt diſeaſes of the liver.

BASANUS, in *Natural Hiſtory*. See TOUCHSTONE.

BASARUCO, in *Commerce*, a ſmall baſe coin in the Eaſt Indies, being made only of very bad tin. Of this coin there are two ſorts, good and bad; the value of the baſe ſort is ½ lower than that of the good. Three *baſarucos* are equal to two *reet* of Portugal.

BASCANIA, in *Antiquity*, ridiculous or groteſque figures hung up by the ancient ſmiths before their furnaces, to divert envy.

BASE, BASIS, in *Architecture*, denotes the lower part of a column, or pedeſtal.

The *baſe* is alſo ſometimes called *ſpira*, from *ſpira*, the folds of a ſerpent laid at reſt, which makes a figure not unlike it.—See *Tab. Archit. fig.* 24. 25. 26. 27. 28.

BASE *of a column* is that part between the ſhaft and the pedeſtal, if there be any pedeſtal; or if there be none, between the ſhaft and the plinth, or ſoale.

The *base* is supposed to be the foot of the column; or, as some will have it, it is that to a column, which a shoe is to a man.—The members, or ornaments whereof it is composed, are supposed, by some, to have been originally intended to represent the iron circles wherewith the feet of trees and posts, which supported the ancient houses, were girt, in order to strengthen them.

The *base* is different in the different orders.—The

BASE, *Tuscan*, is the most simple of all others: consisting only of a single tore besides the plinth.—See *Tab. Archit. fig.* 24.

BASE, *Doric*, has an astragal more than the Tuscan; though that was introduced by the moderns. See *fig.* 25.

BASE, *Ionic*, has a large tore over two slender scotiæ, separated by two astragals; though in the most ancient monuments of this order there are no *bases* at all; which the architects are at a loss to account for. See *fig.* 26.

BASE, *Corinthian*, has two tores, two scotiæ, and a fillet.—See *fig.* 27.

BASE, *Composite*, has an astragal less than the Corinthian. See *fig.* 28. See the measures of the parts of the *base* in these several orders, under COLUMN.

BASE, *Attic*, or *Attenuate*, so called, because first used by the Athenians, has two tores and a scotia.

BASE *rudentée*, is that which has its tores cut like cables.

BASE, in *Fortification*, denotes the external side of the polygon; or that imaginary line which is drawn from the flanked angle of a bastion to that which is opposite thereto.

BASE, in *Gunnery*, see CANNON.

BASE, *line of the*, see LINE.

BASE *of a figure*, in *Geometry*, denotes the lowest part of its perimeter.

In which sense, the *base* stands opposed to the *vertex*, which denotes the highest part.

BASE *of a triangle*, any side thereof is occasionally so called: though properly it is the lowest side, or that which lies parallel to the horizon.

Thus, the line AB is the *base* of the triangle ABC. *Tab. III. Geom. fig.* 68. Not, but on other occasions, the lines AC, or BC in the triangle, may be made the *base*.

In a rectangled triangle, the *base* is properly that side opposite to the right angle, i. e. the hypothenuse.

BASE *of a solid figure* is its lowest side, or that whereon it stands.

Thus the circular plane DFE is the *base* of the cylinder ABDE. *Tab. Geom. fig.* 17.

BASE *of a conic section* is a right line of the hyperbola and parabola, formed by the common intersection of the secant plane, and the *base* of the cone.

BASE, *alternate*, see ALTERNE.

BASE, *collateral*, in *Optics*, see DISTINCT.

BASE *of the heart*, in *Anatomy*, denotes the broader or upper part of that viscus, to the sides of which the two auricles are affixed.—See *Tab. Anat. (Splanch.) fig.* 12. *litt. aa, and rr.*

This is sometimes also called the vertex or head, *apex*; in opposition to which, the lesser or narrower part is called *apex*, or *mucro*, the point or tip of the heart.

Some also give the denomination *basis*, to the root of the *os hyoides*.

BASE, or BASIS, in *Chemistry*; any body which is dissolved by another body which it receives and fixes, and with which it forms a compound, may be called the *basis* of that compound. Thus, for example, the *basis* of neutral salts are the alkaline, earthy, and metallic matters, which are saturated by the several acids, and form with them these neutral salts. It is proper for the convenience of chemical language to retain this manner of expression; but these *bases* must not be considered as inactive, and only yielding to the action of the acids which they fix, and to which they give a body and consistence. In every combination and solution, the several bodies which unite are equally active, their action being reciprocal. They dissolve each other; so that it is as proper to say (as Mr. Geoffroy observes) that a metal or an earth dissolves an acid, as that an acid dissolves a metal or an earth; though this latter mode of expression is most common. Probably the dissolving power which the more weighty and fixed bodies have, is really much stronger than that of bodies less weighty and fixed. It certainly is so, if the tendency to unite be only the effect of the general attraction, or the gravitation of all particles of matter to each other. See COMBINATION and SOLUTION.

BASIL, in *Pharmacy*, is that ingredient on which most stress is laid, for effecting the purpose of any compound medicine.

BASE, in *Music*, see BASS.

BASE, in *Law*.—*Base estate* is that estate which *base* tenants have in their lands.

BASE, *fee* denotes a tenure in fee at the will of the lord. By which it stands distinguished from socage, or free tenure. See FEE.

BASE *court*, is any court not of record.—Such, e. gr. is the court-baron.

BASE *tenure*, *basse tenura*, denotes holding by villenage, or other customary service; as distinguished from the higher tenures in capite, or by military service.

BASE *violet*, RESEDA, in *Botany*, see ROCKET.

BASE *knights*, *bas chevaliers*, denote the inferior order of knights as distinguished from barons and bannerets, who were the chief of superior knights.

BASE *point*, in *Heraldry*, see POINT and ESCUTCHEON.

BASE *ring of a cannon*, is the great ring next behind the touch hole.

BASELS, BASELLI, in our *Old Writers*, a kind of coin abolished by king Henry II. 1158.

BASELLA, in *Botany*, *climbing nightshade*, from Malabar, a genus of the *pentandria trigynia* class. The characters are these: the flower hath no empalement; it is shaped like a pitcher, closed toward the brim; it hath five thrums fastened to the petal; the globular germen, which is situated in the centre, supports three slender styles, crowned by oblong stigmas; the petal of the flower remains, and includes a roundish fleshy berry, including one round seed. There are two species.

From the berries of the first sort, a beautiful colour is drawn; but when used for painting, it did not last, but changed to a pale colour; it is probable, however, that some method might be found to fix it, as it is said that the juice of these berries is used for staining calicoes in India.

BASELLA, is sometimes used for the *cassada*, or DODDER.

BASEMENT, in *Architecture*, a continued base, extended a considerable length, as around a house, a room, or other piece of building.

This is also called, by ancient architects, *stereobata*; by the French, *embasement*, or *soubassement*; sometimes *piede estallo*, when it is without either base or cornice.

BASHARIANS, a sect of Mahometans, being a branch or subdivision of the *Motazalites*.

The *Basharians* are those who maintained the tenets of Bassar Ebn Motamer, a principal man among the *Motazalites*, who varied in some points from the general tenets of the sect, as extending man's free agency to a great length, even to the making him independent. He asserted, that God is not always obliged to do that which is best; for that, if he pleased, he could make all men true believers. Accordingly he taught, that God might doom an infant to eternal punishment; but taught at the same time, that he would be unjust in so doing. Vide Sale's Prelim. Disc. to the Koran.

BASHAW, PASCHA, or PACHA, a Turkish governor of a province, city, or other district.

We say, the *bashaw* of Babylon, the *bashaw* of Anatolia, the *bashaw* of Bender, &c.

All Egypt is, on the part of the grand seignior, governed by a *bashaw*, who has in reality but little power; but seems principally to be meant for the means of communicating to his divan of *beys*, and to the divans of the several military *agous*, that in their bodies, the orders of the grand seignior, and to see that they be executed by the proper officers.

If he farms the country of the grand seignior, the fines that are paid, when any life drops upon the lands, belong to him; for originally all the lands of Egypt belonged to the grand seignior; and the Porte still looks on them as its own: but the grand seignior's power being now lost, they all go to the next heir, who must, however, be invested by the *bashaw*, and is glad to compound for a small sum.

The nature of the *bashaw*'s office requires him to be ever attempting means to cut off such as are too spiriting, or engaged in designs that may be any way prejudicial to the Porte. This often occasions his own deposition; but he is unconcerned about that, as his person is always sacred; and his losing his post is only a step to higher preferment.

Bashaws include *beglerbegs*, and sometimes *sangiacbegs*; though a distinction is sometimes made, and the name *bashaw* is appropriated to the middle sort, or such as have two ensigns or horse-tails carried before them.—Those who have the honour of three tails are called *begclerbegs*; and those who have only one *sangiacbegs*.

The appellation of *bashaw* is also given by way of courtesy at Constantinople, to the lords about the grand seignior's court, the officers of the army, and almost every person of any figure.

A *bashaw* is made with the solemnity of carrying a flag or banner before him, accompanied with music and songs, by the *mirlacon*, an officer on purpose for the investiture of *bashaws*.

Bashaw, used absolutely, denotes the prime vizier; the rest of the denomination being distinguished by the addition of the province, city, or the like, which they have the command of; as the *bashaw* of Egypt, Palestine, &c. The *bashaws* are the emperor's spunges. We find loud

complaints among Christians of their avarice and extortions. As they buy their governments, every thing is venal with them.

When glutted with wealth, the emperor frequently makes them a present of a bow-string, and becomes heir to all their spoil. Tourn. Voyag. tom. i. & ii.

There are also *sub-bashaws*, or deputy governors under the first. Phil. Trans. N° 218.

BASHAW, *captain*, is the title of the Turkish high-admiral.

BASIA *ultima*, see ULTIMA.

BASIATRAPAGI, in *Botany*, a name used by some for the common *polygonum*, or knot-grass.

BASIL, among *Joiners*, denotes the angle to which the edge of an iron tool is ground.

To work on soft wood they usually make their *basil* 12 degrees; for hard wood 18; it being observed, that the more acute or thin the *basil* is, the better and smoother it cuts; and the more obtuse, the stronger and fitter it is for service.

BASIL, *order of St.* is the most ancient of all the religious orders; it takes its name from St Basil, bishop of Cæsarea, in Cappadocia, about the middle of the fourth century; who is supposed to have been the author of the rules observed by this order, though some dispute it.—The order of St. *Basil* was anciently very famous in the East.

The order of St. *Basil* still continues in Greece. The habit of the monks is black, and plain, consisting of a long cassock, and a great gown with large sleeves: on their head they wear a hood, which reaches to the shoulders: they wear no linen, sleep without sheets, in straw; eat no flesh; fast often; and till the ground with their own hands.

This order was introduced in the West in 1057, and was reformed in 1579, by pope Gregory XIII. who united the religious of this order in Italy, Spain, and Sicily into one congregation; of which the monastery of St. Saviour, at Messina, is the chief, and enjoys a pre-eminence over the rest. Each community has its particular rule, besides the rule of St. *Basil*, which is very general, and prescribes little more than the common duties of a Christian life.

BASIL, in *Botany*, *nepeum*, a genus of the *didynamia gymnospermia* class of plants, the characters of which are these: the empalement of the flower is short, permanent, of one leaf divided into two lips. The flower is of the *lip* kind, of one petal inverted; the rising lip is broad, and cut into four obtuse equal parts; the reflexed lip is long, narrow, and fawed. It hath four filamina on the lower lip, which are reflexed; two of which are a little longer than the other, terminated by half-moon-shaped summits; the germen is divided into four parts, which afterward become four naked seeds enclosed in the empalement. There are eleven species.

Basil, though it has a fragrant, and, to most, a p'easant smell, is but little used in physic. The ancients condemned the inward use of it, as hurtful to the sight. Schroder says it cleanses the lungs of phlegm, and promotes the menses. It is an ingredient in the *aqua bryoniæ composita*, or hysteric water.

BASIL, *field*, see CLINOPODIUM.

BASIL, *American field*, see MONARDA.

BASIL, *Syrian field*, *Ziziphora*, in *Botany*, a genus of the *decandria monogynia* class. The characters are these: the flower hath a long, rough, cylindrical empalement, which is slightly cut into five parts at the brim; and the flower is of the labiated kind, having a long cylindrical tube; the upper lip is oval, reflexed, and entire; and the under lip, or beard, is divided into three equal segments; it has two spreading filamina, terminated by oblong summits, and a quadrifid germen, supporting a briefly style, crowned by a sharp-pointed inflexed stigma: the germen turns to four oblong seeds, which ripen in the empalement. There are four species.

BASIL, *stone*, *and wild*, see THYME.

BASILARE *os*, in *Anatomy*, a barbarous denomination given to the *os* SPHENOIDES, on account of its being situated at the bottom or *basis* of the skull; or because a great part of the brain rests thereon, as on its *basis*.

BASILARIS *arteria*. See VERTEBRAL *artery*.

BASILEUS, *Βασιλευς*, a title assumed by the emperors of Constantinople, exclusive of all other princes, to whom they give the title *rex*, *king*.

The same quality was afterwards given by them to the kings of Bulgaria, and to Charlemagne, from the succeſsors of which last they endeavoured to wrest it back again.

The title *basileus* has been since assumed by other kings, particularly by the kings of England; *Rex Edgar totius Angliæ basileus coronatus*.

Hence also the queen of England was intitled *Basilissa* and *Basilissa*.

BASILEUS, in *Ornithology*, a name by which several of the old authors called the *regulus cristatus*, or golden crowned wren.

BASILIANS, see BASILITÆ.

BASILIC, or BASILICA, in the *Ancient Architecture*, denotes a kind of public hall, or court of judicature, where the princes or magistrates sat to administer justice. See *fig.* 40. *Tab. Architect.* The figure is drawn to introduce several rules and decorations, which could not be so well explained as by representing them in their proper order, and exhibiting their use, and the manner in which they may be applied.

The word is originally Greek, *Βασιλικη*, *q. d. royal house*, or *palace*.

The *basilics* consisted of a great hall, with isles, porticos, tribunes, and tribunals. What we Westerminster-hall is properly a *basilic*; but architects have taken the liberty to extend its *meaning* farther; and *basilic* is now used as a name for any spacious building, as hall, church, &c. When applied to a church, it conveyed the idea of great magnificence.

The bankers too had one part of the *basilicæ* allotted for their residence. The scholars also went thither to make their declamations, according to the testimony of Quinctilian.

The Roman *basilicæ* were covered, by which they were distinguished from the *fora*, which were public places open to the air.

In after times the denomination *basilica* was also given to other buildings of public use, as town-houses, exchanges, hostels, and the like.

The first *basilica* was built at Rome by Cato the elder; whence it was called *Porcia*; the second was called *Opimia*; the third was that of Paulus, built with a great expence and with much magnificence, whence it was called by some *regia Pauli*: another was built by Julius Cæsar, called *basilica Julia*; of which Vitruvius tells us he had the direction.

There were others also, to the number of eighteen or twenty. The *basilica Julia* not only served for the hearing of causes, but for the reception and audience of foreign ambassadors. It was supported by a hundred marble pillars in four rows, and enriched with decorations of gold and precious stones. In it were thirteen tribunals or judgment seats, where the prætors sat to dispatch causes.

BASILIC, BASILICA, is also used in *Ecclesiastical Writers*, for a church.

In which sense this name frequently occurs in St. Ambrose, St. Austin, St. Jerom, Sidonius, Apollinaris, and other writers of the fourth and fifth centuries.

M. Perrault says, that *basilicæ* differed from *temples*, in that the columns of temples were without-side, and those of *basilicæ* within.

Some will have the ancient churches to have been called *basilicæ*, because generally built in the fashion of the Roman halls called by that name; others because divers churches were formed of those halls. In reality, on the conversion of Constantine, many of the ancient *basilicæ* were given to the church, and turned to another use, viz. for christian assemblies to meet in, as were be collected from that passage in Ammianus, where speaking to the emperor Gratian, he tells him the *basilicæ*, which heretofore were wont to be filled with men of business, were now thronged with votaries praying for his safety. By which he must needs mean, that the Roman halls or courts were turned into Christian churches: and hence we conceive, the name *basilica* came to be a general name for churches in after ages.

BASILIC is chiefly applied, in modern times, to churches of royal foundation; as those of St. John the Lateran, and St. Peter of the Vatican, at Rome, founded by the emperor Constantine.

BASILIC appears also to have been given in later ages to churches before consecration.

BASILICS were also little chapels built by the ancient Franks over the tombs of their great men, so called, as resembling the figure of the sacred *basilicæ* or churches.

Persons of inferior condition had only *tombæ*, or *particulæ*, erected over them. By an article in the Salic law, he that robbed a *tumba* or *particula*, was to be fined fifteen *solidi*; but he that robbed a *basilica*, thirty *solidi*.

BASILICA, or BASILICUS, in *Anatomy*, the name of a vein, arising from the axillary branch, and running the whole length of the arm. See *Tab. Anat. (Angeiol.) fig.* 6. *lit. s.* The *basilica* is one of the veins opened in bleeding in the arm.

BASILICS, BASILICA, a collection of the Roman laws, translated into Greek by order of the emperors Basil and Leo, and which were in force in the eastern empire till its dissolution.

The *basilics* comprehend the institutes, digests, code, and novels, and some edicts of Justinian, and other emperors. The collection consisted of sixty books, for which reason it was called τα εξηκοντα βιβλια. It is supposed to be chiefly the work of the emperor Leo the Philosopher, who denominated it from his father Basilius Macedo, who first began it in 867. It was published by Leo, with additions in 880; and thirty years after, corrected and improved by his son Constantin Porphyrogenitus.—Of these sixty books there

are now remaining only forty-one; the other nineteen are, in some measure, supplied by Fabrottus, from the *Synopsis Basilicon*, &c.

BASILICI, *Basilici*, in the Greek *Empire*, was a denomination given to the prince's mandatories, or those who carried his orders and commands.

BASILICON, or BASILICUM, in *Pharmacy*, is the denomination of an officinal unguent or plaister; called also *tetrapharmacum*, as being composed of four simples, viz. resin, wax, pitch, and oil-olive. See UNGUENTUM.

BASILICUS, or BASILICA, in *Astronomy*, is the name of a fixed star of the first magnitude, in the constellation Leo; called also REGULUS, and CORDONIS.

BASILIDIANS, the followers of Basilides, an Egyptian, who lived near the beginning of the second century. In general, the *Basilidians* held much the same opinion with the Valentinians, another branch of the GNOSTICS.

BASILISCUS, in *Ornithology*, a name given by some of the old authors to the *regulus cristatus*, or golden-crowned wren. This name is a diminutive of the word *basileus*, *king*, another of its names, given it because of its golden crown.

BASILISCUS, BASILISK, or BASILISK, is also used to denote a very dangerous sort of serpent, which kills, as it is said, by its breath or sight only.

The generation of the *basilisk* is not less marvellous, being said to be produced from a cock's egg, brooded on by a serpent. These, and other things equally ridiculous, are related by Matthiolus, Galen, Dioscorides, Pliny, and Erastosthenes. Kirchmayer, and Vander Wiel have given the history of the *basilisk*, and detected the folly and impostures of the traditions concerning it.

We find the *basilisk* mentioned in the Bible; but the Hebrew word *pethen*, which is translated *basilisk*, signifies an *asp*, as the best interpreters agree. Calmet.

The *basilisk*, in the Linnæan *System*, is a species of the LACERTA.

BASILISC is also metallically used by the alchemists, to denote the sublimate mercury of the philosophers.

BASILISC also denotes a great piece of ordnance; thus denominated from its supposed resemblance to the serpent of that name.

The *basilisk* throws an iron ball of two hundred pounds weight. It was much talked of in the time of Solyman emperor of the Turks, in the wars in Hungary; but seems now out of use.

Mathesius speaks of *basilisks* made of brass, which were drawn each by a hundred yoke of oxen.

Modern writers also give the name *basilisk* to a much smaller and portable piece of ordnance, which the Dutch make fifteen feet long, and the French only ten. It carries forty-eight pound.

BASIOGLOSSUM, or rather BASIOGLOSSUS, in *Anatomy*, a pair of muscles, which arise fleshy on the basis of the *os hyoides*, and are inserted into the root of the tongue: serving to draw the tongue towards the bottom of the mouth. The word comes from the Greek *βασις*, *foundation*; and *γλωσσα*, *a tongue*.

The *par basioglossum* is otherwise denominated, from its figure, *par lyoglossum*.

Some have denied the existence of the *par basioglossum*, particularly Fallopius and Mr. Cowper; though this last, on farther enquiry, found some fibres, which by their contrary order to those of the *genioglossum*, induced him to allow the *basioglossum*. Heister only makes the *salioglossum* a part of the *ceratoglossum*.

The *basioglossum*, with the *genioglossum*, *ceratoglossum*, and *hyoglossum*, form the body of the TONGUE.

BASIS, in the *Ancient Music* and *Poetry*, denotes the equability of sounds, proceeding in the same degree.

In which sense, *basis* stands contradistinguished from *arsis*, or elevation, as well as from *thesis*, or depression.

BASIS, in *Oratory*, denotes the fourth member of a complete exordium, being that which succeeds the *epodos*, and prepares the way for the proposition.

BASIUM, Chemists use the word *basium*, which literally in Latin signifies a *kiss*, for an extemporaneous tincture of iron and copper, invented by Cluseus.

BASKET, a kind of vessel made of osier, wicker, rushes, or the like, of different figures and sizes, according to the use it is intended for.

Baskets have their uses not only in the commercial, but military affairs; at sieges, they make use of a small *basket* filled with earth and ranged on the top of the parapet.

They are about a foot and a half high, as much in diameter at top, and eight or ten inches at bottom; so that being set together, they leave a sort of embrasures at the bottom through which the soldiers fire, without exposing themselves.

BASKET also imports a kind of measure or quantity of certain commodities.

BASKET, *corbeille*, in *Architecture*, a kind of vase, or figured piece of sculpture, in form of a *basket*, filled with flowers or fruits, serving to terminate some decoration.

BASKET-*fish*, in *Natural History*, a name given by the English in North America to a very remarkable fish, sometimes caught in the seas thereabout, though not frequent any where.

Dr. Hooke, to whom it was referred by the Royal Society to name it, has called it, *Piscis echinoderma subsphæricus*, the body of it resembling an egg-fish, or *echinus marinus*, and the arms a star-fish, and finally the dividing of the branches being more like that of the branches of millepore than any other natural production we are acquainted with.

This fish spreads itself from a pentagonal mouth-piece, or root, in the centre of which the mouth is placed, into five main limbs or branches; and each of these, at its first issuing out of the body, is divided into two: this makes ten. Each of these ten again divides into two, which makes twenty, and so on, each dividing to the fourteenth time; at which place they make more than fourscore thousand limbs. These are too small to be traced farther by the eye, or preserved in carriage; but it is very probable, that even these were again divided, perhaps several times.

The branches between the joints are not all equally of a length, though, for the most part, they are pretty nearly so. The arms or branches are never very strong; but when they are dry, they are greatly more brittle than before, the least force imaginable easily forcing them.

The finals of Nantucket, an island on the coast of New England at times furnish the fishermen with this creature; but it is remarkable, that they are never seen there, unless when taken by hooks in fishing for other fish. They clasp the hook-bait fast, and encircle it with all their arms, coming up, when drawn by it, in form of a wicker basket; whence the name; but when they have been some time out of the water, they become flat.

The use of the numerous arms of this fish is plainly to catch its prey. It probably extends them to their full length while under the water, and then clasps hold of any thing fit for food that chances to swim over them. The fishermen have sometimes found the arms containing small mackrel, or percel of larger. Phil. Trans. N° 37 and 74.

It is evident from the description, that this fish is of the *stellæ affines genus*, or branched star-fish kind; but whether the same with the common known kind called the *caput medusæ*, is not evident from this description. The body of this fish, by what is related of its protuberance, and resemblance to the *echini marini*, may probably be the *asperpetonum*, in its fossil state.

BATKEY *salt*. This is a brine salt, made from the water of our salt-springs in Cheshire, and elsewhere, differing from the common brine salt in the fineness of the grain, and in its whiteness and purity.

In the preparing of this kind of salt, some use resin, and other additions, to break the grain, and make it small; others effect this by keeping up a very brisk fire under it, and stirring it all the while; but the most approved method is only to take out of this kind the third draught of every pan that is working for the common brine salt, and to do this before the granules or crystals are perfectly formed. By this means the salt is very fine; and when it has been hard pressed down into small wicker baskets, it is dried at the stove in them, and so kept for sale.

BASON, *pelvis*, in *Anatomy*, a round cavity in form of a tunnel, situate between the anterior ventricles of the brain, descending from its base, and ending in a point at the *glandula pituitaria*.

It is formed of the *pia mater*, and receives the *pituita* which comes from the brain, and passes through the pituitary gland, and from thence into the veins.

This capacity is also called *pelvis*, or *basis*, which is formed by the *pia* and *sacrum*, and contains the bladder of urine, the *matrix* and the intestines.

BASON *of a balance*, two pieces of brass, or other matter, fastened to the extremities of the beam: the one to hold the weight, the other the thing to be weighed.

BASON, or *dish*, among *Glass Grinders*.—These artificers use various kinds of *basons*, of copper, iron, &c. and of various forms, some deeper, others shallower, according to the focus of the glasses that are to be ground. In these *basons* it is, that convex glasses are formed, as concave ones are formed on spheres or bowls.

Glasses are wrought in *basons* two ways.—In the first, the *bason* is fixed to the arbor, or tree of a lath, and the glass (fixed with cement to a bauble of wood) presented and held full in the right hand within the *bason*, while the proper motion is given by the foot of the *bason*. In the other, the *bason* is fixed to a stand or block, and the glass with its wooden handle moved.

The moveable *basons* are very small, seldom exceeding five or six inches in diameter; the others are larger, sometimes above ten feet diameter.

After the glass has been ground in the *bason*, it is brought smoother with gritsale and emery; and polished first with tripoli, and finished with paper cemented to the bottom of the *bason*.

BASON, among *Hatters*, is a large, round shell, or case, ordinarily of iron, placed over a furnace; wherein the matter of the hat is moulded into form.

The hatters have also *basons* for the brims of hats, usually of lead having an aperture in the middle, of a diameter sufficient for the largest block to go through.

BASON is also used on various occasions for a small receiving vessel of water: as the *bason* of a *jet d'eau*, or fountain; the *bason* of a port, of a bath, &c. which last Vitruvius calls *labrum*. *Basons* are made either with clay, cement, or lead; but they are most usually made with clay. In the making of them this way, the diameter must be made four feet longer on each side than the *bason* is to be. This will be taken up by the walls of clay. For the same reason, it must be dug two feet deeper than the intended depth of the water; because it is to be laid over eighteen inches thick with clay, and six inches with gravel and paving. The wall is to be made with shards, rubbish, or flints, with the natural earth for mortar; and the clay must be well worked and trod firmly down with the naked feet.

The way of making them with cement is, to allow one foot nine inches every way for the work; then cut the banks perpendicularly, and raise a wall of masonry, a foot thick, made of pebble stones, or the like, laid in mortar of lime and sand: the bottom is then to be covered to the same thickness; and then the solid lining of the cement is to be backed up against the walls, and over the bottom. This is to be made of small flints in beds of mortar made of lime and cement. When this solid is eight inches thick, it must be plastered over the whole surface with cement well sifted, before it be mixed with the lime; and with this it is to be wrought over smooth with a trowel. The proportion of this cement should be two thirds of the cements, or powdered tile, to one third of lime; and this cement has the property of hardening so under water, that it will become like stone or marble, and will not be subject to decay for a long time.

After the finishing, the *bason* should, for some or five days, be anointed over very often with oil, or bullocks blood, to keep it from flawing or cracking in the drying; and after this, the water should be let in as soon as may be.

The leaded *basons* are made with walls a foot thick, and a bottom of half a foot. These must be of rubble stones cemented with plaster; for the lime will injure and eat the lead, the sheets of lead are to be spread over these walls and bottom, and seamed with solder. These *basons*, however, are but little in use now, from the expence of making them, and the danger of the lead being stolen.

The waste pipes of fountains ought always to be made large enough, for fear of choaking. When the waste water is to be carried off into common sewers, it may be carried away in drains, or earthen pipes; but when it is to serve for *basons* that lie below it, it is to be conveyed in leaden ones. Miller.

There are divers sorts of *basons*; as

BASON, *figured*, that whose plan or circumference makes several turns and returns, either straight, circular, or the like. Such are most of the *basons* of fountains at Rome.

BASON *with a balustrade*, that whose cavity is surrounded with a balustrade of stone, marble, brass, or the like.

BASON *with a trench*, or *basin a regale*, that whose border being of marble, or other stone, has a trench cut in it, from whence, at certain distances, springs out a thread of water, which lines the trench, and forms a kind of nape or gargle round the balustrade. Such is that of the fountain of the rock of the Belvidere at Rome.

BASON *en coquille*, that shaped like a shell.

BASON is likewise used for a DOCK.

BASON *of the sea*. See SEA.

BASON, *sale by the*, at Amsterdam, is used for the public sales made under the direction of the *ten the meester*; thus called, by reason that, before adjudging the lot or commodity to the last bidder, they usually strike a brass *bason* to give notice of it.

BASS, in *Music*, that part of a concert which is the most heard, which consists of the gravest, deepest and longest sounds; or which is played on the largest pipes or strings of a common instrument, or on instruments larger than ordinary, for the purpose.

It is called *bass*, from the Italian *basso*, of the Latin *bassis*, as being the foundation of the harmony.

Musicians hold the *bass* the principal part of a concert, and the foundation of the composition; though some will have the *treble* the chief part, which others only make a circumstance, or ornament.

The ingenious Dr. Franklin, in his very curious letter to lord Kames on this subject, declares it to be his opinion that the *bass* is unnecessary to some tunes, and gives some reasons in support of it, which the curious may see there. Experiments, Observations, &c. 4to. 5th ed. p. 480.

Rousseau appears to be of the same opinion. See Dict. de Musique, an. 1768.

BASS, *counter*, is a second *bass*, where there are several in the same concert.

BASS, *thorough*, in that which proceeds, without interruption from the beginning of a musical composition to the end.—By which it stands contradistinguished from the *singing bass*, and the *basses of stops*, which make pauses from time to time. The *thorough-bass* is the harmony made by *bass* viols, theorbos, or the like, continuing to play, both while the voices sing, and the other instruments perform their part; and also filling the intervals when any of those stop.

M. Brossard observes the *thorough bass* to be a part of the modern music, first invented in 1600, by an Italian, called Ludovico Viadana.

It is commonly distinguished from the other *basses* by figures over the notes, directing what chords are to be played to them; which figures are proper only for the organ, harpsichord, spinet, and theorbo lute.—But it is to be observed, a *thorough bass* is not always figured, though it ought to be so.

BASS, *fundamental*. See FUNDAMENTAL and KEY.

BASS, among *Gardeners*, a soft kind of sedge or rush, used in binding plants, &c.

BASSAD, or BESS, an Arabian name for the purple *fucus* of the Greeks, used by the women to paint their cheeks, and by the dyers of cloths. It has been so far misunderstood by the authors as to be interpreted by the word coral; but the error of this is evident, since CORAL has none of these properties. See MARGIAN.

BASSANUS, in *Ornithology*, a species of the PELICAN.

BASSE, in *Ichthiology*, the English name of the *fea-wolf*, the *lupus* of authors. The Greeks have called this *lupus*; and some of the later writers, as Paulus Jovius, and others, *pagrus*. It is properly a species of perch, and is distinguished by Artedi by the name of the perch with thirteen rays in the second fin of the back, and fourteen in the *pinna ani*. See PERCH and LUPUS *Marinus*.

BASSE-*cour*, in *Building*, a court separated from the principal one, and destined for the stables, coach-houses, and livery servants.

BASSE-*cour* of a country-seat, is the yard, or place where the cattle, fowls, &c. are kept.

That where strange creatures of divers sorts are kept for curiosity, is called by the French *menagerie*. The Romans gave the name of *vivarium* to that place where beasts were kept for the public shews.

BASSE, in *Middle Age Writers*, denotes a collar for earthorses, made of flags.

Hence also the round, matted cushion of flags, used for kneeling, in churches, is called *basse*, in Kent. *Lye*.

BASSET, or BASSETTE, a game with cards, said to have been invented by a noble Venetian, for which he was banished. It was first introduced into France by Signior Justiniani, ambassador of Venice, in 1674. Severe laws were made against it by Louis XIV. to close which they disguised *basset* under the name of *pour le contre*, that is, *for and against*, which occasioned new arrets and prohibitions in parliament. The parties concerned in it are, a dealer or banker, his assistant, who supervises the playing cards, and the punter, or any one who plays against the banker. Besides these, there are other terms used in this game, as,

1. The *taille*, or *face*, which is the first card turned up by the *tailleur* belonging to the pack; by which he gains half the value of the money laid down on every card of that sort by the punters.

2. The *couch*, or first money which every punter puts on each card; each person that plays having a book of thirteen several cards before him, on which he may lay his money, more or less, at discretion.

3. The *parolli*, which is, when a punter having won the first stake, and having a mind to pursue his good fortune, crooks the corner of his card, and lets his prize lie, aiming at a *sept et la va*.

4. The *masse*, when having won the first stake, the punter is willing to venture more money on the same card.

5. The *boy*, when the punter having won the first stake, be it a shilling, half-crown, guinea, or whatever he laid down on his card, and not caring to hazard the parolli, leaves off, or *sort the boy*; in which case, if the card turn up wrong, he loses nothing, having won the couch before; whereas if it turn right, he, by this adventure, wins double the money staked.

6. The *refait*, much the same with parolli, and used when a couch is won by turning up, or crooking the corner of the winning card.

7. *Sept et le va*, the first great change or prize, when the punter having won the couch, makes a parolli, and goes on to a second chance; so that if his winning card turns up again, it comes to *sept et le va*, which is seven times as much as he laid down on his card.

8. *Quinze et le va* is the next higher prize, when the punter having won the former, is resolved to push his fortune, and

lay

lay his money a second time on the same card, by crooking another corner; in which case, if it come up, he wins fifteen times the money he laid down.

9. *Trent et le va* is the next higher prize, when the punter, crooking the fourth corner of his winning card, if it turn up, wins thirty-three times the money he first staked.

10. *Soixant et la va* is the highest prize, and entitles the winner to sixty seven times his first money; which if it were considerable, stands a chance to break the bank: but the bank stands many chances first of breaking the punter. This cannot be won, but by the *tailleur's* dealing the cards over again.

The rules of the game of *basset* are as follow:

The banker holds a pack of fifty-two cards, and having shuffled them, he turns the whole pack at once, so as to discover the last card; after which he lays down all the cards by couples.

The punter has his book of thirteen cards in his hand, from the king to the ace; out of these he takes one card, or more, at pleasure, upon which he lays a stake.

The punter may, at his choice, either lay down his stake, before the pack is turned, or immediately after it is turned, or after any number of couples are drawn.

Supposing the punter to lay down his stake after the pack is turned, and calling 1, 2, 3, 4, 5, &c. the places of those cards which follow the card in view, either immediately after the pack is turned, or after any number of couples are drawn. Then,

If the card, upon which the punter has laid a stake, comes out in any odd place, except the first, he wins a stake equal to his own.

If the card, upon which the punter has laid his stake, comes out in any even place, except the second, he loses his stake.

If the card of the punter comes out in the first place, he neither wins nor loses, but takes his own stake again.

If the card of the punter comes out in the second place, he does not lose his whole stake, but only one half; and this is the case in which the punter is said to be *saved*.

When the punter chooses to come in after any number of couples are drawn, if his card happens to be but once in the pack and is the last of all, these is an exception from the general rule; for though it comes out in an odd place, which should entitle him to win a stake equal to his own, yet he neither wins nor loses from that circumstance, but takes back his own stake.

This game has been the object of mathematical calculations. M. de Moivre solves this problem: to estimate at *basset* the loss of the punter under any circumstance of cards remaining in the stock when he lays his stake, and of any number of times that his card is repeated in the stock. From his solution he has formed a table, shewing the several losses of the punter in whatsoever circumstances he may happen to be. See Doctr. of Chances, p. 63.

From this table it appears, 1. that the fewer the cards are in the stock, the greater is the loss of the punter. 2. That the least loss of the punter, under the same circumstances of cards remaining in the stock, is when his card is but twice in it; the next greater when but three times: still greater when four times; and the greatest when but once. The gain of the banker, upon all the money adventured at *basset*, is 15*l.* 3*d. per cent.* De Moivre, Doctr. of Chances, p. 69. edit. 3.

BASSETING, in the *Coal Mines*, denotes the rise of the vein of coal towards the surface of the earth, till it come within two or three feet of the surface itself.

This is also called by the workmen *creeping*, and stands opposed to *dipping*, which is the descent of the vein to such a depth, that it is rarely, if ever, followed to the end.

BASSON, or BASSOON, a musical instrument of the wind kind, blown with a reed, and furnished with eleven holes; serving for the *bass* in concerts of hautboys, &c.

To make it more portable, it divides into two parts, whence it also bears the denomination *fagott*. Its diameter at bottom is nine inches, and its holes are stopped, like those of large flutes.—A good *basson* is said to be worth four or five hundred pistoles.

BASSO *relievo*, or BAS *relief*, a piece of sculpture, the figures whereof do not project far, or stand out from the ground, with their full proportion.

M. Hellot, in the Mem. Acad. des Scienc. an. 1745, communicates a method of making raised figures of gold, on works of gold or silver, found among the papers of M. Du Fay, who had seen several trials of it. See the process in the above memoir referred to, and in the Commerc. Phil. Techn. 4to. p. 80.

M. Felibien distinguishes three kinds of *relievos*: in the first, the front figures appear almost with their *full relievo*, called *alto relievo*; in the second they do but stand out one half, called *mezzo relievo*; and in the third, much less, which is the proper *basso relievo*, as in coins, vases, &c. See RELIEVO.

BASSO *relievo* make part of the furniture of antiquaries. Those of the Trajan and Antonine columns have been copied by Bartoli, and explained by Bellori, &c. Those of the arch of Severus by Sorrechus.

Some have also made maps and prospects of countries in *basso relievo*. Phil. Trans. N° 6. p. 99.

BASSO *ostinato*, in *Law*, see ALTO.

BASS-VIOL, a musical instrument of the same form with that of the violin, except that it is much larger.—It is struck like that, with a bow; and has strings, and eight stops, divided by half-stops, or semi-tones.

The sound it yields is much more grave, sweet, and agreeable, than that of the VIOLIN, and of a much nobler effect in a concert.

BASTAGARII, in *Antiquity*, a college or company at Rome, who carried the fifteen species out of the provinces to Rome or Constantinople.

The directors of these were called *præpositi bastagarum*.

The word is derived from *bastago*, which properly imports the office of carriage or conveyance, from *βαστάζω, portare, to carry*.

This denomination *bastagarii* has also been given to those who carry the images of saints at processions. Du-Cange.

BASTARD, a natural child, or one born out of lawful wedlock.

The word is of Saxon etymology, and is compounded of *bas, ville* or *ignoble*, and *ard, heart, original*.

A *bastard* differs from one born in adultery, or incest, in that the parents of the former are free, or allowed to marry, which those of the latter are not.

The *bastards*, or natural sons of a king in France, are princes when owned; those of a prince, or nobleman, are gentlemen; but those of a gentleman are only plebeians, and pay taxes accordingly.

By the French laws, *bastards* cannot inherit before they are legitimated, nor have heirs, except their own children begot in wedlock: for want of these, their inheritance devolves on the king.

By the Roman law, the mother inherited from her *bastard* child, and *vice versa*; but there was a great difference between *bastards, nothi*, and those they called *spurii*. The law did not own the latter, nor allow them sustenance, because they were born in common and uncertain prostitution. *Is non habet patrem, cui potius sit populus.* The former sort, born in concubinage, which resembles marriage, inherited from their mothers, and had a right to demand sustenance of their natural fathers. They were looked upon as domestic creditors, that ought to be treated the more favourably, for being the innocent product of their parents crimes. Solon would have it, that the parents should be deprived of their paternal authority over their *bastard*, because, as they were only parents for pleasure, that ought be their only reward.

Anciently, in Rome, natural children were quite excluded from inheriting after their fathers *ab intestato*: but they might be appointed heirs in general. The emperors Arcadius and Honorius made a restriction, that when there were legitimate children, the *bastards* should only come in for a twelfth, to be shared with their mother. Justinian afterwards ordered that they might come in for half; and succeed *ab intestato*, for a sixth, when there were legitimates.

Bastards might be legitimated by subsequent marriage, or by the emperors letters. Only the king in France, and the king and parliament in England, can give *bastards* a right of legitimacy, and a power to inherit. The emperor Anastasius allowed fathers to legitimate their *bastards* by adoption alone; but this was abolished by Justin and Justinian, lest by this indulgence they should authorise concubinage. The pope has sometimes legitimated *bastards*; nay, the holy see has, on some occasions, dispensed not only with illegitimates, but with the effecting of adultery, as to spiritual considerations, in allowing of their promotion to episcopacy.

Bastards not legitimated may dispose of their goods by donation, when alive, or by will afterwards. Those legitimated by subsequent marriage are in the same state, and enjoy the same right with those born in wedlock; but those who are legitimated by the king's letters, are not esteemed legitimate, or capable of inheriting but with regard to such of their parents as have consented to their legitimation. Pope Clement VII. by his bull, forbad a priest to resign his benefice to his *bastard*.

An attempt was once made to introduce the civil law here in this respect, by declaring children legitimated by a subsequent marriage; but it was rejected: and it was upon this occasion that the barons of England made that famous answer, *Nolumus leges Angliæ mutari*.

A *bastard's* arms should be crossed with a bar, fillet, or traverse, from the left to the right. They were not formerly

allowed to carry the arms of their father, and therefore they invented arms for themselves, and this is ſtill done by the natural ſons of a king.

Baſtards cannot be admitted to ſimple benefices, or the loweſt orders, or to more than a ſimple benefice, without orders from the pope: nor are they allowed to bear office without the prince's letters. But this doctrine ſeems now obſolete.

A *baſtard* by the law of England cannot inherit land or heir to his father, being *nullius filius*; nor can any perſon inherit land as heir to him, but one that is heir of his body. If a child be gotten by him who doth marry the woman after the child's birth, yet it is in judgment of the law a *baſtard*, though the church holds it legitimate.—If one marry a woman and die before night, and never bed her, and the have a child after, it is yet accounted his child, and inheritable.—If a man or woman marry again, and have iſſue by the ſecond wife or huſband, while the firſt is living, ſuch iſſue is a *baſtard*.—If a woman elope with a ſtranger, and have a child by him, her huſband being within the four ſeas, this is legitimate, and ſhall inherit the huſband's lands. But this notion is not now adhered to; for though the huſband and wife are both in England, if there be ſufficient proof that he had no acceſs to her, the child will be a *baſtard*.—He that gets a *baſtard* in the hundred of Middleton, in Kent, forfeits all his goods and chattels to the king. By ſtat. 18 Eliz. cap 3. two juſtices may take order for the puniſhment of the mother and reputed father of a *baſtard*; and by ſtat. 7 Jac. I. cap. 4. the penalty of commitment to the houſe of correction is inflicted on the woman only. But it ſeems that in both caſes the penalty can only be inflicted, when the child becomes chargeable to the parish. By 6 Geo. II. cap. 31. the reputed father may be apprehended by warrant of a juſtice on the oath of a pregnant woman, and committed, unleſs he gives ſecurity to indemnify the parish to which the child belongs. But by ſtat. 18 Eliz. the woman is not compellable to anſwer any queſtions relative to her pregnancy, till one month after her delivery.

If a *baſtard* be got under the ombrage of a certain oak in Knoll wood in Staffordſhire, belonging to the manor of Terley Caſtle, no puniſhment can be inflicted; nor can the lord, nor the biſhop, take cognizance of it. Plot's Hiſt. Stafford. p. 279.

BASTARD, in the *Sea language*, is uſed for a large ſail of a galley, which will make way with a ſtark wind.

BASTARD is alſo uſed adjectively, or in compoſition with divers other words, to denote things of inferior or diminutive value.

In this ſenſe we meet with *baſtard*-coral, *baſtard*-alabaſter, *baſtard*-amianthus, &c.

BASTARD-*ſaffron* is the ſame with what is otherwiſe called *ſaf-flower*, ſometimes *ſcarlet-flowers*, as being uſed in dying ſcarlets.

BASTARD-*ſcarlet*, is a name given to red dyed with bale-madder, as coming neareſt the How-dye, or new ſcarlet.

BASTARD, in reſpect of artillery, is applied to thoſe pieces, which are of an unuſual or illegitimate make or proportion. Theſe are of two kinds, long and ſhort, according as the defect is on the redundant or defective ſide.

The long *baſtards*, again, are either common or uncommon. To the common kind belong the double culverin extraordinary, half culverin extraordinary, quarter culverin extraordinary, falcon extraordinary, &c.

The ordinary *baſtard* culverin carries a bullet eight pounds.

BASTARDS are alſo an appellation given to a kind of faction or troop of banditti, who roſe in Guienne, about the beginning of the fourteenth century, and joining with ſome Engliſh parties, ravaged the country, and ſet fire to the city of Xaintes.

Mezeray ſuppoſes them to have conſiſted of the natural ſons of the nobility of Guienne, who being excluded the right of inheriting from their fathers, put themſelves at the head of robbers and plunderers to maintain themſelves.

BASTARDY *is a* defect of birth objected to one born out of wedlock.

BASTARDY, *right of, droit de baſtardiſe*, in the French *Laws*, is a right, in virtue whereof the effects of baſtards dying inteſtate, devolve to the king, or the lord.

BASTARD *diſeaſe*, &c. See SYPHILIS.

BASTARD *eutaxy*, &c. See EUTAXY.

BASTERNA, a kind of vehicle, or chariot, uſed by the ancient Roman ladies.

Papias thinks, that *baſterna* was firſt written for *veſterna*: Roſtwelid ſays, it ſhould be *vitæ ſterna*, which he concludes from Iſidore, who ſays, *baſterna, vitæ ſterna*. But the word ſeems better derived from the Greek βαζω, *portо, I carry*.

Salmaſius obſerves, that the *baſterna* ſucceeded the *lectica*, or *litter*, from whence it differed very little, except that the litter was born on the ſhoulders of ſlaves, and the *baſterna* born or drawn by beaſts. Caſaubon ſays it was borne by mules. P. Daniel, Mabillon, &c. affert it was drawn by oxen, to go the more gently; and Gregory De Tours gives an inſtance of it as being drawn by wild bulls. The inſide they called the *vehes*, or *veget*: it had ſoft cuſhions or beds, beſides glaſſes on each ſide, like our chariots.

The mode of *baſternæ* paſſed from Italy into Gaul, and thence into other countries; and to this we owe our chariots; which, though we call them *carras*, yet have they no conformity to the ancient *carræ*, but are in effect *baſternæ* improved.

The *baſterna* appears alſo to have been uſed in war, for carrying of baggage.

BASTILE, denotes a ſmall antique caſtle, fortified with turrets. Such is the *baſtile* of Paris, which ſeems the only caſtle that has retained the name: it was begun to be built in 1369, by order of Charles V. and finiſhed in 1383, under the reign of his ſucceſſor.—Its chief uſe is for the cuſtody of ſtate-priſoners.

BASTION, in the *Modern Fortification*, a huge maſs of earth, uſually faced with ſods, ſometimes with brick, rarely with ſtone, ſtanding out from a rampart, whereof it is a principal part.

This anſwers to what in the ancient fortification is called *propugnaculum*, or a *bulwark*.

Baſtions, ſome ſay, were firſt introduced by Zifca the Bohemian; others attribute the invention of them to Achmet Baſhaw, in the year 1480, mentioning the fortification of Otranto as the firſt inſtance in which they were uſed. However, they were well known ſoon after the year 1500; for Fatrabet gives a plan of Turin, which had been completely fortified for ſome time with four *baſtions*, in his Queſtit & Inventioni diverſe, publiſhed in 1546. The firſt *baſtions*, ſuch as thoſe of Turin and of Antwerp, which was fortified about the year 1540, were ſmall, and removed at a great diſtance from each other: but they were made much larger, and brought nearer to each other in the citadel of Antwerp, erected under the direction of the duke d'Alva, about the year 1566.

A *baſtion* conſiſts of two faces, and two flanks, and an opening toward the centre of the place, called the GORGE.—The faces are the lines BC and CS (*Fab. Fortificat. fig.* 1.) including the angle of the *baſtion*. See FACE.—The flanks are the lines BA, SD.

The union of the two faces makes the outmoſt or ſaliant angle, called alſo the *angle of the baſtion*, BCS.

The union of the two faces to the two flanks makes the ſide-angles, called the *ſhoulders*, or *epaules of the baſtion*.

And the union of the two other ends of the flanks to the two curtins, the angles of the flanks of the *baſtion*.—See *Tab. Fortific. fig.* 21. *lit. nn. &c. p p.*

The foundation of the *baſtion*, i. e. of a work conſiſting of flanks and faces, is that great rule in fortification, viz. that every part of the work muſt be ſeen and defended, from ſome other part: mere angles therefore are not ſufficient, but flanks and faces are indiſpenſably requiſite.—Thus, if the *baſtion* conſiſts of flanks and faces, as ABCSD, *fig.* 1. all the points may be defended from the flanks; there being none, v. gr. in the face BC, but what may be defended from the oppoſite flank EL, nor any in the curtin AE, but may be defended from the adjacent flanks BA and EL; nor in any one flank BA, but may be defended from the other EL.

For the proportions of the faces, they are not to be leſs than 40 toiſes, nor more than 60: or differing little from 100 yards.

The flanks of *baſtions* are better as they are longer, provided they ſtand at the ſame angle under the line of defence: hence the flank muſt ſtand at right angles to the line of defence. Indeed, in the ancient fortification, the flank is made perpendicular to the curtin, ſo as to have the angle out of the enemies eye; but this is now provided for, by withdrawing the lower part of the flank two or three perches, towards the capital line; which part, thus withdrawn, is better, if made concave, than rectilinear; and, if double, with a ditch between, than if ſingle.

The buſineſs of diſpoſing the flanks of *baſtions* makes the principal part of the art of fortification: it is that on which the defence principally depends, and which has introduced the various forms and manner of fortifying.

If the angle of the *baſtion* be leſs than fifty degrees, it will be too ſmall to give room for guns; and beſides, ſo acute as to be eaſily beaten down by the enemies guns; to which may be added, that it will either render the line of defence too long, or the flanks too ſhort: it muſt therefore be more than fifty degrees; but whether or no it ſhould be a right angle, ſome intermediate angle between fifty and ninety, or even whether or no it ſhould exceed a right angle is ſtill diſputed; though thoſe are generally preferred, which are not much leſs than 90°, and not exceeding 120° or 130°. Hence it follows, that a triangle can never be fortified. In regard either ſome or all of the angles will be either ſixty degrees, or leſs than ſixty.

Baſtions are of divers kinds, *ſolid, void, flat, &c.* &c.

BASTIONS, *folid*, are thofe that are filled up entirely, and have the earth equal to the height of the rampart, without any void fpace towards the centre.

BASTIONS, *void*, or *hollow*, are thofe furrounded with a rampart and parapet, only ranging round their flanks and faces, fo as to leave a void fpace towards the centre; where the ground is fo low, that if the rampart be taken, no retrenchment can be made in the centre, but what will lie under the fire of the befieged.

BASTION, *flat*, is a *baftion* built on a right line in the middle of the curtin, when it is too long to be defended by the *baftion* at its extremes.

BASTION, *cut*, is that whofe point is cut off, and in lieu thereof has a re-entering angle, or an angle inwards with two points outward; this is fometimes alfo called *baftion with a tenaille*; and is ufed either when, without fuch a contrivance, the angle would be too acute, or when water, or fome other impediment, hinders the carrying on the *baftion* to its full extent.

BASTION, *compofed*, is when the two fides of the interior polygon are very unequal, which makes the gorges alfo unequal.

BASTION, *regular*, is that which has its due proportion of faces, flanks, and gorges; the faces being of an equal length, the flanks the fame, and the two angles of the fhoulder equal.

BASTION, *irregular*, is where this proportion and equality are not obferved.

BASTION, *deformed*, is where the irregularity of the lines and angles makes the *baftion* out of fhape, as when it wants one of its demi-gorges; one fide of the anterior polygon being too fhort.

BASTION, *demi*, is that which hath but one face, and one flank; called alfo an *epaulement*.

To fortify the angle of a place that is too acute, they cut off the point, and make two *demi-baftions*, which form a *tenaille*, or a re-entering angle.—Their chief ufe is before a horn-work, or crown-work.

BASTION, *double*, is that, which on the plain of the great *baftion*, has another *baftion* built higher, fomewhat after the manner of a cavalier, leaving twelve or eighteen feet between the parapet of the lower, and the foot of the higher.

BASTION, *capital of a*, fee CAPITAL.

BASTION, *gorge of a*, fee GORGE.

BASTION, *diftance of the*, fee DISTANCE.

BASTION, *company of France*, fee COMPANY.

BASTON, in *Law*, is ufed for one of the wardens of the Fleet's men, who attends the king's courts with a red ftaff, for taking fuch to ward as are committed by the court; and likewife attends on fuch prifoners as are fuffered to go at large by licence.

The word is French, literally fignifying a *ftaff*, and technically a *verge*, or *mace*.

BASTON, or BATOON, in *Architecture*, denotes a mould in the bafe of a column, otherwife called a *torc*.—See *Tab. Archit. fig.* 3.

BASTON, or BATOON, in *Heraldry*, a kind of bend, which has only one fourth of the ufual breadth.

The *baſton* does not go from fide to fide of the efcutcheon, as the bend or fcarf does, but is broken off fhort, in form of a truncheon; its ufe in Engliſh coats of arms is a mark of baſtardy; but French heralds introduce it in arms as a difference, a mark of conſanguinity.

BASTON alſo ſignifies the earl marſhal's ſtaff.

BASTONADO, BASTONADE, the punifhment of beating or drubbing a criminal with a ſtick.

The word is formed of the French *baſton*, a *ſtick* or *ſtaff*. The *baſtonade* is a punifhment uſed both among the ancient Greeks, Romans, and Jews, and ſtill obtains among the Turks.

The Romans call it *fuſtigatio*, *fuſtium admiſtio* or *fuſtibus cædi*, which differed from the *flagellatio*, as the former was done with a ſtick, the latter with a red or ſcourge. The fuſtigation was a higher puniſhment, and inflicted on freemen; the flagellation a ſcourge, and reſerved for ſlaves. It was alſo called *tympanum*, becauſe the patient here was beat with ſticks like a drum.

The penalty is much in uſe in the Eaſt to this day. The method there practiſed is thus; the criminal being laid on his belly, his feet are raiſed, and held to a ſtake, held faſt by officers for the purpoſe; in which poſture he is beaten by a cudgel on the ſoles of his feet, back, thin, &c. to the number of one or more hundred blows. Calmet. Dict. Bib. tom. i. p. 260.

BASTONIER, or BATONIER, in the French *Law*, an ancient advocate, elected yearly according to ſeniority, to be the head or maſter of the community of advocates and attornies. He is preſident of the board held for maintenance of the order and diſcipline of the *palais*. To him alſo belongs the commiſſion of the inferior judges, when put under interdict, ſo long as the interdiction laſts.

BASTONIER is alſo uſed for him who keeps the ſtaff of a community, and carries or follows it in proceſſion.

BAT, in *Zoology*, a genus of quadrupeds, of the order of *fera*, the characters of which are theſe. The fore-teeth of the upper jaw are ſix in number, acute and diſtant from each other; the fore-teeth of the lower jaw are alſo ſix, and acute, but contiguous; the canine teeth are two, both above and below, on each ſide; the feet have each five toes; the fore-feet have the toes connected by a membrane, and expanded into a kind of wings, whereby it flies; whence this animal has been generally, but with the utmoſt impropriety, ranged among birds.

The *bat*, called alſo by ſeveral writers, and *flitter-mouſe*, by the Latins *veſpertilio*, forms a medium between the quadruped and the feathered kinds; but it partakes moſt of the former tribe; agreeing only with the birds in the ſternum, and the poſſeſſion of its liver; and with the quadrupeds in the kidneys, bladder, teeth, *penis*, teſticles, diaphragm, and lungs. In reality, it only appears to be a bird by its flying. They lay themſelves up in winter in the driеſt apartments of caves; where planting their talons to the roof, they cover their bodies with their wings, and ſo hanging perpendicularly in great numbers, but ſo as not to touch each other, they ſleep for ſome months.

Travellers ſpeak of a ſort of *bats* in Golconda bigger than hens.

In Braſil there is a large ſpecies of this animal, which, if men lie aſleep with their legs naked, will, it is ſaid, make a wound in them ſo gently, as not to wake them, but ſo deep, that they will take the blood at it, and leave the perſon in ſome danger of bleeding to death. Piſo Hiſt. Braſil.

BAT, in *Commerce*, a ſmall Indian coin, current in divers parts of Germany and Switzerland at different prices.

The *bat* or *ſchaumburg*, at Nuremberg, is equal to four creutzers; at Zurich, to $\frac{1}{4}$ of the French crown; at Baſil, Schaffhauſen, &c. to $\frac{1}{5}$; and at Bern and Friburg to $\frac{1}{8}$ of the ſame crown. Theſe laſt are called *batz*, *batzen*.

BATARDIERE, a place in a garden prepared for the planting of fruit-trees in, which being tranſplanted thither from the nurſery, are to be placed in eſpaliers, or elſewhere, to ſupply the place of dead trees.

BATATAS, ſee POTATO.

BATCHELOR, ſee BACHELOR.

BATCHELOR'S *Buttons*, in *Botany*, ſee CAMPION.

BATCHELOR'S *Pear*, a name given to a ſpecies of NIGHTSHADE.

BATEMAN'S *Drops*, in *Pharmacy*, are the anodyne baſſam made with a weaker ſpirit, ſo that a large doſe can be taken; they are tinctured with ſaffron.

BATENKETOS, a ſtar about the third magnitude, in the conſtellation of CETUS.

BAT-FOWLING, a method of catching birds in the night, by lighting ſome ſtraw, or torches, near the place where they are at rooſt; for upon beating them up, they fly to the flames, where, being amazed, they are eaſily caught in nets, or beat down with buſhes fixed to the end of poles, &c.

BATH, BALNEUM, a convenient receptacle of water for perſons to waſh, or plunge in, either for health or pleaſure.

Baths are either *natural* or *artificial*. *Natural*, again, are either *hot* or *cold*.

BATHS, *hot*, called by the ancients *thermæ*, owe their origin partly to the admixture of ſulphureous particles, while the water is paſſing through its ſubterraneous canals, or rather while it creeps through beds and mines of ſulphur, &c. and partly to the fumes and vapours exhaling through the pores of the earth where ſulphur is, either pure or impure, as in coals, amber, &c.—Though in moſt hot baths there are likewiſe mixed particles of iron, alum, nitre, and other mineral bodies, which give them an acid aſtringent taſte.

The chief hot *baths* in one country are theſe of Bath and Briſtol, in Somerſetſhire; and thoſe others of Buxton and Matlock in Derbyſhire; which latter, however, are rather warm or tepid than hot.

In the city of Bath there are four hot *baths*; one triangular, called the *croſs bath*, from a croſs that formerly ſtood in the midſt of it; the heat of which is more gentle than that of the others, becauſe it has fewer ſprings.—The ſecond is the *hot bath*, which heretofore was much hotter than the *croſs*, when it was not ſo large as it now is.—The other two are the *king's* and *queen's bath*, divided only by a wall; the laſt having no ſpring, but receiving the water from the king's *bath*, which is about fifty feet ſquare, and has in the middle of it many hot ſprings, which render its healing quality more effectual.—Each of theſe is furniſhed with a pump to throw out water upon the diſeaſed, where that is required.

It has been thought by many that the practice of drinking our Bath waters in Somerſetſhire is not very ancient, and that their ancient uſe was in bathing; but Dr. Friend endeavours to ſhew the internal uſe of theſe waters to have been very early. Dr. Oliffe, in whoſe time this ſtage

revived, and who has given us the best historical narrative of these waters, goes no higher for their internal use than the latter end of the fifteenth century. But they appear to have been in use in the thirteenth century: Gilbert, surnamed Anglicus, who, according to Bayle, lived in 1210, in the reign of king John, or more probably in that of Edward I. mentions a person cured of a leucophlegmacy, attended with a swelling, &c. by the sulphurous *baths*; which Dr. Friend understands of the Bath waters; and that the cure was wrought by drinking, not bathing, which had been improper in such a case.

Dr. Milligrave makes it probable, that they were resorted to in the time of Cæsar; there being still the remains of a statue erected to that general, in gratitude for some benefactions which he had conferred on the place. Some pretend that these waters were in use eight hundred years before Christ. Phil. Trans. N° 29. N° 440.

See the use of *Bath* Waters and their difference from those of Bristol, under the head *British* Waters.

The waters abound with a mineral sulphur: they are hot, of a bluish colour, and strong scent, and send forth thin vapours.—They do not pass through the body like most other mineral waters; though, if salt be added, they purge presently. On settlement they afford a black mud, which is used by way of cataplasm in aches; of more service to some than the waters themselves: the like they deposit on distillation, and no other.

Dr. Affendoff found the colour of the salt drawn from the *king's* and *hot baths* to be yellow; and that from the *cross bath*, white; whence he concludes, that the *cross bath* has more alum and nitre than the latter, which abounds more with sulphur; and yet the *cross bath* is found to loosen thrunk linen, by which it should seem to abound less with alum: it is harsher to the taste than the others, and soaks the hands more.—The *cross bath* preys on silver, and all of them on iron, but none on brass.

The two stated seasons for drinking the Bath waters are spring and fall; though they may be used whenever they are found necessary. The heat of these waters, and their milky detergent quality, are ascribed to a mixture and fermentation of two different kinds of water, distilling from Clarton Down, and Landdown; of which the former has springs that are sulphurous, or bituminous, mixed with nitre; and the latter such as are tinctured with iron ore. Besides, the adjacent country abounds with mines of coal, which all naturalists agree to be sulphureous and bituminous.—It is from the combination of sulphur, iron, and sea-salt, that Bath water is so useful, whenever the vital heat requires an increase. Nothing but iron can make such a quick improvement of this water does in decayed constitutions; and it is the sharpness of it, from the union of its sulphur and iron, that relaxes so as to give vent to gouty, and other peccant matters, by perspiration. More than two pints per day can never be required, and they may be drank at three or four times. In all internal disorders, where iron and sulphur are prescribed, the internal use of this water is effectual; and by merely bathing in it, much relief is obtained in a great variety of disorders. The virtues of many of our mineral waters have been very justly ascribed to the fixed air with which they abound; and some have ascribed those of the Bath waters to the same principle. But Dr. Priestley found upon trial, that the quantity of fixed air contained in them is so small as to render it very improbable that their virtues should be at all owing to it. And Dr. Falconer observes, that these waters do not so properly contain fixed air, as a calcareous earth; which, though it contain fixed air, may not part with it in the stomach, unless it meet with some acid to decompose it. By some accurate observations that were made on the heat of Bath and Bristol water by Mr. Canton, it appears, that a Farenheit's thermometer held in the stream from the common pump of the king's *bath*, after pumping about ½ of an hour was raised to 112°. The stream from the common pump of the hot *bath* raised it to 114° ½. At the pump of the cross *bath* it stood at 110°; the heat of the shaded air at noon being 66°, and of common water exposed to it 61°. And the Bristol water raised the thermometer to 76°, whilst in common water, exposed to the shaded air, it stood at 62°. Phil. Trans. vol. lvii. N° 22.

Buxton water has been observed to raise the thermometer to 80°, and that of Matlock to 66° or 68°. See WATERS.

The use of hot *baths*, it is observed, increase the weight of the body for the present, but cause a plentiful perspiration afterwards; though not so great as set down by Dr. Keil, who makes it amount to 1¼ pound in an hour's time.—By Mr. Martin's experiment at Buxton, it was only 5 ounces in one hour, and from 8 to 12 ounces in an hour and an half. Phil. Trans. N° 407. p. 27.

The use of these *baths* is found beneficial in diseases of the head, as pallies, &c. in cuticular diseases, as leprosies, &c. obstructions and conflipations of the bowels, the scurvy, and stone, and in most diseases of women and children.—The *baths* have performed many cures, and are commonly used as a last remedy in obstinate chronic diseases; where they succeed well, if they agree with the constitution of the patient: but whether they will agree or not, cannot be known without trial.

BATHS, *cold*, were long banished out of medicine, though the ancients had them in the greatest esteem; but the improvements accruing to physic from geometry and mechanics, have brought them into use again; and the present age can boast abundance of noble cures performed by them, and such as were long attempted in vain by the most powerful medicines. The *cold bath* is found one of the most universal and innocent remedies yet discovered. It is serviceable in most chronic distempers; and is reckoned so safe, that physicians sometimes prescribe it in a beginning *phthisis*, or consumption, when the lungs are but slightly affected.

The effect of cold bathing is attributed not only to its chilness, and confirming power, but in some measure to the weight of the water.—For, supposing a person immerged two feet, and the area of his skin to be fifteen feet, he sustains a weight of water, added to that of the air, = 2280lb. For 2, the number of cubical feet of water pressing upon a foot square of the skin x 76, the number of pounds in a cubical foot of water, i = 1520; which x 15, the supposed number of square feet on the surface of the body, is = 22800lb troy.—Besides, the water in bathing enters the body, and mixes with the blood, and dilutes this as well as the other juices.

The rise and progress of *cold bathing*, and the cures effected thereby, are described at large in sir J. Floyer's, and Dr. Baynard's Hist. of Cold Bathing.

In tender constitutions, and some diseases, a moderate *warm bath* should be used before the *cold bath*, the approach to which ought to be gradual. People of rigid fibres, and unbound *viscera*, are injured by the *cold bath*; for people are little benefited by it; and, in general, no body ought to go into it before a gentle glow be excited by moderate exercise, when the stomach is most empty; and such evacuations, as the patient's constitution require, ought to precede the use of it; which is beneficial, and may safely be continued, when an universal glow succeeds the coming out of it. The *cold bath* is hurtful, and ought to be discontinued, when the patient continues to be cold and numb after coming out of it, notwithstanding all precautions to prevent it. Even where immersion in the *cold bath* is strengthening, a continuance in it is weakening, and in proportion to its duration.

BATHS, *artificial*, are various, according to the various occasions; some aqueous, others vaporous, others dry, &c.

BATHS, *aqueous*, are those prepared from common plants, and other substances of emollient, resolvent, and nervine kinds. *Aqueous baths* sometimes consist of milk and emollient herbs, with rose water, &c. when the design is to humectate; at other times of bran and water, when the design is only to cleanse: sometimes again, they are made of a decoction of roots and plants, with an addition of spirit of wine, when a person bathes for a great pain or tumor, &c.

BATHS, *in vapour*, the fume or steam of some decoction is received upon the body to promote a perspiration.—These are also by some called *Balnea Lucanica*.

Vapour baths are, when the patient is not plunged into what is prepared for the *bath*, but only receives its steam upon those parts of his body which require it: as in some distempers of the fundament and womb, where the patient sits and receives the fumes of some proper fomentation, &c. To these may be added the *bagnio*, where people are made to sweat by the heat of a room, and pouring on of hot water: after which they generally go into a *hot bath*, or BAGNIO.

BATHS, *dry*, are those made of ashes, salt, sand, shreds of leather, and the like.

The ancients had divers ways of sweating by a dry heat; as by the means of a hot sand, stove-rooms, or artificial bagnios, and certain natural hot steams of the earth, received under a proper arch, or hot house, as we learn from Celsus. They also had another kind of *bath* by insolation, where the body was exposed to the sun for some time, in order to draw forth the superfluous moisture from the inward parts; and to this day it is a practice in some nations to cover the body over with horse-dung, especially in chronical diseases, to digest and breathe out the humour that causes the distemper. In New England they make a kind of stoves of turf, wherein the sick are shut up to bathe or sweat. Phil. Trans. N° 384. p. 130.

The same name is sometimes also given to another kind of *bath*, made of kindled coals, or burning spirit of wine; the patient being placed in a convenient close chair for the reception of the fume, which rises and provoke sweat in a plentiful manner; care is here taken to keep the head out, and to secure respiration.

This *bath* has been found very effectual in removing old, obstinate pains in the limbs, and venereal complaints; and

and will often complete a cure left unperformed by salivation.

Some authors speak of *bloody baths*, *balnea sanguinolenta*, prepared especially of the blood of infants, anciently supposed to be a kind of specific for the leprosy.

BATHS, *metallick*, those made of water, impregnated with the *spirits* of metals. The most common and useful of this kind are those prepared with the *spirits* of iron, which abound with the earthy, saline, and sulphureous substance of the metal; and these are of excellent service for strengthening and bracing up the part to which they are applied, and recovering weak and decayed limbs; stopping various kinds of bleedings; and restoring the menstrual and hæmorrhoidal flux, where obstructed; insomuch that they may well be substituted for the natural iron *baths*.

Adjacent to the smelting huts where metals are run from their ore, are to be found large quantities of the slag of copper, antimony, and cobalt, which abounding with sulphur, vitriolic salt, and no earthy principle, make serviceable *baths* for strengthening the lax tone of the fibres, and relaxing them when they are too stiff. These *baths* have likewise a detersive and cleansing virtue; so that, with prudence, and due regard to circumstances, they may be used on many occasions. The way of making these artificial *baths* is, either to take the slags as they come hot from the furnace, or else to heat them afresh, and throw them into hot water; which is afterwards to be used either in the way of *bath*, or lamentation occasionally. There are other artificial *baths*, prepared of alum and quick-lime by boiling them together in fair rain-water. Such *baths* are highly serviceable in paralytic disorders, and weakness of the limbs.

The *pepper bath*, or *poivre wasser* on the Alps, is one of the most celebrated in Europe, and has been the subject of treatises express, besides what has been said of it occasionally by Scheuchzer, and others. It was first discovered in the year 1240, and is of the periodical kind. The water breaks forth in a dreadful place, scarce accessible to the sun-beams, or indeed to men, unless of the greatest boldness, and such as are not in the least subject to dizziness. These *baths* have this singularity above all others, that they commonly break forth in May, and that with a sort of impetuosity, bringing with them beech-leaves, crabs, or other wood-fruit; and that their cosmic denths in September or October.

Scheuchzer professes himself of opinion, that these waters are not impregnated with any mineralls, or, if they do contain any, that their virtues in curing distempers, and preserving health, do not proceed from them. They are exceeding clear, destitute of colour, taste, or smell. Phil. Transf. N° 316. p. 151.

BATHS, BALNEA, in *Architecture*, denote large pompous buildings among the ancients, erected for the sake of bathing. *Baths* made a part of the ancient *gymnasia*, though they were frequented more for the sake of pleasure than health.

The most magnificent *baths* were those of Titus, Paulus Æmilius, and Diocletian, of which there are some ruins still remaining. It is said, that at Rome there were 856 public *baths*. Fabricius adds, that the excessive luxury of the Romans appeared in nothing more visible than in their *baths*. Seneca complains, that the *baths* of plebeians were filled from silver pumps: and that the freed-men trod on gems. Macrobius tells us of one Sergius Orata, a voluptuary, who had *pensile baths* hanging in the air.

According to Dion, Mecenas was the first who made a *bath* at Rome: yet there are instances of public *baths* prior to this; but they were of cold water, small, and poorly decorated.

Agrippa, in his edileate, built one hundred and forty places for bathing, where the citizens might be accommodated, either with hot or cold, gratis. After this example Nero, Vespasian, Titus, Domitian, Severus, Gordian, Aurelian, Maximian, Diocletian, and most of the emperors who studied to gain the affections of the people, erected *baths* laid with the richest marble, and wrought according to the rules of the most delicate architecture. Plin. Hist. Nat. lib. xxxv. c. 13. Mem. Acad. R. Infer. tom. ii. p. 427. The rich had *baths* at home, and frequently very magnificent ones, especially after the time that the pratice of pillaging the provinces had begun: but they only used them on extraordinary occasions. The great men, and even emperors themselves, sometimes bathed in public with the rest of the people. Alexander Severus was the first who allowed the public *baths* to be opened in the night-time during the heats of summer.

The Greek *baths* were usually annexed to *palæstræ* or *gymnasia*, of which they were constituted a part. These *baths* consisted of seven different apartments, usually separated from each other, and intermixed with other buildings belonging to the other sorts of exercises. These were, first, the *cold bath*, *frigida lavatio*; secondly, the *elæothesium*, or room where they were anointed with oil; thirdly, the *frigidarium*, or cooling room; fourthly, the *propnigeum*, or entrance of the *hypocaustum*, or stove; fifthly, the warmed room for sweating in, or *tepidum balneum*, called *concamerata sudatio*, or *tepidarium*; sixthly, the *laconicum*, or dry stove; seventhly, the *hot baths*, called *calida lavatio*. Potter, Archæol. Gr. lib. iv. cap. 19.

As for the *baths* separate from the *palæstræ*, they appear to have been usually double, one for men, the other for women; but so near, that the same furnace heated both. The middle part was possessed by a large basin, that received water by several pipes, and was surrounded by a balustrade, behind which there was an area for the reception of those who waited to use the *baths*. They were vaulted over, and only received light from the top.

In the Roman *baths*, the first part that appeared was a large basin, called *apodyterium* in Greek, and *natatio* or *piscina* in Latin. In the middle was the *hypocaustum*, which had a row of four apartments on each side, called *balnearia*: these were the stoves, the *bath*, cold *bath*, and *tepidarium*. The two stoves, called *laconica* and *tepidarium*, were circular and joined together. Their floor was hollow and suspended, in order to receive the heat of a large furnace, which was communicated to the stoves through the vanities of their floor. This furnace also heated another room called *vestiarium*, in which were three large boilers which called *ahenea*, respectively containing hot, warm, and cold waters: which were so disposed, that the water might be made to pass by syphons and pipes out of one or other of them into the *bath*, in order to adjust its temperature. The description is given by Vitruvius.

At three in the afternoon, which is what Pliny calls *hora octava vel nona*, the Romans all repaired to the *baths*, either the public or the private ones: this was called the *balneæ*, *thermæ balneæ*, which in winter was at *nine*, in summer at eight. The public *baths* were all opened by the sound of a bell, and always at the same hour.

Those who came too late, stood a chance for bathing in cold water.

They began with hot water, after which, as the pores were now opened, and might give room for too plentiful a perspiration, they thought it necessary for their health to close them again, either with the cold *bath*, or at least with a sprinkling of cold water. During the *bath*, the body was scraped with a kind of knives, or small frigils, such as are still found in the cabinets of the curious.

After bathing succeeded unction and perfuming, from which they went fresh to supper.

The Romans, when they found their stomachs overcharged with meat, went to the *bath*, as we learn from Juvenal, who inveighs against those, who having gorged themselves with eating, were forced to go into the *baths*, to give themselves relief. They found also that a *bath* was good to refresh themselves after some considerable fatigue or travel, as Celsus tells us; which makes Plautus say, that all the *baths* in the world were not sufficient to remove the weariness he felt.

After Pompey's time, the humour of bathing was carried to great excess, by which many were ruined, several having brought themselves to such a pass, that they could not have food without bathing first. The emperor Titus is said to have lost his life thereby. Hence Pliny inveighs severely against those physicians, who held, that hot *baths* digested the food. The emperor Hadrian first laid a restraint on the immoderate humour of bathing, by a public edict, prohibiting all persons to bathe before the eighth hour.

BATHS *of Agrippa*, *thermæ Agrippinæ*, were built of brick, but painted in enamel: those of Nero, *thermæ Neronianæ*, were not only furnished with fresh waters, but even had the sea brought to into them: those of Caracalla were adorned with two hundred marble columns, and furnished with fifteen hundred seats of the same matter. Lipsius affirms as they were so large, that eighteen hundred persons might conveniently bathe in them at the same time. But the *baths* of Diocletian, *thermæ Diocletianæ*, surpassed all the rest in magnificence. One hundred and forty thousand men were employed many years in building them. Great part of these, as well as those of Caracalla, are still standing: and, with the vast high arches, the beautiful small flately pillars, the extraordinary plenty of foreign marble, the curious working of the roofs, the prodigious number of fpacious apartments, and a thousand other ornaments, make one of the greatest curiosities of modern Rome. Kenner, Rom. Ant. p. I. lib. iv. c. 7. and Schott. Itin. Ital. p. 152.

BATH, in *Chemistry*, several matters employed to moisten here are called *baths*, but the substances most frequently used by chemists for this purpose, are water and *sand*. When water is employed, it is called BALNEUM *Mariæ*, or *a* WATER-*bath*; which is very much used, very convenient for many operations, and may be employed successfully for all degrees of heat inferior to that of boiling water. Soc. Col. Acad. Part. Etr. tom. vi. p. 377.—As water, when exposed to fire in any vessel from which it can evaporate, does only receive a determinate degree of

heat, which always remains the *same*, when once it has arrived to the boiling heat, it follows, that by the *water-bath*, a degree of heat always equal may be maintained with certainty. Farther, this degree of heat being incapable of burning, or of communicating an empyreumatic quality to matters susceptible of it, the *water-bath* has also the advantage of not exposing substances to this inconvenience. When vessels in which DISTILLATIONS and DIGESTIONS are made, are placed in *sand*, then a SAND *bath* is formed. This intermediate substance of sand is very convenient to moderate the too great activity of the mixed *fire*, and to transmit any degree of heat, from the weakest, to a red heat. As this *bath* is attended with less trouble, and requires less apparatus than the *water-bath*, it is much used in laboratories. Nothing is requisite for the *sand-bath*, but an earthen or iron vessel filled with fine sand, which is fitted to a furnace, and capable of containing the cucurbits, retorts, matrasses, or other vessels containing the matter to be operated upon.

Ancient alchemists had all a tincture more or less of ALCHEMY; they were therefore much more careful and laborious in their operations, and used many different *baths* in order to apply precisely the proper degree of heat. They used the vapour of water, ashes, dung, the substance remaining after the squeezing of grapes, and whatever else they imagined most proper for their purpose. Hence the names of *ash bath*, *bath of a horse's belly*, *dung bath*, *marc-wine bath*, *vapour bath*, &c. See Commerce. Phil. Techn. 4to. p. 36.—But an intelligent experienced artist may very well perform all the chemical operations which do not require a naked fire, by means of the *water* and *sand-baths*; and as they are the most convenient, they are the only *baths* now generally used. Macquer.

BATH is also used by *Chemists*, to signify the fusion of metallic matter in certain operations. In REFINING or *cupelling*, for example, the metals are *laid* to be *in bath* when they are melted. When gold is purified by antimony, this semimetal melted is called by some, the BATH *of gold*; nicknamed, who consider gold as the king of metals, call antimony the *bath of the king only*, because in fact gold only can resist the action of antimony. Macquer. See BALNEUM.

BATH, in *Jewish Antiquity*, is also the name of a liquid measure, containing the tenth part of an omer.

Some distinguish five kinds of *baths*, viz. the greater *bath*, containing 80 pounds of water, or, according to Josephus, 1440 Roman ounces; the second *bath*, containing 100 ounces; the third, 66⅔ ounces; the fourth, containing 25 ounces; and the fifth, 6¼ ounces of water. Bevereg. Synt. de Mens. p. ii. p. 127.

Some have estimated the sacred *bath* at half as much again as the common *bath*; but there is no sufficient reason for this distinction. Calmet.

BATH, *knights of the*, a military order in England, instituted by Richard II. who ordained that there should be no more than four; however, his successor, Henry IV. increased them to forty six. Their motto was *Tres in una*, signifying the three theological virtues.

It was the custom to bathe before they received the golden spurs; but this was only observed at first, being afterwards gradually dropped; however, it was this occasioned the denomination of *Knights of the Bath*.

The order of *Knight of the Bath* is scarce ever conferred but at the coronation of kings, or the inauguration of a prince of Wales, or duke of York. They wear a red ribband belt-wise; to which is affixed the badge of the order, viz. a sceptre, rose, thistle, and three imperial crowns joined within a circle; upon which circle is the motto in pure gold. Each knight wears a silver star of eight points upon the left breast of his upper garment.

Camden and others say, Henry IV. was the institutor, in 1399, and upon this occasion: that prince, being in the *bath*, was told by some knight, that two widows came to demand justice of him; when his majesty leaping out of the *bath*, cried, He ought to prefer doing justice to his subjects to the pleasure of the *bath*; and thereupon created *Knights of the Bath*.

Some authors, however, will have the order of the *Bath* to have been on foot long before Henry IV. even as early as the Saxon times: at least, it is certain, the *bath* has been used long before, in the creation of knights, in France; though there was no order of knights under this name.

The order of the *Bath*, after remaining many years extinct, was revived under king George I. by a solemn creation of a great number of knights.

BATH *metal*, is a preparation of copper with zinc, which gives a more beautiful colour than the calamine used in the preparation of the common brass. See *Prince's* METALL.

BATH *Kol*, in *Jewish Antiquity*, a species of invention by a voice or echo from heaven.

The word signifies in the Hebrew original, *daughter voice*, or *daughter of a voice*; for it may be interpreted both ways. It seems to have been thus called with respect to the oracular *voice* delivered from the mercy-seat, when God was consulted by *urim* and *thummim*: this latter was the grand and primary voice of revelation; the former, of secondary dignity, and inferior to it as the daughter to the mother. Prideaux Connect. pt. ii. l. 5. p. 482.

The Jewish writers speak of three kinds of revelation among them; the first by *urim* and *thummim*, which obtained from the erecting of the tabernacle to the building of the temple: the second by the spirit of prophecy, which prevailed from the beginning of the world to the death of Malachy: the third, *bath kol*, or *filia vocis*, which took place when the spirit of prophecy wholly ceased in Israel: and was, say Gentius, the *sole oracle* which remained during the time of the second temple. Godw. Moles and Aaron, lib. iv. c. 2. Lightfoot's Works, tom. i. p. 285. Gent. in John xii. 28.

Dannius has a dissertation on the iniquity and imposture of the *bath kol*: *De filia vocis rejiciendo divino oraculo*.

BATHING, the act of using or applying a bath: that is, of immerging the body, or part of it, in water, or other fluid. See BATH.

Bathing, on a religious account, is more properly called ABLUTION, or BAPTISM.

Bathing is a practice of great antiquity. The Greeks, as early as the heroic age, are said to have bathed themselves in the *sea*, in rivers, &c. We even find mention in Homer of hot *baths* in the Trojan times; but these seem to have been very rare, and only used on extraordinary occasions. Athenæus speaks of hot baths as unusual even in his age. In reality, public *baths* appear to have been discouraged, and even prohibited, by the ancient Greeks, who were contented to wash themselves at home in a sort of *bathing* tubs. Petit. Archæol. tom. ii. lib. iv. c. 19.

The method of *bathing* among the ancient Greeks was, by hearing water in a large vessel with three feet, and thence pouring it on the head and shoulders of the person, seated in a tub for that purpose, who, at coming out, was anointed with oil. Burette, in Hist. Acad. Inscr. tom. i. p. 117.

The Romans were also long before they came into the use of *baths*, the very name of which, *balneæ*, shews they borrowed it from the Greeks. As the ancient Romans were chiefly employed in agriculture, their custom was, every evening, after work, to wash their arms and legs, that they might sit down to supper with more decency: but it is to be observed, the use of linen was then unknown, and the people of those times went with their arms and legs bare, and consequently exposed to dust and filth. But this was not all; for every ninth day, when they repaired to the city, either to the *nundinæ*, or in attend at the assemblies of the people, they bathed all over in the Tiber, or some other river which happened to be nearest them. This seems to have been all the *bathing* known till the time of Pompey, when the custom began of *bathing* every day. Mercurial. de Art. Gymn. lib. i. c. 10. Mem. Acad. Inscr. tom. ii. p. 414.

The Celtic nations were not without the use of *bathing*: the ancient Germans bathed every day, in winter in warm water, and in summer in cold. This is what Tacitus seems to suggest: *finitum a somno—lavantur, sæpius calidis, ut apud quos plurimum hiems occupat.* De Mor. Ger. cap. 22.

Bathing, among the ancients, made a part of *diet*, and was used as familiarly as eating, or sleep: on which footing it still remains among the Turks, where there are public baths in every town, and even village. But among us, it is become only a part of medicine, and rarely practised but under the direction of physicians. Great distinction is now made between those who are for, and those unfit, to undergo the operation, and many rules and prescriptions given for the most successful use of it.

Bathing is either cold, or hot, or warm, simple, or mixed, according to the temperature and conditions of the *baths*. *Bathing* in waters too hot, heats and expands the blood and humours to excess; whence palpitations of the heart, pains in the head, faintness, &c. The mischief is still greater if the body be full of blood, or turgid with ill juices. The waters used for *bathing* are either pure and simple, or such as abound with heterogeneous parts of different kinds. Those fittest for medicinal purposes are the purest, lightest, simplest, and most free from all participations of mineral or metallic parts.

Bathing is not to be practised without great care and precaution, in melancholic, œdematous, or paralytic cases. As to the *plethoric*, authors are divided: some absolutely reject the use of baths for this disorder; others allow it, provided the water be only of a moderate degree of warmth, and the body be previously prepared by laxatives and venæsection. Different *baths* have different effects, according to the ingredients of their waters: those of the vitriolic kind are said to fix the morbific matter in arthritic disorders, and render them still more obstinate. They are also less proper where the body is foul, and the *viscera* weak or obstructed, being apt to render such patients hydropic.

Sub-

Sulphureous and aluminous *baths* are commended against an incontinency of urine; but prove hurtful to cachectic habits.

The Caroline *baths* have this quality beyond other hot waters, that they do not soften the body, but rather by reason of the copious earthy and allringent matter they contain, bind up the parts, strengthen those which are weak, block up the pores, and thus produce a contrary effect to other hot springs.

Hence they are prejudicial to people of a tender and delicate habit, when the body is foul, or affected with spasmodic, hypochondriac, or colic disorders, and in many other cases. They are of use where the limbs are to be strengthened, the ligaments and tendons to be gently excited to motion, and the body to be dried.

The usefulness and mischievousness of *bathing*, form a complicated consideration, only to be decided by taking the nation, climate, habit, the time of the day, season of the year, disorder, &c. of the person, and the particular qualities and ingredients of the water, into consideration. In general, hot or warm *bathing* tends to relax the skin, promote perspiration, cleanse the body, dilute the blood, and carry off cuticular foulnesses by the pores. To conceive the manner of its operation, it is to be observed, that when the body is plunged in a pure, light, and simple warm water, it must necessarily undergo the following changes.

1. The heat necessarily rarifies and expands the blood and all the juices, and thus dilates the whole system of the vessels; the consequence of which is, that the pulse or contractive strokes of the arteries increases; whence the blood circulates with greater force, and the external parts of the body become red, and begin to sweat.

2. By the gravity of the water, the body, plunged therein, is greatly altered; as its surface, in that case, sustains a violent pressure, which squeezes the blood forcibly in upon the *viscera*. See BATH. But the additional pressure in common cold *bathing* is very inconsiderable, and therefore the contraction of the fibres is principally owing to the stimulus of cold. Thus, whilst the vessels are compressed from without, and dilated from within, the intestine motion of the constituent parts of the blood is increased, and consequently the viscid juices are thus diffolved, obstructions overcome, and the humours are better fitted to pass through all the secretory and excretory ducts.

Thence, as by the water's gravity the parts are compressed from without, and the blood driven plentifully upon the heart, the lungs, the brain, and the larger vessels, we see why, if the bath be too hot, it causes palpitations of the heart, oppressions in the *viscera*, or sometimes fainting; and again, why, when the body is foul, or full of bad juices, it produces continued fevers, or inveterate intermittents, if the first passages abound with crudities. These ill effects are more frequently observed from the hot springs, which have also an aftringent quality, as the violent hot Caroline spring evidently has.

3. Another change ensues upon the body from the moisture of the bath, which, assisted with a temperate heat, procures a great suppleness of the skin and fibres; insomuch that, upon coming out of the water, the whole habit of the body swells considerably, is loosened in its texture, and opened in its pores and vessels; whilst the blood and juices have a more free passage to the surface. Hence it is, that if a person go directly out of the warm bath to bed, he presently begins to sweat plentifully, which is the best effect that can proceed from *bathing*, and of great service in the cure of diseases.

Bathing is found more especially beneficial to those of a moist habit, and who have store of humours in their vessels and pores, as it colliquates the humours and promotes their discharge.

In the summer it serves to cleanse the skin from sweat, and keep the pores open; in winter to promote perspiration. It is used with good effect in many chronic disorders, in atrophies, the flone, &c. It is a good palliative in the *strangury*; but useless in the jaundice, and hurtful in the *ischias* and *sciatica*, and generally to all in a time of plague. By its promoting perspiration, it becomes noxious to persons of a dry constitution, as it exhausts too fast; more especially to persons hectically inclined, as by means thereof the humours, already too prone to colliquation, are still more resolved.

Cold *bathing* was in high esteem among the ancient physicians for the cure of diseases, as appears from Scribo, Pliny, Hippocrates, and Oribasius. Whence frequent exhortations to washing in the sea, and plunging into cold water.

Hot *bathing* first, and then using the cold *bath* immediately afterwards, is said to be good for the SCURVY, at least for that kind so common in cold countries. This is confirmed by the practice of the Russians, and other northern nations.

In violent pains, hot and cold *bathing* produce the same effects, and in the same way, in one respect, viz. ministering the pain, by taking off the attention from it. When one is much pained, withdrawing the action of the nerves corresponding to the affected part, employing many nerves, and some of them violently, another way, will seldom fail of giving ease. One pain is often a cure for another. Applying garlic to a distant part, burning, and blistering, cure altogether in this way.

The efficacy of hot and cold *bathing* is acknowledged in many cases. How they act, seems a question not yet fully decided in the writings of physicians.

BATHING *a horse or foiton in*, when being wearied from hard ramage foaleries, and also hired, rewarded, and thoroughly reclaimed, he is offered some water to *hault* herself in, in a baton, where the may stand up to the thighs, choosing a temperate clear day for that purpose. By the use of *bathing* the gains strength, with a sharp appetite, and so grows bold.

BATHING, among the Copts and Abyssinians, denotes the day of Christ's baptism, reputed the 6th of January; when, from an opinion of an extraordinary sanctity in the waters on that day, they not only, by ancient custom, baptize their catechumens, but were re-baptized themselves. The water of this day they carry home to keep; and Chrysostom affures us, that it had often been known to remain future, uncorrupted, for two or three years. Orat. 7.

BATHING *tub*, in the Roman baths. There are two kinds of *bathing tubs*, the one fixed, and the other moveable: among the latter, some were contrived on purpose to be suspended in the air, whereby, to the pleasure of *bathing* was added that of being swung or rocked, by the motion given in the *bathing tub*. Burette, in Hift. Acad. Inscript. tom. i. p. 123.

BATHMUS, *Βαθμος*, from *Βαινω*, *I move*; an appellation given to such cavities of bones as receive the prominence of other bones into them.

BATHRUM, a name given by ancient surgeons to a kind of stool or bench proper for the reduction of dislocated bones. This is called *Sedes Hippocratica*, or the *Hippocratic stool*. Its description and use are represented at large by Scultetus, Arm. Chir. tab. 2.

BATHYCHRUS *color*, in *Painting*, a term used by the Greeks to express what the Romans call *austerus color*. Such a colour was pumice and shell, and wanted the life of the florid colours. See EVANTES *colores*.

BATILLUS, a musical instrument made of steel, in the form of a flat, furnished with metalline rings, which being struck, yielded a kind of harmonical sounds; used by the Armenians in their church-service.

BATIS, in *Botany*, a name by which Pliny and some other authors call the sea-plant, which we know by the name of *samphire*, and eat as a pickle.

In the Linnæan system, it is a genus of the *dioecia tetrandria* class.

BATIS, in *Ichthyology*, see BATOS, and RAIA.

BATISTE, in *Commerce*, a fine white kind of linen cloth, manufactured in Flanders and Picardy.

There are three kinds of *batiste*: the first very thin; the second less thin; and the third much thicker, called Holland *batiste*, as coming very near the goodness of Hollands.

The chief use of *batiste* is for pocket-clothes, head clothes, *tiffanies*, &c.

BATMAN, a weight in Turky, consisting of six okes. Forty of these *batmans* make a camel's load, and amount to above seven hundred and twenty pounds English weight.

Batman, or *bettemant*, is a weight used in Turky and Persia. The Turkish *batman* is of two kinds; the larger containing six okes, or *seers*, of three pounds three quarters Paris weight the *seer*; so that the *batman* amounts to about twenty-two Paris pounds and a half; the smaller, composed likewise of six *seers*, of fifteen ounces the *seer*, amounting to five pounds ten ounces.

The Persian *batman* is likewise of two kinds: one called the *king's weight*, *batman de chahi*, or *charvy*, used for weighing most of the necessaries of life, equivalent to about twelve pounds and an half Paris weight; the other called *batman of Tauris*, equal to six pounds four ounces Paris or Amsterdam weight.

These, at least, are the proportions given by Tavernier. Chardin rates the Persian *batmans* somewhat lower, viz. the former at twelve pounds twelve ounces; and the latter at five pounds fourteen ounces.

BATON, or BATOON, in *Heraldry*, see BASTON.

BATOS, in *Botany*, a name by which some authors call the true turpentine-tree.

BATOGNS *of St. Paul*, BATOGNINI *di San Paolo*, in *Natural History*, a name given by some of the Italian writers, as Augustino Scilla, and others, to the *lapides Judaici*, or other spines of echini. These are found in vast abundance in the island of Malta, and as every thing there is commemorated with some fable, with St. Paul at the

the end of it, these are called *bacili Sti Pauli*, or *St. Paul's bacons*.

BATOS, in *Ichthyology*, the name given by Aristotle and all the old writers, to the skaite or flaire. They have generally called the male BATOS and the female BATIS: it is a species of the RAIA, and is distinguished by Artedi, by the name of the variegated ray, with the middle of the back smooth, and with one row of spines on the tail.

Albertus calls it the *raye*, and *rubus*.

BATRACHIAS *lapis*, the *frog-stone*, a name applied by different writers to two very different substances; some understand by it lumps of common flint, which have accidentally formed themselves into this figure; and others, those pieces of amber which contain either a whole frog, or any part of one.

BATRACHITES, among *Ancient Naturalists*, a kind of gem found in Egypt, denominated from its resemblance in colour to a frog.

The word is formed from βατραχος, *rana*, *a frog*.

Pliny speaks of three stones under this denomination; *unum ranæ similem videre, alter an ederi* (or rather, according to Hardouin's correction, *eboni*), *tertium rubentis e nigro*.

The *batrachites* differed from the modern BUFONITES, which does not appear to have been known to the ancients.

BATRACHOMYOMACHIA, *Battle of the Frogs and the Mice*; the title of a burlesque poem, usually ascribed to Homer.

The word comes from the Greek βατραχος *frog*, μυς, *mouse*, and μαχη, *pugna*.

The subject of the war is the death of Psycharpax, a mouse, son of Troxares, who, being mounted on the back of Physignathus, a frog, on a voyage to his palace, to which he had been invited, was seized with fear when he saw himself in the middle of the pond, so that he tumbled off and was drowned. Physignathus being suspected to have shaken him off with design, the mice demanded satisfaction, and unanimously declared war against the frogs. Stephens, Nunnesius, and other modern authors, take the poem not to be Homer's; but several of the ancients seem of another opinion; and Statius, who wrote under Domitian, makes no doubt of it. See Fabric. Bibl. Græc. lib. ii. c. i. § 3.

BATRACHOSALIS, in *Ichthyology*, a name given by many of the Greek authors to the LOPHIUS, or *rana piscatrix* of authors.

BATRACHUS, a species of the SILURUS.

BATTABLE *ground*, denotes land lying between England and Scotland, heretofore in question to which it belonged, when they were two distinct kingdoms.

The word imports as much as *litigant*, or *disputable ground*; from *batter*, *to beat*, or *fight*.

BATTALIA, an army ranged in order of battle, or ready for engagement.

In this sense, we meet with the depth of a *battalia* to march in *battalia*, with the baggage in the middle, to break the *battalia*, &c. In the Roman *battalia*, the HASTATI made the front.

BATTALION, in the *Military Art*, a little body of infantry ranged in form of battle, and ready to engage.

The word comes from *battle*, *an engagement of two armies*, &c. and that from *battaille*, *the place where two men fight*; or from *battalia*, *the exercise of people who learn to fight*.

A *battalion* usually contains from five to eight hundred men, of which one third were formerly pikes in the middle, and the other two thirds musquets posted on the wings: they are now armed with firelocks, swords, and bayonets. The *battalion* is divided into thirteen companies, one of which is grenadiers, but the number of men in it constitute of is not determined.

Battalions are usually drawn up with three men in *file*, or one before another.—Some regiments consist but of one *battalion*, which is too few; others more numerous are *divided* into four or five, which are too many.

M. De Folard decries the modern method of ranging *battalions* so shallow which renders them weak, and unable to support each other; so that they are easily penetrated or broken: an essential fault in the modern tactics. The real strength of a corps, according to this author, consists in its thickness, or the depth of its files, and their connection and closeness. This depth renders the flanks almost as strong as the front. He adds, that it may be laid down as a maxim, that every *battalion* ranged deep, and with a small front, will beat another stronger than itself, ranged according to the usual method. Polyb. tom. 1. p. 7.

But this opinion of Folard has not been adopted in modern practice; and his theory has been vigorously attacked by two French officers in the service of the States-General. They admit the superior strength of his column to that of a modern *battalion*, if the action were to be decided with pikes and swords; but where fire arms must be used, M. Folard's column is so very ill disposed for this purpose, that it must infallibly be destroyed.

BATTALION, *round*, is that in which the soldiers are ranged in concentric circles. This was much used by the Romans, and called in *orbem*. Cæsar, in his Commentaries, has given many instances of this kind of arrangement.

BATTALION, *square*, is that, where the number of men in file is equal to the number of men in rank. To form any number of men, e. g. 500, into a *square battalion*, extract the nearest square root of 500, which is 22 integers 22; and that will give the number of men for rank and file. There will be a remainder of 16 men, who may be disposed of as the commander thinks best.

M. Folard shews at large in his book De la Colonne, the weakness of the *square battalion*. Both the full and the *hollow square*, according to him, are equally bad.

BATTALION, *triangular*, is a body of troops disposed of in the form of a triangle; in which the ranks form an arithmetical progression.

BATTALION, *doubling a*, is a motion of the soldiers, whereby two ranks, or two files, are put into one.

BATTALION, *angle of a*, See ANGLE.

BATTALION, *flanking a*, See FLANKING.

BATTERDEAUX, in *Bridge-building*, See COFFER-*dam*.

BATTEN, a name which the workmen give to a scantling of wooden stuff from two to four inches broad, and about an inch thick; the length being pretty considerable, but undetermined.

The term is chiefly used in speaking of doors, &c. which are not framed of whole deal, &c. with stiles, rails, and pannels like wainscot, but are made to appear as if they were, by means of their pieces, or *battens*, bradded on the plain board round the edges, and sometimes cross them, and up and down.

Hence *batten* doors, or windows, are such as seem to be wainscot ones, but are not. Thole are said to be either *single* or *double*, as the *battens* are fixed on to one side, or to both.

BATTENS *of the hatches*, in *Sea-Language*, are nailed along the turpaulins, and serve to keep their edges close down to the hatches in order to prevent the water which washes over the deck from penetrating into the lower apartments and the ship.

BATTERING-RAM, See ARIES.

BATTERING *rams*, in *Heraldry*, a bearing or coat of arms, resembling the military engine of the same name.

BATTERING, the attacking of a place, work, or the like, with heavy artillery. See BATTERY.

To BATTER *in breach*, *batter en bresche*, is to play furiously on a work, at the angle of a bold moon, in order to demolish and make a gap or BREACH in it.

In this, they observe, never to fire a single piece against the top of the walls, but all towards the bottom: three, four, five, or six feet from the ground: they also fire *par camarade*, all together, till they perceive the earth fall from behind the lining of the rampart.

BATTERING-*pieces*, or pieces of *battery*, See CANNON.

BATTERY, in the *Military Art*, denotes an ambiance call up, whereon to plant artillery, that it may play to better advantage. It consists of an epaulement or breast-work, of about eight feet high, and eighteen or twenty thick.—See *Tab. Fortif. fig.* 21. n. 33. *and fig.* 23.

The word is French, formed of *battre*, *to beat*, *strike*.

In all *batteries*, the open space left to put the muzzles of the great guns out at, are called *embrasures*; and the distances between the embrasures, *merlons*.—The guns are generally about fifteen or fifteen feet distant from one another, that the parapet may be strong, and the gunners may have room to work.

There are also *batteries of mortars*, the same with those of cannon, except that they have no *embrasures*; and the slope of the breast-work is made inwards, contrary to that of other parapets, having their platforms about six feet square, and eight feet asunder.

The *battery* of a camp is usually surrounded with a trench and palisades at the bottom, as also with a parapet on the top, having as many holes as there are pieces of artillery, and two redoubts on the wings, or certain places of arms, capable of covering the troops, which are appointed for their defence. See EMBRASURES, MACHICOLES, MERLONS, PARAPET, PLATFORMS, TRENCHES, &c.

BATTERY, *open*, is nothing more than a number of cannon, generally field-pieces, ranged in a row at small or one another, on some small natural elevation of the ground, or on an artificial bank of about a yard or two high.

BATTERY, *covered*, is when the cannon and gunners are covered by a bank made of brushwood, faggots, and earth; of about eighteen or twenty feet thick, and seven or eight feet high.

The cannon used in such *batteries* are generally from nine to eighteen pounders; sometimes twenty-four pounders are used in them.

BATTERY, *sunk* or *buried*, is that whose platform is sunk or let down into the ground, with trenches cut into the earth against the muzzles of the guns, to serve for embrasures.

This

This fort, which the French call *batterie en tirte*, and *ravinante*, is generally used upon the first making of approaches, to beat down the parapet of the place.

BATTERIES, *cross*, are two batteries at a considerable distance from each other, which play athwart one another at the same time, and upon the same point, forming right angles; where, what one bullet shatters, the other beats down.

BATTERY *of enfilade*, is one which sweeps the whole length of a straight line, a street, &c.

BATTERY *en echarpe*, is that which plays obliquely.

BATTERY *de revers*, *or murdering battery*, is one that plays on the backside any place; and being placed on an eminence, sees into it

BATTERY *joint*, *or par camarade*, *or camaretta*, is when several guns play at the same time upon one place.

BATTERY *en ricochet*, is that used to dismount the enemy's cannon.

BATTERY, *à ricochet*, is adapted to the method of *ricochet* firing, first invented and practised by Vauban, at the siege of Aeth, in 1692: the guns are *loaded* with small charges, and are elevated, so as to fire over the parapet; and the shot is thereby made to roll along the opposite rampart. This method of firing with guns has since been applied to mortars and howitzers with great success.

BATTERY *rasante*, is that where the sides of the wall and merlons only are formed of fascines, and all the cavities or included spaces filled with earth.

BATTERY, *sabine*; see GABIONS.

BATTERY, in *Law*, denotes an act that tends to the breach of the peace of the realm, by unlawfully striking, beating, or offering other violence to another person.

Battery is frequently confounded with *assault*, though in law they are different offences; because, in the trespass for *assault* and *battery*, one may be found guilty of the *assault*, yet not convicted of the *battery*: there may therefore be *assault* without *battery*; but *battery* always implies an *assault*. A person guilty of *battery* against a clergyman, is liable to three kinds of prosecution for the same offence: an indictment for breach of the peace; a civil action for damages, a suit in the ecclesiastical court.

BATTERY is sometimes used in speaking of the fabric of metalline utensils.

In this sense, *battery*-works include pots, saucepans, kettles, and the like vessels, which, though cast at first, are to be afterwards hammered or beaten into form.

Some make *battery* for the kitchen, *batterie de cuisine*, comprehend all utensils for the service of the kitchen, whether of iron, brass, copper, or other matters. Others take the term in a narrower sense, and restrain it to utensils of brass or copper.

A society for the mineral and *battery*-work of England was incorporated by queen Elizabeth.

BATTERY, in *Electricity*, is a combination of coated surfaces of glass, so connected together, that they may be charged at once, and discharged by a common conductor. Mr. Gralath, a German electrician, was the first who contrived to increase the shock, by charging several phials at the same time. Dr. Franklin, after he had analysed the Leyden phial, and found that it had at one surface the electric fire which it received at the other, constructed a *battery* consisting of eleven panes of large sash-glass, coated on each side, and connected in such a manner, that the whole might be charged together, and with the same labour as one single pane; and by bringing all the giving sides into contact with one wire, and all the receiving sides with another, he contrived to unite the force of all the plates, and to discharge them at once. But the most complete *battery* that has yet been constructed, is described by Dr. Priestley, of which he says, that after long use he sees no reason for wishing the least alteration in any part of it. This *battery* (see *Plate of Electricity*, fig. 1.) consists of 64 jars, each 20 inches long, and 9½ inches in diameter, coated within 3½ inch of the top; and contains in the whole 31 square feet. The wire of each jar has a piece of very small wire twisted about the lower end of it, to touch the inside coating in several places; and it is put through a pretty large piece of cork, within the jar, to prevent any part of it from touching the side, which would tend to promote a spontaneous discharge. Each wire is turned round, so as to make a hole at the upper end; and through these holes a pretty thick brass rod with knobs pulls, one rod serving for one row of the jars. The communication between these rods is made by laying over them all a thick chain. When part only of the *battery* is used, the chain is laid over as many rods as will furnish the required number of rows of jars. The bottom of the box, in which the jars stand, is covered with a plate of tin, and a brass wire touching the plate pulls through the box, and appears on the outside. To this wire any conductor designed to communicate with the outside of the *battery* is fastened, as the small wire in the figure, and the discharge is made by bringing the brass knob to any of the knobs of the *battery*. When a very great force is required, the quantity of coated surface may be increased, or two or more *batteries* may be used. Franklin's Exp. and Obs. ed. 1769. p. 28. Priestley's Hist. &c. of Electricity. ed. 1775. vol. ii. p. 99.

BATTEURS, *d'estrade*, scouts, or horsemen sent out before, and on the wings of an army, two or three miles, to make discoveries; of which they are to give an account to the general.

BATTIFOLLIUM, or BATTIFOLLUS, a kind of tower or defence, frequently mentioned by Latin historians of the middle age. It seems to have been of wood, and to have been erected on sudden and hasty occasions.

BATTLE, an action which passes between two armies ranged in order of *battle*, and who engage in a country sufficiently open for them to encounter in front, and at the same time; or, at least, for the greater part of the line to engage, while the remainder remains in sight, by reason of some difficulty, which hinders it from entering so readily into action, with a front equal to that which may be opposed to it by the enemy.

Other great actions, though generally of a longer duration, and even frequently attended with greater slaughter, are only called *fights*, by the French *combats*. Pasq. Mem. c. 80.

A *battle* lost, almost always draws with it the loss of the artillery of the army, and frequently also that of the baggage: consequently as the army beaten cannot again look the enemy in the face till it hath repaired those losses, it is forced to leave the enemy a long time master of the country, and at liberty to execute all his schemes.—Whereas a great fight lost is rarely attended with a loss of all the artillery, and scarce ever of the baggage, because the two armies not meeting in front, they can only have suffered in that part that has been engaged. Feuq. loc. cit.

An ingenious modern author remarks, that it is not usually, the real loss sustained in a *battle* (that is, of some thousands of men) that proves so fatal to a state; but it is the imaginary loss, and dishonour, which deprives it of the use of those very powers which fortune had left it. Considér. sur les Caus. de la Grand. des Rom. c. iv. p. 39.

Drawing up an army for BATTLE, is called *embattling*; the rules and method for which are furnished by the science called by the ancients *tactics*.

BATTLE, *order of*, the disposition of the squadrons and battalions of an army in one or more lines, according to the conditions of the ground, either in order to engage the enemy, or to be reviewed by the general.

BATTLE, *field of*, the ground on which the two armies engage. The Greeks notified the places of their *battles* and victories by adding the word Νικαι; whence Nicodemia, Nicopolis, Thessalonica, &c. The ancient Britons did the like, by adding the word *Aslas*; whence Maisbeveth, Malmaisbury, &c. The English by the word *field*.

The Romans had their particular days, called *praliares dies*, wherein alone it was lawful to join *battle*; and others wherein it was unlawful, called *dies atri*.

The Athenians, by the ancient laws of their country, were not to draw out their forces for *battle* till after the seventh day of the month. And Lucian relates of the Lacedæmonians, that, by the laws of Lycurgus, they were not to fight before full moon. Among the Germans, it was reputed an impiety to fight in the wane of the moon; and Cæsar tells us, that Ariovistus was beaten by him, because, contrary to the laws of his country, he had fought when the moon was in her wane. The German soldiers were intimidated with the apprehension, and afforded Cæsar an easy victory, *quos commissa superstitio religione inclusos tenebat*. De Bell. Gall. lib. ii.

It is well known that Jerusalem was taken by Pompey in an attack on the sabbath-day, when, by the Jewish superstitious notions, they were not allowed to fight, or even defend themselves. Dion. lib. xlii.

The Romans did not carry their superstition so far; their *atri dies* were only observed in respect of attacking: no day was too holy for them to defend themselves in. Microb. Saturn. lib. i. c. 16.

Among the ancients, we find frequent instances of *battles* in the night: it was by the moon-light that Pompey beat Mithridates and Scipio, Asdrubal and Syphax. Flor. lib. iii.

BATTLE *array*, denotes the order in which an army is drawn up at a review, or for an engagement; more frequently called *line of battle*.

BATTLE, *pitched or set*, that wherein both armies have room and time to range themselves in good order.

The first *pitched battle*, of which we have any distinct account, is that between Cyaxes and Cyrus, described by Xenophon, concerning which we have a dissertation by M. Freret, wherein several points of the ancient tactics are well explained. Cyropæd. lib. vi. and vii. Mem. Acad. Inscr. tom. xx. p. 209.

In modern war, we find few *pitched* or *set battles* the

chief view of the great commanders of late days is rather to harrass or starve the enemy by frequent alarms, cutting off his provisions, carrying off his baggage, seizing his posts, &c. than to join issue with him, and put the whole on the event of one day; a *battle* generally deciding the fate of a campaign, sometimes of a whole war. Hence it is a rule, never to venture a general *battle*, unless either you fight to advantage, or be forced to it.

Joining or giving *battle* should always be by design: a general should never suffer himself to be forced to fight. Reasons for giving *battle* are, superiority in the number or quality of forces; necessity of putting a speedy end to the war; different views or interests of the commanders of the enemy's army; their negligence in encamping or marching; necessity of relieving a place besieged; the disposition of an army, which must be ruined, unless prevented by the success of a *battle*; the certainty of succours coming to the enemy, which will render him superior; some preceding advantage, which, though not decisive, has given the enemy a considerable check. For avoiding it the reasons are, having less to hope for from a victory, than to fear from a defeat; expecting further succours, or the junction of a separate corps; finding the enemy advantageously posted, or a prospect of dissipating his army by temporising and avoiding *battle*. Means for execution are, to form the order of *battle* suitable to the quantity or quality of the forces whereof the army is composed, and the ground wherein it is expected to find the enemy; distributing the posts to the general officers; giving copies of the order of *battle* to all those who have command in it; distributing a sufficient number of charges to the men, and having fresh munition and arms ready behind those who have a long fire to sustain; letting the army have time to rest and refresh themselves before the *battle*; being sufficiently provided with medicines and surgeons; being absolutely free from the incumbrance of the heavy baggage; inspiring the army with the desire of fighting, hopes of victory, and promises of plunder; and not neglecting the advantages of wind and sun. The stratagem of the Arabs deserves mention. They used to turn loose a number of camels loaden with sand and dust-bags full of holes to the windward of the enemy, who by this means were covered and suffocated with a cloud of dust. Vide Phil. Trans. N° 219. p. 137.

On the day of *battle*, the means of execution are, taking the advantages of the ground, observing the order of *battle* before concerted, changing it where found necessary, and giving notice thereof to those concerned; distributing the artillery in the line according to the ground; watching for all advantages to be taken, by opening and strengthening the wings, giving the word before marching to the enemy; taking care to observe the right and left, and the distance between the lines: if the army march in front, to make frequent halts, to give time for the line to recover its order, and to the artillery to fire and load again; above all, forbidding the soldiers from firing, to receive the enemies fire, and not to charge till after drawing their fire from them, is a capital point; it being certain, that when troops, who have parted with their fire, see others advance, and going to pour in their fire upon them, they will immediately give way. But when both sides pursue the same maxim, the best expedient seems to be, to march up close to the enemy, before they give their fire, and having fired, to prevent the enemy from giving theirs, by falling upon them with the bayonets on the muzzle of the muskets the instant you have fired, which may be done under cover of the smoke, before they can perceive it. Bland's Milit. Discip. c. ix. art. 2.

If the army, by its march, cannot come at the enemy in front, it must approach in a sufficient number of columns to be in order of *battle*, out of distance of being charged in columns. The artillery is still to accompany the first line in the order wherein it was first distributed, if the ground will allow, and the rest of the army to follow this motion, still observing the distance between the two lines as at first appointed, to prevent confusion. If the victory continue to declare in his favour, and he has the good fortune to overthrow the second line, more care still must be taken to prevent the troops from separating, lest they be charged and put into disorder by the first line of the enemy, who may have rallied behind their second *line*. The routed troops must still be pursued in a body, and in lines. No battalion ought ever to advance before the line in pursuit, for fear of being flanked, till the disorder be general: afterwards, the number of those detached for the pursuit is to be increased, without ever suffering a man to quit his flag without being commanded. On this occasion the general is to make use of the reserved body, and of fresh troops, who have not engaged, to pursue the enemy, to prevent their rallying, and to take prisoners, which the troops must never be suffered to meddle with during the *battle*, not so much as to look on the plunder of the field, till the victory be absolutely assured, and the enemy so broken, and at such a distance, that there is no danger of his turning back on the bodies detached to pursue them: after which, during the rest of the day, the victorious troops may be suffered to reap the plunder of the field of *battle*. If the first line give way, or be put into disorder by the enemy, the battalions are to retire through the intervals left between those of the second line, behind which they are to stop and rally. Great care is to be here taken by the officers, that, instead of retiring through the intervals, they do not run directly into the battalions, and either carry them off with them, or put them into such confusion, that the enemy be upon them before they have proper time to repair the disorder.

On the first line's giving way, the second should march up briskly to their relief, and attack the enemy, before they have time to repair the disorder, which the action and the pursuit must of course have thrown them into; by doing which, they may easily retrieve what is lost, and defeat and render useless the enemy's first line, which has been considerably weakened and disordered by the former attack. This is the more easy to be effected, as the enemy's first fire is spent, which is that which does most execution; the other, from the great hurry of loading, being of little consequence, in comparison with the first. The great mischief is, that the second line seeing the first give way, are usually struck with a panic, which magnifies the enemy; so that by the time they approach near, they either betake themselves to flight, or make but a faint resistance.

In case fortune declare on the enemy's side, the great business of the general is to prevent a total rout. His capacity and experience are to shew him the moment which precedes the loss of a *battle*, that he may take the necessary precautions to diminish the disorder of a flight, either by the vigorous effort of a body of troops unshattered, in order to give time for the rest to rally, and thus secure a retreat; or by seizing some post behind, whither he may retire with safety; or a defile, behind which he may rally and re-assemble his scattered troops. As the loss of the field of *battle* frequently carries with it that of the baggage and artillery, he is to remain no longer in this first place than while he can re-assemble his army; after which he is to lead it into some secure camp, where he may recover his losses, send for fresh cannon, troops, &c. If the loss be considerable enough to hazard some considerable town, he is to throw into it the best of his infantry left, and endeavour still to keep the field with the cavalry, to harrass the enemy, in case he attempts a siege; or to oblige him to keep the army together, and prevent his dividing into several bodies, if his design be only to penetrate further, and ravage the country. Blond.

The ancients never joined *battle* without much ceremony and preparation; as taking auguries, offering sacrifices, haranguing the soldiers, giving the word, or a *tessera*, &c. The signals of *battle* were sounding the *classicum*, or general charge, and displaying a peculiar flag, called by Plutarch a purple robe. To which may be added, singing paeans, raising military shouts, and the like.

BATTLE was also formerly used for a body of forces drawn up in order of *battle*.

This amounts to the same with what is otherwise called BATTALION.

In this sense, we meet with the length or depth of the *battle*; the front, rear, and flanks of the *battle*.

BATTLE, *length of the*, is the number of men in a rank, or the space from the left flank to the right flank.

BATTLE, *depth of the*, is the extent of a file, or the number of men from the front to the rear.

A Roman legion, ranged in order of *battle*, consisted of *hastati*, placed in the front; of *principes*, who were all old experienced soldiers, placed behind the former; and of *triarii*, heavy-armed with large bucklers, behind the *principes*. The *hastati* were ranked close; the ranks of the *principes* were much opener, so that they could receive the *hastati*; and those of the *triarii* opener still, in order that they could receive both the *principes* and the *hastati* within them, without any disorder, and still facing the enemy. When therefore the *hastati* found themselves unable to stand the enemy's charge, they retired gently within the *principes*, where joining with them, they renewed the combat. If these found themselves too weak to sustain the enemy, both retired among the *triarii*, where rallying, they formed a new corps, and charged with more vigour than ever. If these failed, the *battle* was lost; the Romans had no further resource. Machiav. Art. de Guer. lib. iii. c. 1.

The moderns are unacquainted with this method of inserting or embattling one company into another: without which, the former cannot be well succoured or defended, and their places taken by others; which was a thing the Romans practised with great exactness.

As to the *weapons* used, in later times, the archers and slingers,

flingers, they were not drawn up in this regular manner, but diſpoſed of either before the front of the *haſtati*, or ſcattered up and down among the void ſpaces of the *haſtati*, or ſometimes placed in two bodies in the wings. Theſe always began the combat, ſkirmiſhing in flying parties with the foremoſt troops of the enemy. If they were repulſed, which was uſually the caſe, they fell back to the flanks of the army, or retired again in the rear. When they retired, the *haſtati* advanced to the charge.

As to the cavalry, it was poſted at the two corners of the army, like the wings on a body, and fought ſometimes on foot, ſometimes on horſeback. The auxiliary forces compoſed the two points of the *battle*, and covered the whole body of the Romans.

Other leſs uſual *forms of battle* among the Romans were, the *cuneus*, or wedge; *globus*, or round form; *forfex*, or pair of ſhears; *turris*, or an oblong ſquare figure; *ſerra*, or ſaw. Kennet. Rom. Ant. Not. p. ii. lib. iv. c. 10.

The Greeks were inferior to the Romans in marſhalling their armies for *battle*, as they drew up their whole army in a front, and truſted the ſucceſs of the day to a ſingle force. Pott. Archæol. rom. ii. lib. iii. c. 9.

They had three forms of *battle* for the horſe, viz. the ſquare, the wedge, and the rhombus, or diamond form. The firſt held beſt for the defenſive; the two latter for the offenſive; the wedge being preferred as bringing moſt hands to fight. Ælian. Tact. c. 18.

BATTLE, in a *Naval Senſe*, denotes an engagement between two fleets, ſquadrons, or even ſingle ſhips.

This is more frequently diſtinguiſhed by the name of ſea-fight.

Of late times, fleets are ranged in line of *battle*, like land armies, and fight much after the ſame order; to the expediency of which, ſome objections may be made.

The ancients had divers forms of ſea-*battles*; as the half-moon, circle, and forceps. In all theſe, not only the ſhips engaged each other, and by their beaks and prows, and ſometimes their ſterns, endeavoured to daſh in pieces, or overſet and ſink each other, but the ſoldiers alſo annoyed the enemy with darts and ſlings, and, on their neareſt approach, with ſwords and ſpears, boarding each other by laying bridges between the ſhips.

By way of preparation, they took down their ſails, and lowered their maſts, and ſecured whatever might expoſe them to the wind, chooſing rather to be governed by their oars.

It is obſervable, that the ancient and uſual way of fighting in our fleets was board and board, yard-arm and yard-arm, through and through; and not at a diſtance in a line or half-moon, as is now done: which practice our old ſailors ſay they were ſtrangers to.—For this reaſon our guns are ſhorter, and of larger bore, than thoſe of the French, which are adapted to the method of fighting in line of battle; as being longer, and carrying farther. So that we engage with them in this way at a diſadvantage. It has been often found that their balls will fly over our ſhips, before ours can reach them by a mile. Dennis Eſſ. on Navy, ſect. 2.—See SIGNAL.

BATTLE, *line of*, ſee LINE.

BATTLE, *ſquare*; ſee *Square* BATTALION.

BATTLE, *attainder by*; ſee ATTAINDER.

BATTLE, in *Middle Age Writers*, properly denotes a combat or duel decreed by order of a court of juſtice, for the deciſion of a cauſe, where otherwiſe ſufficient proof could not be had. See JUDICIUM *Dei*, ORDEAL, and PURGATION.

It was anciently allowed of in our law, and may ſtill be demanded at the election of the appellee (particular caſes only excepted), where the defendant in appeal of murder or felony may fight with the appellant, and make proof thereby whether he be culpable or innocent of the crime. Glanv. lib. xiv. c. 1. If the appellee be ſo far vanquiſhed, that he cannot or will not fight any longer, he may be adjudged to be hanged immediately; but if he can maintain the fight until the ſtars appear, he ſhall have judgment to be quit of the appeal. 2 Hawk. P. C. 420. The trial by wager of *battle* may ſtill be demanded by the tenant, or defendant in a writ of right. Blackſtone's Comm. vol. iii. p. 337. vol. iv. p. 340, 800. See DUEL.

BATTLE *royal*, in *Cock-fighting*, denotes a fight between three, five, or ſeven cocks altogether; ſo as that the cock which ſtands longeſt gets the day.

BATTLE *ax*. The *battle ax* was originally called *ſecuris Danica*, becauſe firſt introduced into England by the Danes; but being adopted in theſe countries, we find it called in later writers, *ſecuris Anglica*, and *Scuris Scotica*, the Engliſh and Scottiſh axes. The grandees wore them enriched with gold, and beſet with pearls. They were of that kind called *biſpennes*, and have ſince generally degenerated into halberds or partiſans, though we find them ſtill retained, under their old denomination, by the band of gentlemen penſioners. Du-Cange.

BATTLEMENTS, in the *Military Art*, indentures, or notches on the top of a wall, parapet, or other building, in form of embraſures, for the eaſe of looking through them, &c. much affected in the old fortifications.

BATTOLOGY, from βαττος, *battus*, *babbler*, and λεγω, *I ſpeak*, in *Grammar*, a multiplying of words without occaſion, or a needleſs and ſuperfluous repetition of the ſame words or things.

BATTOON, or BATOON; ſee BASTON.

BATTORY, a name given by the *Ham Tower* to their magazines or ſtorehouſes abroad.

The chief of theſe *batteries* are thoſe at Archangel, Novogrod, Bergham, Liſbon, Venice, and Antwerp.

BATTUS, an order of penitents at Avignon, and in Provence, whoſe piety carries them to exerciſe ſevere diſcipline upon themſelves, both in public and private.

BATTUTA, in the *Italian Muſic*, the motion of the hand or foot in keeping or beating time.

Among Italian muſicians, we frequently find the words, *a battuta*, which import, *in meaſure*, or beating each time equally. This uſually occurs after what they call *recitativo*, which is rather declaiming than ſinging, and in which little or no meaſure is obſerved. *A battuta*, then, denotes, that they are to begin again to mark or beat the time equally.

BATUDA, a method of fiſhing, mentioned in ſome *Middle Age Writers*, wherein the fiſh are driven by beating the water by poles, till flocking into one place, they are the ſooner caught.

BATZ, or BATZEN, a copper coin mixed with ſome ſilver, and current at different rates, according to the quantity of alloy, in many parts of Germany and Switzerland.

B. AV. See CHARACTER.

BAUDEKIN, BALDICUM, and BALDAKINUM, in our *Old Writers*, is uſed for cloth of *baudekin*, or gold; or tiſſue, open which figures in ſilk, &c. were embroidered. But ſome writers account it only cloth of ſilk.

BAUGE, a drugget manufactured in Burgundy, with thread, ſpun thick, and coarſe wool.

BAUHINIA, *mountain ebony*, in *Botany*, the name of a genus of plants of the *decandria monogynia* claſs, ſo called from the two *Bauhins*, famous for their botaniſt writings. The characters are theſe: the flower is compoſed of five petals, and hath ten *ſtamina*; the oblong *germen* ſits upon the foot-ſtalk, which afterward becomes a long taper pod, incloſing a row of roundiſh compreſſed ſeeds. Linnæus enumerates eight, and Miller ten ſpecies.

All theſe plants are natives of the warm countries, and will not thrive in England, unleſs kept in a warm ſtove. They are propagated by ſeeds, which muſt be procured from the countries where they grow naturally, for they do not naturally perfect their ſeeds in England.

BAVINS, in *War*, bruſh faggots, made with the bruſh at length. See FASCINES.

BAUM, *meliſſa*, in *Botany*, a genus of the *didynamia gymnoſpermia* claſs of plants. The characters are theſe: the flower is of the lip kind, having a cylindrical tube, the chaps gaping, the upper lips erect, forked, and indented at the end. The under lip is trifid; it hath four awl-ſhaped *ſtamina*, two of which are as long as the petal, the others but half ſo long. It hath a quadrifid *germen*, which afterward turns to four naked ſeeds, ſitting in the empalement. Linnæus enumerates ſix and Miller ten ſpecies.

The common *baum* grows naturally on the mountains near Genoa, and in ſome parts of Italy; but is cultivated here in gardens as a medicinal and culinary herb. It has a perennial root, the ſtalks are ſquare, branching, and it riſes from two to three feet high, garniſhed with leaves ſet by pairs, indented about the edges, the lower ones ſtanding upon ſomewhat longiſh foot-ſtalks. The flowers grow in looſe bunches at the wings of the ſtalks in whorls, ſtanding upon ſingle foot-ſtalks: they are of the lip kind; the upper lip ſtands erect, and is forked; the under lip is divided into three parts: the middle one is roundiſh, and indented at the top. The flowers are white, and the whole plant has a pleaſant ſcent ſomewhat like lemons.

This plant is eaſily propagated by parting the root; for which the beſt time is in October, that the off-ſets may have time to get root before the froſts come on. They ſhould be planted two feet aſunder in beds of common garden earth, in which they will ſoon ſpread and meet together. The only culture required is to keep the plants clean from weeds, and to cut off the decayed ſtalks in the autumn, ſtirring the ground between them.

Baum is greatly eſteemed among the common people, as good in diſorders of the head and ſtomach; but is leſs regarded in the ſhops. It is however reputed good in hypochondriac and hyſteric diſorders, and by outward application to eaſe the ſtinging of bees and waſps. It is moſt conveniently taken by way of infuſion, like tea; and the green herb, contrary to the general rule in regard to

other

other plants, is much better than the dry. The only official preparation of *bawm* is the simple water.

Hoffman has contrived a process for obtaining the virtues of this plant, which affords its principles better than any other, and gives two medicines to the physician unknown before, but of great value.

This method might be pursued with the same success in other cases, and many plants, not sufficiently esteemed at present, might thus afford useful preparations.

He took a large quantity of the leaves of *bawm*, fresh picked from the stalks, and filling a glass vessel more than half full of them, fixing the stopper carefully in, he put the vessel into a dung-hill, where he let it remain three months. At the end of this time he took it out, and found the whole reduced to a kind of poultice. This being distilled in a retort, yielded first an empyreumatic liquor, but afterwards, when the fire was increased, a black and shining oil came over, in form of thin *lamina*, swimming itself near the surface of the liquor. There remained at the bottom of the retort a black and burnt mass, resembling a coal, which being thrown on burning charcoal, had very much the smell of the common tobacco.

In this first distillation no volatile salt appeared, but the empyreumatic liquor being examined, was found very sharp and acrid on the tongue, and of a sharp and pungent smell. Spirit of vitriol being mixed with it, it afforded no effervescence; but on the mixing of it with spirit of hartshorn, spirit of urine, or the like, a small ebullition always was produced, though it lasted but a few moments.

This liquor, rectified by a second distillation, affords the volatile salt of *bawm*, which is a fine white and pellucid substance, adhering to the neck of the glass, in form of fine white and striated crystal; and a yellow mineral oil, of a very penetrating smell, and sharp taste, becomes separated by the same rectification. These are both found to be very great medicines, the salt as a sudorific, and the oil as a high cordial, a carminative, and a deobstruent.

Of the ENS PRIMUM of *bawm*, we meet with high commendations in Mr. Boyle.

Bastard BAUM; see MELISSUS.

Horse-by BAUME; see MOLUCCA.

Turky BAUM; see DRAGON'S *head*.

BAVOSA, in *Ichthyology*, a name given by the Italians to a species of the ray fish, called by the modern authors *lenirata*, and *rubia rayennatus*, and by the earlier authors, *raja bos*, *bos marinus*, and *bouranus*. It is distinguished by Artedi by the name of the variegated ray, with ten prickly tubercules on the middle of the back. See PHOLIS.

BAURAC, an ancient name for nitre, but in some places used in a restrained sense, as not signifying every thing that was called by that name, but only one of two different salts that were confusedly called nitre.

The Arabians give the name *baurach* to *tincar* or *tincal*, which when refined is called BURAX, but when it is rough, in little crystalline masses like the small crystals of *sal gem*, mixed with earth and other impurities, it is always distinguished by the name of TINCAL. Neumann, p. 227.

BAWD, a person who keeps a place of prostitution, or makes a trade of debauching women, and procuring or conducting criminal intrigues.

Some think the word is derived from the old French *baude*, *bold* or *impudent*; though Verstegan has a conjecture which would carry it higher, viz. from *bathe*, anciently written *bade*.

In which sense *bawd* originally imported no more than bath-holder, as if bagnios had anciently been the chief scenes of such prostitution.

The Romans had their male as well as female *lenones*; the former denominated *druones* and *proagogi*, among us *panders*; the latter, *leno*.

By a law of Constantine, *lenones* were to be punished by pouring melted lead down their throats.

By the common law of England, a person may be indicted for keeping a bawdy-house, and punished by fine and imprisonment; and haunters of bawdy-houses bound to their good behaviour.

But it does not appear that the offence of being a *bawd* is indictable; though that of keeping a bawdy-house is. See STEWS.

BAWLING, among *Hunters*, is spoke of the dogs when they are too buty before they find the scent good.

BAXTERIANS, in *Ecclesiastical History*. See PREDESTINARIAN.

BAY, *laurus*, in *Botany*, a genus of the *enneandria monogynia* class. Its characters are these: it is male and female in different plants; but the male flowers have no empalement; they have nine *stamina*, which are shorter than the petal, standing by threes, terminated by slender summits; the female flowers have no empalements; they have one petal, which is cut into six segments at the top; in the bottom is situated an oval *germen*; and there are two globular glands, standing upon very short foot-stalks, fixed to the base of the petal. The *germen* becomes an oval berry with one cell, enclosing one seed of the same form. They are all propagated by sowing the berries, or by laying down the tender branches, which will take root in one year's time, and may then be transplanted into beds for a year or two, or even placed at once where they are to remain. They must be trained up straight, by tying them to stakes, and their under shoots pruned off, to make them advance in height. Those trees are proper to plant on the warm sides of hills, where they may be sheltered from the north and north-east winds. In open situations, the *bay*-tree will sometimes indeed lose all its verdure in severe winters, and appear dead, and many trees have on this occasion been dug up and burnt; but this is a rash and very wrong practice; for usually, if they are suffered to remain, they shoot freely again, and after another season are found as lively as ever.

Alexandria BAY; see BUTCHER'S *broom*.—*Cherry* BAY; see LAUREL.—*Dwarf* BAY; see SPURGE *laurel*.—*Indian* BAY; see MYRTLE.—*Loblolly* BAY; see GORDONIA.—*Plum* BAY; see GUAIAVA.—*Rose* BAY; see OLEANDER.—*Sweet scenting* BAY; see *Laurel-leaved* TULIPTREE.

BAY, in *Geography*, denotes a little gulf; or an arm of the sea, stretching up into the land; being larger in the middle within, than at its entrance, which is called the *mouth of the bay*.

BAY likewise signifies a pen, or pond-head, made up a great height, to keep in store of water for driving the wheels of a forge or furnace of an iron mill, by the stream that comes thence through a passage, or flood-gate, called the *pen-stock*.

BAY, among *Huntsmen*. Deer, &c. are said to *bay* or *be at bay*, when, after being hard run, they turn head against the hounds.

BAY, among *Farmers*, is that part of the barn where the mow is placed.

BAY *colour*, denotes a kind of red inclining to chesnut, chiefly used in speaking of horses.

In this sense, the word *bay* is formed from the Latin *baius*, or *badius*, and that from the Greek βαΐς, *a palm branch*: so that *badius* or *bay* properly denotes *color phœniceus*. Hence also, among the ancients, those now called *bay* horses, were denominated *equi palmati*.

We have divers sorts and degrees of *bays*; as a light *bay*, a dappled *bay*, &c.

All *bay* horses are said to have black manes, which distinguish them from sorrels, which have red or white manes.

Bay is one of the best colours, and *bay* horses are commonly good.

BAY, in *Building*, denotes any kind of opening in walls; as a door, window, or even chimney.

BAY, *a mirrour*, in the *Manage*, the same as DAPPLE *bay*.

BAY *salt*, see SALT.

BAY *windows*, are the same with what we otherwise call *bow windows*.

BAY *yarn*, is a denomination sometimes used promiscuously with *woollen yarn*. 10 and 11 W. III. c. 10. 5 Geo. II. c. 21. See YARN, &c.

BAYARD, or BAIARD, in some *Old Writers*, is an appellative for a horse.

Hence the phrases, *blind bayard*, *bayard's mastering*, *bayard's grass*, &c.

BAYONET, a short broad dagger, made lancet-fashion, and having, instead of an iron handle and ring, to fix it to the end of a musquet, so as not to hinder its firing or charging.

Bayonets are of great service to the dragoons and fusileers, after they have spent all their powder and ball. This instrument is also used in hunting the boar or bear; for which purpose it is made larger than for the military use.

The origin of the word is unknown; probably it came from the city Bayonne, where this weapon is said to have been first employed; or perhaps from its being invented by some engineer of that place.

BAYS, in *Commerce*, a kind of coarse, open, woollen stuff, having a long knap; sometimes frized on one side, and sometimes not frized, according to the uses it is intended for.

This stuff is without wale, being wrought on a loom with two treddles, like flannel.—The manufacture of *bays* is very considerable in England, particularly about Colchester; and in Flanders, about Lille and Tournay, &c. Formerly the French, as well as Italians, were furnished with *bays* from England; but of late the French workmen have undertaken to counterfeit them, and set up manufactures of their own; and that with success; especially at Nismes, Montpellier, &c.

The export of *boys* is very considerable to Spain, Portugal, and Italy. Their chief use is for the religious, and for linings in the army: the looking-glass makers also use them behind their glasses, to preserve the tin or quicksilver; and the case-makers to line their cases.

The breadth of *boys* is commonly a yard and half, yard and three quarters, or two yards; by forty-two to forty-eight in length: those of a yard and three quarters are most proper for the Spanish trade.

BAZA, or BAZAT, in *Commerce*, fine spun cotton, which comes from Jerusalem, whence it is also called Jerusalem cotton.

BAZAR, or BAZAR, a denomination among the Turks and Persians, given to a kind of exchanges, or places where their finest stuffs and other wares were sold.

These are also called *bezestins*.

The word *bazar* seems of Arabic origin, where it denotes *sale*, or exchange of goods.

Some of the eastern *bazars* are open, like the market-places in Europe, and serve for the same uses, more particularly for the sale of the more bulky and less valuable commodities. Others are covered with lofty ceilings, or even domes pierced to give light: and it is in these the jewellers, goldsmiths, and other dealers in the richer wares, have their shops.

The *bazar* or *meidan* of Ispahan is one of the finest places in all Persia, and even surpasses all the exchanges in Europe; yet, notwithstanding its magnificence, it is excelled by the *bazar* of Tauris, which is the largest that is known, having several times held thirty thousand men ranged in order of battle.

At Constantinopie, there is the old and the new *bazar*, which are large, square buildings, covered with domes, and sustained by arches and pilasters; the former chiefly for arms, harnesses, and the like; the latter for goldsmiths, jewellers, furriers, and all sorts of manufacturers.

BAZOENDGES, in *Natural History*, the name of a substance used by the Turks, and other eastern nations, in their scarlet-dying: they mix it for this purpose with cochineal and tartar, the proportions being two ounces of the *bezoendges* to one ounce of cochineal.

The *bezoendges* seem to be no other than the horns of the turpentine tree in the eastern parts of the world; and it is not only in Syria that they are found, but China also affords them. Many things of this kind were sent over to Mr. Geoffroy at Paris from China, as the substances used in the scarlet-dying of that country, and they all proved wholly the same with the Syrian and Turkish *bezoendges*, and with the common turpentine horns. The lentisk or mastic tree is also frequently found producing many horns of a like kind with these, and of the same origin, all being owing to the *gnerres*, which make their way into the leaves, to breed their young there. Reaumur's Hist. of Insects, vol. vi. p. 37.

BAZOCHE, or BAZOCHE, a royal kind of jurisdiction exercised among the clerks of the palais, or courts of justice at Paris.

It is administered in the name and by the authority of the king of *Bazoche*, *roy de la Bazoche*, by virtue of an ancient grant of the kings of France. The elder among the clerks are the officers; and he who presides is the chancellor.

This court only takes cognizance of causes among the clerks, or between clerks and artificers for goods bought, or work done. The freedoms they took with private characters in their inquisitions and remonstrances, have occasioned several *arrets* to restrain their power, and prohibit their holding pleas without leave.

A collection of statutes, ordonnances, regulations, monuments, and prerogatives of the kingdom of *Bazoche*, were published at Paris in 1654, 8vo.

BDELLIUM, *Βδελλιον*, an aromatic gum, brought from the Levant, of some use, both as a medicine, and a perfume.

The word is supposed to have been formed of the Hebrew בדלח, *bedolloch*, which the English translators render by the appellation *bdellium*. It is also written *bedellium*, *bedella*, *ptellium*, *petalium*, *megallum*, and *telinum*.

There is much uncertainty concerning both the plant and the place of its production, which is supposed to be in Africa. We find mention of the name both among the ancient naturalists, and in Scripture; but it is doubtful whether any of these be the same with the modern kind. As for the Scripture *bdellium*, we know very little of it. Moses describes *manna* as of the colour of *bdellium*; and Josephus explains the passage, by saying it is the gum of a tree resembling the olive tree; and that the manna wherewith the Jews were fed in the desart resembled this drug.—But Scaliger and others set aside this explication, and own, they do not know what the *bdellium* mentioned in Scripture is.

The gum of this name among the moderns is somewhat bitterish to the taste, looks transparent when broken, and if rubbed, seems a fattish substance.

It is thought to facilitate digestion, to discuss and promote perspiration, and to be good in coughs, and many disorders of the breast; but its chief use now in composition is in discutient plasters, cerates, and unguents; in which it is much commended for reducing of ruptures, and softening any indurations of the nervous parts. Pomet. Lemery.

The *philtre de bdellio majori*, described by Mesue, are used by some against the pain and exercise of the *nerfs*. Hermannus also praises the oil of *bdellium* against obstructions of the womb. Fumigations of the same gum, *suffitus ex bdellio*, received by the anus, are also ordered by some to stop immoderate fluxes of the hæmorrhoids.

It is one of the weakest deobstruent gums, and is now rarely used. From one ounce of this gum resin, may be extracted by water six drams and two scruples; or by spirit, two drams.

BEACON, a SIGNAL for the better securing the kingdom from foreign invasions.

On certain eminent places of the country are placed long poles erect, wherein are fastened pitch-barrels to be fired by night, and smoke made by day, to give notice, in a few hours, to the whole kingdom, of an approaching invasion.—These are commonly called *towers*; whence also comes *beacoming*.

BEACONS are also marks and signs for the sea, erected on the coasts by the masters, &c. of Trinity-house, who are impowered to do this by act of parliament, 8 Eliz. c. 13. If any person shall destroy or remove any beacon, he shall forfeit 100*l.* and in case of inability to pay it, be *ipso facto* outlawed.

BEACONAGE, money paid towards the maintenance of a *beacon*.

The word is derived from the Saxon *beacnian*, *to nod*, or *shew by a sign*: hence also the word *beckon*.

BEAD, in *Architecture*, denotes a round moulding, carved in short embossments, like beads in necklaces.

Sometimes also an astragal is carved *bead fashion*.

There is also a sort of *bead-plane*, frequently set on the edge of each *fascia* of an architrave: sometimes also on the lining-board of a door-case; and on the upper end of skirting-boards.

BEAD, in *Assaying*, the small lump or mass of pure metal separated from the *scoria*, and seen distinct and pure in the middle of the coppel while in the fire.

Thus, in separating silver from its ore by means of lead, the silver remains in form of a *bead*, when the lead, that had before alloyed in the operation, is all reduced to *scoria*. In this process, the *bead* of silver must be taken out of the coppel as soon as it is seen pure and fine, left growing cold, it should be conglutinated to the coppel or fithurge. This *bead*, when lightly made, is always porous underneath. Cramer.

BEADS are more particularly used among us for a sort of glass necklace, made in imitation of the colour and figure of pearl.

BEADS are also used in speaking of those glass globules vended to the savages on the coasts of Africa; thus denominated, because they are strung together for the convenience of traffic.

The common black glass of which *beads* are made for necklaces, &c. is coloured with manganese only; one part of manganese is sufficient to give a black colour to near twenty of glass. Lewis's Comm. Phil. p. 422.

BEADS, in a religious sense; see CHAPLET.

BEAD *roll*, among the Romish priests, a list or catalogue of such persons, for the rest of whose souls they are obliged to rehearse a certain number of prayers, &c. which are told by means of their *beads*.

BEAD-*makers*, called by the French *patenostriers*, are those employed in the making, stringing, and selling of *beads*.

At Paris there are three companies of *patenostriers*, or *bead-makers*; one who make them of glass or crystal; another in wood and horn; and the third in amber, coral, jet, &c.

BEAD *proof*, or *bubble proof*, terms used by our distillers, to express that sort of PROOF of the standard strength of spirituous liquors, which consists in their having, when shaken in a phial, or poured from on high into a glass, a crown of bubbles, which stand on the surface some time after. This is esteemed a proof that the spirit consists of equal parts of rectified spirits and phlegm.

This is a fallacious rule as to the degree of strength in the liquor; because any thing that will increase the tenacity of the spirit, will give it this proof, though it be under the due strength. Our malt distillers spoil the greater part of their goods, by leaving too much of the flinking oil of the malt in their spirit, in order to give it this proof, when somewhat under the standard strength.

But this is a great deceit on the purchasers of malt spirits, as they have them by this means not only weaker than they ought to be, but drinking with an oil, which they are not eafily cleared of afterwards.

On the other hand, the dealers in brandy, who ufually ſhave the art of ſophiſticating it to a great extent, are in the right when they buy it by the ſtrongeſt *proof*, as the grand mark of the badneſs of brandy containing a large quantity of its oil, it is, at the ſame time, a token of its high flavour, and of its being capable of bearing a very large addition of the common ſpirits of our own produce, without betraying their flavour, or loſing its own.

We value the French brandy for the quantity of this eſſential oil of the grape which it contains, and that with good reaſon; as it is with us principally uſed for drinking as an agreeably flavoured cordial; but the French themſelves, when they want it for any curious purpoſes, are as careful in the rectifications of it, and take as much pains to clear it from this oil, as we do to free our malt ſpirit from that naufeous and feetid oil, which it originally contains.

No judgment can be formed of brandies by the *head proof* as to their mixed or adulterated, or their pure ſtate, further than that they are likely to be moſt pure, when they have the greateſt proportion of this oil, in regard to mixtures of other ſpirits. There are many occaſions where we want ſpirit, merely as ſpirit, and where any oil, whether ſweet or ſtinking, muſt be equally improper. Shaw's Eſſ. on Diſtillery.

BEAD *tree, azedarach*, or *melia*, in *botany*, a genus of the *decandria monogynia* claſs. Its *characters are* theſe: the flower has five ſpear-ſhaped petals which ſpread open, and a cylindrical *nectarium* of one leaf, indented at the brim in ten parts; it has ten ſmall *ſtamina* inſerted in the top of the *nectarium*; with a conical *germen*, which turns to a ſoft globular fruit, including a roundiſh nut, having five rough furrows, and five cells, each containing one oblong ſeed. There are two ſpecies.

BEADLE, or BEDEL, *bedellus*, ſignifies a meſſenger or apparitor of a court, who cites men to appear and anſwer in the court to what is alleged againſt them.

BEADLE, is alſo uſed for an officer in univerſities, whoſe place it is to walk before the maſters at all public proceſſions, &c. with a mace.

Spelman, Voſſius, and Skinner derive *beadle* from the Saxon *bidel, a public crier*; in which ſenſe biſhops, in ſome ancient Saxon manuſcripts, are called *bedelles of God, Dei bedelli*.—The tranſlator of the Saxon New Teſtament renders *crattar* by *bydels*; and the word is uſed in the ſame ſenſe in the laws of Scotland.

BEAGLES, a ſmall ſort of hounds or hunting dogs.

Beagles are of divers kinds; as the *ſouthern beagle*, ſomething leſs and ſhorter, but thicker than the deepeſt-mouthed hound; the *ſhort northern*, or *cat beagle*, ſmall, and of a finer ſhape than the ſouthern, and a harder runner. From the two, by croſſing the ſtrains, is bred a third ſort, held preferable to either.

To theſe may be added a ſtill ſmaller ſort of *beagles*, ſcarce bigger than lap-dogs, which make pretty diverſion in hunting the coney, or even ſmall hare in dry weather; but otherwiſe unſerviceable, by reaſon of their ſize.

BEAK, *roſtrum, in Ornithology*, the bill of a bird; from the form and ſtructure of which, Linnæus divides this whole family or general claſs of animals, into ſix orders. See BIRD, and ORNITHOLOGY.

BEAK, in *Architecture*, a little fillet left on the edge of a former, which forms a canal, and makes a kind of pendant chin; anſwering to what Vitruvius calls the *naſcunia*.

BEAK, or BEAK-*head of a ſhip*, is that part without the ſhip, before the foreceaſtle, which is faſtened to the ſtem, and is ſupported by the main knee: this is uſually carved and painted, and, beſides its uſe, makes the becoming part, or grace of a ſhip.

The *beak* was anciently made of wood; but fortified with braſs, and faſtened to the prow, ſerving to annoy the enemy's veſſels. Its invention is attributed to Piſtrus, an Italian. The firſt *beaks* were made long and high; but afterwards a Corinthian, named Ariſto, contrived to make them ſhort and ſtrong, and placed ſo low, as to pierce the enemy's veſſels under water. By the help of theſe, great havock was made by the Syracuſians in the Athenian fleet. Poſt. Archæol. lib. iii. c. 17.

BEAK was alſo uſed for one of the ancient battalia, or forms of ranging an army for battle, particularly uſed by the Macedonians.

BEAK is alſo applied to the ſlender crooked prominences of divers bodies, bearing ſome analogy or reſemblance to the *beaks* of birds.

In this ſenſe we meet with *beaks* of ſhoes, *roſtra calceorum*, for long peaked toes, in uſe of old. Du-Cange.

Among *farriers*, *beak* denotes a little horſe-ſhoe, turned up, and faſtened in upon the fore-part of the hoof. Its uſe is to keep the ſhoes faſt, and not liable to be ſtruck off by the horſe, when by reaſon of any itch, or being much diſtreſſed with the ſtrains his wearies, he ſtamps his feet violently on the ground.

BEAKED, *becqué*, in *Heraldry*, is uſed when the beak or bill of a fowl is of a different tincture from the body.

In this caſe, they ſay *beaked* and membered of ſuch a tincture.

BEAKING, in *Cock-fighting*, expreſſes the fighting of theſe birds with their bills, or holding with the bill, and ſtriking with the heels.

BEAM, in *Architecture*, the largeſt piece of wood in a building; being laid across the walls, and ſerving to ſupport the principal rafters of the roof.

No houſe has leſs than two of theſe *beams*, viz. one at each head: into theſe the girders of the garret floor are alſo framed; and, if the building be of timber, the mazle-tenons of the poſts.

The proportions of *beams* near London are fixed by ſtatute, as follows: a *beam* fifteen feet long muſt be ſeven inches on one ſide its ſquare, and ſix on the other: if it be fifteen feet long, one ſide muſt be eight inches, the other ſix: if ſeventeen feet long, one ſide muſt be ten inches, the other ſix: in the country they uſually make them ſtronger. Sir H. Wotton adviſes theſe to be of the ſtrongeſt and moſt durable timber.

Some of the beſt authors have conſidered the forces or ſtrength of *beams*, and brought their reſiſtance to a preciſe calculation; particularly M. Varignon, and M. Parent; the ſyſtem of the latter is as follows.

When, in a *beam* breaking parallel to its baſe, which is ſuppoſed to be a parallelogram, two plans of fibres, which were before contiguous, are ſeparated, there is nothing to be conſidered in thoſe fibres, but their number, bigneſs, tenſion before they broke, and the laws by which they act; all theſe together make the ſtrength or reſiſtance of the *beam* to be broke.

Suppoſe then another *beam* of the ſame wood, where the baſe is likewiſe a parallelogram, and of any bigneſs, with regard to the other, at pleaſure; the height or thickneſs of each of theſe when laid horizontal, being divided into an indefinite number of equal parts, and theſe breadth into the ſame number, in each of the r baſes will be found an equal number of little quadrangular cells, proportional to the baſes wherever they are parts.—Theſe then will repreſent little baſes, or, which is the ſame thing, the thickneſſes of the fibres to be ſeparated for the fracture of each *beam*: and, ſince the number of cells is equal in each, the ratio of the baſes of both *beams* will be that of the reſiſtance of their fibres, both with regard to number and thickneſs.

Now, the two *beams* being ſuppoſed of the ſame wood, the fibres moſt remote from the points of ſupport, which are thoſe which break the firſt, muſt be equally ſtretched when they break. Thus the fibres, v. gr. of the tenth diviſion, are equally ſtretched in each caſe, when the firſt breaks; and in whatever proportion the tenſion be ſuppoſed, it will ſtill be the ſame in both caſes; ſo that the doctrine is entirely free, and unembarraſſed with any phyſical ſyſtem.

Laſtly, it is evident, the levers whereby the fibres of the two *beams* act, are repreſented by the height or depth of their baſes; and, of conſequence, the whole reſiſtance of each *beam*, is the product of its baſe by its height; or, which is the ſame thing, it is the ſquare of the height multiplied by the breadth; which holds, not only in caſe of parallelogrammatic, but alſo of elliptic baſes.

Hence, if the baſes of two *beams* be equal, though both their heights and breadths be unequal, their reſiſtance will be as their heights alone; and, by conſequence, one and the ſame *beam* laid on the ſmalleſt ſide of its baſe, will reſiſt more than when laid flat, in proportion as the firſt ſituation gives it a greater height than the ſecond: and thus an elliptic baſe will reſiſt more, when laid on its greateſt axis, than when on its ſmalleſt.

Since, in *beams* equally long, the baſes determine the proportion of their weights or ſolidities; and ſince, their baſes being equal, their heights may be different; two *beams* of the ſame weight may have reſiſtances differing to infinity: thus, if in the one the height of the baſe be conceived infinitely great, and the breadth infinitely ſmall, while in the other the dimenſions of the baſe are infinite; the reſiſtance of the firſt will be infinitely greater than that of the ſecond, though their ſolidity and weight be the ſame. If therefore all required in architecture were to have *beams* capable of ſupporting vaſt loads, and at the ſame time to be of the leaſt weights poſſible, it is plain they muſt be cut thin as laths, and laid edgewiſe.

If the baſes of two *beams* be ſuppoſed unequal, but the ſum of the ſides of the two baſes equal, v. gr. if they be either 12 and 22, or 11 and 13, or 10 and 14, &c. ſo that they always make 24; and further, if they be ſup-

posed to be laid edgewise; pursuing the series, it will appear, that in the *beam* of 12 and 12, the resistance will be 1728, and the solidity or weight 1444; and that in the last, or 1 and 23, the resistance will be 529, and the weight 232 the first therefore, which is square, will have less than half the strength of the last, with regard to its weight.

Hence M. Parent remarks, that the common practice of cutting the *beams* out of trees as square as possible, is ill husbandry: he hence takes occasion to determine geometrically, what dimensions the base of a *beam* to be cut out of any tree proposed, shall have, in order to its being of the greatest possible strength; or, which is the same thing, a circular base being given, he determines the rectangle of the greatest resistance that can be inscribed; and finds, that the sides must be nearly as 7 to 5, which agrees with observation.

Hitherto the length of the *beam* has been supposed equal; if it be unequal, the bases will resist so much the less, as the *beams* are longer.

To this it may be added, that a *beam* sustained at each end, breaking by a weight suspended from its middle, does not only break at the middle, but also at each extreme; or, if it does not actually break there, at least immediately before the moment of the fracture, which is that of the equilibrium between the resistance and the weight, its fibres are as much stretched at the extremes, as in the middle.—So that, of the weight sustained by the middle, there is but one third part which acts at the middle, to make the fracture, the other two only acting to induce a fracture in the two extremes.

A *beam* may either be supposed loaden only with its own weight, or with other foreign weights applied at any distance, or else only with those foreign weights. Hence according to M. Parent, the weight of a *beam* is most ordinarily above $\frac{2}{3}$ part of the load given it to sustain. It is evident, that in considering several weights, they must all be reduced by the common rules to one common centre of gravity.

M. Parent has calculated tables of the weights that will be sustained by the middle, in *beams* of various bases and lengths, fitted at each end into walls, on a supposition that a piece of oak of an inch square, and a foot long, retained horizontally by the two extremes, will sustain 315lb. in its middle before it breaks, which it is found by experience it will. Mem. Acad. R. Scien. an. 1708.

BEAM *of a* PLOUGH, a name given by our farmers to the great timber of the plough, into which all the other parts of the plough-tail are inlaid.

This is usually made of ash, and is straight, and eight feet long in the common plough; but, in the four-coulered PLOUGH, it is ten feet long, and its upper part arched. The head of this *beam* lies on the pillow of the PLOUGH, and is raised higher, or sunk lower, as that pillow is elevated or depressed by being slipped along the crow-staves. Near the middle, it has an iron collar, which receives the tow-chain from the box, and the bridle-chain from the stake or gallows of the plough is fixed into it a little below the collar. Some inches below this, there is a hole, which lets through the coulter; and below that, there are two other small ones, through which the heads of the reaches pass. There are the irons which support the sheat, and with it the share. Farther backward still is a large perforation, through which the body of the sheat passes, and behind that, very near the extremity, is another hole through which the piece called the hinder-sheat passes.

BEAMS *of a ship*, are the large, main, cross timbers, stretching from side to side, which hold the sides of a ship from falling together, and which also support the decks and sclops of the SHIP.

The *main beam* is that next the main mast; and from it they are reckoned by *first*, *second*, and *third beam*. The great *beam* of all is called the *midship beam*. See *Tab. Ship. fig. 2. n. 36. 45. 61. 78. 91. 87.*

There are usually twenty-four *beams* on the lower deck of a ship of 74 guns, and to the other decks additional ones in proportion, as the ship lengthens above.

On the BEAM, in *Sea-language*, denotes any distance from the ship on a line with the *beams*, or at right angles with the keel. Any object that lies east or west, when the ship steers northward, is said to be on the starboard or larboard *beam*.

Before the BEAM, signifies an arch of the horizon comprehended between the line of the *beam*, and that point of the compass which the stems.

On the Weather BEAM, signifies on the weather side of the ship.

Cumber BEAM; see CAMBER-*beam*.

BEAM *of an anchor*; see ANCHOR.

BEAM *of a balance*, is that piece of iron or wood, somewhat bigger toward the middle than at the ends, where there are holes through which run the ropes or strings which hold the scales: the *beam* is divided into two equal parts, by a needle placed over it perpendicularly: and the centre of motion must be placed a little above the centre of gravity, that the *beam* may rest exactly in an horizontal position. See BALANCE.

BEAM, or *roller*, among *Weavers*, is a long and thick wooden cylinder placed lengthways on the back-part of the loom of those who work with the shuttle. The threads of the warp, of linen or woollen cloth, serges, or other woollen stuffs, are rolled upon the *beam*, and enrolled as the work goes on. That cylinder on which the stuff is rolled as it is weaved, is also called the *beam* or *roller*, and is placed on the fore-part of the loom.

BEAM, in *Heraldry*, is used to express the main horn of a hart or buck.

BEAM, among *Hunters*, denotes the main stem of a deer's head, or that part which bears the antlers, royals, and tops; the little breaks wherein are called cinels.

BEAM is also used for a fiery meteor in the shape of a pillar; and for a ray of the sun.

BEAM *compass*; see COMPASSES.

BEAM *feathers*, in *Falconry*, the longest feathers of a hawk's wing.

BEAM *filling*, in *Building*, the filling up the vacant space between the rafting pars and roof, with stones, or bricks, laid between the purrets on the rafting pars, and plastered on with lime; this is frequent where the garrets are not panelled, or plastered.

BEAM *fish*, in *Ichthyology*, a sea monster like a pike; a dreadful enemy to mankind, biting with a blood-thirsty and never letting go if he gets fast hold. The teeth of this fish are said to be so venomous, that no sore admits to be immediately applied, the least touch of them is mortal.

BEAM *tree*; see SERVICE *tree*.

BEAN, *faba*, in *Botany*. Linnæus comprehends this genus of plants under vicia. The characters are, the flower is of the butterfly kind; the standard is large, oval, and indented at the end; it hath two oblong erect wings, which inclose the keel being much longer; the keel is short, swelling, and closely covers the parts of generation; the nine filaments are in three parts, and one stands separate; at the bottom is situated an oblong compressed *germen*, which afterward becomes a long compressed leathery pod, having one cell, filled with compressed kidney-shaped seeds.

We have four sorts of *beans* commonly sowed in our gardens. 1. The small Lisbon or Marazoy. 2. The Spanish. 3. The Sandwich. And, 4. The Windsor *beans*. The first and second sorts are to be planted in October and November, under warm walls and hedges, where if they stand through the winter, they produce *beans* early in the spring. They may also be raised very early in beds, and covered with hoops and mats in the winter, and in spring planted out; but there is some hazard in the transplanting, and they will be a fortnight or more later than those which have stood the winter abroad.

The Lisbon *bean* is preferred to the Spanish; and the curious ought to have fresh seed every two years from abroad, for they are apt to degenerate, though not in goodness, yet in their earliness.

The Spanish and Windsor *beans* are not to be planted till after Christmas; but especially the Windsor, which are subject, more than any other kind, to be burnt by the cold. These *beans* should have an open ground, and be planted at the distance of three feet and an half row from row, and five or six inches from one another in the rows. The Sandwich *beans* are hardier than the Windsor, and may be planted to come in between the early crops and them; and though not much regarded at present, they are a very good *bean*.

The first plantation of Windsor *beans* should be made in the middle of January; and after that, a new plantation should be made every three weeks till the middle of May, that there may be a succession of crops.

The Toker *bean* comes about the same time with the Sandwich, and is a great bearer; therefore it is now much planted. The white and black blossom *beans* are also much esteemed, but, unless these seeds are preserved with care, apt to degenerate. Miller.

There is scarce any plant, whose seed so well serves the purpose of the inquirer into the nature and structure of seeds in general, as the *bean*.

Trials have not long since been made in France to raise garden *beans* in open fields, on the principles of the new husbandry; and the result sufficiently indicated, that with proper care large crops might be raised in this way.

The medicinal and dietetic qualities of *beans* are said to be nutritive, but flatulent: the pods yield a water held good against the gripes in children. Some have used the horse-*bean* as a succedaneum to coffee, which in principles is much resembles; only that it contains but half the quantity of oil. Mr. Boyle has several experiments

ments of *beans* treated pneumatically, to shew the great plenty of air they afford, on which their flatulency depends. The expansion of *beans* in growing, the same author found so considerable, that it would raise a plug clogged with above a hundred pounds weight. Boyle's Works abr. tom. i. p. 285. tom. ii. p. 615, &c.

Beans, with proper management, make one of the finest of all baits for fish. The method of preparing them for this purpose is this: take a new earthen pot, glazed on the inside; boil some *beans* in it, suppose a quarter of a peck: they must be boiled in river water, and should be previously steeped in some warm water for six or seven hours. When they are about half boiled, put in three or four ounces of honey, and two or three grains of musk: let them boil a little on, then take them off the fire, and use them in this manner: seek out a clean place, where there are no weeds, that the fish may see and take the *beans* at the bottom of the water. Throw in some *beans* at five or six in the morning, and in the evening, for some days. This will draw them together, and they may be taken in a casting net, in great numbers together.

BEAN *flour*, called by the Romans *lomentum*, was of some repute among the ancient ladies, as a cosmetic, whereewith to smooth the skin, and take away wrinkles.

The ancients made use of *beans* in gathering the votes of the people, and for the election of magistrates. A *white bean* signified absolution, and a *black* one condemnation.

Beans had a mysterious use in the *lemuralia* and *parentalia*, where the master of the family, after washing, was to throw a sort of *black beans* over his head, still repeating the words, *I redeem myself and family by these beans*. Ovid gives a lively description of the whole ceremony in his Fasti, lib. v. ver. 435.

Abstinence from *beans* is said to have been enjoined by Pythagoras, for which prohibition various reasons have been assigned.

The Egyptian priests held it a crime to look at *beans*, judging the very sight unclean. The *flamen dialis* was not permitted even to mention the name. Lucian introduces the same philosopher in hell, saying, that to eat *beans*, and to eat our father's head, were equal crimes.

After all, both the genuineness of the precept, and the reality of any such abstinence among the ancient Pythagoreans, have been disputed. Some attribute the precept to Empedocles, a disciple of Pythagoras. Aristoxenus, an ancient writer cited by A. Gellius, introduces Pythagoras, saying, that he eat more frequently of *beans* than of any other pulse, on account of their gently loosening the belly.

BEAN *flakes*. The ashes of *bean-stalks* make good and clear glass.

BEAN, *Horse*. The *horse bean* is the only kind propagated by the plough: it delights chiefly in a stiff and moist clay: three bushels will sow an acre, and this is to be done in February. The common produce is about twenty bushels from an acre. They must lie some time upon the ground after they are cut, before they are carried in. Some farmers sow tares and *horse beans* together, which is a very good way, for the seeds are easily separated by a riddle.

By the new husbandry, less than one bushel of seed will plant an acre of land: and the produce has exceeded that of the old, by more than ten bushels an acre.

BEAN, *Bog*, *menyanthes*, in *Botany*, a plant common in boggy places, but as it is never cultivated, not worthy of farther notice. It is a genus of the *pentandria monogynia* class, with a hairy corolla, a bifid stigma, and a single-celled capsule. Linnæus enumerates three species.

BEAN, *Kidney*, *phaseolus*, in *Botany*, a genus of the *decandria decandria* class. The characters are these: the empalement of the flower is of one leaf: the flower is of the butterfly kind; and hath a heart-shaped, obtuse, inclined standard, reflexed on the sides: the wings are oval, the length of the standard, with a narrow spiral keel twisted contrary to the sun. It hath ten *stamina*, nine joined in one body, and the other standing separate: and an oblong compressed hairy *germen*, supporting a slender, inflexed, spiral, style crowned by an obtuse hairy *stigma*. The *germen* afterward becomes a long pod with a thick shell, ending in an obtuse point, including oblong compressed kidney-shaped seeds. Linnæus enumerates fifteen species.

It would be to little purpose to enumerate all the varieties of this plant which have come to our knowledge; since America does annually furnish us with so many new sorts, that there is no knowing what varieties may be produced in England: besides, as they are not likely to be much cultivated here, since some of the old sorts are preferable to any of the new ones, for the use of the kitchen-garden, we need therefore only mention those which are most esteemed for the table.

There are at present three sorts of *kidney-beans*, chiefly propagated for the table in England. These are, 1. The common white or Dutch *kidney bean*. 2. The smaller *kidney bean*, commonly called the *Battersea kidney bean*. And, 3. The upright sort, called the *tree kidney bean*.

The first was some time ago greatly propagated in England, and is full in Holland: it grows very tall, and requires long stakes and poles to climb on, and its beans are considerably broad; this makes them less saleable in the markets, people supposing them to be old because they are broad; and they are hence grown into disuse, though a much more valuable kind for eating than any other.

The second sort, or *Battersea bean*, is what is more universally cultivated; it never grows very tall, nor rambles far, and the air can easily pass between the rows, because of its moderate growth; and this makes it bear plentifully, and ripen well for the table. It is the best tasted *bean*, except the last.

The third, or tree *kidney bean*, is also a plentiful bearer, and never rambles, but grows up in form of a shrub; but its *beans* are broader than the *Battersea kind*, and are not so well tasted.

Miller recommends the scarlet blossom *bean*, which has been usually cultivated for the beauty of its flowers, as the best sort for the table.

They are all propagated from seeds which are to be put into the ground the latter end of March or beginning of April for an early crop, but these should have a warm situation and a dry soil, they must also be planted in a dry season. The manner of planting them is, to draw lines with a hoe through over the bed, at two feet and a half distance, into which the seeds are to be dropped at about two inches asunder, and the earth is to be drawn over them with the head of a rake, to cover them about an inch deep. In a week after sowing, the plants will appear, and the earth should be drawn up about their stalks as they rise up: for a few days after this they will require no farther care, except to be kept clear from weeds; and, when the *beans* appear, to have them gathered twice a week; for if the *beans* are suffered to hang on too long, they not only become of no value, but they weaken the plant.

The first crop of *kidney beans* will continue a month in good order; and to supply the table afterwards, there should be forth sowings in March, April, May, and June, the last of which will continue till the frosts come to destroy them. Some raise their early crops on hotbeds; and this is to be done exactly in the same manner as the raising of the early cucumber.

BEAN, *Kidney*, *tree*, in *Botany*; see GUILDINE.

BEAN *tree*, *binding*, *mimosa*; see SENSITIVE *plant*.

BEAN, *Molucca*, a name given by sir Robert Sibbald, in his Prodromus, and by Mr. Wallace, in his description of the Orkney islands, to a sort of fruit frequently cast on shore in the North-west islands of Scotland; especially on the coasts most exposed to the waves of the great ocean.

They are called by some Orkney *beans*, and are not the produce of that island, or indeed of any other part of Europe, but of America.

Sir Hans Sloane procured four species of them little injured by the sea, and found on examination that three of them were the common produce of the island of Jamaica; where he had himself gathered them, and described them in his catalogue and history.

The first sort was a kind of kidney bean, and the plant which produces it is described by sir Hans under the name of the great perennial kidney *bean*, with a great crooked lobe. It is also figured in the Hortus Malabaricus, by the name of *faseolus scandens*, and sir Robert Sibbald also calls it *vas fabrica or great pyrenaic pea resembling pyrenaicum parvum*. This is a native of the East and West Indies, and is sometimes found thrown on shore in the county of Kerry in Ireland; and in some other places.

A second kind of fruit thrown on shore in the Orkneys, is a very common fruit in Jamaica, known there by the name of the *horse-eye bean*; it has this name from its resembling the eye of some large animal, by reason of a *hilum* or weft which is round it. This is described by many authors, and among the rest by sir Hans Sloane, in his catalogue of Jamaica plants; and is found in many other of the hotter parts, both in the East and West Indies.

A third kind of fruit found on these shores, is that called by the people of Jamaica the ash-coloured nicker-nut; it has this name from its colour, and from its being perfectly round, of the shape of a nicker or marble, such as boys play with. This is also common in the East and West Indies.

A fourth

approaching much nearer to the nature of the combuſtible ſtones.

COPPELLING, in *Aſſaying* and *Chemiſtry*. Silver may be precipitated out of its ore by *coppelling* alone, in the following manner: roaſt a centner of the ſilver ore in the common way; when roaſted, powder and ſift it very fine, and if it melts with difficulty, mix with it one centner of litharge: when it is an ore that melts eaſily, this may be omitted. Divide the powder into five or ſix parts, and wrap up every one of them ſeparately in pieces of paper. Put a large coppel under a MUFFLE in the furnace; heat it thoroughly; then put into it fixteen centners of lead. When the lead begins to ſmoke and boil, put upon it one of the ſmall parcels of powdered ore, in its paper; then diminiſh the fire a little. The paper will be immediately conſumed, and the ore caſt to the inſide of the coppel, in form of ſcoriæ. When this is done, increaſe the fire again, and add a ſecond parcel of the ore; and continue this method till all the ore is put in; after which, ſcorify the lead in a ſtronger fire. The ſilver contained in the ore, with that contained in the lead, will now be found in form of a bead in the coppel; and ſubtracting the known quantity yielded by the lead, the remainder of the weight gives the quantity of ſilver in that centner of ore.

Silver is not the only ore that can be thus worked; many others may be aſſayed in the ſame manner, by *coppelling* alone: thoſe indeed are to be excepted from this proceſs, which ſplit, or which corrode the coppels. Cramer. See alſo Lewis's Com. Phil. Techn. p. 129, &c.

COPPER, a hard, heavy, ductile imperfect metal; found in mines in ſeveral parts of Europe, but moſt abundantly in Sweden.

Copper is of all metals the moſt ductile and malleable after gold and ſilver; and it abounds very much in vitriol and ſulphur. It may be drawn into wire as fine as hair, or beaten into leaves as thin as thoſe of ſilver. Its tenacity is very conſiderable, as a wire of it one tenth of an inch in diameter, is capable of ſupporting a weight of 299½ pounds without breaking. It has a very ſingular diſagreeable taſte and ſmell. In a great fire, with free acceſs of air, it ſmokes, loſes part of its weight, and gives beautiful green and blue colours to flame.

The chemiſts call it *Venus*; as ſuppoſing it to have ſome more immediate relation to that planet. By an analyſis it appears compoſed of a ſulphur ill digeſted, a yellowiſh mercury, and a red ſalt.

Copper is found in globes or ſtones of various forms and colours; which are firſt beaten ſmall and waſhed, to ſeparate them from the earthy, &c. parts wherewith they are mixed.

After waſhing they are ſmelted, and the melted matter run into a kind of moulds, to form large blocks, by ſome called *ſalmons*, and by others *cakes of copper*. This is the ordinary *copper*.

To render it more pure and beautiful, they melt it again once or twice; ſome of its coarſe earthy parts being left behind at each fuſion, and a quantity of tin and antimony added in each. In this ſtate it is called *roſe copper*, in Latin RES *peloſum*.

Copper is ſometimes alſo found native and pure in the mines, either in form of threads, or in flakes, plates, grains, or other maſſes and lumps. This is called *virgin copper*.

The method of procuring the metal from the ore is this: mix one or two centners of the ore for an aſſay, beaten to a very fine powder, with ſix centners of the black flux; put the powder into a crucible, and cover it half an inch high with common ſalt; preſs the whole down with the finger, but let the capacity of the veſſel be ſuch, that it may be only half full; ſhut the veſſel cloſe with a lute, and put it into the furnace. Increaſe the fire ſlowly, till the common ſalt crackles: then increaſe it ſo far, that the veſſel may preſently be made red-hot, and after about a quarter of an hour's ſtanding in this heat, the metal will be ſeparated: then take out the veſſel, and ſetting it on the floor, ſtrike with a few blows of a hammer near where it ſtands, to make the metal get together at the bottom. Break the veſſel, when grown cold, in two, from top to bottom, as nearly as you can, and you will find a ſolid and malleable regulus at the bottom. Cramer's Art of Aſſaying, p. 301.

Copper, when hid, as it frequently is, in an ore full of the matter of the pyrites, may be diſcovered by a ſolution and liquid precipitation, in the following manner: make a ſolution of vitriol out of the ore, by a ſlight roaſting in an open fire, and by expoſing it afterwards to an air ſomewhat moiſt, and pouring warm water upon it. Put into this ſolution ſmall iron plates, perfectly clean, and free from greaſe; if there is any ſmall quantity of *copper* in the pyrites, it will now ſtick to the iron plates, in form of a ſubtle powder, of a deep yellow colour, and all of it will be thus fetched out of the ſolution, if there be time enough, and a moderate warmth.

This property which iron has of ſeparating *copper* from acids, ſerves alſo to extract the *copper* from the blue vitriol with which water in mines of this metal is impregnated. A conſiderable quantity of *copper* is obtained by means of iron bars laid in the ſtreams iſſuing from the *copper* ſprings of Wicklow in Ireland. Theſe bars are laid in oblong pits, into which the impregnated water paſſes; and the *copper*, attracted and fixed by the iron, ſubſides to the bottom of the pit. When the iron is diſſolved, the ſtream is turned from the pits, the reddiſh mud collected, and laid in a heap to dry; and the reddiſh duſt melted into *copper*. One ton of iron in bars produces a ton and nineteen hundred and a half of the *copper* mud or duſt; and each ton of the mud yields, when ſmelted, ſixteen hundred weight of the pureſt *copper*. Phil. Tranſ. vol. xlvii. p. 502. vol. xlviii. p. 94. and 101, &c.

When ſilver is contained in *copper*, it may be ſeparated in the following manner: reduce the *copper* into filings; put one centner of this by for the operation; then put the double and ſextuple quantity of granulated lead into a large, well-baked coppel; make the fire ſtrong, and continue it ſo till the lead begins to ſmoke and boil; then add the copper wrapped up in a paper, ſo that it may be immerſed together into the middle of the boiling lead. When all the *copper* is diſſolved, ſuppreſs the fire till there is a ſmoke ſeen wandering over the ſurface, and the maſs is not raiſed up very high in the middle, and the coppel looks brown as far as it has been penetrated by the litharge: take care, however, that the boiling of the lead does not entirely ceaſe. When the greateſt part of the metal is conſumed, increaſe the fire gradually, and make it very ſtrong toward the end. When the operation is finiſhed, the ſilver will be found pure in the centre of the coppel, ſurrounded with yellow ſcoriæ in form of cryſtals. Cramer.

Copper put into the fire with iron promotes its fuſion, but it becomes more rigid and more pale by the mixture. It is often neceſſary, to render this fuſion the eaſier, to add as much tartar and common glaſs, as will cover the ſurface of the whole maſs.

As to the other metals, *copper* is well known to mix readily with ſilver and gold, and to give them a rigidity which renders them much more fit for the uſes of life, than they would be in their natural ſoft ſtate.

Copper melted with GOLD promotes the fuſion of the gold; it produces a gold colour with tin; ſtones are ſtained by ſolutions of it; it is always incompact after melting; gold is precipitated by it; it is diſſolved by vitriol of iron; glaſs coloured with it, on being baked with white earth, give a red tinge to the earth; it is hardened and made leſs diſpoſed to tarniſh, by being melted with platina in different proportions. See Lewis's Com. Phil. Tech.

Copper reſiſts the fire more than any other *imperfect* METAL before it undergoes any great alteration; but being an imperfect metal, it may be burnt, deſtroyed, and calcined by the united action of fire and air; ſo that its quantity is always diminiſhed by melting it without covering its ſurface. The ſurface of clean poliſhed *copper*, when gradually heated, is covered with all the colours of the rainbow, produced by a more or leſs perfect CALCINATION of the ſurface of the metal expoſed to the fire.

The *ſpecific* GRAVITY of European *copper* is to that of water as 8843, and of Japaneſe *copper* as 9000 to 1000.

Copper is eaſily ſoluble by all ACIDS, and its ſolutions are green or blue; it is alſo acted upon by almoſt all ſaline and metallic ſubſtances, and diſſolved by fixed and volatile alkalies. Macquer.

Copper, becauſe of its great ductility, and ſhining colour, is greatly employed in domeſtic uſes; but it is never uſed inwardly as a medicine, unleſs in tincture; becauſe this metal, and eſpecially its ruſt, are reckoned poiſons: and any kind of food, or even water, that has ſtood long in *copper* veſſels, is pernicious. The ſymptoms produced by this poiſon, are pains in the ſtomach and inteſtines, exceſſive vomitings, irritations to ſtool, ulcers in the inteſtines, ſometimes difficulty of breathing, and ſpaſmodic contractions of the limbs, and laſtly death itſelf; if the quantity of the poiſon be great. See a letter of Mr. Travis, endeavouring to ſhew that the uſe of *copper* veſſels in the navy is one principal cauſe of the ſea-ſcurvy. Med. Obſerv. &c. vol. ii. p. 1. See alſo a letter on the ſame ſubject of *copper* veſſels. Ibidem, p. 146.

The remedies proper in ſuch caſes are, firſt, to take a great quantity of milk, oil, or melted freſh butter, then to drink warm water until the patient vomit plentifully. Cluſters made with oil, butter, or fat broths, are likewiſe proper; laſtly, ſtrengthening cordials and milk diet. James.

The water iſſuing from the *copper* ſprings diſcovered in Penſylvania, Dr. Rutty obſerves, though poiſonous in its native ſtrength, is frequently uſed, when lowered with common water, for purging and vomiting the country people; and is uſeful in curing ulcers, and cutaneous diſorders, and particularly for ſore eyes. Phil. Tranſ. vol. xlix. p. 651.

The preparations of *copper* are, 1. *Flos æris*, or flowers of *copper*. 2. *Æruga æris*, or verdigriſe. 3. *Æs uſtum*, or burnt *copper*. 4. *Squamma æris*, or the flake of *copper*. 5. The *ens Veneris* of Mr. Boyle. 6. *Aqua ſapphirina*, a famous eye-water, of a blue colour. See GRENAILLE, &c.

Of a mixture of *copper* and LAPIS CALAMINARIS, is formed BRASS, which the French call *cuivre jaune*, yellow *copper*, in contradiſtinction to natural *copper*, which they call *cuivre rouge*, red *copper*.

Copper melted together with twenty-two or twenty-three pounds of fine tin *per* quintal, makes BELL-*metal*.

Copper and braſs melted in equal quantities, make what the French call BRONZE, uſed for figures, ſtatues, &c.

Copper turns white by an unction of ſpirit of wine and orpiment. Pliny ſays there is a *copper* naturally white, found underneath the ſilver mines.

Chemiſts give the denomination *ſaffron of copper*, or *crocus Veneris*, to a preparation of *copper* plates ſtratified with decrepitated ſalt, in a crucible; after having extinguiſhed them in water, and ſcraped them with iron inſtruments. It is very red, and is uſed in empiſters to cleanſe wounds and ulcers.

Some chemiſts have pretended, that the ſpirit of *copper* is real ALKAHEST, capable of diſſolving wholly pearls, corals, crabs eyes, &c. without any diminution of its force; but experience has ſhewn the contrary.

Æs uſtum, i. e. burnt *copper*, ſometimes alſo called *ſaffron of Venus*, is nothing but *copper* calcined in a violent fire, and reduced to ſcales no longer poſſeſſed of brilliancy, ductility, or other metallic properties. If theſe ſcales are mixed with ſome matter capable of reſtoring phlogiſton to them, and expoſed to a great fire, a quantity of malleable *copper* is obtained nearly equal to that of the ſcales. Macquer. See *Æs*.

VERDIGREASE is a ruſt of *copper*. Becher obſerves, that the drinking of acid liquors, even out of common ſilver plate, is very unwholeſome, becauſe of the mixture of *copper* therein; much more is it ſo out of veſſels of *copper*.

COPPER, *white*, a kind of metal white as ſilver, frequently brought from China, and ſuppoſed by many to be natural. But it is only an allay of *copper*, zinc, and arſenic, in certain proportions. It is made with difficulty, becauſe of the volatility of the two ſemi metals; and, as its quality is noxious, it is not much uſed.

COPPER, *affinity of*. See AFFINITY.

COPPER, *engraving in*. See ENGRAVING.

COPPER, *granulation of*. See GRANULATION.

COPPER, *refining*. See REFINING.

COPPER-*plates*, for engraving, ſhould be choſen of the beſt red *copper*, as being generally the tougheſt and the moſt ductile; and therefore moſt capable of being extended with the hammer, or rolled out to the niceſt and ſmalleſt pieces. They ſhould be free from any veins, ſpecks, or diſſimilar parts, and throughout of an uniform texture. Their thickneſs may be in the proportion of a line to a foot by nine inches in breadth. They ſhould be well forged and planiſhed whilſt cold, becauſe the ſubſtance of the *copper* will thus be rendered leſs porous. The poliſhing of theſe plates is performed by laying them obliquely on a board, and rubbing them firſt with a piece of grind-ſtone, dipped in water, lengthways and breadthways, till the flaws and inequalities in the ſurface are removed: and then with a piece of good pumice-ſtone to take away the marks and ſcratches made by the grind-ſtone: when this is done, let them be waſhed clean, and rubbed with a piece of oil-ſtone, to remove the ſcorings of the pumice-ſtone, and again waſhed till they are perfectly clean. For the laſt operation, three or four large coals of fallow wood, found and without clefts, ſhould be placed in a fire on a hearth, and covered with other burning coals and a quantity of red hot aſhes; and left in this ſtate for about an hour and a half; but the time ſhould be proportioned to the ſize of the coals, that the fire may penetrate into their utmoſt ſubſtance, and expel all the ſmoke that can be driven out: the coals ſhould then be thrown into a veſſel of water, and there left to cool. With one of theſe coals, let the plate be rubbed, and the operation be continued till all the flaws left by the oil-ſtone are removed; and if the coal itſelf be too hard, and leave traces, a ſofter one muſt be uſed to remedy the defects of the former, ſo that the ſurface of the plate may be perfectly clear and even. This is the method recommended by Le Boſſe: but the end may be more expeditiouſly obtained, by rubbing out the marks of the planiſhing hammer with emery finely ground, and after waſhing the plate clean, bruſhing it over with the refiner's *aqua fortis*: let this lie on till the ebullition produced by it begins to decreaſe, and then waſhed off by immerſing the plate in water. The plate muſt be finiſhed by hard rubbing with a ſteel BURNISHER, ſo that every part of it may appear as bright as looking-glaſs.

Thoſe plates that are deſigned for etching, ſhould, after theſe operations, be well waſhed with clean water, dried by the fire, wiped with a linen cloth, and rubbed over with crumbs of very ſtale bread; and then rubbed well with the ſcrapings of very ſoft chalk. The perfection of the poliſh may be tried by rubbing the plate with printing ink, and pulling off a proof as if it had been engraved; if no impreſſion is made on the paper, the poliſhing is complete; but if any lines appear to be printed the plate is faulty, and it muſt be repoliſhed. Encyclopedie, art. *Gravure*; and Handmaid to the Arts, vol. ii. p. 48, &c. See ENGRAVING, and ETCHING.

COPPER-*plate Printing*. See *Rolling-preſs* PRINTING.

COPPERAS, a name given to *green* VITRIOL, particularly to vitriol of iron. See CAKRUST.

Copperas is purified and prepared in the ſame manner as alum and ſaltpetre, by paſſing through ſeveral lixiviums, till it be wholly reduced to cryſtal.

Some make *copperas* to be the *chalcitis* of the ancients. But the more common opinion is, that their *chalcitis* was a ſtone, not a pure ſalt.

There is *copperas* of England, of Piſa, Germany, Cyprus, Hungary, and Italy, which differ from each other in colour, richneſs, and perfection.

White copperas is a vitriol of iron, with a mixture of ſome other mineral, brought from Germany in cakes of forty or fifty pounds each: ſuch are thoſe brought from Goſlar in Saxony.

The Engliſh *copperas* is of a fine green; that of Cyprus and Hungary is of a ſky blue, and has copper for its baſis. It is in pieces, cut like the point of a diamond. That of Piſa and Italy is likewiſe green; and the laſt as tranſparent as glaſs.

The Engliſh green *copperas* is of conſiderable uſe in many preparations: but eſpecially in dyeing. The hatters alſo uſe it in their dye; and this and galls are ingredients in writing ink.

The ordinary Engliſh *copperas* is made of a kind of ſtones found on the ſea-ſhore in Eſſex, Hampſhire, and ſo weſtward, ordinarily called *gold ſtones*, from their colour, or *pyrites*: they abound much in iron.

To prepare the *copperas* from them, they are expoſed to the weather in beds above-ground, and receive the rains and dews, which in time break and diſſolve the ſtones: the liquor that runs off is pumped into boilers, in which is firſt put old iron, which in boiling diſſolves. When the boiling is finiſhed, the liquor is drawn off into coolers, where it ſhoots into cryſtals. See VITRIOL.

The works at Deptford for making it are known to moſt people. Many chemiſts diſſolve this, and ſhoot it again, to ſell it for the common ſalt of ſteel.

The alum workers in Yorkſhire have an opinion that if their liquor ſtands beyond the uſual time in the pans, it will turn to *copperas*. The maſter of the works have inculcated this ſtory to make them diligent, and it is ſo firmly believed among them as if it were a real truth.

COPPERAS *ſtone*. See PYRITES.

COPPICE, or COPSE, a little wood, conſiſting of underwoods; and ſuch as may be raiſed either by ſowing or planting. See WOOD.

COPROCRITICA, from κοπρος, *excrement*, and κρινω, *ſeparate*; medicines which purge away the excrements in the guts.

COPROPHAGOS, from κοπρος, and φαγω, *I eat*; the *dung-fly*, in *Natural Hiſtory*, the name given by many authors to the common yellowiſh fly found on human excrements. There are ſeveral other ſpecies found on the excrements of various animals, and thence called *ſcobicolæ*.

COPULA, in *Logic*, a verb that connects any two terms in a propoſition, either negative or affirmative: as, *A ryll is ſquint*; where *is* is the *copula*.

COPULATION. See COITION, CONGRESS, and CONSUMMATION.

COPULATIVE *Propoſition*, are thoſe which include ſeveral ſubjects, or ſeveral attributes joined together by an affirmative or negative conjunction.

Thus, v. gr. *Power and riches do not make a man happy.* Where *and* is the conjunction that couples *power* and *riches*.

COPULATIVE *Conjunction*. See CONJUNCTION.

COPY, in *Law*, a tranſcript of a writing or inſtrument, made for the uſe and ſatisfaction of ſome of the parties concerned; or in order to preſerve the memory thereof. See COPIA.

The *copy* of an inrolled deed is admitted in evidence; but not

not the *copy* of a will of lands nor the probates, nor of a common deed where the original may be procured. Few ancient documents do now subsist otherwise than in *copies*.

COPY is also used for an imitation of any original work; particularly a painting, draught, figure, &c.

COPY, among *Printers*, denotes the manuscript, or original of a book given to print from.

To cast off a copy, is to make a computation of the number of sheets a manuscript will make in print.

In the bookseller's style, a *good copy* is that which produces a saleable book.

Tenant by COPY *of court-roll*. See TENANT.

COPY-HOLD, is a TENURE for which the tenant has nothing to shew but the *copy* of the roll made by the steward of the lord's court.

The steward of the court is, among other things, to inroll and keep a register of all such tenants as are admitted to any parcel of land, or tenement, belonging to the manor; and the transcript is called the *copy of the court-roll*, which the tenant keeps as his own evidence.

This tenure is called a *base tenure*, because the tenant holds, in some sort, at the will of the lord. Fitzherbert says, it was formerly called *tenure in villenage*; and that *copy-hold* is but a modern name.

This is the land which the Saxons called *folk-land*, as being held *sine scripto*, in contradistinction to *book-land*, or CHARTER-*land*, *terra adscripta*, and now *free-land*, or FREE-HOLD.

However, it is not simply at the lord's will, but according to the custom of the manor; so that if the *copy-holder* doth not break that custom, and forfeit his tenure, he seems not to stand at the lord's courtesy. These customs are infinite; varying in one point or other almost in every manor.

Copy-holders, upon admittance, pay a fine to the lord; which fines are in some manors certain, in others not; but yet, if the lord exceeds two years value, the court of chancery, king's bench, &c. have, in their several jurisdictions, power to reduce the FINE. See also HERIOT and RELIEF.

In many places, the *copy-holds* are a kind of inheritance, and termed *customary*, because the tenant dying, and the hold becoming void, the next of blood paying the customary fine, as two shillings an acre, or the like, may not be denied his admission. Some *copy-holders* have by custom the wood growing upon their own land; some, again, hold by the verge in ancient demesne, so that though they hold by *copy*, they are yet accounted a kind of freeholders: lastly, some others hold by common tenure, called *mere copy-holds*; whose land, upon felony committed, escheats to the lord of the manor.

Copy-hold land cannot be made at this day; for the foundation of a *copy-hold* is, that it hath been demised time out of mind, by copy of court-roll; and that the tenements are parcel of, or within the manor. 1 Inst. 58. 4 Rep. 24. They are demiseable only by copy; and within the acts against bankruptcy and the statutes of limitation.

Copy-holders are not allowed to vote for knights of the shire. 31 Geo. II. c. 14.

COPY-HOLDER, is defined by Weft, a person admitted tenant of any lands, or tenements, within a manor, which, time out of mind, by the use and custom thereof, have been deviseable to such as will take the same by copy of court-roll, according to the custom of the said manor.

COQ, *ad. mid. consumpt.* an abbreviature among *Physicians*, signifying that the thing is to be boiled till half of it be consumed.—*Coq. in. S. Q. Aq.* implies it to be boiled in a sufficient quantity of common water.

COR, in *Anatomy*. See HEART.

COR *Caroli*, in *Astronomy*, an extra-constellated star of the second magnitude in the northern hemisphere, situated between the Coma Berenices and Ursa Major; so called by Sir Charles Scarborough, in honour of king Charles I.

COR *Hydræ*, in *Astronomy*, a star of the second magnitude, in the heart of the constellation HYDRA.

COR *Leonis*, or *Regulus*, a fixed star of the first magnitude, in the constellation LEO.

COR *Scorpii*. See ANTARES.

COR *Marinum*, in *Natural History*, the name of one of the classes of the *echini marini*, the characters of which are, that the anus is placed on the side of that point of the shell which appears as if cut off; and the mouth has two lips, and is placed in the third region of the axis of the base. Klein's Echin. p. 34.

COR *Veneris*, *Venus's heart*, a name given by authors who treat of shells, to a very elegant kind of the *cardiformis*, or HEART-*shell*, which has more of the shape of a real heart than the *bucardium*, or any other shell of this genus. There are only three known species of the *cor Veneris*. 1. A denticulated one, with very elegant, rose-coloured spots. 2. The white boat-shell, furrowed on the inside. And, 3. The little, rose-coloured kind. These are all very elegant shells.

CORAAGE, *coragium*, in our *Old Customs*, a kind of imposition extraordinary, growing upon some unusual occasion; and it seems to be of certain measures of corn: for *coras cribri* is a measure of wheat. Bracton, lib. ii. cap. 16. num. 6. who in the same chapter, num. 8. has these words: *Sunt etiam quædam communes prestationes, quæ servitia non dicuntur, nec de consuetudine veniunt, nisi cum necessitas intervenerit, vel cum rex venerit; sicut sunt hidagia, tenagia, & coragia, et alia plura de necessitate et ex consensu communi totius regni introducta, &c.*

CORACIAS, in *Natural History*, a name given by many writers to the BELEMNITE, called by others *lapis Lyncurius*, and *dactylus Idæus*.

CORACIAS, in *Ornithology*, a name used by Linnæus for the *pica* or *pye*. This bird makes, in that author's system, a distinct genus; the characters of which are, that the inner tail-feathers grow gradually one longer than another. See *Tab. of Birds*, N° 8.

This bird is called by some the *pyrrhocorax*, and in English the *Cornish chough*. It is of the shape of the jackdaw, but of the size of the common crow. Its beak is red, long, and somewhat hooked at the end. It frequents rocks, and ruined buildings about the sea-shores; and is found about the high cliffs, all along the western shore of England. Its voice is much like that of the jackdaw, but is more hoarse and rough. Ray's Ornithol. p. 86.

CORACINUS, in *Ichthyology*, the name of a sea fish caught in the Mediterranean, and called by some authors *skiæna*, and by Aldrovand and Salvian, *umbra*. It is of the colour of the common tench, but in figure more approaches to the perch: its scales are small; its mouth not very large, but well furnished with teeth; and its tail is not forked, but when extended, seems of a roundish figure; the ends of the rays or nerves of the tail-fin are black, and the other fins are all black, and seem as if dyed with ink.

CORACOBRACHIALIS, a muscle which arises from the *processus coracoides* of the *scapula*, by a tendinous beginning; and passing over the articulation of the *humerus*, is inserted into the middle and internal part of that bone, and with the *deltoides* and *supra spinatus*, lifts the arm upwards, and alone, obliquely outwards. See *Tab. Anat. (Musc.) fig.* 1. *n.* 23.

It is fixed above to the point of the *coracoide* apophysis, between the insertions of the *biceps*, and the *pectoralis minor*, by a tendon, which as it descends, adheres a good way to the tendons of these two muscles; afterwards it becomes fleshy, and is inserted by a broad thin extremity, with a small mixture of tendinous fibres in the middle part of the *os humeri*, close by the ligamentary *frænum* of the *latissimus dorsi*, and *teres major*. Its insertion is continued down below the *frænum*, near the internal intermuscular ligament, to which it likewise adheres a little. This muscle passes behind the tendon of the *pectoralis major*; and as it is perforated in the middle to give passage to a nerve, it has by some been termed *perforatus Casserii*, that author being the first who gave a particular figure of it. Its other name is taken from its insertions. Winslow's Anatomy, p. 184.

CORACOHYOIDEUS, in *Anatomy*, a muscle which has its origin from the *processus coracoides* of the *omoplate*; or rather, according to Keil, from the upper edge of the *scapula*, near its neck; whence ascending obliquely under the *mastoidæus*, it is inserted into the *os* HYOIDES; which it serves to pull obliquely downwards. See *Tab. Anat. (Musc.) fig.* 2. *lit. o. fig.* 1. *n.* 17.

The word is formed from *coracoides* and *hyoides*, the two parts.

It is also called *digastricus*, as having two bellies at its two extremities, and a tendon in the middle to give room for the passage of the carotid and inner jugular artery.

CORACOIDES, in *Anatomy*, a small, sharp PROCESS of the SCAPULA; so called from its resembling a CROW's bill. See *Tab. Anat. (Osteol.) fig.* 3. *n.* 5. 5.

The word comes from κοραξ, *corvus*, and ειδος, *imago*.

The *coracoides* is placed in the upper part of the neck, and projects over the head of the bone of the arm. It serves to strengthen the articulation of the shoulder, and gives origin to one of the muscles of the arm.

CORACOMANTES, from κοραξ, *crow*, and μαντεια, *divination*; in *Antiquity*, a kind of diviners, who made their predictions by observing the crows.

CORACORADIALIS, in *Anatomy*, a name given by some authors to a muscle generally known by the name of the BICEPS; the *psoeas* of the Italian authors; and the *primus flexionum cubitum* of Vesalius and others of his time.

CORAL, *Corallium*, in *Natural Hiſtory*, a production of the ſea, formerly ranked among the number of marine plants, but now claſſed in the animal kingdom; ſince modern naturaliſts have diſcovered, that it is the ſtructure and habitation of certain ſea animals, and deſigned for their production and ſupport. See *Tab.* II. *Foſſils*, *Claſs* 7.

Some have derived the term from the Greek κορη, *to adorn*, and αλς, *the ſea*; becauſe there is no other production of equal beauty.

The nature and origin of *coral* has been as much diſputed as any ſubject in natural knowledge. Some, and particularly Dr. Woodward, conſidered this and the other harder productions of the ſea, as ſtones; and they thought themſelves juſtified in the opinion, from their exceſſive hardneſs, and their ſpecific gravity; and likewiſe from obſerving, that, when theſe bodies were calcined, they were converted into lime. Guiſonæus maintains, that *coral* is a real mineral, compoſed of much ſalt and a ſmall quantity of earth; and that it derives its form from precipitation much in the ſame manner with the ARBOR *Dianæ* of the chemiſts. Others, as Dioſcorides, Pliny, Cæſalpinus, Boccone, Ray, Tournefort, and Geoffroy, thought *coral* to be a plant. P. Kircher, ſuppoſes, that there are entire foreſts of it at the bottom of the ſea: Tournefort maintains, that it is multiplied by ſeed like other plants, and enumerates fourteen different ſpecies of it. Boccone confirmed this opinion by obſerving a milky juice (firſt indeed taken notice of by Cæſalpinus) at the top and in the cells of *coral*: and count de Marſigli, in 1706, diſcovered ſome parts in it, which, he conjectured, were its flowers. Agreeably to this notion, they deſcribed it as having roots, which are faſtened to the rocks or ſtones on which it grows, as thoſe of trees are to the earth: theſe roots, they ſay, are covered with a bark, often beſet with ſtarry pores which traverſe them from top to bottom: above the roots they obſerve the ligneous part of the plant, which rather ſeems to reſemble ſtone than wood. This trunk is divided into branches, having white ſtreaks, repreſenting a kind of fibre. The extremities are rounded with little bowls, ordinarily divided into ſix cells, filled with a fluid ſomewhat like milk, fat, ſharp, and aſtringent: and theſe bowls are eſteemed a kind of pods or capſulæ, containing the ſeed of the *coral*. It is even ſaid, that in what place or on what matter ſoever this juice is ſhed, it carries fecundity with it, and produces a plant of *coral*. Marſigli obſerves, that *coral* grows chiefly in caverns, whoſe aperture is towards the ſouth, and their concave arch nearly parallel to the ſurface of the earth; and that it vegetates, in a calm ſea, in a direction contrary to all other plants; its foot adhering to the top of the cavern, and its branches ſhooting downwards: the foot takes the exact form of the ſolid to which it grows, and covers it, like a plate, to a certain extent, which, he thinks, is a proof, that its ſubſtance was originally fluid: and he adds, to the ſame purpoſe, that it ſometimes lines the inſide of a ſhell. Marſigli, from examining the ſeveral parts of *coral*, concludes, that all its organiſm, with regard to vegetation, conſiſts in its rind; that the tubules of this rind ſiltrate juice which fills the cellules, and runs along the canals as far as the extremities of the branches; and that this juice being petrified, both in the cells encompaſſing the coralline ſubſtance, and in thoſe of the extremities of the branches whoſe ſubſtance is not yet formed, makes the plant grow both in height and bulk. M. de Reaumur conſiders the coarſe viſible rind, which is different from that which is properly called *coral*, and alſo another much finer rind, which is not always diſtinguiſhed from the coralline ſubſtance covered by it, as the organized vegetating plant; and all the reſt, that is, almoſt the whole coralline ſubſtance, he conſiders as a mere ſtone without any organization, formed by the plant which inveſts it for its ſupport.

It has been long the received opinion, that *coral* was ſoft in the ſea, and that it was hardened by the air, upon taking it out of the water. Mr. Boyle was of this opinion; but Boccone examined *coral* in the water, before it was taken up into the air, and invariably found it hard, except at its extremities, whence, by preſſing it, ſlowed a ſmall quantity of milky fluid, already taken notice of. We may therefore infer, that there is more of imagination than of truth in the name *gorgonium*, which the ancients gave to *coral*, and deſigned to ſhew that Meduſa's head did not convert objects into ſtone, more ſurely than *coral* became petrified, as ſoon as it appeared in the air.

M. de Peyſſonnel of Marſeilles, has, in conſequence of a ſeries of experiments and obſervations from about the year 1720 to 1750, introduced a new ſyſtem, with reſpect to the nature and production of *coral*, and ſimilar marine ſubſtances. Thoſe bodies, which the Count de Marſigli imagined to be flowers, this ingenious naturaliſt diſcovered to be inſects inhabiting the *coral*; for, upon taking branches of it out of the water, the flowers, which proceeded from a number of white points anſwering to the holes that pierced the bark, and the radiation of which reſembled the flower of the olive tree, entered into the bark and diſappeared; but, upon being again reſtored to the water, they were ſome hours after perceptible. Theſe flowers ſpread on white paper loſt their tranſparency, and became red as they dried. The holes in the bark correſpond to ſmall cavities upon the ſubſtance of the *coral*; and when the bark is removed, there may be ſeen an infinite quantity of little tubes connecting the bark with the inner ſubſtance, beſides a great number of ſmall glands adhering to them; and from theſe tubes and glands the milky juice of coral iſſues forth: the holes in the bark are the openings through which the inſects, that form theſe ſubſtances for their habitation, come forth; and thoſe cavities which are partly in the bark and partly in the ſubſtance, are the cells which they inhabit. The organs of the animal are contained in the tubes, and the glandules are the extremities of his feet, and the milky liquor is the blood and juice of the animal, which are more or leſs abundant in proportion to its health and vigour. When the inſects are dead, they corrupt and communicate to the water the ſmell of putrid fiſh. This juice or liquor runs along the furrows perceived upon the proper ſubſtance or body of *coral*, and ſtopping a little and little becomes fixed and hard, and is changed into ſtone; and being ſtopped in the bark, cauſes the *coral* to increaſe proportionably and in every direction. In forming *coral*, and other marine productions of this claſs, the animal labours like thoſe of the teſtaceous kind, each according to his ſpecies; and their productions vary according to their ſeveral forms, magnitudes, and colours.

The *coral* inſect, or POLYPE, M. Peyſſonnel obſerves, expands itſelf in water, and contracts itſelf in air, or when it is touched with the hand in water, or acid liquors are poured upon it: and he actually ſaw theſe inſects move their claws or legs, and expand themſelves, when the ſea-water containing *coral* was placed near the fire, and keep them in their expanded ſtate when ſeparated from the *coral* in boiling water. Broken branches of *coral* have been obſerved to faſten themſelves to other branches, and have continued to grow; and this is the caſe, when they are connected with detached pieces of rock and other ſubſtances, from which no nouriſhment could be derived. The *coral* inſects in their cells, not having been injured, continue their operations; and as they draw no nouriſhment from the ſtone of the *coral*, they are able to increaſe, in a detached and ſeparate ſtate. *Coral* was found to be equally red in the ſea as out of it; and it was more ſhining, when juſt taken out of the water, than even when it is poliſhed; and the bark by being dried becomes ſomewhat pale. M. Peyſſonnel found, that it grows in different directions, ſometimes perpendicularly downwards, ſometimes horizontally, and ſometimes upwards; and in the caverns of the ſea, open to every expoſure.

The principles obtained from *coral*, by a chemical analyſis, appeared to reſemble thoſe drawn from the human ſcull, hartſhorn, and other parts of animals. See an account of a manuſcript treatiſe, entitled Traité du Corail, preſented to the Royal Society by Sieur de Peyſſonnel in 1751. Phil. Tranſ. vol. xlviii. p. 445, &c. This ſyſtem was little regarded, though firſt communicated to the Academy of Sciences at Paris in 1727, till Mr. Trembley's diſcovery of the freſh-water POLYPE; but ſince that time, it has been confirmed by the obſervations of M. Bernard de Juſſieu on the ſea-coaſts of Normandy, and thoſe of M. de Reaumur near Rochelle. M. Donati of Turin has alſo adopted the ſame hypotheſis, viz. that *coral* is a maſs of animals of the polype kind; and inſtead of repreſenting the polype-beds and cells which they contain as the work of polypes, he thinks it more juſt to ſay, that *coral* and other coralline bodies have the ſame relation to the polypes united to them, that there is between the ſhell of a ſnail and the ſnail itſelf; or the bones of an animal and the animal itſelf. Phil. Tranſ vol. l. p. 58.

The ſame ſyſtem has alſo been excellently illuſtrated and eſtabliſhed by Mr. Ellis, in anſwer to the objections of Dr. Balter of Zealand, and Dr. Pallas of Berlin, who ſtill refer *corallines* to the vegetable kingdom. Phil. Tranſ. vol. l. p. 280, &c. vol. lii. p. 111. vol lvii. p. 404, &c. See alſo his excellent Eſſay towards the Natural Hiſtory of the Corallines, and other Marine Productions of the like kind, &c. 4to. 1775.

There are, properly, but three kinds of *coral*; *red*, *white*, and *black*: the black is the rareſt, and moſt eſteemed; but it is the red that is ordinarily uſed in medicine. It muſt

muſt be choſen thick, ſmooth, and ſhining, and of a beautiful red, not covered with any tartareous matter.

CORAL, *black*, a ſpecies of the GORGONIA in the Linnæan ſyſtem. See ANTIPATHES.

CORAL, *red*, a ſpecies of the *ſea* under the claſs of *zoophytes* in the Linnæan ſyſtem. This appears to be formed of a ſucceſſion of ſmall tubes, many of which riſe together, and branch out in different directions. The tubuli, being compoſed of a cretaceous matter, mixed with a viſcid animal ſubſtance, ſhrink in, and become ſolid as their inhabitant deſerts them. The effects of vegetable diſtilled oils on *coral*, by the help of a long digeſtion, are ſuch as could not have been imagined, till the experiments of Dr. Langelot ſhewed that they were a ſort of ſolvent for that refractory ſubſtance.

The common *red coral* yields, by diſtillation in a retort, a volatile vitreous ſpirit, in no conſiderable quantity; this turns ſyrup of violets green, and makes an efferveſcence with acids, and renders a ſolution of corroſive ſublimate white and milky. And the fixed ſalt drawn from the reſiduum produces a white coagulant in the ſame ſolution; from which it is evident that it is not a mere alkali, but a *ſal ſalſum*, in ſome degree.

Red coral calcined, even in a very gentle fire, becomes white; the ſame change alſo happens to it when infuſed a long time in ſome oily ſubſtances, as the oil of aniſe, fennel, or in white wax kept in fuſion. The menſtrua in this caſe acquire a red colour in proportion as the *coral* loſes it. It appears from theſe and ſeveral other experiments, that *coral* is not, as ſome ſuppoſe, a mere terreſtrial abſorbent, but that it contains a volatile urinous ſalt, and a bituminous oil combined with its earthy matter; and on theſe its virtues in medicine principally depend. The red colour of *coral* is evidently owing to its bituminous oil, which it is found not difficult to ſeparate, and wholly diveſt it of. It is obſerved, that *coral* newly taken up out of the ſea, contains both the ſalt and oil in greater abundance than that which has been long kept; and it is ſuſpected by many, that its external or cortical ſubſtance contains more of it than the interior, harder, and more ſtony matter.

The ancients uſed *coral* in many external medicines for diſtemperatures of the eyes; and internally as an aſtringent, and refrigerating medicine. We uſe it only internally, and that principally in diarrhœas, and bleedings, in too great evacuations of the menſes, and in the *fluor albus*. The vulgar attribute to it, beſide theſe virtues, many others; for which we have no ſufficient warrant. Geoffroy, Mat. Med. vol. ii. p. 254.

CORAL, *white*. There is no part of the world where *white coral* is produced in ſuch abundance as on the ſhores of the iſland of Ceylon, and other of the neighbouring Indian coaſts. The time uſed in that part of the world, for building houſes, fortifications, &c. is all made by burning this *coral*. It lies in vaſt banks, which are uncovered at low water, and it is ſpungy and porous. While young, it grows erect, in form of little ſhrubs, and is then firm and ſolid, and ſmooth on the ſurface; but the branches continually ſhoot out more, and theſe other new ones, till the whole is one confuſed buſh. Theſe branches are all covered with a white viſcous matter, which, in time, hardens upon them, and becomes *coral*; and this filling up all the interſtices between the branches, when they become ſo numerous, and hardening between and over them, the whole becomes one coarſe rock, and the adjoining maſſes of this kind uniting to one another, form at laſt a continued bank, which has the appearance of a great white rock. Phil. Tranſ. N° 282. p. 1277. See MADREPORA.

CORAL, *foſſile*. It has been matter of ſurprize to naturaliſts, that as red *coral* is ſo common in the ſea, and is a ſubſtance of ſo firm and durable a nature, it is not frequently found among other remains of the ſea productions in the foſſile ſtate. This had long puzzled the naturaliſts, when Agoſtino Scilla attempted to account for it by ſome ſpecimens in his own cuſtody. This gentleman, living at Meſſina, had an opportunity of ſearching the quarries in the neighbourhood of thoſe ſeas, where red *coral* grows in abundance, and whither it might moſt eaſily be carried by any inundation. Accordingly he found, among a vaſt quantity of white *coral*, ſome ſpecimens, which doubtleſs had once been red; and theſe, though they had in a great meaſure loſt their colour on the outſide, yet they retained ſo much of it within, as plainly ſhewed that they had once been red; and the whole truth ſeems to conſiſt in this, that though the ſubſtance of the *coral* is permanent, the colour is not ſo.

Beſide the great variety of *corals* found in their natural ſtate, in the ſea, we find great numbers buried in the earth, and immerſed even in the bodies of ſolid ſtones, and marble; of theſe, many are the ſame with the ſpecies now known to us at ſea, and many differ from all the known recent ones. The foſſile *corals* are found ſometimes nearly in their own natural ſtate; but much more frequently they have their pores filled up with ſtony particles, ſo as to ſeem mere ſtones. Thoſe which are not reducible to any of the known recent ſpecies, are probably the produce of ſeas and ſhores yet unſearched: Some naturaliſts talk of blue, green, and yellow *corals*; and we are apt to deſpiſe ſuch accounts, as knowing that all the *corals* preſerved in the cabinets, and found in the works of artiſts in all nations, are either white or red. Thoſe, indeed, which grow in deep water, are often covered completely over with a coat of a tough, gelatinous matter, reſembling glue. This is frequently coloured with thoſe elegant tinges which dye the bottom of the ſea in deep water; and they in this ſtate appear, as taken up out of the water, to be blue, green, purple, and the like. But this colour being only in the jelly that covers the ſubſtance, is not to be preſerved, but if this is rubbed off, the ſurface goes with it, and leaves the ſubſtance of its natural colour; and if the whole be attempted to be dried together, the colour vaniſhes as the moiſture evaporates, and the *coral*, when dried, is found only covered with a dirty yelloviſh cruſt. Marſigli, Hiſt. Phyſ. de la Mer.

Coral gives title to an officinal compoſition, called *ſyrup of coral*, ſometimes preſcribed by phyſicians; as is likewiſe the powder of *coral* finely ground, and afterwards levigated on a marble, and made up into a proper form. But there are few, except thoſe who are fond of medicines with gems in them, that make uſe of it. By means of its exceeding hardneſs, it is ſuſpected to take away with it a great deal of the levigating ſtone.

Diſpenſary writers have given us receipts for a great many preparations of *coral*, as magiſteries, tinctures, ſalts, &c. none of which enter the preſent practice.

Coral and *corallina* being the ſhells of marine animals of the vegetable kind, poſſeſs the ſame chemical properties as the freſh ſhells of oyſters and other ſhell-fiſh, i. e. they are *abſorbents* EARTHS impregnated with ſome animal principles.

CORAL, *artificial*, is made of cinnabar well beaten; a layer whereof is applied on a piece of wood well dried, and poliſhed, firſt moiſtened with gum: the whole is then again poliſhed; and for varniſh, rubbed over with the white of an egg. See GROTTO.

CORAL *fiſhery*. The time for fiſhing *coral* is from April to July: the places are the Perſian Gulf, Red Sea, coaſts of Africa towards the Baſſion of France, the iſles of Majorca and Corſica, and the coaſts of Provence and Catalonia.

The method of fiſhing is nearly the ſame in all places: that uſed at the Baſſion of France, where there is an eſtabliſhed fiſhery, under the direction of a company at Marſeilles, is as follows.

Seven or eight men go in a boat, commanded by the patron or proprietor: the cuſter throws his net, if we may ſo call the machine wherewith he uſes to tear up the *coral* from the bottom of the ſea; and the other ſix manage the boat. The net is compoſed of two beams tied acroſs, with a leaden weight to preſs them down; to the beams is faſtened a great quantity of hemp looſely twiſted round, among which they mix ſome ſtrong nets. In this condition the machine is let down into the ſea; and when the *coral* is pretty ſtrongly embarraſſed in the hemp and the nets, they draw it out by a rope; which they unwind according to the depth, and which ſometimes requires half a dozen boats to draw. If the rope happen to break, the fiſhermen are in great danger of drowning. They have two machines, one for fiſhing up the *coral* where the bottom is ſmooth; and the other, called in the Provençal language the *ſolaire*, ſo conſtructed as to be employed where the bottom of the ſea is rocky and unequal.

Before the fiſhermen go out, they agree on the price of the *coral*, which is ordinarily at the rate of 4*l.* 6*d.* per pound.

When the fiſhery is over, which in a ſeaſon uſually amounts to twenty-five quintals of *coral* each boat, it is divided into thirteen parts; the patron whereof, or maſter *cuſtaller*, has four, the cuſter two, and each of the ſix companies one: the thirteenth being reſerved for the company. &c.

CORALLINES, *Corallina*, in *Natural Hiſtory*, were formerly reckoned a genus of plants, and Mr. Tournefort enumerates thirty-ſix ſpecies of them; but in the Linnæan ſyſtem they belong to the claſs of zoophytes, and are defined by modern naturaliſts to be ſub-marine plant-like bodies, that conſiſt of many ſlender finely divided and jointed branches, reſembling ſome ſpecies of moſs, or animals growing in the form of plants, having their ſtems fixed to other bodies; theſe ſtems are compoſed of

capillary tubes, whose extremities pass through a calcareous crust, and open into pores on the surface. The branches are often jointed, and always subdivided into smaller branches, which are either loose and unconnected, or joined as if they were glued together. They are distinguished from plants by their texture and hardness: they also yield in distillation a considerable quantity of volatile salt, and their smell, in burning, resembles that of burnt horns, and other animal substances. Many of the *coralines* seem to consist of a single tube, containing a single parent animal. Every branch emitted contains an offspring of this parent dependent upon it, and yet capable of producing its like in the emission of a new branch. Others consist of many such tubes united, rising up together, and encircling the distorted tubes of their progenitors, whose exuviæ become the substratum of a rising generation. Mr. Ellis distributes *coralines* into the *vesiculated*, *tubular*, *celliferous*, and *articulated* kinds.

Vesiculated coralines are distinguished by their horny hollow ramifications; most of them are furnished with little denticles on their branches, like leaves on mosses; and at certain seasons of the year they are furnished with small bodies like bladders, proceeding from their stems and branches, and differing in form according to the different species. Their colour, when dry, is of a yellowish or pale brown, and their nature is elastic. They are found adhering to rocks, shells, and sucules, by small root-like tubes: they recover their form in water, after having been dried; and when put into vinegar, they cause no effervescence. See *Tab. of Coralines, fig.* 1. *a* which represents the sea-tamarisk in its natural size, and A in which the denticles are magnified; *fig.* 2. *b*, B is the sea-cypress; fig. 3. C *d*, C D the small climbing *coralline* with well-shaped cups.

Tubular coralines are composed of a number of simple tubes, growing up nearly together; or of such branched ones as have neither denticles nor vesicles. These are horny and elastic like the former, and recover their original form in water. Some of them appear wrinkled like the wind-pipe, and others like the intestines of small animals. See *fig.* 4. E.

Celliferous coralines are those which appear, when magnified, to be fine thin cells, the habitations of small animals connected together, and disposed in a variety of elegant forms like branches. These effervesce with acids. See *fig.* 5. *f* and *Tab. II. of Coralines, fig.* 1.

Articulated coralines consist of short pieces of a stony or cretaceous brittle matter, whose surface is covered with pores or cells, which are joined by a tough, membranous, flexile substance, composed of many small tubes of the like nature, compacted together. The stony part is soluble in vinegar, and the other part remains entire. See *Tab. II. of Coralines, fig.* 1.

See the description and drawings of a great variety of species belonging to each class, in Ellis's Nat. Hist. above cited. Besides these, he enumerates other genera of marine productions; as the KERATOPHYTA, ESCHARA, SPONGES, and ALCYONIUM; all which are the nests or matrices of sea animals. See POLYPE. The last class of marine bodies is formed like fungules of various figures, and with different sorts of covering; some having a gritty, and some a callous skin, with a spongy substance in the inside: other species are of a fleshy substance.

Mr. Ellis intimates, that the more compact bodies, such as star-stones, brain-stones, petrified fungi, and the like, may be produced in the same manner with the substances above described: in favour of which conjecture he observes, that all the warmer latitudes near the shores abound so much with animal life, that no inanimate body can long remain unoccupied by some species.

The ancients have said great things of the virtues of the common *coralline*. Dioscorides prescribes it for mitigating the pain of the gravel, and for preventing stagnations of the humours in any part; he says nothing of its virtues against worms, which are what alone we esteem it for. We give it in powder from ten grains to a scruple or half a dram twice a day in these cases, and that with considerable good effect. Geoffroy, Mat. Med. vol. ii. p. 238.

CORALLINUM *arcanum*. See ARCANUM.

COROLLO-ACHATES, in the *Natural History of the Ancients*, the name of a very beautiful species of agate, found at this time in the East Indies, but not in any plenty. It is very hard, and capable of a fine polish; and, when wrought, is an extremely elegant stone.

CORALLODENDRON, *erythrina*, *coral-wood*, in *Botany*, the name of a genus of trees, of the *diadelphia decandria* class; the characters of which are these: the flower is of the butterfly kind, composed of five petals; the standard is spear-shaped, long, and rises upward; the two wings are scarce longer than the empalement. The keel is composed of two petals, which are no longer than the wings. It hath ten stamina, which are joined below, and unequal in their length; with an awl-shaped germen, which afterward becomes a long swelling pod, ending in an acute point, having one cell filled with kidney shaped seeds. There are six species, natives of the warm parts of America.

These plants, when they produce their flowers, are some of the greatest ornaments of the stove; for their flowers are produced in large spikes, and are of a beautiful scarlet; but they do not often flower in the northern parts of Europe. Miller.

The inhabitants of Malabar make sheaths of the wood, for swords and knives. They use the same, together with the bark, in washing a sort of garments which they call sarassas; and make of the flowers, the confection caryl. The leaves pulverized and boiled with the mature *nux fœtida*, or cocoa-nut, consume venereal buboes, and ease pains in the bones; bruised and applied to the temples, they cure the cephalea, and ulcers: mixed with the sugar called *jagra*, they mitigate pains in the belly, especially in women; and the same effect follows from the use of the bark levigated with vinegar, or swallowing the kernel stripped of its red pellicle. The juice of the leaves taken with oil sergelim, mitigates venereal pains; drank with an infusion of rice, it stops fluxes; made into a cataplasm with the leaves of betelcira, it destroys worms in old ulcers; and worked with oil, it cures the psora and itching. Ray.

CORALLOFUNGUS, in *Botany*, the name by which Vaillant has called the CLAVARIA, a genus of fungus, growing erect, and having every where one even and uniform substance. This is called *fungoides* by others.

CORALLOIDE, *marble*. See *Coralloide* MARBLE.

CORALLOIDES, in *Botany*, a term used by Mr. Tournefort to express a genus of mushrooms; the distinguishing characters of which are, that they are of a fleshy fungoid texture, and are branched in the manner of coral.

The species of *coralloides* enumerated by Mr. Tournefort, are nineteen. Tourn. Inst. p. 564. See CLAVARIA. Their virtues in medicine are not much celebrated; they are said, however, to be strengthening and astringent.

CORALLOIDES is also used in a different sense. Bauhine and Chabræus have made it the name of the great *dentaria heptaphylla*; and Dillenius, that of a whole genus of the dry leafless mosses. It is the *lichen* of Linnæus. See LIVER-*wort*, and *Tab.* XIII. *Botany*, N° 5.

It is also a name given by many authors to the *fossile* CORAL. See KERATOPHYTA.

CORALLORHIZA, in *Botany*, a name given by Ruppius to the plant called by Linnæus *nostoc*, and by others *nidus avis*.

CORALLUM, in *Mineralogy*, a name given by some of the writers on these subjects to the common PEARLS.

CORAM *non judice*, in *Law*, is when a cause is brought into a court whereof the judges have no jurisdiction.

CORANA, or *Nai* CORANA, the name of a peculiar sort of *phaseolus*, or kidney-bean, the down of the pod of which is the coulrage, or, as it is commonly called, cowitch.

CORANTO, *courant*, French; *corrente*, Italian; and *currens saltatio*, Latin; is a melody or air consisting of three crotchets in a bar, but moving by quavers, in the measure of $\frac{3}{4}$, with two strains, each beginning with an odd quaver. The number of bars is no otherwise determinate than that it is a multiple of 8. Of dance tunes this is the most solemn.

CORAX, *piscis*, the *crow-fish*, in *Ichthyology*, the name of a fish of the *cocalus* kind, and much approaching to the swallow-fish in shape and figure. The bones which cover the gills in this fish, all terminate in sharp thorns. See FLYING-*fish*.

CORBAN, a scripture term, signifying an oblation, or offering, to God on the altar.

CORBAN also denotes a ceremony in use among the Mahometans, yearly performed at the foot of mount Arafat in Arabia, near Mecca. It consists in slaying a great number of sheep, and distributing them among the poor.

CORBEIL, in *Natural History*, the name of a curious species of CHAMA. It is of the larger kind, and is deeply striated, both longitudinally and transversely; so that it has a sort of reticulated surface, like basket-work.

CORBELS, in *Fortification*, little baskets, about a foot and a half high, eight inches wide at the bottom, and twelve at the top; which, being filled with earth, are frequently set one against another upon the parapet, or elsewhere; leaving certain port-holes, from whence to fire upon the enemy under covert, without being seen by them.

CORBEL, in *Architecture*, the representation of a basket, sometimes seen on the heads of caryatides.

The word is also used for the vase, or tambour, of the Corinthian column; so called from its resemblance of a basket, or because it was first formed on the model of a basket.

CORBEL, or CORBIL, is also used, in *Building*, for a short piece of timber placed in a wall, with its end flicking

out fix or eight inches, as occaſion ſerves, in manner of a ſhouldering-piece. The under part of the end, thus ſticking out, is ſometimes cut into the form of a houſtin; ſometimes of an ogee, and ſometimes of a face, &c. according to the workman's fancy; the upper-ſide being plain and flat. See *Tab. Architecture, fig.* 19.

Theſe *corbels* are uſually placed for ſtrength immediately under the ſemi-girders of a platform, and ſometimes under the ends of chamber-beamas in which latter caſe, they are commonly placed a foot or two below the beam, and have a piece of timber ſtanding upright cloſe to the wall from the *corbel* to the beam.

CORBEL is alſo uſed by ſome architects for a niche, or hollow, left in walls for images, figures, or ſtatues to ſtand in.

CORBETT, in *Architecture*, is uſed by ſome, as Harris, in his Lexicon, for CORBEL.

CORCELET, in *Natural Hiſtory*, that part of the fly claſs which is analogous in its ſituation to the breaſt in other animals. Many have called it the breaſt in theſe alſo, but improperly; becauſe the breaſt of other animals is the place of the lungs and *trachææ*; but theſe organs are in the fly claſs diſtributed through the whole body. The wings are affixed to this part of the fly claſs: and there are ſome diſtinctions of great conſequence, in regard to the arrangement and diſtribution of thoſe animals into genera. Reaumur's Hiſt. Inſect. tom. iv. p. 226.

CORCHORUS, in *Botany*. See *Jew's* MALLOW.

CORCULUS, the *little heart*, in *Natural Hiſtory*, a name given by authors to a ſmall ſpecies of *cordiformis*, or HEART-*ſhell*, of a roſe colour.

CORD, or CHORD, an aſſemblage of ſeveral threads of hemp, cabled or twiſted together by means of a wheel.

The word comes from χορδὴ, which properly ſignifies an inteſtine, or gut, whereof *cords* may be made.

CORD *of St. Francis*, a kind of rope adorned with knots, worn by the brothers of the fraternity inſtituted in honour of that ſaint.

Some, as the Cordeliers, Capuchins, Minoſites, and Recolets, wear it white; others, as the Picpus-pieces, black. Its deſign is to commemorate the bonds wherewith Jeſus Chriſt was bound.

CORD, *the ſociety of the*, includes a great number of people beſides religious. To obtain indulgences, they are only obliged to ſay five Paters, five Ave Maries and Gloria Patris, and to wear this rope, which muſt have been firſt bleſſed by the ſuperiors of the order.

CORD *of wood*, a certain quantity of wood for burning; ſo called, becauſe formerly meaſured with a *cord*.

It is now meaſured between two ſtakes of wood, four feet high, and eight feet apart; and is to be four feet broad, or deep.

CORD-*wood* is properly new wood; and ſuch as, when brought by water, comes aboard a veſſel; in oppoſition to that which is floated. All burning wood, not exceeding eighteen inches circumference, is deemed *cord-wood*.

CORD, in *Geometry*, *Muſic*, *&c.* See CHORD, and STRING.

CORD, *magical*, an inſtrument in great uſe among the Laplanders, and ſuppoſed to be of great virtues among them. It is a *cord* or rope, with three knots tied in it. They uſe many magical rites and ceremonies in the preparing and tying this *cord*; and when thus prepared, it is ſuppoſed to have power over the winds; and they will ſell, by means of it, a good wind, or at leaſt a promiſe of one, to a ſhip. If they untie only one of theſe knots, a moderate gale is to ſucceed; if two, it is to be much ſtronger; and if three, there is to be a ſtorm.

CORD, *umbilical*. See UMBILICALIS *funiculus*.

CORDAGE, in the *Sea Language*, is uſed in general for all the ROPES and cords, big and ſmall, uſed in the RIGGING and fitting out of a veſſel. See CABLE.

The word is alſo uſed for the art of preparing and manufacturing the ropes, &c.

The *cordage* is ſaid to be *hove*, when, having paſſed a ſtove, or other hot place, it is drained of all its moiſture.

White cordage is that not yet pitched. *Cordage pitched in the ſtove*, is that which is paſſed through hot pitch as it comes out of the ſtove. Each quintal of *cordage* may take up about twenty pounds of pitch. The *cordage* is ſometimes pitched in the thread.

When a rope is ſaid to be of *ſix inches*, it is underſtood of ſix inches around, or in circumference.

The number of ropes required in fitting out a veſſel, is almoſt inconceivable; each has its particular name and uſe.

The commerce of *cordage* is very conſiderable at Amſterdam: that made of Coningſberg hemp is valued at 20 *per cent.* more than that of Muſcovy hemp. They are ſold by weight.

The Spaniards make a kind of ſhoes of *cordage*, which they call *alpargates*, whereof they uſe great quantities at home, and yet drive a very conſiderable commerce to the Indies; ſo as to ſend away whole ſhip-loads thereof.

The Indians make their *cordage* of the bark of cocoas, maguay, and other trees.

As to the ſtrength of ropes, or *cordage*, M. Reaumur takes occaſion, in the Memoirs of the Royal Academy, to conſider the queſtion, whether a rope compoſed of ſeveral twiſts, or ſtrands, interwoven, v. gr. 10, have more ſtrength to ſuſtain a weight, than the ten twiſts would have ſeparately, placed parallel over one another; or, which is the ſame thing, whether, if each twiſt be capable of ſuſtaining the weight of a pound, the whole *cord* be able to ſuſtain more than ten?

On the one hand, 1. By virtue of the twiſting, the diameter of the rope is made larger than are thoſe of the ten twiſts together; but it is apparently by its thickneſs that a rope ſuſtains a weight, or reſiſts a fracture. 2. Twiſted ſtrands have not all, as when parallel, a vertical direction with regard to the weight: ſeveral of them, and even the greateſt part, have oblique directions; and of conſequence do not bear all the ſhare of the burden they would otherwiſe bear. In effect, they are inclined planes that are only preſſed with a part of the load.

Hence it would follow, that the ſurplus of the ſtrength of the twiſts might be employed in raiſing a larger weight.

On the other hand, it is true, that, in twiſting the ſtrands, ſome are ſtretched, and others left more looſe; and the new tenſion given the former, ſerves to weaken them, and has of itſelf the effect of a weight: thus they become leſs able to ſuſtain one ſo large. Thoſe more lax, on the contrary, evade, in ſome meaſure, the action of weight: for the action is diſtributed equally on the ten ſuppoſedly equal twiſts; and if ſome, by reaſon of their particular diſpoſition, receive leſs than their quota, the weight will act more forcibly on the reſt, and will break them firſt, as being more tenſe; after which, it will eaſily diſpatch the reſt, as not being in ſufficient number to oppoſe it.

This is the ſum of what can be urged for and againſt the twiſting: to decide between them, M. Reaumur had recourſe to experiment. The reſult was, that, contrary to all expectation, he ſtill found the twiſting diminiſhed the ſtrength of the rope; whence it is eaſily inferred, that it diminiſhes it the more, as the rope is the thicker. For inaſmuch as the twiſting diminiſhes; the more twiſting, the more diminution.

The reſiſtance or friction of *cordage* is very conſiderable; and by all means to be conſidered in calculating the power of machines. M. Amontons obſerves, in the Memoirs of the Royal Academy, that a rope is ſo much the more difficult to bend, 1. As it is ſtiffer, and more ſtretched by the weight it draws. 2. As it is thicker; and, 3. As it is to be more bent; i. e. as it is to be coiled, for inſtance, into a ſmaller ring.

The ſame author has thought of ways to prove, in what proportion theſe different reſiſtances increaſe: that ariſing from the ſtiffneſs or rigidity occaſioned by the weight which draws the rope, increaſes in proportion to the weight; and that ariſing from its thickneſs, in proportion to the diameter. Laſtly, that ariſing from the ſmallneſs of the gyres, or pulleys, about which it is to be wound, is indeed greater for ſmaller circumferences than large ones, but does not increaſe ſo much as in the proportion of thoſe circumferences.

On this footing, the loſs a machine ſuſtains by the *cordage*, being eſtimated in pounds, becomes, as it were, a new weight, to be added to that which the machine is to raiſe. This augmentation of weight will render the *cords* ſtill the more ſtiff; which exceſs is to be computed as before.

Thus we ſhall have ſeveral ſums ſtill decreaſing; which are to be added together as in the article of friction: and it will be ſurpriſing to ſee what a ſum they will amount to. See FRICTION.

Where ropes are uſed in a machine, all the reſiſtance reſulting from their ſtiffneſs is to be put together; and all that occaſioned by the friction, which will make it conſiderable an augmentation to the difficulty of the motion, that a power which to raiſe a weight of 3000 pounds, by means of a fixed and moveable pully, needed only 1500 pounds, muſt, according to M. Amonton's, have 3042 pounds, on account of the friction, and the reſiſtance of the *cordage*.

CORDATED *leaf*, among *Botaniſts*. See LEAF.

CORDAX, in *Antiquity*, a gay ſort of DANCE.

CORDED, in *Heraldry*. *A croſs* CORDED, ſome take for a croſs wound or wrenched about with *cords*: though others, with more probability, take it for a croſs made of two pieces of *cord*.

CORDELIER, a *Franciſcan*, or religious of the order of St Francis.

The *Cordeliers* are cloathed in thick grey cloth, with a little cowl, a chaperon, and cloak, of the ſame; having a girdle of rope, or CORD, tied with three knots: whence the name.

The *Cordeliers* are otherwiſe called *Minor Friars*, their original

original name. The denomination *Cordelier* is said to have been firſt given them in the war of St. Louis againſt the Infidels; wherein the *Friars Minor* having repulſed the Barbarians, and that king having enquired their name, it was anſwered, they were people *cordeliers, tied with ropes*. The *Cordeliers* are, to a man, profeſſed Scotists.

CORDIA, in *Botany*, the name by which Linnæus and Plumier have called a genus of plants of the *pentandria monogynia* claſs, called *ſebeſtena* by Dillenius in his Hortus Elthamenſis. The characters are theſe: the flower hath one funnel-ſhaped petal, whoſe tube is the length of the empalement; the top is divided into four, five, or ſix parts. It hath five ſtamina, and in the centre a roundiſh pointed germen, which afterward becomes a dry berry, which is globular and pointed, faſtened to the empalement, enclofing a furrowed nut with two cells. There are three ſpecies; which being natives of warm countries, are too tender to live through the winter in England, unleſs preſerved in a ſtove. A ſmall piece of the wood of the tree, being put on a pan of lighted coals, will ſend forth a moſt agreeable odour, which will perfume a whole houſe. Miller's Gard. Dict.

The fruit is accounted cooling and moiſtening; uſeful againſt ſharp thin deflexions upon the lungs, helping coughs and catarrhs, and taking off the heat of urine. Miller.

As in figure, ſo in virtue, they reſemble daiſies.

CORDIAL, *Cordiac*, in *Medicine*, a comforting or refreſhing remedy, that gives a ſudden ſtrength and chearfulneſs, by raiſing the ſpirits when depreſſed by too much exerciſe, ſome diſeaſe, or the like cauſe.

Cordials act by giving a ſpringineſs and force to the fibres, and by ſome of their fine particles directly entering the tubuli, or pores, of the nerves and minute veſſels, and ſo mixing immediately with the fluids.

Thus, ſome of the particles of the ſpirit of lavender, when dropped into ſugar, and taken, are ſuppoſed to enter the nerves of the palate directly. Spirituous liquors, as brandy, cinnamon-water, &c. are ſuppoſed alſo to act immediately on the palate; but eſpecially on the nervous coat of the ſtomach, and not by the common current of the circulation: by which means they often prove an immediate *cordial*.

In faintings, where the circulation of the blood is languid, fal volatile oleoſum, or ſpirit of hartſhorn dropt in cold water, and drank immediately, occaſion a contraction of the fibrillæ, the laſt by its coldneſs, and the firſt by entering the ſmall veſſels; and thus they inſtantly augment the circulation, or, in other words, prove *cordial*. In officinal compoſitions, the four *cordial* flowers are, burrage, bugloſs, roſes, and violets. The four *cordial* waters are, thoſe of burrage, bugloſs, endive, and chicory; ſome add, thoſe of *carduus benedictus* and ſcorzonera, ſeabioſs, ſorrel, &c. See Cardiac.

Cordial *waters*. See *Compound* Waters.

CORDIFORMES *conchæ*. See Heart-*ſhells*.

CORDIS *Capſulo, Fovea, Mucro, Septum*. See Capsula, Fovea, Mucro, Septum.

CORDON, in *Fortification*, a row of ſtones jutting out between the rampart and the baſis of the parapet, like the tore of a column. The *cordon* ranges round the whole fortreſs, and ſerves to join the rampart, which is aſlope, and the parapet, which is perpendicular, more agreeably together.

In fortifications raiſed of earth, this ſpace is filled up with pointed ſtakes, inſtead of a *cordon*.

CORDWAINERS, or Cordiners, the term whereby the ſtatutes denominate *ſhoe-makers*.

The word is formed from the French *cordonnier*, which Menage derives from *cordouan*, a kind of leather brought from *Cordova*, whereof they formerly made the upper-leathers of their ſhoes. Others derive it from *corda, rope*, becauſe anciently ſhoes were made of cords; as they ſtill are in ſome parts of Spain, under the name of *eſparteñas*. See Corbage. But the former etymology is better warranted: for, in effect, the French workmen who prepare the *cordouan* are ſtill called *cordouanniers*.

In Paris they have two pious ſocieties, under the titles of *Freres Cordonniers, Brother Shoemakers*; eſtabliſhed by authority towards the middle of the ſeventeenth century; the one under the protection of St. Criſpin, the other of St. Criſpinianus, two ſaints who had formerly honoured the profeſſion. They live in community, and under fixed ſtatutes and officers; by which they are directed both in their ſpiritual and ſecular concerns. The produce of their ſhoes goes into a common ſtock, to furniſh neceſſaries for their ſupport; the reſt to be diſtributed among the poor.

By ſtat. 1. Jac. I. c. 22. the maſters and wardens of the *cordwainers* company in London, are to appoint ſearchers and triers of leather; and leather is not to be ſold before it is ſearched and ſealed.

CORDYLA, or Cordylus, in *Ichthyology*, a name by which ſome authors call the *thynnus* or tunny-*fiſh*, when young and ſmall. Willughby.

CORDYLUS, in *Zoology*, the name of a ſpecies of lizard, called alſo *mormaſyn* and *condiverba*. It is larger than the green lizard. Its tail is rounded, and is divided into a number of circles covered with ſcales, which cout them over, and cover the whole tail like the tiling of the roof of a houſe. Ray.

CORE, a diſorder incident to ſheep, occaſioned by worms in their liver, reſembling a plaiſe or flounder.

CORED *herrings*. See Herrings.

COREGONUS, in *Ichthyology*, the name of a genus of fiſhes of the malacopterygious, or ſoft-finned kind; the characters of which are theſe: the branchioſtege membrane on each ſide contains ſeven, eight, nine, or ten bones. The *pinna dorſi* is placed nearer the ſnout than the ventral fins are. The teeth are ſo ſmall, that in ſeveral of the ſpecies they are ſcarce diſcernible.

The ſpecies of this genus, enumerated by Artedi, are four.

The name *coregonus* is formed of κορη, *the pupil of the eye*, and γωνια, *an angle or corner*; and is given it from the ſingular ſtructure of this part of the eye, the pupil in this fiſh running out into an acute angular corner in the anterior part, and this regularly in all the ſpecies.

COREIA, in *Antiquity*, a feſtival in honour of Proſerpine, named *Core*, κορη, which in the Meſſenian dialect ſignifies a beautiful woman.

COREOPSIS, in *Botany*, *tickſeed*; a genus of the *ſyngeneſia polygamia ſuperfluaneæ* claſs. Its characters are theſe: the common empalement of the flower is double; the diſk is compoſed of many hermaphrodite florets, which are tubular; theſe have each five hairy ſtamina: in their centre is ſituated a compreſſed germen with two horns, which afterward becomes a ſingle orbicular ſeed. The border or rays is compoſed of eight female florets, which are tongue-ſhaped, indented in five parts; theſe have no ſtamina, but a germen like the other, and are abortive. Linnæus enumerates eleven and Miller five ſpecies, natives of North America.

CORETT, in *Ichthyology*, the name of a large Eaſt Indian fiſh, of the tunny kind, and ſuſpected to be nother than the common tunny. It grows to ſix or ſeven feet long. Its eyes are large, and their iriſes yellow: its tail is broad and forked, and in colour of a yelloviſh green: its belly-fins are yelloviſh, and its belly of a fine bright gloſſy blue, with a ſilvery caſt. It is generally caught with hooks, and is a very fine taſted fiſh. Ray.

CORIANDER, in *Botany*, a genus of the *pentandria digynia* claſs. Its characters are theſe: it is a plant with an umbelliated flower, the proper empalement of which is divided into five parts; the rays of the principal umbel are diſform. The hermaphrodite flowers which form the diſk, have five equal heart-ſhaped petals, and have each five ſtamina. The germen, which is ſituated under the flower, afterward becomes a ſpherical fruit divided into two parts, each having an hemiſpherical concave ſeed. There are two ſpecies; the firſt of which is the common kind, which is cultivated in the European gardens and fields for the ſeed, which is uſed in medicine: the ſecond is ſeldom found but in botanic gardens in theſe parts of Europe. They both grow naturally in the ſouthern parts of Europe.

This plant, while green, has a naufeous diſagreeable ſmell, like bugs; but the ſeed, when dry, ſmells grateſully. It is reckoned ſtrengthening to the ſtomach, and carminative; and therefore frequently uſed with purging medicines. Matthiolus ſays it is antiſeptic. *Coriander* ſeeds have alſo a great acrimony, when freſh gathered, which they loſe with time.

It is much uſed by the brewers, both in England and Holland, to give a flavour to their ſtrongeſt beer. The ancients had a notion, that the juice of *coriander* would deprive people of their ſenſes, and even of life.

CORIARA, in *Botany*. See *Myrtle-leaved* Sumach.

CORICEUM, in *Antiquity*, the undreſſing-room belonging to the gymnaſium.

CORIDOR, or Corridor, in *Fortification*, a road, or way, along the edge of the ditch, without-ſide; encompaſſing the whole fortification.

The word comes from the Italian *coridore*, or the Spaniſh *coridor*.

It is alſo called the covert-way; becauſe covered with a glacis, or eſplanade, ſerving it as a parapet. The *coridor* is about twenty yards broad.

Coridor is alſo uſed, in *Architecture*, for a gallery, or long iſle, around a building, leading to ſeveral chambers at a diſtance from each other, ſometimes wholly enclofed, and ſometimes open on one ſide.

CORINDUM, or Cardiospermum, in *Botany*. See *Heart-Pea*.

CORINTHIAN *order*, the fourth, or, as Scamozzi and M. Le Clerc make it, the fifth, and laſt, of the orders of ARCHITECTURE. See *Tab. Archit. fig.* 27.

The invention of this order moſt of the moderns, after Vitruvius, aſcribe to Callimachus, a Corinthian ſculptor. See ACANTHUS, and COLUMN.

Villalpandus will have the Corinthian capital to have taken its origin from an order in Solomon's Temple, the leaves whereof were thoſe of the palm-tree.

The *Corinthian* order has ſeveral characters, whereby it is diſtinguiſhed from the reſt: its capital is adorned with two rows of leaves, between which riſe little ſtalks, or cauliculi, whereof the volutes are formed which ſupport the ABACUS, and which are in number ſixteen.

It has no ovolo, nor even abacus, properly ſpeaking; for the member which goes by that name, is quite different from the abacus in other orders; being cut with a ſweep, in the middle of which is carved a roſe, or other ornament.

Vitruvius obſerves, that the *Corinthian* order has no particular ordonnance for its cornice, or any of the other ornaments of its entablature; nor does he give it any other proportions than thoſe of the Ionic order: to that if it appears higher than the Ionic, it is purely owing to the exceſs of the height of its capital.

He alſo makes the reſt of the entablature the ſame; and the attic baſe he uſes indifferently for the one and the other.

But Vitruvius differs widely, in this order, from all the examples now remaining of antiquity; the moſt beautiful whereof have a particular baſe, and the whole order twenty modules in height; whereas the Ionic has but eighteen. Again, its capital is higher than that of Vitruvius by one third of a module; and its entablature, which has modillions, and ſometimes dentils, together with modillions, is very different from the Ionic entablature.

Moſt of the modern architects ſet aſide Vitruvius's Corinthian ordonnance, and follow that of the ancient buildings; ſelecting from them according to their ſeveral taſtes: ſo that the modern *Corinthian* is a kind of compoſite; differing from any of the ancient buildings, and much more from Vitruvius's rules.

Vignola and M. Le Clerc make the *Corinthian* order 20 modules high; yet Serlio only makes it 18, and M. Perrault 18½; retrenching ſomething from the 19 of Vitruvius.

The height of the ſhaft M. Perrault makes leſs than that of the Ionic, by reaſon of the exceſs of its capital.

CORINTHIAN *braſs*. See *Æs Corinthiacum*.

CORION, in *Botany*, a name given by ſome authors to the plant which produces the coriander ſeeds, uſed in the ſhops.

CORIS, in *Botany*, *Heathbow Pine*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: the flower hath one ringent petal, whoſe tube is the length of the empalement; it is ſpread open at the top, where it is divided into five oblong ſegments, and hath five briſtly ſtamina. In the centre is ſituated a round germen; the empalement afterward becomes a globular capſule, having five valves, incloſing ſeveral ſmall oval ſeeds. We have but one ſpecies, which grows in the ſouth of France. Other botaniſts have given the name of *coris* to the baſtard St. John's wort.

CORIS is alſo uſed in the Eaſt Indies for a kind of ſhells which paſs for money. See BIA.

CORISPERMUM, in *Botany*, a genus of the *monandria digynia* claſs. This plant, as well as *cureuda*, is by Miller called tick-ſeed. Its characters are theſe: the flower hath no empalement, but two impreſſed incurved petals; it hath one, two, or three ſtamina, and a compreſſed pointed germen, which afterward becomes one oval compreſſed ſeed, with an acute border. There are two ſpecies.

CORIZIOLA, in the *Materia Medica*, is a name given by ſome authors, particularly by Rhaſis, to the SCAMMONY.

CORK, the bark of a tree of the ſame name, a ſpecies of the *holm* OAK.

Its leaves are green above, and white underneath; and its fruit a real acorn, which feeds much more than that of the oak. It is found in great abundance in Spain, Italy, France, &c.

To take off the bark they make an inciſion from the top to the bottom of the tree, and at each extremity another round the tree, perpendicular to the firſt. When ſtripped from the tree, which does not therefore die, the bark is piled up in a pond, or ditch, and loaden with heavy ſtones to flatten it, and reduce it into tables: hence it is taken to be dried; and when ſufficiently dry, put in bales for carriage. If care be not taken to ſtrip the bark, it ſplits and peels off itſelf; being puſhed up by another bark formed underneath.

The bark of *cork*, as well as the acorn, are of ſome uſe in medicine; being both reputed aſtringents, after being burnt and powdered when uſed externally; but the chief employ of the former is, to put in ſhoes, ſlippers, &c. and to ſtop bottles. The Spaniards burn it to make that kind of light black we call *Spaniſh black*, uſed by painters. Cups made of *cork*, are ſaid by ſome to be good for hectical perſons to drink out of. The Egyptians made coffins of *cork*; which being lined with a reſinous compoſition, preſerved dead bodies unconrupted. The Spaniards line ſtone-walls with it, which not only renders them very warm, but corrects the moiſture of the air. The wood of the *cork-tree* is not only good for firing, but applicable to ſeveral other uſes.

Beſides the bark of a tree of the OAK kind, which grows in the ſouthern parts of Europe, commonly called *cork*, there is what naturaliſts call *foſſil* CORK, or *ſuber montanum*. This is a ſort of ſtone of the ASBESTINUS kind, the lightelt of all ſtones. It is fuſible by fire, and forms a black glaſs.

CORK, or CORKING *of a ſaddle*, are pieces of wood upon which the boſſtears are made faſt.

This part of the ſaddle was formerly made of *cork*, whence it ſtill retains the name.

COR-MAS, the name of a grand proceſſion, ſaid to have been inſtituted at Dunkirk during the dominion of Charles V. and renewed on St. John's day, the twenty-fourth of June. After the celebration of high maſs, the proceſſion, conſiſting of the ſeveral tradeſmen of the town, begins. Each perſon has a burning taper of wax in his hand; and after each company comes a pageant, followed by the patron-ſaint, uſually of ſolid ſilver, richly wrought and adorned. The companies are followed by muſic; and after the muſicians, the friars, in the habits of their order, the ſecular prieſts, and then the abbot magnificently adorned, and preceded by the boſt. Machines likewiſe of various fantaſtical forms and deviſes, and ſo variouſly accounted, form a part of the ſhew on this occaſion; which is deſcribed at one of the moſt ſuperb and magnificent in the world, by an eye-witneſs, in 1755. Gent. Mag. vol. xxii. p. 263.

CORMORANT, in *Ornithology*, a large ſea-bird, of the *order* of the *anſeres*, or gooſe kind, called by authors CORVUS *aquaticus*, or the *ſea*-RAVEN. Our SHAGG is a true ſpecies of this bird.

CORN, a genus of plants, which produce a grain in an ear fit for bread, the ordinary food of man.

CORN is alſo uſed for the grain, or ſeed, of that plant ſeparated from the ſpikes, or ears.

In the commerce of grain, they diſtinguiſh three kinds; viz. *corn* properly ſo called, or WHEAT, RYE, which is a ſpecies very different, and of a quality far inferior; and a third kind reſulting from a mixture of the two, and called *maſlin*.

The farmers, indeed, rank among the number of *corn* ſeveral other grains; as barley, oats, and even pulſe; as peas, vetches, &c. which, however, they ſometimes diſtinguiſh by the denomination, *ſmaller corn*. Maiſe and ſarraſin are numbered among the *corn*; the firſt called *Turkey* and *Indian corn*, the ſecond *French*, or *black corn*. See *Buck*-WHEAT.

Europe, in every part of it; Egypt, and ſome other cantons of Africa, particularly the coaſts of Barbary; and ſome parts of America, cultivated by the Europeans, particularly New England, New France, and Acadia, are the places which produce *corn*. Other countries have maiſe and rice, in lieu of it; and ſome parts of America, both in the iſlands and continents, ſimple roots, ſuch as potatoes, and manioc.

Egypt was anciently the moſt fertile of all countries in *corn*; as appears both from ſacred and profane hiſtory. It ſupplied a good part of the people ſubject to the Roman empire, and was called the dry nurſe of Rome and Italy. England, France, and Poland, ſeem now in the place of Egypt, and with their ſuperfluities ſupport a good part of Europe.

For the firſt diſcovery and culture of *corn*, authors are much divided: the common opinion is, that in the firſt ages men lived on the ſpontaneous fruits of the earth; as acorns, and the nut, or maſt, produced by the beech; which, they ſay, took its name, *fagus*, from the Greek φαγειν, *I eat*. It is added, that they had not either the uſe of *corn*, nor the art of preparing, or making it eatable. See BAKING.

Ceres has the credit of being the firſt that ſhewed the uſe of *corn*, on which account ſhe was placed among the gods; others give the honour to Triptolemus; others ſhare it between the two, making Ceres the firſt diſcoverer, and Triptolemus the firſt planter and cultivator of *corn*.

Diodorus Siculus aſcribes the whole to Iſis; in which Polydore Virgil obſerves, he does not differ from the reſt; Iſis and Ceres being, in reality, the ſame. The Athe-

nians pretend, it was among them the art began; and the Cretans, or Candiots, Sicilians, and Egyptians, lay claim to the same. Some think the title of the Sicilians best supported, that being the country of Ceres: and authors add, she did not teach the secret to the Athenians, till she had first instructed her own countrymen. Others say, Ceres passed first into Attica, thence into Crete, and, last of all, into Sicily: many of the learned, however, maintain, it was in Egypt the art of cultivating *corn* first began; and it is certain, there was *corn* in Egypt and the East, long before the time of Ceres.

The great business of the farmer is to produce the largest crops he can, and, at the same time, to injure his land the least. The common way of sowing exhausts the whole land, without giving half the nourishment that it might give the corn. Instead of the scattering way of sowing corn by the hand, if it be let in with the drill, in single, double, treble, or quadruple rows, and an interval of five feet of naked ground be left between these series of rows, the use of horse-hoeing in these intervals will be found to give all that the farmer requires: the crop will be larger, though to great a quantity of ground is left vacant, than if all were sown over, as the plants will stand vastly thicker in the rows, and will have twenty or thirty stalks a-piece; and the more the successive *crops* are planted, and the oftener the ground is hoed in this manner, the better will the plants be maintained, and every crop will be larger and larger from the same ground, without dunging, or without changing the sort of plant, as is usually necessary in other cases. See HUSBANDRY, and INTERVAL.

This is very evident in several parts of the same field, where this sort of husbandry has been entered upon at different times, and some have a first crop, others a second, and others a third, all growing up at the same time, the older worked land always invariably shewing the best crop. Dunging and fallowing are both necessary to recover the land to its virtues, in the common way, after a few crops. These are both of them expences to the farmer; but the horse-hoeing, when the *corn* is sown in rows, answers all the intents of them, and is much less expensive. It has, in short, every year, the good effect of a summer fallow, though it every year produces a good crop, and no time, or use of it, is lost to the farmer.

For the preservation of corn: it must be well dried and cleaned; the granary must have its openings to the north or east, and vent-holes a-top: for the first six months it must be well stirred every fifteen days; afterwards it will be sufficient to stir it once *per* month: after two years it beats no more; nor is there any thing to fear, but from the air and foreign moisture.

A little time after the siege of Metz, under Henry II. of France, in the year 1558, the duke d'Espernon laid up vast stores of *corn* in the citadel; which was preserved in good plight to the year 1707, when the French king and his retinue, passing that way, ate bread baked thereof.

The chief thing that contributes to the preservation of *corn* is, a crust which forms on its surface, by the germination of the grain next underneath, to the thickness of an inch and a half. On that at Metz people walked, without its giving the least way. At Sedan was a granary cut in a rock, wherein a heap of corn was preserved a hundred and ten years: it was covered with a crust a foot thick. At Chalons they have granaries where they still keep corn thirty or forty years: over the heap they strew quicklime, in fine dust, to the thickness of three inches, and sprinkle this over with water; whence arises a crust. The grain near the surface sprouts to the height of a foot and a half: these the winter kills; and the heap is left untouched, till necessity obliges them to it. See GRANARY.

No *corn* was formerly to be transported, without the king's licence, except for the victualling of ships, and in some special cases, from some ports only: and none may buy corn to sell again, without licence from justices, &c. Stat. 5 Eliz. cap. 12. But now *corn*, as wheat, barley, oats, &c. may be transported to states in amity, when they exceed not certain prices; viz. wheat 40*s.* the quarter; barley, 24*s.* oats 16*s.* &c. by many statutes; and the exporters of it shall pay no duty or custom, but be entitled to bounty-money, or a certain allowance for exportation; viz. 5*s.* for every quarter of wheat, 2*s.* 6*d.* for barley, &c. 3 Car. I.—12, 15, and 22 Car. II.—2 W. and M. &c. The transportation of *corn* to foreign parts was prohibited by 8 Anne, cap. 2. See stat. 2. Geo. II. cap. 18. A custom duty is granted on foreign *corn* imported, to be paid according to the price of English *corn*; and no foreign *corn* shall be transported from one port of Great Britain to another, on pain of forfeiture, and 20*l.* a bushel. Stat. 5 Geo. II. cap. 12. See also 11 Geo. II. cap. 22. See HORDEUM, OATS, WHEAT, &c.

CORN-*butterfly*. See PAPILIO.

CORN-*flag*, in *Botany*. See FLAG.

CORN, *Indian*. See MAIZE.

CORN-*measure*. See MEASURE.

CORN-*mill*. See MILL.

CORN-*rents*, in *Law*, denote those third parts of the old rents on college leases, which were to be reserved by the lessees. Stat. 18 Eliz. cap. 6. These were the invention of lord-treasurer Burleigh, &c. for upholding the revenues of colleges.

CORN, *sharping*. See SHARPING.

CORN, *sing*. See TRUE-*corn*.

CORN-*bottle*, or BLUE-*bottle*, in *Botany*. See CENTAURY.

CORN-*marygold*. See *Corn*-MARYGOLD.

CORN-*parsley*. See SKIRRET.

CORN-*rocket*. See BUNIAS.

CORN-*sallad*, a species of the valerian. See VALERIAN.

CORN-*violet*. See CAMPANULA.

CORN, in *Medicine* and *Surgery*. See CLAVUS.

CORNACHINE *powder*, a purging powder, called also *Earl of Warwick's powder*, and *pulvis de tribus*.

It is composed of equal parts of *antimonium diaphoreticum*, *diagrydium*, and cream of tartar.

CORNAGE, an ancient TENURE, the SERVICE whereof was to blow a horn, when any invasion of the Scots was perceived.

This tenure was very frequent in the northern counties, near the Picts and the Roman walls; but by stat. 12 Car. II. all tenures are converted into free and commonfocage. An old feudal call's *cornage*, *herwgeld*, q. d. *host-geld*. Lord Coke says, in old books, it is called HORNGELD.

CORNARISTS, in *Ecclesiastical History*, the disciples of Theodore Cornhert, an enthusiastic secretary of the states of Holland. He writ at the same time against the Catholics, Lutherans, and Calvinists. He maintained that every religious communion needed reformation; but he added, that no person had a right to engage in accomplishing it, without a mission supported by miracles. He was also of opinion, that a person might be a good Christian, without being a member of any visible church. Encyclop.

CORNEA *tunica*, in *Anatomy*, the second coat of the EYE; so called from its substance resembling the horn of a lantern, in Latin *cornu*.

It is situated in the fore-part; and is surrounded by the SCLEROTICA. It has a greater convexity than the rest of the globe of the eye, forming, according to M. Petit, a portion of a sphere, whose diameter is usually 7, 7½, or 7½ lines; its chord 5, 5½, or 5½ lines, and its thickness ⅓, or ¼ of a line. Others have given it the figure of the vertical part of a parabolic, or hyperbolic spheroid. It is composed of several parallel laminæ, which are nourished by many blood-vessels, so fine, as not to hinder even the smallest rays of light from entering the eye. It has a most exquisite sense, to the end that, upon the least pain, the tears may be squeezed out of the lachrymal gland, to wash off any filth, which, by sticking to the *cornea*, might render it cloudy and dim.

It is sometimes necessary to make incisions through this tunic, in order to discharge not only matter, but even blood, when extravasated by external injuries, if it will not give way to the common methods of dispersion, to prevent the stagnant blood from suppurating and destroying the eye. There have been instances when this has been done with great success, and without any deforming cicatrix, the sight having been also perfectly restored by it. Heister's Surgery, p. 427.

CORNELIAN, or CARNELIAN, CARNEOLUS, a precious stone, ordinarily red, bordering on orange; called also *sardius*, or the sardian stone.

The *cornelian* is otherwise called *cornuola* and *cornola*: the Italians call it *corniuli*; it is said, from *cornu*, *horn*; on account of the resemblance it bears to horn in its transparence.

The characters are, that they are semi-pellucid stones, composed of crystal with a small admixture of earth, of a plain uniform structure, not tubulated nor crustated, and usually of one simple colour.

Of this genus there are three species. 1. The *red cornelian*, which is a very common stone among our jewellers, and is of all the degrees of red from a deep blood-colour, to that of the water in which raw flesh has been soaked; and this last, if any can be called so, is its proper colour. It is usually found in a roundish, or pebble-like form, and its most frequent size is between half an inch and two inches in diameter, and is found in the East and West Indies, and in many parts of Europe. Our jewellers value none but the oriental, but there are very fine ones found in Silesia and Bohemia, and on the shores of the Rhine. The second species is the *yellow cornelian*.

cornelian. This is a ſtone, in the opinion of many, of greater value than the former, when in its moſt pure and perfect ſtate. We have it principally from the Eaſt Indies; there are ſome ſpecimens of it found in Germany, but they are neither very good nor very frequent; and in England we ſometimes meet with large maſſes of it, but they are never thoroughly coloured. The third ſpecies is the *white cornelian*. This, though leſs beautiful than either of the others, is, however, a very beautiful ſtone. It is found in the Eaſt Indies, and in many parts of Europe; France has afforded very fine pieces of it, and Germany produces it in great abundance; but the beſt next the oriental is that of New Spain.

It cuts eaſily; and we find moſt of the fine gravings of antiquity, whether in reliefo, or indented, are on this ſtone.

To give theſe ſtones the greateſt luſtre, in ſetting them they uſually lay a piece of ſilver-leaf underneath.

The principal uſe made of *cornelians* is in ſeals; by reaſon they grave well, and take a fine poliſh.

Mr. du Fay, of the Academy of Sciences at Paris, accidentally hit upon a very fine way of turning any part of a red *cornelian* white, ſo as to form veins or clouds of that colour at pleaſure in it, by filling up the lines with white enamel in powder, then putting it over the fire to melt the enamel. Mem. Acad. Par. 1732.

The powder of the *cornelian* is preſcribed to be drank in all manner of hæmorrhages.

CORNER-*ſtones*, among *Builders*, the name of the two ſtones which ſtand one in each jamb of a chimney. Their faces are hollowed in breadth, being a certain ſweep of a circle. The breadth of each ſtone is equal to that of the jamb, and their height reaches from the hearth to the mantle-tree.

Corner-ſtones are commonly made of Ryegate or fire-ſtone.

CORNER-*teeth*, are thoſe which appear in a horſe when he is coming five years old. See AGE.

CORNET, Cornu, a horn, or muſical inſtrument, uſed by the ancients in their wars.

Vegetius informs us, that the legions had trumpets, *cornets*, and buccinæ; that when the cornets ſounded, only the enſigns regarded; none of the ſoldiers: but when the enſigns were to march alone without the ſoldiers, the *cornet* alone was ſounded: as, on the contrary, when the ſoldiers were to move without the enſigns, the trumpets alone were ſounded: that the *cornets* and buccinæ ſounded the charge and retreat; and the *cornets* and trumpets during the courſe of the battle.

This inſtrument was alſo uſed in eccleſiaſtical harmony to ſupply the acuter ſounds. *See Tab. Muſic. fig.* 2.

The baſs of this is the SERPENT.

CORNET is alſo the name of one of the compound ſtops of an organ, in which five pipes are made to ſpeak at the touch of a ſingle key.

CORNET, in *Conchyliology*, a name given by ſome French writers to a genus of ſhells, called by others *cornu*, and by the generality of writers VOLUTA.

CORNET, in *Farriery*, an inſtrument uſed in bleeding horſes.

CORNET, or CORONET, is ſometimes uſed to denote the loweſt part of the paſtern of a horſe round the COFFIN.

CORNET, in *Modern War*, denotes an officer in the cavalry who bears the enſign, or colours, of a troop.

The *cornet* is the third officer in the company, and commands in the abſence of the captain and lieutenant. He takes his title from his enſign, which is ſquare, and is ſuppoſed to be called by that name, from *cornu*; becauſe placed on the wings, which form a kind of points, or horns, of the army.

Others derive the name from *cornuti*; alleging, that it was the ancient cuſtom for theſe officers to wear coronets, or garlands, on their heads.

CORNICABRA, in *Botany*, a name by which the Spaniards call the turpentine-tree. The name is founded on the ſingular production of this tree, in form of a horn or pod. This is not the fruit of the turpentine-tree, as has been ſuppoſed by ſome; but it is a mere excreſcence, of the nature of the galls on the leaves and ſtalks of other trees and plants, and is inhabited by ſmall inſects of the puceron kind.

CORNICHE, Cornish, or Cornice, in *Architecture*, the uppermoſt member of the entablature of a COLUMN; or that which crowns and finiſhes the order.

The word is formed from the Latin *cornix*, a *crowning*.

The *corniche* is the third grand diviſion of the trabeation, commencing with the freeze, and ending with the cymatium.

The *corniche* is different in the different orders: in the Tuſcan order it is the moſt plain. Vignola makes it to conſiſt of an ovum, or quarter-round; an aſtragal, or baguette; a reglet, or fillet; a larmier, and a talon.—See *Tab. Archit. fig.* 24.

In the Doric, he uſes capitals to the triglyphs of the freeze with their handelettes, a talon, mutules, or dentils; a larmier, with its guttæ underneath, a talon, fillet, cavetto, and reglet. See *Tab. Archit. fig.* 25.

In the Ionic, the members are in moſt reſpects the ſame as in the Doric; except that they are frequently enriched with carving, and there are always dentils. See *Tab. Archit. fig.* 26.

In the compoſite there are dentils; its mouldings are carved, and there are channels under the ſoffit. See *Tab. Archit. fig.* 28.

The Corinthian *corniche* is the richeſt; and is diſtinguiſhed by having both modilions and dentils; contrary to the opinion of Vitruvius, who looks on theſe two ornaments as incompatible; and of M. Le Clerc, who regards the dentils as peculiar to the Ionic. See *Tab. Archit. fig.* 27.

For the heights and projectures of the cornishes in the ſeveral orders, Goldman makes the height of the Tuſcan 1½, and its projecture 2½, modules; the height of the Doric 1½, its projecture 2½; height of the Ionic 1½, its projecture 2½; height of the Compoſite 1½, projecture 2½; height of the Corinthian 1½, projecture 2½. See a table of the meaſures of the ſeveral parts of the *cornishe* in the different orders, under COLUMN.

CORNICHE, *architrave*, is that immediately contiguous to the architrave; the freeze being retrenched.

CORNICHE, *mutilated*, is that whoſe projecture is omitted, or elſe interrupted, right to the larmier, or reduced into a plat-band with a cymatium.

CORNICHE, *cantalever*, a term uſed, by the workmen, for a *cornishe* that has cantalivers underneath it. See CANTALIVER.

CORNICHE, *modillion*, a *cornishe* with modillions under it. See MODILLION.

CORNICHE, *crowning*, a *cornishe* which has a great eſtrement, or hollow, in it; ordinarily larded and plaſtered upon compaſs, ſprockets, or brackets.

CORNICHE is alſo uſed, in the general, for any little projecture, either of maſonry, or joinery; even where there are no columns. Thus, we ſay, the *cornishe* of a chimney, a bullet, &c.

CORNICHE is alſo applied to the crownings of pedeſtals. *See Tab. Archit. fig.* 24. 27. 25. 28. and 26.

This *cornishe* is different in the different orders: in the Tuſcan, according to M. Perrault, it has a plathond, which ſerves as a corona, and a cavetto with its fillet; in the Doric, it has a cavetto with a fillet, which bears a drip crowned with a ſquare; in the Ionic, a cavetto with its fillet above, and a drip or pendent ſquare crowned with an ogee and its fillet: in the Corinthian, an ogee with its fillet, a cymatium under the corona, which it hollows to make a drip, a corona, and an ogee, with its fillet: laſtly, in the COMPOSITE, a FILLET with a ſweep over the dye, an ASTRAGAL, CYMA with its fillet, CORONA, and OGEE with its fillet.

CORNICHE, *glacis of the*. See GLACIS.

CORNICHE *ring* of a piece of ORDNANCE, is that which lies next the trunnion ring; or the next ring from the muzzle backwards.

CORNICULA, an inſtrument made of horn, almoſt in form of a cupping-glaſs, except that at the more ſlender extremity there is a ſmall perforation. The wide end is laid upon emaciated parts, and a perſon applying his mouth to the perforation at the ſmall extremity, by ſuction draws out the air. In conſequence of this the part covered riſes into the hollow of the inſtrument; and by this means the nutritious juices are thought to be invited to the emaciated part. Valdanus, cent. 1. obſ. 80. relates a cure performed by this means, and gives a figure of the inſtrument. Tulpius, lib. iii. obſ. 49. gives another inſtance of a cure performed by this means.

This inſtrument was by the ancients eſteemed a ſpecies of cupping-glaſs.

CORNICULARIS *proceſſus*, the proceſs, or knob, of the ſhoulder-bone; thus called, as reſembling the figure of a crow's beak.

CORNICULARIUS, in *Antiquity*, an officer in the Roman army, whoſe buſineſs was to aid and aſſiſt the military tribune in quality of lieutenant.

The *cornicularii* went the rounds in lieu of the tribune, viſited the watch, and were nearly what the aids major are in the French army.

The denomination *cornicularius* was given them from a little horn, called *corniculum*, which they uſed in giving orders to the ſoldiers: though Salmaſius derives it from *cornicula*, the creſt of an head-piece; it being an obſervation of Pliny, that they wore iron or braſs horns on their helmets; and that theſe were called *cornicula*. In the *Notitia Imperii* we find a kind of ſecretary, or regiſter, of the ſame name. His buſineſs was to attend the judge, and enter down his ſentences and deciſions.

The

The critics derive the word, in this ſenſe, from *cornicu-lum*, a little horn to put ink in.

CORNICULATE *flowers*. See FLOWER.

CORNICULATE *plants* are ſuch as, after they have blown into flowers, produce many diſtinct and horned pods, or ſeed-veſſels, called *ſiliquæ*; for which reaſon, the plants are alſo, by ſome, denominated *ſiliquoſe plants*.

Such are, the *ſedum*, or *ſempervivum*, *telephium*, *juncus floridus*, *helleborus niger*, *paonia*, *caltha paluſtris*, *althæa*, *lu-num*, &c.

CORNISH. See CORNICHE.

CORNISH *chough*, in *Zoology*. See CORACIAS.

CORNISH *diamond*, a name given by many people to the CRYSTALS found in digging the mines of tin in Corn-wall. Theſe cryſtals are of the nature of the Kerry-ſtone of Ireland, but ſomewhat inferior to it: they are uſually bright and clear, except toward the root, where they are coarſe and foul, or whitiſh. They are uſually found in the common form of an hectangular column, terminated at each end by an hexangular pyramid.

CORNISH *ring*, or *aſſegai of a gun*, is the ſmall ring near the muzzle.

CORNISH, or *Britiſh Language*. Some remains of this lan-guage were met with in Cornwall, ſo lately as the year 1760. See Archæol. vol. iii.

CORNISH *hog*. See HOG.

CORNIX, in *Ornithology*. See CORVUS and CROW.

CORNU *Ammonis*, in *Natural Hiſtory*, an extraordinary kind of ſtone, ſome of which, in vinegar, juice of lemons, &c. have a motion like that of an animal.

It is rough, knotty, of an aſh-colour, and twiſted in man-ner of a ram's horn; ſuch as thoſe wherewith the an-cients repreſented Jupiter Ammon; whence its name.

It is diſputed, among naturaliſts, whether it be a native foſſil, a *nautilus*, or a rock-plant? Camerarius maintains the firſt; urging, that it is frequently dug out of the tops of mountains, and that it is ſeldom found near the ſea-ſhore.

Dr. Woodward aſſerts it a ſhell, and of the number of the nautili, formed in the ſea, and carried thence by the waters of the deluge, into the countries whence it is dug. He argues, that, if it be rarely found on the ſea-coaſts, it is becauſe ſhells and other bodies lying in the bottom of the ſea, as moſt kinds of the *cornua Ammonis* muſt do, are only to be torn thence, and driven aſhore by tempeſts: but the moſt violent tempeſts never move the bottom of the ſea, as the divers have put paſt doubt; ſo that it is no wonder, if none of theſe *cornua* be thrown up: but in the overturning of the earth by the deluge, theſe, with a thouſand more productions of the ſea, might be thrown from the bottom of the waters to the places where they are now found.

The *cornua Ammonis* are of different thickneſſes and lengths; ſome of them weigh twenty pounds. They are found in ſeveral places in Germany, and elſewhere. From ſome experiments that have been made, ſome of them are found to contain a little quantity of gold, which ſinks to the bottom upon pounding them ſmall, and ſtirring them in a running water, till all the earthy parts be carried off. Mr. Beaumont's account of them is to be ſeen in the Phil. Tranſ. N° 129. See SNAKE *ſtone*.

CORNU *cervi, hartſhorn*, in *Medicine*, makes one of the ALEXIPHARMIC powders. See *Hart's* HORN.

Among chemiſts, the ſame name is uſed for the mouth of an alembic.

CORNUA *uteri*. See UTERUS, and WOMB.

CORNUCOPIA, among the *Ancient Poets*, a horn, out of which proceeded plenty of all things; a particular privilege which Jupiter granted his nurſe, ſuppoſed to be the goat Amalthea.

The real ſenſe of the fable is this: that in Lybia there is a little territory ſhaped not unlike a bullock's horn, ex-ceeding fertile, given by king Ammon to his daughter Amalthea, whom the poets feign to have been Jupiter's nurſe.

In *Architecture*, and *Sculpture*, the *cornucopia*, or horn of plenty, is repreſented under the figure of a large horn, out of which iſſue fruits, flowers, &c. On medals, F. Joubert obſerves, the *cornucopia* is given to all deities, genii, and heroes.

CORNUCOPIÆ, in *Botany*, the name of one of the ſpecies of the graſs kind, which, in the Linnæan *Syſtem of Bo-tany*, makes a diſtinct genus of plants, of the *triandria digynia* claſs: the characters of which are, that the cup is a common pericarthium of one leaf, very large, and made in the faſhion of a funnel, indented at the edge, and ob-tuſe, and ſomewhat erect, and ſpread open. The glume has two valves, and contains only one flower: the valves are oblong, obtuſely pointed, and equal in ſize. The flower is compoſed of a ſingle valve, in figure and ſitua-tion much reſembling the valves of the cup. The ſta-mina are three capillary filaments, and the antheræ are oblong. The germen of the piſtil is of a turbinated form: the ſtyles are two in number, and very ſlender: the ſtigma are fibroſe. The flower contains the ſeed, which is ſingle, of a turbinated form, and convex on one ſide, and plain on the other. There are two ſpecies.

CORNUS, in *Botany*. See *Cornelian* CHERRY.

CORNUTA, in *Ichthyology*, a name given by Geſner and others to the fiſh called alſo *lyra* and *lyra altera* by others. It is of the *trigla* kind, and is diſtinguiſhed by Artedi by the name of the *trigla*, with many *cirri*, and with an octagonal body.

CORNUTIA, in *Botany*, a genus of the *didynamia angioſper-mia* claſs. Its characters are theſe: the flower has one petal, with a cylindrical tube, which is divided into four parts at the top. It hath four ſtamina, two of which are longer than the tube, and the other ſhorter. In the centre is ſituated a round-iſh germen, which afterward becomes a globular berry, ſitting upon the empalement, and incloſing ſeveral kidney-ſhaped ſeeds. There is but one ſpecies, a native of the Weſt Indies.

CORNUTUM *argumentum*. See DILEMMA.

CORNUTUS *piſcis*, in *Ichthyology*, a name given by Mr. Ray to the fiſh commonly called by the Dutch in the Eaſt-Indies, where it is very common, *boorn viſch*. It has a horn of a very ſingular kind in the back part of its head, or beginning of its back, and two others on the belly; theſe are crooked, and very brittle. They ſeem much of the nature of the ſpines, which ſeveral fiſh have, placed before their neck and belly fins; and it is dangerous to be wounded by them, the wound being generally very difficult of cure, eſpecially if any part of the horn or ſpine is left in it, which, from the brittleneſs of theſe ſubſtances, is generally the caſe. See *Tab. of Fiſh*, N° 66.

COROCORO, in *Ichthyology*, the name of a Braſile fiſh, ſomewhat reſembling the CORACINUS of the Mediterra-nean. It has a ſting in the back, by which, if it be taken, it can bury the hand. Margrave's Hiſt. Braſ.

CORODIO *habendo*, a writ whereby to eſtabliſh [illegible] of an abbey or religious houſe.

CORODY, CORADY, or CORREDY, in [illegible], (*corredium*, from *corrodo*, alſo *corrodium* and *corredium*) a ſum of mo-ney, or allowance of meat, drink, and cloathing, due to the king from an abbey, or other houſe of religion, whereof he is the founder, towards the reaſonable ſub-ſiſtence of any ſervant he thinks fit to beſtow it on.

The difference between a *corody* and penſion is ſaid to be, that a *corody* is allowed towards the maintenance of any of the king's ſervants in an abbey; but a penſion is given to one of the king's chaplains, for his better maintenance, till he may be provided with a benefice. See Fitzherb. Nat. Br. fol. 250. who ſets down all the *corodies* and pen-ſions certain, that abbeys, when they ſtoods were bound to perform to the king.

COROLLA, among *Botaniſts*, is the moſt conſpicuous part of a flower. It expreſſes the coloured, tender part, which ſurrounds the organs of generation. The parts it is compoſed of are called *petals*; if it conſiſt only of one piece, it is called *monopetalous*; if more it is ſaid to be *dipetalous*, *tripetalous*, *tetrapetalous*, and ſo on, as it conſiſts of two, three, four, or more parts. See PETAL, &c.

COROLLARY, or COROLLARY, in *Mathematics*, is uſed for a conſequence drawn from ſome propoſition already advanced or demonſtrated: as *it from this theorem, That a triangle which has two equal ſides, has only two equal angles, this conſequence ſhould be drawn, that a triangle, which hath the three ſides equal, has alſo its three angles equal.*

COROLLISTÆ, among *Botanical Authors*. See BOTANY.

COROLLULA, among *Botaniſts*, a term uſed to expreſs thoſe little partial flowers, which together conſtitute the whole compound ones. They are of two kinds, the tu-bulated, and ligulated: the former are always fur-niſhed with a campanulated limb, divided into four or five ſegments; the latter, or ligulated *corollulæ*, have a flat linear limb, terminated by a ſingle point, or by a broader extremity, divided into three or five ſegments.

CORON, a Jewiſh liquid meaſure, ſuppoſed to be the ſame with the HOMER.

CORONA, in *Anatomy*, is that edge of the *glans* of the *penis*, where the *præputium* begins.

CORONA, *crown* or *crowning*, in *Architecture*, a large, flat, maſſive member of the cornice; ſo called, becauſe it crowns not only the cornice, but the entablature, and the whole order. See *Tab. Architec. fig. 9.*

The French call it *larmier*, our workmen the *drip*, as ſerving, by its great projecture, to ſcreen the reſt of the building from the rain.

Some Latin authors call it *ſuperciliumi*; but that, as it ſhould ſeem, by miſtake for *ſuperciliaſtrum*. Certain French writers call it *mouchette*; and certain Latin ones, *mentum*, *ebur*, from its keeping off the weather from the parts underneath.

Some

Some call it absolutely the *cornice*, as being the principal member thereof. Vitruvius frequently uses the word *corona* for the whole cornice.

The *corona* is itself crowned, or finished with a reglet, or fillet. There are sometimes two *coronæ* in a cornice; as in the Corinthian of the Rotundo.

CORONA, in *Optics*, signifies a luminous circle, generally coloured, round the sun, moon, or largest planets. See HALO.

CORONA *Borealis*, or *Septentrionalis*, *Northern Crown*, or *Garland*, in *Astronomy*, a constellation of the northern hemisphere; whose stars in Ptolemy's Catalogue, in Tycho's and in Hevelius's, are 8; in the Britannic Catalogue 21. Their order, names, longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Ptolemy's Order.	Sign.	Longitud.	Latitude.	Magnitude.
			° ′ ″	° ′ ″	
That preced. the *corona*, without side.	e	♍	2 5 16	43 57 55	6
That next the Lucida, towards the N.	a	♎	2 44 45	46 49 50	5
Another following this, and more N.	b		4 45 53	46 4 40	4
Lucida of the *corona*	a		5 5 20	48 34 50	4-5
1st of the informes over the crown	d		7 33 36	44 21 17	5-3
Second	f		0 58 43	55 48 50	5
That following the Lucida to the south	g		3 58 12	53 59 38	4
N. of the cincture of the *corona*	k		7 50 41	50 30 3	5
S. in the circumf. of the *corona*	h		10 38 14	44 53 3	4
3d of the informes over the crown	x		8 17 34	55 59 43	6
5th over the *corona*	λ		8 18 41	56 25	5
3d of those following the Lucida south	z		14 46 15	56 6 27	4-5
Last of all in the *corona*	y		14 59 38	49 21 29	5-6
6th over the *corona*	μ		12 48 24	52 30 42	6
N. of those following the *corona*	x		13 48 54	55 57 45	6
Preced. of the middle	o		17 4 43	53 52 41	6
S. of those following the *corona*	n		19 57 15	49 28 4	6
Posterior of the middle ones	ξ		20 54 10	51 27 6	5
Another following them all	ι		19 40 56	54 15 30	5
		2♍	19 47 33	53 30 26	5

CORONA *Australis*, or *Meridionalis*, *Southern Crown*, a constellation of the southern hemisphere, whose stars in Ptolemy's Catalogue are 13; in the British Catalogue 12. Their order, names, longitudes, latitudes, magnitudes, &c. are as follow:

Names and situations of the stars.	Ptolemy's Order.	Sign.	Longitud.	Latitude.	Magnitude.
			° ′ ″	° ′ ″	
Preceding those to the south	π	♑	1 22 13	32 30 23	4
Next to the *corona*	ρ		5 31 35	30 34 40	6
Following this	σ		8 25 40	29 16 12	6
Middle of 3 before the knee of Sagittarius	τ		9 41 31	27 48 8	6
			10 14 14	25 25 57	5
South	θ		10 10 16	16 42 18	5
North	ε		5 42 59	14 20 8	5
2d of the ε in the N. circumference of the *crown*	ε		8 9 38	14 15 8	6
First	ι		7 41 58	14 31 16	6
Most north of the *crown*	κ		9 17 24	12 28 28	6
More southerly	φ		2 51 21	25 23 15	6
More south than last	λ		2 39 46	18 59 50	6

CORONA, among *Botanists*, expresses any thing growing on the head of the seed. The *coronæ* of seeds are of various kinds; sometimes simple, consisting only of a dentated membrane; sometimes pappose, consisting of downy matter, which in some cases is immediately fixed to the seeds; in others it has a pedicle growing from it. Sometimes the *coronæ* are composed of simple filaments, and sometimes they are ramose.

CORONA *clericalis*. See CROWN, and COIF.

CORONA *Æthiopica*, in *Natural History*, the name of a fea-shell of the DOLIUM, or *concha globosa* kind.

CORONA *imperialis*, in *Botany*. See CROWN *imperial*.

CORONA *imperialis*, in *Conchyliology*, a name given by authors to a kind of VOLUTA, differing from the other shells of that family, by having its head ornamented with a number of points, forming a sort of crown.

There are four species of this shell found in the cabinets of the curious.

CORONÆ, *Lucidæ*. See LUCIDA, and CORONA *Borealis*.

CORONA *pilorum*. See PILUS.

CORONA *plicatarum cultus*. See CULTUS.

CORONA *solis*, in *Botany*. See SUN-*flower*.

CORONA *solis Americana*, the name of a marine insect. See AMERICAN, &c.

CORONALE *os*, in *Anatomy*, the bone of the forehead; called also OS FRONTIS, *et occipitis sed verosimilius*.

CORONALIS, denotes the first SUTURE of the cranium, or skull.

The *coronal* suture reaches transversely from one temple to the other; and joins the *os frontis*, with the *ossa parietalia*. See *Tab. Anat.* (*Osteol.*) *fig.* 1. *lit.* g. and *fig.* 2 *lit.* b.

It is open, the breadth of a finger or two, in the middle, in young children, but grows closer with age; though sometimes by convulsion fits, or a bad conformation, it not only closes in children, but the edges shoot over one another; which is what the women call *head-mould-shot*; after which they seldom live long.

CORONARIA *vasa*, CORONARY *vessels*, the arteries and veins which surround the heart to nourish and supply it with blood, &c. See *Tab. Anat.* (*Splanch.*) *fig.* 12 *lit.* v. c.

CORONARY *arteries*, are two arteries springing out of the *aorta*, before it leaves the *pericardium*, and serving to carry the blood into the substance of the heart.

They are called *coronary*, because of their spreading into branches, and encompassing the base of the heart, in manner of a crown, or garland. In their progress they send out several branches longitudinal of the heart: and, as Bayle observes, to the auricles, and into the very substance of the heart: after encompassing the base, and meeting again, they inosculate with each other.

CORONARY *ligament* unites the RADIUS with the CUBITUS.

CORONARY *vein*, is a vein diffused over the external surface of the heart. It is formed of several branches arising from all parts of the viscus, and terminates in the vena cava, whither it conveys the remains of the blood brought by the coronary arteries.

At its rise out of the heart, there is a valve to hinder the return of the blood; first discovered by B. Eustachius, a native of San Severino.

CORONARY, *stomachic*, is a vein inserted into the trunk of the splenic vein; which, by uniting with the mesenteric, forms the *vena* PORTA.

CORONATION. See CROWN, KING, and OATH.

CORONATORE *eligendo*, in *Law*, a writ, which, after the death or discharge of any *coroner*, is directed to the sheriff, out of the chancery, to call together the freeholders of the county, for the choice of a new *coroner*, to certify into chancery both the election, and the name of the party elected, and to give him his oath, &c.

CORONATORE *exonerando*, in *Law*, is a writ for the discharge of a coroner, for negligence or insufficiency in the execution of his duty: and where coroners are so far engaged in any other public business, that they cannot attend the office; or if they are disabled by old age, or disease, to execute it; or have not sufficient lands, &c. they may be discharged by this writ.

CORONE, in *Anatomy*, a sharp-pointed eminence, or *apophysis* of a bone. See *Tab. Anat.* (*Osteol.*) *fig.* 2. *lit.* m. See also BONE.

Of these there are several in the body, distinguished, according to their figures, by different names: e. gr. one of the *ischium*, called *styloides*, or being shaped like a bodkin: another called *mastoides*, from its resembling a nipple: another of the *temporis*, called *zygoides*, as being of the figure of a crow's bill: lastly, another of the *os sphenoides*, called *pterygoides*, from its shape, which resembles the wings of a bat.

CORONELLA, in *Botany*, a name given by some authors to the *cynanchica*, or purple willow herb, vulgarly called with us codlins and cream.

CORONER, an ancient officer in this kingdom, so called, because he hath principally to do with the pleas of the *crown*. There are usually four, sometimes six, and sometimes fewer, in each county. They are chosen by the freeholders of the county, by virtue of a writ out of chancery; and the choice is for life, unless they become sheriffs or verderors, or are discharged by the writ *de coronatore exonerando*, or by stat. 25 Geo. II. cap. 29. for extortion, neglect, or misbehaviour.

This officer, by the statute of Westminster, ought to be a knight; and there is a writ in the register, now obsolete, called *nisi sit miles*, whereby it appears to be a sufficient cause for removal of a *coroner* (chosen, if he were not a knight, and had not a hundred shillings *per ann.* in freehold.

freehold. This qualification, however, is now disregarded; and persons are chosen into this office merely for the sake of the fees annexed to it by 3 Hen. VII. cap. 1. and 25 Geo. II. cap. 29.

Mention is made of this officer as early as the time of king Athelstan, anno 925.

Their authority is judicial and ministerial; judicial, where a person comes to a violent death, and to take and enter appeals of murder, pronounce judgment upon outlawries, &c. and to enquire of lands and goods, and escapes of murderers, treasure trove, wreck of the sea, deodands, &c. The ministerial power is where the *coroners* execute the king's writs, on exception to the sheriff, as being party to a suit, kin to either of the parties, on default of the sheriff, &c. In their former capacity the act of one has the same force as if they had all joined; in the latter, their acts are void, unless they join. 4 Inst. 271. 1 Plowd. 73. And the authority of *coroners* does not determine by the demise of the king; as that of judges, &c. doth, who act by the king's commission. 2 Inst. 174.

The lord chief justice of the king's bench is the sovereign *coroner* of the whole realm, or wheresoever he abides.

There are also certain *special coroners* within divers liberties, as well as the ordinary officers in every county; and some colleges and corporations are impowered by their charters, to appoint the *coroner* within their own precincts.

CORONER *of the king's household*, hath an exempt jurisdiction within the verge, and the *coroner* of the county cannot intermeddle within it; as the *coroner of the king's house* may not intermeddle in the county, out of the verge. 2 Hawk. 45. If an inquisition be found before the *coroner* of the county, and the *coroner* of the verge, where the homicide was committed in the county, and so it is entered and certified, it will be error. 4 Rep. 45. But if a murder be committed within the verge, and the king removes before any indictment be taken by the *coroner of the king's household*, the *coroner* of the county, and the *coroner of the king's house*, shall enquire of the fame: and according to Sir Edward Coke, the *coroner* of the county might enquire thereof at the common law. 2 Hawk. 45. 2 Inst. 550. If the fame person be *coroner* of the county, and also *of the king's house*, an indictment of death taken before him as *coroner*, both *of the king's house*, and of the county, is good. 4 Rep. 46. 3 Inst. 134. See ſtat. 33 Hen. VIII. 12 Parl. 1 & 3.

CORONER *of London*, is eligible by the mayor and commonalty of the city, and no other *coroner* has any power there.

CORONER, *court of*. See COURT.

CORONET, in *Farriery*. See CORNET.

CORONET, in *Heraldry*. See CROWN.

CORONILLA, in *Botany*, *jointed podded coluteu*, a genus of the *diadelphia decandria* claſs. Its characters are these: it hath a butterfly-flower, with nine ſtamina, which are united, and one ſtanding ſingle, terminated by ſmall ſummits: in the centre is ſituated an oblong taper germen, which afterward becomes a taper-jointed pod, enclosing oblong ſeeds. Miller reckons ſeven, and Linnæus eleven ſpecies.

There have been pieces of amber found, with the pinnated leaves of *coronilla* included in them, and as elegantly expanded as the moſt curious botaniſt could have expected it, for preſerving them in his hortus ſiccus. Breyning gives us an account of one of thoſe pieces of amber, in which the middle part of one of theſe leaves was thus elegantly preſerved; he examined the ſpecimen with the greateſt accuracy, but could not find the leaſt mark of fraud or deceit in it, and in every particular in the deſcription of the piece, and in the diſpoſition of the leaf in it. To this it is to be added, that the *coronilla* is a ſhrub commonly wild in Pruſſia, where amber is produced. Phil. Tranſ. N° 396.

CORONOPUS, in *Botany*. See PLANTAIN.

COROPITÆ. See AGONISTICI.

CORPORA *cavernoſa*, in *Anatomy*, two ſpongious bodies, called alſo *corpora nervoſa*, and *corpora ſpongioſa*. See CAVERNOSA *corpora*, &c.

CORPORA *olivaria*. See OLIVARIA *corpora*.

CORPORA *pyramidalia*, are two protuberances of the under-part of the CEREBELLUM, about an inch long, ſo called from their reſemblance to a pyramid.

CORPORA *ſtriata*, two protuberances of the *crura* of the MEDULLA *oblongata*.

CORPORA *habeas*, in *Law*. See HABEAS.

CORPORAL, an inferior officer in a company of foot, who has charge over one of the diviſions: he places and relieves centinels, and keeps good order in the *corps de guard*; receiving, withal, the word of the inferior rounds that paſs by *his corps de garde*. There are uſually three *corporals* in each company.

The word comes from the Italian *caporale*, which ſignifies the ſame thing; and that from *caput*, *head*, *chief*; the *caporal* being the firſt of the company.

CORPORAL *of a ſhip*, is an officer who hath the charge of ſetting the watch and centries, and relieving them; and who ſees that all the ſoldiers and ſailors keep their arms neat and clean: he alſo teaches them how to uſe their arms, and hath a mate under him.

CORPORAL *oath*. See OATH.

CORPORAL, CORPORALE, is alſo an ancient church-term, ſignifying the ſacred linen ſpread under the chalice in the euchariſt and maſs, to receive the fragments of the bread, if any chance to fall. Some ſay, it was pope Euſebius who firſt enjoined the uſe of the *corporal*; others aſcribe it to St. Silveſter. It was the cuſtom to carry *corporals*, with ſome ſolemnity, to fires, and to heave them againſt the flames, in order to extinguiſh them. Philip de Comines ſays, the pope made Louis XI. a preſent of the *corporals*, whereon my lord St. Peter ſung maſs.

CORPORATE *county*. See COUNTY *corporate*.

CORPORATION, a body politic, or incorporate; ſo called, becauſe the ſeveral members thereof are formed into one body; and are qualified to take, purchaſe, grant, have a common ſeal, ſue and be ſued, &c. in their joint capacity.

Theſe political conſtitutions were firſt invented and introduced, according to Plutarch, among the Romans by Numa, in order to break the force of the two rival factions of Sabines and Romans; by ſubſtituting ſeparate ſocieties of every manual trade and profeſſion.

A *corporation* may be eſtabliſhed three ways, viz. by preſcription, by letters patent, and by act of parliament. *Corporations* are either *aggregate* or *ſole*. *Aggregate* are either *regular*, as abbeys, priories, chapters, &c. *ſecular*, as biſhopricks, deanries, archdeaconries, colleges, &c. to which add, univerſities, colleges, hoſpitals, &c. See HOSPITAL, &c.

Lay corporations are again ſubdivided into *eleemoſynary* and *ſimply*. Of the former ſort are ſuch as are eſtabliſhed for a variety of temporal purpoſes; as thoſe of cities, towns, mayoralties, bailiwicks, companies, or communities of commerce; and for the improvement of ſcience, churchwardens, and the two univerſities. Thus the king is made a corporation, to prevent an interregnum; for on his demiſe, his ſucceſſor is in full poſſeſſion of the regal rights and dignity.

Eleemoſynary corporations are ſuch as are eſtabliſhed for the diſtribution of the free alms of the founder, as hoſpitals and colleges.

Again, a *corporation* is either ſole, when conſiſting of a ſingle perſon, as the king, a biſhop, dean, &c. or an aggregate of many; as the mayor and commonalty, dean and chapter, &c. which laſt is what the civilians call a *college*. See COLLEGE, COMMUNITY, CITY, and CHARTERS *of community*.

CORPORATION *courts* are ſuch as are held in *corporations*, by preſcription, charter, or act of parliament. See COURT *of Huſtings*, and *Mayor's* COURTS.

CORPORATION *act*, is that which prevents any perſon from being legally elected to any office relating to the government of any city or *corporation*, unleſs within a twelvemonth before, he has received the ſacrament of the Lord's ſupper, according to the rites of the church of England; and which enjoins him to take the oaths of ALLEGIANCE and SUPREMACY when he takes the oath of office; otherwiſe his election is void. Stat. 13 Car. II. ſtat. 2. cap. 1.

CORPOREAL. See INCORPOREAL.

CORPOREAL *inheritance*. See INHERITANCE.

CORPOREAL *qualities*. See QUALITY.

CORPOREITY, the quality of that which is *corporeal*, or has body; or that which conſtitutes or denominates it ſuch.

The *corporeity* of God was the capital error of the Anthropomorphites. Some authors reproach Tertullian with admitting a *corporeity* in the Deity; but it is manifeſt, by *body* he means no more than *ſubſtance*.

The Mahometans reproach the Samaritans at this day, with a belief of the *corporeity* of God. Many of the ancients believed the *corporeity* of angels.

CORPOREITY *form of*. See FORM.

CORPORIFICATION, in *Chemiſtry*, the operation of recovering ſpirits into the ſame body, or at leaſt into a body nearly the ſame with that which they had before their ſpiritualization.

CORPS, in *Architecture*, is a term borrowed from the French, ſignifying any part that projects or advances beyond the naked of a wall; and which ſerves as a ground for ſome decoration, or the like.

CORPS *de bataille* is the main body of an army, drawn up for battle. See LINE, and GUARD.

CORPS *de garde*, a poſt in an army, ſometimes under co-

vert, sometimes in the open air, to receive a body of soldiery, who are relieved from time to time, and are to watch in their turns, for the security of a quarter, a camp, station, &c.

The word is also used for the men who watch therein.

It is usual to have, beside the *great*, a *little corps de garde*, at a good distance before the lines; to be the more readily advertised of the approach of the enemy.

CORPSE, *stealing of*, is not felony, but punishable as a misdemeanour by indictment at common law; but if a person in taking up a dead body steals the shroud, or other apparel, it is felony.

CORPULENCY, in *Medicine*, the state of a person too much loaded with flesh and fat.

Corpulency amounts to the same with what physicians call *obesitas*, and we popularly *fatness*.

Etmuller defines it to be such an increase both of the venter and limbs, as impede the actions of the body, especially motion and respiration.

Corpulency, or *obesity*, Boerhaave observes, does not consist in the solids of the body being increased, but in their being distended to a greater pitch by the abundance of humours collected in them.

Corpulency, or *fatness*, arises from a laudable, copious, oily, soft blood, containing less than its share of salt.

Such a constitution of blood occasioning but a feeble fermentation, there is less consumed, than is made; the lymph, which seems to be the matter of nutrition, preserves its viscid consistence longer; and by that means adheres the more plentifully to the divers parts of the body. Add, that there is more fat separated from the blood, than can well be deposited in the adipose cells. Hence the body grows very considerably, and the parts sometimes distend to a monstrous bulk.

Corpulency is promoted by any thing that tempers and softens the blood, and renders it less sharp and saline; such is want of exercise and motion, an indolent life, too much sleep, nourishing food, &c. It is prevented, or removed, by the contrary causes; and particularly by the use of saline and acid meats, and drinks.

Corpulency is the occasion of divers diseases, and particularly the apoplexy. It was held infamous among the ancient Lacedemonians.

Etmuller affirms, that there is no better remedy against excessive fatness, than *acetum scilliticum*. Borelli recommends the chewing of tobacco; which Etmuller however dissuades, lest it induce a consumption.

Sennertus mentions a man that weighed six hundred pounds; and a maid thirty-six years of age, who weighed four hundred and fifty. Bright of Malden, who died at the age of twenty-nine years, in 1750, weighed six hundred and sixteen pounds. Chispin Vitelli, marquis of Corona, a noted Spanith general in his time, from an excessive *corpulency*, is said to have reduced himself, by drinking of vinegar, to such a degree of leanness, that he could fold his skin several times round him.

Castile soap, in the form of a bolus, an electuary, pills, or dissolved in a gill or more of soft water, from one to four drachms, taken at bed-time, is strongly recommended with a view of reducing *corpulency*, in a discourse on its nature, causes, and cure, by Malcolm Flemyng, M. D. Lond. 1760. See ASTEMIOUS.

CORPUS, *body*, in *Anatomy*, is applied to several parts in the animal structure; as *corpus callosum*, *corpus glandulosum*, *corpus reticulare*, &c.

CORPUS *callosum*, is the upper part, or covering of the two lateral ventricles of the BRAIN; appearing immediately under the process of the dura mater, below the depth of all the circumvolutions; being formed by the union of the medullary fibres on each side.

CORPUS *cavernosum urethræ*. See CAVERNOSUM.

CORPUS *glandulosum*. See PROSTATÆ.

CORPUS *pampiniformis*. See PAMPINIFORME.

CORPUS *pyramidale*. See PYRAMIDALE.

CORPUS *reticulare*. See RETICULAR *body*.

CORPUS is also used in matters of learning, for several works of the same nature, collected, and bound together.

Gratian made a collection of the canons of the church, called *Corpus Canonum*. The *Corpus* of the civil law is composed of the Digest, Code, and Institutes. See also CODE, and DIGEST.

We have also a *corpus* of the Greek poets, and another of the Latin poets. See BODY.

CORPUS-*Christi-day*, a feast held always on the next Thursday after Trinity Sunday. It was instituted in the year 1264, in honour of the blessed sacrament, to which also a college in Oxford is dedicated. We find it mentioned in 32 Hen. VIII. cap. 21. By which statute Trinity-term is appointed for ever to begin the morrow after this feast.

CORPUS *cum causa*, in *Law*, a writ issuing out of chancery, to remove both the body, and record, touching the cause of any man lying in execution upon a judgment for debt, into the king's bench, &c. there to lie till he has satisfied the judgment.

CORPUS *cpi*. See CEPI.

CORPUS *habeas*. See HABEAS.

CORPUSCLE, in *Physics*, a diminutive of *corpus*, used to express the minute parts, or particles, that constitute natural bodies.

Corpuscles amount to much the same with what the ancients called *atoms*; and differ both from the elementary and hypostatical principles of the chemists, and the materia subtilis of the Cartesians.

Sir Isaac Newton shews a method of determining the sizes of the *corpuscles*, whereof the particles that compose natural bodies consist, from their colours.

CORPUSCULAR *philosophy*, that scheme or system of physics, wherein the phenomena of bodies are accounted for, from the motion, rest, position, arrangement, &c. of the minute *corpuscles*, or atoms, whereof bodies are composed.

The *corpuscular philosophy*, which now flourishes under the title of the *mechanical philosophy*, is exceedingly ancient.

Leucippus and Democritus were the first who taught it in Greece; from them Epicurus received it, and improved it, insomuch that it came at length to be denominated from him, and was called the *Epicurean philosophy*.

Leucippus, again, is said to have received it from Mochus, a Phœnician psychologist, before the time of the Trojan war, and the first who philosophized about atoms: though Gale, who borrows all prophane philosophy from the sacred philosophy in the books of Moses, is of opinion that he might take the hint from the Mosaic history of the formation of man out of the dust of the earth.

Indeed, Casaubon takes Mωχος, or Moχος, to be the name of a Tyrian, who among his own countrymen was called ΠΠΟ, *Moschi*, or, according to the method of writing which then obtained, Moses: whence it is conjectured that the *Moschi*, or *Mosthus* of the Tyrians, was, in effect, the Moses of the Hebrews.

This appears to be the sentiment of Selden, Arcerius, &c. But the opinion of Bochart is more probable, who from Posidonius and others, takes Mochus for an inhabitant of Sidon, and his philosophy to be nothing else but a physiological or natural history of the creation.

After Epicurus, the *corpuscular philosophy* gave way to the peripatetic, which became the popular system.

Thus, in lieu of atoms, were introduced specific and substantial forms, qualities, sympathies, &c. which amused the world, till Gassendus, Charleton, Des Cartes, Boyle, Newton, and others, retrieved the old *corpuscularian* hypothesis; which is now become the basis of the mechanical, and experimental philosophy.

Mr. Boyle reduces the principles of the *corpuscular philosophy* to the four following heads.

1. That there is but one catholic, or universal matter, which is an extended, impenetrable, and divisible substance, common to all bodies, and capable of all forms.

This Sir Isaac Newton finely improves on: "All things "considered, says that great author, it appears probable "to me, that God, in the beginning, created matter in "solid, hard, impenetrable, moveable particles; of such "sizes and figures, and with such other properties, as "most conduced to the end for which he formed them: "and that these primitive particles, being solids, are in- "comparably harder than any of the sensible porous bo- "dies compounded of them; even so hard as never to "wear, or break in pieces: no other power being able "to divide what God made one in the first creation.

"While these *corpuscles* remain entire, they may com- "pose bodies of one and the same nature and texture in "all ages: but should they wear away, or break in "pieces, the nature of things depending on them would "be changed: water and earth, composed of old worn "particles, and fragments of particles, would not be of "the same nature and texture now, with water and "earth composed of entire particles at the beginning. "And therefore, that nature may be lasting, the changes "of corporeal things are to be placed only in the various "separations, and new associations, of these permanent "*corpuscles*."

2. That this matter, in order to form the vast variety of natural bodies, must have motion in some, or all its assignable parts; and that this motion was given to matter by God, the creator of all things; and has all manner of directions and tendencies.

"These *corpuscles*, says Sir Isaac Newton, have not only "a vis inertiæ, accompanied with such passive laws of "motion as naturally result from that force; but also "are moved by certain active principles; such as that

"of

" of gravity, and that which causes fermentation, and " the cohesion of bodies."

3. That matter must also be actually divided into parts; and each of these primitive particles, fragments or atoms of matter, must have its proper magnitude, figure, and shape.

4. That these differently sized and shaped particles have different orders, positions, situations and postures, from whence all the variety of compound bodies arises.

CORRECTED *calendar*. See CALENDAR.

CORRECTION, *in the Mint*, is used for aids given with severity. See CHASTISEMENTS.

CORRECTION, in *Printing*, the act of retrenching the faults in a work; or the reading, which the corrector gives the first proofs, to point out and amend the faults, to be rectified by the compositor.

The *corrections* are placed on the margin of each page, right against the line where the faults are found. There are different characters used to express different *corrections*, as D or *d*, *dele*, for any thing to be effaced, or left out. When any thing is to be inserted, the place is marked in the line with a caret ^, and the insertion added in the margin. When a word, syllable, &c. is to be altered, it is erased out of the proof, and that to be put in its room written in the margin; always observing, if there be several mistakes in the same line, that the *corrections* in the margin be separated by little bars, or strokes, | . If a space be omitted, its place is marked with a caret, and the margin with #. If a space be wrong placed, as in the middle of a word, the two parts are connected with a co rve, and the same character put in the margin. If a letter be inverted, it is expressed on the margin with). If any thing be transposed, it is marked thus: *The shortest way the fullest, best*; for *the shortest fullest way the best*; and so in the margin is added *tr.* in a circle. If Roman characters are to be changed for Italic, or *vice versa*, a line is drawn under them thus, and *Roman* or *Italic* added in the margin; if to capitals, a double line. If a word or sentence, is entirely omitted, the place is marked with a *caret*, and in the margin is inserted, the word *out*. If the letters of a word stand too far asunder, a line is drawn under them, and in the margin is put a crooked line, or hook, thus —.

CORRECTION, in *Rhetoric*. See EPANORTHOSIS.

CORRECTION, in *Pharmacy*. This word has several peculiar senses: and first, drastic medicines, or such as operate with violence, are said to be corrected, when in their composition some ingredient is added, which proves a kind of check to the operation, or prevents those misfortunes which they generally bring, without such correcting ingredient. Thus, for instance, some carminatives, as the seeds of fennel or anise, are added to senna leaves, which, when exhibited alone, generally excite flatulencies and gripes. The substances or ingredients thus added, with an intention to render the medicines more safe, are called *correctantia*, or *correctivia*, *coadjuvantia*, or *infringentia*. Secondly, medicines which operate in a slow and languid manner, are said to be corrected, when they are so prepared as to accelerate or augment their operation: when, for instance, salts are mixed with evacuating medicines of a gummous or tedious nature, that by means of being more resolved or attenuated, they may operate more powerfully. With this intention salt of tartar, or *sal polychrestus*, are added to infusions of senna. Ingredients added with this view are called *auxuntia*; and when more drastic substances of the same virtues are added, in order to augment the operation of the compositions, these are called *acuentia*. Thirdly, nauseous and ungrateful medicines are said to be corrected, when they are prepared in such manner as to be more agreeable and acceptable to the palate. James.

CORRECTOR *of the staple*, an officer, or clerk, belonging to the staple, who makes and records the bargains of merchants there made, anno 27 Edw. III. stat. 2. cap. 22, 23. The Romans called them *mensarii*.

CORRECTORS, in *Medicine*, such ingredients in a composition as guard against, or abate, the force, or dangerous qualities, of others. See CORRECTION.

CORREGIDOR, the name of an officer of justice in Spain, and countries subject to the Spanish government. He is the chief judge of a town or province.

CORRELATIVE, something opposed to another in any certain relation.

Thus, father and son are *correlatives*; *pater & filius sibi mutuo respondent*. Light and darkness, motion and rest, are *correlative* and opposite terms.

CORRESPONDENCE, and *Correspondency*, denotes the relation and reciprocal adaptation of one thing to another; and also intercourse and friendship.

CORRIDOR. See CONTOUR.

CORRIGIOLA, in *Botany*, a genus of the *pentandria trigynia* class, with a five-leaved calyx, five petals, and a single seed, of a triquetrous, or three-sided form. There is one species.

CORRIVAL, a relative term, signifying, originally, a person who derived water from the same source, or spring, with another; by means of some common canal, which carried it to both their lands; and which proved the occasion of frequent disputes. Hence the word came to be used for those who have the same pretensions; whether to glory, to love, or the like: but use has abridged the word; and we now both write and pronounce, *rival*.

CORROBORANTS. See STRENGTHENERS.

CORROBORATIVE, in *Medicine*, any thing that increases strength, or gives new force.

The word is likewise frequently applied to such medicines as are of use in particular weaknesses; as the flour albus, gonorrhœa, &c. Such are terebinths, &c. All cardiacs are *corroborative*.

CORRODENTIA, or CORROSIVA, in *Medicine*, corrosives, or corroding medicines.

These are medicines of much use in surgery, which *corrode* whatever part of the body they are applied to.

Corrosives act by their acrimony, by which they destroy not only foreign substances adhering to animal bodies, but also the solids themselves, provided they meet with any moisture when applied to them; and particularly when confined upon the part by any adhesive plaister, so as to have their action excited by the heat of the body. In the two first cases they are called *escharotics*, in the last potential *causlics*. See CAUSTICS.

Corrosives are used for opening abscesses, for making issues, or artificial ulcers, for consuming fungous and callous excrescences; for separating and dissolving corrupted parts, and cleansing foetid ulcers; and for stopping hemorrhages. James.

CORROSION, the act of *corroding*, or gnawing away by little and little, the continuity of the parts of bodies. Acids *corrode* most natural bodies; and are therefore said to *corrode* the bowels with its sharp-pointed particles.

CORROSION is used both in *Chemistry*, *Medicine*, and *Natural History*; where it stands for a particular species of DISSOLUTION, by an acid, or saline menstruum.

What *corrosion* has peculiar to it, is, that it is mostly designed for the resolution of bodies the most strongly compacted, as bones and metals; so that the menstruums employed require an uncommon moment, or force.

Now *corrosive* liquors, whether acid or urinous, are nothing but salts dissolved in a little phlegm: therefore their being solid, and consequently containing a considerable quantity of matter, do both attract one another the more, and are also more attracted by the particles of the body which is to be dissolved. And as their attractions at equal distances are proportional to their bulks, *ceteris paribus*; so when the more solid bodies are put into saline menstruums, the attraction is stronger than in other solutions; and the motion, which is always proportional to the attraction, is more violent.

Hence we easily conceive, how they should drive those salts, like so many darts, into the pores of the bodies, and open and loosen the cohesion of them, though ever so firm. See ACID.

Again, we know, the more minute the particles of the menstruum are, the sooner they penetrate, and with the greater force; the motion produced by attraction being always greatest in the least corpuscles, and next to nothing in the large ones. Add to this another advantage gained by this minuteness of the particles; viz. that they approach nearer the body to be dissolved, without which the attractive force would be insensible. Hence, those very salts, which dissolved in water, will hardly touch metals, if once turned into acid spirits, easily penetrate them: for in distillation, not only a greater quantity of water remains, but the saline bodies are so minutely broken and divided by the fire, as to make them more readily capable of being moved by an attractive force; and therefore such a distilled menstruum is much more efficacious than any solution of salt made with water.

Corrosion is performed either by immersion or CEMENTATION, sprinkling, trituration, or mere contact with a proper MENSTRUUM.

CORROSIVE *sublimate of mercury*. See MERCURY.

CORRUGATOR, or CORRUGENS *supercilii*, a muscle arising from the great canthus of the orbit of the eye, and terminating in the skin about the middle of the eyebrows. See EYE.

Its name declares its use; being formed of *cor*, *together*; and *rugo*, *wrinkle*.

Some reckon this muscle only a prolongation of the *frontales*.

CORRUGATOR *coiteri*, or *musculus frontalis tertius*, in *Anatomy*. This muscle arises fleshy from the process of the

os frontis, next to the inner or great angle of the orbit, above the joining of the *os nasi*, and superior process of the *os maxillare* with this bone; from thence running obliquely outward and upward, it is inserted in the fleshy part of the *occipito-frontalis*; some of its fibrillæ passing through into the skin, a little higher than the middle region of the eyebrows.

Its use is to smooth the skin of the forehead, by pulling it down after the action of the *occipito-frontalis*: and when it acts more forcibly, it serves to wrinkle the skin of the front between the supercilia: as it happens when we frown, or knit the brows.

CORRUGATOR, *ossis orbitæ exterior*, *in Anatomy*, a name given by Santorini to certain *fasciculi* of the great zygomatic muscle, running under the fleshy part of the lower lip. See LABIUM *attollens*, and ZYGOMATICUS *major*.

CORRUGATOR, *inferior orbitæ*, *in Anatomy*, a name given by Santorini, and some others, to that muscle of the mouth called by Albinus *orbicularis oris*; by Cowper *constrictor laborum*; and by Douglas *sphincter labiorum*.

CORRUGENT *muscle*, the same as *corrugator supercilii*.

CORRUPTIBLE. See INCORRUPTIBLE.

CORRUPTICOLÆ, a sect who rose out of the Monophysites in Egypt about the year 519, under their chief, Severus, the pretended patriarch of Alexandria.

Their distinguishing doctrine, whence they derived their name, was, that the body of Jesus Christ was *corruptible*; that the fathers had owned it; and that to deny it, was to deny the truth of our Saviour's passion.

On the other hand, Julian of Halicarnassus, another Eutychian, a refugee as well as Severus, in Alexandria, maintained that the body of Jesus Christ had been always incorruptible; that to say it was corruptible, was to make a distinction between Jesus Christ and the Word, and by consequence to make two natures in Jesus Christ.

The people of Alexandria were divided between the two opinions; and the partisans of Severus were called *corruptiolæ*, q. d. worshippers of something *corruptible*: sometimes they were denominated *corruptistæ*; and the adherents of Julian *incorruptibles*, or *phantasiastæ*. The clergy and secular powers favoured the first; the monks and the people the latter.

CORRUPTION, the extinction of any thing; or the act whereby it ceases to be what it was.

It is an axiom in philosophy, that *the corruption of one thing is the generation of another*.

Corruption differs from *generation*, as two contraries differ from each other.

It differs from *alteration* as a less from a greater, or a part from the whole: a thing being said to be *altered*, when it is not so far changed but it may be known, and still keeps its old name; both which it loses by *corruption*.

But, as in generation, no matter is produced that did not before exist; so in *corruption*, nothing is lost, but that particular modification which constituted its form, and made it to be of such a species.

Dr. Drake accounts for *corruption* in animal and vegetable bodies thus: "The principle of *corruption* is, perhaps, "the same which in a state of circulation is the principle of life, viz. the air, which is found mixed in considerable quantities with all sorts of fluids; as necessary to vegetable, as to animal life. Now this air has "two motions, viz. an expansive one, from its natural "elasticity, by means whereof it communicates that intestine motion which all juices have, and by which "the containing parts are gradually extended and grow: "and a circulatory or progressive motion, which is not "essential to it, but is occasioned by the resistance of the "solid parts of those bodies, which obliges it to take "that course which is most free and open, which is "through the vessels of animals and plants.

"Now, this course being stopped, the expansive motion "still remains, and continues to act, till, by degrees, it "has so far overcome the including bodies, as to bring "itself to an equal degree of expansion with the external air; which it cannot do, without destroying the texture and continuity, or specific degree of cohesion, of "those solids: which is that we call a *state of corruption*.

"This expansive or destructive quality of the air in bodies may be promoted two ways; and, therefore, *corruption* may be accelerated in as many, viz. either by "weakening the tone or cohesion of the including parts, "and so facilitating the work of the air; as in the case "when fruit is bruised, which is found to corrupt much "sooner there than in any other part: or, by extending "the expansive force of the air itself, by heat, or some "other co-operating circumstance; and so helping it to "overcome the resistance the sooner." See PUTREFACTION.

CORRUPTION *of blood*, in *Law*, an infection occurring to a man's state, attainted of felony, or treason, and to his issue. For, as he forfeits all to the prince, or other lord of the fee, so his heirs cannot be issue to him, or to any other ancestor by him; and if he were noble, or a gentleman, he, and his heirs, are thereby ignobled and degraded. See ESCHEAT.

The king's pardon cleanses the *corruption* of blood in those children born after the pardon, not in those born before it; these latter continuing still incapable of inheriting the land of their father, purchased before the time of the pardon.

But now, there are several offences now made treason by act of parliament, which do not *corrupt* the blood; nor shall the criminal forfeit any thing thereby, besides what he has for life. See ATTAINDER.

CORSA, in *Architecture*, the same with PLAT-*band*.

CORSAIR, a pirate, or person who scours the seas, especially the Mediterranean, with a vessel armed for war, without commission from any prince, or power; to plunder merchant-vessels.

The word comes from the Italian *corsare*, of *corso*, or *a corsoni*, by reason of their courses, or excursions.

The name is commonly given to the piratical cruisers of Barbary, who had their rise about the beginning of the fifteenth century. See PIRATES.

A *corsair* is distinguished from a *privateer* in this, that the latter does it under a commission, and only attacks the vessels of those at war with the state whence his commission is derived. The punishment of a *corsair* is to be hanged without remission; whereas privateers are to be treated as prisoners of war. All *corsair* vessels are good prizes. See PRIZE.

CORSELET, a little CUIRASS, according to some; and, according to others, a coat, or cover for the whole trunk, anciently worn by the pikemen, commonly placed in the front and flanks of the battle, for the better resistance of the enemies assaults, and the surer guard of the soldiers placed behind, or within them. Vaugelas substitutes, that the framers were anciently armed with *corselets*.

CORSEPRESENT, in *Ancient Authors*, denotes a *mortuary*.

The word is formed of the French, *corps present*; and the reason of the denomination is probably this: that where a mortuary, after a man's death, became due, the best, or second best beast was offered, *corps present* to the priest, and carried along with the *corpse* to church.

CORSNED *bread*, *panis conjuratus*, or *corsned bread*, a superstitious manner of trial, used among our Saxon ancestors, by a piece of barley-bread, first execrated by the priest, then offered the suspected criminal to be eaten, lower, by way of purgation: from an opinion that a guilty person could not swallow a piece of bread so accursed, or if he did, that it would choke him.

The ceremony was accompanied with a prayer, beseeching God, "That the criminal's jaws might be shut, his "throat so narrow, that he might not swallow, and that "he might eat it out of his mouth." Du Cange.

CORSOIDES, in *Natural History*, a name given by some authors to a species of agate of a greyish white, full of slender veins, of a clearer white, resembling hairs. It is one of the German agates, and sometimes seen among our jewellers, cut into tops of small boxes, and other toys, but is not much esteemed.

CORTES, a term purely Spanish, properly signifying the *courts*, i. e. the states, or assembly of the states, at Madrid.

CORTEX, a Latin name, denoting the BARK, or outer coat of a tree, or shrub.

CORTEX *auranticum*, the powder of *cortex auranticus* sometimes cures quartan agues. Commerc. Noricis. 1735. Hebd. 12. p. 3.

CORTEX *Peruvianus*, called *alias quinquina*, *kinkina*, *quinquina*, *palois peruvæ*, and popularly the *Jesuit's-bark*, is the bark of a tree, growing in the West-Indies, called by the Spaniards *palo de calenturas*, or *fever-wood*, by reason of its extraordinary virtues in removing all kinds of intermitting FEVERS, and agues. See CINCHONA.

The Indians commonly call it the *fever-tree*, from the property it has of universally curing fevers, when either powder or bark is beaten, and steeped in the water wherein they use.

The tree that yields this noble specific, is only found in Peru; in the province of Xaen, situated on the river Amazons, near the city of Loxa, though some say it is also found in part of Peru; and in Lamia, in the island of Guadeloupe. The bark, when the tree is in bloom, is of a whitish yellow without side, and a pale tan colour within.

The Spaniards distinguish four sorts of this precious bark, viz. the *cortex fibrosus*, or rough bark; *cortex*, or yellowish; *cortex*, or curling; and *cortex*, or whitish.

The *cortex* and *cortex* are reckoned the best: the *cortex* is the produce of the same sort of tree, only growing in a cold, frosty climate, which impairs the quality of the bark, and renders it whitish on the outside, and sometimes coloured within, and entirely medicinal also.

As to the *cortex*, it is procured from another species of the tree of a much larger trunk, the leaves of a lighter green colour, and the bark of a very thick spongious substance, whitish on the outside; being similar to tough,

as to require the force of an ax to slice it from the tree. When first cut down it is as bitter as the bell fort, and has then the same virtue in the core of intermitting fevers; but when dry, and kept any length of time, it grows insipid, and good for nothing. In reality, both sorts are found to have much surer and quicker effects when green, than when dry; so that the Europeans only excite in for the second rate virtues: what is worse, the bad sort is in great plenty, and the good is very scarce, and hard to come at: for which reason, with a little of the fine bark sent yearly to Panama, for Europe, large quantities of the worst sort are usually mixed.

The *amaryllis*, or small bark, which curls up like sticks of cinnamon, and which in England is much esteemed, is being supposed to be taken from the branches of the tree, and therefore more efficacious in the cure of fevers, is only the bark of the younger trees; which being very thin curls in this manner. For the bark of the branches is never gathered: it would not compensate the charge of cutting.

The season of cutting the bark is in August, the only settled dry time in the country. After a tree has been barked, it requires eighteen or twenty years for a good bark to grow again.

Mr. Arrot, a Scots surgeon, who had gathered the bark in the place where it grows, and from whom we received this account, by means of Mr. Gray, at Carthagena, is of opinion, that the gathering the better sort of bark will soon be at an end, or at least very much reduced, partly by reason of its distance from any inhabited place, and the impenetrability of the woods where it grows, and partly by the want of Indians to cut it, whole race, through the cruelties of the Spaniards, is like to be totally extinct.

The most accurate account we have ever received of the tree which produces the *quinquina*, or Peruvian bark, is from M. de la Condamine, who, in travelling through some parts of America, came to the foot of Loxa, where the finest bark is gathered, and where the greatest number of the trees is found, and taking information from Mr. de Jussieu, informed himself concerning it. The *quinquina* never grows in the plains; it is a constant inhabitant of the mountains, and is easily known from the trees among which it grows by its erect growth, and its height when of any considerable age, as it always carries its head above the rest, and also by its size. These trees are never found in clumps or clusters together, but always separate and single among other kinds.

It is very rare, however, to find any large ones at this time on the mountain where the bark is gathered, the great demand for it having made them bark all the trees, and these having been perished by it, for the old trees never become the barking, though the young ones frequently do.

The bark is now gathered at all times, if the weather be dry. When the bark is taken off, it is laid in the sun till it is perfectly dry; the omitting this circumstance, and packing up the bark while moist, have occasioned it often to become mouldy, and spoil; and the merchants have attributed this to the taking it off in the wrong time of the moon, when it was wholly owing to its being put into the chests while too moist.

The leaves of the *quinquina-tree* stand on pedicles of about half an inch long: they are very smooth and glossy, and of a beautiful green: but somewhat paler on the under side than the upper. They are perfectly smooth at the edges, and are of an oblong figure, pointed at the end, and rounded at that part which joins to the stalk. They are from two and an half to three inches in length, and four in breadth, and are thickest where they join, the middle rib of the leaf is rounded on the upper side, and is usually of a reddish colour, especially towards the pedicles; and the whole leaf often becomes red, when perfectly mature. All the small branches towards the top of the tree terminate in one or more clusters of flowers, which, before they are open, resemble in their shape, and their bluish grey colour, those of the common lavender.

When they open, they change their colour: each stalk that sustains one of these clusters of flowers arises from the axis of one of the leaves, and divides into a great number of small branches, each of which is terminated by a cup divided into five parts, which sustains a flower resembling that of the hyacinth. It is composed of a pipe of three quarters of an inch long, which at the end is divided into five, and sometimes into six segments. These are of a beautiful deep red colour, and are ferrated round the edge in a very elegant manner. From the bottom of the tube of the flower there arises a white pistil, terminated by a long green head, that rises above the level of the segments of the flower, and is surrounded by five stamina, which sustain a farina of a pale yellow colour: these females live within the flowers. The tube is of a dirty red, and is covered with a sort of whitish down. When the flowers are fallen, the cup swells in the middle into the form of an olive, which by degrees grows into a fruit divided into two cells, which in drying become shorter, and the whole fruit rounder than in its natural condition.

This fruit finally opens longitudinally into two capsules, separated by a membranaceous septum, and covered by a thin yellowish skin; the seeds are of a reddish colour, and in shape are flattish, and, as it were, foliaceous: they are not more than the twentieth part of an inch in diameter, and are thickest in the middle, becoming thinner at each side. The plantula seminalis lies in the very centre of the seed, between two pellicles: these seeds are scattered in the manner of so many scales to a placenta of an oblong figure, pointed at the two extremities, so as somewhat to resemble a seed of the common oat, but that it is longer and flatter. This is joined to the septum, and has on that part a longitudinal furrow; but on the other side is convex, and somewhat rough all over. *Mem. Acad. Scienc.* Par. 1738.

By this description it appears, that they were very ignorant of the nature and characters of this tree, who, when it was first introduced among us, called it a species of *jesuits*.

The use of this febrifuge seems to have been very long known to the natives, probably as early as 1500, and their manner of taking it was by pounding the bark, and having it to infuse in water, and drinking the infusion: their hatred to the Spaniards, their conquerors, made them keep it a long time a secret from them; and when the thing became known among the inhabitants of Loxa, it still remained a secret to the rest of the world, and its great value was never generally known till the year 1638; when the lady of the viceroy of Peru, the countess de Chinchon, being long ill of an intermitting fever, which would not yield to any known remedies, the corregidor of Loxa sent to the viceroy for some of the *quinquina* bark, which he assured him would cure the lady, though all other means had failed. The corregidor was sent for to Lima, and after having given the medicine to many other persons with safety and success, the lady at length took it, and was cured. She immediately on this sent for a large quantity of the bark, had it powdered, and herself dispersed it to those who had occasion for it; whence it obtained the name of the *countess's powder*: but this lady being soon tired of the office, gave it in charge to the Jesuits; and they continuing to give it to the sick with the same success, it then was called the *Jesuits powder*. These reverend fathers soon found means to send a quantity of it to cardinal Lugo, who dispersed it with the same success at Rome; and after him the apothecary to the college gave it gratis to the poor with the same good effects, and under the name of the *Jesuits* or the *cardinal's powder*. Afterwards the better sort were made to pay its weight in silver, for it, to defray the expences of its importation, while the poor still had it gratis. Lewis XIV. at that time dauphin of France, was cured by it of a fever, which had not given way to other medicines.

When the count and countess of Chinchon returned to Spain, their physician, Juan de Vega, who brought a great quantity of it over with him, sold it at a considerable price; and soon after this, large quantities were sent over by the galloons; but the great demands from Europe exciting the inhabitants of Loxa to adulterate it with other barks, it had like to have lost part of its full praise. The *quinquina-trees* are found at this time on all the chain of mountains adjoining to Columbia, and in many other parts of America.

When first introduced, it is said to have been sold for about eight shillings sterling an ounce, which great price, with the little effects found from it, by reason of their ignorance of the manner of preparing and prescribing it, occasioned its being disused, till about the year 1679, that Mr. Talbot, an English practitioner in physic, brought it into vogue again, by the great number of cures wrought about the court and city of Paris with this powder, prepared after his manner: the secret whereof was soon after made public by the munificence of Louis XIV. who rewarded Talbot for the communication with five thousand crowns.

The *quinquina* is sold either in *bark*, or in *powder*: those who buy it in the bark, must choose it very dry and compact, such as has never been ventilated, and which will break quite and smooth, as friable between the teeth, is easily pulverized, and yields a powder of a pale cinnamon colour. It has a musty kind of smell, and yet to much of the aromatic, as not to be disagreeable. The inferior kinds, when broken, appear woody, and in chewing separate into fibres. The female bark is considerably thicker, whiter on the outside, redder within, and coarser in smell and taste than the former, and much inferior in medicinal virtue. The small, fine, quilled barks, thattened without, and reddish within, of a bitter musty taste, are the most esteemed. The powder must

be well sifted, and care be taken to buy it of persons that may be trusted; it being very easy to sophisticate it, and difficult to find out the fraud. The *red bark*, lately brought into reputation by the experiments of the ingenious Dr. Saunders, possesses the virtues of the common bark in a much higher degree. A quantity of it was introduced to London, as part of the cargo of a Spanish ship from Lima, taken by an English frigate in 1779 and carried into Lisbon. Whether this is the bark of the trunk of full-grown trees, the branches, or young trees yielding the pale bark, or whether the trees be of different species, is not yet accurately determined. In the province of Santa-Fe, there has been lately discovered two kinds of cinchona, one of which is the red bark of Peru, and the other, one of the white species.

The *cortex* is a bitter, absorbent, and astringent, or styptic: from its bitterness, M. Bertrandine observes it becomes fit to sustain four acrimonious juices; for a moor and a bitter make a ferment. Again, as an absorbent, it blunts the points of acids, and prevents their action; and, of consequence, preserves the fluidity of the juices, which acids would coagulate. As a stypic, it must have earthy parts to unite or condense, by which the parts before moistened, and relaxed, will contract themselves; and, by this means, the *cortex* augments the spring and tension of the fibres. As a bitter, it warms; and it facilitates perspiration, by warming and augmenting the fluidity of the juices. Its primary operation is that of strengthening the solids. On these properties it is that its medicinal uses are ascertained.

Its chief use is in curing of agues, and intermitting fevers; for which purpose it is applied in all ages, and most constitutions.

Dr. Cockburn says, it produces this effect better than any other medicine of the same intention, in the ratio of 365 to 17. It is usual to give a gentle emetic of ipecacuanha before the exhibition of the *cortex*: by this preparing the passages, the *cortex* has not only more success, but also is not subject to cause those indispositions, viz. swelling in the belly, nausea, &c. which often arise when such preparation is neglected.

The *cortex* must never be exhibited in the paroxysm of an ague, or intermitting fever; but given in such a quantity, at times, between the paroxysms, as to prevent a return of the fit.

The *cortex* exhibited in continual fevers, is held dangerous; and care must be taken, that the remission of a continual fever be not mistaken for its intermission, which happens at particular, or stated times.

The *cortex* is given several ways, viz. in powder, in form of electary, extract, bolus, infusion, tincture, &c. When the stomach will bear it, the preparation in very fine powder is the most useful and agreeable. The arcanum Talbotianum is about two ounces of the *cortex* in powder, digested in a sand-heat, with about a quart of red wine; after digestion, the wine must be passed off, and two or three ounces given every three or four hours between the paroxysms, till the intention is answered.

If the bark take downwards, Venice treacle, diacordium, conserve of roses, terra Japonica, doses of laudanum, &c. must be added to its preparations. When there happens to be an obstruction of the menses from the exhibition of the *cortex*, so to prevent it, it is advisable to add to its preparations the black hellebore, antimony mineral, cinnabar, &c. The *cortex* is often given to young children in agues, by way of clyster, and also applied to the wrists, and soles of the feet, wrought up in a stiff mass, with turpentine, Venice treacle, &c. which usually answers the purpose.

Dr. Helvetius, physician to the king of France, above twenty years ago, wrote a book entirely upon the subject of curing agues by giving the *cortex* clyster-wise; in which he pretends, that this is more safe, and no less certain, than the *cortex* given by the mouth.

Dr. Cockburn, in his Treatise of Sea Diseases, asserts the contrary: he alleges, that the *cortex* given inwardly is as safe, and much more certain and expeditious; and notes, that we know how to remedy all the inconveniencies the *cortex* may occasion.

Dr. Sydenham, and after him M. Renealme, and others, have prescribed the *cortex*, with success, in melancholic and hysteric affections, commonly called *vapours*.

The virtues of this medicine are at this time sufficiently known; but the largeness of its dose in the common forms of powder, or infusion in wine or in water, are great disadvantages; and our common method of giving it in the extract or resin, as we prepare them, not certain, and have their inconveniency.

Mr. Geoffroy has attempted a method of giving the bark in all its efficacy, without its ill taste, and in one third of the usual dose, by means of his dry extract; twenty-four grains of which, it is asserted contain the whole efficacy of a dram of the choicest bark in powder. Hence it appears very evident, that when we take the bark in substance, it is only about a third part of what we are forced to swallow that can be of any use to us, and that the same portion is all we can expect in the virtues of any decoction or infusion of it. Mem. Acad. Sci. Par. 1758.

Wine, which is a liquor partly aqueous, partly saline, and partly spirituous, is a menstruum much properer to extract the virtues of the bark than mere water, as it is much more able to dissolve the juices or fop condensed and inspissated in the bark of the tree; and for this reason a strong infusion of bark in this menstruum remains clear, and keeps the resin suspended when cold; in which respect it differs from the infusion in boiling water when cooled, as the resin precipitates itself. Thus it is the fine alone which can suspend the resin in a watery infusion of the bark; and in a vinous one, the spirituous and inflammable part of the liquor does the same thing: and as the resin of the bark, which there is great reason to believe possesses all the virtues of that medicine, is wholly precipitated from watery infusions when cold, it has been said therefore to be but very little dependence placed on the common cold infusions in this menstruum: the remaining salt in these infusions is only a faint bitterness, which arises from the gummous and saline parts of the dried juices of the bark: the whole consists, which stomoptic ities the virtue of the medicine, being of the nature of those bodies properly called gum resins, which are but very imperfectly soluble in water, and of which wine is the proper menstruum. It has been found, that cold water boiling more gradually than boiling water, extracts both the gummy and resinous principles of bark. And infusions made by macerating one ounce of bark in fine powder, in eight or twelve of water, without heat, for twenty-four (or even twelve) hours, have been successfully administered in doses (of the clear liquor) of two or three ounces. It is a common opinion, that bark in substance is more efficacious than any preparation of it. Lewis, Mat. Med.

Peruvian bark has been found very effectual in preventing colds. The method in which it was used, in a case mentioned in the Philosophical Transactions, was, after due preparation, by bleeding or purging, to take two ounces of it every spring and fall. By this method, an habitual taking of cold, and a consequent sore throat, was cured. Phil. Trans. No. 477. p. 32.

The antiseptic power of the bark has been abundantly evinced, and we have many accounts of its great efficacy in the cure of gangrenes and mortifications. See Med. Ess. Edinb. vol. iii. art. 5. or its Abridgment, vol. i. p. 175. seq. We have also several accounts of the good effects of this medicine in ulcers and the small-pox, and also in scrophulous complaints. See Med. Ess. vol. v. art. 10. or Abridgment, vol. i. p. 189.

The best probably in cases of this kind thrown off by fermentation a quantity of subtile vapour, or *fixed air*, which is sufficient to saturate the acrimonious matter; and even when the putrefaction has made further advances, larger quantities of this medicine will discharge more of the antiseptic vapour, which, reaching the blood, will restore its consistence, and correct its dissolved. Macbride's Essays, edit. 3. p. 140, &c. The bark has also been applied, in conjunction with other medicines, to the cure of periodic head-aches, hysterical, hypochondriacal, vertiginous and epileptic complaints. And it is very useful in medicine in weakness of the stomach, nervous fluxes, and sundry chemical diseases proceeding from a laxity and debility of the fibres.

Many instances are recorded by medical writers of the jaundice, dropsy, asthma, and all the train of nervous disorders, brought on in a surprising short time after an injudicious administration of the bark: among others, the curious may consult the Med. Ess. Edinb. vol. iv. art. 36. The Peruvian bark is discovered to be effectual in the cure of mortifications from an internal cause. The history of this discovery is as in 1721, Mr. Ruthworth, surgeon in Northampton, gave it to a patient labouring under a mortification; and having afterwards other proofs of its good effects in this disease, communicated his discovery in 1731. Mr. Amyand has used it in such cases, and found it successful in seven. Mr. John Douglas confirmed this by the history of a patient of his, which he published in 1732; and Mr. Shipton soon after related his success by this medicine, to the Royal Society. Mr. Ruthworth and Mr. Amyand confined its use to mortifications from an internal cause; the former thinks it is not proper in all cases of that kind, particularly where there is an intermission of the fever. Mr. Douglas seems to think it will succeed in all mortifications. All these three gentlemen gave half a dram or a drole every fourth hour. Mr. Shipton increased the dose to two scruples, and gave it while the fever continued. He proposed to have it tried in powder, phlegedenic, herpes, or other chronic ulcers.

Some call the gentian-root the European quinine, because good against intermitting fevers. The ice-like beech

of Jamaica, or Cinchona Caribæa of Linnæus, is a species of the Jesuits bark, produced in Jamaica and the Caribbee islands, which together with its virtues has lately been accurately described by Dr. Wright, who has found it very efficacious in the dangerous remittent fevers of the West Indies; and it has lately been administered in London in intermittents, in which it has effected a cure as completely as the Peruvian bark. Phil. Trans. vol. lxvii. 504. Med. Com. vol. v. p. 398. part ii. p.

CORTEX *Winterianus*, or *Winteri*, the bark of a tree brought from the straights of Magellan, by captain Winter, in his voyage with Sir Francis Drake, in 1579. Clusius calls the tree, *Mayellanica aromatica arbor*. See WINTER's *bark*.

The bark is aromatic, and found of good use at sea against the scurvy: half a dram of it, boiled with some carminative seeds, sweats, and relieves scorbutic patients. It has also proved an antidote against a poisonous sort of seal, called a *sea hen*, frequent in those parts.

The bark sold in the shops under the name of *cortex Winterianus*, or wild cinnamon, Dr. Sloane observes, is not the true *cortex Winterianus*; they grow on different trees, and in different countries, and their appearance is very different: yet are they so like in taste, that he thinks they may be used as successfully to each other.

The botanical characters of this tree are these: the trunk is about the thickness of one's thigh, rising to about twenty or thirty feet high, having many branches and twigs hanging downwards, making a very comely top. The bark consists of two parts, viz. outward and inward. The outward bark is as thin as a milled shilling, of a whitish ash or grey colour, with white spots here and there on it, and several shallow furrows of a darker colour, running variously through it, and making it rough; its taste is aromatic. The inward bark is much thicker than cinnamon, being equal in thickness to a milled crown-piece, smooth, of a whiter colour than the outward, of a much more biting and aromatic taste, something like that of cloves, and not glutinous like cinnamon, but dry and crumbling between the teeth. The leaves come out near the ends of the twigs, without any order, standing on inch-long foot-stalks; they are each of them two inches long, and one inch broad near the end where broadest, and roundish, being narrow at the beginning, and thence increasing in breadth to near its end, of a yellowish green colour, shining and smooth, without any incisures about its edges, and somewhat resembling the leaves of bay or *laurocerasus*. The ends of the twigs are branched into bunches of flowers, standing somewhat like umbels, each of which has a foot-stalk, on the top of which is a calyx made up of some follicle, within which stand five scarlet or purple petals, and within them a large stylus. To these follow so many coalesciated berries of the bignels of a large pea, roundish, green, and containing within a mucilaginous pale green thin pulp, four black shining seeds, of acrid, not an irregular figure.

All the parts of this tree, when fresh, are very hot, aromatic, and biting to the taste, which is to troublesome as sometimes to need a remedy from fair water. It grows in the low-land, or savanna-woods, in Jamaica, Antigua, and other Caribee islands.

The bark of this tree in what is chiefly in use, both in the plantations of the English between the tropics, in the West Indies, and in Europe, and is, without any difficulty, cured by only cutting off the bark, and letting it dry in the shade.

The people of the West Indies use it instead of all other spices, being thought very good to consume the immoderate humidities of the stomach, help digestion, expel wind, &c.

It is likewise, as well there as in Europe, thought a very good remedy against the scurvy, and to cleanse and invigorate the blood, being, among the methodistes and druggists of London, used for those purposes under this name, though differing from the true *cortex Winterianus*, as before observed. Phil. Trans. Abr. vol. ii. p. 666.

CORTEX *vomitorius*. See CATHARTICUS.

CORTEX *ovarii*, the *ovarium*, or cineritious substance of the BRAIN. This is the exterior part of the brain and cerebellum; so that part immediately under the pia mater; so called, because of its swelling the inner or medullary part, as a bark does a tree.

The same is also called the *cineritious substance*, from its greyish or ash colour.

Archangelo Piccolomini, a Perusine, first introduced this division of the brain into *cortex* or cineritious, and medullary or fibrous substance, in the year 1586.

The *cortical* substance is more soft and moist than the medullary; and follows or attends it through all its prominences and flexures. It is formed from the minute branches of the carotid arteries, interwoven in the meninges, and thence continued hither in infinitely fine ramifications.

Most anatomists, after Malpighi, agree in its being glandulous, and that the medullary parts are only a continuation thereof; Ruysch alone excepted; who, from the admirable skill in injections, and the discoveries he has made thereby, maintains that it has nothing glandular in it; and others have since adopted this opinion.

CORTIN, in *Fortification*. See CURTIN.

CORTUSA, in *Botany*. See *Bauh's Hist* SANICLE.

CORU, in *Botany*, *arbusculus mali aurei similis I. B. Lusitanis herba Bellabarba*. This is a dwarf-tree like the quince-tree, with leaves like it, and a yellow flower, having little or no smell; but Garcias makes it have leaves like those of the peach-tree, and a white flower smelling like the *pastinaca*. The bark of the root is of a watery green, light and thin, and if broken or wounded, distils a copious milky juice; other sorts and vivid ones what flows from the water; insipid, is not a little bitterish, cold and drying, but more drying than cold.

The inhabitants of Malabar, both pagans and Christians, make much use of the liquor of the green bark, though it be very ungrateful to the taste, on account of its surprising effects in all kinds of fluxes, as in the flentery, diarrhœa, and dysentery, from whatever cause they proceed. The dose is seven ounces in the morning and as many in the evening, if needful require it; but because the juice is bitter and unsavoury, they wash their mouths well whey, after taking it. James.

CORVET, or CORVAY, from the Italian *Arlette*, a *cow*, in the *Manage*, an air, resembling the hops of a crow, in which the horse's legs are raised higher than in the demivolt; being a kind of leap up and a little forwards, wherein the horse rises both his fore-legs at once, equally advanced (when he is going strait forward, and not in a circle); and as his fore-legs are falling, he [illegible] rises his hind-legs, equally advanced [illegible] fore the other; so that all his four legs are in the air at once; and as he sets them down, he marks or beats with them.

This air is performed, in equal time and measure, by keeping the horse in, and with a good and just action; the rider keeping himself strait, and well fixed down upon the saddle, and lifting his hand about three fingers breadth above the pommel of the saddle, with his body a little forward, and putting no stress on his legs.

There are three actions to be used in making corvets; these are to raise the horse, by the motion of the hand, to support him while he is in the air, and to make him go forward, while he is off the ground.

Horses that are very dull, or very fiery, are improper *for corvets*; this being the most difficult AIR they can make, and requiring a great deal of judgment in the rider, as well as patience in the horse, to perform it. See Berenger's Art of Horsemanship, vol. ii. p. 157, &c. Some derive the term from the Spanish *corva*, signifying the *bent* at the hinder leg, because the horse bends his hocks, and throws his weight upon them.

CORVINA, in *Ichthyology*. See GUAVUCUSA.

CORVINDUM *salis*. See NELLA *corvindum*.

CORVINUS *lapis*, in *Natural History*, a name given by some to the *belemnites*; but by others to a very different body of a whitish colour, and oval figure, convex on one side, and concave on the other, and in the middle of the concave side there arises a tubercle: this is said to be taken out of the head of a fish; and it is very possible that the authors may mean by this no other than our crab's eyes.

CORVIPETA *avis*, in *Ornithology*. See GOITGUIT.

CORVO, in *Ichthyology*, a name by which many call the UMBRA, or *umbrel* of authors, a large sea fish, common in the Mediterranean, and while young, brought to the markets of Italy.

CORUS, ORUS, HOMER, or CHOMER, in the *Jewish Antiquities*, a measure containing ten baths, or seventy-five gallons, and five pints, as a measure of things liquid, and three-two pecks and one pint, as a measure for things dry. The *corus*, or *omer*, was most commonly a measure for things dry, and the greatest that was used among the Jews. It contained, according to the tables, ten ephas, or thirty tins or seahs. *Corus* is the most usual term in the historical writers, and *omer* or *homer* among the prophets.

CORUS is also used in some of our old writers for eight bushels, or a quarter; *decem corus tritici, vocant decem quarteria*.

COBUSCATION, glittering, or flashing, a gleam of light emitted from any thing.

The term is chiefly used for a flash of lightning nimbly darting down from the clouds, in time of THUNDER.

There is a method of producing *artificial coruscations*, or sparkling fiery meteors, which will be visible not only in the dark, but at noon day, and that from two liquors actually cold. The method is this: fifteen grains of the solid phosphorus are to be melted in about a dram of water;

ter; when this is cold pour upon it two ounces of oil of vitriol; let these be shaken together, and they will at first heat, and afterwards they will throw up fiery balls in great numbers, which will adhere like to many stars to the sides of the glass, and continue burning a considerable time; after this, if a small quantity of oil of turpentine be poured in without shaking the phial, the mixture will of itself take fire, and burn very furiously. The vessel should be large, and open at the top." Phil. Transf. N° 150. See INFLAMMABILITY.

Artificial *coruscations* may also be produced by means of oil of vitriol and iron, in the following manner. Take a glass body, capable of holding three quarts; put into this three ounces of oil of vitriol, and twelve ounces of common water; then warming the mixture a little, throw in, at several times, two ounces or more of clean iron filings; upon this an ebullition, and white vapours, will arise: then present a lighted candle to the mouth of the vessel, and the vapour will take fire, and afford a bright fulmination, or flash, like lightning. Applying the candle in this manner several times, the effect will always be the same; and sometimes the fire will fill the whole body of the glass, and even circulate to the bottom of the liquor, and at others it will only reach a little way down its neck. The great caution to be used in this experiment is the making the matter of a proper heat; for, if too cold, few vapours will arise, and if made too hot, they will ascend too fast, and will only take fire in the neck of the glass, without any remarkable *coruscation*.

CORUSCATULA, in *Natural History*, a name given by Mr. Lhuyd to a species of *fossile* PLANT of the fern-kind, which that gentleman happened to find covered with a shining or glossy coat.

CORVUS, in *Ornithology*, the *crow*, or *raven*. In the Linnæan system of *Zoology*, this makes a distinct genus of birds of the order of the *pica*, the distinguishing character of which are, that the bill is convex and sharp, the nostrils covered with recumbent bristles, the tongue cartilaginous and bifid, and the feet formed for walking. Of this genus are the CROW, RAVEN, JACK-DAW, &c.

CORVUS, in *Ichthyology*, a name given by Paulus Jovius to the *faber*, or DORÉE.

CORVUS, in *Antiquity*, a machine invented by the Romans at the time of their wars in Sicily, when they first engaged the Carthaginian fleet. According to Polybius, the *corvus* was framed after this manner.

On the prow of their ships they erected a round piece of timber about a foot and a half in diameter, and twelve feet in length, on the top of which was a block, or pulley; round this piece of timber was a platform of boards, four feet in length, which was about eighteen feet long, and well framed and fastened with iron; the entrance was longways, and it was moveable round the aforesaid upright piece of timber, and could also be hoisted up and down within six feet of the top: about this frame was a fort of parapet, knee high, which was defended with upright bars of iron, sharp at the ends, and towards the top there was a ring, by the help of which, and a pulley, or tackle, it was hoisted and lowered at pleasure; with this moveable gallery, they boarded the enemies ship (when they did not lie side by side) sometimes on their bow, and sometimes on the after-part of the ship; the soldiers keeping the bos's of their bucklers level with the top of the parapet, &c. and by the means of this new engine got a victory over the Carthaginians in their first sea-fight with them, though the enemy were long before well skilled in naval affairs, and the Romans raw and ignorant.

CORVUS, *Raven*, in *Astronomy*, a constellation of the southern hemisphere; whose stars in Ptolemy's Catalogue are 7; in Tycho's as many; in the Britannic Catalogue 9. The order, names, longitudes, latitudes, magnitudes, &c. whereof are as follow.

Names and situations of the stars.	Bayer's Char.	Signs	Longitud.	Latitude.		Magnitude.
			° ′	° ′		
That in the beak	α	♎	7 55	21	44 20	4
In the neck nigh the head	ι		7 21	58	19 39 41	4
Small one following these			8 0	25	20 27 45	6
In the preceding wing	γ	♏	6 25	58	14 29 0	3
In the breast	ζ		9 29	58	18 16 40	5
5.						
Preced. of two in the hind wing	β		11 16	15	20 25 42	6
Subseq.	ε		9 9	15	12 9 47	3
In the foot, common with *Hydra*	δ	♌	9 31	7	12 39 55	5
			13 5	25	18 1 40	5

CORVUS *aquaticus*, *Pelecanus carbo* of Linnæus, in *Zoology*, the name given by authors to the bird commonly known by the name of the *cormorant*, or *corvorant*, on account of its voraciousness, which is owing to a great quantity of small worms filling its intestines, and causing a very sudden digestion. This bird has a rank smell, disagreeable form, and hoarse croaking voice. It is of the size of a goose, and is of a very deep dusky brown on the back, with some admixture of a greenish gloss, and white on the belly and breast. It builds not only among rocks, but often also on trees. These birds have been trained to fish, and are used by the Chinese for this purpose. *Tab. of Birds*, N° 9.

CORVUS *aquaticus*, the *water-raven*, is also a name given by some authors to the ACACALOTL, a very beautiful Mexican water-bird, of a shining, greenish, blackish, and purplish hue. It feeds on fish, and is eaten, but is of a coarse and filthy taste.

CORVUS *aquaticus minor*, in *Ornithology*, a name by which Mr. Ray has very properly called a bird common on our northern coasts, and called there the SHAGGE, and in some places the *crane*, it being a genuine species of *cormorant*.

CORVUS *cornutus*, in *Ornithology*, a name by which some have called the Indian raven, with the horned beak, more usually called the RHINOCEROS-*bird*.

CORVUS *fluviatilis*, the *river-raven*, a name given by some writers to a very remarkable bird of the Philippine islands resembling the common raven, but being of the amphibious kind. It is called in the language of the place *sassi*, or COLOCOLO.

CORVUS *Indicus*, in *Ornithology*, the name of a bird of the raven kind, very common in the Molucca islands, very large, and armed with a very strong beak and claws; it does not feed on carrion, as our raven, but eats the nutmegs, and does vast damage, in destroying that fruit. Its flesh is very delicate, and has plainly the aromatic flavour of its food. Ray's Ornithol. p. 86.

CORVUS *sylvaticus*, the *wood-raven*, in *Ornithology*, the name of a bird described by Gesner, and supposed by Mr. Willughby to be no other than the *coracias*, or *pyrrhocorax*; but, if rightly described, it differs essentially from that bird in size, and in having a crest on its head. Gesner says, it is of the size of the common hen; it appears at a distance of a deep black, but, when viewed nearer, and in the sunshine, it appears of a fine glossy green; its tail is short; its toes very long, and not webbed; and it has a crest on its head. It feeds on frogs, fish, and other small animals, and builds in the ruins of old buildings, and lays two or three eggs. They fly very high; the young ones are accounted a very well tasted food. Ray's Ornithol. p. 366.

CORVUS *piscis*, the *crow-fish*, a river-fish of the CHUB-*kind*, common in Italy, and in some parts of Germany, and called by Gesner, *capite fluviatilis rapax*, and by the common people *roppe*. It seldom grows to more than six or seven pounds weight; it is an extremely rapacious fish, not less so than the pike, and very frequently chases its prey so hard as to drive them out upon the bank, and, in that case, he usually follows them also, and both are frequently taken, stranded together. It is caught at all seasons of the year, but never in any great abundance: it is esteemed a very delicate fish. Gesner de Pisc. p. 1267.

CORYBANTES, in *Antiquity*, priests of Cybele, who danced and capered to the sound of flutes and drums. See CROTALUM. Horace, lib. i. ode 16. ver. 8.

Catullus, in his poem called Atys, gives a beautiful description of them; representing them as madmen. Accordingly Maximus Tyrius says, that those possessed with the spirit of *Corybantes*, as soon as they heard the sound of a flute, were seized with an enthusiasm, and lost the use of their reason. And hence, the Greeks use the word κορυβαντιᾶν, *to corybantize*, to signify a person's being transported, or possessed with a devil. See ENTHUSIASM.

Some say, that the *Corybantes* were all eunuchs; and that it is on this account Catullus, in his Atys, always uses feminine epithets and relatives in speaking of them.

Diodorus Siculus remarks, that Corybas, son of Jason and Cybele, passing into Phrygia with his uncle Dardanus, there instituted the worship of the mother of the gods, and gave his own name to the priests. Strabo relates it as the opinion of some, that the *Corybantes* were children of Jupiter and Calliope, and the same with the *Cabiri*. Others say, the word had its origin from this, that the *Corybantes* always walked dancing (if the expression may be allowed) or tossing the head, κορυττοντες κάρηνον.

CORYBANTICA, a festival held in Crete, in memory of the *Corybantes*, who educated Jupiter when he was concealed in that island, from his father Saturn, who would have devoured him.

CORYCEUM, in *Antiquity*, that part of the *gymnasium*, where people undressed. It was otherwise called APODYTERION.

CORYCUS, whence CORYCOMACHIA, among the Greeks, a kind of exercise with the hand-ball. The size of the ball, and the materials of which it was prepared, were adapted to the age and strength of those who used it. It was suspended from the ceiling, and thrown off with different degrees of force, so that on its return it might act with proportionable violence. It was recommended by the physicians as a salutary exercise. Hoffman.

CORYDALEPODIUM, in *Botany*, a name given by some authors to the *delphinium*, or *larkspur*.

CORYDALES, in *Botany*, an order of plants in the *fragmenta methodi naturalis* of Linnæus.

CORYDALIUM, or CORYDALIS, a name used by some authors for the *fumaria*, or *fumitory*, a red-flowered little plant, improperly called by some *moyweed*.

CORYLUS. See HAZLE.

CORYMBIFEROUS *plants*; these are distinguished into such as have a *radiate* flower: as, the flos solis, calendula, &c. and such as have a *naked* flower: as, the abrotanum fœmina, eupatorium, and artemisia; to which are added the *corymbiferis affines*, or those akin hereunto; such as scabious, dipsacus, carduus, and the like.

CORYMBIUM, in *Antiquity*, an ornament of hair worn by the women. Its form was that of a CORYMBUS.

CORYMBIUM, in *Botany*, a genus of plants of the *syngenesia monogamia* class: the calyx is prismatic, consisting of two leaves, and a single flower; the corolla is regular, and monopetalous. It contains one seed, crowned with wool-like down.

CORYMBUS, in the general, signifies the top or summit of any thing; but among the ancient botanists it was particularly used to express the bunches or clusters of ivy-berries, &c.

Some also call the top of the stalk of a plant, when so subdivided, and adorned with flowers or fruits, as to make a round spherical figure, by this name; as the tops of leeks, onions, and the like: others confound the word with *umbella*, which expresses the flowery tops of such plants as have their branches and flowers spread round, into the form of what the women now call an *umbrella*.

But among the modern botanists, *corymbus* is chiefly used for a compound discous flower, whose seeds are not pappous, or winged with down: such are the flowers of daisies, common marigold, &c.

Mr. Ray, therefore, makes a distinct genus of plants of such as have a compound discous flower, but without any downy wings to carry off their seeds.

CORYPHA, in *Botany*, a name by which Linnæus calls a genus of plants, of the class of *palmæ*, called *cadda panna* in the Hortus Malabaricus, the characters of which are these: the cup of the flower is the whole compound *spatha*; the flower is divided into three obtuse, oval segments, which stand in an expanded form; the stamina are six pointed filaments, which are longer than the flower, with antheræ growing to them; the germen of the pistil is roundish; the style is subulated and short; the stigma simple; the fruit is a large unilocular berry, containing a large hard seed.

CORYPHÆNA, in *Ichthyology*, the name of a genus of fish of the *malacopterygious* kind, of the *thoracic* order in the Linnæan system, the characters of which are these: the branchiostege membrane contains on each side five bones, besides two others which lie under the bony coverings of the gills, and cannot be seen. The fins are seven in number, one upon the back, reaching from the top of the head to the tail; the head is very obtuse at the end, or, as it were, perpendicularly declivious from the vertex to the mouth; the head and body are both somewhat compressed.

There are three species of this genus enumerated by Artedi, and twelve by Linnæus.

CORYPHÆUS, in the *Ancient Tragedy*, was the chief or leader of the company that composed the chorus.

The word is formed from κορυφη, *tip of the head*.

The *coryphæus* spoke for all the rest, whenever the chorus took part in the action, in quality of a person of the drama, during the course of the acts.

Hence *coryphæus* has passed into a general name for the chief or principal of any company, corporation, sect, opinion, &c.

Thus, Eustatius of Antioch is called the *coryphæus* of the council of Nice; and Cicero calls Zeno the *coryphæus* of the Stoics.

CORYPHE, in *Medical Writers*, is used for the crown of the head; as also for the interior extremity of the fingers next the nails.

CORYZA, in *Medicine*, a running at the nose; or a defluxion of sharp serous humours from the glands of the head; arising from a diminution of perspiration, or catching of cold.

Signs of a coryza. This disease is generally preceded by an itching, and by sneezing; sometimes by what is called a *gravedo*, a congestion of matter without excretion; this is followed by the excretion of a serous and viscous matter by the nostrils and mouth, and sometimes by the eyes; the more thin and acrid this matter is, the more severely it affects the part through which it is evacuated, so that sometimes it is attended with a sensation of pain and soreness in them.

Causes. The general causes of these defluxions, are the obstruction or suppression of natural or customary evacuations, the cold and moist temperature of the air, or a sudden chilling of the body in a hot and moist place: the leaving off a copious use of tobacco, and the abuse of snuff, or other sternutatory powders. To these are to be added, every thing that impedes natural perspiration, and sometimes suppressions of urine.

Prognostics. The simple *coryza* and *gravedo* are attended with no great danger, not even when they are of long standing, provided that the constitution be strong and healthy in other respects. But this is not the case in old and weak people; for in these, this continual defluxion upon the head too often brings on vertiginous complaints, and sometimes paralytic, and even apoplectic disorders, or else asthmas, and suffocative catarrhs, are the consequence: and if this matter, so copiously secreted from the blood, be thrown upon the lungs, it may occasion exulcerations, and even a true phthisis.

Method of cure. This is a disease which few people trouble a physician about, being usually left to nature; but it is, however, in the power of medicine to do great service, and, usually, wholly to remove the complaint; which, even where it is not attended with danger, is so far troublesome, as that any one would wish to be rid of it.

Proper evacuations, as bleeding, epispastics, sternutatories, &c. are usual in cases of *coryzas*.

When the defluxion is very violent, Stahl recommends the use of gentle diaphoretics, and of a powder composed of cinnabar, and a gentle opiate. In cases where the matter of a *coryza* is very acrid, and there is a violent pain in the head, the external use of camphor is of great service; it is in this case to be applied to the temples; and the patient should at the same time take internally powders compoled of nitre and the common absorbents, and diaphoretic antimony, and afterwards should take some gentle purges, and frequently bathe the feet in warm water. See INFANT.

COS, in *Medicine*. See WHETSTONE.

COS, *whetstone*, in *Natural History*, a genus of sand-stones, consisting of fragments of an indeterminate figure, subopake, and granulated. There are several species of this genus, which are used for MILL-stones, &c.

COSCINOMANCY, the art of divination, by means of a sieve.

The word comes from κοσκινον, *cribrum*, a *sieve*; and μαντεια, *divination*.

The sieve being suspended, after rehearsing a formula of words, it is taken between two fingers only; and the names of the parties suspected, repeated: he at whose name the sieve turns, trembles or shakes, is reputed guilty of the evil in question.

This must be a very ancient practice: Theocritus, in his third Idyllion, mentions a woman very skilful in it. It was sometimes also practised by suspending the sieve by a thread, or fixing it to the points of a pair of shears, giving it room to turn, and naming, as before, the parties suspected: in which last manner, *coscinomancy* is still practised in some parts of England. It appears from Theocritus, that it was not only used to find out persons unknown, but also to discover the secrets of those that were known.

COSCYLIUM, in *Natural History*, a name given by some of the old writers to the *hermes*, the true nature of which they did not know, but supposed it to be a sort of scabrous excrescence, formed of the abundant juices of the tree, and of the nature of the galla on the oak, and other trees.

CO-SECANT, in *Geometry*, the SECANT of an arch, which arch is the COMPLEMENT of another arch to 90 degrees.

COSENAGE, in *Law*, a writ that lies where the tresail, that is, the tritavus, the father of the besail, or great grandfather, being seized in fee at his death of certain lands or tenements, dies; a stranger enters and abates; then shall his heir have this writ of *cosenage*; the form of which see in Fitzh. Nat. Br. fol. 221.

COSENING, in *Law*, an offence whereby any thing is done deceitfully, in, or out of, contracts, which cannot be fully termed by any especial name. In the civil law, it is called *stellionatus*. See STELLIONATE.

COSHERING, in the *Feudal Customs*, a kind of right of the lords to lie, and feast themselves, and their followers, at their tenants houses.

We find this term in Harris's Lexicon Technicum, and in Jacobs's Law Dictionary, which laſt quotes Spelman of parliaments MSS. for it. The word *coſtering* may perhaps be derived from the old Engliſh *coſte*, a *coſt*, or *cottage*.

COSINE, is the right SINE of an arch, which is the complement of another to 90 degrees.

COSMETIC, from κοσμεω, *to adorn*, a term in *Phyſic*, uſed for any medicine, preparation, or means, employed to beautify and embelliſh the face, and preſerve or improve the complexion; as ceruſs, and the whole tribe of fucuſes, waſhes, cold creams, lip-ſalves, &c. See WATER.

The Indians uſe the water of green CACAO-nuts as a grand *coſmetic*, which wonderfully improves their complexion.

COSMICAL, ſomething that reſers, or has a relation to the world; in Greek κοσμικος.

COSMICAL *aſpect*, among *Aſtrologers*, is the ASPECT of a planet with reſpect to our earth.

COSMICAL *qualities* are uſed by Mr. Boyle in the ſame ſenſe with ſyſtematical ones.

Though, in conſidering the qualities of natural bodies, we uſually only take in the powers any particular one has of acting on, or its capacity of ſuffering from the action of, another, wherewith it is obſerved to have ſome manifeſt commerce, by a communication of impreſſions; yet there may be ſeveral alterations to which it may be liable, not barely on account of thoſe qualities preſumed to be evidently inherent in it, nor of the reſpects it bears to thoſe other particular bodies, whereto it ſeems manifeſtly related; there may be many unheeded agents which by unperceived means have great operations on the body we conſider, and work ſuch changes in it, as are not otherwiſe to be accounted for. And theſe are what Mr. Boyle calls *coſmical*, or *ſyſtematical qualities*.

To account for theſe *coſmical* qualities, the ſame author propoſes ſome *coſmical* ſuſpicions, as to ſome unobſerved laws and orders of nature; and refers them principally to the action of certain effluvia hitherto unobſerved.

COSMICAL is alſo uſed, in *Aſtronomy*, to expreſs one of the poetical riſings of a ſtar.

A ſtar is ſaid to riſe *coſmically*, when it riſes together with the ſun; or with that degree of the ecliptic wherein the ſun then abides.

Coſmical ſetting is, when a ſtar ſets and goes down in the weſt, at the ſame time the ſun riſes in the eaſt.

But, according to Kepler, to riſe or ſet *coſmically*, is only to aſcend above, or deſcend below, the horizon.

COSMOGONY, in *Phyſics*, ſignifies the ſcience of the formation of the univerſe. It is formed of κοσμος, *the world*, and γενομαι, *I am born*. It differs from *coſmography*, which is the ſcience of the parts of the univerſe, ſuppoſing it formed, and in the ſtate in which we behold it; and from *coſmology*, which reaſons on the actual and permanent ſtate of the world formed as it now is; whereas *coſmogony* reaſons on the variable ſtate of the world at the time of its formation. In our conjectures about the formation of the world there are two principles which we ought never to loſe ſight of. 1. That of *creation*; for certainly matter could not give itſelf exiſtence, it muſt have received it. 2. That of a *ſupreme* intelligence directing this *creation*, and the arrangement of the parts of matter, in conſequence of which this WORLD was formed.

COSMOGRAPHY, the deſcription of the world; or the art which teaches the conſtruction, figure, diſpoſition, and relation of all the parts of the world, with the manner of repreſenting them on a plane.

The word comes from κοσμος, *world*, and γραφω, *I deſcribe*.

Coſmography conſiſts chiefly of two parts. ASTRONOMY, which ſhews the ſtructure of the heavens, and the diſpoſition of the ſtars; and GEOGRAPHY, which ſhews thoſe of the earth.

COSMOLABE, from κοσμος, *world*, and λαμβανω, *I take*, an ancient mathematical inſtrument, ſerving to meaſure diſtances, both in the heavens, and on earth.

The *coſmolabe* is in great meaſure the ſame with the aſtrolabe. It is alſo called *pantacoſm*, or the *univerſal inſtrument*, by L. Morgard, in a treatiſe written expreſly upon it, printed in 1692.

COSMOLOGY, from κοσμος, *world*, and λογος, *diſcourſe*, the ſcience of the world in general. This Wolfius calls *general*, or *tranſcendental coſmology*, and has written a treatiſe on the ſubject, wherein he endeavours to explain how the world ariſes from ſimple ſubſtances; and treats of the general principles of the modifications of material things, of the elements of bodies, of the laws of motion, of the perfection of the world, and of the order and courſe of nature. Wolf. Coſmologia Generalis, Francfort, & Leipſic, 1731. 4to.

COSMOPOLITE, or COSMOPOLITAN, a term ſometimes uſed to ſignify a perſon who has no fixed living, or place of abode; or a man who is a ſtranger no-where.

The word comes from κοσμος, *mundus*, and πολις, *city*.

One of the ancient philoſophers being interrogated what countryman he was, anſwered he was a *coſmopolite*, i. e. *an inhabitant or citizen of the world*. "I prefer, ſays another philoſopher, my family to myſelf, my country to my family, and the human kind to my country."

COSSART, or *Coſſet Lamb*, in *Huſbandry*, is a lamb left by its dam's dying, before it is capable of ſhifting for itſelf: or a lamb taken from an ewe that brings ſeveral at a yeaning. The term is alſo applied to a colt, calf, &c.

COSSE *degeniſte*, an order of knighthood inſtituted in 1334, by Lewis IX. at his marriage with Margaret of Provence. The motto on the collar of this order was, *exaltat humiles*.

COSTA *canina*, in *Botany*, a name given by ſome authors to the *plantago quinquenervia*, or narrow-leaved plantain, commonly called *ribwort*.

COSTÆ, in *Anatomy*. See RIBS.

COSTAL, in *Anatomy*. There are eight VERTEBRÆ diſtinguiſhed by the name of *coſtales*, or *pleurites*; becauſe ſerving to articulate the *coſtæ*, or ribs, which are lined with the *pleura*.

Theſe *vertebræ* are the eight which follow the ſecond, called the *auricular*; and are therefore the third, fourth, fifth, and to the tenth incluſive.

COSTARUM *diſpoſitores proprii*, in *Anatomy*, a name given by Douglas, from Cowper, to what Albinus affirms to be only that part of the internal INTERCOSTAL muſcles which lie neareſt the ribs.

COSTARUM *levatores*, a name given by Steno, Morgagni, and others, to the muſcles of the ribs, called by Albinus the *levatores breviores coſtarum*, and by others the *ſuperiores coſtales*, the *ſurmoſtaux* of the French.

COSTEENING. See MINERALOGY.

COSTS, in *Law*, are *expenſæ litis*, recovered by the plaintiff in a ſuit, together with his damages: and if the plaintiff be nonſuited or overthrown by lawful trial in any action, the defendant ſhall have *coſts*. 4 Jac. I. cap. 3. Alſo putting off trials, inſufficient pleas, &c. on their amendment, are liable to *coſts*.

Coſts are allowed in chancery, for failing to make anſwer to a bill exhibited; or making an inſufficient anſwer: and if a firſt anſwer be certified by a maſter to be inſufficient, the defendant is to pay 40*s*. *coſts*; 3*l*. for a ſecond inſufficient anſwer; 4*l*. for a third, &c. But if the anſwer be reported good, the plaintiff ſhall pay the defendant 40*s*. *coſts*. An anſwer is not to be filed (until when it is not reputed an anſwer) until *coſts* for contempt in not anſwering, are paid. Pract. Attorn. 1 ed. p. 210. 212. If a plaintiff in chancery diſmiſſes his bill, or the defendant; or if a decree be obtained for the defendant, *coſts* are allowed, by ſtat. 4 and 5 Anne, c. 16.

COSTIVENESS, *obſtructio alvi*, in *Medicine*, a preternatural detention of the excrements, with an unuſual hardneſs and dryneſs thereof; and, thence, a difficulty of diſcharging them.

This is the oppoſite to a diarrhœa, or looſeneſs.

An *obſtructio alvi* is ſometimes idiopathic, where there is no other diſeaſe concurring to it; ſometimes it is ſymptomatic, and depends entirely on other diſeaſes, as on fevers, conteſtions, and the like.

COSTIVENESS, *ſigns of*. The firſt, and moſt obvious, of theſe is, the not going to ſtool in the ſpace of twenty-four hours; this is uſually ſucceeded by a dizzineſs, and vertiginous diſorder of the head, painful conteſtions of blood about the head, flatulencies, oppreſſion of the ſtomach, and ſtraitneſs and anxiety about the præcordia. Junker's Conſp. Med. p. 590.

COSTIVENESS, *perſons ſubject to*. Men of ſedentary, and idle lives, are more ſubject than others to this complaint, eſpecially when ſubject to commotions of the blood, and of a dry choleric temperament, and ſuch as are ſubject to hypochondriac affections, and to the gout, or to nephritic complaints, and to acute fevers.

COSTIVENESS, *cauſes of*. Theſe are obſerved by writers to be of two kinds, the active, and the paſſive. The active cauſe is a certain ſtructure which comes on in the rectum in many different diſorders; as in the ſtone, in nephritic complaints, and, in general, in all the conteſtions of blood towards the upper parts of the body. What is called the paſſive cauſe of *coſtiveneſs*, is that occaſioned by a ſort of ſluggiſhneſs in nature, which leaves the periſtaltic motion of the guts too languid, on occaſion of which the fæces are eaſily indurated in the bowels. The occaſional and accidental cauſes which contribute to this induration of the fæces are the following: a neglecting the uſual time of going to ſtool, and checking the natural tendencies and motions towards it; an extraordinary heat of the body, and copious ſweats; a larger quantity of ſolid food taken in the ſtomach than is proper for the

the quantity of fluids ſwallowed, and a common uſe of ſuch food as is dry and hard of digeſtion.

COSTIVENESS, *prognoſtics in.* It is the origin of a great many diſorders; and, in particular caſes, is often attended with imminent danger. In choleric habits, in which perſons are ſubject to large quantities of bilious matter being lodged in the *primæ viæ*, *coſtiveneſs* is uſually attended with colics, and violent heats. The indurated excrements alſo, when they preſs upon the veins in the guts, very often prevent the circulation, and, by that means, bring on dangerous inflammations in the parts; and, in general, whatever diſeaſe is attended with *coſtiveneſs*, is rendered worſe, and more violent by it.

COSTIVENESS, *method of treatment in.* An idiopathic *coſtiveneſs*, when grown into a habit by long ſufferance, is beſt cured by means of drinking more liquids than uſual, and giving the body a greater ſhare of motion, but this motion muſt, by no means, be violent, for that always increaſes the diſeaſe, but when placid and eaſy, it tends greatly to the reſtoring the periſtaltic motion of the bowels to its proper ſtate. To this it is to be added, that many people have reſtored themſelves from this diſtemperature to a good ſtate, only by going to the cloſe-ſtool every day, at a certain hour, and endeavouring for ſome time, but without great violence, to force a ſtool; the conſequence of a continual practice of this, for ſome weeks together, has brought nature to expect it, and, in fine, to be prepared for it, and always to have feces at the time ready to be diſcharged. The eating a ſmall piece of bread with a large quantity of butter ſpread over it every day before dinner and ſupper is alſo a good cuſtom; and purges taken every ſpring and autumn are a method of bringing nature into a proper courſe. When the caſe is violent, and calls for the aſſiſtance of medicine, there is always more benefit obtained from clyſters than from purging medicines given internally. Theſe laſt, when given, muſt never be violent.

In a ſymptomatic *coſtiveneſs*, the primary diſeaſe is always to be firſt regarded, and this is, generally, not a little relieved by a proper removal of the *coſtiveneſs*. In chronic caſes, the ſame rules are to be obſerved as in the cure of the idiopathic *coſtiveneſs*; but, in acute caſes, recourſe is to be had to clyſters, and large draughts of warm, and weak fluids, ſuch as barley-water, and the like.

When *coſtiveneſs* is attended with no other complaint, but people enjoy their perfect health with it, there is no occaſion for medicines, nature being in ſome conſtitutions habituated to it, and doing well with it. There are many perſons who, in general, do not go to ſtool oftner than once in three days; ſome once in a week; and there have been inſtances of people, who, while they have enjoyed a perfect health, and eat very heartily, have not gone above once in three or four weeks. When habitual *coſtiveneſs* is to be cured by motion, and drinking more fluids, theſe muſt be always uſed together; for otherwiſe drink alone more relaxes the bowels, and motion alone diſſipates the already too little humidity. Thus either of them alone muſt add to the diſeaſe, which, when given together, they cure. The common method of attempting to cure *coſtiveneſs* by repeated doſes of purges, brings on a great many inconveniencies, particularly they always leave the bowels more bound than before, and by that means add to the complaint they were meant to relieve; and even the gentleſt purging medicines have this effect. Junker's Conſp. Med. p. 391.

In caſes of this kind, Dr. Huxham recommends a medicine prepared with ſalt of hartſhorn, ſaturated with ſpirit of vinegar, which not only takes away the fœtid ſmell of the oil of the ſalt, but changes it into an agreeable aromatic. Obſ. de Aere, et Morb. epid.

COSTIVENESS, in infants. See INFANT.

COSTIVENESS, in *Farriery*, is alſo a diſeaſe to which horſes are ſubject, from violent exerciſe, or the want of exerciſe, and long feeding on hard meat. An opening diet, and lenitive mild purges, as of Glauber's ſalts, with lenitive electary, four ounces of each diſſolved in warm ale or water, repeated every other day, and ſcalded bran, are recommended. But a natural or habitual *coſtiveneſs*, which is not uncommon, is not ſo eaſily removed. In this caſe the following purge is recommended; viz. ſuccotrine aloes ſix drams, ſpermaceti half an ounce, fenugreek ſeed in powder two ounces; the whole is to be made into two balls, with a ſufficient quantity of honey or treacle, and given to the horſe in a morning faſting. Scalded barley ſhould alſo be uſed inſtead of bran, and the liquor given milk-warm for his drink. The above purge ſhould be repeated once in four days, till he has taken ſix doſes. Gibſon's Farriery, vol. ii. p. 134.

COSTMARY, in *Botony*. See TANSY.

COSTOHYOIDES, in *Anatomy*, a name given by Santorini to one of the muſcles of the mouth now generally called the *ceratohyoideus*.

COSTRANGULA, in *Botany*, a name uſed by ſome for the *ſcrophularia*, or *figwort*.

COSTUME. To obſerve the *coſtume*, among *Painters*, is to make every perſon and thing ſuſtain the proper character, by not only obſerving the ſtory, but the circumſtances, the ſcene of action, the country or place, habit, manners, &c.

The word is Italian, ſignifying *cuſtom*.

COSTUS, in *Botany*, a genus of the *monandria monogynia* claſs. Its characters are theſe: it hath a ſimple ſpadix and ſpatha, with a ſmall empalement, divided into three parts, ſitting on the germen: the flower hath three concave petals, which are erect and equal, with a large oblong nectarium of one leaf, having two lips; the upper is ſhorter, and turns to a ſtamen, which is faſtened to the upper lip of the nectarium. The germen is ſituated within the receptacle of the flower, and afterward becomes a roundiſh capſule with three cells, containing ſeveral triangular ſeeds. We know but one ſort of this plant, which is the Arabian *coſtus*. This has a fleſhy jointed root like that of ginger, and propagates under the ſurface as that doth.

The roots of this plant were formerly imported from India, and were much uſed in medicine; but of late years they have not been regarded, the roots of ginger being generally ſubſtituted for them.

Coſtus Arabicus is an attenuant, and ſudorific; it is given in obſtructions of the menſes, and chronic caſes, ariſing from inſarctions of the viſcera. Its doſe is from ten grains to half a dram, but is ſeldom preſcribed ſingly. Its chief uſe in medicine, is as an ingredient in Venice treacle.

The beſt is heavy, of a cineritious colour without, a reddiſh one within, difficult to break, of a ſtrong ſmell, and an aromatic taſte.

This root was formerly called *coſtus verus*, and was divided into two kinds, the *ſweet* and the *bitter coſtus*: both of which are now uncommon. M. Charas, and others, are of opinion, there is but one kind of *coſtus*, which proves more or leſs ſweet or bitter, according to the ſoil where it is produced, and the time in which it has been kept.

The root always contracts a bitterneſs, and grows darker coloured in keeping, though freſh it was pale and ſweet; and hence the ſuppoſed difference, the deſcriptions of authors agreeing alike to each in all but theſe accidents.

Mr. Geoffroy has obſerved that this root ſeems to be a ſpecies of elecampane; and that our common elecampane, when plump, well fed, and carefully dried, after it has been kept a long time, aſſumes exactly the ſmell of the *coſtus*, and wholly differs from the common elecampane roots ſold and uſed in the ſhops. Mem. Acad. Scienc. Par. 1740.

COSTUS *Indicus*, an American bark, called alſo *coſtus corticoſus*, *coſtus corticeus*, or *Winter's bark*. The iſlands of Madagaſcar in Africa, or Domingo and Gaudaloupe in America, are the places where the moſt and beſt is found.

CO-TANGENT, is the TANGENT of an arch, which is the complement of another arch to 90 degrees.

COTATUA, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands to a ſpecies of PARROT, called alſo *calangay*. It is all over white, and has a creſt of feathers on the head. It is of the bigneſs of a common pigeon.

COTATUA *major*, in *Ornithology*, is a very beautiful ſpecies of parrot, common in the woods of the Philippine iſlands. This is of the ſize of a common hen. It is all over white, except that its beak and legs are black; its tongue alſo is black. This is the moſt eaſily taught to talk of any of the parrot-kind, and when taught, ſpeaks the moſt diſtinctly of all the kinds.

COTÉ, a term uſed in courſing, to expreſs the advantage one greyhound has over another, when he runs by the ſide of it, and, putting before it, gives the hare a turn. See COURSING.

COTE-*gare*, a kind of refuſe wool, ſo clung or clotted together, that it cannot be pulled aſunder. By 13 Rich. II. ſtat. 1. c. 9. it is provided, that neither denizen nor foreigner make any other refuſe of wools but *cote-gare* and *villein*. So the printed ſtatute has it; but in the parliament-roll of that year, it is *cod-land* and *villein*. *Cot*, or *cote*, ſignifies as much as cottage in many places, and was ſo uſed by the Saxons, according to Verſtegan.

COTERELLUS, *Cotarius*, and *Cotterellus*, according to Spelman and Du Freſne, are ſervile tenants: but in Domeſday, and other ancient MSS. there appears a diſtinction, as well as in their tenure and quality, as in their name. For the *cotarius* hath a free ſocage tenure, and paid a ſtated firm or rent in proviſions or money, with ſome occaſional cuſtomary ſervices: whereas the *coterellus* ſeems

seems to have held in mere villenage, and his perſon, iſſue and goods, were diſpoſable at the pleaſure of the lord.

COTERIE, a term adopted from the French trading aſſociations or partnerſhips, where each perſon advances his quota of ſtock, and receives his proportion of gain; and which retains its original meaning, when applied to little aſſemblies or companies aſſociated for mirth and good humour; where each one furniſhes his quota of pleaſantry. Here they coin new words not underſtood elſewhere, but which it becomes faſhionable for others to uſe; and they are thought ridiculous who are ignorant of them. It has been uſed of late to ſignify a club of ladies.

COTESIAN *theorem*, in *Geometry*, an appellation uſed for an elegant property of the circle diſcovered by Mr. Cotes. The theorem is:

If the factors of the binomial $a^n \pm x^n$ be required, the index n being any integer: let the circumference ABCD, (*Tab.* II. *Aniſeit, fig.* 42 and 43.) the centre of which is O, be divided into $2n$ many equal parts as there are units in $2n$; and from all the diviſions let there be drawn to any point P in the radius O A, produced if neceſſary, the right lines AP, BP, CP, DP, EP, FP, &c. then ſuppoſing $OA = a$, $OP = x$, the product of all the lines AP, CP, EP, &c. taken from the alternate diviſions throughout the whole circumference, will be equal to $a^n - x^n$ or $x^n - a^n$ according as the point P is within or without the circle; and the product of the reſt of the lines BP, DP, FP, in the remaining alternate places will be equal to $a^n + x^n$.

For inſtance, if $n = 5$, let the circumference be divided into 10 equal parts, and the point P be within the circle, then will $AP \times CP \times EP \times GP \times IP$ be equal $\overline{OA}^5 - \overline{OP}^5$, and $BP \times DP \times FP \times HP \times KP = \overline{OA}^5 + \overline{OP}^5$. In like manner if n be $= 6$, having divided the circumference into twelve equal parts, $AP \times CP \times EP \times GP \times IP \times LP$ will be equal to $\overline{OA}^6 - \overline{OP}^6$, and $BP \times DP \times FP \times HP \times KP \times MP = \overline{OA}^6 + \overline{OP}^6$.

The demonſtration of this theorem may be ſeen in Dr. Pemberton's Epiſt. de Cotesii inventis.

By means of this theorem the acute and elegant author was enabled to make a farther progreſs in the inverſe method of fluxions than had been done before. But in the application of his diſcovery there ſtill remained a limitation, which was removed by *Mr.* de Moivre. See Dr. Smith's Theoremata Logometrica & Trigonometrica, added to Cotes's Harmonia Menſuratum, p. 114, 115. De Moivre, Miſcel. Analyt. p. 17.

COTESWOLD, ſeveral ſheep-cotes, and ſheep feeding on hills. It comes from the Saxon *cote*, i. e. *caſa*, a *cottage*, and *wold*, a place where there is no wood.

COTHURNUS, *buſkin*, a very high ſhoe, or patten, raiſed on ſoles of cork; worn by the antient actors in tragedy, to make them appear taller, and more like the heroes they repreſented; moſt of whom were ſuppoſed to be giants. See BUSKIN.

COTICE, or COTISE, in *Heraldry*, is the fourth part of the bend; which, with us, is ſeldom or ever borne but in couples, with a bend between them; whence, probably, the name from the French *cote*, *ſide*; they being borne, as it were, a-ſide of the BEND.

A bend thus bordered is ſaid to be *cotiſed*, *cotiſe*.—He bears ſable on a bend *cotiſed* argent three cinquefoils. See *Tab.* II. *Heraldry, fig.* 61.

COTICULA, in the *Natural Hiſtory of the Antients*, the word by which the Romans expreſſed the *μυρμηξ* of the Greeks; a ſtone of very great hardneſs, brought from Armenia, and uſed on many occaſions; one of which was the working on ſuch of the harder ſtones as iron inſtruments would not touch.

Many of the antient Greeks, who had this ſtone from the iſland of Cyprus, called it, from its hardneſs, by the ſame name with the diamond, as they ſometimes did iron alſo; which manner of writing has much miſled thoſe who have copied too carelеſly from them; and even Pliny, who, after having in one part of his book given a right account of this ſtone, and called it *cos*, in another gives a different hiſtory of it, miſtaking it for a diamond.

This *coticula* was long in great eſteem with the antient artificers on gems, and ſerved not only to work upon ſuch of the gems as iron could not touch, but was uſed to bore holes through ſuch as they ſtrung on threads, and hung in rows in their ornaments of the bracelet-kind. And Pliny's account of the other gems being bored with Cyprian diamonds, means no more, than that they were worked with this *coticula*, which was anciently had from the iſland of Cyprus, and afterwards from Armenia, and was called by ſome, in a metaphorical ſenſe, *adamas*, from its great hardneſs.

COTICULA is alſo a name given by many to the touch-ſtone; not from its being of the nature of the *coticula* of the Romans, but from its being, for the convenience of carriage and uſe, frequently found in the ſhape of a whet-ſtone.

COTILLON, the name of a well-known briſk-dance, in which eight perſons are employed. The term is French, and ſignifies an *under-petticoat*.

COTINUS was uſed by the ancients for the olive-tree, eſpecially the *olea ſylveſtris*, or wild olive, which is called *κοτινος* by the Greeks. To diſtinguiſh this from the ſhrub uſed in dyeing, and called by the ſame name, the Latins have added the epithet *cocciaria* to this laſt: but as this is often omitted, ſome confuſion has been occaſioned by that omiſſion. The *cotinus* of the Latins, or *cotinus coccigria*, is at preſent called by the Italians *ſcotano*, and is ſuppoſed by ſome to be the ſame with the SCYTHICUM *lignum*, but improperly.

COTONASTER, in *Botany*, a name given by ſeveral authors to a ſpecies of the *crataegus*, called by Mr. Tournefort the CRATAEGUS with oblong ſerrated leaves, green on both ſides.

COTT, in *Sea Language*, a ſort of bed-frame, ſuſpended from the beams of a ſhip, in which the officers ſleep between the decks. It is about ſix feet long, one foot deep, and between two and three feet wide. See HAMMOCK.

COTTAGE, *cottagium*, is properly a little houſe for habitation, without lands belonging to it. Stat. 4 Edw. I. But by a later ſtatute, 31 Eliz. c. 7. no man may build a *cottage*, unleſs he lay four acres of land thereto; except it be in market-towns or cities, or within a mile of the ſea, or for the habitation of labourers in mines, ſailors, foreſters, ſhepherds, &c. and *cottages* erected by order of juſtices of peace, for poor impotent people are excepted out of the ſtatute. The four acres of land to make it a *cottage* within the law, are to be freehold, and land of inheritance; and four acres holden by copy, or for life or lives, or for any number of years, will not be ſufficient to make a lawful *cottage*.

COTTON, *Goſſypium*, in *Botany*, a genus of the *monadelphia polyandria* claſs. Its characters are theſe: the flower has a double empalement, with five plain heart-ſhaped petals, which join at their baſe, and a great number of ſtamina joined at bottom in a column, and inſerted into the petals; it hath a round germen, ſupporting four ſtyles, joined in the column; the germen afterward becomes a roundiſh capſule, ending in a point, having four cells, which are filled with oval ſeeds wrapped up in down.

There are ſeveral varieties, and not a few diſtinct ſpecies of this plant, propagated in the gardens of the curious with us.

The moſt common ſpecies, which is *ſylan herbaceum*, or *herby cotton*, is cultivated very plentifully in Candia, Lemnos, Cyprus, Malta, Sicily, Naples, and alſo between Jeruſalem and Damaſcus, from whence the *cotton* is annually brought in large quantities to us in the northern parts of Europe. It is ſowed on plowed lands in ſpring, and is cut down as our corn in harveſt-time, being an annual plant.

The *cotton* is a woolly or downy ſubſtance, which incloſes the ſeed, and which is contained in a brown huſk or ſeed-veſſel. It is from this plant that moſt of the *cotton* we uſe is produced, the diffeſtence of the ſeveral ſorts of it being owing to the different ſoil and climates it has grown in, and the different culture it has received.

The *cotton* in the wool, as it is uſually called, is, what we have from Cyprus. Damaſcus *cotton* is called *cotton in* the yarn; and the Jeruſalem *cotton*, which are called *bonas*, are the fineſt kinds of all. There is alſo a ſilky *cotton* in the Antilles, called the white *cotton* of Siam, becauſe the grain was brought from thence. This is very fine and ſoft; and the huſk made of it exceeded thoſe of ſilk in luſtre and beauty.

All the kinds of *cotton* plants are propagated with us from ſeeds, which muſt be ſown on a hot-bed early in the ſpring: and when the young plants are come up, they ſhould be tranſplanted each into a ſeparate pot of light earth, which is to be plunged into a moderate hot-bed of tanners bark, obſerving to water and ſhade them till they have taken root; after this they ſhould be watered at times, and have as much air as the ſeaſon will permit. As they enlarge in ſize, they muſt be ſhifted into larger pots; but they muſt be kept in the ſtove, where the herbaceous kinds will annually flower in autumn; but they will ſeldom bring their pods to any perfection.

One ſort of *cotton* is a native of the Eaſt and Weſt Indies.

This is an annual plant, which perishes soon after the seeds are ripe. The staple of this is much finer than either of the other species; and is therefore well worth the attention of the British colonies in America, to cultivate and improve; since it will succeed in Carolina, where it has grown for some years. It might be a commodity worthy of encouragement by the public, could they contrive a proper gin to separate the *cotton* from the seeds, to which this sort adheres much closer than any of the other sorts. The *cotton* of this shrub is preferable to any other yet known. Miller's Gard. Dict.

The seed of the *cotton* being mixed in the fruit, together with the *cotton* itself, they have invented little machines, which being played by the motion of a wheel, the *cotton* falls on one side, and the seed on the other; and thus they are separated.

Cotton makes a very considerable article of commerce: it is distinguished into *cotton in the wool*, and *spun-cotton*. The first used for various purposes, is to be put between two stuffs, in quilts, night-gowns, &c. but it is the latter which is more general; furnishing various cloths, muslins, callicoes, dimmities, and hangings; besides that it is frequently joined with silk and flax, in the composition of other stuffs.

The first kind is ordinarily brought from Cyprus and Smyrna: near Smyrna its produce is greater than any where else. There are ordinarily brought from Smyrna ten thousand bales of *cotton* per annum, and yet there is, at least, as much more spent in the manufactures of the country.

As to the spun *cottons*, they are distinguished by various names: besides those from Jerusalem, called *bozzas*, and those of Damascus, called *cottons of the* OUNCE, already mentioned, there are others called *demi-bozzas*, *baladins*, *payas*, *cottons jaffeh*, *yanguasse*, &c.

Cotton anciently only grew in Egypt, and was used by the priests and sacrificers for a very singular kind of gowns, worn by them alone.

Cotton applied to wounds in lieu of linen, produces an inflammation. Leeuwenhoek, examining into the reasons of this with a microscope, found its fibres to have each two flat sides; whence he concludes, that each of its minute parts must have two acute angles, or edges; which acute edges being not only thinner and more subtile than the globules whereof the fleshy filaments consist, but also more firm and stiff than any of the globulous flesh; it follows, that upon the application of *cotton* to a wound, its edges must not only hurt and wound the globules of the flesh, but also cut incessantly the new matter brought to them to produce new flesh, and that with more ease, as this matter, not having attained the firmness and consistence of flesh, is the less able to resist its attacks: whereas the linen ordinarily used in wounds, being composed of little round parts, very close to each other, forms large masses, and is thus incapable of hurting the globous parts of the flesh.

COTTON-*grass*. See ERIOPHORUM.

COTTON-*lavender*. See LAVENDER-*cotton*.

COTTON-*paper*. See PAPER.

COTTON, *philosophical*, a name given by some chemical writers to the flowers of zinc, from their whiteness, and silky or cottony appearance.

COTTON-*tree*, *silk*. See BOMBAX.

COTTON-*weed*. See CUDWEED.

COTTONIAN *Library*, consisting of curious manuscripts, &c. was founded by sir Robert Cotton, who was forty years in collecting it: and at his death in 1631, left the property of it to his family, though designed for public use. A large accession was made to this library by private benefactions before the death of the founder, and afterwards by the purchasers of his heirs, and donations of others, who added to it a great number of books, chiefly relating to the history and antiquities of our own nation. An act of parliament was obtained, at the request of sir John Cotton, in 1700, for preserving it after his decease, under the above denomination, for public use. It is now fixed in the British Museum. For statutes relating to it, see 12 and 13 W. III. c. 5. and 5 Anne, cap. 30.

COTTUS, *in Ichthyology*, the name of a genus of the acanthopterygious fishes, the characters of which are these: the branchiostege membrane on each side contains six very distinct bones: the head is broader than the body, and is depressed and prickly; there are two fins on the back; the foremost has several sextile prickles in it. The fins of the belly are small, and have only four bones in each, and the skin of the whole fish is smooth, not scaly. The species of this genus are three; one of which is the little fish known by the name of the miller's thumb. Artedi Gen. Pisc. 34. See DRACO *Marinus*.

COTULA. See CHAMOMILE.

COTULA *fœtida*, in *Botany*, a name given by some to the stinking CHAMOMILE.

The *cotula fœtida* has all the virtues of caffor, but in a more remiss degree. A decoction of it, when carefully dried, is of great use in all disorders of the hysteric kind. It is also used externally, by way of fomentation, in pains and tumors. Some also use the expressed juice of the fresh leaves, as a remedy in scrophulous cases. The flowers have much the same virtues as those of the common chamomile.

COTYLA, or COTULA, a liquid MEASURE in use among the ancients, equal to the Roman semi-sextary.

Savot adds, that the Roman *cotyla* contained twelve ounces of any liquor: upon which principle there must have been as many *cotylæ* as there were liquors ordinarily sold; which is nothing strange, since, in several countries, we still find measures of different capacity, called by the same name, when they contain the same weights, though under different barks.

Fannius says, the *cotyla* was the same thing with the hemina, which was half a sextary.

At cotylas, autor, si placeat, dixisse licebit
Heminas, recepit geminas sextarius unus.

Chorier observes, that the *cotyla* was used as a dry measure, as well as a liquid one; from the authority of Thucydides, who in one place mentions two *cotylæ* of wine, and in another two *cotylæ* of bread.

COTYLA, or COTYLE, or COTYLOIDES, in *Anatomy*, is a name given the cavities at the extremities of large bones, encompassed with thick strong edges, which receive the heads, or apophyses of other bones articulated with them.

Such is the cavity in the *ischion*, or hip-bone, which receives the head of the BONE of the thigh. It is also called *acetabulum*, i. e. *cup*.

COTYLEDON, in *Botany*, a name by which some authors called the *umbilicus veneris*, or NAVEL *wort*, a round-leaved plant, found on old walls.

COTYLEDONES, in *Anatomy*, little glands dispersed throughout the outermost membrane of the fœtus, called *chorion*, and supposed to separate a nutritious juice for the subsistence of the fœtus.

Cotyledones, in this sense, are only found in sheep, goats, and some other animals; the PLACENTA in the womb supplying the place thereof in women.

Other authors use *cotyledones* for the apertures of the veins in the inner surface of the womb. See MATRIX.

COTYLISCUS, or COTYLUS, in *Antiquity*, a vessel with a narrow mouth, a very wide belly, and only one handle.

COTYTTIA, or COTYTTIS, in *Antiquity*, a nocturnal festival, in honour of *Cotys*, or *Cotytto*, the goddess of wantonness. They passed from Thrace to Athens, where they were introduced by Alcibiades.

COVALAM, in *Botany*, the name of a plant which grows in the East Indies, otherwise called *cucurbitifera trifolia*, *Indica fructus pisi& cydonii æmula*. *Cydonia exotica*. C. B. This is a tall tree which grows in Malabar, and the island of Ceylon, the fruit of which resembles a round apple in shape; it is covered with a greenish thin rind, under which lies another, which is hard and woody, enclosing a viscid, yellowish, moist substance, of a sweetish acid taste, in which are placed flat, oblong, white seeds, turgid, with a gummy pellucid juice.

The fruit, while tender, is preserved in sugar or vinegar; when ripe, they are eaten by the inhabitants of the country; while unripe they stop a diarrhœa, or dysentery. A decoction is prepared of the bark and small roots with common water, which cures hypochondriac melancholy, palpitations of the heart, and faintings. An electary made of the bark in powder, with honey, promotes digestion, takes away head-achs and vertigos. A decoction of the leaves cures an asthma; from the flowers a water is distilled, possessed of cardiac and alexipharmic virtues. James.

COUARD, in *Heraldry*. See COWARD.

COUCH, in *Heraldry*, a term used to express the shield of a coat of arms, when it does not stand erect, but hangs downward. The origin of this position of the shield seems to have been, that the persons who were to fight in tournaments were compelled, from the time when proclamation was made, till the day of fighting, to hang up their shields, by one corner, from the windows or balconies of the neighbouring houses, or on the trees or barriers of the ground, if the exercise was performed in the fields. The horse combatants hung up their shields by the left corner, and the foot combatants by the right. Hence the left corner hanging became the most honourable; and we see, in all the sons of the royal blood of England and Scotland, that the shields with their arms all hang that way. Some writers on heraldry express this disposition by the word *pendant*.

COUCH, in *Gaming*. See BASSET.

COUCH, in *Malting*. See WET-*couch*.

COUCH, *in Painting*, denotes a lay, or impreſſion of colour, whether in oil or water, wherewith the painter covers his canvas, wall, wainſcot, or other matter to be painted.

The word is alſo uſed for a lay or impreſſion on any thing, to make it more firm and conſiſtent, or to ſcreen it from the weather.

Paintings are covered with a *couch* of varniſh; a canvas to be painted muſt firſt have two *couches* of ſize, before the colours be laid; two or three *couches* of white lead are laid on wood, before the *couch* of gold be applied: the leather-gilders lay a *couch* of water and whites of eggs, on the leather, before they apply the gold or ſilver leaf.

The gold wire-drawers alſo uſe the word *couch* for the gold or ſilver leaf wherewith they cover the maſs to be gilded or ſilvered, before they draw it through the iron that is to give it its proper thickneſs.

The gilders uſe *couch* for the quantity of gold or ſilver leaves applied on the metals in gilding or ſilvering. Each *couch* of gold is but one leaf, or two at moſt, and each of ſilver three, to gild: if the gilding be hatched, there are required from eight to twelve *couches*; and only three or four, if it be without hatching. To ſilver there are required from four to ten *couches*, according to the beauty of the work.

COUCH-*graſs*. See GRASS.

COUCHANT, in *Heraldry*, is underſtood of a lion, or other beaſt, when lying down; but with his head lifted up; which diſtinguiſhes the poſture of *couchant* from *dormant*, wherein he is ſuppoſed quite ſtretched out, and aſleep.

COUCHANT and *Levant*, in *Law*. See LEVANT.

COUCHE, in *Heraldry*, denotes any thing laid all along: thus, a *chevron couché* is a chevron lying ſidewiſe with the two ends on one ſide of the ſhield, which ſhould properly reſt on the baſe.

COUCHER, or COURCHER, in our *Statutes*, is uſed for a factor, or one that continues in ſome place or country for traffic: as formerly in Gaſcoign, for the buying of wines. Anno 37 Edw. III. c. 16.

COUCHER is alſo uſed for the general book, in which any religious houſe or corporation regiſter their particular acts. Anno 3 & 4 Edw. VI. c. 10.

COUCHING *of cataracts*. See CATARACT.

COUCHING-*needle*. See NEEDLE.

COU-DOU, or CU-DU, in *Zoology*, a ſpecies of BEER ſo called at the Cape of Good Hope. It is diſtinguiſhed by the length of its body, which is diſproportioned to its height; the delicate ſlenderneſs of its limbs; the uncommon ſtateline's and beauty of its horns, which are ſmooth, hollow, and as beautifully tranſparent as tortoiſe-ſhell; the ſtripes of white upon its ſkin; a black horny ſubſtance in its upper jaw, inſtead of teeth; a ſtripe of hair paſſing from the midſt of the horns to the tail, which is white from the ſhoulder downwards; and a tuft of hair reaching from the neck to the breaſt. There are alſo animals of the ſame name, though different from each other, in Aſia and America.

COVE, a ſmall creek or bay, where boats and ſmall veſſels may ride at anchor, ſheltered from the wind and ſea.

COVENANT, the conſent or agreement of two or more parties to do or perform ſomething.

A covenant ſeems to be much the ſame with a *pactum*, or *conventum*, among the civilians.

Covenant is either *in law* or *in fact*.

COVENANT, in *Law*, is that which the law intends to be made, though it be not expreſſed in terms: as, if the leſſor demiſe, and grant a tenement to the leſſee for a certain term; the law intends a *covenant* on the leſſor's part, that the leſſee ſhall, during the term, quietly enjoy the leaſe againſt all lawful incumbrances.

COVENANT *in fact*, is that which is expreſsly agreed between the parties.

There is alſo a *covenant merely perſonal*, and a *covenant real*. Fitzherbert defines a COVENANT *real* to be that whereby a man ties himſelf to paſs a thing real, as lands or tenements, or to levy a fine on lands, &c.

COVENANT *merely perſonal*, is where a man covenants with another by deed to build him a houſe, or to ſerve him, &c.

COVENANT *to ſtand ſeiſed to uſes*, is when a man that hath a wife, children, brother, ſiſter, or kindred, doth by *covenant* in writing under hand and ſeal, agree that for theſe, or any of their proviſion or preferment, he and his heirs will ſtand ſeiſed of land to their uſe, either in fee-ſimple, fee-tail, or for life. The uſe being created by the ſtat. 27 Hen. I. c. 10. which conveyeth the eſtate, as the uſes are directed; this *covenant to ſtand ſeiſed* is become a conveyance of the land ſince the ſaid ſtatute. The conſiderations of theſe deeds are, natural affection, marriage, &c. and the law allows in ſuch caſes, conſiderations of blood and marriage to raiſe uſes, as well as money and other valuable conſideration when a uſe is to a ſtranger.

COVENANT, in *Eccleſiaſtical Hiſtory*, denotes a contract or convention agreed to by the Scotch in the year 1638, for maintaining their religion free from innovation. In 1581, the general aſſembly of Scotland drew up a confeſſion of faith, or national *covenant*, condemning epiſcopal government, under the name of Hierarchy, which was ſigned by James I. and which he enjoined on all his ſubjects. It was again ſubſcribed in 1590 and 1596. The ſubſcription was renewed in 1638, and the ſubſcribers engaged by oath to maintain religion in the ſame ſtate as it was in 1580, and to reject all innovations introduced ſince that time. This oath annexed to the confeſſion of faith received the name of the *covenant*, as thoſe who ſubſcribed it were called Covenanters.

COVENANT, in *Theology*, is much uſed in connection with other terms. Thus, the *covenant of grace* is that which is made between God and thoſe who believe the Goſpel, whereby they declare their ſubjection to him, and he declares his acceptance of them and favour to them. The Goſpel is ſometimes denominated a *covenant of grace*, in oppoſition to the Moſaic law.

Covenant of redemption denotes, a mutual ſtipulation, tacit or expreſs, between Chriſt and the Father, relating to the redemption of ſinners by him, previous to any act on Chriſt's part under the character of Mediator.

Covenant of works ſignifies, in the language of ſome divines, any *covenant* whereby God requires perfect obedience from his creatures, in ſuch a manner as to make no expreſs proviſion for the pardon of offences to be committed againſt the precepts of it, on the repentance of ſuch ſuppoſed offenders, but pronounces a ſentence of death upon them: ſuch, they ſay, was the *covenant* made with Adam in a ſtate of innocence, and that made with Iſrael at Mount Sinai.

COVENANT, *Solemn League and*, was eſtabliſhed in the year 1643, and formed a bond of union between Scotland and England. It was ſworn and ſubſcribed by many in both nations, who hereby ſolemnly abjured popery and prelacy, and combined together for their mutual defence. It was approved by the parliament and aſſembly at Weſtminſter, and ratified by the general aſſembly of Scotland in 1645. King Charles II. diſapproved of it, when he ſurrendered himſelf to the Scots army in 1646: but in 1650 he declared his approbation both of this and the national *covenant* by a ſolemn oath; and in Auguſt of the ſame year, made a farther declaration at Dunfermling to the ſame purpoſe, which was alſo renewed on occaſion of his coronation at Scone in 1651. The *covenant* was ratified by parliament in this year, and the ſubſcription of it required by every member, without which the conſtitution of the parliament was declared null and void. It produced a ſeries of diſtractions in the ſubſequent hiſtory of that country, and was voted illegal by parliament, and proviſion made againſt it. Stat. 14 Car. II. *c.* 4.

COVENANT-*Suit*. See SUIT.

COVENANT, *Ark of the*. See ARK.

COVENTRY *bells*. See CAMPANULA.

COVERED *Flank, Fountain, Medals*. See FLANK, FOUNTAIN, MEDAL.

COVERING, in *Architecture*, one of the principal parts of a building. See ROOFING.

COVERING, *in Painting*. See BODY.

CO-VERSED *ſine*, a term which ſome people uſe for the remaining part of the diameter of a circle, after the VERSED SINE is taken from it.

COVERT in *Law*.—*Feme* COVERT denotes a woman married, and ſo *covered* by, or under the protection of, her huſband.

COVERT-*way*, in *Fortification*, a ſpace of ground level with the adjoining country, on the edge of the ditch, ranging quite round the half moons, and other works without-ſide the ditch. See *Tab. Fortification, fig.* 21. *lit. b b*, &c. See GLACIS.

It is otherwiſe called *corridor*, and hath a parapet together with its banquette, and glacis, which form the height of the parapet.

One of the greateſt difficulties in a ſiege, is to make a lodgment on the *covert-way*; becauſe, uſually, the beſieged paliſade it along the middle, and undermine it on all ſides.

This is ſometimes alſo called the *counterſcarp*, becauſe it is on the edge of the ſcarp.

COVERTURE, in *Law*, is particularly applied to the ſtate and condition of a married woman; who, by the laws of our realm, is under *covert-baron, or ſub poteſtate viri*, and called a *feme covert*; and therefore diſabled to make bargains with any, to the prejudice of herſelf, or her huſband, without his conſent or privity; or at leaſt without his allowance and confirmation: and if the

husband alien the wife's lands, during the marriage, she cannot gainsay it during his life.

By the law of England, *coverture*, in some cases, will excuse the woman from the pains of felony, &c. See FEME *covert*.

COUGH, in *Medicine*, a disease affecting the LUNGS, occasioned by a sharp serous humour, vellicating the fibrous coat thereof, and urging it to a discharge by spitting, &c.

Medical writers define a *cough* to be a difcuffory and elliptory motion of the breaft, by means of which nature attempts to throw off fomewhat that is offenfive to her. Phyficians diftinguifh *coughs* into the idiopathic and the fymptomatic: the firft is truly pectoral; the other only affects the breaft, by means of the conſent of parts. Of the fymptomatic, or, as fome expreſs themſelves, the conſentual *coughs*, fome have a catarrhal diſpoſition, and have a coryza for their origin or attendant, or, more ſtrictly ſpeaking, a gravedo; ſometimes a bronchus, hoarſeneſs, and inflammation of the tonſils; others are called hypochondriacal, which ſometimes ariſe from diſorders of the ſtomach, and are therefore called dry ſtomachic *coughs*; and ſometimes from ſcirrhoſities of the liver, whence they are common to people in cachexies, and in hectics and dropſies.

A *cough* which ariſes from internal cauſes, is to be carefully diſtinguiſhed from one that ariſes from external. The dry and the moiſt *cough*, that is, thoſe in which matter is ſpit up, and thoſe in which nothing is evacuated, differ alſo greatly, as well in regard to their ſymptoms, as to the perſons they attack. The dry *cough* is always more tedious to cure than the moiſt, and more eaſily returns. The ſtomachic *cough*, which is owing to conſent of parts, is known by the quantity and thickneſs of the matter that is ſpit up, which is always moſt frequently after meals, and gives a tendency toward a reaching to vomit. This moiſt ſtomachic *cough* differs in this manner, in all particulars, from the dry *cough* of the ſame name and origin with it, as mentioned before.

The hypochondriac *cough* is abundantly diſtinguiſhed from the other kinds, by its dryneſs, and by its vehement violence, for it always leaves a hoarſeneſs behind it; it is always moſt violent after eating, and after drinking large draughts of cold liquors, or aſcending ſteep places: As alſo by its bearing very well a cold and humid air, and not being exaſperated by it, as the pectoral *coughs* are; and finally, by a ſenſation of a conculſion of the diaphragm, when the effects in coughing are violent.

The common habitual dry *cough* is diſtinguiſhed from the other kinds by its remarkable dryneſs; and the common moiſt habitual *cough* by its abundant quantity of matter diſcharged, and by its appearing pulpy and greeniſh, and not ſanious, or ſtreaked with blood, and continuing in the ſame degree uſually for a conſiderable time. In this habitual *cough* there is no waſting of the fleſh, nor is there that violent exacerbation on the taking of opiates, which is always found in the phthiſical *coughs*, to which all opiates form the greateſt enemies. This *cough* alſo always receives great benefit from purging medicines, but the phthiſical *cough* none at all: but both theſe differ greatly, according to the age and temperament of the body of the perſon afflicted with them.

Perſons ſubject to coughs. The ſimple idiopathic *cough*, ariſing from internal cauſes, whether it be of the moiſt or dry kind, is almoſt peculiar to young people, and thoſe of plethoric habits. The catarrhal ſymptomatic *cough*, which ariſes from external accidents, is common to perſons of all ſtates and ages; but is more frequent among old men than among others. The perſons moſt ſubject to the common dry *cough*, are young people of a florid conſtitution and dry habit of body; and men of the middle or more advanced ages are ſometimes alſo afflicted with it, from ſuppreſſions of the hæmorrhoidal diſcharges, or from omiſſion of habitual bleedings; as are alſo people who are badly conformed, gibboſe or crooked, and ſuch as are afflicted with the evil, or have calculi in the bronchia, or nodes of a ſcirrhous nature in the lungs; and finally, ſuch as have been ill treated in the ſmall-pox, or have had the itch, or any other violent cutaneous eruption ſtruck in upon them. People moſt ſubject to a common moiſt *cough*, are thoſe of a phlegmatic habit, ſuch as are apt to cool their neck and breaſt in autumn in damp cold air in evenings; ſuch as have omitted their habitual bleedings, and ſuch as have drank too freely of ſpirituous liquors, or taken too much of acids. The idiopathic pectoral *cough* ariſes from a congeſtion of humours in the breaſt; and the hypochondriac *cough* is either owing to a fault in the ſtomach, or to a ſcirrhoſity in the liver.

Prognoſtics in coughs. The ſimple idiopathic pectoral *cough* very frequently goes off of itſelf, without the aſſiſtance of medicines, or with no farther aſſiſtance to nature than bleeding, judiciouſly managed; but though thus gentle while recent, yet when it is become habitual, and fixed upon a perſon, it is very obſtinate; and though at firſt it is far from a conſumptive *cough*, yet there is no certainty but that it may, at ſome time or other, occaſion ulcerations in the lungs. A dry *cough* in young people is much to be feared, when of long ſtanding: for if not unfrequently degenerates into a ſpitting of blood, or into a conſumption: this kind ſometimes alſo changes into what authors call the *ferina cough*, which is ſo violent, that perſons afflicted with it are ſcarce able to recover themſelves after a fit of it. In general, any *cough* that ſeizes a perſon in the ſpring, is much eaſier cured than one that attacks in autumn. Periodic *coughs*, that have been long uſed to return upon people at certain times, are always to be ſuſpected of danger, if they leave them ſuddenly, and no natural or artificial evacuation is made in their place; for they too often bring on faults in digeſtion, and ſometimes ſuffocative cataſtha, and paralytic diſorders. A moiſt habitual *cough*, when it ſuddenly changes into a dry one, is alſo a bad prognoſtic. A violent dry hypochondriac *cough*, that frequently remits and recurs again, and is uſually worſt in the night, gives great reaſon to ſuſpect a ſcirrhoſity in the liver: and the more regularly it returns at ſtated times, the more certain is the defect of this or ſome other of the viſcera; ſo that the prognoſtic is very fatal and very certain from it.

Method of cure. In caſe of a moiſt pectoral *cough*, it is proper firſt to give a purge, not violent, but yet moderately ſtrong, to derive the matter from the breaſt; and the catarrhal matter muſt then be prepared for evacuation. When it is ſimply mucous, the common reſolvent and diſcutient catarrhal medicines are to be depended upon; ſuch are decoctions of the roots of pimpernel and iris, with the leaves of hyſſop, horehound, ſcabious, and ſpeedwell; with theſe are to be given the attenuant gums, as ammoniacum, benjamin, and ſagapenum, with the warm carminative ſeeds. When the matter is too tough and viſcous, the buſineſs then is, on the contrary, to incraſſate and reduce it to a foft pulpoſe body. This is effected by liquorice-root or juice, with gum Arabic, figs, ſtarch, together with all the ſulphurcous medicines. If, on the contrary, the matter is thin and acrimonious, and irritates violently, then the cure is to be effected by ſuch things as obtund and ſweeten it; of this kind are emulſions of almonds, and the cold ſeeds, with barley-water, water-gruel, the mucilages of quince and flea-wort ſeeds, and the like; and to theſe are to be added occaſionally ſpermaceti, and oil of ſweet almonds. When the *cough* is habitual, laxatives are to be given after theſe, or in the intermediate times, during the taking them; and if the *cough* returns, when the matter of it is no longer the cauſe, it is to be quieted by gentle opiates, ſuch as the ſtorax pills and finally, corroborants are to be given to reſtore the due tone of the lungs.

In the dry *cough*, the gentleſt purges only can properly have place, and nothing is ſo proper as to begin with ſmall doſes of rhubarb; after this, to diſcuſs the ſtagnating blood about the breaſt, decoctions of the pectoral herbs are to be taken in large quantity, ſuch as coltſoot, ſcabious, maidenhair, and the like. While the patient is taking theſe, he ſhould frequently waſh his feet in warm water; and finally, the cure is to be completed by ſuch corroborants as reſtore the due tone of the lungs; of this kind Stahl's tonico-nervine mixture is a very excellent medicine.

In the hypochondriacal *cough*, as there is generally a fault in the liver, the *cough* can never be cured, unleſs that defect can be removed. The *cough* is therefore to be judged, in this caſe, only a ſymptom of the diſeaſe, and the method of treatment muſt be the ſame as in the infarctions of the liver. See HEPATIS *infarctus*.

When this obſtruction is removed, the *cough*, occaſioned by it, goes off of itſelf. In caſes where the hypochondriac *cough* depends on a fault in the ſtomach, the firſt conſideration to be had, is, whether it be dry or moiſt: when it is dry, we may conclude that the fault is not ſo much in the ſtomach, as in the parts about it; and hence the motion of the congeſtions of blood toward the *vena porta* is to be regarded.

The moiſt ſtomachic *cough* always brings the breaſt into conſent, and is hence often called a *ſtomachico-pectoral cough*, for the mucous matter which lies in the fauces, and is daily evacuated rather by hawking than coughing, probably aſcends up the *œſophagus*, and cauſes a ſlight *cough* in the day-time; but in the night, when that excretion ceaſes, it is eaſy for ſome little humidity to ſlip down the *aſpera arteria*, and this will be again thrown up by coughing in the morning. In the cure of this, there muſt be firſt given ſome gentle purges; after theſe, ſuch medicines as reſolve viſcoſities in their firſt formation: in

in which intention the roots of elecampane and pimpernel, with that of Florentine orrice, are of great effect; and in the food it will be proper to eat large quantities of ginger, pepper, and the other spices; and at night going to bed, drink a small glass of brandy. When the diſeaſe begins to mitigate, the eſſence of amber is a medicine that will do the greateſt ſervice.

Bleedings in *coughs* in general, when the conſtitution is plethoric, and they are done at proper times, are of great ſervice in breaking the force of the diſeaſe; nay, in caſes of a true phthiſis, bleeding often greatly retards, and keeps off the bad ſymptoms. It is to be obſerved, however, in all theſe caſes, that, when the conſtitution will bear it, the quantity taken away ſhould be large, for otherwiſe they only invite a larger afflux of blood to the breaſt, and ſo increaſe inſtead of mitigating the force of the diſeaſe.

Bleeding is always more neceſſary in a dry *cough* than in a moiſt one, unleſs the ſuppreſſion of ſome natural hemorrhage, or the omiſſion of the habitual bleedings, have been the occaſion of it. Bleeding is alſo the more neceſſary in *coughs*, as they return at times with renewed violence, and hurt the breaſt and lungs; and in this caſe alſo, if cupping has been frequently uſed, and lately omitted, it muſt be had recourſe to again. Purging medicines have the moſt ſpeedy effects in moiſt *coughs*, and indeed in dry ones they are not always ſafe, or, at the moſt, very gentle purgations alone are proper in this laſt caſe, where there is not a load of attending matter to be evacuated, as in the firſt. Sweating medicines are by ſome preſcribed in *coughs*; but they have no proper place in any judicious regimen for theſe caſes, unleſs after the *cough* is cured, and the matter carried off, when they may perhaps be of ſome ſervice to complete the reſtoration of the conſtitution to its priſtine ſtate, by an equal diſtribution of the humours through the whole body. In ſimple *coughs* there is occaſion for very few medicines, and, in general, inciding things, which diſpoſe the matter to an eaſy evacuation, with gentle laxatives, do the whole buſineſs.

The commotions occaſioned by humid *coughs* are never extremely violent, nor of any great danger, and therefore it is not neceſſary to be at any great pains to allay them by opiates; but theſe are very ſucceſsfully given in caſes where the emotions are greatly too violent for the quantity of matter, or where they continue after the matter is carried off and evacuated. In this caſe the ſtorax pill is of great ſervice. Juncker.

The method often followed in the convulſive *cough* is by evacuations; but this has been obſerved rather to prevent the diſeaſe from becoming fatal than to ſhorten it, ſuch *coughs* continuing ſeveral months notwithſtanding. However, a remiſſion for ſome days happens after bleeding and purging; eſpecially when the purgatives work upwards as well as downwards. Peſtorals, balſamics, and attenuants, have been ſometimes found to do little or no good, and opiates rather to do hurt.

COUGH, *in infants*. See INFANT.

COUGH, in *Farriery*, is a diſeaſe to which horſes are very ſubject. Some of theſe are ſymptomatic of a CONSUMPTION, when they have been of long continuance, and are attended with loſs of appetite, waſting of fleſh, and weakneſs. Other *coughs* proceed from phlegm and ſlimy matter that ſtuff up the veſſels of the lungs: in this caſe, which is of the aſthmatic kind, the horſe's flanks have a quick motion; he breathes quick; his *cough* is ſometimes dry and huſky, ſometimes moiſt, before which he wheezes, rattles in the throat, and throws out of his noſe and mouth a quantity of white phlegm, eſpecially after drinking, or when he begins or ends his exerciſe. Theſe *coughs* ſhould be diſtinguiſhed from that thickneſs of wind, which is occaſioned by full or foul feeding, want of exerciſe, or their being taken up from winter's graſs. Theſe are eaſily cured by proper diet and exerciſe: and the other diſorder may be relieved, and totally cured if it happens to a young horſe, and is not of long continuance, by the following treatment. Bleeding ſhould be uſed, in proportion to the ſtate of the horſe with reſpect to fleſh: mercurial medicines are of great ſervice: a mercurial ball with two drams of calomel may be given at night, and a common purge in the morning; or the following, which is recommended by Mr. Gibſon: take gum galbanum, ammoniacum, and aſſa fœtida, of each two drams; fine aloes, one ounce; ſaffron, one dram; oil of aniſeed, two drams; oil of amber, one dram; with honey enough to form the whole into a ball. Theſe may be repeated at proper intervals; and during the intervals, and for ſome time after, one of the following balls may be given every morning: take cinnabar of antimony, finely levigated, ſix ounces; gum ammoniacum, galbanum, and aſſa fœtida, of each two ounces; garlic, four ounces; ſaffron, half an ounce; let the whole be mixed into paſte with honey. Exerciſe and moderate diet are alſo eſſential to the effect of any remedy. In dry *coughs*, which are the nervous aſthmas of horſes, moderate bleeding is proper; two drams of calomel, mixed with an ounce of diapente, may be given for two nights, and a purging-ball in the morning. This purge may be repeated with one mercurial ball once in eight or ten days; after which one of the following balls, about the ſize of a pigeon's egg, may be taken every day for two months or longer: take native cinnabar, half a pound; gum guaiacum, four ounces; myrrh, and gum ammoniacum, of each two ounces; Venice ſoap, half a pound; mix the whole with honey, or oxymel of ſquills. In obſtinate dry *coughs*, the following has been found an uſeful remedy: take gum ammoniacum, ſquills, and Venice ſoap, of each four ounces; balſam of ſulphur, with aniſeeds, one ounce: beat them into a maſs, and give them as the former. Young horſes are ſubject to *coughs* in cutting their teeth; bleeding and warm maſhes are generally ſufficient for removing this complaint: but in ſuch ſubjects the *cough* often proceeds from worms; if this be the caſe, anthelmintic medicines ſhould be given. See ASCARIDES and HORSE-*worms*.

COUGH, *Chin*. See CHIN-*cough*.

COUGH, called the huſk, is a diſeaſe to which young bullocks are ſubject. In this diſorder the wind-pipe and its branches are loaded with ſmall taper worms. Farmers count the diſeaſe incurable; but fumigations with mercurials, as cinnabar, or with fœtids, as tobacco, might prove ſerviceable. Phil. Tranſ. vol. xlix. part ii. p. 247.

COUHAGE, or *ſlinking-beans*; theſe are a kind of kidney-beans imported from the Eaſt Indies, where they are uſed as a cure for the dropſy.

The down growing on the outſide of the pod is ſo pointed, as like a nettle to ſting the fleſh, though not with ſo painful a ſenſation. This, by a corruption of the word, is called *cowitch*.

COVIN, a deceitful compact, or agreement between two or more, to deceive or prejudice a third perſon.

As, if a tenant for life conſpire with another, that this other ſhall recover the land which the tenant holds, in prejudice of him in reverſion.

Dr. Skinner takes the word to be a corruption of the Latin *conventum*, and therefore writes it *coven*. See CONSPIRACY.

COVING, in *Building*. When *houſes* are built projecting over the ground plot, and the turned proſecture arched with timber, lathed and plaſtered; the work is called *coving*.

COVING *cornice*, is a cornice with a great caſement, or hollow therein.

COVINUS, among the *Ancients*, a kind of chariot, in which the Gauls and Britons uſed to fight in battles.

COUL, or COWL, a ſort of monkiſh habit worn by the Bernardines, and Benedictines.

The word is formed from *cucullus*, by confounding the two firſt ſyllables into one, as being the ſame twice repeated.

There are two kinds of *coul*; the one white, very large, worn in ceremony, and when they aſſiſt at the office: the other black, worn on ordinary occaſions, in the ſtreets, &c.

F. Mabillon maintains the *coul* to be the ſame thing in its origin with the ſcapular. The author of the apology of the emperor Henry IV. diſtinguiſhes two ſorts of *couls*; the one a gown reaching to the feet, having ſleeves, and a capuchin, uſed in ceremonies; the other a kind of hood to work in, called alſo a *ſcapular*, becauſe it only covers the head and ſhoulders.

COULTER, in *Huſbandry*, that part of a plough which forms the edge, ſtanding before the ſhare of the PLOUGH, and cutting the cloda as the ſhare tears them up. The *coulter* is an iron inſtrument of two feet eight inches in length, of near two inches breadth, and near one inch thick. It is driven through the beam of the plough, and fixed in its proper direction by a wedge.

The modern improvement of the plough by Mr. Tull, gives it four *coulters*; the conſequence of which is, that the earth ploughed up is cut four times as ſmall as by the common plough, which has only one.

In all *coulters*, the length and direction are to be nicely regulated. The cutting the hole and driving the wedge, regulate the direction; and its length is altered from the beam by the driving it farther down, as its point wears away.

None of theſe *coulters* ought to deſcend ſo low as the ſhare, except when the land is to be ploughed very ſhallow; it is always ſufficient for them to cut through the turf, let the plough go as deep as it will. In ploughing ſhallow, the fin of the ſhare muſt alſo be broad enough to cut off the fourth piece or furrow; elſe that lying

very fast, will be apt to raise up the groundwiſh, and throw out the plough: but when the land is ploughed deeper, the groundwiſh will break off this fourth furrow, though the fin be not broad enough to reach it. Tull's Huſbandry.

COULTER-*neb*, or COUNTER-*neb*, in *Zoology*, a name by which the people in ſome parts of England call the *anas arctica clauſa*. See DUCK.

COUNCIL, or COUNSEL, an aſſembly, or meeting of divers conſiderable perſons, or officers, to conſider and concert meaſures touching the adminiſtration of public affairs, rendering juſtice, or the like.

The king's *privy-council* is the primum mobile of the civil government of England; and that from which all the inferior orbs derive their motion. See PRIVY-*council*.

In the French polity, *councils* are very numerous; they have their *council of ſtate*, *council of the finances*, *council of diſpatches*, *council of directions*, *grand council*, *council of the regency*, *council of conſcience*, *&c.*

COUNCIL, *Aulic*. See AULIC.

COUNCIL, in *Church Hiſtory* and *Polity*, a ſynod or aſſembly of prelates and doctors, and deputies, met for the regulation of matters relating to the doctrine or diſcipline of the church. *Councils* of this kind were firſt introduced about the middle of the ſecond century.

COUNCIL, *Provincial*, is an aſſembly of the prelates of a PROVINCE under the metropolitan. See CONVOCATION.

COUNCIL, *National*, is an aſſembly of the prelates of a nation, under their PRIMATE, or patriarch.

COUNCIL, *Oecumenical* or *general*, is an aſſembly of all the prelates of Chriſtendom, or of commiſſioners from all the churches in the Chriſtian world, and repreſenting the church univerſal. Theſe were eſtabliſhed by Conſtantine the Great, who aſſembled the firſt at Nice, in 325. See OECUMENICAL.

Indeed to conſtitute a *general council*, it is not required that all the prelates ſhould be actually preſent; it is ſufficient, that the *council* be regularly appointed, and that they may be there, or are called thereto.

General councils are frequently called by eccleſiaſtical authors *plenary councils*. The Romaniſts reckon eighteen *general councils*: whereof only the firſt four are admitted by the reformed. The number is made out thus: two of Nice, four of Conſtantinople, one of Epheſus, one of Chalcedon, five of the Lateran, two of Lyons, one of Vienne, one of Florence, and the laſt of Trent, which held from 1545 to 1563. The *council* of Trent ordains *provincial councils* to be held every three years; yet the laſt held in France is that of Bourdeaux, a hundred years ago.

There have been various collections of the canons or decrees of *councils*; as that of Dr. Merlin at Paris in 1524; one of F. Crabbe, a Franciſcan, in 1536; another of Surius, in 1567; another at Venice, in 1585; another at Rome, in 1608; one of Binius, canon of Cologne, in 1606, in ten volumes; another at the Louvre, in 1664, in thirty ſeven volumes; another of F. Labbe and F. Coſſart, Jeſuits, in 1672, in ſeventeen volumes, more ample than the reſt; laſtly, another by F. Hardouin. See CANON.

COUNCIL *of war*, is an aſſembly of the principal officers of an army, or fleet, occaſionally called by the general, or admiral, to conſider of the preſent ſtate of things, and concert meaſures for their conduct, with regard to ſieges, retreats, engagements, &c.

The ſame term is ſometimes alſo uſed for an aſſembly of the officers of a regiment, or ſhip; met to try ſoldiers or ſailors accuſed of any crime.

COUNCIL, *Common*. See *Mayor's* COURTS.

COUNCIL *and Seſſion of Scotland*. See SESSIONS.

COUNSELLOR, *Conſiliarius*, in *Law*, is a perſon retained by a client to plead his cauſe in a court of judicature. A *counſellor* at law hath a privilege to enforce any thing of which he is informed by his client, if pertinent to the matter, and is not to examine whether it be true or falſe; for it is at the peril of him who informs him. Cro. Jac. 190. But after the court hath delivered their opinions of the matter in law depending before them, the *counſel* at the bar are not to urge any thing farther in that cauſe. 1 Lill. Abr. 355. It has been held that the king's *counſel* ought not to be admitted to argue any cauſe againſt the king; though this was oppoſed by Serjeant Maynard. Hill. 21 Car. II. 1 Mod. 38.

No *counſel* is allowed a priſoner upon a general iſſue, on indictment of felony, &c. unleſs ſome doubtful point of law ariſe; the court is the priſoner's only *counſel*; and the behaviour of the priſoner in his own defence, is one means of diſcovering the truth: but this ſeems to be a defect in our common law. Blackſt. Com. vol. iv. p. 349. In appeals and upon ſpecial pleadings, the priſoner ſhall have *counſel* aſſigned him by the court: though *counſel* is not to prompt the priſoner in matters of fact. 2 Hawk. 400, 401. Proviſion is made for *counſel* for priſoners in treaſon, by ſtat. 7 and 8 W. III. See BARRISTERS and SERJEANTS.

COUNSELLORS *of Honour*. See HONOUR.

COUNT, COUNTE, COMES, a nobleman who poſſeſſes a domain erected into a COUNTY. See VISCOUNT.

Engliſh *counts* we diſtinguiſh by the title of *earls*; foreign ones ſtill retain their proper name.

The dignity of a *count* is a medium between that of a duke and a baron.

According to the modern uſe, moſt plenipotentiaries and embaſſadors aſſume the title of *counts*; though they have no county; as the *count d' Avaux*, &c.

Anciently, all generals, counſellors, judges, and ſecretaries of cities under Charlemagne were called *counts*; the diſtinguiſhing character of a duke and *count* being this, that the latter had but one town under him, but the former ſeveral.

A *count* has a right to bear on his arms a coronet, adorned with three precious ſtones, and ſurmounted with three large pearls, whereof thoſe in the middle and extremities of the coronet advance above the reſt.

Counts were originally lords of the court, or of the the emperors' retinue, and had their name *comites, à comitando*, or *à commorando*: hence, thoſe who were always in the palace, or at the emperor's ſide, were called *counts poſitive*, or *comites à latere*. See PALATINE.—In the times of the commonwealth, *comites*, among the Romans, was a general name for all thoſe who accompanied the proconſuls and proprætors into the provinces, there to ſerve the commonwealth; as the tribunes, præfects, ſcribes, &c.

Under the emperors, *comites* were the officers of the palace. The origin of what we now call *counts* ſeems owing to Auguſtus, who took ſeveral ſenators to be his *comites*, as Dion obſerves, i. e. to accompany him in his voyages and travels, and to aſſiſt him in the hearing of cauſes; which were thus judged with the ſame authority as in full ſenate. Gallienus ſeems to have aboliſhed this council, by forbidding the ſenators being found in the armies: and none of his ſucceſſors re-eſtabliſhed it.

Theſe counſellors of the emperor were really *counts*, *comites*, *i. e.* companions of the prince; and they ſometimes took the title thereof, but always with the addition of the emperor's name whom they accompanied: ſo that it was rather a mark of their office, than a title of dignity.

Conſtantine was the firſt who converted it into a dignity; and under him it was, that the name was firſt given abſolutely.

The name once eſtabliſhed, was in a little time indifferently conferred, not only on thoſe who followed the court, and accompanied the emperor, but alſo on moſt kinds of officers; a long liſt whereof is given us by Ducange.

Zoſimus tells us, that Conſtantine divided the *counts* into three claſſes: the firſt bore the title of *illuſtres*; the ſecond, that of *clariſſimi*, and afterwards *ſpectabiles*; the third were called *perfectiſſimi*.

Of the two firſt claſſes was the ſenate compoſed; thoſe of the third had no place in the ſenate, but enjoyed ſeveral other of the privileges of ſenators.

There were *counts* who ſerved on land, others at ſea; ſome in a civil, ſome in a religious, and ſome in a legal capacity; as, *comes ærarii*, *comes ſacrarum largitionum*, *comes ſacri conſiſtorii*, *comes coquinæ*, *comes capellæ*, *comes archiatrorum*, *comes commerciorum*, *comes veſtiarii*, *comes horrearum*, *comes ſpatariorum* or *annonæ*, *comes domeſticorum*, *comes equorum regiorum* or *comes ſtabuli*, *comes damarum*, *comes excubitorum*, *comes notariorum*, *comes legum* or *profeſſor in jure*, *comes limitum* or *morarum*, *comes portus Romæ*, *comes patrimonii*, *&c.*

The Franks, Germans, &c. paſſing into Gaul and Germany, did not aboliſh the form of the Roman government; and as the governors of cities and provinces were called *counts*, *comites*, and *dukes*, *duces*, they continued to be called ſo.

Theſe governors commanded in time of war; and in time of peace they adminiſtered juſtice. Thus, in the time of Charlemagne, *counts* were the ordinary judges and governors of the cities.

Theſe *counts* of cities were beneath the dukes and *counts* who preſided over provinces; the firſt being conſtituted in the particular cities under the juriſdiction of the latter. The *counts* of provinces were in nothing inferior to dukes, who themſelves were only governors of provinces. Under the laſt of the ſecond race of French kings, they got their dignity rendered hereditary; and even uſurped the ſovereignty when Hugh Capet came to the crown; his authority was not ſufficient to oppoſe their encroachments: and hence it is they date the privilege of wearing coronets in their arms; they aſſumed it then, as enjoying the rights of ſovereigns in their particular diſtricts, or *counties*.

counties. But, by degrees, moſt of the *counties* became reunited to the crown.

The quality of *count* is now become very different from what it was anciently; being now no more than a title, which a king grants upon erecting a territory into a county, with a reſerve of juriſdiction and ſovereignty to himſelf.

At firſt, there was no clauſe in the patent of erection, limiting the reverſion of the *county* to the crown in default of heirs male; but Charles IX. to prevent their being too numerous, ordained that dukedoms and *counties*, in default of heirs male, ſhould return to the crown.

The point of precedence between *counts* and marquiſes has been formerly much controverted: the reaſon was, that there are *counts* who are peers of France, but no marquiſes: but the point is now given up, and marquiſes take place; though anciently, when *counts* were governors of provinces, they were on a level even with dukes.

William the Conqueror, as obſerved by Camden, gave the dignity of *counts* in fee to his nobles: annexing it to this or that county or province, and allotting for their maintenance a certain proportion of money, ariſing from the prince's profits in the pleadings and forfeitures of the provinces. To this purpoſe he quotes an ancient record, thus: *Hen. II. Rex Angliæ his verbis* comitem *creavit*; *ſciatis me feciſſe Hugonem Bigot* comitem *de Norf. &c. de tertio denario de Norwich & Norfolk, ſicut aliquis* comes *Angliæ, &c.*

The Germans call a *count*, *graf*, or *graff*; which, according to a modern critic, properly ſignifies *judge*; and is derived from *gravio*, or *graffio*, of γραφω, *I write*. They have ſeveral kinds of theſe *counts*, or *graffs*; as *landgravii*, *marchegravii*, *burg-graves*, and *palſgravii*, or *counts palatine*. Theſe laſt are of two kinds; the former are of the number of princes, and have the inveſtiture of a palatinate; the others have only the title of *count palatine*, without the inveſtiture of any palatinate.

Some aſſert, that by publicly profeſſing the imperial laws for twenty years, the perſon acquires the dignity of a *count palatine*; and there are inſtances of profeſſors in law, who have aſſumed the title accordingly: but there are others who queſtion this right.

COUNT, in *Law*, denotes the original declaration in a real action; as the declaration is in a perſonal one: the libellus of the civilians anſwers to both.

Yet, *count* and declaration are ſometimes confounded; and uſed for each other: as, *count in debt*, *count in appeal*, &c.

COUNT-WHEEL, in *Clock-Work*, a wheel which moves round in twelve hours; called alſo the *locking-wheel*. See CLOCK.

COUNTER, from *computare*, is the name of two priſons in London, for the uſe of the city, to confine debtors, breakers of the peace, &c.

COUNTERS, in *Ship-Building*, are diſtinguiſhed into *upper* and *lower*. The upper *counter* is reckoned from the gallery to the lower part of the ſtreight piece of the ſtern. The *lower counter* is between the tranſom and lower part of the gallery.

COUNTER *of a horſe*, that part of a horſe's fore-hand which lies between the ſhoulders and under the neck.

COUNTER, of the Latin prepoſition *contra*, *againſt*, is uſed in the compoſition of divers words in our language; and generally implies the relation of oppoſition. As,

COUNTER-ALLEYS, in *Gardening*. See ALLEY.

COUNTER-APPROACHES, in *Fortification*, lines or trenches made by the beſieged, when they come out to attack the lines of the beſiegers in form.

COUNTER-APPROACH, *line of*, a trench which the beſieged make from their covered-way to the right and left of the attacks, in order to ſcour or enfilade the enemy's works. It ſhould commence in the angle of the place of arms of the half-moon that is not attacked, and of the baſtion that is attacked; about fifty or ſixty fathoms from the attacks; and continued as far as ſhall be found neceſſary in order to ſee the enemy in his trenches and parallels. This line muſt be perfectly enfiladed from the covered-way and the half-moon, that if the enemy get poſſeſſion of it, it may be of no ſervice to him. In this line the governor muſt frequently in the night-time ſend ſmall parties of horſe, or foot, to drive the workmen from their poſts; and, if poſſible, to carry off the engineers, who have the direction of the works.

COUNTER-BARRY, or COUNTRE-BARRE', is uſed by the French heralds for what we more ordinarily call *bendy ſiniſter per bend counterchanged*. See BARRY.

COUNTER-BATTERY, a BATTERY raiſed to play on another, in order to diſmount the guns.

COUNTER-BENDY, or COUNTRE-BANDE', in *Heraldry*, is uſed by the French to expreſs what we ordinarily call BENDY *of ſix per bend ſiniſter counterchanged*.

COUNTER-BOND, is a bond given to ſave a perſon harmleſs, who has given his bond for another. This is alſo called *counter-ſecurity*.

COUNTER-BRACING. See TACKING.

COUNTER-BREAST-WORK, in *Fortification*, a FAUSSE-BRAYE.

COUNTER-CHANGE, in *Commerce*, a mutual EXCHANGE between two parties.

COUNTER-CHANGED, in *Heraldry*, is when there is a mutual changing of the colours of the field and charge in an eſcutcheon, by means of one or more lines of partition. Thus, in the coat of the famous Chaucer: he beareth, party per pale argent and gules, a bend *counter-changed*; that is, that part of the bend, which is in that ſide of the eſcutcheon which is argent, is gules; and that part of it which is on the other, is argent. Vide *Tab. II. Heraldry, fig.* 50.

COUNTER-CHARGE, is a reciprocal charge, or RECRIMINATION brought againſt an accuſer.

COUNTER-CHARM, a CHARM or SPELL, contrived to hinder the effect of another. See LIGATURE.

COUNTER-CHEVRONED, denotes a ſhield *chevronny*, or parted by ſome line of partition.

COUNTER-COLOURED. See CONTREBEND.

COUNTER-COMPONED, or COUNTRE-COMPONE', or COUNTER-COMPONY, is when a bordure is compounded of two ranks of panes; as repreſented in *Tab. II. Heraldry, fig.* 51. When it conſiſts but of one rank, it is called *componed*; and when of more than two, CHECKY.

COUNTER-DEED, a ſecret writing, or private act, either before a notary, or under a privy-ſeal; which deſtroys, changes, annuls, or alters, ſome more ſolemn and public act.

Counter-deeds are rather tolerated than permitted: in many caſes they are actually prohibited; as being uſually no better than frauds. The cuſtom of Paris annuls all *counter-deeds*, contrary to the tenor of a marriage.

COUNTER-DRAWING, in *Painting*, &c. the copying a deſign or painting by means of a fine linen cloth, an oiled paper, or other tranſparent matter; whereon the ſtrokes appearing through, are followed and traced with a pencil, with or without colour.

Sometimes they *counter-draw* on glaſs, and with frames or nets divided into ſquares, with ſilk, or with thread; and alſo by means of inſtruments invented for the purpoſe, as the parallelogram. See DESIGNING.

COUNTER-ERMINE. See ERMINE.

COUNTERFEIT *Architecture*. See ARCHITECTURE.

COUNTERFEITING *the King's Coin and Seals*. See TREASON.

COUNTERFEITS, in *Law*. See CHEATS.

COUNTER-FISSURE. See CONTRAFISSURE.

COUNTER-FOIL, or COUNTER-STOCK, is that part of a TALLY, ſtruck in the EXCHEQUER, which is kept by an officer of the court.

COUNTER-FORTS, *Buttreſſes*, or *Spurs*, are pillars of maſonry, ſerving to prop or ſuſtain walls, or terraces, ſubject to bulge or be thrown down.

Theſe works are uſually turned archwiſe, and placed at a diſtance from each other, which is uſually three times their thickneſs; and their length is one fourth of the height of the wall. Mr. Vauban places them at the ſame diſtance, whether the wall be high or low. See Muller's Mathem. vol. iv. p. 5, &c. who directs that their thickneſs ſhould never be leſs than half their length.

When any thing is built on the deſcent of a mountain, it muſt be ſtrengthened with *counter-forts*, well bound to the wall, and at the diſtance of about twelve yards from each other.

COUNTER-FUGUE, in *Muſic*, is when FUGUES proceed contrary to one another.

COUNTER-GAGE, in *Carpentry*, a method uſed to meaſure the joints, by tranſferring, *v. gr.* the breadth of a mortiſe to the place in the timber where the tenon is to be, in order to make them fit each other.

COUNTER-GUARD, in *Fortification*, a work generally ſerving to cover a BASTION. It is compoſed of two faces, forming a ſaliant angle before the flanked angle of a baſtion. Next to the RAVELIN, it is one of the moſt uſeful outworks. They are ſometimes made before the ravelins. See ENVELOPE.

COUNTER-HARMONICAL. See CONTRA-HARMONICAL.

COUNTER-INDICATION. See CONTRA-INDICATION.

COUNTER-LIGHT, a window, or light, oppoſite to any thing which makes it appear to a diſadvantage. A ſingle *counter-light* is ſufficient to take away all the beauty of a fine painting.

COUNTERMAND, in a general ſenſe, a revocation of an order; or an excuſe for ſetting aſide, or deferring, a thing ordered to be done.

By the French law, a *countermand* differs from an *eſſoin*. 1. In that, in the *countermand*, the conſignment is propoſed to be deferred to a day certain, which is not in the

eſſoin.

effoin. 2. In the *effoin*, the cauſe of deferring the congagement is expreſſed, and affirmed to be true; but in a *countermand* that affirmation is not required.

COUNTERMAND, in the *Engliſh Law*, is where a thing, formerly executed, is afterwards, by ſome act or ceremony, made void by the party that firſt did it.

As, if a man make his laſt will, and deviſe his land to T. S. and afterwards enfeoff another of the ſame land; this feoffment is a countermand of the will, and the will void as to the diſpoſition of the land.

COUNTER-MANDATE. See CONTRAMANDATUM.

COUNTER-MARCH, in *War*, a change of the face, or wings, of a battalion; whereby the men, who were in the front, come to be in the rear.

This is an expedient they have recourſe to, when the enemy attacks their rear; or when they change their march for a direction oppoſite to that wherein they had begon.

The *counter-march* is either made by files or ranks: by files, when the men in the front of the battalion go into the rear; by ranks, when the wings, or flanks, of the battalion change ground with one another.

The term is alſo uſed at ſea, for the like change or motion of a ſquadron of ſhips.

COUNTER-MARK, a ſecond or third mark put on any thing marked before.

The word is applied, in commerce, to the ſeveral marks put on a bale of goods belonging to ſeveral merchants; that it may not be opened but in the preſence of them all or their agents.

In goldſmith's works, &c. the *counter-mark* is the mark, or punchion of the hall, or company, to ſhew the metal is ſtandard, added to that of the artificer who made it.

Counter-mark of a horſe, is an artificial cavity, which the jockeys make in the teeth of horſes that have out-grown the natural mark; to diſguiſe their age, and make them appear as if they were not above eight years old.

Counter-mark of a medal, is a mark added to a medal, a long time after its being ſtruck.

Counter-marks appear to be faults, or flaws, in medals, diſfiguring the ground, ſometimes on the ſide of the head, and ſometimes on the reverſe; particularly in the large and middle-ſized braſs: yet they are eſteemed as beauties among the curious, who ſet a particular value on ſuch medals, becauſe they know the ſeveral changes in value they have undergone; which are expreſſed by thoſe *counter-marks*.

Antiquaries, however, are not well agreed about the ſignification of the characters they find on them. On ſome, N. PROB. on others, N. CAPR. on others, CAIR. RM. NT. AUG. &c. Some have for their *counter-mark*, an emperor's head; ſome ſeveral; ſome a cornucopia.

Care muſt be taken not to confound the monograms with the *counter-marks*: the method of diſtinguiſhing them is eaſy. The *counter-marks*, being ſtruck after the medal, are dented, or ſunk in; whereas the monograms, being ſtruck at the ſame time with the medals, have rather a little relievo.

COUNTER-MINE, in *War*, a ſubterraneous vault running the whole length of a wall, three feet broad, and ſix deep, with ſeveral holes and apertures therein: contrived to prevent the effects of mines, in caſe the enemy ſhould make any to blow up the wall.

This kind of *counter-mine*, however, is now little in uſe. The modern *counter-mine* is a well, or pit, and a gallery, ſunk on purpoſe, till it meet the enemy's mine, and prevent its effect: it being firſt pretty well known whereabouts that is.

COUNTER-MURE, COUNTER-WALL, a little wall built cloſe to another, to fortify and ſecure it, that it may not receive any damage from the buildings contiguous to it. By the cuſtom of Paris, if a ſtable be erected againſt a partition-wall, there muſt be a *counter-wall* added, eight inches thick. M. Bullet obſerves, that the *counter-wall* ought never to be bound, or connected with the proper wall.

COUNTER-MURE, in *Fortification*. See CONTRA-MURE.

COUNTER-PALED, COUNTRE-PALE, in *Heraldry*, is when the eſcutcheon is divided into twelve pales parted per feſſe, the two colours being counter-changed; ſo that the upper are of one colour, or metal, and the lower of another.

COUNTER-PART, a part of ſomething oppoſite to another part.

Thus, in *Muſic*, the baſs and treble are two *counter-parts*, or oppoſite parts.

COUNTER-PART, in *Law*, is the duplicate, or copy, of an indenture, or deed. That executed by the grantor is called the original, the reſt are *counter-parts*; though it is better for all the parties to execute all, which renders them originals.

COUNTER-PASSANT, in *Heraldry*, is when two lions are in a coat of arms, and one appears to be paſſing, or walking, quite the contrary way from the other. See PASSANT.

COUNTER-PLEA, in *Law*, a replication to a plea, or prayer.

When a tenant by courteſy, in dower, or other real action, prays the view or aid of the king, or him in the reverſion, for his better defence; or if a ſtranger to the action begun deſire to be admitted to ſay what he can for the ſafeguard of his eſtate: that which the demandant alledges againſt this requeſt, why it ſhould not be admitted, is called a *counter-plea*.

COUNTER-PLOT, a plot, or intrigue, contrived to thwart and overthrow another.

COUNTER-POINT, in *Muſic*, the art of compoſing harmony; or of diſpoſing and concerting ſeveral parts ſo together, as that they make an agreeable whole.

Counter-point is divided into *ſimple*, and *figurative*; agreeably to the diviſion of harmony, into the harmony of concords, and that of diſcords.

Counter-point took its name hence: when muſic in parts was firſt introduced, their harmony being ſo ſimple, they uſed no notes of different time, and marked their conſonances by *points* ſet *againſt* each other. Hence, becauſe of the equality of the notes of time, the parts were made to concord in every note.

This afterwards became denominated *ſimple* and *plain counter-point*; to diſtinguiſh it from another kind, wherein notes of different value were uſed, and diſcords brought in betwixt the parts; which they call *figurative counter-point*.

Simple counter-point, or the harmony of concords, conſiſts of the imperfect as well as the perfect concords; and may therefore be denominated *perfect* or *imperfect*, according as the concords are, whereof it is compoſed: thus, the harmony ariſing from a conjunction of any note with its fifth and octave, is perfect; but with its third and ſixth, imperfect.

Now to diſpoſe the concords, or the natural notes, and their octaves into any key, in *ſimple counter-point*; obſerve, with regard to the diſtinction into perfect and imperfect harmony, this general rule; viz. to the key *f*, to the fourth *f*, and to the fifth *f*, a perfect harmony muſt be joined; to the ſecond *f*, the third *f*, and ſeventh *f*, an imperfect harmony is indiſpenſible; to the ſixth *f*, either an imperfect or perfect harmony.

In the compoſition of two parts, obſerve that though a third appears only in the treble on the key *f*, the fourth *f*, and the fifth *f*; yet the perfect harmony of the fifth is always ſuppoſed, and muſt be ſupplied in the accompaniments of the thorough baſs to theſe fundamental notes.

More particularly in the compoſition of two parts, the rules are, that the KEY *f* may either have its octave, its third, or its fifth; the fourth *f*, and fifth *f*, may have either their reſpective thirds or fifths; and the firſt may have its ſixth; as, to favour a contrary motion, the laſt may have its octave.

The ſixth *f* may either have its third, its fifth, or its ſixth. The ſecond *f*, third *f*, and ſeventh *f*, may have either their reſpective thirds or ſixths; and the laſt, on many occaſions, its falſe fifth: which rules hold the ſame both in flat and ſharp keys. For the rules of *counter-point*, with regard to the ſucceſſion of concords, it muſt be obſerved, that as much as can be in parts, may proceed by a contrary motion; i. e. the baſs may aſcend when the treble deſcends, and *vice verſa*. The parts moving either upwards or downwards the ſame way; two octaves, or two fifths, never to follow one another immediately. Two ſixths never to ſucceed each other immediately. Whenever the octave or fifth is to be made uſe of, the parts muſt proceed by a contrary motion, except the treble move into ſuch octave or fifth gradually. If in a ſharp key, the baſs deſcend gradually from the fifth *f* to the fourth *f*; the laſt, in that caſe, muſt never have its proper harmony applied to it but the notes that were harmony in the preceding fifth *f*, muſt be continued on the fourth *f*. Thirds and fifths may follow one another as often as one has a mind.

Figurative counter-point is of two kinds: in the one diſcords are introduced occaſionally; ſerving only as tranſitions from concord to concord: in the other, the diſcord bears a chief part in the harmony.

For the firſt, nothing but CONCORDS are ever to be uſed on the accented parts of the meaſure in the unaccented parts, diſcords may paſs tranſiently, without any offence to the ear. This the French call *ſuppoſition*; becauſe the tranſient diſcord always ſuppoſes a concord immediately following it: which is of infinite ſervice in muſic.

For the ſecond, wherein the DISCORDS are uſed as a ſolid and ſubſtantial part of the harmony; the diſcords that have place are the fifth when joined with the ſixth, to which it ſtands in the relation of a diſcord: the fourth when

when joined with a fifth; the ninth, which is in effect the second; the seventh; and the second and fourth. These diſcords are introduced into the harmony with due preparation, and are to be ſucceeded by concords: which is commonly called the *reſolution of a diſcord*.

The diſcord is prepared by firſt ſubſiſting in the harmony in quality of a concord; i. e. the ſame note which becomes the diſcord, is firſt a concord to the baſe note immediately preceding that to which it is a diſcord. The diſcord is reſolved by being immediately ſucceeded by a concord deſcending from it by the diſtance only of ſecond *g*, or ſecond *f*.

As the diſcord makes a ſubſtantial part of the harmony, ſo it muſt always poſſeſs an accented part of the meaſure. Now to introduce the diſcords into HARMONY, it muſt be conſidered what concords may ſerve for their preparation and reſolution; the fifth, then, may be prepared, either by being an octave, ſixth, or third. It may be reſolved either into the ſixth or third. The fourth may be prepared in all the concords, and may be reſolved into the ſixth, third, or octave. The ninth may be prepared in all the concords except the octave; and may be reſolved into the ſixth, third, or octave. The ſeventh may be prepared in all the concords, and reſolved into the third, ſixth, or fifth. The ſecond and fourth are uſed very differently from the reſt; being prepared and reſolved into the baſs. See farther under CLEF, and MODULATION.

It has been a queſtion which has given birth to many learned diſquiſitions and diſputes, whether the ancients had *counter-point*, or muſic in parts. See an account of what has been advanced on both ſides, with the author's opinion on the negative, in Dr. Burney's General Hiſtory of Muſic, vol. i. ſect. 8. p. 117. 4to. 1776.

COUNTER-POINTED, by the French called *contre-pointé*, is when two chevrons in one eſcutcheon meet in the points: the one riſing, as uſual, from the baſe; and the other inverted, falling from the chief: ſo that they are *counter*, or oppoſite to one another in the points.

They may alſo be *counter-pointed* the other way; that is, when they are founded on the ſides of the ſhield, and the points meet that way; called *counter-pointed in faſſe*.

COUNTER-POISE, any thing ſerving to weigh againſt another; particularly a piece of metal, ordinarily of braſs or iron, making a part of the *ſtatera Romana*, or STEEL-YARD. It is contrived to ſlide along the beam; and from the diviſion in which it keeps the balance in equilibrio, the weight of the body is determined.

It is alſo, by ſome, called the *poiſe*, on account of its figure: and *muſſe*, by reaſon of its weight. Rope-dancers uſe a pole by way of *counter-poiſe*, to keep their bodies in equilibrio.

COUNTERPOISE, in the *Manege*, denotes the liberty of the action and ſeat of a horſeman; ſo that in all the horſe's motions he continues in the middle of the ſaddle, bearing equally on the ſtirrups.

COUNTER-POISON, an antidote or remedy, which prevents the effect of a poiſon.

Of this kind are Venice treacle, mithridate, orvietan, &c. *Counter-poiſons* are either *general*, or *ſpecific*: to the general kind belong angelica, cardous benedictus, the vincetoxicum, dittany, ſcorzonera, citrons, bezoar, hartthorn, &c. For ſpecifics, citron-bark is ſuppoſed a *counter-poiſon* to nux vomica; Venice treacle to the bite of a viper; oil of ſcorpion to the bite of ſcorpions; oil of pine-apples to orpiment; gentian to the cicuta, &c.

Vander Linden, in his treatiſe De Venenis, ſays, that in every putrid indiſpoſition, whether ariſing from the bite of venomous beaſts, or from an alcali formed by putrefaction, vinegar drunk is ſovereign, either ſimple or diſtilled; either with honey in form of oxymel, or with ſquills.

COUNTER-POTENT, or *potent counter-potent*, by the French heralds called *contre-potencé*, is reckoned a fur, as well as vair and ermine; but compoſed of ſuch pieces as repreſent the tops of crutches, called in French *potences*, and in old Engliſh *patents*. See VAIRY *counter*.

COUNTER-PROOF, in *Rolling-Preſs Printing*, a print taken off from another freſh printed; which, by being paſſed through the preſs, gives the figure of the former, but inverted.

To *counter-prove*, is alſo to paſs a deſign in black lead, or red chalk, through the preſs, after having moiſtened with a ſponge, both that, and the paper on which the *counter-proof* is to be taken.

COUNTER-QUARTERED, by the French called *contre-eſcartelé*, denotes the eſcutcheon, after being quartered, to have each quarter divided again into two: ſo that there are in it eight quarters, or diviſions.

COUNTER-ROLL, a copy of the ROLLS relating to appeals, inqueſts, &c.

COUNTER-ROUND, a body of officers going to viſit, and inſpect the rounds.

COUNTER-SALIENT, is when two beaſts are borne in a coat of arms in a poſture of leaping from each other, directly the contrary way.

COUNTER-SCARP, in *Fortification*, the exterior ſlope, or aclivity of the ditch, looking towards the champagne. See *Tab. Fortification, fig.* 21. *lit. c c.*

COUNTER-SCARP is alſo uſed for the covert-way, and the glacis. *Counter-ſcarps* are ſometimes made of ſtone, and without any ſlope.

To be lodged on the counter-ſcarp, is to be lodged on the COVERT-*way*, or the GLACIS.

COUNTER-SCARP, *angle of the*. See ANGLE.

COUNTER-SIGNING, the ſigning an order, or patent of a ſuperior, in quality of ſecretary; to render the thing more authentic.

Charters, &c. are ſigned by the king, and *counter-ſigned* by a ſecretary of ſtate, or the lord-chancellor.

COUNTER-SWALLOW-TAIL, an outwork, in form of a ſingle tenaille, wider at the gorge, or next the place, than at the head, or next the champagne.

COUNTER-TALLY, one of the two tallies whereon any thing is ſcored.

COUNTER-TENOR, is one of the mean or middle parts of muſic: ſo called, as being oppoſite to the tenor. It is likewiſe applied to a voice which is of higher pitch than the tenor, but lower than the treble.

COUNTER-TIME, in the *Manege*, ſignifies the defence or reſiſtance of a horſe that interrupts his cadence, and the meaſure of his manege, occaſioned either by a bad rider, or a malicious horſe.

COUNTER-TRENCH, in *Fortification*, a trench of twelve or fifteen feet wide, made againſt the beſiegers, and which, of conſequence, has its parapet turned towards them. There are uſually a great many communications between this and the place, to prevent the enemy from making any uſe of it, in caſe they render themſelves maſters thereof.

COUNTER-TRIPPING, is when two beaſts are borne in a coat of arms tripping, i. e. in a walking poſture, and the head of the one to the tail of the other.

COUNTER-VAIR, in *Heraldry*, is when bells or cups of the ſame tincture are placed baſe againſt baſe, and point againſt point.

COUNTER-VALLATION. See CONTRAVALLATION.

COUNTER-VENTION. See CONTRAVENTION.

COUNTER-WORKING, in the *Military Art*, the raiſing of works, in order to oppoſe thoſe of the enemy.

COUNTESS's *Powder*. See SUFFOLK *Powder*.

COUNTING, or COMPTING-HOUSE. See COMPTING-HOUSE.

COUNTING-BOARD. See ABACUS.

COUNTORS, CONTOURS, or COUNTERS, has been uſed for ſerjeants at law, retained to defend a cauſe, or to ſpeak for their client in any court of law.

It is of theſe Chaucer ſpeaks:

—— A ſheriff had he been, and a *contour*,
Was no where ſuch a worthy ravaſour.

They were anciently called ſerjeant *contours*.

COUNTRIES, among the *Miners*, a term or appellation they give to their works under ground. Phil. Tranſ. N° 198.

COUNTRY-DANCE is of Engliſh origin, though tranſplanted into almoſt all the countries and courts of Europe. There is no eſtabliſhed rule for the compoſition of tunes to this dance, becauſe there is in muſic no kind of time whatever which may not be meaſured by the motions common in dancing; and there are few longtunes of any note within the laſt century, that have not been applied to *country-dances*.

COUNTRY *foſſe*. See SHEER.

COUNTRY, *trial by*, the ſame with trial by JURY.

COUNTRY *wakes*. See WAKES.

COUNTY, originally ſignifies the territory of a count, or earl. But now it is uſed in the ſame ſenſe with SHIRE; the one word coming from the French, the other from the Saxon.

In this view, a *county* is a circuit, or portion of the realm; into fifty-two of which, the whole land, England and Wales, is divided, for its better government, and the more eaſy adminiſtration of juſtice.

Theſe *counties* are ſubdivided into rapes, lathes, wapentakes, hundreds; and theſe again into tithings; a diviſion owing to king Alfred.

For the execution of the laws in the ſeveral *counties*, excepting Cumberland, Weſtmoreland, and Durham, every Michaelmas term, officers are appointed, under the denomination of *ſheriffs*. This officer has a double function: firſt, *miniſterial*, to execute all proceſſes and precepts of the courts of law directed to him: and ſecondly, *judicial*; whereby he has authority to hold two courts,

the one called the *sheriff's tourn*, the other the *county court*. Other officers of the several *counties* are, a *high lieutenant*, who has the command of the militia of the *county*: *custodes rotulorum*, *justices of peace*, *bailiffs*, *high-constable*, and *coroner*. See further under LORD LIEUTENANT, MILITIA, CUSTOS *rotulorum*, JUSTICE *of the peace*, *High*-CONSTABLE, BAILIFF, and CORONER.

Of the fifty-two *counties*, there are three of special note, which are therefore termed *counties palatine*, as Lancaster, Chester, and Durham. The two latter are such by prescription, or immemorial custom, at least as old as the Norman conquest; the former was created by Edward III. in favour of Henry Plantagenet, first earl and duke of Lancaster. Pembroke also, and Hexham, were anciently *counties palatine*; which last belonged to the archbishop of York, and was stripped of its privilege in the reign of queen Elizabeth, and reduced to be a part of the *county* of Northumberland: the former was abolished in 27 Hen. VIII. the latter in 14 Eliz.

The chief governors of these *counties palatine*, heretofore, by a special charter from the king, sent out all writs in their own names; and touching justice, did all things as absolutely as the king himself in other *counties*; only acknowledging him their superior and governor: whence *palatine*, a *palatio*, because the owners of them had *jura regalia* as fully as the king hath in his palace. These privileges were probably granted to them, because they bordered on enemies countries, viz. Wales and Scotland. But in Henry the Eighth's time, the said power was much abridged; though still all writs are witnessed in their names, and all forfeitures for treason by the common law accrue to them. The isle of Ely has been sometimes reckoned among the *counties palatine*, though it is properly only a royal franchise; the bishop having, by grant of king Henry I. *jura regalia* within the isle of Ely, whereby he exercises a jurisdiction over all causes, criminal and civil.

COUNTY-CORPORATE, is a title given to several cities, or ancient boroughs, on which the English monarchs have thought fit to bestow extraordinary privileges; annexing to them a particular territory, land, or jurisdiction; and making them counties of themselves, to be governed by their own sheriffs and magistrates.

The chief of these is the CITY of LONDON; with York, Canterbury, Bristol, Chester, Norwich; the towns of Kingston upon Hull, Newcastle upon Tyne, and Haverford West in Wales, &c.

COUNTY-*courts*. See *County* COURT.

COUNTY-*rates*, are those ordered by justices of peace at their quarter sessions, collected by high constables of hundreds, and paid to treasurers appointed by the justices, for repairing bridges, &c. 12 Geo. II. c. 29.

COUNTY, *Rist*. See RIER.

COUP *de bride*, in the *Manage*. See EXHILADE.

COUP *de grace*, in the *French Musick*, the same as what the Italians call TRONCO *per grazia*.

COUPED, COUPÉE, in *Heraldry*, expresses a head, limb, or other thing in an escutcheon, which is borne as if cut clean and even off, from the trunk; in opposition to its being forcibly torn off, which they call *erased*.

Thus, the arms of Ulster, which all baronets carry, is a dexter hand *couped*, or cut off at the wrist.

COUPED, *Cupis*, is also used to denote such crosses, bars, bends, chevrons, &c. as do not touch the sides of the escutcheon, but are, as it were, cut off from them.

COUPEE, a motion in dancing, wherein one leg is a little bent, and suspended from the ground; and with the other a motion is made forwards.

The word, in the original French, signifies a *cut*.

COUPLE *close*, in *Heraldry*, the fourth part of a chevron: never borne but in pairs, except a CHEVRON be between, finth Guillim; though Bloom gives an instance to the contrary.

COUPLED *columns*. See COLUMN.

COUPLET, a division of a hymn, ode, song, or the like, wherein an equal number, or equal measure, of verses is found in each part.

The word is French, formed from the Latin *copula*.

In odes, these divisions are more ordinarily called STROPHES.

By an abuse, *couplet* is sometimes used to signify a couple of verses.

COURAGE, in *Ethics*, is that quality of the mind, derived either from constitution or principle, or both, that enables men to encounter difficulties and dangers.

COURANT, or CURRENT, a term used to express the present time: thus, the year 1786 is the *courant* year; the fifteenth *courant*, the fifteenth day of the month now running.

The term is French, and properly signifies *running*.

With regard to commerce, the *price courant* of any merchandize, is the known and ordinary price accustomed to be given for it.

COURANT is also used for any thing that has course, or is received, in commerce: in which sense, we say, *courant*, or *current* coin, &c.

COURANT is also a term in *Musick* and *Dancing*; being used to express both the tune or air, and the dance.

With regard to the first, *courant*, or *currant*, is a piece of music in triple time: the air of the *courant* is ordinarily noted in triples of minims; the parts to be repeated twice. It begins and ends, when he who beats the measure falls his hand; in contradistinction from the *sarabande*, which ordinarily ends when the hand is raised. With regard to starring, the *courant* was long the most common of all the dances practised in England; it consists, essentially, of a *reverse*, a *step*, a *balance*, and a *coupee*; though it also admits of other motions.

Formerly they leaped their steps; in which point, the *courant* differed from the low dances and pavades. There are *single courants*, and *figured courants*, all danced by two persons.

COURAP, in *Medicine*, the Indian name for a distemper, which, as Bontius informs us, is very common in Java and other parts of the East Indies. It is a sort of herpes or itch, which generally breaks out on the armpits, breast, groins, and face, with such an intolerable itching, that the person affected cannot forbear scratching themselves perpetually; but they pay very dear for the ease this gives them; as an unsufferable pain succeeds in those parts which are rendered bare and denudated of the cuticula by the nails: these discharging an acrid humour which exulcerates the parts, and causes the linen to adhere so fast to them, as not to be separated without tearing the scab formed thereon.

Courap is a general name for any sort of itch, but the inhabitants call this distemper thus by way of eminence. It is so extremely contagious, that very few escape it; and though it is an unseemly disorder, causing a roughness of the skin with scales and fissures, yet the inhabitants imagine it is attended with the advantage, that while a person is affected with it, he is sure to be troubled with no other dangerous distemper: and they look upon the disappearing of this, as a prognostic of some worse disorder. They are therefore very easy under it for years together, without being very solicitous about curing it. It is remarkable that the vulgar in Scotland are pacified of the same opinion with respect to the itch; and even carry it so far as to affirm, that the catching this distemper proves a cure for any other previous to it; considering it in the same light as others do the gout, and perhaps with equal foundation. James.

COURBARIL, the name of a genus of plants. See LOCUST-*tree*.

COURIER, or CURRIER, from the French *courir*, *to run*, a messenger sent post, or express, to carry dispatches.

Antiquity, too, had its *couriers*; we meet with two kinds, viz. those who ran on foot, called by the Greeks *hemerodromi*, q. d. *couriers of a day*. Pliny. Corn. Nepos, and Cæsar, mention some of these, who would run twenty, thirty, thirty-six, and, in the circus, even forty leagues *per* day. And *riding couriers*, *curfores equestres*, who changed horses, as the modern *couriers* do.

Xenophon attributes the first *couriers* to Cyrus. Herodotus says they were very ordinary among the Persians, and that there was nothing in the world more swift than this kind of messengers. "That prince," says Xenophon, "examined how far a horse would go in a day; "and built stables, at such distances from each other, "where he lodged horses, and persons to take care of "them; and at each place kept a person always ready to "take the packet, mount a fresh horse, and forward it to "the next stage: and thus quite through his empire."

But it does not appear, that either the Greeks or Romans had any regular fixed *couriers*, till the time of Augustus: under that prince they travelled in cars; though it appears from Suetonius, they afterwards went on horseback. Under the western empire, they were called *veredarii*; and under that of Constantinople, *curfores*: whence the modern name. See POST.

COURIERS *extraordinary*. See EXTRAORDINARY.

COURIERS, *Van*. See VAN *Couriers*.

COURSE, in *Navigation*, the point of the compass, or horizon, on which a ship steers; or the angle which the rhumb line on which it sails makes with the meridian.

When a vessel begins its *course*, the wind wherewith it is driven makes a certain angle with the meridian of the place; and, as it is here supposed, the vessel follows exactly the direction of the wind; it makes the same angle with the meridian which the wind makes.

The wind is farther supposed always the same; and because each point, or instant of a *course*, may be regarded as the first; every moment of the *course* it makes the same angle with the wind.

Now a wind that is north-east, v. gr. here (and by consequence makes an angle of forty-five degrees with our meridian,)

meridian), is north-east wherever it blows, and makes the same angle of forty-five degrees with all the meridians it meets.

The *course* of a veſſel, therefore, driven by the ſame wind, makes the ſame angle with all the meridians on the ſurface of the globe.

If the veſſel run north and ſouth, it makes an angle infinitely ſmall with the meridian, i. e. is parallel to it, or never goes from it: if it run eaſt and weſt, it cuts all the meridians at right angles. In the firſt caſe it deſcribes a great circle; in the ſecond, either a great circle, which is the equator, or a parallel. But if the *courſe* be between the two, it does not then deſcribe a circle, becauſe a circle drawn in ſuch a manner, would cut all the meridians at unequal angles. It deſcribes, therefore a ſpiral or curve, the eſſential condition whereof is to cut all the meridians under the ſame angle; called the *loxodromic curve*, or *loxodromy*, popularly *rhumb*.

The ſhip's *courſe*, therefore, except in the two firſt caſes, is always a loxodromic curve; and the hypothenuſe of a rectangle triangle, the two other ſides whereof are the ſhip's way in latitude and longitude.

The latitude is uſually had by obſervation.

The rhumb, or angle of the *courſe*, is had by the compaſs, together with the one or other of the two ſides; and what remains to be calculated in ſailing, is the quantity of the longitude, and of the rhumb, or *courſe*.

COURSE, *complement of the*. See COMPLEMENT.

COURSE *of a river*. See RIVER.

COURSE, in *Architecture*, denotes a continued range of ſtones, level, or of the ſame height, throughout the whole length of the building; and not interrupted by any aperture. It forms a parapet to the intermediate ſpace between the body of the building and the wings. *See Tab. of Architecture, fig.* 16. and K, *fig.* 40. See alſo BUILDING, WALL, and MASONRY.

COURSE *of plinths*, is the continuity of a PLINTH of ſtone, or plaiſter, in the face of a building; to mark the ſeparation of the ſtories.

COURSE is alſo uſed for a collection, or body of laws, canons, or the like. See CORPUS.

The *civil courſe*, is the collection of Roman Laws, compiled by order of Juſtinian. See CIVIL *law*.—*Canonical courſe*, is the collection of the canon law, made by Gratian.

COURSE, again, is uſed for the time ordinarily ſpent in learning the principles of a ſcience, or the uſual points and queſtions therein. Thus, a ſtudent is ſaid to have finiſhed his *courſe* in the humanities, in philoſophy, &c.

COURSE is alſo uſed for the elements of an art exhibited and explained, either in writing, or by actual experiment. Hence our *courſes* of philoſophy, anatomy, chemiſtry, mathematics, &c. probably ſo called, as going through out, or running the whole length or *courſe* of the art, &c.

COURSE *of the moon*. See MOON.

COURSE, *Paddock*. See PADDOCK.

COURSES, in *Sea-Language*, is uſed for a ſhip's main-ſail and fore-ſail. When the ſails under them only, without facing on any bonnets, they ſay, ſhe goes under *a pair of courſes*. Or more generally all the principal ſails, viz. the main-ſail, fore-ſail, and mizen, are thus diſtinguiſhed: and ſometimes alſo the mizen-ſtay-ſail and fore-ſail, and all the main-ſtay-ſails of brigs and ſchooners.

COURSING. There are three ſeveral *courſes* with greyhounds. 1. At the hare. 2. At the fox. And, 3. At the deer.

For the deer there are two ſorts of *courſes*, the one in the paddock, the other either in the foreſt or purlieu. For the paddock *courſe*, there muſt be the greyhound and the terrier, and the mungril greyhound, whoſe buſineſs it is to drive away the deer before the greyhounds are ſlipped; a brace, or a leaſh, are the uſual number ſlipped at a time, ſeldom at the utmoſt more than two brace.

In *courſing* the deer in the foreſt or purlieu, there are two ways in uſe, the one is *courſing* from wood to wood, and the other upon the lawns by the keeper's lodge. In the *courſing* from wood to wood, the way is to throw in ſome young hounds into the wood, to bring out the deer; and if any deer come out that is not weighty, or a deer or antler, which is buck, fore or forrel, then you are not to ſlip your greyhounds, which are held at the end of the wood, where the keepers, who can gueſs very well on theſe occaſions, expect that the deer will come out. If a proper deer come out, and it is ſuſpected that the brace or leaſh of greyhounds ſlipped after him, will not be able to kill him, it is proper to waylay him with a couple of freſh greyhounds.

The *courſing* upon the lawn is the moſt agreeable of all other ways. When the keeper has notice of this, he will lodge a deer for the *courſe*, and then by coming under the wind, the greyhound may be brought near enough to be ſlipped for a fair *courſe*.

The beſt method of *courſing* the hare, is to go out and find a hare ſitting, which is eaſily done in the ſummer, by walking acroſs the lands, either ſtubble, fallow, or corn grounds, and caſting the eye up and down; for in ſummer they frequent theſe places for fear of the ticks, which are common in the woods at that ſeaſon; and in autumn, the rains falling from the trees offend them. The reſt of the year there requires more trouble, as the buſhes and thickets muſt be beat to rouſe them, and often they will lie ſo cloſe, that they will not ſtir till the pole almoſt touches them: the ſportſmen are always pleaſed with this, as it promiſes a good *courſe*.

If a hare lies near any cloſe or cover, and with her head that way, it is always to be expected that ſhe will take to that immediately on being put up: all the company are therefore to ride up and place themſelves between her and the cover before ſhe is put up, that ſhe may take the other way, and run on an open ground. When a hare is put up, it is always proper to give her ground or law, as it is called, that is, to let her run twelve-ſcore yards, or thereabouts, before the greyhounds are ſlipped at her; otherwiſe ſhe is killed too ſoon, and the greateſt part of the ſport thrown away, and the pleaſure of the ſeveral windings and turnings that the creature will make to get away, is all loſt. A good ſportſmen had rather ſee a hare ſave herſelf, after a fair *courſe*, than ſee her murdered by the greyhounds as ſoon as ſhe is up.

In *courſing* the fox, no other art is required than ſtanding cloſe, and on a clear wind, on the outſide of ſome grove, where it is expected he will come out; and when he is come out, he muſt have head enough allowed him, elſe he will turn back to the covert. The ſloweſt greyhound will be able to overtake him after all the odds of diſtance neceſſary; and the only danger is the ſpoiling the dog by the fox, which too often happens; for this reaſon, no greyhound of any value ſhould be run at this *courſe*, but the ſtrong, hard-bitten dogs, that will ſeize any thing.

For the laws of *courſing* eſtabliſhed by the duke of Norfolk, and the ſportſmen of the kingdom in the reign of queen Elizabeth, ſee Sportſman's Dict. in voc.

COURT, an appendage to a houſe or habitation; conſiſting of a piece of ground incloſed with walls, but open upwards.

The word is formed from the French *cour*, and that from the Latin *cohors*: whence alſo *curtis* and *curtis* are ſometimes uſed for the ſame. In the laws of the Germans, there is one article, *De eo qui in curte regis furtum commiſerit*, and another, *De eo qui in curte ducis hominem occiderit*. Others derive *court* from the Gauliſh *cors*, formed of *colors*, and *colors* from *xopeo*. See CONORT.

The *court* before a houſe is properly called the *fore-court*; that behind, the *back-court*; that where country affairs, &c. are managed, i. e. where cattle, &c. come, the *baſſe-court*.

COURT is alſo uſed for the palace, or place where a king, or ſovereign prince, reſides.

COURT, *Curia*, in a Law *Senſe*, is the place where the judges diſtribute juſtice, or exerciſe their juriſdiction. Alſo the aſſembly of judges, jury, &c. in that place.

By the law of England, no *court* in this kingdom can claim any juriſdiction, unleſs it be ſome way or other derived from the crown; the king being the fountain of juſtice, and the ſupreme magiſtrate of the kingdom, intruſted with the whole executive power of the land.

Yet the king cannot give any addition of juriſdiction to an ancient *court*; but all ſuch courts muſt be held in ſuch manner, and proceed by ſuch rules, as their known uſage has limited and preſcribed. Whence it follows, for inſtance, that the *court* of king's bench cannot be authorized to determine a mere real action between ſubject and ſubject; nor can the *court* of common pleas enquire of treaſon or felony.

In this ſenſe, *courts* are divided into *ſovereign* or *ſuperior*, and *ſubaltern*, or *inferior*: and, again, into *courts of record*, and *baſe courts*. Crompton deſcribes thirty-two *courts* in England, moſt of them *courts of record*.

Courts of record are created by act of parliament, letters patent, or preſcription.

The *ſupreme court* is the *court* of PARLIAMENT.

Superior courts of record are diſtinguiſhed into *more principal*, and *leſs principal*.

The *more principal courts* are, the *houſe of lords*, the *court of chancery*, the *king's bench*, *common pleas*, and *exchequer*; and alſo, according to Sir Matthew Hale, the *juſtices itinerant* and *communia placita*, and *ad placita foreſtæ*.

The *leſs principal courts of record* are ſuch as are held, 1. By commiſſions of *gaol-delivery*, *oyer* and *terminer*, *aſſize*, *niſi prius*, and ſome others. 2. By cuſtom, or charter; as the *courts* of the counties palatine of Lancaſter, Cheſter, Durham. 3. By virtue of an act of parliament,

and

and the king's commission; as the *court of sewers*, *justices of the peace*, &c.

Inferior courts of record are, *corporation courts*, *court-leet*, and the *sheriff's tourn*.

Every *court* of record is the king's *court*, though the profits may be another's. If the judges of such *courts* err, a writ of error lies. The truth of its records shall be tried by the records themselves, and there can be no averment against the truth of the matter recorded. Coke, Litt. 117. b. 8. Coke, 38. b.

Courts not of record are, the *courts baron*, *county courts*, *hundred courts*, and others.

These *courts* cannot impose any fine on an offender, nor award a capias, nor hold plea of debt or trespass, if the debt or damages amount to forty shillings; nor of a trespass done, *vi & armis*, though the damage be laid under forty shillings. And their proceedings may be denied, and tried by a jury, and a writ of false judgment, not of error, lies on their judgments.

The *court* of chancery, proceeding by *subpœna*, is not a *court* of record.

On the subject of *courts*, see New Abr. of the Law, tit. *Courts*.

Again, *courts* are either such as are held in the king's name, as all the ordinary *courts*; or those held by his authority, where the precepts are issued in the judge's name, *virtute magistratus sui*, as the admiral's *courts*.

In England we have four principal *courts* subsisting; all established by ancient customs of the realm, rather than by any statute; though their establishments have been from time to time since confirmed by act of parliament. These are the *courts* of *king's bench*; the *common bench*, or *pleas*; the *exchequer*; and the *courts of chancery*. See each in its alphabetical order, *infra*.

COURT *of Admiralty*, is a *court* held by the high admiral, or commissioners of the admiralty; to which belongs the decision of all maritime controversies, trials of malefactors, and the like.

The proceedings in this *court*, in all civil matters, are according to the civil law; because the sea is without the limits of the common law, and under the admiral's jurisdiction.

In criminal affairs, which ordinarily relate to piracy, the proceedings of this *court* were anciently likewise by information and accusation, according to the civil law; but that being found inconvenient, because no person could be convicted without either their own confession, or an eye-witness of the fact, so that the greatest offenders often escaped with impunity, there were two statutes made by Henry VIII. enacting, that criminals should henceforth be there tried by witnesses and a jury; and this by special commission from the king to the lord admiral; wherein some of the judges of the realm are always to be commissioners; and the trial according to the laws of England; directed by those statutes.

The *court of admiralty*, is said to have been first erected in 1357, by king Edward III. To the civil law, first introduced in it by the founder, were afterwards added, by his successors, particularly Richard I. the laws of Oleron; and marine ufes and conftitutions of feveral people; as thofe of Genoa, Pifa, Marfeilles, Meilina, &c. The jurifdiction of this *court* was limited by Richard II.

Under this *court* is alfo a *court*-merchant, or *court* of equity; wherein all differences between merchants are decided, according to the rules of the civil law.

Between the *courts of admiralty* and common law, there feems to be *divifum imperium*; for the fea, fo far as the low-water mark, is accounted *infra corpus comitatus ofque-comitis*; and the caufes thence arifing are determinable by the common law: yet when the fea is full, the admiral has jurifdiction there alfo fo long as the fea flows, over matters done between the low-water mark and the fhore. The *admiralty court* is not allowed to be a *court* of record, becaufe it proceeds by the civil law; and the judge has no power to take fuch a recognizance as a *court* of record may. The proceſs and proceedings are in the name of the lord admiral, and by libel; and the plaintiff and defendant enter into a ſtipulation or bond for appearance and to abide the ſentence. 4 Inſt. 134, 135.

If an erroneous judgment be given in the admiralty, appeal may be had to DELEGATES appointed by commiſſion out of chancery, whoſe ſentence ſhall be final. Stat. 8 Eliz. c. 5.

Among the Hollanders, the five *admiralties* are ſo many chambers, compoſed of the deputies of the nobles, the provinces, and the towns; to whom belong the equipping out of fleets, the furniſhing proviſions for them, and directing what relates to maritime affairs.

COURT *of Aids*, in FRANCE. See AIDS.

COURT *of Arches*, *Curia de arcubus*, the chief and moſt ancient conſiſtory *court* belonging to the archbiſhop of Canterbury, for the debating of ſpiritual cauſes. It is ſo called from the church in London, commonly called St. Mary le Bow, where it was formerly held, which church had its name from the ſteeple, which was raiſed by pillars built archways, like bent bows. Cowel.

The judge of this *court* is ſtyled *dean of the arches*, or official of the *arches court*. He hath extraordinary juriſdiction to all eccleſiaſtical cauſes, except what belong to the prerogative *court*; alſo all manner of appeals from biſhops, or their chancellors or commiſſaries, deans and chapters, &c. firſt or laſt are directed hither. He hath ordinary juriſdiction throughout the whole province of Canterbury in caſes of appeals; ſo that upon any appeal made, he, without any farther examination of the cauſe, ſends out his citation to the appellee, and his inhibition to the judge, from whom the appeal was made. Of this ſee more, 4 Inſt. 337. But he cannot cite any perſon out of the diocele of another, unleſs it be on appeal, &c. 23 Hen. VIII. c. 9. In another ſenſe, the dean of *arches* has a peculiar juriſdiction of thirteen parithes in London, called a deanery (being exempt from the authority of the biſhop of London), of which the parith of Bow is the principal. The perſons concerned in this *court*, are the judge, advocate, regiſters, proctors, &c. and the foundation of a ſuit in theſe *courts*, is a citation for the defendant to appear; then the libel is exhibited, which contains the action, to which the defendant muſt anſwer: whereupon the ſuit is conteſted, proofs are produced, and the cauſe determined by the judge, upon hearing the advocates on the law and fact; when follows the ſentence and decree thereupon. Jacob. See AUDIENCE.

This *court* (as alſo the *court* of peculiars, the admiralty *court*, the prerogative *court*, and the *court* of delegates, for the moſt part) is now held in the hall belonging to the college of civilians, commonly called Doctors Commons. Eloy. 21.

From this *court*, the appeal is to the king in Chancery, by 25 Hen. VIII. c. 19.

COURT *of Archdeacon*, is the moſt inferior *court* in the whole eccleſiaſtical polity. It is held before the archdeacon or his official, and appeal lies to the biſhop's *court*.

COURT *of Aſſiſe*. See ASSISE.

COURT *of Augmentation*, the name of a *court* erected, 27 Hen. VIII. for determining ſuits and controverſies, relating to monaſteries and abbey lands. The intent of this *court* was that the king might be juſtly dealt with, touching the profit of ſuch religious houſes, and their lands, as were given him by act of parliament the ſame year. This *court* was diſſolved under queen Mary, by the parliament held the firſt year of her reign; but the office of *augmentation* remains to this day, in which are many valuable records. Terms de Ley. 68.

COURT *of Burghmote*. See BARGHMOTE.

COURTS *Baron*, are *courts* that all lords of manors, who were anciently called *barons*, have within their reſpective precincts. It is an inſeparable incident to a manor; and muſt be held by preſcription, for it cannot be created at this day. 1 Inſt. 58. 4 Inſt. 268.

A *court baron* muſt be kept on ſome part of the manor; and is twofold. 1. By *cuſtome*: as, if a man having a manor in a town, grant the inheritance of the copyholds thereto belonging to another; this grantee may keep a *court* for the cuſtomary tenants, and accept ſurrenders to the uſe of others, and make both admittances and grants. 2. *By common law*. This is of freeholders, which is properly called a *court baron*, wherein the freeholders are judges: whereas of the other, the lord or his ſteward is judge.

COURT, *Biſhop's*, an eccleſiaſtical *court* held in the cathedral of each diocele; the judge whereof is the biſhop's chancellor, anciently called *eccleſiaſticus*, and *auditor cauſarum*, q. d. the church-lawyer; who judges by the civil and canon law; and, if the diocele be large, has his commiſſaries in remote parts, who hold what they call *conſiſtory courts*, for matters limited to them by their commiſſion.

COURT *of Chancery*, the grand court of equity, and conſcience, inſtituted to moderate the rigour of the other *courts* that are tied to the ſtricteſt letter of the law.

The judge of this *court* is the lord high chancellor, whoſe function ſee under CHANCELLOR.

The proceedings of this *court* are either *ordinary*, like other *courts*, according to the laws, ſtatutes and cuſtoms of the nation, by granting out writs remedial and mandatory, writs of grace, &c. or *extraordinary*, according to equity and conſcience, by bills, anſwers, and decrees, to examine frauds, combinations, truſts, ſecret uſes, &c. to ſoften the ſeverity of common law, and reſcue people from oppreſſion; to relieve them againſt eſcapes, unfortunate accidents, breaches of truſt, &c.

Out of the *court of chancery*, are iſſued writs or ſum-

monfes for parliaments and convocations, edicts, proclamations, charters, protections, patents, fafe conducts, and writs of *moderata miſericordia*, &c.

Here are alſo ſealed and enrolled letters patent, treaties and leagues, deeds, writs, and commiſſions.

The officers of this *court*, beſide the lord chancellor, who is ſupreme judge, are, the maſter of the rolls, who, in the chancellor's abſence, hears cauſes, and gives decrees; and twelve maſters of chancery, one of whom is the maſter of the rolls, who are aſſiſtants, and ſit by turns on the bench.

For the equity part of this *court* there are ſix clerks, and their deputies, who have under them a number of others, called the ſixty ſworn clerks, in the nature of attorneys of the *court*; two chief examiners, for examining witneſſes, who have each five or ſix clerks apiece; one principal regiſter, who has four or five deputies; clerk of the crown, who makes out writs, commiſſions, &c. warden of the Fleet; ſerjeant at arms, who bears the mace before the chancellor; and the uſher and crier of the *court*.

To the common law part belong the twenty-four curſitori, and their clerks, who make out original writs; clerks of the petty bag; clerks of the hanaper; comptroller of the hanaper; clerk of appeals; clerk of the faculties; ſealer; chaſe-wax; clerks of the parents, of preſentations, diſmiſſions, licenſes to alienate, enrollments, protections, ſubpœnas, affidavits, &c. See each under its proper article.

Appeals from the decrees of the *court of chancery* may be brought into the HOUSE *of lords*.

The juriſdiction of this *court* was impugned about the time of its original creation, and even in the reign of queen Elizabeth it was ſtrongly holden by the judges of the common law courts, that the chancellor could not by his decree ſequeſter the party's lands, that is, he could only *agere in perſonam*, but not *in rem*; and agreeably thereunto it was reſolved, 16 Eliz. in the caſe of Colleſton and Gardener, that if a man killed a ſequeſtrator in the execution of ſuch proceſs, it was no murder. Vide New Abr. Law, vol. i. p. 588. Cro. Eliz. 651. 4 Inſt. 84. 1 Rol. Rep. 86. 190. Lit. Rep. 166.

Alſo in the reigns of queen Elizabeth and king James the Firſt, there are ſeveral ſtrong opinions, that a *court* of equity could not examine, or give reliefs in a cauſe after judgment at law; and that ſuits in equity, to relieve againſt a judgment at law, are within the ſtatutes, which make it a præmunire to appeal to any foreign court, eſpecially if the end thereof be to controvert the very point determined at law, or to ſeek relief after judgment in a caſe wherein the law may relieve, as againſt exceſs of damages. But ſuch opinions ſeem now to be wholly exploded. Vide Caſ. Eq. Abr. p. 130.

The ancient rule for the juriſdiction of the extraordinary *court of chancery*, was confined to frauds, accidents, and trufts; and though at this day, by its power of granting injunctions, it curbs the juriſdiction of other *courts*, and thereby has ſwallowed up the greateſt part of the buſineſs of the common law; yet it is ſtill under ſome of theſe notions, that it exerciſes a juriſdiction in relieving againſt forfeitures, penalties, where a compenſation can be made, in preventing multiplicity of ſuits, decreeing a ſpecific execution of agreements, aſſiſting defective conveyances, &c. But in no caſe will it relieve againſt an act of parliament, nor directly againſt a fundamental rule or maxim of the common law, nor retain a ſuit where the party appears to have a plain and adequate remedy at law. Theſe things, ſays lord Coke, are to be adjudged in a *court of equity*. 1. All covins, frauds, and deceits, for which there is no remedy by the ordinary courſe of law. 2. Accidents, as when a ſervant, obligor, or mortgagor, is to pay money on a certain day, and they happened to be robbed in going to pay it. 3. Breaches of truſt and confidence. 4 Inſt. 84.

Upon this foundation, that a *court of equity* could not relieve againſt a maxim of the common law, it was formerly holden, that one executor could not compel the other to account; that one joint-tenant could not ſue his companion; that if an obligee loſt his bond, he was without remedy: ſo where the leſſor entered upon his leſſee, and ſuſpended his rent, it was held that he had no remedy: ſo where the party became remedileſs by his own act, as by paying money without an acquittance: ſo where one on valuable conſideration promiſed to make a leaſe, it was held that the party could not ſue on this promiſe in equity, becauſe he might have an action on the caſe. But theſe laſt opinions are now of no weight or authority, as appears by daily experience.

All matters of truſt are particularly within the juriſdiction of the *court of chancery*.

COURT *of Chivalry*, or the *Marſhal's Court*; a *court* wherein the judges are, the lord high conſtable, and the earl marſhal of England.

This *court* is the fountain of marſhal law; and the earl marſhal is not only one of the judges, but alſo to ſee execution done. 4 Inſt. 123. See CHIVALRY.

COURT *Chriſtian*, *Curia Chriſtianitatis*, is an eccleſiaſtical judicature, oppoſed to the *civil court*, or lay tribunal; and as in ſecular *courts*, human laws are maintained; ſo in the *court Chriſtian*, the laws of Chriſt ſhould be the rule. The judges therefore are divines; as archbiſhops, biſhops, archdeacons, &c. 2 Inſt. 488. *Courts Chriſtian* are ſo called, becauſe they handle matters eſpecially appertaining to Chriſtianity. See COURTS *Eccleſiaſtical*, infra. See alſo CONSISTORY.

COURTS *of Compoſitions*. See CINQUE-PORTS.

COURT *of Common Pleas*, *Communia placita*, or *Bancus communis*, one of the king's *courts*, held in Weſtminſter-hall. Gwyn obſerves, that till the granting of Magna Charta, there were but two *courts* called the king's *courts*, viz. the exchequer, and the king's bench; and that upon the grant of that charter, the *court of common pleas* was erected, and fixed to a place certain, viz. Weſtminſter-hall: whence the writs which before ran *coram me vel juſticiariis meis*, ſimply, were now changed, and run *coram juſticiariis meis apud Weſtmon.*

The juriſdiction of this *court* is founded on original writs, iſſuing out of the chancery, which are the king's mandates for them to proceed on to determine ſuch and ſuch cauſes. But this is to be underſtood when the cauſe is between common perſons; for when an attorney, or any perſon belonging to the *court*, is plaintiff, he ſues by writ of privilege, and is ſued by bill, which is in nature of a petition; both which originally commence in the *common pleas*, and have no foundation in the chancery. 4 Inſt. 99.

The juriſdiction of each *court* is at this day ſo well eſtabliſhed, that as the *court* of king's bench cannot determine a mere real action, ſo neither can the *court of common pleas* enquire of felony or treaſon. Vide 2 Hawk. P. C. p. 2.

This *court*, without any writ, may upon a ſuggeſtion only, grant prohibition, to keep as well temporal as eccleſiaſtical *courts* within their bounds and juriſdiction. See 4 Inſt. 99. and Vaughan's Reports, p. 157.

In term time, this *court* may award a habeas corpus by the common law, for any perſon commited for any cauſe under treaſon or felony; and thereupon diſcharge him, if it ſhall clearly appear, by the return, that the commitment was againſt law, as being made by one who had no juriſdiction of the cauſe, or for a matter, for which, by law, no man ought to be puniſhed. Vide Vaughan, 154, ſeq. 2 Jones, 14.

All civil cauſes, both real, perſonal, and mixed, are tried in this *court*, according to the ſtrict law of the realm: Forteſcue repreſents it as the only *court* for real cauſes.

The chief juſtice hereof is called the *lord chief juſtice of the common pleas*, whoſe ſalary is 2500*l.* a year; who is accompanied with three of his aſſociates, at a ſalary of 2000*l.* each, created by letters patent, and as it were judges inſtalled or placed on the common bench by the lord chancellor, and the lord chief juſtice of the *court*.

The reſt of the officers belonging to this *court* are, the cuſtos brevium; three prothonotaries, or prædonaries, ſee PROTHONOTARY; a chirographer; ſeventeen filazers; exigenter; clerk of the warrants; clerk of the juries, or juratawrits; clerk of the treaſury; clerk of the king's ſilver; clerk of the eſſoigns; clerk of the outlawries; clerk of the errors, &c. whoſe ſeveral functions ſee in their places; CUSTOS *brevium*, CHIROGRAPHER, EXIGENTER, CLERK, &c.

COURT *of Conſcience*, *Curia conſcientiæ*. In the 19th of Henry VIII. the *court of conſcience* in London was erected: there was then made an act of common council, that the lord mayor and aldermen ſhould aſſign monthly two aldermen and four diſcreet commoners, to be commiſſioners to ſit in this *court* twice a week, to hear and determine all matters brought before them between party and party, between citizens and freemen of London, in all caſes where the debt or damage was under forty ſhillings. And this act of common council is confirmed by the ſtat. 1 Jac. I. which empowers the commiſſioners of this *court* to make ſuch orders between the parties touching ſuch debts, as they ſhall find ſtand to equity and good conſcience. Alſo the ſtat. 3 Jac. I. c. 15. ſince explained and amended by 14 Geo. II. c. 10. farther eſtabliſhes this *court*; the courſe and practice whereof is by ſummons, to which if the party appear, the commiſſioners proceed ſummarily; examining the witneſſes of both parties, or the parties themſelves on oath; and as they ſee cauſe, give judgment. If the party ſummoned appear not, the commiſſioners have power to apprehend and commit him: alſo the commiſſioners have power to commit a perſon refuſing to obey their orders, &c. Vide ſtat. 3 Jac. I.

There are many other *courts of conscience* lately eſtabliſhed by act of parliament, of a ſimilar nature; as that for Southwark, &c. Weſtminſter, the Tower Hamlets, &c. &c.

COURT *of the Corner*, is a *court* of record, to enquire when any one dies in priſon, or comes to a ſudden and violent death, by what manner he came to his end. See CORONER.

COURT, *County*, is a *court* of juſtice held in each county by the ſheriff thereof, or his deputy, every month. See SHERIFF.

This *county court* had anciently the cognizance of matters of great moment; but it was much abridged by Magna Charta, and more 1 Edward IV. But it has ſtill the determination of debts and treſpaſſes under forty ſhillings. In effect, till the *courts* at Weſtminſter were erected, the *county courts* were the chief *courts* of the kingdom.

Among the laws of king Edgar is this, viz. Let there be two *county courts* in a year, and let there be preſent a biſhop and an alderman or earl; one whereof ſhall judge according to the common law, the other according to the eccleſiaſtical law.—The conjunction of theſe two powers to aſſiſt each other, is as ancient as the Engliſh government itſelf. They were firſt ſeparated by William the Conqueror, who brought all the eccleſiaſtical buſineſs into a conſiſtory, erected for that purpoſe; and the law buſineſs into the king's bench.

COURT *of Delegates*, is a *court* where delegates or commiſſioners are appointed by the king's commiſſion, under the great ſeal, upon an appeal to him.

It is granted in three caſes: firſt, when a ſentence is given in an eccleſiaſtical cauſe, by the archbiſhop, or his official; ſecondly, when a ſentence is given in an eccleſiaſtical cauſe, in places exempt; thirdly, when ſentence is given in the admiralty *court*, in ſuits civil or marine, by order of the civil law. 4 Inſt. 339. Stat. 25 Hen. VIII. c. 19.

This is the higheſt *court* for civil affairs concerning the church; for the juriſdiction whereof it was provided, 25 *Hen.* VIII. that it ſhall be lawful for the ſubject, in caſe of defect of juſtice in the eccleſiaſtical *courts*, to appeal to the ſovereign in his court of chancery; whence a commiſſion is directed under the great ſeal to particular perſons therein mentioned, for redreſs of judgment.

From the higheſt eccleſiaſtical *court* there lies no appeal, but to the *court of delegates*; and beyond this to no other, except to the houſe of lords. But the king, of his free will, may grant a COMMISSION of review under the great ſeal. The citations run all in the king's name.

COURT, *Duchy*, a *court* wherein all matters belonging to the duchy or county palatine of Lancaſter, are decided by decree of the chancellor of that *court*.

The original of this *court* was in Henry the Fourth's time, who obtaining the crown by depoſition of Richard II. and having the duchy of Lancaſter, by deſcent, in right of his mother, became ſeiſed thereof as king, not as duke. So that all the liberties, franchiſes, and juriſdictions of the ſaid county paſſed from the king, by his great ſeal, and not by livery, or attornment, as the cuſtoms of March, and other poſſeſſions, which deſcended to him by other anceſtors than the king's, did.

Henry IV. by authority of parliament, ſevered the poſſeſſions, liberties, &c. of the ſaid duchy from the crown: but Edward IV. reſtored them to their former nature.

The officers belonging to this *court* are, a CHANCELLOR, attorney-general, receiver-general, clerk of the court, and meſſenger; beſide the aſſiſtants, as an attorney in the exchequer, another in chancery, and four counſellors. See ATTORNEY *of the Duchy*.

The duchy of Lancaſter, ſays Gwyn, grew out of the grant of Edward III. who gave that duchy to his ſon John of Gaunt, and endowed it with royal rights, equal to thoſe of the county palatine of Cheſter. And notwithſtanding as it came afterwards to be extinct in the perſon of king Henry IV. by reaſon of its union with the crown; the ſame king ſuppoſing himſelf more rightfully duke of Lancaſter than king of England, determined to ſave his right in the duchy, whatever ſhould befal the kingdom. Accordingly, he ſeparated the duchy from the crown; and ſettled it ſo in his own perſon, and heirs, as if he had been no king, or politic body at all: in which condition it continued during the reigns of Henry V. and VI. who deſcended from him; till Edward IV. who, by recovery of the crown, reconſtituted the right of the houſe of York, appropriated the duchy to the crown again; yet ſo, that he ſuffered the court and officers to remain as he found them. In this manner, it came, together with the crown, to Henry VII. who taking Henry the Fourth's policy (by whoſe right, indeed, he obtained the kingdom), re-ſeparated the duchy, and ſo left it to his poſterity, who ſtill enjoy it.

COURTS *Eccleſiaſtical*, *Curiæ eccleſiaſticæ*, are thoſe *courts* which are held by the king's authority, as ſupreme head of the church, for matters which chiefly regard religion. 4 Inſt. 321.

The ſuits in *ſpiritual* or *eccleſiaſtical courts*, are for the reformation of manners, for puniſhing of hereſy, defamation, laying violent hands on a clerk, and the like; and ſome of their ſuits are to recover tythes, legacies, contracts of marriage, &c. and to cauſes of this nature, the *courts* may give coſts, but not damages. Things that properly belong to theſe juriſdictions, are matrimonial and teſtamentary; and defamatory words for which no action lies at law, as for calling a perſon adulterer, fornicator, ſtarver, or the like. 11 Rep. 54. Dyer, 240. The proceedings in the *eccleſiaſtical courts* are according to the civil and canon law; by citation, libel, anſwer upon oath, proof by witneſſes, and preſumptions, &c. and after ſentence for contempt, by excommunication: and if the ſentence is diſliked, by appeal. The juriſdiction of theſe *courts* is voluntary or contentious; and the puniſhments inflicted by them, are cenſures and puniſhments *pro ſalute animæ*, by way of penance, &c. They are not *courts* of record. See AUDIENCE.

COURT *of Exchequer*, is a *court* wherein are tried all cauſes relating to the king's treaſury, or revenue; as, touching accounts, diſburſements, cuſtoms, fines, &c.

It conſiſts of ſeven judges, viz. the lord treaſurer, the chancellor of the exchequer, the lord chief baron with a ſalary of 3000*l.* a year, and three other barons of the exchequer at a ſalary of 2000*l.* a year each, with one puiſſne baron.

The lord chief baron is the principal judge of the *court*. See BARONS *of the exchequer*.

The *court of exchequer* is divided into two: the one *of law*, the other *of equity*.

All judicial proceedings according to law, are ſtyled, *coram baronibus* only: but the *court* of equity held in the exchequer chamber, is *coram theſaurario, cancellario, & baronibus*; before the treaſurer, chancellor, and barons. For a long time after the Conqueſt, there ſat in the exchequer, both ſpiritual and temporal barons of the realm: but of later times, there have ſat in their places other judges, who, though no peers of the realm, yet retain the original denomination.

The common opinion of our hiſtorians is, that this *court* was erected by William the Conqueror, ſoon after his having obtained the kingdom; and that it took its form from the *eſcheqnier*, or *ſcaccarium*, eſtabliſhed in Normandy long before that time. In effect, the two exchequers have this in common, that the Norman was the ſupreme *court* of that duchy, or a general aſſiſe wherein all the great lords attended, to judge finally of all concerns of the greateſt importance; and was ambulatory: and that the Engliſh exchequer was a court of the higheſt juriſdiction; that the acts thereof were not to be examined by any of the ordinary *courts*; that it was the repoſitory of the records of all the other *courts*; and that it was to be held in the king's *court*, and before him; and that it was concerned in the prerogative as well as the revenue of the crown.

The immediate profits of the crown, as of franchiſes, lands, tenements, hereditaments, debts, duties, accounts, goods, chattels, all diſburſements, ſeizures, and fines impoſed on the ſubjects, &c. are all within the juriſdiction of the exchequer. And the king's attorney may exhibit bills, for any matter concerning the king in inheritance, or profits; ſo alſo may any perſon who finds himſelf aggrieved in any cauſe proſecuted againſt him on behalf of the king, or any patent by grant of the king, exhibit his bill againſt the king's attorney, &c. to be relieved by equity in this *court*.

To this *court* belong two officers; the king's remembrancer's office, and that of the lord treaſurer's remembrancer. See REMEMBRANCER.

Authors are divided about the origin of the denomination of this *court*, exchequer. Du-Cange is of opinion, it came from a chequer-wrought carpet, covering the great table in that *court*; or from the pavement of the *court*, which was chequer-wiſe: others, from the compoſants in this office uſing chequers, or cheſs-boards, in their computations.

In the exchequer there are ſeven *courts*. 1. The *court* of pleas. 2. The *court* of accounts. 3. The *court* of receipt, otherwiſe called the *lower exchequer*, as alſo the *receipt of the exchequer* and is the place wherein the king's revenue is received and diſburſed. The principal officers hereof are, the lord treaſurer, a lieutenant of the treaſury, a chancellor of the exchequer, two chamberlains of the exchequer, an auditor of the receipts of the exchequer, four tellers, a clerk of the pells, an other of the receipt, a tally cutter, &c. See farther under TREASURER, CHANCELLOR *of the exchequer*, SECRETARY, CHAMBERLAIN, UNDERCHAMBERLAIN, TELLER, PELLS, TALLY,

TALLY, &c. 4. The *court of exchequer* chamber, being the aſſembly of all the judges of England for matters in *law*. 5. The *court of exchequer* chamber, for errors in the *court of Exchequer*, eſtabliſhed by 31 Edw. III. c. 12. 6. The *court of exchequer* chamber, for errors in the king's bench, erected by 27 *Eliz.* c. 8. 7. The *court* of equity in the exchequer chamber. Vide New Abr. Law, vol. i. p. 597.

By the 33 Hen. VIII. cap. 39. the *court of exchequer* has power to diſcharge all debts and duties due to the king, upon an equity diſcloſed; and it is by virtue of this act, that they diſcharge recognizances: and it ſeems, by the ſaid act, they may diſcharge penal laws made before this ſtatute; but all *penal* laws made after the ſtatute cannot be diſcharged, but muſt be compounded.

The *court of exchequer* in Scotland, has the ſame power, authority, privilege, and juriſdiction over the revenue of Scotland, as the *court of exchequer* in England has over the revenues there; and all things and matters competent to the *court of exchequer* in England, ſo far as they relate to the king's revenue, are likewiſe competent to the *exchequer* of Scotland. The judges are likewiſe inveſted with the power of paſſing ſignatures, gifts, and tutories, and to reviſe and compound them in the ſame manner as was done by the lord high treaſurer, commiſſioners of the treaſury, and *court of exchequer* in Scotland, before the union. All ſerjeants at law, barriſters at law, of five years ſtanding, in any of the four inns of court of England; and advocates of five years ſtanding, in the college of juſtice in Scotland, are qualified for being barons of this *court*; whoſe commiſſions are *quam diu ſe bene geſſerint*.

COURT *of Faculties*, in England, belongs to the archbiſhop of Canterbury, and his officer is called *magiſter ad facultates*. His power is to grant diſpenſations, as to marry, for the ſon to ſucceed his father in his benefice, one to have two or more benefices incompatible, &c.

The office where ſuch diſpenſations are taken out, is alſo called the *Faculty office*.

COURTS *of Foreſt*. See ATTACHMENTS, REGARD, SWANMOTE, and JUSTICE *of the foreſt*.

COURT, *Hundred*, is a larger *court baron* held for all the inhabitants of a particular hundred, inſtead of a manor.

COURT *of Huſtings*, a *court* of common pleas held before the lord mayor and aldermen of London, in Guild-hall. 4 Inſt. 247.

Of the great antiquity of this *court* we find this mention in the laws of king Edward the Confeſſor. *Debet etiam in Londin. quæ eſt caput regni & legum, ſemper curia domini regis ſingulis ſeptimanis, die Lunæ huſtingis ſedere & tenere: ſundata erat olim & edificata ad inſtar & ad modum & in memoriam veteris magnæ Trojæ, & uſque in hodiernum diem, leges, & jura & dignitates, & libertates regiunque conſuetudines ſuas una ſemper inviolabiliter conſervat.* Taylor, Hiſt. of Gavel-kind.

The *court of huſtings* is the principal and higheſt of all the *courts* of the city. This *court* determines all pleas, real, perſonal, and mixt: and here all lands, tenements, and hereditaments, rents and ſervices within the city of London and ſuburbs of the ſame, are pleadable in two huſtings; the one called huſtings of the plea of lands, and the other called huſtings of common pleas. Error or ſtraint lies there of a judgment or falſe verdict in the ſheriff's *courts*.

Other cities and towns had alſo *courts* of the ſame name; as Wincheſter, Lincoln, York, &c.

COURT *of King's Bench, Curia Regis*, a *court*, or judgment-ſeat, ſo called, becauſe the king it ſuppoſed to ſit in perſon as judge of the *court*, which was formerly the caſe, and may do ſo whenever he pleaſes; for which reaſon all writs, and other proceſs in this *court*, are made returnable *coram nobis*, that is, before the king himſelf, and not *coram juſticiariis noſtris*, as is the form in the common pleas. 4 Inſt. 73.

The judges of this *court* are the lord chief juſtice, whoſe annual ſalary is 4000*l.* and three other puiſne juſtices at 2000*l.* a year each.

In this *court* are principally determined matters relating to the crown, and the peace. When any perſon is aggrieved by an order of juſtices, or quarter-ſeſſions, they have recourſe thither: the rights of elections of mayors, bailiffs, conſtables, &c. are often upon mandamuſes, brought before this *court* to be ſettled; and prohibitions are hence iſſued out to ſtay proceedings in the eccleſiaſtical, admiralty, or any inferior *court*, where the matter appears to be triable at common law. The ſubject has alſo a right to ſue in this *court* for any debt or contract, as well as in any other *court*, and may as advantageouſly and expeditiouſly proceed.

The *chief* juſtice is conſtituted by writ, and he is to hold, *quamdiu ſe bene geſſerit*, and ſo cannot be diſplaced without ſome great miſdemeanor; though formerly the chief juſtice, and other inferior judges, were made only *durante bene placito*, and accordingly were turned out at the king's pleaſure. He preſides under his majeſty in this *court*; but when the *court* divides, in giving judgment upon any ſpecial argument, he hath but one voice; ſo that if the opinion of the *court* ſhould be equally divided, the matter muſt reſt till one of the judges ſhall ſee juſt reaſon to alter his opinion. He is to attend the lords in parliament, though he has no vote, unleſs he be a peer himſelf, but is to give his opinion and advice to the houſe by virtue of a writ of aſſiſtance; and is frequently therefore conſulted by them, both in making and repealing laws, and in altering or explaining them. He makes a return of all writs of error in parliament directed to this *court*, and with his own hand delivers the writ of error, and a tranſcript of the proceedings in the cauſe into the houſe of lords.

The three puiſne, or inferior judges of this *court*, go the circuits and are in commiſſion of oyer and terminer at the Old Bailey. They, as well as the chief juſtice, are entitled to their ſalary, though they happen not to ſit one day in *court* in the term, unleſs they give their aſſent to ſlightly, as, on a *ſcire facias*, to be charged with negligence: theſe alſo hold by *quamdiu ſe bene geſſerint*.

There are ſeveral officers belonging to this *court*, as two chief *clerks*, or prothonotaries, who are ſuppoſed to enter all the pleadings and judgments between party and party; although this is in reality done by an entering-clerk under them; and all writs of *latitat non omittas*, bills of Middleſex, *habeas corpus*, &c. are ſubſcribed with the names of theſe chief clerks.

The ſecondary acts as maſter of the office on the plea ſide, and is the chief clerk's deputy; his buſineſs is to examine any perſon, who is to be ſworn an entering-clerk, or attorney at large, whether he be duly qualified, and to preſent him to the chief juſtice. He alſo ſigns all judgments, and gives coſts upon them; and the *court* upon any motion, in relation to the irregular practice of any clerk or attorney, generally refers the examination thereof to him. He alſo takes all affidavits in *court* (unleſs on the crown-ſide); and the acknowlegement of all deeds in *court*.

This *court* was always ambulatory, and removed with the king wherever he went: hence the writs returnable in this *court* are *coram nobis ubicunque fuerimus in Anglia*; and all records there are ſtyled *coram rege*, as it is ſtill ſuppoſed to have always the king himſelf in perſon ſitting in it; from whence it obtained the name of the *court of king's bench*, and hath always retained a ſupreme original juriſdiction in all criminal matters, for in theſe the proceſs both iſſued, and was returnable into this *court*: but in treſpaſs it might be made returnable into either the *king's bench*, or common pleas; becauſe the plea was criminal as well as civil. Vide 4 Inſt. 70. 2 Inſt. 24. Cok. Lit. 71. Cromp. of Courts, 78. 1 Rol. Abr. 94.

This *court* is often termed the *caſtus morum* of all the realm; and wherever it meets with an offence contrary to the firſt principles of juſtice, and of dangerous conſequence, if not reſtrained, it may adapt a proper puniſhment to it. For the better reſtraining ſuch offences, it has a diſcretionary power of inflicting exemplary puniſhment on offenders, either by fine, impriſonment, or other infamous puniſhment, as the nature of the crime, conſidered in all its circumſtances, ſhall require. It may make uſe of any priſon which ſhall ſeem moſt proper: and it is ſaid, that no other *court* can remove or bail perſons condemned to impriſonment by this *court*. 2 Hawk. P. C. p. 6.

An act of parliament, appointing, that all crimes of a certain denomination ſhall be tried before certain judges, does not exclude the juriſdiction of this *court*, without expreſs negative words; and therefore it has been reſolved, that 33 Hen. VIII. c. 12. which enacts that all treaſons, &c. within the king's houſe, ſhall be determined before the lord ſteward of the king's houſe, does not reſtrain the *court of king's bench* from proceeding againſt ſuch offences. 2 Inſt. 549.

But when a ſtatute creates a new offence, which was not taken notice of by the common law, and erects a new juriſdiction for the puniſhment of it, and preſcribes a certain method of proceeding, it ſeems queſtionable how far this *court* has an implied juriſdiction in ſuch a caſe.

The judges of this *court* are the ſovereign juſtices of oyer and terminer, gaol-delivery, conſervators of the peace, &c. As alſo the ſovereign coroners; and therefore, where the ſheriffs and coroners may receive appeals by the bill, *a fortiori*, this *court* may. Alſo this *court* may admit perſons to bail in all caſes according to their diſcretion. 4 Inſt. 73. 9 Co. 118. b. 4 Inſt. ibid. 4 Inſt. 74. Vaugh. 157.

This *court* has not only a power to reverse erroneous judgments, for such errors as appear the defect of the understanding; but also to punish all inferior magistrates, and all officers of justice, for wilful and corrupt abuses of their authority against the obvious principles of natural justice.

This *court* being the supreme court of over and terminer, gaol-delivery, and eyre, its presence suspends the power, and avoids the proceedings of all other *courts* of the same nature in the county where it sits, during its sitting there. 4 Inst. 73. 3 Inst. 27.

The civil side of the king's bench commences on a suppolition of a trespass committed by the defendant in the county where it resides, and that he is taken up by process of this *court*, as the sovereign eyre, and being committed to the marshal, he may be declared against in any civil action whatsoever. The first process, therefore, is a bill either real or feigned; and so called, because its foundation was the bill of complaint in *court*, touching the trespass: in this is founded the *latitat*, which supposes that the defendant has escaped, and therefore issues in the king's name, to apprehend the party wherever he may be found. Vide New Abr. Law, vol. i. p. 595. and title *Process*.

COURT *Leet, Lета vifus franci plegii*, is a *court* of record, ordained for punishing offences against the crown; and said to be the most ancient *court* of the land. 2 Danv. Abr. 289. It enquires of all offences under high treason; but those who are to be punished with loss of life or member, are only enquirable and presentable here, and to be certified over to the justices of assize. Stat. 1 Edw. III. And this *court* is called the view of frank pledge, because the king is to be there certified by the view of the steward, how many people are within every leet, and have an account of their good manners and government; and every person of the age of twelve years, who hath remained there for a year and a day, may be sworn to be faithful to the king, and the people are to be kept in peace, &c. A leet is incident to a hundred, as a court baron to a manor: for by grant of a hundred, a leet passeth; and a hundred cannot be without a leet. Kitch. 76.

The usual method of punishment in the *court leet*, is by fine and amercement; the former assessed by the steward, and the latter by the jury.

COURT *of the Legate*, was a *court* obtained by cardinal Wolsey of pope Leo X. in the ninth year of Henry VIII. wherein he, as legate of the pope, had power to prove wills, and dispense with offences against the spiritual laws, &c. It was but of short continuance.

COURT *of Lord High Steward*. See STEWARD.

COURT *of Marshalsea*, a *court* of record to hear and determine causes, between the servants of the king's household, and others within the verge: and hath jurisdiction of all matters within the verge of the *court*, and of pleas of trespass, where either party is of the king's family; and of all other actions personal, wherein both parties are the king's servants. This is the original jurisdiction of the *court of marshalsea*.

COURT *Martial, Curia Martialis*, is a *court* for punishing the offences of officers and soldiers, in time of war: and it appears by our books, that if any person in commission, in time of peace, put to death any man by martial law, it is against Magna Charta, and murder. 3 Inst. 52. Though temporal acts of parliament have of late enabled our kings to hold *courts martial*, in times of peace, &c.

Desertion and mutiny are punishable by this *court*; which must consist of at least thirteen commission officers; nine of whom must concur in order to sentence of death. A field officer is not to be tried by any under the degree of a captain.

COURTS, *Mayor's*. To the lord mayor and city of London, belong several *courts* of judicature. The highest and most ancient is that called the *hustings*, destined to secure the laws, rights, *franchises*, and customs of the city. The second is a *court of requests*, or *of conscience*; of which, before. The third is the *court of the lord mayor and aldermen*, where also the sheriffs sit: to which may be added, two *courts of sheriffs*; and the *court of the city orphans*; whereof the lord mayor and aldermen have the custody. Also, the *court of common council*, which is a *court* or assembly, wherein are made all by-laws which bind the citizens of London. It consists, like the parliament, of two houses: an *upper*, consisting of the lord mayor and aldermen; and a *lower*, of a number of common councilmen, chosen by the several wards, as representatives of the body of the citizens. In the *court of common council*, are made laws for the advancement of trade; and committees yearly appointed, &c. But acts made by them are to have the assent of lord mayor and aldermen, by stat. 11 Geo. I. Also, the *chamberlain's court*, where every thing relating to the rents and revenues of the city, as also the affairs of servants, &c. are transacted. Lastly, to the lord mayor belong the *courts of conscience*, and *of orphanage*; *another court* for the *conservation of the river of Thames*: another of *goal delivery*, held usually eight times a year, at the Old Bailey, for the trial of criminals, whereof the lord mayor is himself the chief judge. There are other *courts* called *wardmotes*, or meetings of the wards: and *courts of halymote*, or assemblies of the several guilds and fraternities.

COURT, *Palace, Curia Palatii*, was erected by letters patent of 6 Charles I. and made a *court* of record to try all personal actions, as debt, trespass, faister, &c. between party and party within twelve miles of Whitehall. The judges of this *court* are, the steward of the king's household, the knight marshal, and the steward of the *court* or his deputy. This *court* is held with that of the marshalsea once a week in Southwark, and appeal lies to the *court* of king's bench. The proceedings here are either by capias or attachment, which is to be served on the defendant by one of the knight marshal's men, who takes bond with sureties for their appearance at the next *court*: upon which appearance he must give bail, to answer the condemnation of the *court*; and the next *court* after the bail is taken, the plaintiff is to declare, and set forth the cause of his action, and afterwards proceed to issue and trial by a jury, according to the custom of the common law *courts*.

COURT *of Parliament*. See PARLIAMENT.

COURT *of Peculiars*, is a spiritual *court*, held in such parishes as are exempt from the jurisdiction of the bishops, and are peculiarly belonging to the archbishop of Canterbury. 4 Inst. 338. Stat. 22 and 23 Car. II.

There are royal peculiars, and archbishop's peculiars; the king's chapel is a royal peculiar, exempted from all spiritual jurisdiction, and reserved to the immediate government of the king himself: and there are also some peculiar ecclesiastical jurisdictions belonging to the king, which formerly appertained to monasteries and religious houses.

There are some peculiars which belong to deans and chapters, or a prebendary exempted from the archdeacon only; they are derived from the bishop, of ancient composition, and may be visited by the bishop in his primary or triennial visitation: in the mean time, an official of the dean and chapter, or prebendary, is the judge; and from hence the appeal lies to the bishop of the diocese. Wood. 504. Appeal lieth from other *peculiar courts* to the king in chancery. Stat. 25 Hen. VIII.

The dean and chapter of St. Paul's have a peculiar jurisdiction; and the dean and chapter of Salisbury have a larger peculiar within that diocese; to have the dean and chapter of Litchfield, &c. 2 Neil. Abr. 1240, 1241.

Where a man dies intestate, leaving goods in several peculiars, it has been held that the archbishop is to grant administration. Sid. 90. 5 Mod. 239. Appeal lies to the king in chancery.

COURT, *Pie powder*, an ancient *court* mentioned in many of our statutes, to be held in fairs, for the rendering of justice to buyers and sellers, and the redress of grievances arising therein.

It had its name either because most ordinarily held in summer, and that the suitors hereat were chiefly country clowns, with dusty feet, called by the French, *pieds poudreux*; or from the expedition intended in the hearing of causes proper thereto, before the dust went off the plaintiff and defendant's feet: or rather, from the old French *pied poudreux*, *a pedlar*; signifying the *court* of such petty chapmen as resort to fairs or markets.

The Saxons called it *cowpung-gemot*, i. e. *court of merchandise*; or a *court* for the decision of disputes relating to buying and selling. It is a *court* of record held during the continuance of the fairs. The steward, who has the toll of the market, is the judge: and the trial is by merchants and traders in the fair. A writ of error lies to the *courts* at Westminster.

COURT, *Prerogative*, is a *court* belonging to the archbishop of Canterbury; wherein all wills are proved, and all administrations granted, that belong to the archbishop by his prerogative; that is, where the party at his death had *bona notabilia*, five pounds or upwards, out of the diocese where he died, and within the archbishop's province.

All citations and decrees of this *court* run in the name of the archbishop.

This *court*, for the province of Canterbury, is kept in the common hall in Doctors Commons, in the afternoon, next day after the arches.

The Judge is attended by the register, who sets down the decrees and acts of *court*; and keeps records, &c. all original wills and testaments of parties dying, having *bona notabilia*.

The place is usually called the *Prerogative office*: it is now kept in Dean's court; where, for a moderate fee, a copy may be had of any such will. See WILL.

Appeal

Appeal lies from this *court* to the king in chancery, who appoints delegates, &c. 25 Hen. VIII. c. 19. though if the delegates revoke a will, &c, they cannot grant letters of administration; for their power is to hear and determine the appeal. 2 Bulft. 2. Roll. Abr. 223. The archbishop hath probate of every bishop's testament, &c. though he hath not *bona notabilia* out of the diocese: fo where a perfon dies beyond fea. 4 Inft. 335.

The archbishop of York hath alfo the like *court*, called his *exchequer*.

COURT *of Requefts*, was a *court* of equity, of the fame nature with the *court* of chancery, but inferior to it; being principally inftituted for the help of fuch petitioners, as, in confcionable cafes, dealt by fupplication to his majefty.

Of this *court* the lord privy-feal was chief judge; affifted by the maflers of requefts. It had its beginning about 9 Hen. VII. according to Sir Julius Cæfar's tract on this fubject. Mich. 40 and 41 Eliz. in a *court* of common pleas, it was adjudged, upon folemn argument, that this *court of requefts*, or the *Whitehall*, was no *court* that had the power of judicature, &c. Coke Inft. fol. 97. It had aflumed fo great power to itfelf, that it grew burdenfome and grievous, and was therefore taken away, with fome others, by a ftatute made 16 and 17 Car. I. cap. 10.

COURT *of Seffion*. See SESSION.

COURTS, *Stannary*. See STANNARIES.

COURT, *of Star-chamber, Camera Stellata*, or *Chambre de Eftoile*, fo called becaufe the roof was originally painted with ftars; or more probably becaufe the contracts and obligations of the Jews, before their banifhment under Edward I. which were called *ftarri*, from a corruption of the Hebrew word *hotar, a covenant*, were kept in chefts in the king's exchequer. This is of an ancient ftanding; but its authority was very much heightened by Henry VII. and Henry VIII. who appointed, by two feveral ftatutes, that the chancellor, aflifted by others there named, fhould have power to hear complaints againft retainers, embracers, mifdemeanors of officers, and other like offences, which through the power and authority of thofe who committed them did lift up the head above other faults; and for which inferior judges were not fo meet to give correction, and the common law had not fufficiently provided.

By the ftatute 16 Car. I. the *court* called *ftar-chamber*, and all jurifdiction, power, and authority thereto belonging, are abfolutely diffolved.

COURT *Supreme*. See PERR.

COURT *of Verge*. See COURT *Palace*.

COURTS, *Univerfity*. The *courts* of the univerfities of Oxford and Cambridge, are of a particular nature: they were granted by charters, and confirmed by authority of parliament. See ftat. 13 Eliz. 4 Inft. 227. Thefe *courts* are called the chancellor's *courts*, and are kept by the vice-chancellors of the univerfities. Their jurifdiction extends to all caufes eccleſiaſtical and civil (except for maihem, felony, and relating to freeholds); where a fcholar, fervant, or minifter of the univerfities, is one of the parties to the fuit.

COURTS *of Wales*, are eſtabliſhed over the principality chiefly by 12 Edw. I. and 34 and 35 Hen. VIII. c. 26. Befides *courts* baron, hundred and county *courts*, like thofe in England, a feſſions is held twice every year in each county, by judges appointed by the king; in which pleas and perſonal actions ſhall be held in the fame manner, and with the fame extent, as in the *court* of common pleas at Weſtminſter; and writs of error ſhall lie from judgment in them to the *court* of king's bench. And the proceedings are according to the laws of England.

COURT *of Wards*, a *court* firſt erected by king Henry VIII. and after augmented by him with the office of liveries: but now abſolutely taken away and abolifhed, by a ſtatute made 12 Car. II. cap. 24.

For the nature of this *court*, ſee Coke on Litt. tit. *Knight's ſervice*.

COURT, *Bouche of*. See BOUCHE.

COURT, *Delight of the*. See DEPARTURE.

COURT, *Forejudged the*. See FOREJUDGED.

COURT, *Inns of*. See INN.

COURT, *Perquiſites of*. See PERQUISITE.

COURT, *Suit of*. See SUIT.

COURT, *Ambulatory*. See AMBULATORY.

COURT, *Baſe*. See BASE.

COURT, *Honour*. See HONOUR.

COURT, *Lawleſs*. See LAWLESS.

COURT, *Wood-pleas*. See WOOD.

COURT-DAYS, are days when the courts of judicature are open, and pleas held.

COURT-LANDS, ſuch as the lord of the manor keeps in his own hands, for the uſe of his family, and for hoſpitality. See MANOR.

COURT-ROLL, a roll which contains an account of the number, &c. of lands, depending on the lord of the manor; with the names of the TENANTS, &c.

Tenants holding by copy of this roll, are denominated COPY-HOLDERS.

COURTAIN. See CURTIN.

COURTESY, or COURTEST *of England*, a TENURE, whereby a man marrying an inheritrix, or a woman ſeiſed of lands in fee-ſimple, or fee-tail general, or ſeiſed as heir of tail-ſpecial, and getting a child by her which cometh alive into the world, though both wife and child die forthwith; yet, if the were in poſſeſſion, he ſhall keep the land during his life, and be called *tenant by the courteſy of England*; this privilege being not allowed in any other country, except Scotland, where it is called *curialitas Scotiæ*.

This tenure was introduced by the Conqueror, and borrowed by him from his own country, Normandy, where it obtained before, under the name of *vevetel*. It is ſaid in the Mirrour to have been introduced by Henry I.

COURTESY, *Arms of*. See ARMS.

COURTIN, or COURTAIN, in *Fortification*. See CURTIN.

COURTISAN, a term of infamy, applied to women who expoſe their perſons, and make a trade of proſtitution.

Laïs, the famous Theban *courtiſan*, ſtands on record for requiring no leſs than ten thouſand crowns for a ſingle night. Of all places in the world, Venice is that where *courtiſans* abound the moſt: it is near three centuries ſince the ſenate, which had expelled them, was obliged to recall them: to provide for the ſecurity of women of honour, and to keep the nobles employed, leſt they ſhould make innovations in the ſtate.

COUSIN, a term of relation and kindſhip, applied to thoſe who are iſſued from two brothers, or two ſiſters.

The word is ordinarily derived from *conſanguineus*; though Menage brings it from *cognatus*, or *cognetus*, q. d. *ex eadem genere*.

In the firſt generation they are called *couſin germain*, i. e. next *couſins*: in the ſecond, *ſecond couſins*: in the third and fourth, *couſins in the third and fourth degrees*.

In the primitive times, it was allowed *couſin germans* to marry, to prevent their making alliances in heathen families: but Theodoſius the Great prohibited it, under pain of death; on pretence that they were, in ſome ſort, brothers and ſiſters, with regard to each other.

Paternal couſins, are thoſe ſprung from relations on the father's ſide. *Maternal*, thoſe on the mother's.

COUSINS, *Quater*. See QUATER.

COUSIN is alſo a title of honour, which kings beſtow on peers, or nobles, foreign princes of the blood, cardinals, and the principal perſons of their ſtate.

COUSSINET, *couſſinet*, in *Architecture*, the ſtone that crowns a pieriſtil, or pier; or that lies immediately over the capital of the impoſt. Its under-ſide is level, and its upper curved; receiving the firſt rile or ſpring of the arch, or vault.

The word is uſed alſo to ſignify an ornament, in the Ionic capital, between the ABACUS and ECHINUS, or quarter-round; and which ſerves to form the volutes. It is thus denominated from its repreſenting a pillow, or cuſhion, preſſed by the weight over it, and bound with the ſtrap, or girdle, called, by Vitruvius, *balthea*.

COUSU, in *Heraldry*, is uſed in the ſame ſenſe as *remply*; viz. for a piece of another colour, or metal, placed on an ordinary as if it were ſewed on; which the word, in the French language, naturally implies: becauſe the additional piece is not properly on the field, but in the nature of a thing ſewed on, *adjutus*. This is generally of colours on colour, or metal on metal, contrary to the general rule of heraldry.

COUTHUTLAUGH, from the Saxon *couth, known*, and *utlaugh, outlaw*; he that wittingly receives a man outlawed, and cherifhes or conceals him: for which offence he was, in antient time, ſubject to the ſame puniſhment with the outlaw himſelf.

COUVERT, in *Heraldry*, denotes ſomething like a piece of hanging, or a pavilion, falling over the top of a chief, or other ordinary; ſo as not to hide, but only be a ſhading thereto.

COW, in *Zoology*. See BULL, and BOS.

The *cow* ought to have a broad forehead, black eyes, large clean horns, a long thin neck, a large deep belly, thick thighs, round legs, large feet, ſhort joints, and a white large udder with four teats.

The uſe of the *cow* is either for the dairy, or for the breed. The red *cow* is generally ſuppoſed to give the beſt milk, and the black *cow* to bring the beſt calves. The *cow* that gives the milk longeſt is the beſt both for the breed and dairy; and, for the latter uſe, it is moſt convenient that the *cow* ſhould calve in the ſpring. Either in the month of March or April, when a *cow* is

near calving; she should be put into good grass three or four weeks before the time; or if it happen in winter, she is to be fed well with hay. The day and night after she has calved, she should be kept in the house, and the water that she drinks should be a little warmed. The next day, at noon, she may be turned out; but she should be taken in at night, for three or four days afterwards, and then she may be left to herself. Every night that she is taken in, she should be kept till the cold of the morning is over, and a drink of warm water given her before she goes out.

The largest *cows*, in general, give the greatest quantity of milk: and it is always a good rule to take the cattle from a worse ground than that on which they are to be kept; for if from a better, they are apt to degenerate. The best time of a *cow's* life for breeding of calves, is from three years old till twelve.

COW, *Sea*. See SEA *Cow*.

Cow-*parsnip*. See PARSNEP.

Cow-*weed*. See CHERVIL.

Cow-*wheat*. See WHEAT.

COWARD, in *Heraldry*. A lion borne, in an escutcheon, with his tail doubled, or turned in between his legs, is called a *lion coward*.

COWITCH. See LOUSEWORT.

COWL, or COUL, *Cucullus*, a sort of hood, wore by certain monks. See COUL.

COWL, *Fryer's*, in *Botany*. See WAND, *Robin*.

COWPER's *Glands*, in *Anatomy*, a pair of glands discovered by Mr. Cowper in 1699, and lying upon each side of the PRAENUM. See URETHRA.

COWRING, in *Falconry*, the quivering of young hawks, who shake their wings, in sign of obedience to the old ones.

COWSLIP, in *Botany*. See PRIMROSE.

COWSLIP *of Jerusalem*. See LUNGWORT.

COWSLIP, *French*. See AURICULA.

COX*Æ os*. See COCCYGIS.

COX*Æ*, COXENDICES, *ossa*, and in English the *hip-bones*, called also *ossa innominata*, are two large bones, situate on either side the *os sacrum*. See *Tab. Anatomy* (*Osteol.*) *fig.* 3. n. 16, 17, 18, 19.

In infants, each of these consists of three distinct bones, separated by cartilages; which, in adults, grow up, and constitute one firm, solid bone; whose parts, however, retain three distinct names, according to their former division, viz. the *os ilium*, *os ischium*, by some peculiarly called *os coxendicis*, and the *os pubis*.

COX*Æ musculus*, according to Dr. Drake, is a pair of muscles arising fleshy from the *os ischium*, between the *musculus marsupialis*, and *pyriformis*; and which, descending obliquely, terminate on each side the *os coccygis*, and adjoining part of the *os sacrum*; serving to draw the *os coccygis* upwards and inwards, as antagonists to two ligaments springing from the back part of the *os sacrum*, and terminating in the external surface of the *os coccygis*.

COXENDIX, in *Anatomy*, the *hip*. See its bones and muscles under COX*Æ*.

COXSWAIN, on board a ship. See COCKSWAIN.

COYA, or COYNA, a venomous insect in South America, of a fiery red colour, and about the size of a bug. The poisonous juices of this insect, when burst upon the skin of any animal, are often fatal. However, the Indians have an antidote against it, in the dried stems of an herb.

COYOLCOZQUE, in *Ornithology*, the name of an American bird, described by Hernandes and Nieremberg, as a species of quail, or partridge. Its back is of a mixt white and yellow colour; its breast and belly wholly yellow; and its head and neck are ornamented with spots of black and white: its eyes are black; and its legs yellow. It is very common in many parts of New Spain, and is a very well tasted bird. Ray.

COZCACOAUHTLI, in *Ornithology*, the Mexican name of a large bird of the eagle kind, described by Nieremberg; and called *regina auxorum*, *the queen of the winds*, from its being able to fly against any wind.

COQUILAQUIL, in *Natural History*, a name given by the people of the Philippine islands, to the species of parrot common with them; and distinguished from all the other kinds, by being very large, and all over of a fine green.

CRAB, in *Zoology*, a genus of APTERA in the class of insects in the Linnæan system, comprehending no less than eighty-seven species. Its characters are, that it has eight or ten feet, rarely six, two of the feet are clawed; the two eyes are remote, generally placed on a stalk, and moveable: the two feelers are cheliferous; and the tail is articulated. To this genus belong the *crabs* properly so called, cray-fish, shrimp, lobster, &c. See SQUILLA.

The *cancer major*, or common large *crab*-fish, has it abode from twenty to forty fathom water. These animals herd together in distinct tribes, and have their separate haunts for feeding and breeding, and will not associate with their neighbours. This has been carefully tried, by marking the shell of a *crab*, and carrying it to two or three miles distance, and there leaving it among the same species: this *crab* has, after this, found its way home, and been caught in its old abode by the same fishermen.

The fishermen find the *crabs* of this species from the size of a chestnut to twelve pound weight.

The *cancer major*, and all species of *crabs*, cast their shells; though at what season of the year, or how frequently, is not exactly to be determined; but it is believed to be annually, at the beginning of the summer, sooner or later, according to the greater or less strength of the *crab*. A membrane, like wet parchment, with which the carcass is enveloped, hardens by degrees into a new shell.

Nothing, in the history of the *crab*, is so singular as its breaking off its own limbs, which it occasionally does, in the following manner: the creature is able to do this in any position, but the most advantageous way of making the experiment is to lay it on its back; then, with a pair of iron pincers, break the shell, and bruise the flesh of one of the outer joints of a small leg: the wound will bleed, and the creature shew signs of pain, by moving it about; afterwards it holds it quite still, in a direct and natural position, without touching any part of its body, or other legs with it; then, on a sudden, with a gentle crack, the wounded part of the leg drops off, at the intermedium of the second joint from the body. If a hole be pierced in the great claws, or legs, and an iron put in to lacerate the muscle, the effect is the same, and this large limb is thrown off in the same manner, only with more violence.

When the leg is off, a mucus overspreads the wound, and stops the bleeding; and a small leg is by degrees, produced, which afterwards attains to the size of the former. Nature seems to have given this singular power to this creature for the preservation of its life, in the mutual quarrels it very frequently has with others of its own species: in these one *crab* lays hold of the claws of another, and crushes it in such a manner, that it would bleed to death, had it not this power of giving up the limb, and healing the wound. Phil. Trans. N° 478. S. 14. and vol. xlvii. N° 8. See EXUVIÆ.

CRAB, in *Mechanics*, an engine used for mounting guns on their carriages. See GIN.

CRAB, in *Sea-Language*, a wooden pillar, whose lower end is let down through the ship's decks, and rests upon a socket like the CAPSTAN: in its upper end are three or four holes at different heights, through the middle of it, above one another; into which long bars are thrust, whose length is nearly equal to the breadth of the deck. It is employed to wind in the cables, and for other purposes requiring a great mechanical power.

The *crab* with three claws is used to launch ships, and to heave them into the dock or off the key. See *Tab.* II. *Mechanics*, *fig.* 30.

CRAB's *claws*, or CRAB's *eyes*, *Chelæ Cancrorum*, in the *Materia Medica*, the tips of the common *crab* broken off at the verge of the black parts; so much of the extremity of the claws only being used in medicine, as is tinged with the colour. The blackness, however, is only superficial; they are of a greyish white within, and, when levigated, furnish a tolerably white powder: this is of the number of the alkaline absorbent powders, but superior to most of them. It makes the basis of the famous Gascoign powder, the *lapis cancrorum*, and many other of the compound sudorific powders; and is sometimes, though rarely, prescribed singly.

It is the common opinion, that these *crab's eyes* act as mere absorbents in the *prima via*, and extend their efficacy no farther than those passages. The French Memoirs, however, give us an account of their certainly passing into the blood, in a remarkable case. Mem. Acad. Par. 1709.

CRAB's *eyes*, *Oculi Cancrorum*, or *Lapides Cancrorum*, in *Natural History* and *Medicine*, are little, white, round stones, ordinarily flat; so called, though really taken out of the cray-fish, or river lobster: and bearing no great resemblance to eyes, though resembling them more than any other part. They are much used in medicine, as a powerful alkali, or absorbent.

The most able naturalists long imagined them formed in the brain of the animal. Van Helmont first found them in the region of the stomach: M. Geoffroy the younger has observed the manner of their formation much more accurately. Whilst the shell of the cray-fish, which it casts every year, is hardening, a white nutritious juice, secreted in two portions of the stomach, forms by degrees a soft calculous substance, of a cruff aceous texture, from successive appositions of the juice. Before the casting of the shell, the animal is in a weak and sickly state; takes no food for some days; and in this period the calculi seem to serve for its nourishment. And on this account the *crab's eyes* are met with only whilst the fish are losing

their

their ſhells, and for a few days afterwards, and not for a conſiderable time after this period. Neumann.—See CRAY-*fiſh*.

CRAB-*lice*, a troubleſome kind of vermin, which ſtick ſo faſt with their claws to the ſkin, as to render it difficult to diſlodge them. Being viewed with a glaſs, they nearly reſemble the ſmall crab-fiſh; whence they obtained their popular name. They are alſo called *phthiriaſes*, *morpiones*, *pediculæ*, and *peſſulatæ*: they uſually infeſt the arm-pits, eye-lids, eye-brows, and *pudenda*.

They will be quickly deſtroyed, and drop off dead, upon the application of a rag wet with the milk of ſublimate. This ſort of vermin is reckoned to prognoſticate ſpeedy mortality to thoſe whom they abandon, without being removed by medicine.

CRAB-*tree*, *Malus ſylveſtris*, in *Botany*. See APPLE-*tree*.

CRABRO. See HORNET.

CRACKER, in *Zoology*. See DUCK.

CRADLE, a well-known machine, in which children are rocked to ſleep.

It alſo denotes that part of the ſtock of a croſs-bow, in which the buſſet is put.

CRADLE, in *Engraving*, is the name of an inſtrument uſed in ſcraping mezzotintoes, and preparing the plate. It is formed of ſteel, reſembling a chiſſel, with one ſloping ſide, upon which are cut hollow lines very near each other, and at equal diſtances. The acting part of this tool is made circular, and the corners are rounded. After being properly tempered, it muſt be ſharpened on the whetſtone. There are various ſizes of this inſtrument.

CRADLE, in *Huſbandry*, a part often added to a ſcythe, in order to gather the corn into ſwaths, when it is mowed.

CRADLE, in *Ship-building*, a frame of timber raiſed along the outſide of a ſhip, by the bildge, for the more commodious and ſecure launching of the veſſel. The *cradle* is much uſed in Italy, Spain, and Turky; where they alſo trim great veſſels in the *cradle*.

CRADLE, in *Surgery*, a caſe in which a broken leg is laid, after being ſet.

CRAFT, a ſea term, ſignifying all manner of lines, nets, hooks, and the like, which ſerve for fiſhing. See FISHING.

Hence, as thoſe who uſe the fiſhing-trade, uſe ſmall veſſels, ſuch as ketches, hoys, ſmacks, &c. they call ſuch little veſſels *ſmall craft*.

CRAKE, in *Ornithology*. See *Land* RAIL.

CRAKE-*berries*, in *Botany*, *empetrum*. See *Berry-bearing* HEATH.

CRAMA, in *Metallurgy*, a name given by the ancients to braſs, made by the mixture of copper and the *lapis calaminaris*, as at this time. They had alſo a kind of white braſs, or mixt metal, made of copper, in uſe among them, which they eſteemed much above the yellow. We find mention of this in Virgil, under the name of *album orichalcum*; and the other old writers often call it *album crama*. We know of many ways of turning copper white: arſenic and many other minerals will do it; and the ſpoons, and other utenſils, which ſome years ago uſed to be made of a mixt metal, called alchymy metal, were a ſort of white braſs. But it does not appear, that any of our methods have been the ſame with that of the ancients: the copper is rendered more brittle, and in ſome ſort deadned, in all our compoſitions of this kind; but in thoſe of the ancients, it ſeems to have been rendered more ductile than at firſt.

CRAMA, CROMA, and CHRAMA, in *Medical Writers*, are uſed to ſignify a mixture of things, whether medicines or elements.

CRAMBE, in *Botany*, the *ſea-cabbage*, a genus of the *tetradynamia ſiliquoſa* claſs. Its characters are theſe: the flower hath four petals, placed in form of a croſs; and ſix ſtamina, two of which are the length of the empalement, the other four being longer; the petals have honey glands on their inſides, which are longer than the ſtamina; it hath an oblong germen, which afterward becomes a round dry capſule, with one cell enclosing a roundiſh ſeed. There are five ſpecies; the firſt of which is found wild upon ſea ſhores in divers parts of England, but particularly in Suſſex and Dorſetſhire, where the inhabitants gather it in ſpring to eat, preferring it to any of the cabbage kind. As it generally grows upon the gravelly ſhores, where the tide flows over it, the inhabitants obſerve where the gravel is thruſt up by the root of this plant, and cut the ſhoots before they are expoſed to the open air; whereby they appear as if they were blanched, and are very tender and ſweet: but if they are ſuffered to grow until they are green, they become tough and bitter.

This plant may be propagated in a garden, by ſowing the ſeed ſoon after it is ripe, in a ſandy or gravelly ſoil, where it will thrive exceedingly, and its creeping roots will ſoon overſpread a large ſpot of ground; but the heads will not be fit to cut, until the plants have had a year's growth. In order to have it good, the bed, in which the plants grow, ſhould at Michaelmas be covered over with ſand or gravel about four or five inches thick, which will allow a proper depth for the ſhoots; and if this be repeated every autumn, in the ſame manner as is practiſed in earthing aſparagus beds, they will require no other culture.

The other ſorts are only preſerved in curious gardens for variety. Miller.

It is eſteemed more hot and dry than the cabbage. Dale informs us that the leaves heal wounds, and diſcuſs inflammatory, and other tumors.

CRAMP, a kind of numbneſs, or convulſion, occaſioned by a thick viſcid vapour entering the membranes of the muſcles, which contracts or extends the neck, arms, legs, &c. with a violent, but tranſitory pain; being uſually driven off with friction alone.

The word comes from the German *krampfe*, which ſignifies the ſame.

A glaſs of tar water, to be drunk night and morning, has been recommended; a rod of brimſtone, when held in the hand, has given preſent relief.

CRAMP-*fiſh*, or NUMB-*fiſh*, in *Ichthyology*, the Engliſh name of the TORPEDO. See alſo RAJA.

CRAMP-*iron*, a piece of iron, bent at each extreme, ſerving to bind together pieces of wood, ſtones, or other things.

Some derive the word, by corruption, from the French *agrapan*, or the Italian *rampone*, which ſignify the ſame thing.

CRAMPER, in *Ichthyology*, a name given by ſome to the BRAMA *ſaxatilis*, or *pagrus Indicus*, a large and broad ſea-fiſh, caught among the rocks on the ſhores of many parts of the Eaſt Indies.

CRAMPONEE, in *Heraldry*. A *croſs cramponné*, is that which at each end has a *cramp*, or ſquare piece coming from it: as repreſented in *Tab.* II. *Heraldry*, *fig.* 52.

CRAMPOONS, CRAMPONS, pieces of iron, hooked at the ends; for the drawing or pulling up of timber, ſtones, &c.

CRANAGE, a liberty to uſe a crane, for drawing up wares out of a ſhip, or hoy, &c. at a wharf; and to make profit thereof.

The word alſo ſignifies the money taken, or paid for the ſame.

CRANBERRY, in *Botany*. See WHORTTLE-*berry*.

CRANE, *Ardea grus*, in the Linnæan ſyſtem of *Zoology*, a ſpecies of the ARDEA, or HERON. The characteriſtic of this genus is, that the head is criſtated or creſted, and almoſt bare of feathers.

Theſe birds are very tall, and remarkable for the length of their legs and neck, of which there are three known ſpecies. 1. The common *crane*, the body of which is ſo large, as ſometimes to weigh ten or twelve pounds; and when meaſured from the tip of the beak to the toes extended, is ſix feet long. Its beak is of a greeniſh black, and is long and pointed; its wings are large; and its legs and feet black; its toes very long. But what is moſt obſervable in this bird, is the conſtruction of its wind-pipe, or *aſpera arteria*, which runs deep into the breaſt, by means of a foramen prepared for it; and there ſuffering ſome windings and turnings, goes out again at the ſame paſſage, and then deſcends into the lungs. Phil. Tranſ. vol. lvi. p. 204.

It is a very common bird in Italy, and other places; and formerly viſited England, large flocks of them having been ſometimes ſeen in Lincolnſhire, and Cambridgeſhire, in ſummer. But they have now forſaken our iſland, though formerly natives. It is ſuppoſed by many, that this bird eats fiſh, but erroneouſly; the ſtructure of its ſtomach plainly ſhows it a granivorous bird; and its fleſh is very delicate, and much valued in the Italian markets. The whole of this bird, its fat, gall, head, and eyes, its ſtomach, and the marrow of its legs, are uſed in medicine. The bird itſelf, becauſe nervous, is ſaid to be highly beneficial to the nervous and membranous parts; hence the uſe of it is recommended in colics. Its fat, dropped into the ears, leſſens deafneſs, ſoftens hardneſs, and obſtinate tumors of the ſpleen: it quickly relieves a ſtiffneſs of the neck; and is ſaid to be of the ſame nature with the fat of the gooſe. The gall is beneficial to the eyes. The head, eyes, and ſtomach, when reduced to a powder, are ſprinkled upon fiſtulas, cancers, and varicoſe ulcers. An ophthalmic ointment is prepared of the marrow of the legs.

2. The Indian *crane*. This is ſmaller than ours, and of the ſame grey colour; its tail is ſo ſhort, that the wings hide it, and it is not ſeen. Its beak is longer than that of our *crane*; but its moſt obvious diſtinction is, that it has

has on the top of its head, from the insertion of the beak to the crown, a rough red skin, beset with a few loose hairs.

3. The last species is the *grus Balearica*, the Majorca *crane*; this is of the shape of the stork, but instead of its long beak, has that of the *crane*, and is distinguished by a fine thick thewy crest which it carries on its head. This is not made up of feathers, but of hairs like hog's bristles. It runs very swiftly, and feeds on herbs and corn like the hens and turkeys. Ray's Ornithol. p. 200, 201. See *Tab. Birds*, No. 7.

The general distinctions of the *crane* kind from the herons, are these: 1. The claw of the middle toe is not serrated. 2. They are much larger. 3. Their beak is shorter. Beside these, the make of their stomach, guts, and above all, of their *aspera arteria*, greatly distinguish them.

CRANE is also improperly applied to the shag, or small cormorant, a bird common about our shores.

CRANE, *Numidian*. See DEMOISELLE.

CRANE, a machine used in *Building* and in *Commerce*, for raising large stones, and other weights.

M. Perrault, in his notes on Virtuvius, makes the *crane* the same with the *corvus*, or raven, of the ancients.

The modern *crane* consists of several members, or pieces, the principal whereof is a strong perpendicular beam, or arbor, firmly fixed in the ground, and sustained by eight arms, coming from the extremities of four pieces of wood laid across, through the middle whereof the foot of the beam passes. About the middle of the arbor the arms meet, and are mortised into it: its top ends in an iron pivot, whereon is borne a transverse piece, advancing out to a good distance in manner of a *crane's* neck; whence the name. The middle and extremity of this are again sustained by arms from the middle of the arbor: and over it comes a rope, or cable, to one end whereof the weight is fixed; the other is wound round the spindle of a wheel, which turned, draws the rope, and that heaves up the weight; to be afterwards applied to any side or quarter, by the mobility of the transverse piece on the pivot.

There are several improvements of this useful machine mentioned in Desaguliers's Experim. Philos. p. 178, seq. particularly how to prevent the inconveniencies arising from sudden jerks, as well as to increase its force by using a double axis *in peritrochio*, and two handles.

The *crane* is of two kinds; in the first kind, called the *rat-tailed crane*, the whole machine, with the load, turns upon a strong axis: in the second kind, the gibbet alone moves on its axis. We shall refer to Desaguliers *ubi supra* for a particular account of the different *cranes*, and of the gradual improvements they have received; and give a description of one, in which most of them are combined, invented by the late Mr. Padmore of Bristol. It consists of wheels, axles, pulleys, ropes, and a gib or gibbet. When the rope H is hooked to the weight K, a man turns the winch A, on the axis whereof is the trundle B, which turns the wheel C, on whose axis D is the trundle E, which turns the wheel F with its upright axis G, on which the great rope HH winds as the wheel turns; and going over a pulley I at the end of the arm *a* of the gib *c c a*, it draws up the heavy burden K; which, being raised to a proper height, as from a ship to the quay, is then brought over the quay by pulling the wheel Z round by the handles *z*, *z*, which turns the gib by means of the half wheel *b* fixt on the gib-post *c c*, and the strong pinion *a* fixt on the axis of the wheel Z. This wheel gives the man that turns it an absolute command over the gib, so as to prevent it from taking any unlucky swing, such as often happens when it is only guided by a rope tied to its arm *a*; and people are frequently hurt, sometimes killed, by such accidents.

The great rope goes between two upright rollers *i* and *k*, which turn upon gudgeons in the fixed beams *f* and *g*; and as the gib is turned towards either side, the rope bends upon the roller next that side. Were it not for these rollers, the gib would be quite unmanageable; for the moment it were turned ever so little towards any side, the weight K would begin to descend, because the rope would be shortened between the pulley I and axis G; and so the gib would be pulled violently to that side, and either be broke to pieces, or break every thing that came in its way. These rollers must be placed so, that the sides of them, round which the rope bends, may keep the middle of the bended part directly even with the center of the hole in which the upper gudgeon of the gib turns in the beam *f*. The truer these rollers are placed, the easier the gib is managed, and the less apt to swing either way by the force of the weight K.

A ratchet-wheel Q is fixt upon the axis D, near the trundle E; and into this wheel falls the catch or click R. This hinders the machine from running back by the weight of the burden K, if the man who raises it should happen to be careless, and so leave off working at the winch A sooner than he ought to do.

When the burden K is raised to its proper height from the ship, and brought over the quay by turning the gib about, it is let down gently upon the quay, or into a cart standing thereon, in the following manner. A man takes hold of the rope *ss* (which goes over the pulley *a*, and is tied to a hook at S in the catch R), and so disengages the catch from the rachet-wheel Q; and then, the man at the winch A turns it backward, and lets down the weight K. But if the weight pulls too hard against this man, another lays hold of the handle V, and by pulling it downward, draws the gripe U close to the wheel Y, which, by rubbing hard against the gripe, hinders the too quick descent of the weight; and not only so, but even stops it at any time, if required. By this means, heavy goods may be either raised or let down at pleasure, without any danger of hurting the men who work the engine.

When part of the goods are craned up, and the rope is to be let down for more, the catch R is first disengaged from the rachet-wheel Q, by pulling the cord *r*; then the handle *q* is turned half round backward, which, by the crank *n n* in the piece *o*, pulls down the frame *b* between the guides *m* and *m* (in which it slides in a groove), and so disengages the trundle B from the wheel C; and then, the heavy hook S at the end of the rope H descends by its own weight, and turns back the great wheel F with its trundle E, and the wheel C; and this last wheel acts like a fly against the wheel F and hook S; and so hinders it from going down too quick; whilst the weight X keeps up the gripe U from rubbing against the wheel Y, by means of a curd going from the weight, over the pulley w to the hook W in the gripe; so that the gripe never touches the wheel, unless it be pulled down by the handle V.

When the *crane* is to be set at work again, for drawing up another burden, the handle *q* is turned half round forwards; which, by the crank *n n*, raises up the frame *b*, and causes the trundle B to lay hold of the wheel C; and then, by turning the winch A, the burden of goods K is drawn up as before. See *Tab. II. Mechanics, fig.* 31.

The crank *n n* turns pretty stiff in the mortise near *n*, and stops against the farther end of it when it has got just a little beyond the perpendicular; so that it can never come back of itself: and therefore the trundle B can never come away from the wheel C, until the handle *q* be turned half round.

The great rope runs upon rollers in the lever L M, which keep it from bending between the axle at G and the pulley I. This lever turns upon the axis N by means of the weight O, which is just sufficient to keep it and L up to the rope; so that, as the great axle turns, and the rope coils round it, the lever rises with the rope, and prevents the coilings from going over one another.

The power of this *crane* may be estimated thus: suppose the trundle B to have 13 staves or rounds, and the wheel C to have 78 spur cogs; the trundle E to have 14 staves, and the wheel F 56 cogs. Then, by multiplying the staves of the trundles, 13 and 14, into one another, their product will be 182; and by multiplying the cogs of the wheels, 78 and 56, into one another, their product will be 4368, and dividing 4368 by 182, the quotient will be 24; which shews that the winch A makes 24 turns for one turn of the wheel F and its axle G on which the great rope or chain HH winds. So that, if the length or radius of the winch A were only equal to half the diameter of the great axle G, added to half the thickness of the rope H, the power of the *crane* would be as 24 to 1: but the radius of the winch being double the above length, it doubles the said power, and so makes it as 48 to 1: in which case, a man may raise 48 times as much weight by this engine as he could do by his natural strength without it; making proper allowance for the friction of the working parts. Two men may work at once, by having another winch on the opposite end of the axis of the trundle under B; and so make the power still double.

If this power be thought greater than what may be generally wanted, the wheels may be made with fewer cogs in proportion to the staves in the trundles; and so the power may be of whatever degree is judged to be requisite. But if the weight be so great as will require yet more power to raise it (suppose a double quantity), then the rope H may be put under a moveable pulley, as *f*, and the end of it tied to a hook in the gib at 1; which will give a double power to the machine, and so raise a double weight hooked to the block of the moveable pulley.

When only small burdens are to be raised, this may be quickly

quickly done by men puſhing the axle G round by the handſpokes *y*, *y*, *y*, *y*; having firſt diſengaged the trundle B from the wheel C: and then, this wheel will only act as a fly upon the wheel F; and the catch R will prevent its running back, if the men ſhould inadvertently leave off puſhing before the burden be unhooked from *g*.

Laſtly, when very heavy burdens are to be raiſed, which might endanger the breaking of the cogs in the wheel F; theſe force againſt theſe cogs may be much abated by men puſhing round the handſpokes *y*, *y*, *y*, *y*, whilſt the man at A turns the winch. Ferguſon's Lectures on Select Subjects, 4to. p. 52, &c.

If the axis G G be placed horizontally, and inſtead of the wheel F a larger wheel be fixed to it, which may be turned by men walking in it, we ſhall have another kind of *crane*; the rope will coil round the axle as the wheel turns, and the gib-work is the ſame as in the other ſort of *crane*. Mr. Padmore contrived to prevent the danger attending the uſe of this conſtruction, by putting cogs all round the outſide of the wheel, and applying a trundle to turn it; by which addition the power is increaſed in the proportion of the number of cogs to the number of ſtaves in the trundle: and in order to hinder its running back by the force of the weight, ſhould the men within it ſlip, or leave off walking, he added a ratchet-wheel to the axis of the trundle, like that already deſcribed. Two winches may alſo be fixed to the ends of the axle, by working which the men in the wheel would be much aſſiſted. On the axle he likewiſe fixed a gripe-wheel, ſuch as has been already deſcribed, by means of which heavy burdens may be let down without the leaſt danger.

Mr. Ferguſon has contrived and deſcribed a new and ſafe *crane*, with four different powers adapted to different weights. In this *crane* (ſee *Tab.* II. *Mechanics*, *fig.* 32.) A repreſents the great wheel, and B its axle, on which the rope C winds. This rope goes over a pulley D in the end of the arm of the gib E, and draws up the weight F, as the winch G is turned round. H is the largeſt trundle, I the next, and K is the axis of the ſmalleſt trundle, which is ſuppoſed to be hid from view by the upright ſupporter L. A trundle M is turned by the great wheel, and on the axis of this trundle is fixed the ratchet-wheel N, into the teeth of which the catch O falls. P is the lever, from which goes a rope Q Q, over a pulley R to the catch; one end of the rope being fixed to the lever, and the other end to the catch. S is an elaſtic bar of wood, one end of which is ſcrewed to the floor: and, from the other end goes a rope (out of ſight in the figure) to the farther end of the lever, beyond the pin or axis on which it turns in the upright ſupporter T. The uſe of this bar is to keep up the lever from rubbing againſt the edge of the wheel U, and to let the catch keep in the teeth of the ratchet-wheel: but, a weight hung to the farther end of the lever, would do full as well as the elaſtic bar and rope.

When the lever is pulled down, it lifts the catch out of the ratchet-wheel, by means of the rope Q Q, and gives the weight F liberty to deſcend: but if the lever P be pulled a little farther down than what is ſufficient to lift the catch O out of the ratchet-wheel N, it will rub againſt the edge of the wheel U, and thereby hinder the too quick deſcent of the weight; and will quite ſtop the weight if pulled hard. And if the man, who pulls the lever, ſhould happen inadvertently to let it go; the elaſtic bar will ſuddenly pull it up, and the catch will fall down and ſtop the machine.

WW are two upright rollers, above the axis or upper gudgeon of the gib E: their uſe is to let the rope C bend upon them, as the gib is turned to either ſide, in order to bring the weight over the place where it is intended to be let down: which ought to be ſo placed, that if the rope C be ſtretched cloſe by their outmoſt ſides, the half thickneſs of the rope may be perpendicularly over the centre of the upper gudgeon of the gib; for then the length of the rope between the pulley in the gib and the axle of the great wheel, will be always the ſame, in all poſitions of the gib, and the gib will remain in any poſition to which it is turned.

The powers of this machine may be eaſily calculated: the horizontal wheel has ninety-ſix cogs, the largeſt trundle twenty-four ſtaves, the next largeſt has twelve, and the ſmalleſt has ſix. So that the largeſt trundle makes four revolutions for one revolution of the wheel; the next makes eight; and the ſmalleſt makes ſixteen. When a winch is occaſionally put upon the axis of either of theſe trundles for turning it, the handle of the winch deſcribes a circle in every revolution equal to twice the circumference of the axle of the wheel; and therefore the length of the winch doubles the power gained by each trundle. So that if the winch be applied to the axle of the largeſt trundle and turned four times round, the wheel and axle will be turned once round, and the power will move through eight times as much ſpace as the weight riſes through: in which caſe the power will be to the weight as eight to one; i. e. a man may raiſe eight times as much weight by the *crane*, as he might by his natural ſtrength without it. If the ſecond trundle be uſed, the proportion of the power to the weight will be as ſixteen to one; and with the ſmalleſt trundle, as thirty-two to one. The power may again be doubled by drawing up the weight by one of the parts of a double rope, going under a pulley in the moveable block which is hooked to the weight below the arm of the gib; for then the power will be as ſixty-four to one; and by increaſing the number of pulleys, the power will be proportionably increaſed. See Supplement to Ferguſon's Lectures, p. 3, &c. or Phil. Tranſ. vol. liv. art. 3. p. 22.

CRANE is the name of a ſouthern conſtellation. See GRUS.

CRANE is alſo a popular name for a HERON.

CRANE'S *bill*, a kind of forceps uſed by ſurgeons, and ſo named from its figure.

CRANE'S *bill*, in *Botany*, &c. See GERANIUM.

CRANE-*fly*, a name given by ſome to the creature we commonly call *father long-legs*; and the authors of hiſtories of inſects, *tipula terreſtris*. This creature affords the microſcopic obſerver many curious particulars; but the moſt remarkable is, the ſurpriſing contraction of the muſcular fibres in the legs. Theſe being diſſected in a drop of water, and placed before the microſcope, the fleſhy fibres contract and diſtend themſelves in a manner not to be imagined, and continue this motion for ſeveral minutes; and this is conſtantly to be obſerved in this inſect, and never in any other, ſo far as has been yet obſerved. Leewenhoek, Arcan. Nat. tom. iii. p. 109.

The inteſtines of this creature are alſo very wonderful, conſiſting of numberleſs veſſels and organs, which may be ſeen as plainly by the microſcope, as the bowels of larger animals can by the naked eye. The tails both of the male and female are alſo of an amazing ſtructure; the female's ends in a ſharp point, with which ſhe perforates the ground, and depoſits her eggs under the graſs in meadows.

CRANE-*lines*, in a ſhip, are lines going from the upper end of the ſprit-ſail-top-maſt, to the middle of the fore-ſtaya; ſerving to keep the ſprit-ſail-top-maſt upright and ſteady. See *Tab. Ship. fig.* 1. 137.

CRANE-*neck of a carriage*. See PERCH.

CRANIOLARIA, in *Botany*, a genus of the *didynamia angioſpermia* claſs. Martynia, Houſt. Gen. Its characters are theſe: the flower hath a permanent empalement, compoſed of four ſhort narrow leaves and a ſwollen hood, which is cut longitudinally on the ſide; the flower hath one petal, which is unequal, having a very long tube, whoſe brim is divided into two lips; it hath four ſtamina, two of which are the length of the tube, and two are ſhorter; at the bottom of the tube is ſituated an oval germen, which afterward becomes an oval leathery fruit, pointed at both ends, opening with two valves, including a depreſſed woody nut, pointed at both ends and recurved, having two or three furrows, ſo as to reſemble a ſkull opening in two parts. There are two ſpecies, natives of Spaniſh America.

CRANIUM, in *Anatomy*, an aſſemblage of ſeveral bones, which cover and cloſe the brain and *cerebellum*; popularly called the SKULL. See *Tab. Anatomy (Oſteol.) fig.* 1 and 2.

The word comes from the Greek κρανος, of κρανω, *celo*, *tego*; becauſe it ſerves to defend the brain, like a head-piece. Perron, again, derives κρανος from the Celtic *cren*, becauſe of its roundneſs.

CRANIUM, in *Natural Hiſtory*, the name of a ſpecies of the *echinus marinus*, of the genus of the BRISSOIDES.

CRANK, a contrivance in machines, in manner of an elbow, only of a ſquare form; projecting out from an axis, or ſpindle; and ſerving, by its rotation, to raiſe and fall the piſtons of engines for raiſing water, or the like.

CRANK, in *Sea-Language*. A ſhip is ſaid to be *crank ſided*, when, for want of a ſufficient quantity of ballaſt or cargo, ſhe cannot bear her ſails, or can bear but ſmall ſail for fear of overſetting.

She is ſaid to be *crank by the ground*, when her floor is ſo narrow, that ſhe cannot be brought on ground without danger.

CRANK, is alſo an iron brace which ſupports the lanthorns on the poop-quarters, &c.

CRANNY, in the *Glaſs Trade*, a round iron, whereon the workmen in the glaſs-houſes roll the glaſs, to make the neck of it ſmall.

CRAPE, a light tranſparent ſtuff, in manner of gauze; made of *raw* ſilk, gummed and twiſted on the mill; woven without croſſing, and much uſed in mourning.

Crapes are either *craped*, i. e. *criſped*; or *ſmooth*: the firſt *double*, expreſſing a cloſer mourning; the latter *ſingle*, uſed for that leſs deep. Note, White is reſerved for young people, or thoſe devoted to virginity.

The ſilk deſtined for the firſt is more twiſted than that for the ſecond; it being the greater or leſs degree of twiſting, eſpecially of the warp, which produces the criſping given it when taken out of the loom, ſteeped in clear water, and rubbed with a piece of wax for the purpoſe.

Crapes are all dyed raw. The invention of this ſtuff came originally from Bologna: but the chief manufacture hereof is ſaid to be at Lyons.

Hiſtory tells us, that St. Bathilda, queen of France, made fine *crapes*, *crapa*, of gold and ſilver, to lay over the body of St. Eloy. The Bollandiſts own they cannot find what this *crapa* was. Binet ſays, it was a frame to cover the body of the ſaint; but others, with reaſon, take it to be a tranſparent ſtuff, through which the body might be ſeen; and that this was the *crepa* whence our word *crape* was formed.

CRAPULA, a SURFEIT by over-eating and drinking.

CRASIS *of the blood*, denotes a due temperament or conſtitution of that humour; wherein the ſeveral principles, viz. ſalt and oil, whereof it is compoſed, are found in their juſt proportion and purity: in contradiſtinction to *diſcraſy*, which conſiſts in an improper mixture of the principles, or an unnatural ſtate of ſome of the ingredients thereof.

The word is Greek κρασις, from κεραννυμι, *I mix*; ſignifying *mixture*, *temperament*.

The chief diſcraſies the blood is ſuſceptible of, whence flow moſt of the diſeaſes of the body, are coagulation, diſſolution, oſineſs, ſizineſs, and ſaltneſs.

CRASIS, in *Grammar*, is a figure, whereby two different letters are either contracted into one long letter, or a diphthong. Such, e. gr. is ωϛ for ὁμως; αἰδὴϛ for ἀιδὴϛ, &c. τοῦτο for τουτου, &c. where ου and α are contracted into υ; and α into ᾳ.

CRASPEDARIA, from κρασπεδον, *fringe*, in *Zoology*, a genus of animalcules, without any viſible limbs or tails; but with an apparent mouth, and a ſeries of fimbriæ round it in the manner of a fringe.

Of this genus there are three ſpecies: 1. The *craſpedotrium* with a roundiſh body. 2. The *craſpedarium* with an oval body. 3. The *craſpedarium* with a cylindric body.

CRASSAMENTUM, a term uſed by ſome *Anatomiſts*, for the CRUOR of the blood; or that part which, upon ſtanding to cool, and ſeparate, forms the coagulum: in oppoſition to the *ſerum*, or whey, wherein it ſwims.

Some authors have ſuppoſed the *craſſamentum* to be ſpecifically lighter than the *ſerum*; but Dr. Jurin ſhews the contrary from repeated experiments.

Some have ſuppoſed that the immediate cauſe of animal heat is the action of the *craſſamentum* in attracting and retaining the fire which is diſperſed through the earth. On the due proportion of the *craſſamentum* or red globules depend the health and life of man. This conſiſts of two parts, one of which gives it ſolidity, and is called the fibrous part of the blood, but more properly the *coagulable* LYMPH, and of another which gives the red colour to the blood. See an account of Dr. Hewſon's curious experiments and obſervations, in Phil. Tranſ. vol. lx. *art.* 22, 33, 34.

CRASSIROSTRÆ, in *Zoology*, the name of a genus of ſmall birds, diſtinguiſhed by the thickneſs of their beaks; as the ſparrow, greenfinch, and the like.

CRASSULA, in *Botany*: Dillen. Hort. Elth. 14. *leſſer orpine*, *live for ever*, and *baſtard navel-wort*; a genus of the *pentandria pentagynia* claſs. Its characters are theſe: the flower conſiſts of five narrow petals, joined at their baſe, but reflexed and ſpread open at their brim: in the bottom of the tube are ſituated five nectaria, and five ſtamina ſituated round theſe. At the bottom of the tube are ſituated five oblong pointed germina, which, after the flower is paſt, become five capſules, opening lengthways, and filled with ſmall ſeeds. There are eleven ſpecies.

CRATÆGUS, in *Botany*. See *Wild* SERVICE.

CRATCHES, in *Farriery*, a ſwelling on the paſtern under the ſetlock, and ſometimes under the hoof.

CRATER, *Cup*, in *Aſtronomy*, a conſtellation of the ſouthern hemiſphere; whoſe ſtars, in Ptolemy's Catalogue, are ſeven; in Tycho's eight; in Hevelius's, ten; in the Britannic Catalogue, thirty-one. The order, names, longitudes, latitudes, &c. whereof are as follow.

Names and ſituations of the ſtars.	Bayer's Char.	Signs.	Longit.	Latitude.	Magnitude.
			° ′ ″	° ′ ″	
	φ	♒	12 58 27	23 14 2	6
	φ		13 45 50	23 29 50	5
North. of two below the baſe of the Cup.	ϐ		15 54 24	23 4 24	6
Following.	ι		16 3 30	21 49 28	4
	ϐ		17 28 16	23 45 3	6
5.					
	λ		18 44 33	24 59 42	6
	π		19 26 43	22 42 0	4
	ι		24 3 28	30 8 48	6
South. of two below the baſe of the Cup.	χ		25 1 40	30 16 31	5
			26 14 21	30 41 22	6
10.					
N. of two below the baſe of the Cup.	θ		24 15 35	25 37 33	5.4
N. of two in the middle of the Cup.	ϱ		22 23 50	27 35 20	4
	λ		25 6 43	20 49 31	5.6
In N. part of the circumf. of the mouth.	ι		21 55 59	13 28 28	4
S. in the middle of the Cup.	γ		24 56 16	19 39 22	4
15.					
	ι		23 9 20	14 35 16	5
		♎	2 8 56	29 22 14	6
			3 11 25	30 55 59	6
First of three after 20th in the triangle.	ζ		3 37 47	31 35 55	4
			4 34 51	32 21 21	6
20.					
In N. handle of the Cup.	ϐ	♒	24 16 46	11 28 33	4
		♎	5 54 10	33 39 23	7
			5 7 46	32 12 27	6
Middle of three after 20th in the triangle.	ι	♒	26 8 51	14 13 32	5
	ι	♎	6 47 26	33 26 35	5
25.					
			5 35	31 28 40	6
In S. circumf. of the mouth.	ζ	♒	29 45 50	18 17 29	4
	ϖ	♎	9 4 47	31 28 16	4
			6 53 5	36 31 30	6
In S. handle of the Cup.	ι		1 47 41	16 4 46	4
			3 58 41	17 52 59	5.6
31					

CRATER, in *Falconry*, denotes a line on which hawks are faſtened when reclaimed.

CRATERITES, in *Natural Hiſtory*, the name of a gem mentioned by Pliny, and ſaid to be extremely hard, and of a middle colour between that of the chryſolite, and of the common yellow amber. This was plainly a ſpecies of CHRYSOLITE.

CRATEVA, in *Botany*, a genus of the *dodecandria monogynia* claſs; the *garlic pear*. Its characters are theſe: the flower hath four oval petals, which are narrow at the baſe and broad at the top; it hath many briſtly ſtamina, which are longer than the petals; and a long incerved ſtyle, upon which ſits an oval germen, which afterward becomes a large fleſhy globular fruit with one cell, including many kidney-ſhaped ſeeds. There are two ſpecies, natives of both the Indies.

CRATICULA, a chemical inſtrument made of ſquare pieces of iron of about a finger's thickneſs, placed ſo as to have half a finger's ſpace betwixt them. It is uſed in making of fires to keep up the coals.

The word is Latin, importing a roaſter or gridiron.

CRATICULAR *Eſſays* and *Prototype*. See ANAMORPHOSIS.

CRAVANT, in *Zoology*, a name by which Bellonius and ſome others have called the BARNACLE, a ſmall ſpecies of wild gooſe, common in winter on the coaſts of Lancaſhire.

CRAVEN, or CRAVENT, in *Britiſh Antiquity*, a term of reproach uſed in trials by battle.

The law was, that the victory ſhould be proclaimed, and the vanquiſhed acknowledge his fault, in the preſence of the people, or pronounce the word *cravent* in the name of recreantice, or cowardice, &c. and, preſently, judgment to be given; and the recreant *amittere legem terræ*, i. e. become infamous.

Coke obſerves, that if the appellant join battle, and cry *craven*, he is to loſe *liberam legem*. If the appelled cry *craven*, he is to be hanged.

CRAW, *Crop*, or *Ingluvies*, a part in granivorous fowls which ſerves for the immediate reception of the food; where it remains ſome time for maceration, before it be tranſmitted to the ſtomach.

This *ingluvies* is furniſhed with glands, which the patrons of fermentation maintain, convey a menſtruum thither,

thither, that impregnates the aliment, and ſerves inſtead of maſtication.

CRAX, in *Ornithology*, a name given by the ancients to the *ortygometra*, or DAKER-*hen*, a bird larger than the quail and common in Ireland and ſome of the northern counties of England. Ray's Ornithology, p. 122.

CRAX, in the Linnæan ſyſtem of *Ornithology*, the name of a diſtinct genus of birds, the diſtinguiſhing character of which from the reſt of the *gallinæ* is, that the feet have each four toes, and the head is ornamented with a kind of feathery crown, bending backwards. Linnæi Syſt. Nat. p. 47. Phil. Tranſ. vol. lvi. p. 204.

CRAY-*fiſh*, in *Ichthyology*, a ſpecies of the *Cancer*.

Cray-fiſh, or *cancer aſtacus* of Linnæus are found in rivers and freſh water; their fleſh is cooling, moiſtening, and adapted to nouriſh ſuch as labour under atrophies. There are various methods of preparing theſe animals; they may be either boiled or fried, and then taken out of their ſhells, and made up in variety of diſhes: but no parts of them are eatable except their claws and tail. Preparations and broths of *cray-fiſh* are celebrated not only for a palatable aliment, but alſo for anſwering ſome medicinal intentions, as being of a moiſtening quality, and ſheathing up and correcting acrimony. The broth is prepared of four or five *cray-fiſh*, which having their heads cut off, and their inteſtines extracted, are to be bruiſed and boiled in the broth of freſh or poultry, until they become ſufficiently red; after which the liquor is to be ſtrained off and ſeaſoned, as the caſe may require. This broth may be rendered ſtill more medicinal by the addition of herbs, ſnails, or other ſubſtances; according to the intention of the phyſician. The fleſh is counted beſt in the ſummer months.

The delicate flavour of theſe fiſh depends in a great meaſure on their food. When they have well-taſted food, their fleſh preſerves the reliſh of it: but when they feed on other things, they are often rendered of no value, by the flavour communicated to their fleſh by them. There are great quantities of theſe fiſh in the river Obra, on the borders of Sileſia; but the people find them ſcarce eatable, becauſe of a bitter aromatic flavour, very diſagreeable in food. It has been ſince obſerved, that the *calamus aromaticus* grows in vaſt abundance on the banks of that river, and that theſe creatures feed very greedily upon its roots. Theſe have a very remarkable bitterneſs mixed with their aromatic flavour, while freſh, which goes off very much in the drying; and on comparing the taſte of theſe roots with that of the *cray-fiſh*, there remains no doubt of the one being owing to the other. Act. Leipſ. 1690.

They abound in the river Don in Muſcovy, where they are laid in heaps to putrefy; after which the ſtones, called crab's eyes, are picked out.

Theſe animals are very greedy of fleſh, and ſtock in great numbers about carcaſes thrown into the water where they are, and never leave it while any remains. They alſo feed on dead frogs when they come in their way. James.

In Swiſſerland, there are ſome *cray-fiſh* which are red, while they are alive, and others bluiſh. Some kinds of them alſo will never become red, even by boiling, but continue blackiſh.

The *cray-fiſh* diſcharges itſelf of its ſtomach, and, as M. Geoffroy thinks, of its inteſtines too. Theſe, as they putrefy and diſſolve, ſerve for food to the animal; during the time of the reformation, the old ſtomach ſeems to be the firſt food the new one digeſts. It is only at this time, that the ſtones are found called CRAB'S *eyes*; they begin to be formed when the old ſtomach is deſtroyed, and are afterwards wrapped up in the new one, where they decreaſe by degrees till they entirely diſappear.

CRAYER, a kind of ſmall ſea-veſſel or ſhip. It is mentioned in the ſtat. 14 Car. II. c. 27. and in old records. *Et tranſitus craerarum & batellorum cum victualibus & aliis neceſſariis, &c.* Parl. 6 Ric. II. Par. 2. M. 13.

CRAYON, a general name for all coloured ſtones, earths, or other minerals and ſubſtances, uſed in deſigning, or painting in paſtel; whether they have been beaten and reduced to a paſte, or are uſed in their primitive conſiſtence, after ſawing or cutting them into long narrow ſlips.

In this laſt manner are red *crayons* made, of blood-ſtone, or red chalk; black ones, of charcoal and black lead. The beſt charcoal is that of willow, on account of its ſoftneſs. *Crayons* of all other colours are compoſitions of earths reduced to paſte.

CRAZE-*mill*, or CRAZING-*mill*, a mill in all reſpects like a griſt-mill to grind corn, and is ſo called by the tinminers, who uſe it to grind their tin, when it is yet too great, after trambling, and then it is trambled only.

CREAM is a name applicable to all ſubſtances, which ſeparate from a liquor, and collect on its ſurface: but it is particularly applied to the following.

CREAM *of lime*, is that matter which ſeparates from lime-water by cryſtallization, during the evaporation of the water; forming on the ſurface a ſemi-tranſparent pellicle, which gradually thickens, till at length it ſubſides in the form of ſcales. This is a calcareous earth, which, having once loſt its GAS or *fixed* AIR by calcination, is recombined with it after being diſſolved in water, and expoſed again to the air, and hereby becomes mild, cryſtallizable, unſoluble in water, and recovers its original ſtate before calcination. Macquer, Dict. Chem. Eng. ed. 1777.

CREAM *of milk*, is the moſt oily part of it, which being ſpecifically lighter than the other parts, collects, and ſwims on the ſurface; being that of which BUTTER is made.

The word is derived from *cremor*, which ſignifies the ſame; though in the lower Latin we find *crema lactis*.

CREAM *of tartar*, *cremor tartari*, is that part of the concrete acid of tartar which cryſtallizes firſt, and forms a pellicle on the ſurface of the water in which tartar has been boiled. This has been a general name comprehending this ſaline pellicle and the *cryſtal of* TARTAR.

CREASE-TYLES. See TYLE.

CREAT, in the *Manege*, an uſher to a riding maſter.

CREATION. See GENESIS.

CREATION, *epoche of the*. See EPOCHA.

CREDENTIALS, letters of credit and recommendation; eſpecially ſuch as are given to ambaſſadors, plenipotentiaries, &c. ſent to foreign courts.

CREDIBILITY, a quality in objects whereby they become fit to be believed. See FAITH.

A thing is ſaid to be *credible*, which is not apparent of itſelf, nor is certainly to be inferred either from the cauſe or effect; and yet has the aſſertion of a truth. Things which appear immediately true, as the whiteneſs of ſnow, or that the whole is equal to its parts; are not ſaid to be *credible*, but evident. Thoſe to which we only give our aſſent in virtue of ſome competent authority, or teſtimony of others, are, by the ſchoolmen, ſaid to be *credible*. In the Philoſophical Tranſactions we have a mathematical computation of the *credibility* of human teſtimony. See EVIDENCE.

CREDIT, in *Commerce*, a mutual truſt or loan of merchandize or money, on the reputation of the probity and ſolvability of a dealer.

Credit is either *public* or *private*.

Every trader ought to have ſome eſtate, ſtock, or portion of his own, ſufficient to carry on the traffic he is engaged in: they ſhould alſo keep their dealings within the extent of their capital, ſo that no diſappointment in their returns may incapacitate them from ſupporting their *credit*. Yet traders of worth and judgment may ſometimes lie under the neceſſity of borrowing money for carrying on their buſineſs to the beſt advantage; but then the borrower ought to be ſo juſt to his own reputation and to his creditors, as to be well aſſured that he has ſufficient effects within his power, to pay off his obligations in due time. But if a trader ſhould borrow money to the extent of his *credit*, and launch out into trade, ſo as to employ it with the ſame freedom as if it was his own proper ſtock; ſuch a way of management is very precarious, and may be attended with dangerous conſequences. Merchants ought never to purchaſe their goods for exportation upon long *credit*, with intent to diſcharge the debt by the return of the ſame goods; for this has an injurious influence on trade ſeveral ways: and if any merchant has occaſion to make uſe of his *credit*, it ſhould always be for the borrowing of money, but never for the buying of goods; nor is the large *credit* given to wholeſale traders, a prudential or juſtifiable practice in trade.

The public *credit* of a nation is ſaid to run high, when the commodities of that nation find a ready vent, are ſold at a good price, and when dealers may be eaſily truſted with them: alſo when lands and houſes find ready purchaſers; when money is to be borrowed at a low intereſt; when people think it ſafe and advantageous to venture large ſtocks in trade; and when notes, mortgages, &c. will paſs for money. Poſt. Dict. Com.

CREDIT, *letters of*, are thoſe given to perſons in whom a merchant, &c. can truſt, to take money of his correſpondent abroad, in caſe he happens to need it.

CREDIT is alſo uſed for the currency which papers, or bills, have in the public, or among dealers.

In this ſenſe, *credit* is ſaid to riſe, when in negotiating the ſhares of a company, they are received and ſold at prices above *par*, or the ſtandard of their firſt creation.

Diſcredit is oppoſed to *credit*, and is uſed where money, bills, &c. fall below *par*.

CREDIT was alſo anciently a right which lords had over their vaſſals; conſiſting in this, that during a certain time they might oblige them to lend them money.

In this ſenſe, the duke of Britanny had *credit* during fifteen

fifteen days on his own ſubjects, and thoſe of the biſhop of Nantes: and the biſhop had the ſame *credit* or right among his ſubjects, and thoſe of that prince.

CREDITOR, a perſon to whom any ſum of money is due, either by obligation, promiſe, or otherwiſe.

The laws of the Twelve Tables, which were the foundation of the Roman juriſprudence, allowed the *creditor* to tear or cut his debtor to pieces, in caſe he proved inſolvent.

CREDITOR, in *Book-keeping*. See BOOK-KEEPING.

CREDULITY denotes a weakneſs of mind, by reaſon of which a perſon yields his aſſent to propoſitions or facts, before he has conſidered their EVIDENCE.

CREED, CREDO, a ſhort, or ſummary account of the chief articles of the Chriſtian faith; thus called from the firſt word thereof in Latin, *credo, I believe*. See SYMBOL.

The principle of theſe are the *Apoſtles*, the *Athanaſian*, and the *Nicene*.

CREED, *Apoſtles*, is ſo called, becauſe for many ages it was believed to have been framed by the apoſtles before they left Jeruſalem. The firſt perſon who gave this account of its original was St. Ambroſe, towards the latter end of the fourth century; in which he is followed by Ruffinus, Jerom, and ſeveral others; and ſome have even aſſerted, that each apoſtle ſupplied his particular article. See SYMBOL. But there are many reaſons why this account cannot be admitted: if a *creed* of ſuch high authority had exiſted in the Chriſtian church, it is reaſonable to ſuppoſe that it would have been mentioned by St. Luke in the hiſtory of the Acts of the Apoſtles, or by ſome of the earlier writers in the four firſt centuries, before the time of St. Ambroſe; that it would have been referred to as a ſtandard of doctrine by the more ancient councils; and that it would have ſuperſeded the neceſſity of compoſing new *creeds*, which was done on many occaſions. Beſides, the ſeveral copies of this *creed*, of which the principal are the vulgar or Roman, the Aquileian, and the Oriental, differ from one another in many articles; and this difference cannot eaſily be reconciled with the notion, that it was framed by the apoſtles, and tranſmitted from them to their ſucceſſors. To which we may add, that ſome of the articles contained in it were inſerted in oppoſition to errors that ſprung up in the Chriſtian church, long after the time of the apoſtles. However, this *creed* is a very ancient compoſition, and upon the whole an unexceptionable ſummary of the Chriſtian doctrine, and much ſuperior to compoſitions of a ſimilar kind of later date. It might in part have been tranſmitted down from the apoſtles, and afterwards gradually enlarged in its preſent form as occaſion required. Lord King's Crit. Hiſt. of the Apoſtles' Creed. See SYMBOL.

CREED, *Athanaſian*, has been falſely attributed to Athanaſius biſhop of Alexandria, who lived and wrote in the fourth century: it is neither mentioned nor referred to in any of his genuine works; no notice is taken of it by writers who immediately ſucceeded him; it was never appealed to for the deciſion of the controverſy relating to the proceſſion of the Spirit between the Eaſtern and Weſtern churches, in the ſeventh and ninth centuries; nor is it quoted, ſay ſome, till one thouſand years after Chriſt. Fabricius is of opinion, that it was firſt writ in Latin long after the fifth century, and afterwards tranſlated into Greek. It is appointed to be read in the ſervice of the Church of England thirteen times in the year. Voſſii Diſſ. de Symbolis. Fabr. Bib. Græc. vol. v.

CREED, *Nicene*, was compoſed and eſtabliſhed as a proper ſummary of the Chriſtian faith by the council at Nice, A. D. 325, againſt the Arians. This is alſo called the Conſtantinopolitan *creed*, becauſe it was confirmed with ſome few alterations by the council of Conſtantinople, A. D. 381.

Theſe three *creeds* are uſed in the public offices of the church of England; and ſubſcription to them is required of the clergy, and was formerly required of diſſenting teachers properly qualified by the TOLERATION act, as the eighth ARTICLE declares that they may be proved by the ſureſt teſtimonies of Scripture.

CREEK, a part of a haven, where any thing is landed from the ſea.

So many landing-places as there are in a HARBOUR or port, ſo many *creeks* there are.

It is alſo ſaid to be a ſhore or bank whereon the water beats, running in a ſmall channel from any part of the ſea; from the Latin *crepido*. This word is uſed in the ſtat. 4 Hen. IV. c. 20. and 5 Eliz. c. 5.

CREENGLES, *Cringles*, probably derived from *krimhelen* (Belg.), *to run into twiſts*; in *Naval Architecture*, are ſmall ropes ſpliced into the bolt-ropes of the ſails of the main-maſt and fore-maſt, into which the bowling-bridles are made faſt; and are alſo to hold by, when a bonnet is ſhaken off.

Harris, in his Lexicon Technicum, has the ſame deſcription under *Cringles*; and the Gentlemen's Dictionary under *Crenckes*.

CREEPER, the Engliſh name of a ſpecies of IBIDA, which though very unlike the common KING'S *fiſher* both in colour and figure, yet is comprehended under that genus on account of the ſtructure of its feet.

This ſmall bird, which is hardly larger than a WREN, has likewiſe been called the *certhia* and *certhion*, by authors, and in Engliſh the *creeper*.

It climbs trees exactly like the wood-pecker, in which it is greatly aſſiſted by the rigidity of its tail. It builds in holes of trees, and lays a great number of eggs, ſometimes eighteen or twenty. Ray's Ornith. p. 100.

CREEPER, in *Sea Language*, a ſort of grapnel, having a ſhank and four hooks or claws, but without ſtocks; uſed for recovering things that may be caſt overboard.

CREMASTERS, in *Anatomy*, an epithet given to two muſcles, otherwiſe called *ſuſpenſores*; ſerving to raiſe, or draw up the teſticles. See *Tab. Anat. (Myol.) fig.* 2. *n.* 32.

The word comes from the Greek κρεμαω, *ſuſpendo, I ſuſpend*.

CREMATION is ſometimes uſed for burning, particularly when applied to the ancient cuſtom of burning the dead. This cuſtom is well known to have prevailed among moſt eaſtern nations, and continued with their deſcendants after they had peopled the different parts of Europe. Hence we find it prevailing in Greece, Italy, Gaul, Britain, Germany, Sweden, Norway, and Denmark, till Chriſtianity aboliſhed it. Phil. Tranſ. N° 458. ſect. 3.

CRENATED *leaves*. See LEAF.

CRENELLE', *embattled*, in *Heraldry*, is when any honourable ordinary is dented, after the manner of battlements of a wall. See *Tab.* II. *Heraldry, fig.* 59.

The French word comes from *crena, a notch*, or *interval*, the Engliſh from its being a place of fighting, or battle. Upon, in Latin, calls this *imbatellatum*, a word forged from the Engliſh; but moſt others term it *pinnatum*, from *pinna, a battlement*.

The origin hereof is, doubtleſs, from the figures of ſuch walls being given to warriors, either for having been the firſt at mounting, or the chief in defending them.

CRENOPHYLAX. The *crenophylaces* at Athens were magiſtrates who had the inſpection and management of fountains under their care.

CREODIBA, in the *Cuſtoms of the Middle Age*, a robbery and murder committed in a wood, where the body of the perſon killed was burnt, in order to prevent any diſcovery of the crime. The word, ſays Wendelinus, is compounded of *cruy* and *wioon*, that is, *wood-robbery*.

CREOLES, a name given to the families deſcended from the Spaniards who firſt ſettled at Mexico, in America. Theſe are much more numerous than the Spaniards properly ſo called, and the Mulattoes, which two other ſpecies of inhabitants they diſtinguiſh; and are excluded from all conſiderable employments.

CREPANU, in the *Manege*, a chop in a horſe's leg, made by the ſpunges of the ſhoes of one of the hinder feet, croſſing and ſtriking againſt the other.

CREPIDÆ, among the Romans, a kind of ſlippers or ſhoes, which were always worn with the *pallium*, as the *calcei* were with the *toga*.

CREPIS, in *Botany*, baſtard hawkweed. See HAWKWEED.

CREPITATION, that noiſe, which ſome ſalts make over the fire in CALCINATION; called alſo *detonation*.

CREPITATION, is alſo uſed in *Surgery*, for the noiſe made by the ends or pieces of bones, when the ſurgeon moves a limb to aſſure himſelf by his ear of the exiſtence of a fracture.

This is one of the evident indications of a fracture of bones; and to judge by it with the greater eaſe to the patient, it is neceſſary that the upper part of the limb be held faſt, while the lower part is gently moved. The ſame of the bones will likewiſe be ſometimes felt by the hand, when nothing is heard.

CREPITUS *lupi*, in *Natural Hiſtory*, a kind of fungus, popularly called *puff-ball*.

Mr. Derham obſerves, that upon examining the powder thereof with a microſcope, he found the ſeeds to be ſo many exceeding ſmall puff-balls, with round heads, and long ſharp-pointed ſtalks, as if made on purpoſe to prick into the ground.

The ſeeds become hurtful to the eyes, probably by their ſharp ſtalks pricking and wounding them.

CREPUNDIA, in *Antiquity*, tokens left with expoſed children, by which they might be afterwards known. Theſe were of conſiderable value, if the child happened to be nobly born, in order to defray part of the expence of its education.

CREPUNDIA

CREPUNDIA was alſo uſed in a leſs proper ſenſe, for the ſwaddling cloaths in which children were expoſed; becauſe by them they might be known again. See EXPOSING *of children*.

CREPUSCULUM, in *Aſtronomy*, *twilight*; the time from the firſt dawn or appearance of the morning, to the riſing of the ſun; and again, between the ſetting of the ſun, and the laſt remains of day.

Papias derives the word from *crepera*; which, he ſays, anciently ſignified *uncertain*, *doubtful*, q. d. *a dubious light*. The *crepuſculum* is uſually computed to begin and end when the ſun is about eighteen degrees below the horizon; for then ſtars of the ſixth magnitude diſappear in the morning, and appear in the evening. It is of longer duration in the ſolſtices than in the equinoxes, and longer in an oblique than in a right ſphere.

The *crepuſculs* are occaſioned by the ſun's rays refracted in our atmoſphere, and reflected from the particles thereof to the eye. For ſuppoſe an obſerver in O (*Tab. Aſtronomy, fig.* 41.), the ſenſible horizon AB, and the ſun under the horizon in HK; and let the ray SE fall in the atmoſphere below the horizon. Since it paſſes out of a rarer into a thicker medium, it will be refracted, and that towards the perpendicular, i. e. towards the ſemidiameter CE. It will not, therefore, proceed to T, but touching the earth in D, it will fall upon A, the eaſtern part of the ſenſible horizon: nor can any other ray beſides AD, of all thoſe refracted in E, arrive at A. But now, ſince the particles of the atmoſphere reflect the ſun's rays (ſee REFLECTION); and ſince the angle DAC is equal to CAO; the rays reflected in A will be carried to O, the place of the ſpectator; who will therefore ſee the particle A ſhining in the ſenſible horizon, and conſequently the beginning of the morning *crepuſculum*.

And in the ſame manner might be ſhewn the refraction and reflection of the ſun's rays in the atmoſphere, in the evening *crepuſculum*.

Kepler, indeed, aſſigns another cauſe of the *crepuſculum*; viz. the luminous matter around the ſun; which, riſing near the horizon, in a circular figure, exhibits the *crepuſculum*: in which caſe, as he would ſhew, owing to the refraction of the atmoſphere.

The ſun's luminous atmoſphere, though neither the ſole nor principal cauſe of twilight, may lengthen its duration, by illuminating our air, when the ſun is too low to reach it with its own light. Greg. Aſt. book ii. prop. 8.

The depth of the ſun below the horizon, at the beginning of the morning crepuſculum, *or end of the evening one*, is determined in the ſame manner as the arch of viſion; viz. by obſerving the moment wherein the air firſt begins to ſhine in the morning *crepuſculum*, and that wherein it ceaſes in the evening; and finding the ſun's place for that moment.

Alhazen found it 19° 5; Tycho, 17° 8; Rothmannus, 24°. Stevinius, 18° 5; Caſſini, 15° 5; Ricciolus, in the equinox in the morning 16°, in the evening 20° 30'; in the ſummer ſolſtice in the morning 21° 25, in the winter ſolſtice in the morning 17° 25'.

Nor need we wonder at this difference among aſtronomers: the cauſe of the *crepuſculum* being inconſtant: for if the exhalations of the atmoſphere be either more copious, or higher, than ordinary; the morning *crepuſculum* will begin ſooner, and the evening hold longer than ordinary: for the more copious the exhalations are, the more rays will they reflect, conſequently the more will they ſhine; and the higher they are, the ſooner they will be illumined by the ſun. On this account, the evening twilight is longer than the morning, at the ſame time of the year in the ſame place. To this it may be added, that in a denſer air, the refraction is greater; and that not only the brightneſs of the atmoſphere is variable, but alſo its height from the earth: and therefore the twilight is longer in hot weather than in cold, in ſummer than in winter, and alſo in hot countries than in cold, other circumſtances being the ſame. But the principal differences are owing to the different ſituations of places upon the earth, or to the difference of the ſun's place in the heavens. Thus, the twilight is longeſt in a parallel ſphere, and ſhorteſt in a right ſphere, and longer to places in an oblique ſphere in proportion to their nearneſs to one of the poles: a circumſtance which affords relief to the inhabitants of the more northern countries, in their long winter nights. And the twilights are longeſt in all places which have north latitude, when the ſun is in the tropic of Cancer; and to thoſe in ſouth latitude, when he is in the tropic of Capricorn. The time of the ſhorteſt twilight is different in different latitudes; in England, it is about the beginning of October and of March, when the ſun is in the ſigns ♎ and ♓. For the method of determining it trigonometrically, ſee Greg. Aſtron. book ii. prob. 41.

Hence, when the difference between the ſun's declination and the depth of the equator is leſs than 18°, ſo that the ſun does not deſcend more than 18 below the horizon; the *crepuſculum* will continue the whole night. *The elevation of the pole* PR (*fig.* 42.), *and the ſun's declination* OS, *being given; to find the beginning of the morning* crepuſculum *or end of the evening*. Since in the triangle PSZ the ſeveral ſides are given; viz. PZ the complement of the elevation of the pole PR, and PS the complement of the declination OS, and SZ the aggregate of the quadrant ZD, and the ſun's depth DS; find the angle ZPS, whoſe meaſure is the arch AO. See TRIANGLE.

Convert AO into ſolar time: thus have you the TIME elapſed from the beginning of the morning *crepuſculum*, to noon.

To find the crepuſculum *by the artificial globe*, ſee GLOBE. Suppoſing the depreſſion of the ſun at which twilight begins or ends to be 18°, it is eaſy to determine the height of the ATMOSPHERE. Let AEFG (*Tab.* II. *Aſtronomy, fig.* 65.) be the earth, the pointed circle ſurrounding it the outward ſurface of the atmoſphere, the height of which DB is to be found: let A be the place of an obſerver, *b* his ſenſible, HO his rational horizon: let IKLM be the ſun, ENG the ſhadow of the earth, IBa ray from the upper edge of the ſun, touching the earth in E, and falling upon the outward ſurface of the atmoſphere at B, whence it is reflected to the eye of the obſerver at A in the line of his ſenſible horizon BA: ſince the ſun is larger than the earth, he enlightens a little more than a hemiſphere, or that part repreſented by the arc EFG = 180° 32', becauſe ECF + ECN = two right angles, and ECN is leſs than a right angle by the angle ENC = 16'; conſequently, the half of EFG or the angle ECS = 90° 16', and therefore taking away OS the ſun's depreſſion = 18°, there will remain ECO = 72° 16' and as ACO = 90°, ACE will be = 17° 44', and DCA, its half = 8° 52'. Then in the right angled-triangle BAC, the angles and one ſide AC are known, therefore the ſide BC may be found, AC being made radius, BC will be the ſecant of the angle BCA = 8° 52'; therefore 10000000 : 10100488 :: 39673 the miles in the earth's ſemidiameter : 40158 the diſtance from the centre to the outward ſurface of the atmoſphere, from which ſubtract the ſemidiameter, and the remainder 48 miles will be the height of the atmoſphere. If allowance of 34' is made for the horizontal refraction, the angle BCA will be 8° 18', the ſecant of which is 10105851, whence the height of the atmoſphere will be 42 miles. Long's Aſt. vol. i. p. 260. See ATMOSPHERE.

CRESCENT, the new moon, which, as it begins to recede from the ſun, ſhews a little rim of light, terminating in points, or horns, which are ſtill increaſing, till it become full, and round in the oppoſition.

The word is formed from *creſco*, *I grow*.

The term is alſo uſed for the ſame figure of the moon in its wane, or decreaſe, but improperly; becauſe the points or horns are then turned towards the weſt, whereas they look to the eaſt in the juſt *creſcent*.

CRESCENT, in *Heraldry*, is a bearing in form of a half-moon. The Ottomans bear ſinople, a *creſcent* montant, argent.

The *creſcent* is frequently uſed as a difference in coat-armour, to diſtinguiſh it for that of a ſecond brother, or junior family.

The figure of the *creſcent* is the Turkiſh ſymbol; or rather, is that of the city Byzantium, which bore this device from all antiquity; as appears from medals ſtruck in honour of Auguſtus, Trajan, &c.

The *creſcent* is ſometimes *montant*, i. e. its points look towards the top of the chief, which is its moſt ordinary repreſentation; whence ſome contend, that the *creſcent* abſolutely ſo called, implies that ſituation; though other authors blazon it *montant*; when the horns are towards the dexter-ſide of the eſcutcheon, in which poſition others call it *inverſant*.

Creſcents are ſaid to be *adoſſed*, when their backs or thickeſt parts are turned toward each other; their points looking to the ſides of the ſhield.

Creſcent inverted, is that whoſe points look towards the bottom: *turned creſcents*, are placed like thoſe *adoſſed*; the difference is, that all their points look to the dexter-ſide of the ſhield: *contourned creſcents*, on the contrary, look to the ſiniſter ſide: *affronted* or *appointed creſcents*, are contrary to the *adoſſed*, the points looking towards each other.

CRESCENT is alſo the name of a military order, inſtituted by Renatus of Anjou, king of Sicily, &c. in 1448; ſo called from the badge, or ſymbol thereof, a *creſcent* of gold enamelled.

What gave occaſion to this eſtabliſhment was, that Renatus took for his device a *creſcent*, with the word

lus, praise; which, in the style of rebus, makes *lus in crescunt*, q. d. *by advancing in virtue, our merits praise.*

CRESCENTIA, in *Botany*. See CALABASH-*tree*.

CRESSA, in *Botany*, a genus of the *pentandria digynia* class, with a five-leaved calyx, a saucer-shaped corolla, and a two-valved capsule containing a single seed.

CRESSES, in *Botany*, *nasturtium*. In the Linnean system this is joined to LEPIDIUM. The characters are these: the flower hath a four-leaved empalement, and four petals placed like a cross, with six awl-shaped stamina, four of which are the same length of the empalement, two being shorter. In the centre is situated a heart-shaped germen, which afterwards turns to a heart-shaped short capsule, with acute borders, having two cells, each containing one or two oval seeds. There are only three species cultivated in gardens.

The common *cress* is a plant so well known as to need no description. There is a variety of this, whose lower leaves are much curled on the edges, and was formerly cultivated in greater plenty than at present. Whether this is a different species, or only a variety, is not yet determined; though it has been found to retain its difference for some years.

It is commonly cultivated in gardens as a sallad-herb, and being one of the warm kinds, is chiefly esteemed during the winter and spring. During the winter season it must be sown upon a gentle hot-bed, covered from rains and frosts. In the spring it may be sown in warm borders, where if it be defended from cold winds it will thrive very well: but if it is intended to continue it in summer, it must be sown every third day in shady borders; otherwise it will grow too fast for use.

Cresses are good for the scurvy, for which the Dutch commonly eat them in May, with bread and butter.

A cataplasm of the leaves with hog's lard, cures scald heads; the seed likewise helps the scurvy and dropsy, swelling of the spleen, and opens obstructions of the female sex. Miller's Bot. Off.

The herb, but especially the seed, are hot and acrimonious; whence they are attenuating, abstersive, and aperitive.

CRESSES, *Indian*, *trapæolum*, in *Botany*, a genus of the *octandria monogynia* class. Its characters are these: the empalement of the flower is of one leaf, ending in five points; it is erect, spreading, and falls off; the two under segments are narrow, their tail-ends in a nectarious horn, which is larger than the empalement; the flower has five roundish petals inserted in the segments of the empalement; the two upper sit close to the foot-stalk, but the lower have oblong hairy tails; it has eight short awl-shaped stamina, which decline and are unequal, terminated by oblong rising summits, having four cells, and a roundish germen with three lobes which are streaked, supporting a single erect style, crowned by an acute trifid stigma; the germen afterward becomes a solid fruit in three parts, convex on the outside, angular within, having many furrows; each part or cell including one furrowed seed, convex on one side, and angular on the other. There are two species, natives of South America.

Both kinds of this plant are easily propagated, by sowing their seeds in March or April, in a good soil, and warm situation; and should be planted near a hedge or wall, being great climbers, and their lying on the ground being subject to rot them. They flower in June and continue flowering till October, when the frosts soon destroy the whole plant.

The double-flowered kind produces no seeds, and must therefore be propagated by planting cuttings of it. This may be done in any of the summer months; but the plants must be carefully preserved in winter, being very subject to rot. If this be confined in pots, and those filled with a poor soil, it will ramble less in the branches, and will produce more flowers. The flowers of this kind, though very beautiful, are not nearly so well tasted in sallads as those of the single kind, which are very warm, and agreeable; and are esteemed very wholesome. The seed is pickled, and by some preferred to most kinds of pickles for sauce.

CRESSES, *Meadow*. See CARDAMINE.

CRESSES, *Scurvy*, *Scotica*, *iberis*, in *Botany*, a genus of the *tetradynamia siliculosa* class. Its characters are these: the flower hath an empalement of four oval leaves, which spread open, are hollowed, and fall away; it hath four unequal, oval, obtuse petals, which are spread open; and six awl-shaped erect stamina, terminated by roundish summits; the germen is in the centre of the tube, round and compressed, and supporting a short single style, crowned by an obtuse stigma, which afterwards becomes a roundish compressed vessel, having two cells, each containing one oval seed. Miller enumerates eight species. See TURRITIS.

CRESSES, *Spanish*, *bulbi*, in *Botany*, a genus of the *tetradynamia siliculosa* class. Its characters are these: the empalement of the flower is cylindrical, and composed of four linear obtuse leaves, which drop off; the flower has four petals placed in form of a cross, whose tails are the length of the empalement, and six stamina of the same length, two of which are a little shorter, terminated by single summits, and an oval germen, supporting a conical style, crowned by a single stigma; the germen afterward turns to a globular capsule with two cells, divided by an intermediate partition twice as large as the pod, oval, erect, stretching beyond the capsule, each cell containing one seed. There are two species. Miller.

CRESSES, *Swine's*. See COCHLEARIA.

CRESSES, *Welsh*. See TURRITIS.

CRESSES, *Water*, *sisymbrium*, in *Botany*, a genus of the *tetradynamia siliculosa* class. Its characters are these: the flower has a spreading empalement, composed of four linear, spear-shaped, coloured leaves, which fall off; it has four oblong spreading petals, placed in form of a cross, and six stamina, four of which are longer than the empalement, the other two which are opposite are shorter, terminated by single summits; it has an oblong slender germen, with scarcely any style, crowned by an obtuse stigma; the germen afterward becomes a taper, oblong, incurved pod, having two cells opening with two valves, which are shorter than the intermediate partition, filled with small seeds. There are nine species; the first of which is the common *water-cresses*, which grows naturally in ditches and rills of water in most parts of England, in which places they are generally gathered for market. But it may be easily cultivated, by taking some of the plants early in the spring, from the places of their natural growth preserving the roots as entire as possible, and planting them into mud, and then letting the water in upon them by degrees. When they have taken root, they will soon flourish and spread over a large compass of water; but should not be cut the first season, but suffered to run to seed, which falling into the water, will furnish a sufficient supply of plants afterward.

But where the water is so deep that it will not be easy to plant them, the best method will be to get a quantity of the plants just as their seed is ripening, and throw them on the surface of the water where they are wanted to grow; here the seeds will ripen and fall to the bottom, where they will take root, and produce a supply of these plants.

Some of those people who gather this herb for use, either through ignorance, or some worse design, have frequently taken the creeping water-parsnip, and sold it for *watercresses*; whereby many persons have been injured by eating it: but they may easily be distinguished by the shape of the leaves; those of the *water-cresses* being roundish, almost heart-shaped lobes, with a few indentures on their edges, and are of a dark green; but those of the water-parsnip have oblong lobes ending in points, which are of a light green sawed on their edges. Miller.

Water-cresses are frequently eaten in spring for a sallad. The whole plant is of a very acrid taste, and is a powerful attenuant and resolvent. It is recommended as a kind of specific in the scurvy, and is eaten in great quantities by many with that intent. It is good against all obstructions of the *viscera*; and consequently in jaundices, and other chronic diseases. It is also a powerful diuretic, and promoter of the *menses*. People have pretended to preserve the virtues of this plant in waters, syrups, and conserves; but the best way of taking it is either to eat it as a sallad, or to drink its expressed juice singly, or mixed with that of the other antiscorbutic plants, as brook-lime, &c. which is often done.

CREST, in *Armoury*, the uppermost part of the defensive armour of the head; rising over the rest, in manner of the comb or tuft of a cock; to sustain the effort of very keen scimitars, &c. It has its name from *crista, cock's comb*.—Hence, also,

CREST, in *Heraldry*, denotes the uppermost part of an armoury; or that part rising over the CASK, or helmet.

Next to the mantle, says Guillim, the *crest* or *cognizance* claims the highest place, being seated on the most eminent part of the helmet; yet so, as to admit an interposition of some circlet, wreath, chaperon, crown, &c.

The ancient warriors were *crests* to strike terror in their enemies, as the sight of the spoils of animals they had killed; or to give them the more formidable mien, by making them appear taller, &c.

In the ancient tournaments, the cavaliers had plumes of feathers, especially those of ostriches and herons, for their *crests*; these tufts they called *panaches*; and were placed in tubes, on the tops of high caps, or bonnets. Some had their *crests* of leather; others of parchment, paste-

pasteboard, &c. painted or varnished, to keep out the weather; others of steel, wood, &c. on which were sometimes represented a number or ordinary of the coat; as, an eagle, fleur de lys, &c. but never any of those called honourable ordinaries, as pale, fesse, &c. The *crests* were changeable at pleasure; being reputed no other than as an arbitrary device, or ornament.

Herodotus attributes the rise of *crests* to the Carians, who first bore feathers on their casks, and painted figures on their bucklers; whence the Persians called them *sacæ*.

The *crest* is esteemed a greater mark of nobility than the armoury, as being borne at tournaments; to which none were admitted, till they had given proof of their nobility. Sometimes, it serves to distinguish the several branches of a family. It has also served, on occasion, as the distinguishing badge of factions. Sometimes the *crest* is taken from the device; but more usually it is formed of some piece of the arms: thus, the emperor's *crest* is an eagle; that of Castile, a castle, &c. Families that exchange arms, as the houses of Brunswick and Cologne have done, do not change their *crests*: the first still retain the horse, and the latter the mermaid.

The *crest* of the arms of England, is a lion passant gardant, crowned with an imperial crown; that of France, a fleur-de-lys.

CREST, among *Carvers*, an imagery, or carved work, to adorn the head, or top of any thing; like our modern cornice.

CRESTED, in *Heraldry*, is a term applied to a cock, or other bird, whose crest is of a different tincture from other parts.

CRESTED *grass*. See GRASS.

CRESTED *kale*. See STALK.

CREST-FALLEN, is spoken of a horse, when the upper part of the neck, on which the mane grows, does not stand upright, but hangs either to one side or the other.

CRETA, in *Natural History*, and in *Medicine*. See CHALK.

CRETIO, in *Antiquity*, a certain number of days allowed the heir to consider, whether he would act as heir to the deceased, or not; after which time, if he did not act, he was excluded from the estate.

CREUX, a term in *Sculpture*, much used by the French; though not yet, that we know of, naturalized among us: but the want of a word of equal import in English, as it has frequently put us under a necessity of using this in the course of the present work, so it pleads strongly for its admission into our language.

Creux originally signifies a *hollow*, *cavity*, or *pit*, out of which something has been scooped, or dug: hence is it used to denote that kind of sculpture, and graving, where the lines and figures are cut and formed within the face, or plane of the plate, or matter engraven on.

In which sense, it stands opposed to *relievo*; where the lines and figures are imbossed, and appear prominent above the face of the matter.

CREW, the company of sailors belonging to a ship, boat, or other vessel.

The sailors that are to work and manage a ship are regulated by the number of lasts it may carry; each last making two tun.

The *crew* of a Dutch ship, from 40 to 150 lasts, is seven sailors and a swabber; from 50 to 60 lasts, the *crew* consists of eight men and a swabber; and thus increases at the rate of one man for every ten lasts; so that a ship of 100 lasts has twelve men, &c. English and French *crews* are usually stronger than Dutch; but always in about the same proportion.

In a ship of war there are several particular *crews*, or gangs, as the boatswain's *crew*, the carpenter's *crew*, the gunner's *crew*, &c.

CREX, in *Ornithology*, the name of a bird, common about the Nile, and remarkable for the noise which it makes, which is no other than *crex*, *crex*, whence it has its name. Its beak is moderately long and black, as are also its head and its legs; its neck, back, and breast, are white, but the back a little greyish; the wings are black, variegated with white. It feeds on insects, and generally makes a very loud noise all the time it is on the wing. Bellonius *de Avibus*. See *Land-*RAIL.

CRIB, in the English *Salt-Works*, the name given to a sort of case used in some places instead of the DRAB, to put the salt into as it is taken out of the boiling-pan.

These *cribs* are like hay-racks, wide at the top, and tapering to a narrow bottom, with wooden ribs on each side, placed so close, that the salt cannot easily fall through them. Through these apertures, however, the superfluous saline liquor drains out, and leaves the salt, after a few days, dry enough to be added to the heaps that stand ready for sale. At Lymington, and in some other places, they use, instead of these *cribs*, a sort of wooden troughs with holes in the bottom, through which the saline liquor drains from the salt, and falls into vessels placed underneath to receive it; and in other places they use barrows or wicker baskets, out of which the liquor runs with great ease on all sides at once.

CRIBBAGE, a game at cards, wherein no cards are thrown out, and the set makes forty-one: it being an advantage to deal, by reason of the crib, it is proper to list for it; and he who has the least card, deals.

CRIBRATION, in *Pharmacy*, *Mining*, the act of separating the finer parts of a medicine, whether dry or humid, from the grosser; the latter by means of a pulping sieve, the former by a fine searce.

With respect to *cribration*, Quincy, a very good judge of pharmacy, makes the following remark, in order to obviate the mischiefs, and inconveniencies which through inadvertency or haste, frequently happen in the practice of shops: which is, that whatsoever is to be powdered, the whole ingredient or ingredients, with all their pulp to be used, should pass the sieve, and be all mixed equally together, before any be used. For through neglect of this caution, several medicines which come under this kind of management, will, in their different parts, be of different efficacies, according as that part of most virtue, being more or less friable, may pass through first, which will make that much too strong, or remain behind to the same prejudice. In compositions likewise of ingredients of different textures or cohesions, some run through much sooner than others; so that there is an absolute necessity of mixing the whole carefully after all is passed.

CRIBROSUM *os*, or *Os* CRIBRIFORME, in *Anatomy*, a little bone at the top of the nose, pierced like a sieve, to let pass several little fibres, arising from the mammillary productions, and terminating in the membrane that lines the cavity of the nostrils; called also *os ethmoides*.

CRICELASIA, formed of κρικος, *ring*, and ελαυνω, *I drive*, among the Greeks, the exercise of rolling the circle or *trochus*. This was a species of exercise in use among the ancients; and is, though not very distinctly, described by Oribasius, in his Medicinal Collections, lib. vi. cap. 36. from Antyllus. It should seem to be little more than driving the hoop, as is now practised by boys. The hoop was so large as to reach as high as the breast of the person who used it; the instrument by which it was driven along was of iron, with a wooden handle; and small rings, *spasa*, were fastened to the hoop, to jingle and divert the person who exercised himself with it; which Oribasius considers as of importance. This exercise was recommended for rendering the limbs pliable, and strengthening weak nerves.

CRICETUS, in *Zoology*, the name of an animal of the MOUSE kind. Its size is between that of a common rat and a rabbit. Its legs are very short; its back is of the colour of a hare's; its sides have more redness; and its belly is black: each side is variegated also with three large white spots. The hairs of this creature are so firmly rooted in the skin, that they can by no means be pulled out, but sooner tear away the skin with them; and for this reason, as well for the variety of colours, the skins are much valued. It is a very bold and desperate creature: and if a man on horseback molest it, will fly up at the nose of the horse, and hold him very fast. It lives in holes in the earth, as the rabbit, and heaps up large quantities of vegetable fruits and corn for its store, and is usually found very fat. It is very apt to sit on its buttocks, and in that posture looks like a little bear, whence some have called it *arctomys Pala-linatum*. It has two large teeth in the front of each jaw, and it uses its fore-feet by way of hands, like the squirrel. Ray's Syn. Quad. p. 201.

CRICKET, *Gryllus*, in *Natural History*, the name of a genus of insects of the *hemiptera* class, nearly allied to the locust-kind. The two principal kinds are the house and field-*cricket*, and they are hostile to each other. The first of these is smaller, and is of a brown colour spotted with black. The latter is more than an inch long, and has a great head and very large eyes. The antennæ in this species have no articulations.

Crickets are thought to be ruminating animals, and certainly are furnished with several different stomachs. In medicine they are believed to be diuretic, and less dangerous than cantharides; for which intention they are dried and powdered, and given in doses from twelve grains to a scruple. The house-*cricket* only flies from the light; as many other insects do; it feeds almost on every thing; the male only chirps; and their monotony, however disagreeable to some people, is pleasant enough to their own females, for it is the voice of love; and it is continual, night and day, except in very cold weather. They become habituated to bear all kinds of noise, but the field *cricket* is very timorous, and chirps only in the heat of the finest days of summer. Coll. Acad. tom. vii. P. E. 3. p. 209.

CRICKET, *balm.* See CICADA.

CRICKET, *mole, Gryllotalpa*, a species of the *gryllus*, in *Natural History*, a creature approaching to the locust kind, and very properly called by this name by Mouffett, as it has much the form of the *cricket*, and makes a noise like it in the evening, and is like the mole, continually employed in digging the ground. It is an infect of a very unpleasant form. It is of the length and thickness of a man's little finger, and is of a brown colour, which is darker in the male than in the female. There are on each fide of the anus two hairy proceffes, refembling the tails of mice; its belly is compofed of eight joints, and is covered with as many fcales, which are of a pale aflı-colour, and are covered with fhort hair. The back is covered with a pair of pointed wings, along each of which there runs a black ftreak or line. Thefe wings fold any way at the creature's pleafure, and when fully expanded are very large. Over thefe lie the antennæ; thefe are variegated alfo with black, and reach about half the length of the wings. It has only four legs; the hinder pair are long and fit for hoppings the anterior pair are fhort, and furnifhed with a fort of hands for digging in the manner of the mole. The breaft is covered with a cruftaceous fubftance, which is blackifh, and hairy on the outfide, and fmooth and pale within. The eyes are very bright and black, and are very hard, and the mouth is wide, and has two tonfils, and teeth in both jaws. This creature lives under ground, and is principally found in damp and boggy places. They come out in the dufk of the evening, and make a very loud noife of the nature of that of the *cricket*. *Tab. Inſect. fig.* 7.

The *mole-cricket* moves very flowly; and Goedartius is of opinion, that its wings were given it rather as an ornament, than as a thing of ufe; or if they have any real ufe, that it is the covering and defending the tender body of the creature, which is very foft, and eafily liable to accidents; and Mouffet fays, that its flights are no more than long leaps. But we have a very different account of the ufe this creature makes of its wings, in the German Ephemerides. Mentzelius, in a paper there, declares this to be one of the moft mifchievous infects of the creation. He fays it is a kind of amphibious creature, and that it lives equally well under ground, in the air, or under water; that while it is under ground, it does infinite mifchief by burrowing under the beds of a garden, and eating the roots of flowers, and that in the night it comes out, and raking wing fettles upon the fruit-trees, where it does little mifchief; and all this the author affirms from his own experience, in the gardens which he obferved.

This creature is very nice in the conftruction of its neft. This is always under ground, and it chooſes a ſolid clay for the purpoſe. All its precaution ſeems to be neceſſary to ſecure its eggs from becoming a prey to a kind of black fly, which conceals itſelf under ground. The noiſe of the *cricket* is variouſly accounted for by naturaliſts: but is moſt probably effected by the play of organs in their belly, of a ſingular conſtruction. This is certain, that if the head of the animal be taken off, or if it be ſevered in the middle, it continues to live, and even to chirp for ſome conſiderable time.

It is remarkable of this creature, that it can move backward as faſt as forward, and often does ſo when frighted.

CRICKET is alſo the name of an exerciſe, or game, with bats and a ball.

CRICOARYTÆNOIDÆUS, in *Anatomy*, a name given to two pair of muſcles, ſerving to open the larynx.

The *cricoarytænoidei* are either *poſteriur* or *lateral*: the former are the firſt pair of openers of the larynx; the latter, the ſecond pair.

The *lateral* have their origin in the edge of the lateral and ſuperior part of the cartilage cricoides, and are inſerted into the lateral and ſuperior part of the arytænoides.

The *poſterior* have their origin in the poſterior and lower part of the cricoides: and hence the reaſon and etymology of the name are evident.

CRICOIDES, in *Anatomy*, a cartilage of the larynx; ſo called, as being round, like a ring, and encompaſſing the whole larynx.

The word is formed from κρικος, uſed by tranſpoſition for κρικος, *circle*, and ειδος, *form*.

The *cricoides* is the ſecond cartilage of the larynx; it is narrow before, thick behind; and ſerves as a baſe to all the other cartilages; being, as it were, let into the thyroides.

It is by means of this, that the other cartilages are joined to the trachea; on which account it is immoveable.

CRICO-PHARINGEI, *muſcles* which *ariſe from* the lower part of the ſide of the cricoid cartilage.

CRICOTHYROIDÆUS, in *Anatomy*, a name given to the firſt pair of muſcles proper to the larynx.

Their name is derived hence, that they have their origin in the lateral and interior part of the *cricoides*; and are inſerted into the inferior part of the thyroides.—Their uſe is to dilate the ſcutiform cartilage.

CRIER, *common*, an officer in the city of London, to whom, and to the ſerjeant at arms, it belongs to ſummon all executors and adminiſtrators of freemen to appear, and to bring in inventories of the perſonal eſtates of freemen, within two months after their deceaſe; who is alſo to have notice of the appraiſements. He is alſo to attend the lord-mayor on let days, and at the courts held weekly by the mayor and aldermen.

CRIME, a breach or tranſgreſſion of a law, of an action contrary to the purport of a law; either natural or divine, civil, or eccleſiaſtic; to which a penalty is annexed.

The term *crime* includes in it the idea of a determination and deſign formed to do an injury. It is derived from the Latin *crimen*, of κρινω, *judico*, *I judge*.

The Romans diſtinguiſhed two kinds of *crimes*; viz. *private*, which only affected particular perſons; the proſecution whereof was not allowed by the laws to any but thoſe intereſted therein; as *adultery*, &c. and *public crimes*; the proſecution whereof was permitted to all perſons, though in no-wiſe immediately intereſted.

With us, *crimes* are diſtinguiſhed into *capital*; as *treaſon*, *murder*, *robberies*, &c. and *common*, *perjuries*, &c.

They are again divided into crimes cognizable by the king's judges; as thoſe above mentioned: and ſuch as are only cognizable in the ſpiritual courts, as ſimple *fornication*, &c.

There is an excellent book on the ſubject of *crimes* and PUNISHMENTS, publiſhed by the marquis de Beccaria.

CRIME, *quaſi*. See QUASI *crime*.

CRIMES *falſi*. See FALSI.

CRIMINAL *law*, is that which diſcuſſes the nature of crimes, and inflicts ſuitable penalties; or, as it is more uſually denominated in England, the doctrine of the PLEAS *of the crown*.

CRIMNOIDES, or CRIMOIDES, formed of κριμνον, *bran*, in *Medical Writers*, is uſed for urine with thick ſediments at the bottom, like bran.

CRIMSON, one of the ſeven red COLOURS of the dyers.

The word comes from the Arabic *kermiſi*, of *kermes*, *red*. The Bollandiſts inſinuate that *crimſon* comes from *Cremona*, and is uſed for *Cremoniſi*.

The ſtuffs to be dyed in *crimſon*, after they have been cleaned of their ſoap, and ſtrongly alumed, are put in a decoction of cochineal, each according to its colour.

In a leſs durable *crimſon* by BRAZIL-*wood*, and for the colour called by dyers *demi-crimſon*, the root of MADDER is mixed with cochineal.

To dye a lively *crimſon*; firſt wet the goods well, and for every pound of ſtuff, to make the *ſuds*, uſe two ounces and a half of tempered aqua fortis, three ounces and a half of tartar, an ounce and a half of cochineal, and eight ounces of alum. Boil the goods with all theſe for half an hour, let them cool, and riſe them out. To finiſh the dye, boil four ounces of cochineal, three ounces of ſtarch, three ounces of white wine tartar, and half an ounce of white arſenic together, for a quarter of an hour; then put in the goods, and let them boil for above half an hour, or until they have taken the dye well and equally. See DYING.

CRIMSON *graſs vetch*, in *Botany*. See *Chichling* VETCH.

CRINONES, from κρινις, *hair*, in *Medicine*, a ſort of worms, ſometimes found under the ſkin in children; reſembling ſhort thick hairs, or briſtles.

They are called *acrumenoi*, and *comedones*, from the Latin *comedere*, to *eat*; from their preying upon the ſubſtance of the child, or conſuming its nouriſhment. See DRACUNCULI.

The common way of getting out theſe worms is by the point of a needle; and to prevent their forming there again, the uſual cuſtom is to waſh the parts with wine or vinegar, with alum, nitre, or common ſalt, or with a ſtrong lixivium of oak aſhes, and afterwards anointing them with an ointment of the common kind, uſed for ſcorbutic eruptions, with a ſmall mixture of, quickſilver.

CRINONIA, a kind of cup, worn by the emperors of Conſtantinople on ſolemn occaſions.

CRINUM, in *Botany*. *See Aſphodel* LILY.

CRISIS, from κρινω, *I judge*, in *Medicine*, a change, or turn, in acute diſeaſes; wherein the morbific matter is ſo altered, as to determine the patient either for recovery or death; the doctrine of which formed a principal part of ancient medicine.

The cauſe of ſuch change is owing to the remaining vital forces being irritated by the matter of the diſeaſe ſo or ſo conditioned; i. e. fit either to be evacuated, or tranſlated, or to kill.

If the matter be diſpoſed for evacuation or tranſlation, but is not ſalubrious, it produces a change called a *critical perturbation*, or *imperfect criſis*.

If

If the change become ſenſible, they are called *critical ſymptoms, or ſigns of a criſis*, either future or preſent. See SIGN.

The ſymptoms of the *criſis* are frequently confounded with thoſe ariſing from the cauſe of the diſeaſe, and the diſeaſe itſelf, or the matter of the diſeaſe; whence have ſprung the moſt unhappy conſequences.

The differences between critical ſymptoms and morbific ones are, that the firſt proceed from the vital powers prevailing over the force of the diſeaſe; but the latter from the diſeaſe prevailing over the vital faculty: that the firſt are preceded by a manifeſt concoction, but the latter are formed even in crudities: that the former happen about the critical times, but the latter at all times of the diſeaſe, chiefly during its increaſe.

The principal ſymptoms of an approaching *criſis* are, after digeſtion, and about the critical time, a ſudden ſtupor, drowſineſs, waking, delirium, anxiety, dyſpnœa, grief, redneſs, titillation, pricking, heavineſs, darkneſs, light, ſpontaneous tears, nauſea, heat, thirſt, trembling of the lower lip, &c.

The ſymptoms and effects of a preſent *criſis* are, after the preceding ones, a vomiting, ſalivation, looſeneſs, thick ſediment in the urine, bleeding at the noſe, hæmorrhoids, ſweat, abſceſſes, puſtules, tumours, buboes, purples, aphthæ, &c.

Dr. Alberrinus obſerves, that all feverith, nay, almoſt all diſeaſes, are followed by *criſes*, and that particularly after intermitting fevers are ſtopped by the bark, critical evacuations are to be expected. If they do not come timely, the patient is in danger of ſome other diſeaſe, eſpecially if any uſual evacuation has been hindered; in which caſe it is dangerous to give the bark, unleſs we promote a ſuitable excretion, if a *criſis* does not ſoon come.

Dr. Martine defends the ancients in the rules they have laid down concerning the periods and *criſes* of diſeaſes, endeavouring to prove that they are founded on accurate obſervations.

CRISP *leaf, criſpum folium*, among *Botaniſts*. See LEAF.

CRISTA *galli*, in *Anatomy*, an eminence in the middle of the *os ethmoides*, advancing within the cavity of the cranium; and to which is faſtened that part of the dura mater which divides the brain, called *falx*.

It has its name from its figure, which reſembles that of a cock's comb. In adults, this proceſs appears of a piece with the *ſeptum narium*.

CRISTA *galli*, in *Conchyliology*, the name of a peculiar ſpecies of oyſter, called alſo by ſome *auris porci*, or the hog's ear-ſhell.

CRISTÆ is alſo a term uſed in *Surgery*, for certain preternatural excreſcences ariſing about the fundament, reſembling cocks combs.

Theſe, M. Dionis ſays, are taken off either by ligature, cauterization, or amputation. When they have other figures, they have other names, as ficus, &c. See CONDYLOMA.

CRISTA is alſo uſed for a crooked, twiſted, ſpiral eminence, in the middle of the ſpine of the *omoplata*.

CRISTA *porcina*, in *Botany*, a name by which ſome authors have called the POLYGALA.

CRISTA *paſtoni* is alſo a name given to the tree, the wood of which is uſually denominated LOGWOOD.

CRITERIUM, or CRITERION, formed ex κρινω, *I determine*, a rule or ſtandard, whereby to compare propoſitions and opinions, in order to diſcover their truth or falſhood.

The doctrine of *criteria*, and the characters and rules thereof, make the firſt part of the Epicurean philoſophy.

EVIDENCE is the grand *criterion* of truth.

CRITHE, κριθη, in *Medicine*, a ſmall tubercle, hard, red, and immoveable, ſeated upon the eye-lid, above the cilia, or range of hairs. It is always included in a ſhell of cyſt, and by inflammation degenerates into a thickiſh matter, from whence frequently proceed intenſe pains, and various diſorders of the ſight. It is ſometimes ſeated immediately under the ſkin of the eye-lid; ſometimes it is within, under the muſcle. When this tubercle is moveable, it is generally called *chalazium*, or in Engliſh, ſtye, or *ſtithe*. Heiſter's Surgery, p. 365.

CRITHUM, *ſamphire*, in *Botany*. See SAMPHIRE.

CRITHOMANCY, a kind of divination, performed by conſidering the dough, or matter of the cakes offered in ſacrifice; and the meal ſtrewed over the victims to be killed. Hence, in regard they ordinarily uſed barley-meal in theſe ceremonies, this kind of divination was called *crithomancy*, from κριθη, *barley*, and μαντεια, *divination*.

CRITICAL *days, ſymptoms*, &c. are certain days, and ſymptoms uſually ariſing in the courſe of acute diſeaſes, as fevers, ſmall-pox, &c. which indicate the patient's ſtate, and determine him either to recover, or grow worſe.

The word comes from κρινω, *judico, I judge*.

The criſes have been frequently obſerved to happen on the ſeventh, fourteenth, or twentieth day; whence thoſe are denominated *critical days*.

For the theory of *critical days*, it may be obſerved, that the concoction of any morbific matter, and the humour to be ſecerned, is nothing elſe but a change thereof into ſuch a due magnitude, or ſmallneſs, as it may be carried by the circulating blood along the canals, and excerned by veſſels deſtined for that purpoſe. But if the morbific matter cannot be reduced to ſuch a magnitude or ſmallneſs as may correſpond to the orifices of the ſecretory veſſels; then either an abſceſs or hæmorrhage will follow, if a criſis be begun; for which reaſon, abſceſſes, &c. are accounted leſs perfect criſes. But, that the morbific matter may be reduced to a due magnitude, or ſmallneſs, and its wiſhed-for diſcharge take place, there is required a conſiderable time, if the quantity of matter be large; that is, if the diſtemper be great and ſevere: and ſince there are a great many cauſes, and thoſe very conſtant, which may occaſion the blood, and offending humours therein, to be of a different fluidity in the inhabitants of different climates, it is impoſſible but that different ſpaces of time ſhould be required for the finiſhing concoction: which makes it impoſſible to determine the *critical* days in one climate, from what they are found to be in another.

The cauſes of real *critical* days, that is, ſuch on which happens the laſt concoction of the morbific matter, which is always attended with expulſion, are all thoſe things which occaſion the humours to become of ſuch a certain magnitude or minuteneſs, and of a greater or leſſer coheſion; but with any given power, bodies unequally large, or unequally cohering, cannot be concocted in an equal time: wherefore it is to be found by the obſervations made by all nations among themſelves, which are the uſual cauſes and conditions of thoſe diſeaſes, that require a certain number of days to finiſh ſuch a concoction in it.

CRITICISM, the art of judging concerning diſcourſe and writings. See JUDGMENT.

Some define *criticiſm*, more ſimply, the art of judging of a hiſtory, or a work of genius, with the various incidents there met with, their ſtyle, and authors.

On which footing, M. le Clerc ſeems to have given a defective idea of *criticiſm*, when he defines it ſimply the art of entering into the meaning of ancient authors, and of making a juſt diſcernment of their genuine works. True *criticiſm*, ſays Dr. Blair, is the application of TASTE and of good ſenſe to the ſeveral fine arts. The object which it propoſes is to diſtinguiſh what is beautiful and what is faulty in every performance; from particular inſtances to aſcend to general principles; and ſo to form rules or concluſions concerning the ſeveral kinds of beauty in works of genius. Lect. on Rhetoric, &c. vol. i. p. 36.

We may diſtinguiſh divers ſorts, or branches, of this art: as,

CRITICISM, *philoſophical*, or the art of judging of opinions and hypotheſes in philoſophy.

CRITICISM, *theological*, the art of judging of explications of doctrines of faith, &c.

CRITICISM, *political*, the art of judging of the means of governing, acquiring, and preſerving ſtates.

But the ordinary uſe of the word is reſtrained to

CRITICISM, *literary*, which, however, is of great extent, as it takes in the art of judging of facts; a branch of *criticiſm*, which regards not only hiſtory, but alſo the diſcernment of the real works of an author, the real author of a work, the genuine reading of a text, and the art of diſcovering ſuppoſititious monuments, charters, interpolated paſſages, &c.

The other parts of *literary criticiſm* are, the art of judging of works of genius, their excellencies and defects. We have alſo

CRITICISM, *grammatical*, or the art of interpreting and diſcovering the words and meanings of an author.

CRITICISM *of antiques*, which conſiſts in diſtinguiſhing genuine medals, and the different taſte and ſpirit found among them, according to the different people, the different country, and the different times wherein they were ſtruck; the diſtinguiſhing between what is caſt, and what ſtruck; what has been retouched, and repaired or added, from what is really antique; the genuine from the ſpurious, &c. and to decypher and explain them, &c.

CRITICISM, *ſacred*, in general, is that employed in eccleſiaſtical matters, the hiſtory of the church, the works of the fathers, councils, lives of the ſaints, &c. but more particularly what concerns the books of the Holy Scriptures, and the canon thereof.

Ariſtotle, if we believe Halicarnaſſeus, is the firſt inventor of the art of *criticiſm*. Ariſtarchus, Dionyſius Halicarnaſſeus himſelf, Varro, and Longinus, diſtinguiſhed themſelves therein in their days. Among the Chriſtians, Dionyſius Alexandrinus, Heſychius, Euſebius, St. Jerom, and Theodoret, were the greateſt maſters in this art. The decree of pope Geleſius about the apocryphal books, required a good ſhare of *criticiſm*.

But the critical art fell with other arts; and lay unknown till the time of Charlemagne, when it was re-eſtabliſhed under him and his ſons. The care which the religious Ciſtercians took to correct the manuſcript of the Bible, ſhew that the rules of *criticiſm* were not entirely unknown in the eleventh century. The works of Johannes Sariſburienſis, Euſtathius, and Tzetzes, make it evident it was cultivated in the twelfth. The manuſcripts of the Bible, corrected by the Dominicans of Paris, and the doctors of the Sorbonne, in the thirteenth, ſhew it was ſtudied then. In the following ages, it was ſtill cultivated with more exactneſs; eſpecially in the ſixteenth, ſeventeenth, and eighteenth centuries, when all the world made it their ſtudy.

From the whole, it follows, that *criticiſm* does, indeed ſuppoſe an uncommon ſtock of knowledge of the ſubject whereon it is employed; but that *criticiſm*, itſelf, is nothing elſe but good ſenſe perfected by grammar and logic.

CRIZZELLING, in the *Glaſs Trade*, a kind of roughneſs ariſing on the ſurface of ſome kinds of glaſs. This was the fault of a peculiar ſort of glaſs made in Oxfordſhire, and ſome other places, of black flints, a cryſtallized ſand, and a large quantity of nitre, tartar, and borax. The glaſs thus made is very beautiful, but, from the too great quantities of the ſalts in the mixture, is ſubject to *crizzel*; that is, the ſalts in the mixture, from their too great proportion, are ſubject, either from the adventitious nitre of the air from without, or from warm liquor put in them, to be either increaſed in quantity, or diſſolved, and thereby induce a feabrities, or roughneſs, irrecoverably clouding the tranſparence of the glaſs. This is what was called *crizzelling*; but by uſing an Italian white pebble, and abating the proportions of the ſalts, the manufacture is now carried on with advantage, and the glaſs made with theſe ſalts is whiter than the fineſt Venetian, and is ſubject to no faults. Plott's *Oxfordſhire*, p. 258.

CROCALLIS, in *Natural Hiſtory*, the name given by the antients to a ſtone famous for its virtues againſt poiſons, and venomous bites. All the deſcription Pliny gives of it is, that it was of the ſize and ſhape of a cherry.

CROCARDS, an old name given by the Iriſh to a certain kind of money brought over into that kingdom from France, and other parts beyond the ſeas, and uttered there for pennies, though not really worth ſo much as a halfpenny. They were a ſmall ſort of coin, made of a mixture of copper, ſulphur, and a ſmall quantity of ſilver, and were called by ſeveral other names, as *mitres*, *lunettes*, *roſaries*, and the like, from the figures they were impreſſed with. They were current in Ireland, and in ſome parts of England, a great many years; but were afterwards denied, and prohibited importation, both in England and Ireland, under the penalty of the forfeiture of life and effects. At this time, mints were ſet up in Dublin, for the coining of good money, and, in a few years, the whole quantity of the *crocards* was deſtroyed. See POLLARDS.

CROCEUS, in *Natural Hiſtory*, is ſaid to be an amphibious animal, which is neither fiſh nor bird, but both. All the ſummer it is a bird of a ſaffron colour, and flies through the mountains: but towards the end of autumn it returns to the ſea, and becomes a fiſh. It is only in winter that they catch it, when it is very good food.

CROCHES, among *Hunters*, the little buds about the top of a deer's horn.

CROCI, among *Botaniſts*, the apices, or ſmall knobs, on the tops of flowers.

CROCIA, a biſhop's or abbot's CROSIER, or paſtoral ſtaff.

CROCIAS *lapis*, in *Natural Hiſtory*, a name given by ſome of the old authors to a ſpecies of agate, of a yelloviſh colour, but deeper than the cerachates, or wax-coloured agate, and approaching to what is called a ſaffron colour.

CROCINUM, a name given by the ancient phyſicians to a ſort of oil of ſaffron, which is thus deſcribed by Dioſcorides.

Eight drams of ſaffron are to be put into three pints of inſpiſſated oil, and they are to be ſtirred together ſeveral times in a day, for five days together; then the oil is to be ſeparated from the ſaffron, and a like quantity is to be added to the ſame ſaffron, and ſtirred about at times, for three days; then this oil is to be cleanſed off, and to it are to be added fifty ounces of powdered myrrh. Theſe having been well ſtirred together, are then to be ſet by for uſe.

Some uſed an oil impregnated with aromatics, in the compoſition of the *crocinum*; but that was uſually eſteemed beſt, which ſmelt the moſt ſtrongly of ſaffron, or elſe of myrrh.

The *crocinum* was eſteemed heating and narcotic; whence it was frequently preſcribed by way of embrocation, or elſe held in the noſe in phrenſies. It was alſo eſteemed uſeful as a ſuppurative, and to cleanſe old ulcers: it was much eſteemed alſo in hardneſſes, obſtructions, and other diſorders of the uterus, being uſed with wax, marrow, and double the quantity of oil; for a *glaucoma* it was alſo uſed with ſucceſs, when mixed with water, and the eyes anointed frequently with it.

CROCODILADES. See THISTLE.

CROCODILE, in *Zoology*, a ſpecies of lizard, with a two-edged tail, and triangular feet, the fore ones having five, and the hinder only four toes.

This animal is the largeſt of the LIZARD kind, growing to twenty-five feet in length, and about the thickneſs of a man's body; its noſe is like that of a hog; the opening of its mouth mouſtrouſly large, reaching even to the ears, and the upper-jaw moving in the opening of it, gives it a very terrible aſpect. The teeth are large, white, and very numerous, and ſet by one another, like the teeth of a comb; there are two long teeth in the lower-jaw, which paſs into two holes in the upper. Herodotus affirms that the *crocodile* has no tongue; but he is obſerved to have a fleſhy ſubſtance like a tongue, that is fixed to the lower-jaw, which ſerves to turn his meat. The legs ſtand ſideways; and the feet are armed with extremely ſharp claws. The length of the tail is equal to that of the whole body; the ſkin of the belly is ſoft, and eaſily wounded, but that of the reſt of the body ſo hard as to be impenetrable to ſpears or darts, and is covered with ſtrong prickly ſcales. The colour is in ſome a duſky reddiſh yellow, but in moſt a diſagreeable brown, with a mixture of grey; and even thoſe which, when alive, had much yelloweſs, always acquire this duſky colour in dying.

It is a native of the torrid zone, frequenting ſalt-water rivers, where it lies concealed among the reeds or ruſhes, until it finds an opportunity to ſeize men or other animals, which it drags into the water; always taking this method of drowning them firſt, that it may afterward ſwallow them without reſiſtance; its general food, however, is fiſh. The Africans and Indians eat its fleſh, which is white, and has a kind of perfumed flavour.

Its eggs are about the ſize of a gooſe egg, and it lays fifty of theſe for one brood, burying them in the ſands, and leaving them for the ſun to hatch them. As ſoon as they are hatched, which takes twenty-five or thirty days, the parent takes care of the young, which run with them into the water. The *crocodile* is found in the great rivers, as the Nile, the Niger, and the Ganges, and in ſome other places. Ray's Syn. Quad. p. 201. Worm. Muſ. p. 815. Pococke's Deſcr. of the Eaſt, vol. i. p. 202, &c.

The *crocodile* was worſhipped by the Egyptians.

See an account of a peculiar ſpecies of *crocodile*, diſtinguiſhed by a narrow beak, reſembling the bill of a gooſe-ander, and by a pouch under the belly, probably formed for receiving its young in times of danger, with a drawing by Mr. G. Edwards, in the Phil. Tranſ. vol. xlix. art. 95. p. 639.

CROCODILE, *foſſile*. One of the greateſt curioſities in the foſſile world, which the late ages have produced, is the ſkeleton of a large *crocodile*, almoſt entire, found at a great depth under ground, bedded in ſtone. This was in the poſſeſſion of Linkius, who wrote many pieces in natural hiſtory, and particularly an accurate deſcription of this curious foſſile. It was found in the ſide of a large mountain, in the midland part of Germany, and in a ſtratum of a black foſſile ſtone, ſomewhat like our common ſlate, but of a coarſer texture, the ſame with that in which the foſſile fiſh of many parts of the world are found. This ſkeleton had the back and ribs very plain, and was of much deeper black than the reſt of the ſtone, as it alſo the caſe in the foſſile fiſhes, which are preſerved in this manner. The part of the ſtone where the head lay was not found, this being broken off juſt at the ſhoulders, but that irregularly, ſo that, in one place, a part of the back of the head was viſible in its natural form. The two ſhoulder-bones were very fair, and three of the feet were well preſerved; the legs were of their natural ſhape and ſize, and the feet preſerved, even to the extremities of the five toes of each.

CROCODILE, CROCODILUS, in *Rhetoric*, a captious and ſophiſtical kind of argumentation; contrived to ſeduce the unwary, and draw them ſpecioully into a ſnare.

It has its name, *crocodile*, from the following occaſion, invented by the poets. A poor woman, begging a *crocodile* that had caught her ſon walking by the river-ſide, to ſpare and reſtore him, was anſwered, that he would reſtore him, provided ſhe ſhould give a true anſwer to a queſtion he ſhould propoſe: the queſtion was, *Will I reſtore thy ſon, or not?* To this the poor woman, ſuſpecting a deceit, ſorrowfully anſwered, *Thou wilt not*: and demanded to have him reſtored, becauſe ſhe had anſwered truly. Thou lyeſt, ſays the *crocodile*: for if I reſtore him, thou haſt not anſwered truly: I cannot therefore reſtore

restore him, without making thy answer false. Under this head may be reduced the propositions called *mentientes*, or *insolubiles*; which destroy themselves. Such is that of the Cretan poet: *Omnes ad unum Cretenses semper mentiuntur: All the Cretans to a man, always lye.* Either then, the poet lyes, when he asserts that the Cretans all lye; or the Cretans do not all lye.

CROCODILION, in *Botany*, a name given by some authors to the plant commonly called the ECHINOPUS, or *globe-*THISTLE.

CROCOMAGMA, in *Pharmacy*, a name given by some to troches composed of saffron, myrrh, red roses, starch, and gum Arabic: thus called from κροκος, *saffron*, and μαγμα, *a mass of any thing*.

CROCOTTA, in *Natural History*, a name given by the ancients to a very fierce and terrible animal, produced by copulation between the large hyæna and the lioness. See LEUCROCOTTA.

CROCUS, in *Botany*. For the characters, see SAFFRON. The variety of the several species of *crocus* produced in the gardens of the curious, by raising them from well chosen seeds, is almost incredible.

They are very hardy, and will increase exceedingly by the roots, if suffered to remain some years in the ground. They will grow in all soils and situations, and are great ornaments to a garden, as they flower when scarce any thing else is up. The fibres of these roots perish when their leaves do, and they may, therefore, like all other roots of that kind, be taken up as soon as the leaves appear dead, and laid by, in a dry place, till September, at which time they must be planted again for the spring-flowering. They should be planted in holes made with a dibble, about two inches deep, and at two inches distance from one another; the earth being raked over them, they should remain covered about an inch deep with it. If the weather is mild, they will, in January, appear above ground, and in February they will be in full flower. The leaves are so short when the flower appears, that it seems produced on a naked stalk, but as that decays they grow to a considerable length; these look but unsightly after the flower is gone, but they should not be cut, for that greatly weakens the root for the next year's flowering.

CROCUS, in *Chemistry*. The preparations of metals which are generally known by this name, as the *crocus Martis*, and the like, seem to have obtained it from their saffron-like colour. They are the calxes of metals, consisting of their fixed parts separated from their sulphureous; they are made either by the means of fire, or by the action of salts of various kinds; and are either naturally in a powder, or very easily reducible into one.

The general subjects of this sort of process are gold, silver, iron, and antimony, and there are many ways of making the processes. The virtues ascribed to the gold and silver *crocuses* seem, in a great measure, imaginary: those of antimony are far from being the best sort of preparations of that metal; but those of iron are, more than all others, useful in medicine. Hoffman, in his *Acta Laboratorii*, has many improvements on the common processes for the making these preparations.

CROCUS *antimonii*, or *metallorum*, in *Pharmacy* and *Chemistry*, the name given, in the late London Dispensatory, to the preparation of antimony and nitre commonly known by the name of *crocus metallorum*. It is made of equal parts of antimony and nitre, powdered fine, and thrown gradually into a red-hot crucible, and, when thoroughly melted, poured out, and separated from its scoriæ. This looks more yellow the longer it has been melted: it is but little used, except among horses; but when intended for internal use among men, should be procured faithfully prepared in this manner; for our chemists generally abate of the nitre to save charges, and render the medicine of a very different effect. Pemberton's Lond. Disp. p. 230.

Washed *crocus* of antimony is made by boiling the *crocus* of antimony, reduced to a very fine powder, in water, still changing the water, till it comes off insipid. Of this is made the *vinum antimoniale*, called also VINUM *emeticum*, and *benedictum*.

The medicinal *crocus* of antimony consists of eight ounces of antimony, and one ounce of nitre, pulverized, mixed, and deflagrated: the matter is then taken from the fire, and cooled and powdered for use. A dose from eight to twenty grains will operate gently both as an emetic and purge. The milder *crocus* of antimony is prepared with two pounds of crude antimony, and one of nitre, much in the same manner as the former.

CROCUS *Indicus*, *Indian Saffron*, in the *Materia Medica*, a name given by some authors to the *curcuma*, or *turmeric* root of the shops.

CROCUS *martis*, a preparation of iron; which is of two kinds, viz. *crocus martis aperiens*, and *crocus martis astringens*.

CROCUS *Martis aperiens*, *opening Saffron of Mars*, is a preparation of iron plates, made by first washing them, then exposing them to the dew, till they have contracted a rust; which rust is scraped off, and the plates exposed for more.

Others prepare it by calcining iron filings with an equal weight of sulphur. Others, by clapping a bar of iron, red, or rather white hot, between two rolls of brimstone; in which case, the iron melts, and runs down into a vessel of water below: which some call *Mars cum sulphure præparatus*. Others have other preparations.

Crocus Martis aperiens is prescribed in cases of obstructions, the dose being from ten to thirty grains.

M. Lemery endeavours to shew, that iron taken in substance, is much more salutary and efficacious than when thus prepared; the process tending to strip it of its oily part, wherein its chief virtue resides; leaving nothing behind but the mere ferruginous earthy part.

CROCUS *Martis astringens*, *binding Saffron of iron*, is a preparation of iron filings; wherein they are deprived of their more saline parts by washing them five or six times in strong vinegar, and calcining them five or six hours.

It is prescribed in hæmorrhages, dysenteries, and diarrhœas, the dose being the same as in the former. The best way is to give it in a bolus, or pills, because in liquid it sinks to the bottom too suddenly to be taken without waste.

Crocus Martis is a chemical preparation, used by the glass-makers to give a red colour to glass. The glass-makers prepare this for themselves, and have four ways of doing it. The first is this: take filings of iron, mix them with three parts of powdered brimstone, and keep them in a melting-pot, in a furnace, to calcine, and burn off the sulphur; let them stand four hours in this state, then take them out, and, when cold, powder and sift them, and put the powder into a crucible, which lute over, and set it in the heer of the furnace for fifteen days, or more; it will then be of a reddish purple, and must be kept for use.

The second way of making this, is by sprinkling filings of iron with strong vinegar, and setting them in the sun to dry; when dry, powder and sift them, and wet them again with vinegar, and, when dry, powder them again. Repeat this eight times, and then powder the whole, and sift it fine for use.

The third way is to use aqua fortis, instead of vinegar, in the same manner.

The fourth way, which is the best of all, is this: dissolve filings of iron in aqua regia, and let the solution stand three days in a vessel close stopped, shaking it about at times; then evaporate the liquor gently, and there will remain a most valuable *crocus Martis*.

CROFT, CROFTUM, a little close adjoining to a dwelling-house, either for pasture or tillage.

Possunt etiam dicti monachi de eisdem maritis versus occidentem facientibus pro se, & hominibus suis, includere crofton, sive pratum juxta pontem, specialiter, quantum illis placuerit, Inguif.

In some ancient deeds, *crofta* occurs as the Latin word for a *croft*; but *cum toftis & croftis* is more frequent. *Croft* is translated in Abbo Floriacensis, by *prædium*, a *farm*.

CROISADE, CRUSADE, or CRUZADO, a *holy war*, or an expedition against infidels and heretics; particularly against the Turks, for the recovery of Palestine.

People anciently flocked on these *croisades* out of devotion; the popes bulls, and the preaching of the priests of those days, making it appear a point of conscience. Hence several orders of knighthood took their rise.

Many circumstances contributed to give rise to these expeditions. The desire of visiting a country which had been the scene of very important transactions, and in which the Son of God had accomplished the redemption of mankind, together with the idea of peculiar merit, acquired by a distant pilgrimage of this kind, and of its serving as a general expiation for almost every crime, had no small influence on this occasion. Besides, an opinion prevailed, that the thousand years mentioned by St. John, Rev. xx. 2, 3, 4. were accomplished, and that the end of the world approached; many thus hurried into the Holy Land, where they imagined that Christ would quickly appear to judge the world. Christians also thought it reproachful, to suffer a country, which had been so signally distinguished, and whence they derived the most valuable benefits, to be abandoned to the enemies of the Christian name; and they thought it meritorious to avenge the calamities and injuries which its professors had suffered under the Mahometan yoke. Moreover, pilgrims were encouraged in their resort to Jerusalem, whilst Palestine continued subject to the caliphs; but when the Turks conquered Syria, about the middle of the eleventh century, they were exposed to every kind of outrage from these barbarians, and returned

turned with exaggerated accounts of the vexations they had endured. Accordingly, the firſt ſignal was given by Silveſter II. towards the cloſe of the tenth century, in an epiſtle wrote in the name of the church of Jeruſalem to the church univerſal throughout the world, in which all the European powers are intreated and exhorted to ſuccour and reſcue the Chriſtians in Paleſtine. This effort of zeal, however, produced no immediate effect. Gregory VII. in the beginning of the eleventh century, renewed the undertaking, and propoſed in perſon to invade the Holy Land. Though he was prevented from executing this deſign, the ſpirit of the people was inflamed; and Peter the Hermit, returning from a voyage which he had made through Paleſtine, A. D. 1093, complained of the extreme ſufferings of the Chriſtians, appealed to Urban II. for ſuccour, and ran from province to province with a crucifix in his hand, exciting princes and people to this holy war, and pretending a divine commiſſion for this purpoſe. At length, Urban II. finding a general ardour for the cauſe, aſſembled a grand and numerous council at Placentia, A. D. 1095, and warmly recommended this expedition. Soon after the propoſal was renewed with ſucceſs at the council of Clermont. In 1096, an army of 800,000 men ſet out for Conſtantinople, in ſeparate bodies, under the command of Peter the Hermit, Godfrey of Bouillon, and many other noble and illuſtrious leaders. Nor need we wonder at the multitude who flocked to the ſtandard of the croſs, when we conſider the natural operation of frantic zeal, and the numberleſs privileges which the croiſaders acquired; ſuch as exemptions from proſecutions for debt, from paying intereſt for money, and from taxes; the power of alienating their lands without conſent of their lord, the protection of St. Peter, the immunities of eccleſiaſtics, and the plenary remiſſion of their ſins. Du-Cange.

The firſt efforts of theſe adventurers were irreſiſtible, and they gained conſiderable advantages; but before the expiration of the thirteenth century, the Chriſtians were driven out of all their Aſiatic poſſeſſions; and the enterpriſe remains a ſingular monument of human folly. Nevertheleſs, many ſubſtantial benefits accrued from it in a political and commercial view, however injurious it was to individuals, and to the cauſe of religion in general. To theſe wild expeditions we owe the firſt gleams of light which tended to diſpel barbarity and ignorance. They were the means of introducing a more general and ſteady adminiſtration of juſtice, and of eſtabliſhing regal government in the ſeveral kingdoms of Europe, and of extending commerce. Robertſon's Hiſt. ch. v. p. 269, &c. Moſheim's Eccl. Hiſt. Eng. ed. 8vo. vol. ii. p. 189, 231, &c.

Thoſe who engaged to go on this ſervice, diſtinguiſhed themſelves by croſſes of different colours, worn on their cloaths; ordered, it is ſaid, by the council of Clermont; and were thence called *croiſes*, or croſs-bearers, of whom, contemporary authors tell us, there were ſix millions: the Engliſh wore them white; the French, red; the Flemiſh, green; the Germans, black; and the Italians, yellow.

The following are the principal *croiſades* for the conqueſt of the Holy Land: the firſt undertaken in 1095, at the council of Clermont; the ſecond in 1147, under Louis VII. and the pontificate of Eugenius III. at the inſtigation of Bernard, abbot of Clairval; the third in 1189, and 1190, by Frederic I. ſurnamed Barbaroſſa, emperor of Germany, Henry II. of England, and Philip Auguſtus of France; the fourth in 1195, by pope Celeſtin III. and the emperor Henry VI. the fifth publiſhed in 1198, by order of Innocent III. wherein the French, Germans, and Venetians, engaged; the ſixth undertaken in the year 1217, under the pontificate of Honorius III. by the confederate armies of Italy and Germany, which ended in the rout of the Chriſtians; the ſeventh under Frederic II. emperor of Germany, who ſet out in the year 1228, and concluded a truce of ten years with the ſultan of Egypt in 1229, which was ſucceeded by inconſiderable and very unſucceſsful expeditions in 1239, under Theobald VI. king of Navarre; and in 1240, under Richard earl of Cornwall, brother to Henry III. of England; the eighth, under Louis IX. of France, in conſequence of a vow which he had made in 1248; and the ninth, and laſt, renewed by the ſame valiant, but unfortunate monarch, who died of a peſtilential diſeaſe in the harbour of Tunis, in the year 1270. Theſe expeditions coſt Europe at leaſt two millions of its inhabitants, and an immenſe ſum of money.

The abbot Juſtiniani makes an order of knighthood of the croiſes, who ſerved in the *croiſades*.

Towards the middle of the twelfth century, there was alſo a *croiſade* of the Saxons, againſt the pagans of the North; wherein the archbiſhop of Magdeburg, the biſhops of Halberſtadt, Munſter, Merſeburgh, Brandenburgh, &c. with ſeveral lay-lords, embarked. And towards the beginning of the ſame century, under the pontificate of Innocent, there was alſo a *croiſade* undertaken againſt the Albigenſes; who were become powerful in Languedoc, &c.

CROISES, or CROIZES, in our *Ancient Cuſtoms*, pilgrims bound for the Holy Land, or who had already been there; ſo called from a badge which they wore on their garments, repreſenting a croſs.

The word *croiſes* is alſo extended to the knights of St. John of Jeruſalem, created for the defence and protection of pilgrims; and all thoſe of the nobility, gentry, &c. who in the reigns of king Henry II. Richard I. Henry III. and Edward I. were *cruce ſignati*, i. e. dedicated themſelves to the wars, for the recovery of the Holy Land.

CROISIERS, CRUCIGERI, or *croiſe-bearers*, a religious order, or congregation of regular canons, ſo called.

There are three orders which have, or do ſtill bear this name; one in Italy; another in the Low Countries; and a third in Bohemia.

The firſt pretend to be derived from St. Clet; and add, that St. Quiriacus the Jew, who ſhewed St. Helena the place of the true croſs, and was afterwards converted, reformed them. All we know for certain is, that they ſubſiſted in Italy before Alexander III. mounted the throne; for that pontiff, flying from Frederic Barbaroſſa, found an aſylum in the monaſteries of the *Croiſiers*, which he afterwards, in 1169, took under his protection, giving them the rule of St. Auguſtine, &c.

They were confirmed by Pius V. but the diſcipline being much relaxed, they were ſuppreſſed in 1656, by Alexander VII.

Matt. Paris ſays, that the *croiſiers*, bearing ſtaffs with croſſes at the end, came into England in 1244, and preſented themſelves before a ſynod held by the biſhop of Rocheſter, demanding to be admitted. They were here called *crouched* friars.

Dodſworth and Dugdale mention two monaſteries of this order in England, one at London, the other at Ryegate; the firſt founded in 1245, the latter in 1298; ſome add a third at Oxford, where they were received in 1349. M. Allemand ſays, there were fourteen monaſteries of *Croiſe-bearers* in England; adding, that they came from Italy; thoſe of the Low Countries diſowning them.

The *Croiſiers* of the Low Countries and France were founded in 1211, by Theodore de Celles ſon of Boſon, who having ſerved in a croiſade in Paleſtine, in 1188, and there found ſome of the *Croiſiers* inſtituted by St. Clet, conceived a deſign of inſtituting another congregation in his own country. This is certain, that Theodore, in his return from Paleſtine, engaged himſelf in the eccleſiaſtical ſtate; and went in quality of miſſionary to the croiſade againſt the Albigenſes: and that at his return in 1211, the biſhop of Liege gave him the church of St. Thibault, near Huy; where, with four companions, he laid the foundation of his order; which was confirmed by Innocent III. and Honorius III. Theodore ſent his religious to Thouloufe, to join thoſe of St. Dominic, and combat the Albigenſes; and the congregation multiplied in France. The popes have endeavoured to bring the *Croiſiers* of Italy under thoſe of Flanders. The *Croiſiers, or pere croix with a ſtar*, in Bohemia, derive their origin from St. Quiriacus, and ſay they came from Paleſtine into Europe, where they embraced the rule of St. Auguſtine, and built monaſteries. They add, that St. Agnes of Bohemia, to diſtinguiſh them from other *Croiſiers*, obtained of Innocent IV. to add a ſtar to their habit. But the ſtory of St. Quiriacus has no foundation; and it was Agnes herſelf, daughter to Primiſlaus king of Bohemia, who inſtituted the order at Prague, in 1234. They are very numerous; and have, now, two generals.

CROISANTE', in *Heraldry*. *Croix croiſante* is a croſs frefcoated; that is, having a creſcent, or half-moon, fixed on each end thereof.

CROM-LECHE, in *Britiſh Antiquity*, derived, according to the conjecture of Mr. Rowlands, from the Hebrew *carem-leach*, a devoted ſtone or altar, are huge, broad, flat ſtones, raiſed upon other ſtones ſet up on end for that purpoſe. They are common in Angleſey; and Mr. Rowlands ſuppoſes, that they are the remains of altars erected there by the firſt coloniſts. Mona Antiqua reſtaurata.

CRONICAL, in *Aſtronomy*. See ACRONICAL.

CRONIUS, in *Chronology*, the ancient name of the Athenian month HECATOMBÆON, which was the firſt of their year, and anſwered to the latter part of our June, and beginning of July.

There were feaſts called *cronienes*, celebrated at Athens in this month, in honour of Saturn, anſwering to the *Saturnalia* of the Romans.

CROOKEDNESS. See DISTORTION.

CROOTES, a substance found about the ore in the lead-mines, at Mendip, being a mealy, white, soft stone, matted with ore.

CROPPER, or *Dutch* CROPPER, in *Ornithology*, the name of a particular species of pigeon, called the *columba gutturosa Belgarum*, by Moore. It is naturally thick, and has its name from its large crop, or bag of wind, which it carries under its beak, and can, at pleasure, either raise or depress. These are thick-bodied, and short; their legs are also thick and short, and are feathered down to the feet; the crop is large, and hangs low; the feathers on the thighs hang loose; and their legs stand wide; they are gravel-eyed, and are generally very bad feeders.

There are of these pigeons of all colours, and those who are careful of them, generally take them away from their proper parent, while young, and breed them under the females of other species.

CROSETTES, in *Architecture*, the returns in the corners of chambranles, or door-cases, or window-frames; called also *ears*, *ecbevins*, *ancones*, *prothyrides*, &c.

CROSIER, or CROZIER, *shepherd's crook*, a symbol of pastoral authority, consisting of a gold or silver staff, crooked at top, carried occasionally before BISHOPS and ABBOTS, and held in the hand when they give solemn benediction. At one end it is crooked, at the other pointed; expressed in the verse:

Curva trahit mites, fors pungit acuta rebelles.

The custom of bearing a pastoral staff before bishops is very ancient, as appears from the life of St. Cæsarea of Arles, who lived about the year 500. Among the Greeks, none but the patriarchs had a right to the *crosier*. The *crosiers* were at first no more than simple wooden staves, in form of a T, used to rest and lean upon: by degrees they were made longer, and at length arrived to the form we now see them of. *Vide* Ill. *Heraldry*, fig. 122.

Regular abbots are allowed to officiate with a MITRE and a *crosier*.

CROSIER, in *Astronomy*, four stars, in form of a cross; by help whereof, those who sail in the southern hemisphere find the antarctic pole.

CROSS, CRUX, a sort of instrument, composed of two pieces of wood, traversing and cutting each other, ordinarily at right angles.

Pezron derives the word *crux* from the Celtic *croaz*, and *croaz*; though, perhaps, *crang* and *crux* might with as much justice be derived from *crux*.

The *cross* was used among the ancients as a punishment for malefactors and slaves; and was planted at several places, *in terrorem*, as our gallows, &c.

Sozomen observes, that it was Constantine who by law first abolished the punishment of the *cross*, which had obtained among the Romans till his time. It had also been in use among the Assyrians, Egyptians, Persians, Carthaginians, and even the Greeks.

As to crucifixion, or the manner wherein the punishment of the *cross* was effected, the critics, both ancient and modern, are exceedingly divided: the points in dispute are, whether the criminal was fastened with three nails, or with four; whether the feet were immediately fastened to the *cross*, or whether they rested on a little piece of wood, in manner of a step, or seat, called *sedyma*; whether the *cross* was planted in the earth before the person was nailed on, fastening him afterwards by means of a ladder raised to the height of the place where the feet were to be nailed; or whether he was nailed before the *cross* was raised or planted, as the painters represent it: or lastly, whether the patient was fastened quite naked, or covered: questions that have all been occasioned by the *crucifixion* of Jesus Christ.

CROSSES were usually in former times erected on the tops of houses, by which tenants pretended to claim the privileges of the Templars Hospitallers, to defend themselves against their rightful lords. This was condemned by the statute Will. II. c. 37. It was usual also, in those days, to set up *crosses* in places where the corpse of any of the nobility rested, as it was carried to be buried, that *a transeuntibus pro ejus anima deprecetur*.

Crosses, &c. are forbid to be brought into England, by 13 Eliz. c. 2. on pain of a *præmunire*, &c.

CROSS, *Invention of the*, *inventio crucis*, an ancient feast, solemnized on the third of May, in memory of St. Helena's (the mother of Constantine) finding the true *cross* of Christ deep in the ground, on mount Calvary; where she erected a church for the preservation of part of it: the rest being brought to Rome, and reposited in the church of the *Holy Cross* of Jerusalem. See FEAST.

Theodoret mentions the finding of three *crosses*, that of Jesus Christ, and those of the two thieves; and that they distinguished between them by means of a sick woman, who was immediately healed by touching the true *cross*.

The place is said to have been pointed out to her by St. Quiriacus, then a Jew, afterwards converted and canonized.

CROSS, *Exaltation of the*, an ancient feast, held on the fourteenth of September, in memory of this, that Heraclius restored to mount Calvary the true *cross*, in 642, which had been carried 68 fourteen years before, by Cosroes king of Persia, upon his taking Jerusalem from the emperor Phocas.

The adoration of the *cross* appears to have been practised in the ancient church, in as much as the heathens, particularly Julian, reproach the primitive Christians with it. And we do not find that their apologists disclaimed the charge. Mornay, indeed, asserted, that this had been done by St. Cyril, but could not support his allegation at the conference of Fontainbleau. St. Helena is said to have reduced the adoration of the *cross* to its just principle, since the adored in the wood, not the wood itself, which had been direct idolatry and heathenism, but him who had been nailed to this wood. With such modifications some protestants have been induced to admit the adoration of the *cross*. John Huss allowed of the phrase, provided it were expressly added, that the adoration was relative to the person of Christ. But however Roman catholics may seem to triumph by virtue of such distinction and mitigations, it is well known they have no great place in their own practice. Imbert, the good prior of Gascony, was severely prosecuted in 1698, for telling the people, that in the ceremony of adoring the *cross*, practised in that church on Good Friday, they were not to adore the wood, but Christ who was crucified on it: the curate of the parish told them the contrary: it was the wood the vicar bid them to adore. Imbert replied, it was Christ, not the wood: for which he was cited before the archbishop of Bourdeaux, suspended from his functions, and even threatened with chains and perpetual imprisonment. It little availed him to cite the bishop of Meaux's distinction; it was answered that the church allowed it not.

CROSS-*bearer*, *portatrix*, *crucigier*, in the Romish *Church*, the chaplain of an archbishop, or a primate, who bears a *cross* before him on solemn occasions.

The pope has the *cross* borne before him every where; a patriarch any where out of Rome; and primates, metropolitans, and those who have a right to the pallium, throughout their respective jurisdictions.

Gregory XI. forbad all patriarchs and prelates to have it borne in presence of cardinals. A prelate bears a single *cross*, a patriarch a double *cross*, and the pope a triple one on their arms.

CROSS-*bearers* also denote certain officers in the INQUISITION, who make a vow before the inquisitors, or their vicars, to defend the catholic faith, though with the loss of fortune and life. Their business is to provide the inquisitors with necessaries. The were formerly of great use; but in process of time, some of their constitutions were changed, and they were called, of the penance of St. Dominic. Limborch's Hist. Inq. by Chandler, ch. x. See FAMILIARS, and INQUISITION.

CROSS, *pectoral*, is a *cross* of gold or silver, or other precious materials, often enriched with diamonds, which the bishops, archbishops, &c. and regular abbots, wear hanging from the neck.

CROSS, *order of the*, or CROISADE, an order of ladies instituted in 1668, by the empress Eleonora de Gonzaga, wife of the emperor Leopold; on occasion of the miraculous recovery of a little golden *cross*, wherein were enclosed two pieces of the *true cross*, out of the ashes of part of the palace. It seems the fire had burnt the case wherein it was inclosed, and melted the crystal; yet the wood remain untouched.

CROSS, *Monks of the*, a community of young women instituted in 1265, at Roye, in Picardy, and since dispersed to Paris, and other towns. They instruct young persons of their own sex; some take the three vows of poverty, chastity, and obedience; others retain their liberty. They are under the direction of a superior.

CROSS, *judgment of the*, a custom in France, at the beginning of the ninth century, of giving judgment in favour of one of two contending parties, who held his arms for the longest time lifted up to a *cross*.

CROSS, *in Botany*, is used to express the arrangement of the petals of certain flowers, called *plantæ flore crucisormi*. See PLANT, and FLOWER.

The flowers are not to have either more or less than four petals: and their calyx only to consist of four pieces. The pistil generally becomes a fruit called *siliqua*. See CRUCIFORM *flowers*.

CROSS, in *Coins*, a name given to the face, or right side, the other being called the pile, or reverse. It has been a co n-

a common error that the reverſe was meant by the *croſs*, becauſe at this time with us marked with figures diſpoſed in that form; but the ſtamping the head of the prince in theſe kingdoms, on the right ſide of the coin, was preceded by a general cuſtom of ſtriking on that part the figure of a *croſs*, while the other, called the pile, contained the arms, or ſome other device.

CROSS, in *Dialling*. See DIAL.

CROSS, in *Heraldry*, is defined by Guillim, an ordinary compoſed of fourfold lines; whereof two are perpendicular, and the other two tranſverſe; for ſo we muſt conceive of them, though they be not drawn throughout, but meet by couples, in four right angles, near the reſpective points of the eſcutcheon. See ORDINARY.

The content of a *croſs* is not always the ſame: for when it is not charged, cantoned, nor accompanied, it has only the fifth part of the field; but if it be charged, it muſt contain the third part thereof.

This bearing was firſt beſtowed on ſuch as had performed, or at leaſt undertaken ſome ſervice for Chriſt, and the Chriſtian profeſſion; and is held, by divers, the moſt honourable charge in all heraldry. What brought it into ſuch frequent uſe, was the ancient expeditions into the Holy Land; and the holy war pilgrims, after their pilgrimage, taking the *croſs* for their cognizance; and the enſign of that war being the *croſs*.

In thoſe wars, ſays Mackenzy, the Scots carried St. Andrew's *croſs*; the French a *croſs* argent; the Engliſh a *croſs* or; the Germans, ſable; the Italians, azure; the Spaniards, gules.

St. George's *croſs*, or the *red croſs*, in a field argent, is now the ſtandard of England; that ſaint being the reputed patron of this nation.

Guillim enumerates thirty-nine different ſorts of *croſſes* uſed in heraldry, the ſeveral names whereof here follow; the deſcriptions whereof are to be looked for under their proper articles. A *croſs* voided, a *croſs* wavy-voided, a *croſs* patée fimbriated, a *croſs* patée fitched on the foot, a *croſs* patée on three parts and fitched on the fourth, a *croſs* engrailed, a *croſs* patonée, a *croſs* floty, a *croſs* patronce voided, a *croſs* aveiné, a *croſs* patée lambeaux, a *croſs* furchée, a *croſs* croſlet, a *croſs* croſlet fitchée at the point, a *croſs* bottonée, a *croſs* pommée, a *croſs* urdée, a *croſs* degraded fitchée, a *croſs* potent, a *croſs* potent fitched, a *croſs* calvary, a *croſs* croſlet ſet in degrees, a *croſs* patriarchal, a *croſs* anchored, a *croſs* molinee, a *croſs* clechée, a *croſs* flory or fleur-de-lys, a *croſs* double fitchée, a *croſs* a-ſeize points, a *croſs* mitrinee, a *croſs* raguled, a *croſs* pointed voided, a *croſs* pall, a tau or St. Antony's *croſs*, a *croſs* voided and couped, a *croſs* couped pierced, a *croſs* molinee pierced lozenge ways, a *croſs* molinee quarter-pierced, a ſaltire or St. Andrew's *croſs*; which will be diſtinctly ſpoken of under that denomination; and ſo all the other may be found more particularly deſcribed under the names of their ſeveral differences.

Colombiere makes ſeventy-two diſtinct ſorts of *croſſes*, of which we ſhall only mention thoſe that differ from ſuch as have been mentioned above; as a *croſs* temply, which is only one *croſs* charged with another; a *croſs* party, that is, one half of one colour, and the other of another; a *croſs* quartered, that is, the oppoſite quarters of ſeveral colours; a *croſs* of five pieces, that is, of ſo many colours; a *croſs* mouſſue, and ſhaiſée; a *croſs* barbée; a *croſs* croiſſanante, or enfoncnted, that is, having a crecent at each end; a *croſs* forked of three points; a *croſs* ponetée of three pieces; a *croſs* reſtercelée; a *croſs* pointed; a *croſs* ankered, and fur-ankered; a *croſs* ankered with ſnakes heads; a *croſs* orled; a high *croſs*; a *croſs* rayonnant, or caſting out rays of glory; a *croſs* of Malta; a *croſs* of the Holy Ghoſt; a *croſs* forked like the ancient reſts for muſquets; a *croſs* with eight points; a *croſs* bourdonnée; a *croſs* cramponee and tournée; a *croſs* cabléé; a *croſs* inclining; a *croſs* pater noſtre, that is, made of beads; a *croſs* treflé; a *croſs* fleuronnée; a *croſs* vuidée, clechée, and pommettée; a *croſs* crenellée and baſtilée; a *croſs* with four ſteps to every arm; a *croſs* rounded; a *croſs* and an half; a *croſs* elloiée, or ſtar-ways; a *croſs* corded; a *croſs* doubled of ſix pieces ſet together; a double *croſs* ſplit in pale; a long *croſs* cut in pieces and diſmembered; a *croſs* couped or cut through in feſſe, of the two contrary colours to the field; a chevron ſurmounted by a half *croſs*; four trils of ermine in a *croſs*; the tops of the ermines oppoſite to each other in the middle; four pieces of vair placed *croſs-ways*, and counter-pointing in the centre; the *croſs* or ſword of St. James; *croſs* potence cramponnee on the dexter upper arm, and a potence about the middle of the ſhafe.

Theſe are various *croſſes* we find in the aforeſaid authors; which ſome may think too many, as not being all uſed in England: but heraldry extends to all countries; and all terms uſed require to be explained.

Nor is it only in *croſſes* that the variety is ſo great; the like is found in many other bearings, and particularly in lions, and the parts of them; whereof the ſame Colombiere gives us no leſs than ninety-ſix varieties. Leigh mentions but forty-ſix ſeveral *croſſes*; Sylvanus Morgan, twenty-ſix; Upton, thirty; Johannes de Bado Aureo, twelve; and ſo others, whom it is needleſs to mention.

Upton owns he dare not preſume to aſcertain all the various *croſſes* uſed in arms, for that they are at preſent almoſt innumerable: and therefore he only takes notice of ſuch as he had ſeen uſed in his own time.

CROSSES, *in Mining*, are two nicks cut on the ſuperficies of the earth, thus +, which the miners make when they take the ground, to dig for ore. This *croſs* gives the miners three days liberty to make, and ſet on ſtones. As many of theſe *croſſes* as the miner makes, ſo many mears of ground he may have in the vein, if he ſet on ſtones within three days after the making his *croſs* or *croſſes*. But if he make but one *croſs*, and a ſtander-by makes the ſecond, and a ſtranger makes the third, every one is ſerved with the next mear, according as they have, firſt or laſt, ſooner or later, made their *croſs*, or *croſſes*, upon the ground.

CROSS, *in Surveying*, is an inſtrument conſiſting of a braſs circle, divided into four equal parts, by two lines cutting each other in the centre: at each extremity of either line is fixed a ſight, perpendicular over the lines; with holes below each ſight, for the better diſcovery of diſtant objects. The *croſs* is mounted on a ſtaff, or ſtand, for uſe. Sometimes, inſtead of four ſights there are eight. The *ſurveying croſs* is but little known or uſed among us: abroad it is of more account. The manner of applying it is as follows.

Suppoſe the field ABCDE (*Tab. Surveying, fig.* 9.) required to be ſurveyed: plant poles at all the angles: meaſure the line AC, and the perpendiculars let fall from the angles to the line: take down the dimenſions of each. Now, to find the point F, plant poles at pleaſure in the line AC, and at the foot of the inſtrument in the ſame line, in ſuch manner, as that through two of the oppoſite ſights you may obſerve two of the ſtaves; and through the other two, the laſt E. If in this ſtation E be not viſible, remove the inſtrument backwards or forwards, till the lines AF, EF, make a right angle in F; by which means, the plot of the triangle AFE will be had. After the ſame manner is the point H found, where the perpendicular DH falls; whoſe length, together with that of HF, is meaſured to have the plot of the trapezium EFHD.

Again, meaſure HC, making a right angle with HD, and the plot of the triangle DHC will be had. All that now remains, is to find the point G, where the perpendicular BG falls: which being found after the ſame manner as the reſt, we have the plot of the whole field A, B, C, D, E. The area whereof is had by adding the triangles and trapeziums together.

CROSS-*bar ſhot*, in the *Military Art*, a round ſhot, or great bullet, with a bar of iron put through it, coming out at both ends ſix or eight inches. It is of good uſe in fight, for cutting and ſpoiling ropes, ſails, &c.

CROSS *battery*, in *War*. See BATTERY.

CROSS-*bill*, in *Ornithology*, the Engliſh name of the LOXIA, a ſmall bird remarkable for its beak, which is hooked both ways, and has the points croſſing one another. It feeds on the kernels of fruits, and is very deſtructive in orchards.

In the Linnæan ſyſtem of *Ornithology*, *loxia* is uſed for the name of a genus of birds of the *paſſores* kind; the diſtinguiſhing characters of which are, that the tongue is plain, equal, and whole; the beak large, thick, and ſhort, and crooked and convex both ways.

Of this genus are the *coccothrauſtes*, *loxia*, or *croſs-bill*, &c. It is about the ſize of the green-finch, and much of the ſame ſhape. Its beak is very hard, thick, ſtrong, and black; and contrary to the cuſtom of nature, in all other birds, both parts of it are crooked, and that contrary ways: the upper chap being bent a point downwards, and the lower one hooked and brought upwards to one as ſharp, ſo that the ends ſtand acroſs. They do not always obſerve the ſame ſide of ſitting over; the upper one ſometimes lying on the right, ſometimes on the left ſide of the under. One would think this croſs ſtructure of the beak but a bad one for feeding with, yet the bird is very voracious; it feeds on ſeeds, which it picks up with great dexterity: in particular, it is fond of the kernels of the apple, and to get at them, ſplits an apple in two with one ſtroke of its oddly-faſhioned beak, by which it does infinite miſchief in orchards. It is common in Germany, Sweden, and ſome other countries, and ſometimes in autumn comes over to us in vaſt abundance, doing great miſchief to the orchards in the weſt of England. It ſings very ſweetly, and, as it is ſaid, only in winter. See *Tab.* III. *Birds*, N° 36.

CROSS-*bill*, in *Chancery*, is an original bill, by which the defendant prays relief againſt the plaintiff.

CROSS-*bows*. See BOWS, and ARCHERY.

CROSS, inſtead of a ſignature to a deed, &c. is derived from the Saxon practice of affixing the ſign of the *croſs*, whether they could write or not.

CROSS-*grained ſtuff*, in *Joinery*. Wood is ſaid to be *croſs-grained*, when a bough or branch has ſhot out of it: for the grain of the branch, ſhooting forward, runs athwart that of the trunk.

In wood well grown this defect is ſcarce perceiveable, except in working; but in deal-boards theſe boughs make knots. If the bough grow up with the young trunk, inſtead of a knot is found a *curling in the ſtuff*; very ſenſible under the plane.

CROSS-*jack*, in a ſhip, is a ſail extended on the lower-yard of the mizen-maſt, which is hence called the *croſs-jack*-yard. It is ſeldom uſed.

CROSS *multiplication*, a method of multiplying feet and inches, by feet and inches, or the like; ſo called, becauſe the members are multiplied *croſs-wiſe*. See MULTIPLICATION.

CROSS-*piece*, in *Ship-Building*, a rail of timber, extended over the windlaſs of a merchant-ſhip, from the knight-head to the belfry. It is ſtuck full of wooden-pins, which are uſed to faſten the running-rigging as occaſion requires.

CROSS-*ſtaff*, a mathematical inſtrument, otherwiſe called the FORE-*ſtaff*.

CROSS-*tining*, in *Huſbandry*, a method of harrowing land, conſiſting in drawing the harrow up the interval it went down before, and down that which it was drawn up.

CROSS-*trees*, in a ſhip, *croſs* pieces of timber ſet on the head of the maſt, and bolted, and let into one another very ſtrong. They are four in numbers, and are generally called *croſs-trees*, but, ſtrictly ſpeaking, only thoſe which go thwart ſhips, are called *croſs-trees*, the other, in the largeſt ſhips, are called treſſel-trees. Their uſe is to keep and bear the top-maſts up; for the foot of the top-maſt is always faſtened into them, ſo that they bear all the ſtreſs. They alſo bear the tops, and are neceſſary to all maſts which carry any other top, or flag-ſtaff, at the head. Manwayring.

CROSS-*tree-yard*, is a yard ſtanding ſquare, juſt and er the mizen-top, and to it the mizen-top is faſtened below. See CROSS-*jack*.

CROSS, *Winter*, in *Botany*, *Eriſimum*. See *Hedge* MUSTARD.

CROSS-*wort*, *Cruciata*, in *Botany*, the name of a genus of plants, the characters of which are theſe: that the flowers and fruit wholly agree with thoſe of the aparine, but the leaves grow in form of ſtars round the ſtalks, and are only four at a joint. This is a ſpecies of VALANTIA in the Linnæan ſyſtem.

The ſpecies of *croſs-wort* enumerated by Mr. Tournefort are nine. Tourn. Inſt. p. 115.

A decoction of this plant in wine has been recommended as a very excellent vulnerary and detergent. Camerarius tells us, that it is of great efficacy in attenuating and expectorating tough humours.

CROSSE, a name given by the people of Guinea, and ſome other parts of Africa, to a kind of fruit very common among them. It very much reſembles our common hazel-nut, but that the ſhell is not ſo hard. Phil. Tranſ. N° 108.

CROSSELET, *little croſs*, a diminutive *croſs*, uſed in *Heraldry*, where we frequently ſee the eſcutcheon covered with *croſſelets*; alſo feſſes, or other honourable ordinaries, charged or accompanied with *croſſelets*.

Croſſes themſelves frequently terminate in *croſſelets*: as in *Tab.* II. *Heraldry*, *fig.* 54.

CROTALARIA, in *Botany*, a genus of the *diadelphia decandria* claſs. Its characters are theſe: the flower is of the butterfly-kind, the ſtandard large, heart-ſhaped, and pointed; the wings are oval, and half the length of the ſtandard; the keel is pointed, and as long as the wings; it hath ten ſtamina, which are united, and an oblong reflexed germen, which afterward becomes a ſhort turgid pod, with one cell, opening with two valves, and filled with kidney-ſhaped ſeeds. There are nine ſpecies, natives of the Eaſt and Weſt Indies.

CROTALOPHORUS *anguis*, in *Zoology*, the name uſed by the generality of authors for the *rattle*-SNAKE.

CROTALOPHORUS *anguis*, in *Zoology*, is alſo the name of a very remarkable ſpecies of ſerpent, more uſually known by the name of COBRA *de capello*.

CROTALUM, an ancient kind of caſtagnetta, or muſical inſtrument, found on medals, in the hands of the prieſts of Cybele.

The *crotalum* differed from the *ſiſtrum*; though authors frequently confound the two. It conſiſted of two little braſs plates, or rods, which were ſhaken in the hand, and in ſtriking againſt each other made a noiſe.

It was ſometimes alſo made of a reed ſplit lengthwiſe; one part whereof they ſtruck againſt the other: and as this made a noiſe ſomewhat like that of a crane's bill, they called that bird *crotaliſtria*, a player on the *crotalum*: and Ariſtophanes calls a great talker a *crotalum*.

Clemens Alexandrinus attributes the invention to the Sicilians; and forbids the uſe thereof to the Chriſtians, becauſe of the indecent motions and geſtures that accompany it.

CROTALO, an inſtrument of military muſic, like that deſcribed in the preceding article. The Turks are the firſt, among the moderns, who introduced the uſe of it for their troops. It is now common in Flanders and Florence, and other territories on the continent. It has only one tone; but its effect in marking time may be diſtinctly heard through the noiſe of forty drums. This is the ſame inſtrument with the ancient CYMBALUM.

CROTALYSTRIÆ, in *Antiquity*, a kind of mottce dancers, admitted to entertainments, in order to divert the company with their dancing, and playing on an inſtrument called CROTALUM, whence they had their name.

CROTAPHIC *artery*, is uſed, by ſome medical writers, to denote the tendon of the muſcle called CROTAPHITES, or *temporalis*.

CROTAPHITES, in *Anatomy*, a muſcle of the lower-jaw, ſerving to draw it downwards. Its fibres ſpring laterally from the bones of the forehead, the ſinciput, ſphenoides, and temporale: which meeting, and, as it were, centering under the *os jugale*, whence alſo this muſcle receives ſome fibres, proceed to the *proceſſus coronæ*, into which they are inſerted.

CROTAPHIUM, in *Medical Writers*, is uſed for a pain in the head. See HEAD-*ach*.

CROTCHES, *Crocia*, in *Sea Language*, a name given to thoſe crooked timbers that are placed upon the keel, in the fore and hind-parts of a ſhip, upon which the frame of her hull grows narrower below, as it approaches the ſtem afore, and the ſtern-poſt abaft.

CROTCHES are alſo certain pieces of wood or iron, whoſe upper parts open into two horns, or arms, like a half-moon. They are fixed in different parts of the ſhip, according to the uſes for which they may be deſigned, which is uſually to ſupport the ſpare maſts, yards, &c.

CROTCHET, in *Muſic*, one of the notes, or characters of time, marked thus equal to half a minim, and double a quaver.

It is not eaſy to conceive how this character comes by the name *crochet*: the word is apparently borrowed from the French *crochet*, of *croc*, a *crook* or *hook*, uſed by them for what we call the *quaver*, or *half crochet*; by reaſon of the additional ſtroke at bottom, which gives it an appearance of a crook.

A dot added to the *crotchet*, thus increaſes its time by half; that is, makes it equal to a *crotchet* and a half, or to three quavers.

CROTCHET, in *Printing*, denotes a ſort of line, ſometimes ſtrait, ſometimes waved, but always turned up at each extreme: ſerving to bind or link together ſeveral articles, that are to be read together, before you proceed to the ſubdiviſions, placed aſide of them with ſmaller or ſmaller *crotchets*; much uſed in genealogies, analytical tables, &c. for facilitating the diviſion and ſubdiviſion of any ſubject.

CROTCHETS are alſo uſed for two oppoſite characters, ſerving to incluſe what we call a *parentheſis*, or any other part of a diſcourſe to be diſtinguiſhed from the reſt of the work; ſometimes in this form [ ], and ſometimes in this ( ).

CROTON, in *Botany*, a genus of the *monœcia monadelphia* claſs, *baſtard ricinus*, or *tallow-tree*. Its characters are theſe: it hath male and female flowers on the ſame plant; the flowers have five petals, thoſe of the male being no larger than the leaves of the empalement; and they have five nectarious glands, which are fixed to the receptacle. They have ten or fifteen ſtamina, which are joined at their baſe. The female flowers have a roundiſh germen, with three reflexed ſtyles, which afterwards become a roundiſh three-cornered capſule with three cells, each containing a ſingle ſeed. There are nine ſpecies, natives of the Weſt Indies, and ſouth of France.

CROUP, in *Medicine*, *ſuffocatio ſtridula*, is a diſeaſe to which children, chiefly under twelve years of age, are ſubject in cold and wet ſeaſons, and moſt commonly on the ſea-coaſt, and in low marſhy countries. It is a ſpecies of ASTHMA or CATARRH, attended with an inflammatory fever, and many violent ſymptoms. It is ſeated in the cavity of the wind-pipe, a little below the glottis downwards, and affects the mucus ſeparated there, which is ſo thickened, as to fill up the paſſage of

the

the trachea. It often proceeds from catarrhs, occasioned by the measles, hooping-cough, small-pox, or cold damp weather. It is indicated by a frequent pulse, quick and laborious breathing, which is performed with a peculiar kind of croaking noise; the voice is sharp and shrill, and the face generally much flushed, though sometimes of a livid colour. When a child is seized with the above symptoms, his feet should be put into warm water; he should be bled, and a laxative clyster administered as soon as possible. He should be made to breathe over the steams of warm water and vinegar; an emollient decoction and cataplasms, or fomentations, may be applied round the neck; a bitter-plaster may be also applied to the neck, or shoulders. A mixture of syrup of althea, and balsamic syrup, an ounce each, with three ounces of pennyroyal water, may be given in the quantity of a table-spoonful frequently. Asa-fœtida has likewise been of service. This disorder is in some places called the check, and the flushing or rising of the lights. Buchan's Domestic Med. ed 5. p. 606. Home's Inquiry into the Nature and Cure of the *Croup*.

CROUP *of a horse*, in the *Manege*, the extremity of the reins above the hips. It should be large and round, so that the tops of the two haunch bones be not within view of each other. It should have its compafs from the haunch bones to the very dock, or onset, of the tail; and should be divided in two by a channel, or hollow, all along to the neck. A rocking *croup* is when a horse's fore-quarters go right, but his *croup* swings from side to side; when such a horse trots, one of the haunch bones will fall, and the other rise like the beams of a balance; a fign that he will not be very vigorous.

CROUPADE, in the *Manege*, a leap, higher than the curvet, wherein the fore and hind-parts of the horse keep an equal height; his legs being tucked under his belly, without ftretching them out, or fhewing his fhoes.

CROUPER, or CRUPPER. See CRUPPER.

CROUTE, *Sour-crout*, or KROUTE. As this preparation of CABBAGE has been found of fovereign efficacy as a prefervative in long voyages from the fea-fcurvy, it may not be unacceptable to give a concife account of the procefs for making it, according to the information communicated by an ingenious German gentleman.

The fmalleft and moft folid cabbages are felected for this ufe, and cut very fmall, commonly with an inftrument made for this purpofe; not unlike the plain which is ufed in this country for fhicing cucumbers. A knife is ufed, when the preparation is made with greater nicety. The cabbage thus minced is put into a barrel in layers, hand high, and over each is ftrewed a handful of falt and caraway feeds; in this manner it is rammed down with a rammer *gratum fuper ftratum*, till the barrel be full; when a cover is put over it, and preffed down with a heavy weight. After ftanding fome time in this ftate, it begins to ferment; and it is not till the fermentation has entirely fubfided, that the barrel is filled to it, and the barrel is finally fhut up, and preferved for ufe. There is not a drop of vinegar employed in this preparation. The Germans write this preparation in the following manner: *Sauer krout, or fauere kohl*, that is, in their language, four herb, or four cabbage.

CROW, *Cornix*, in *Ornithology*. See CORVUS.

The carrion *crow*, *cornix*, or *cornix cornix* of Linnæus, agrees in the form of its body with the RAVEN, and in its food, which is carrion, and other filth. It will alfo eat grain and infects, and, like the raven, pick out the eyes of lambs juft dropped. Ben Johnfon, in his Fox, act 1. fcene 2. calls it the *gor*, or *gore crow*, and claffes it with the vulture, kite, and raven, as birds of prey. Virgil fays that its croaking forebodes rain.

Tum cornix plena pluviam vocat improba voce.

And it was thought to be a bird of bad omen, when feen on the left hand:

Sæpe finiftra cava prædixit ab ilice cornix.

England formerly abounded with *crows*; and in the reign of Henry VIII. an act was paffed for their deftruction.

CROW, *hooded*, *cornix cornix*, agrees in the fhape of its bill with the ROOK, and refembles it alfo in its manners, flying in flocks, and feeding on infects. In England it is a bird of paffage, vifits us in the beginning of winter, and leaves us with the woodcocks. It is common in Scotland, and is the only fpecies of genuine *crow* in many parts of the Highlands, and in all the Hebrides, Orkneys, and Shetlands, where it continues the whole year. They have a ftriller note than the common *crows*, and are much more mifchievous. The head, and under fide of the neck and wings, are black, glofled over with a fine blue; the breaft, belly, back, and upper part of the neck, are of a pale aih colour; the irides hazel, the legs black, and the toes broad and flat, to enable them to walk without finking in marfhy and muddy ground.

CROW, in *Mechanics*, an iron lever, furnifhed with a fharp point at one end, and two claws at the other. It has various ufes, in bearing or purchafing great weights.

The name *crow*, or *raven*, *corvus*, was anciently given to feveral machines of war, ufed in the defence of places: one invented by Diades; another by the Tyrians, mentioned by Q. Curtius; another by Cn. Ofilius. Vitruvius calls the firft the *demolifhing-crow*, *corvus demolitor*, and alfo *deprædator*: others call it the *crane*, *grus*. Polybius defcribes another invented by C. Duilius ufed againft the Carthaginian fleet.

They were all a kind of grappling-hooks; ferving to drag things towards the engineer. That defcribed by Q. Curtius was thrown out of a baliſta.

CROW-*berries*, in *Botany*, *Empetrum*. See *Berry-bearing* HEATH.

CROW's-*bill*, an inftrument ufed by furgeons, in their operations; efpecially for drawing bullets and other foreign bodies out of wounds. It has its name from its figure.

CROW's-*foot*, in the *Military Art*. See CALTROP.

CROW's-*foot*, in a *Ship*, are fmall ropes, or lines, fometimes fix, eight, or ten, reeved through the dead man's eyes. They are ufed to fufpend the awnings; or to keep the top-fails from freeting againft the edges of the tops.

CROW-*foot*, *wafh-board*. See ADDZA.

CROW-*foot*, in *Botany*. See RANUNCULUS.

CROW-*flower*. See CAMPION.

CROW-*garlic*, a name given to a fpecies of ONION.

CROW-*net*. See NET.

CROW, *Iron*, in *Gronthology*, a fpecies of the latter. See GULL.

CROW-*feet*, in *Agriculture*, a name given to a part of a plough, fignifying two upright pieces ftanding perpendicularly, inferted into the box of the plough, near the wheels, and each pierced with two rows of holes; by means of which they fupport a tranfverfe piece, called the pillow of the plough, running acrofs them, and ferving to raife or fink the beam, by being pinned higher or lower, according as the ground is to be ploughed deeper or fhallower. See PLOUGH.

CROWD, *to*, in *Sea Language*, is to carry an extraordinary force of fail on a fhip, in order to accelerate her courfe on fome important occafion.

CROWN, *Corona*, a mark of regal dignity; being an ornament worn on the head by kings and fovereigns as a fymbol of their authority.

Gallot derives the word *crown*, whence *crown*, from the Latin *cornu*, *horn*; becaufe the ancient *crowns* were pointed in manner of horns; which were anciently both by Jews and Gentiles, efteemed as marks of power, ftrength, authority, and empire. Hence, in the Holy Scripture, horns are ufed for the regal dignity: and accordingly, *horn* and *crown*, in the Hebrew, are expreffed by the fame word.

In the remoteft antiquity, the *crown* was only given to gods. Pliny fays, that Bacchus was the firft who ufed it. Thereupon, cited by Tertullian De Corona, fays, Saturn. Diodorus afcribes it to Jupiter, after his victory over the Titans. Q. Fabius Pictor attributes the invention to Janus; adding, that it was an ornament he ufed in facrificing. Leo the Egyptian fays, it was Ifis who firft wore a *crown*; and that it conffted of ears of corn, the ufe whereof fhe firft taught men.

In this, moft authors agree, that the *crown*, originally, was rather a religious than a civil ornament; rather one of the pontificalia, than the regalia; that it only became common to kings, as the ancient kings were priefts as well as princes; and that the modern princes are entitled to it, in their eccleſiaſtical capacity rather than their temporal. See KING, &c.

The firft *crowns* were no more than a handelet, or headband, drawn round the head, and tied behind; as we ftill fee it repreſented on medals, around the heads of Jupiter, the Ptolemies, and the kings of Syria.

Afterwards they conſiſted of two bandelets; by degrees they took branches of trees of divers kinds: at length they added flowers; infomuch that Tertullian, De Corona, aſſures us (from Claudius Saturninus, who had written expreſly on the ſubject) there was not any plant whereof *crowns* had not been made.

The woods and groves were ſearched, to find different *crowns* for the ſeveral deities: thus, on medals, we find Jupiter's *crown* of flowers, more frequently of laurel; Juno's of the vine; that of Bacchus, the vine with grapes, vine-leaves, and branches of ivy, with flowers and berries: thoſe of Caſtor, Pollux, and the river gods, of bulrufhes: that of Apollo, ſometimes of hazel, ſometimes of rufhes; that of Saturn, new figs; that of Hercules, poplar; that of Pan, pine or alder; that of Iocina, dittany; that of Horæ, the fruits proper to each ſeaſon; that of the Graces, olive-branches, as well as that of Minerva; that of Venus, roſes; of Ceres, ears of corn, as well as that of Iſis; that of the Lares, myrtle or roſemary, &c.

Crowns were not only uſed on the ſtatues and images of the gods, by the prieſts in ſacrificing, and by kings and emperors; but alſo on altars, temples, doors of houſes, ſacred veſſels, victims, ſhips, &c.

The agonothetæ crowned thoſe who were victors in the ſolemn games, warriors, &c.

Among the Romans, there were various kinds of *crowns*, diſtributed as rewards of military atchievements. The *voul crown* was the firſt, made of myrtle; and was beſtowed on generals who had been victorious over ſtates or enemies unworthy of the Roman valour, and who were entitled to the honours of the leſſer triumph, called *ovation*. *Tab.* IH. *Heraldry, fig.* 96.

The ſecond was the *naval or roſtral crown*, conſiſting of a circle of gold, raiſed with prows and poops of ſhips; given to the captain who firſt grappled, or the ſoldier who firſt jumped aboard an enemy's ſhip. *Fig.* 97.

The third called *vallaris*, or *caſtrenſis*, was alſo a circle of gold, raiſed with pikes or palliſades; given to him who firſt leaped into the enemy's camp, or forced the palliſades. *Fig.* 98.

The fourth, called *mural crown*, was a circle of gold, indented or embattled; given to him who firſt mounted the wall of a place beſieged, and there lodged a ſtandard: this *crown* we alſo find given, on medals, to the particular genii and guardians of provinces and places. *Fig.* 99.

The fifth, the *civic crown*; made of a branch of green oak; given to him who had ſaved the life of a citizen in a battle or aſſault. This was conferred on Cicero for detecting Cataline's conſpiracy, and afterwards on Auguſtus Cæſar himſelf. *Fig.* 100.

The ſixth was the *triumphal crown*, made of branches of laurel, or bay-tree, given to a general who had gained a battle, or conquered a province. This was afterwards made of gold. *Fig.* 101.

The ſeventh the *corona obſidionalis*, or graminea, made of graſs or herbs found on the ground; given to generals who had delivered a Roman army beſieged by the enemy, and obliged him to decamp. *Fig.* 102.

The eighth was alſo a *crown* of laurel, given by the Greeks to their athletæ; and by the Romans, to thoſe who had negociated, or confirmed a peace with an enemy: this was the leaſt eſteemed. Beſides theſe, in antiquity, we meet with *radial crowns*, given to princes at their tranſlation among the gods; whether before or after their death. *Fig.* 103. Caſaubon ſays, this ſort of *crown* was peculiar to deities; yet it is certain Nero took it in his life-time.

Athletic crowns were deſtined to crown victors at the public games.

From ſome paſſages in Euſebius Cæſarienſis, ſome authors conclude, that biſhops had likewiſe anciently their *crowns*.

The Roman emperors had four kinds of *crowns*, ſtill ſeen on medals, viz. a crown of laurel, a radiating *crown*, a *crown* adorned with pearls and precious ſtones; and the fourth a kind of bonnet, or cap, ſomething like the mortier.

The firſt was ordinarily that uſed from the time of Julius Cæſar: the right of bearing it was granted him by the ſenate; ſome ſay on account of his baldneſs; and afterwards continued to his ſucceſſors. Juſtinian was the firſt who took that of the bonnet-kind.

The *papal* CROWN is compoſed of a cap or tiara, incloſed by three marquiſes coronets, having two pendants, like the biſhops mitres; and on its top a mound of gold: theſe three *crowns* repreſent the pretended triple dignity of the pope, viz. as high-prieſt, ſupreme judge, and ſole legiſlator of the Chriſtians. *Fig.* 104.

The *imperial* CROWN is a bonnet or tiara, voided at the top like a creſcent, with a circle of gold, adorned with precious ſtones and pearls, heightened with fleurs-de-lys, ſupporting a globe, with a croſs at the top. *Fig.* 105.

The *Engliſh* CROWN is adorned with four croſſes, in the manner of thoſe of Malta; between which are fleurs-de lys. It is covered with four diadems, which meet at a little globe ſupporting a croſs. *Fig.* 106.

The *French* CROWN, is a circle, enamelled, of eight fleurs-de-lys, encompaſſed with eight arched diadems; bearing a-top a double fleur-de-lys, which is the creſt of France. *Fig.* 107.

The *Spaniſh* CROWN is adorned with large indented leaves, covered with diadems; bordering on a globe, ſurmounted with a croſs. *Fig.* 108. Thoſe of Portugal, Poland, Denmark, and Sweden, are of the ſame form.

The *crowns* of moſt other kings are circles of gold, adorned with precious ſtones, and heightened up with large trefoils, and cloſed by four, ſix, or eight diadems, ſupporting a mound, ſurmounted with a croſs.

The great Turk bears over his arms a turband, enriched with pearls and diamonds, under two coronets, the firſt of which is made of pyramidal points, heightened up with large pearls, and the uppermoſt is ſurrounded with creſcents. *Fig.* 109.

The *Electoral* CROWN, or *coronet*, is a ſcarlet cap, turned up with ermine, and cloſed with a ſemi-circle of gold, all covered with pearls. On the top of it there is a globe with a croſs thereon. *Fig.* 110.

CROWNS, or *coronets, of Britiſh princes of the blood royal.* 1. The *crown* of the prince of Wales: this was formerly a circle of gold, ſet round with four croſſes-pattee, and as many fleurs-de-lis alternately; but now conſiſts of one arch, adorned with pearls; in the middle of which is a ball and croſs, and bordered with ermine, as in the royal diadem. *Fig.* 111. Beſides this, the prince of Wales has another diſtinguiſhing mark of honour, viz. a plume of three oſtrich feathers, with an ancient coronet of a prince of Wales, with this motto, *Ich dien*, i. e. *I ſerve*. This device was at firſt taken by Edward prince of Wales, commonly called the Black Prince, after the battle of Creſſy, where, having killed John king of Bohemia, he took from his head ſuch a plume, and put it on his own. *Fig.* 112. 2. That of the younger ſons and brothers of the king, conſiſts likewiſe of a circle of gold, bordered with ermine, and heightened with four croſſes and fleurs-de-lys alternately, but without any arch, or being ſurmounted with a globe and croſs on the top. *Fig.* 113. 3. That of the other princes of the blood conſiſts alternately of croſſes and leaves, like thoſe in the coronets of dukes, &c. *Fig.* 114. Thoſe of the princeſſes have the addition of ſtrawberry-leaves. *Fig.* 115.

CROWNS, or *coronets, of the Britiſh nobility.* 1. That of a duke is a circle of gold, bordered with ermine, and enriched with pearls and precious ſtones, and ſet round with eight large leaves of parſley, or ſtrawberry. *Fig.* 116. 2. That of a marquis is ſet round with four ſtrawberry-leaves, and as many pearls, on pyramidal points of equal height, alternately. *Fig.* 117. 3. An earl's has eight pyramidal points, with as many large pearls on the tops of them, placed alternately, with as many ſtrawberry-leaves, lower than the pearls. *Fig.* 118. 4. The viſcount has only pearls, without any limited number, placed on the circle itſelf, all round. *Fig.* 119. 5. A baron has only ſix pearls, ſet at equal diſtance, on the golden border of ermine; not raiſed, to diſtinguiſh him from the earl's and limited, to ſhew that he is inferior to the viſcount. *Fig.* 120.

The eldeſt ſons of peers, above the degree of a baron, uſe the CORONET appertaining to the father's ſecond title; and none of the younger ſons uſe *coronets*.

The *coronet* of a French earl is a circle of gold, with eighteen pearls ſet on the brim of it; that of a French viſcount an enamelled circle of gold, charged with four large pearls; and that of a French baron a circle of gold enamelled, and bound about with a double bracelet of pearls. All theſe are uſed on their coats of arms, and not worn on their head, as Britiſh noblemen and their ladies do at the king's coronation.

Ch. Paſchal has wrote expreſly de Coronis. Baudelot, in his Hiſtory of Ptolemy Auletes, has a number of curious obſervations on the ſame ſubject, that had eſcaped Paſchal. Du-Cange gives us a curious diſſertation on *crowns*; and Schmeirell, a German, a treatiſe of *royal crowns*, both ancient and modern.

CROWN, in *Architecture*, denotes the uppermoſt member of the corniche; called alſo CORONA and LARMIER.

CROWN, in *Aſtronomy*, is a name given to two conſtellations; the one called *ſeptentrionalis*, and the other *meridionalis*. See CORONA.

CROWN, in *Commerce*, is a general name for coins both foreign and domeſtic, of or near the value of five ſhillings ſterling.

In its limited ſenſe, *crown* is only applicable to that popular Engliſh coin which bears the name, and which is equivalent to ſixty Engliſh pence, or five ſhillings; or to ſix livres French money. But, in its extenſive ſenſe, it takes in ſeveral others; as the French ecu, which we call the French *crown*, ſtruck in 1641 for ſixty ſols, or three livres; alſo the patagon, dollar, ducatoon, tiz-dollar, and piaſtre, or piece of eight.

CROWN, in an *Eccleſiaſtical Senſe*, is uſed for the clerical tonſure; which is the mark, or character, of the Romiſh eccleſiaſtics.

This is a little circle of hair, ſhaved off from the *crown* of the head; more or leſs broad, according to the quality of the orders received. That of a mere clerk is the ſmalleſt; that of prieſts and monks the largeſt.

The *clerical crown* was anciently a round liſt of hair, ſhaved off around the head, repreſenting a real *crown*: this is eaſily obſervable in ſeveral ancient ſtatues, &c. The religious of St. Dominic and St. Francis ſtill retain it.

CROWN *of the Virgin*. See ROSARY.

CROWN, in *Geometry*, a plane ring included between two

parallel or concentric peripheries, of unequal circles; generated by the motion of some part of a right line round a centre, the moving part not being contiguous to the centre.

The area of this is had by multiplying its breadth by the length of a middle periphery, which is a mean proportional between the two peripheries that bound it.

Let D be the middle point of the breadth A B (*Tab.* II. *Analysis, fig.* 39.); let C B = a, and C A = r. Let the circumference of the outer circle be c, and its area will be $\frac{cr}{2}$, and the area of the inner circle will be $\frac{cr^2}{2a}$, this quantity being a fourth proportional to a^2, r^2, and $\frac{ca}{2a}$; then the difference of these two areas, or the area of the *crown*, will be $\frac{cr}{2} - \frac{cr^2}{2a} = \frac{c}{2} \times \frac{a+r}{a} \times a-r$: but $a-r$ is equal to A B, the breadth of the *crown*, and $\frac{c}{2} \times \frac{a+r}{a}$ is the circumference of the circle, whose radius is C D; because C D is an arithmetic mean between C A and C B, and therefore equal to $\frac{r+a}{2}$, and the circumferences of circles are as their radii, or $a : c :: \frac{r+a}{2} : \frac{c}{a} \times \frac{a+r}{2}$.

CROWN, or CORONET, in *Heraldry*, is used for the representation of that ornament, in the mantling of an armoury; to express the dignity of the person who bears it. The *crown* here is of more antiquity even than the helmet; and it was used as a symbol of victory and triumph.

CROWN, among *Jewellers*, the upper work of the rose diamond, which all centres in the point at the top, and is bounded by the horizontal ribs.

CROWNS, *pearled*, or *flowered*, those with pearls, or leaves of *smallage*, parsley, &c. Such were anciently almost all *crowns*, even those of sovereign princes: though they were not used in their armours, till about two hundred years ago.

CROWNS, *radiated*, or *pointed*, are those of the ancient emperors, which had twelve points; representing, as some will have it, the twelve months of the year.

CROWN *Royal, order of*, an order of knighthood, which, some say, was instituted in 802; the knights of which bore a *crown* embroidered with gold, on a white robe. Others deny the existence of such an order.

CROWN *of colours*, in *Meteorology*, certain coloured rings, which, like halos, appear about the body of the sun and moon, but of the colours of the rainbow; and at a less distance than the common halos. These *crowns* sir Isaac Newton shews to be made by the sun's shining in a fair day, or the moon in a clear night, through a thin cloud of globules of water or hail, all of the same bigness; and according as these globules are bigger or less, the diameter of these *crowns* will be larger or smaller; and the more equal these globules are to each other, the more *crowns* of colours will appear; and the colours will be the more lively.

CROWN, in *Music*, a REST marked by a reversed C, with a point in the middle of it thus 𝄐.

CROWN, *clerk of the*. See CLERK.

CROWN, *pleas of the*. See PLEA.

CROWN, *officers of the*. See OFFICER.

CROWN-*glass*, denotes the finest sort of window-glass. See GLASS.

CROWN-*grafting*. See ENGRAFTING.

CROWN *imperial*, in *Botany*. For the characters, see FRITILLARIA.

There are several distinct species of this plant preserved in the gardens of the curious, all which make a very elegant appearance; there are also a great number of varieties which are propagated from the seeds of one or other of the species, in the same manner with those of the TULIP.

When they are thus raised, the best time for transplanting their roots is in July or August, before they push forth new fibres; or they may be taken up out of the ground in June, after their green leaves are decayed, and kept till August, and then planted out into beds of rich earth, with some rotten dung buried deep in them. The most pleasing method of planting them is at eight or ten feet distance, in the middle of long flower-beds: a hole of six inches deep should be opened with a spade, and the root put into it, and the earth put in with the hand upon it, and all the stones picked out, and the lumps broke. They now require no farther care, but in February will shoot up, and grow so quick, if the weather be mild, as to flower in March. As this is usually a windy season, it is proper to plant stakes in the earth, to tye these plants to, to prevent their being blown down; and it is a good caution never to gather the flowers, which much weakens the roots; they should, therefore, always be suffered to die upon the stalks. The roots should be removed once in three years, and their off-sets separated, and planted in beds.

CROWN *imperial shell*, in *Conchyliology*. See VOLUTA.

CROWN-*office*, a court or office under the king's-bench, so called, because the *crown* is more immediately concerned in what is therein transacted. See COURT *of King's-bench*. Though none of the officers under the lord chief-justice of the king's-bench are employed in summoning a parliament; yet many of them have business in other matters, during the sitting of the parliament: as in cases of error, &c. but more especially on trials of peers; wherein the clerk of the *crown* is chief manager. He has likewise, out of parliament, all indictments in the *crown*, informations, recognizances; and a multitude of other business runs through his hands, as the writings of all pleadings, declarations, and other proceedings upon records: but the executive part is left to his secondary or deputy.

CROWN-*post*, in *Architecture*, a post which in some buildings stands upright in the middle, between two principal rafters; and from which there go struts or braces to the middle of each rafter. It is otherwise called a *king's-piece*, or *joggle-piece*. See POST.

CROWN-*scab*, in *Farriery*, a disease in horses, consisting in a humour that breaks out round the coronet, of a sharp itching nature, and attended with scurfiness. The best remedy for this disorder is a mixture of equal parts of marshmallow ointment, and yellow basilicon, spread on tow, and laid round the coronet.

CROWN, *right of*, JUS CORONÆ, in *British History*, denotes the right of succession to the throne of these kingdoms. In this sense the *crown*, according to judge Blackstone, is, by common law and constitutional custom, hereditary, in a manner peculiar to itself; so that the right of inheritance may from time to time be changed, or limited by act of parliament. The succession is such, that the next heir of the crown takes possession on the death or demise of the last proprietor; not by any *jure divino* title, but that kind of hereditary right which owes its origin solely to the founders of our constitution. The succession likewise resembles that of the heirs to landed estates, under particular exceptions: thus, the *crown* descends lineally to the issue of the reigning monarch, as from king John to Richard II. and to the first born of the male issue, as in the case of Edward V. who was preferred to Richard his younger brother, and Elizabeth his elder sister; but on failure of the male line, it descends to the female issue: thus Mary I. succeeded Edward VI. and the line of Margaret queen of Scots, the daughter of Henry VII. inherited on failure of the descendants of Henry VIII. Among the females, the *crown* descends to the eldest daughter and her issue, and not, like common inheritances, to all the daughters at once: thus queen Mary, on her brother's death, was the sole successor, though her sister Elizabeth was living. Moreover, the lineal descendants of any person deceased claim, as their ancestor would have done, if he had been still living. Thus, Richard II. succeeded his grandfather Edward III. in right of his father the Black Prince, to the exclusion of all his uncles. On failure of lineal descendants, the *crown* is vested in the next collateral relations of the late king, if they are lineally descended from the blood royal, as in the case of Henry I. who succeeded to William II. John to Richard I. and James I. to Elizabeth, being all derived from the Conqueror, who was then the only regal stock: nor is there any exception, as in common descents, to collateral relations of the *half-blood*. Thus Mary I. inherited after Edward VI. and Elizabeth after Mary, though born of Henry VIII. by different mothers.

However this hereditary right is by no means indefeasible; because the immediate heir has been, and may be excluded by the supreme legislative authority of this kingdom. Under this controul, the *crown* naturally descends either to the *heres natus*, if the course of descent is unimpeached, or to the *heres factus*, in consequence of a particular settlement: because the KING never dies, and there can be no *interregnum*.

Egbert, in the beginning of the ninth century, was the sole monarch of this kingdom. From Egbert, to the death of Edmund Ironside, through a succession of fifteen princes, the *crown* descended regularly, with very little deviation. In the three succeeding reigns, the succession was suspended by force: at length the Saxon line was restored in Edward the Confessor, who indeed was not the next heir, because his brother Edmund Ironside had a son living, then an outlaw in Hungary. On his decease Harold II. usurped the throne, though the right remained in Edgar Atheling, son of Edward the Outlaw.

At

At this time William the Norman invaded England, pretending a right to the *crown* from a grant of Edward the Confessor; and his conquest transferred the succession of the *crown* to a new family. From the Conqueror it descended to his sons William II. and Henry I. the eldest son Robert being kept out of possession by his brethren. Henry was succeeded by Stephen of Blois, grandson of William I. by his daughter Adelicia, his elder brother Theobald waving his claim, and Matilda or Maud, the daughter of Henry I. and the grand-daughter of Edward the Outlaw, to whom the succession properly belonged, being excluded by force. However, her son Henry II. as heir to the Conqueror, succeeded Stephen, though the proper heirs in the Saxon line were the sons of Malcom king of Scotland, by Margaret the daughter of Edward the Outlaw. From Henry II. the *crown* descended to his eldest son Richard I. and on his death was seized by his brother John, the youngest son of Henry, the right being vested in his nephew Arthur. On the death of Arthur, and his sister Eleanor, without issue, the *crown* properly descended to Henry III. the son of John, and from him, in an hereditary line of six generations, to Richard II. and this right of succession was declared in parliament by stat. 25 Edw. III. When Richard resigned the *crown* the right resulted to the issue of his grandfather Edw. III. and particularly to the posterity of Lionel duke of Clarence; but Henry duke of Lancaster usurped the *crown* under the title of Henry IV. pretending to be a successor by right line of the blood royal. Parliament, by stat. 7 Hen. IV. c. 2. settled the inheritance of the *crown* and kingdom in him and his heirs. He was regularly succeeded by his son and grandson, Henry V. and VI. In the last of these reigns the house of York began to assert their dormant title, and established it in the person of Edward IV. As his accession, the distinction of a king *de jure*, and a king *de facto*, first occurs; and by stat. 1 Edw. IV. c. 1. the three Henries are styled kings *in deed, and not of right*. This king was succeeded by his eldest son Edward V. who was deposed by his unnatural uncle Richard III. under a pretence of bastardy. During the tyrannical reign of Richard, Henry VII. earl of Richmond, assumed the regal dignity, and his possession was established by parliament in the first year of his reign. He afterwards married Elizabeth of York, the undoubted heiress of the Conqueror, in whom the right of the *crown* was vested. Henry VIII. succeeded by indisputable hereditary right, and transmitted the *crown* to his three children in successive order; and stat. 25. Hen. VIII. cap. 13. provides for the regular succession in his descendants. This statute was repealed by 28 Hen. VIII. c. 7. by which Elizabeth and Mary were bastardized, after the king's divorce from Anne Boleyn. They were again legitimated, and the succession restored by 35 Henry VIII. c. 1. The right both of Mary and Elizabeth is again expressly recognized by parliament, after their respective accession; and parliament explicitly asserts its right of directing the succession of the *crown*, by stat. 13 Eliz. c. 1. On the death of queen Elizabeth, James VI. of Scotland, and I. of England, was the lineal descendant, from the alliance of Margaret, eldest daughter of Henry VII. by Elizabeth of York with James IV. of Scotland; and in him were united not only the claims of different competitors since the Conquest, but likewise the right of the Saxon monarchs, because he was the direct lineal heir of Malcolm, who married Margaret, grand-daughter of Edmund Ironside. Several instances have occurred, in this abstract of the history of the descent of the *crown*, in which parliament has interposed to fix, direct, and limit the succession; particularly, under Henry IV. Henry VII. Henry VIII. queen Mary, and queen Elizabeth; to which we may also add the stat. 1 Jac. I. c. 1. which recognizes the succession as lawfully descending to king James.

The attempt to obtain a bill of EXCLUSION in the latter end of the reign of Charles II. evidently supposed that the *crown* was hereditary, and at the same time liable to the controul of parliament. This attempt proved ineffectual, and James II. succeeded.

However, in consequence of his abdication in 1688, and the declared vacancy of the throne, the lords and commons, representing all estates of the people of the realm, invited over William prince of Orange, and the princess Mary, eldest daughter of king James II. and declared them king and queen, during their lives, and the life of the survivor of them; and settled the *crown* on the issue of queen Mary; and on failure of such issue, on the princess Anne of Denmark, and her issue. Stat. 1 W. and M. c. 2.

By stat. 12 and 13 W. III. c. 2. the princess Sophia, youngest daughter of Elizabeth queen of Bohemia, who was the daughter of James I. and the heirs of her body, being protestants, and married to none but protestants, were declared next in succession after king William, the princess Anne, and their issue; and it is enacted that they should join in communion with the church of England, as by law established. After the death of queen Anne, the *crown* descended to George I. eldest son of the princess Sophia; from him to George II. and last of all to our present sovereign George III. Blackstone's Commentaries, vol. i. chap. 3. See KING and PARLIAMENT.

CROWN-*wheel of a* WATCH, is the upper wheel next the balance, or that which drives the balance.

CROWN-*work*, in *Fortification*, is an out-work running into the field; designed to keep off the enemy, gain some hill, or advantageous post, and cover the other works of the place. See *Tab. Fortific. fig.* 21. *lit.* *l*.

The *crown-work* consists of two demi-bastions at the extremes, and an entire bastion in the middle, with curtins.

CROWN, the *American sea-fun*. See AMERICAN, &c.

CROWNED, in *Farriery*. A horse is *said* to be *crowned*, when by a fall, or other accident, the knee is so hurt that the hair falls off, without growing again.

CROWNED *horn-work*, is a HORN-*work*, with a *crown-work* before it.

CROWNING, in *Architecture*, is understood, in the general, of any thing that terminates, or finishes a member or decoration.

Thus, a cornishe, a pediment, a croteria, &c. are called *crownings*. Thus, also, the ABACUS is said to *crown* the capital; and thus any member or moulding is said to be *crowned*, when it has a fillet over it; and a niche is *crowned*, when it is covered with a capital.

CROWNING, in *Sea-Language*, denotes the finishing part of a knot made at the end of a rope. It is performed by interweaving the ends of the different strands artfully amongst each other, so as that they may not become loosened or unrwisted. They are useful in all kinds of stoppers.

CROWTH, or CRUTH, an instrument of MUSIC (see *Tab. Music, fig.* 3.) resembling a violin, formerly in common use in the principality of Wales, as a tenor accompaniment to the harp. It has six strings, supported by a flat bridge, placed obliquely to the sides, and is played on with a bow. Two or three of the lower strings are often struck with the thumb, and serve as a base accompaniment to the notes sounded with the bow. AA represents the apertures for the hand; B B the strings conducted under the end board; C C the pegs, and *d d* the sound holes. The fifth and sixth strings are the unison and octave of G, the fourth and third the same of C, and the second and first the same of D; so that the second pair of strings are a fourth, and the third a fifth to the first.

This instrument was not peculiar to Wales: since a figure of it has been lately discovered among the outside ornaments of the abbey church of Melrois in Scotland, built about the time of *Edward* II.

From the name *crowth* is derived *crowther*, a *crowder*, as a common fidler is now called. The use of this instrument is almost loft. Hawkins's Hiftory of Muſic, vol ii. p. 273. The Welch had alſo a three-ſtringed *crwth*, which was the ancient baſe-viol.

CROZIERED *abbots*. See ABBOT.

CRUCIAL *incision*, in *Chirurgery*, an incision, or cut, into ſome fleſhy parts, in form of a croſs.

CRUCIAN, in *Ichthyology*, the CYPRINUS *carassius* of Linnæus, is common in many of the fiſh-ponds about London, and other parts of the South of England, though probably not a native fiſh. The meat of it is coarſe, and little eſteemed. For the characters, ſee CYPRINUS.

CRUCIANELLA, in *Botany*, a genus of the *tetrandria monogynia* claſs; *petty madder*. Its characters are theſe: the flower hath one petal, with a ſlender cylindrical tube, longer than the empalement, cut into four parts at the brim; it hath four ſtamina ſituated in the mouth of the tube; it has a compreſſed germen ſituated at the bottom of the tube, which afterward becomes two twin capſules, each containing one oblong ſeed. There are three ſpecies, natives of the ſouthern parts of Europe.

CRUCIATA. See CROSS-*wort*.

CRUCIBLE, in *Chemiſtry, &c.* a little veſſel, ordinarily of earth, ſometimes of iron, without any handle; wherein chemiſts, coiners, goldſmiths, glaziers, and other artificers, uſe to melt and calcine gold, ſilver, or other metals, wherein they work.

The word is formed from the French *creuſet*, which ſignifies the ſame. Du-Cange derives this farther from *cruſibulum*; which, in the lower Latin, ſignifies a little drinking veſſel.

Earthen *crucibles* are made of potters clay, with ſtone potſherds pounded and ſifted: they are of various ſizes, but generally of the ſame form, which reſembles that of an inverted cone, or pyramid. Theſe are chiefly uſed

in coinage, as being the only ones in which gold will melt kindly. Iron *crucibles* are in form of little buckets without handles, made of iron, well forged and hammered: in these they melt silver, copper, &c.

There are earthen *crucibles* that hold from 800 to 24 or 2500 ounces; but those ordinarily used are but of 800. The iron ones are larger; some holding 10,000 ounces: these are not taken off the furnaces when the plates are to be run, but the metal is laded out with an iron ladle. It is a rule, never to put as much metal in the *crucible* as it will hold.

The *crucibles* used by goldsmiths and founders, are like those used in COINAGE; those of chemists, &c. are of all sizes, according to the quantity and quality of the metal to be put in them.

These vessels, so much used by assayers, &c. are best made of a pure and well-washed clay, with an admixture of the purest sand, powder of flint, or the powder of other broken *crucibles*, which have already sustained a great fire, and are very clear. They are formed in wooden, or brass moulds, divided longitudinally into two parts, and to be disjoined or put together again at pleasure; for this purpose also a broad iron ring is adapted to the outside of the mould, in such manner, that the two sides are kept firmly together while this ring is on, and fall asunder as soon as it is taken off. This mould, however, gives only the outer shape of the *crucible*; its cavity must be made by a pestle, or other such instrument.

When these vessels are to be made, the ring is put upon the mould and the whole set upon a strong support: then the cavity of the mould is to be filled with the matter very stiff; this is to be pressed down first with the *fingers*, or with a stick, making a hollow in the middle, and leaving the edges of the matter above the sides of the mould; then apply to this hollow the pestle, rubbed over with the fat of bacon, and drive it in with several strong strokes of a mallet: then take away the pestle, and, taking the ring from off the mould, the *crucible* is taken out perfect, and finished, and is to be dried, and baked in a potter's kiln. See *Tab. of Chemistry*, N° 25. If, from the too great moisture of the matter, when put into the mould, or from any inequalities or roughnesses in the mould, the *crucible* will not readily separate from its sides, as soon as made, place the mould in a dry, warm place, for a few minutes, and the vessel will, after that, come out easily.

In making these vessels, a sufficient quantity of the matter must always be put at once into the mould; for if you add to the matter once compressed, a new lump of the same, it will not cohere with the first. If the matter be put into the mould in small masses, not moulded thoroughly together first by handling, these never cohere; but the vessel, when finished, will be full of chinks and pores, which, though not to be discovered either by the eye, or by the sound of the vessel when struck, yet let the salts in fusion pass through them.

If these vessels are not made with a large bottom, the concave mould must not be greased; for if it be, the vessel comes out of it with the pestle, and sticks so firmly to it, as not to be got off without breaking. Cramer, Art. of Aſſ. p. 66.

Others order a large piece of chalk to be cut into the form of a *crucible*, and boiled in linseed-oil for twenty-four hours: this, when dry, they use as a *crucible*.

Mr. Scheffer says, that *crucibles* may be made much more durable and solid, by steeping them for a few days in linseed-oil, and strewing powdered borax on them before they are dried. Mem. Sued. 1752.

On the method of preparing *crucibles*, so as to stand sulphureous mixtures, &c. see Lewis's Commercium P. Technic. p. 156.

Black lead *crucibles* are preferred for melting of GOLD, because very smooth, and less apt to retain the particles of this costly metal; and also because less liable to crack, so that they may be used for several fusions, and with less precaution. Ibid. p. 67.

The best *crucibles* for sustaining the action of violent fire, and of chemical solvents are prepared of good baked clay; but as these are liable to be broken by a sudden application of heat or cold, another sort is made of a mixture of refractory clay, with two parts of sand, of a middling fineness: and the addition of sand makes the clay leaner, and prevents its cracking whilst it dries; and likewise preserves it from becoming too compact, by being baked. These are better adapted to contain metals in fusion, and less subject to break than those made of pure clay. The best of this kind are brought from Hesse in Germany. *Crucibles* that are designed for containing glass, and vitrifying matters for a long time in fusion, should have no mixture of sand, flints, and vitrifiable earths, because they are acted upon by the vitreous matters, and the *crucibles* are soon penetrated and melted. For this purpose the powder of baked clay should be substituted in the room of sand; and thus pots are prepared for glass-houses which will bear a violent and constant fire for several months. Of this kind are the *crucibles* which are made in France. Every laboratory, then, should be furnished with *crucibles* of different kinds; Paris *crucibles* for a more gentle fire; those of Hesse for a more violent heat; and those of baked clay for vitrescent matters, and penetrating fluxes. Pott's Dissertation on Chemical Vessels. See POTTERY.

CRUCICOLÆ, q. d. *worshippers of the cross*, a denomination given to the primitive Christians, by the heathens.

CRUCIFIX, a cross, whereon the body of Jesus Christ is fastened in effigy; much used by the Romanists in their churches, and other places to recognize the passion of Jesus Christ, and direct their prayers to.

There are some chapters wherein Jesus Christ *is* the first canon, and the income of the canonry goes to the sustenance of the *crucifix*.

CRUCIFIXION, an ancient form of execution, by fastening the criminal to an erected CROSS.

CRUCIFORM *flowers*. See FLOWER.

CRUCIFORM *hyperbola*. See CURVES.

CRUCIS *experimentum*. See EXPERIMENTUM.

CRUDE, something that has not passed the fire, or has not had the degree of concoction, i. e. of heat, requisite to prepare it for eating, or some other use.

Crude, or raw silk, is that which has not been put in boiling water, to unwind it from off the cod; not boiled in water and soap, to fit it for dying.

CRUDE *sugar*. See SUGAR.

CRUDE *antimony*, is that which comes immediately from the mines, without any preparation, except once melting.

CRUDE *humours*, in *Medicine*, are those which want that preparation and elaboration which they ordinarily receive from a thorough digestion.

The retainers to the doctrine of trituration hold, that the *crudity* of the humours only consists in this; that they are not broken and comminuted so much as they should be by the ordinary action of the stomach.

CRUDITY, sometimes denotes that state of a disease, wherein the morbific matter is of such bulk, figure, cohesion, mobility, or inactivity, as creates or increases the DISEASE.

The *crudity* is discovered, 1. From the disease continuing its degree of strength, or increasing. 2. From a continual increase of symptoms. 3. From a disorderly exercise of the functions. 4. But chiefly from a fault in the quantity or quality of the humours; both those still circulating, and those secreted; as of sweat, tears, mucus of the nose, saliva, sputum, the bile, urine, ichor, pus, blood, menses, lochia, milk, aphthæ, &c.

That state of the disease, wherein the *crude* matter is changed, and rendered less peccant, and laudable, is called *digestion*, *concoction*, or *maturation*.

CRUISE, from the German *kruis*, *a-cross*, signifies to cross to and fro, to sail up and down within a certain space of the sea, called the *cruising* latitudes, in quest of vessels, or fleets of an enemy, &c.

CRUISERS, in the *Navy*, are small men of war, made use of to and fro in the Channel, and elsewhere, to secure our merchant-ships and vessels, from the enemy's small frigates and privateers. They are generally such as sail well, and are commonly well manned: and, indeed, the safety of the trade in the Channel, and up and down the soundings, and other places, absolutely requires the constant keeping out of such ships at sea.

CRUMENA, from *κρυπτω*, *powder*, *I hang*, in *Zoology*, the name given by Cardan, and some others, to the purse, or pouch, which the OPOSSUM has under its belly, and into which it receives the young in time of danger.

Scaliger, supposing there might be other animals, as well as the opossum, to which nature might have given this sort of pouch, has erected a generical distinction, under the name of *animalia crumenata*; but the opossum is the only species yet known to belong to this genus. The only instance that naturalists seem to afford us of a like provision of nature for the care of the young, is what is related of some of the fish kind. Oppian, in his Halieutics, mentions this property of receiving the young into the body, in time of danger, to be in the dog-fish, and in the squatina, and some others: and Tyson observes, that, in the anatomy of a female dog fish, he saw two slits under the belly, closed up in their natural state, but easily distensible, so as to be capable of receiving the young fish; and that these went not into the womb, nor any other peculiar part, but only into the cavity of the abdomen.

The account given by Oppian is, that, in time of danger from a storm, or from any fish of prey pursuing the young fry, they go into their parent's belly. If therefore, after this account of Tyson's, any young fish should ever be found loose in the cavity of the mother's belly,

it will prove the truth of this paſſage in Oppian, which has been ſo much diſputed. Phil. Tranſ. No 239. p. 120.

CRUMENTATA, a term uſed by Julius Scaliger to expreſs ſuch animals as have a pouch, or bag, under their belly, into which young ones may be received in time of danger. See OPOSSUM.

CRUOR, from *cruo*, *cold*, according to Ainſworth, or perhaps from *crus*, *ruboris*, a term uſed by anatomiſts for the red globules of the blood; in contradiſtinction to the limpid or ſerous part.

Some authors, as Dr. Keill and Dr. Woodward, ſuppoſe theſe globules replete with an elaſtic aura, or air; and on this principle account for ſome of the phænomena of the animal œconomy; particularly muſcular motion, &c. But Dr. Jurin has overturned that ſuppoſition.

Van Helmot uſes the word *cruor* for the blood in the veins; in contradiſtinction to the blood in the arteries, which he calls *ſanguis*. See BLOOD.

CRUPEZIA, in *Antiquity*, wooden ſhoes, or clogs, worn by the MEDICANTS.

CRUPINA, in *Botany*, a name by which ſome authors call the *cirſium ſtellatum*, or ſtar-thiſtle.

CRUPPER is uſed by ſome for the hind part of a horſe, comprehended between the place of the ſaddle and the tail.

The word is formed from the French *croupe*, which ſignifies the ſame. It denotes alſo a thong of leather put under a horſe's tail, and faſtned to the ſaddle, to prevent it from being thrown forward.

CRURA *clitoridis*, in *Anatomy*. Between the *corpora nervoſa* of the *clitoris*, runs a *ſeptum*, or membranous partition, from the glans to its diviſications at the *oſſa pubis*; dividing the *clitoris* into two parts, called the *crura* of the *clitoris*. See *Tab. Anatomy*, (*Splanch.*) *fig.* 15. *lit. b b.*

Theſe are three times as long as the ordinary trunk of the *clitoris* itſelf.

CRURA *of the medulla oblongata*, are two of the four roots whence the *medulla oblongata* ſprings, in the brain.

The *crura* are the larger roots; the two ſmaller are called *proceſſus*.

CRURÆUS, in *Anatomy*, a muſcle ariſing from the fore-part of the thigh-bone, between the leſſer and great trochanter, and lying cloſe upon the bone, joins its tendon with three others, which all together make one broad tendon, that paſſes over the *patella*, and is inſerted into the little tuberoſity on the upper and fore-part of the *tibia*. Its uſe is to extend the leg. See *Tab. Anatomy*, (*Muſcul.*) *fig.* 2. *n.* 46.

It is called *cruræus*, as being faſtened to the thigh-bone in the ſame manner as the *brachiæus* to the arm.

CRURAL, in *Anatomy*, an epithet given to the large artery and vein of the thigh.

The *crural* artery ariſes from the iliac artery: or rather, it is the iliac itſelf, under another name, being called *crural*, from the place of its entrance into the thigh. See *Tab. Anatomy*, (*Angiol.*) *fig.* 1, *n.* 63.

It conveys blood through all the part, by means of a great number of branches diſſeminated through its ſubſtance.

The *crural* vein is the production of the external iliac vein, and is formed of ſix other veins, viz. the *great* and *little ſciatica*, the *muſculoſa*, the *popitea*, the *ſural*, and the *ſaphena*.

CRURAL *nerves*. See NERVE.

CRUS, among *Anatomiſts*, denotes all that part of the body which reaches from the buttocks to the toes, and is divided into THIGH, LEG, and FOOT.

CRUSCA, an Italian term, ſignifying *bran*, or what remains of meal after the flour has been ſifted out. It is only in uſe among us to denote that celebrated academy called *Della Crusca*, eſtabliſhed at Florence, for purifying and perfecting the Tuſcan language.

The academy took its name from its office, and the end propoſed by it; which is to refine the language, and, as it were, to ſeparate it from the bran. Accordingly, its device is a ſieve, and its motto, *Il più buſſato ne cegle*; that is, *It gathers the fineſt flour thereof*.

In the hall or apartment where the academy meets, M. Monconis informs us, every thing bears alluſion to the name and device: the ſeats are in form of a baker's baſket; their backs like a ſhovel for moving of corn; the cuſhions of grey ſattin in form of ſacks, or wallets; and the branches where the lights are placed, likewiſe reſemble ſacks.

The vocabulary *Della Cruſca* is an excellent Italian dictionary, compoſed by this academy.

CRUSTA *lactea*, *Aſher*, in *Surgery*, ſignifies a cruſt of ſcabby ulcers, apt to affect the faces of children. The cure of it depends principally on regulating the diet of the nurſe, and giving her gentle purges, and ſweetening powders; the infant ought alſo to take at times a few gentle doſes of phyſic, and, in the intervals, between the purges, to take powders of crude, or diaphoretic antimony, with flower of brimſtone, and crabs claws, and other of the teſtaceous powders. When this method has been purſued for ſome time, the parts may be anointed with cream, with a ſmall quantity of chalk, or ceruſe, mixed in it, or with a mixture of oil of eggs, with a ſmall quantity of oil of bricks. Ointments of mercury, or ſulphur, are very dangerous in the beginning of this diſorder, or to weakly infants; and when ſuch have been uſed by ignorant perſons, the beſt method to be taken is the endeavouring to throw out the humour again by ſudorifics. Heiſter's Surgery, p. 289.

CRUSTA *villoſa*, in *Anatomy*, the fourth tunic, or coat of the STOMACH.

On the inner ſurface of the coat are ſeen innumerable villi, or fibrillæ, riſing every where perpendicularly from it; which ſome will have to ſerve for nothing but a defenſative to the ſtomach, to preſerve it from acrimonious humours: but Dr. Drake rather takes them to be excretory ducts to the ſubjacent glands; which ſome authors would have to be, that now exploded thing, a parenchyma; but which are, indeed, the organs by which moſt of that humour which is diſcharged into the ſtomach, is ſeparated; and thoſe villi the immediate channels through which it is conveyed.

CRUSTACEOUS *fiſh*, in *Natural Hiſtory*, are thoſe covered with ſhells, conſiſting of ſeveral pieces, or ſcales; as thoſe of crabs, lobſters, &c. See SQUILLA.

Theſe are uſually ſofter than the ſhells of the teſtaceous kind, which conſiſt of a ſingle piece, and uſually much thicker and ſtronger than the former; ſuch as thoſe of the oyſter, ſcallop, cockle, &c. See TESTACEOUS *animals*.

Dr. Woodward obſerves, in his Natural Hiſtory, that of all the ſhells found in beds of all the different matters dug out of the earth, there are ſcarce any of the *cruſtaceous* kind: the reaſon he gives for it is, that theſe being much lighter than the reſt, muſt have floated on the ſurface at the time of the deluge, when all the ſtrata were formed; and there have corrupted and periſhed.

CRUSTULA, in *Medical Writers*, the ſame as *eſchymoma*, in the eye, being a deſcent of the blood from the arteries into the *tunica conjunctiva*, occaſioned by a wound, ſtroke, &c.

CRUX *herringi*. See HERRING.

CRUYSHAGE, in *Ichthyology*, the name of a fiſh of the ſhark kind, ſomewhat approaching to that ſtrange fiſh the zygæna, but much leſs monſtrous, its head being only triangular, or ſomething like the figure of a heart, whence Willoughby has named it *Zygæna oſſibus capitis triangulis*. The eyes are very ſmall, and are placed, as in the zygæna, at the ſides of the head: the mouth is ſmall and triangular, and placed a vaſt way below the end of the noſe, and is furniſhed with three rows of very ſmall teeth.

CRUZADO, or CROISADE, an expedition to the Holy Land.

CRUZADO, or CRUSADE, in *Commerce*, is a Portugueſe coin, ſtruck under Alphonſus V. about the year 1457, at the time when pope Calixtus ſent thither the bull for a croiſade againſt the infidels. See COIN.

It had its name from a croſs, which it bears on one ſide; the arms of Portugal being on the other.

CRUZITA, in *Botany*, a genus of the *tetrandria digynia* claſs, with a four-leaved calyx, corolla, and a ſingle ſeed.

CRY. See HUE, CLAMOR, HARO, &c.

CRYMODES, from *κρυος*, *cold*, in *Medical Writers*, a cold, ſhivering fever, but often accompanied with an inflammation in the inner parts.

CRYPTA, a ſubterraneous cell, or vault; eſpecially under a church, for the interment of particular families, or perſons.

S. Ciampini, deſcribing the ſtatiſe of the Vatican, ſpeaks of the *crypta* of St. Andrew, St. Paul, &c.

The word is formed of *κρυπτω*, *abſcondo*, *I hide*; whence *κρυπτη*, *crypta*.

Vitruvius uſes the word *crypta* for a part of a building, anſwering nearly to our cellar; Juvenal, for a *cloaca*.

Hence, *crypta-portica*, a ſubterraneous place, arched, or vaulted; uſed as an under-work, or paſſage, in old walls. The ſame is alſo uſed for the decoration at the entry of a grotto.

CRYPTA is alſo uſed, by ſome of our ancient writers, for a chapel, or oratory, under-ground.

CRYPTÆ, in *Anatomy*, a name given by Ruyſch to GLANDS ſituated on the back of the tongue, and to glands of the inteſtines.

CRYPTOGAMIA, in *Botany*, a claſs of plants whoſe

flowers are either wholly invisible, or scarce discernible by the eye.

The word is formed of κρυπτος, *hidden*, and γαμος, *marriage*. These are a class of plants whose fructification is concealed, and under it are comprehended those plants which either flower, as is generally supposed, within the fruit, or have the organs of their fructification so minute, as to escape our observation. This class comprehends four orders, viz. the *filices*, or ferns; the *muſci*, or *moſſes*; the *algæ*, or flags; and the *fungi*, or *mushroom*. See *Tab.* I. of *Botany*, *Cryptogamia*; and *Tab.* II. *Filices*, &c.

CRYPTOGRAPHY, the art of secret writing, or writing in CIPHER. See DECIPHERING.

The word is compounded of κρυπτω, *I hide*; and γραφω, *I describe*.

CRYSTALS, in *Natural History*, are defined to be hard, pellucid, and naturally colourless bodies, of regularly angular figures, composed of simple not filamentous plates, not flexile nor elastic, giving fire with steel, not fermenting in acid menstrua, and calcining in a strong fire. They poſſeſs the general properties of the earths called vitrifiable. Moſt of the coloured *cryſtals* are fuſible by a violent fire; and probably derive both their colour and fuſibility from metallic ſubſtances.

The word comes from κρυσταλλος, *glacies*, formed of κρυος, *frigus*, and στελλω, *concreſco*; becauſe of its reſembling ice.

The ancients were but little acquainted with the nature of *cryſtal*. Pliny ſpeaks of it as hardened petrified water, which was the popular opinion of thoſe days; but experience has ſhewn us the contrary: for by a chemical analyſis, inſtead of reſolving into water, it yields nothing but a calx, earth, and ſalts.

For the places where it is found, Pliny adds, that he has ſeen it dug from off the higheſt and roughſt rocks of the Alps; whence, doubtleſs, its name of *rock-cryſtal*. It is ſometimes alſo found in brooks and rivers, but not formed there; only waſhed down thither from the mountains by the violent rains.

Several mountains of Europe, and ſome of Aſia, produced *rock-cryſtal*. If we may believe the French relation of Madagaſcar, that iſland yields more than all the world beſide.

Its perfection conſiſts in its luſtre, and tranſparency; that with ſtraw, duſt, clouds, &c. is little valued.

This claſs of bodies is arranged into three diſtinct *orders*, and under thoſe into nine *genera*.

Of the *firſt order*, are the perfect columnar *cryſtals*, with double pyramids, compoſed of eighteen planes, in an hexangular column, terminated by an hexangular pyramid at each end. See *Tab. Foſſils, Claſs* 3.

Of the *ſecond order*, are the perfect *cryſtals*, with double pyramids, and without a column. Theſe are compoſed either of twelve or of ſixteen planes, in two hexangular pyramids, joined cloſely baſe to baſe, without the intervention of any column.

Of the *third order*, are the imperfect *cryſtals*, with ſingle pyramids. Theſe are *cryſtals* of the common kind, and are compoſed either of twelve or of ten planes, in an hexangular or pentangular column, affixed irregularly at one end to ſome ſolid body, and terminated at the other by an hexangular or pentangular pyramid. There are ſeveral *genera* in each order.

Adding to theſe regular *genera* the accidental varieties of *cryſtals*, owing to the admixture of metalline particles, influencing their ſhape as well as colour; the three principal of which are thoſe impregnated with lead, iron, and tin; the firſt cubic, the ſecond rhomboidal, and the laſt quadrilateral pyramidi, without columns; we have the whole ſeries of the figured *cryſtals*: the firſt of theſe are called *mahdilia*, the ſecond *ſidaria*, and the third *cafiteria*. Beſide all theſe, *cryſtal* is alſo ſometimes found in a pebble-like form, which is an accidental variety, like thoſe in the cryſtallizations of ſalts, where many concretions entirely want their naturally angular form. It is cut, or engraved, in the ſame manner, with the ſame inſtruments, and by the ſame workmen, as diamonds. See DIATRETA.

The origin and formation of *cryſtals*, as to the time and manner of them, deſerve a very nice enquiry, ſince many of the more compound foſſile bodies are principally compoſed of either *cryſtal*, or ſpar, a body in many things reſembling it; and the aſcertaining the great queſtion, whether it was all formed at one time, and that long ſince, or does continue to be formed at this day, will ſo far alſo aſcertain the time of the coaleſcence of thoſe other bodies, of which it is the baſis.

The original coaleſcence and formation of thoſe bodies of which ſpar is the baſis, we well know, may have been but of yeſterday, ſince we have evident proofs, that ſpar is concreting to this day, and that ſparry bodies are forming every moment. This is evident, from the ſparry STALACTITÆ in the arches of modern buildings, particularly in one ſo lately built as the new bridge at Weſtminſter, the roofs of the arches of which were filled with theſe ſpars within a year after the arches were built; and there are evident proofs, that ſpars are not made of matter endued from the ſtone, ſince brick arches equally abound with them; and the brick vault which ſupports part of the grand [illegible] at Windſor, has been ſo full of them, that there was not room to walk.

From theſe obſervations, as alſo thoſe of the [illegible] tations round vegetable and other [illegible] at the bottoms of our tea-kettles, [illegible] with it, we have evident proof [illegible] formed to this day, but we have [illegible] of the preſent growth of *cryſtal*.

The ſubject of enquiry, therefore, may be reduced to a narrow compaſs; and all that experiments have [illegible] mine is, 1. Whether *cryſtal* or ſpar are at this [illegible] ſuſpended in water, in inſpecteible particles, [illegible] ther they are not; and, 2. If they are thus [illegible] whether they are or are not capable of being [illegible] vapours.

The ſubſtance encruſting tea-kettles, &c. is [illegible] a genuine ſpar, with a greater or leſſer admix[illegible] earth, and is wholly the ſame with the encruſtat[illegible] vegetables in ſprings, &c. Here therefore is a [illegible] ſpar and earth being ſuſpended in common wate[illegible] none of *cryſtal*. This was alone to be determined [illegible] perated and cautious diſtillations. In diſtilling th[illegible] of the ſame ſpring, with different degrees of fir[illegible] ferent quantity of matter was found left at the [illegible] of the veſſel. It appeared hence, that in a gre[illegible] gree of heat, a great part of the matter had been [illegible] in vapour, and the remainder, on trial, always proved to be only ſpar and earth. Here were therefore both the queſtions anſwered in the affirmative, in regard to ſpar, viz. that it is continually ſuſpended in water, and may be raiſed in vapour. The water of theſe diſtillations being returned into the cucurbit, and rediſtilled, leaves a ſecond ſediment in ſmall quantity, and of a whiter colour. This being examined according to the known laws of foſſils, proves to be part ſpar, and part *cryſtal*, an undiſſolved powder remaining from it, after pouring on aqua fortis to take up the ſpar; and this in all teſts appearing to be true and perfectly pure *cryſtal*. A third diſtillation of the ſame water, produced not the leaſt reſiduum. Hence therefore it is evident, that *cryſtal* as well as ſpar is continually ſuſpended in water, and may be raiſed in vapour, and ſeparated by no other agent than heat. And hence the concluſion is plain, that *cryſtalline* as well as ſparry bodies may be, and doubtleſs are, continually formed in the earth to this day. Hill's Hiſt. of Foſſils, p. 157.

Cryſtals are probably formed by the acceſſion of cryſtalline or ſaline particles, which are diffuſed through the whole globe, and mixed in ſome degree with moſt ſtrata; theſe particles being gradually carried along by the moiſture or vapours which ſoak through the pores, till they come to ſome cavity, where their progreſs is obſtructed, and they collect together in drops, and by their mutual attraction form cryſtalline bodies. By the acceſſion of more particles, their pores are diminiſhed, and they gradually increaſe in tranſparency; agreeably to the hypotheſis of Sir Iſaac Newton, that the tranſparency of bodies is occaſioned by the minuteneſs of their pores, and their opacity by the largeneſs of the pores. Phil. Tranſ. vol. lxii. p. 61.

Having thus from experiments gone through the hiſtory of what may be the origin of many of the *cryſtalline* bodies we daily meet with, it remains to ſay ſomething of their form.

The perfect regularity of the figures of *cryſtals*, cannot but be the effect of ſome fixed, permanent, and invariable cauſe; theſe being ever, unleſs altered by accidents, which rarely happen, the very ſame in the ſame genus.

Signior Lana, who had an opportunity in the Val-ſabbia, of ſeeing many of the perfect double-pointed kinds, imagined, that they owed their origin to dews congealed by nitrous exhalations. Rohault imagines the figure of common *cryſtal* the effect of ſix drops of water thrown together.

Others are for its being formed of radiations; others, from all its parts being like the whole; and others from the mutual tendency of the parts of it toward the ſame centre. But all theſe the laws of action in matter, and the ſtructure of *cryſtal* in the ſeveral ſpecies, eaſily ſhew to be erroneous.

Many think they have ſolved all difficulties when they ſay, that *cryſtals* are ſalts; but we know no more of the

true

true cause of the figure of salts, than we do of those of *crystals*. And it is to be added, that if *crystals* are salts, then salts are something else from what we have been taught to think they are, *crystals* by no means answering to the definitions given us of them by authors. As we yet know so little of the causes of the regular crystallizations of salts, why are we to suppose no other bodies but salts capable of such crystallizations.

Henkel, a very accurate chemist, gives us a remarkable account of the formation of *crystal* out of human urine, which seems so strange, that it would have been despised had it come from an author of less credit; and as it is, he acquaints repeated experiments to convince the world there was no error in the case. He tells us, that he once filled a large round glass vessel half way up, with the recent urine of a young lad, and tying a bladder over the mouth of the vessel, he set it in a stove for four years together, never stirring it during that whole time. At the end of this time he found a number of small white stones growing to the inside of the glass; they were of the size of an oat-seed, of a prismatic figure, and tolerably pellucid; they stuck so fast to the sides of the glass, as not to be washed off by the shaking about of the urine, and, when taken out, had no salt taste, and were not soluble even in hot water. Act. Erudit. ann. 1720, p. 272.

When any piece of workmanship in *crystal* is become foul and dark, the method of recovering its lustre without hurting its polish, is this: mix together six parts common water, and one part brandy; boil these over a brisk fire, and let the *crystal* be kept in it, in a boiling state, a quarter of an hour; then take it out, and rub it carefully over, with a brush dipped in the same liquor; after this, it is not to be left to dry of itself, but to be wiped with a clean napkin, and its surface will by this means be perfectly cleaned, and rendered as bright as at first, without that injury to the points of the cutting, or to the surfaces of the planes or facets, which would naturally have been the consequence of doing it by mere rubbing or wiping.

Natural *crystal* may be reduced, by calcination, into the state of the bodies proper for making glass with alkaline salts, and makes a most fine and valuable FRITT. The method of doing it is this: calcine natural *crystal* in a crucible; when it is red-hot, throw it into cold water to quench it; repeat this eight times, covering the crucible, that no dust or ashes may get in and mix with the *crystal*; dry this calcined mass, and reduce it to an impalpable powder: mix three pounds of this powder with two pounds of pure salts of polverine, or with a quarter of a pound of red lead, and with these make frit, and with the proper quantity of manganese, or other tinging substance; wash this often in cold water, and after a proper time, work it; it will yield a most beautiful GLASS. Some have pretended to colour *crystals* by thus fusing them, and imparting the various tinges to them, while in a melted state. But as they cannot be fused by the heat of furnaces, without the medium of some fluxing body added to them, their texture and properties are so changed, or rather the glass produced by the composition is so different from the *crystal* itself, that there does not appear to be any advantage in employing rock-*crystal* in such a composition preferably to flints. Hand. Arts. vol. ii. p. 327.

Natural *crystal* may be coloured of several colours, without melting or running it into glass, in the following manner. Take a number of pieces of fine, clear, and pure *crystal*, of various sizes, of white arsenic and yellow orpiment in powder, of each two ounces; sal ammoniac, one ounce; powder this also, and mix them well together; put this powder into a strong crucible, and lay it upon the pieces of *crystal* in their natural state, then cover this crucible with another, mouth to mouth; lute them well, and when the lute is dry, set them in coals, which kindle by little and little; and when they begin to fire, let them kindle of themselves, and they will then smoak very much. Let this be done in a large chimney, taking care to avoid the fumes. When it fumes no more, the fire will go out of itself, and let all stand till cold; then unlute the crucibles, and take out the *crystal*: those at top will be coloured to a fine yellow, with a deep and pale red, the colours of the common fine and balass rubys, with beautiful spots; and those which are at the bottom upon the powder, will be of a watery colour, mottled like that of the viper. This *crystal* comes out so fair from this process, that it may be cut as a gem; and though many are spoiled, yet, in making a large quantity, there are always some fair and perfect. Neri's Art of Glass. p. 117. See DOUBLETS, and OPAL.

Baptista Porta directs to colour *crystals* by keeping them immersed for four or five hours in a melted mixture of sulphur, crude antimony, orpiment, arsenic, and fatty. In these operations the *crystals* seem to imbibe some of the vapours of the metallic substances: though the method of giving colours to *crystals* by cementation seldom or ever fairly succeeds.

CRYSTALS, *improper*, a term introduced into the world by Dr. Copperer, in his Prodromus Crystallographiæ, to distinguish bodies which have the figure of *crystals*, but are not such, from the proper or true genuine *crystals*.

Improper *crystals* are, according to this author, such bodies, either stones, metals, or salts, as have any resemblance to true *crystal*, either as to their multangular, regular, or irregular figure; or as to their pellucidity, or any other of their essential properties. As the number of these bodies is very extensive, it was a work of great accuracy to arrange them into any sort of order; but this is one of the principal attempts of the author. Among the first class of improper *crystals*, that is, such as are stones, come all those gems which have any determinate figure, as the diamond, emerald, amethyst, and the like. To the second belong all sorts of regularly figured, metalline bodies, such as *pyritæ* and marcasites, as also those ores of silver, where the native metal has assumed some regular form; as when this or any other *metal* shoots, in its natural bed, into the form of a tree or the like.

Under the third class of improper *crystals*, including the salts, come in all the chemical preparations of salt and saline bodies. The figure in this class is more determinate and accurate than in either of the former classes of bodies. See *Tab. Crystallization of Mistheoscopical Objects*.

We are happy enough to have at present much better arrangements of FOSSILS than this.

CRYSTALS, *telkie*, a species of petridia. See PETRIDIA.

CRYSTAL, *prepared*, a term among the makers of counterfeit gems, for a powder of natural *crystal*, made for their purpose. The manner of preparing it is as follows: take the purest and clearest natural *crystal*, put it into a crucible covered at the top, set it among burning coals; let the *crystal* be made red-hot, then plunge it into a large vessel of cold water. When the *crystal* is cold, put it into the fire again, heat it red-hot, and quench it again; and repeat this operation twelve times, carefully keeping ashes or any other foulness out of the crucible. When the calcination is finished, the *crystal* will be brittle and crumbly, powder it, and levigate it on a porphyry to an impalpable powder. This powder must be made perfectly fine, otherwise the gems made with it will be all foul and coarse, and no brass or copper vessels must be used about the operation. If the *crystal* should be powdered in a brass or bell-metal mortar, there could be no gem but an emerald ever be made of it, from the quantity of copper it would take up in the powdering. When carefully prepared, it receives all the colours of the gems, by proper additions, and affords a mass softer indeed, but not less bright and pellucid, or not less beautifully tinged than the finest of the oriental gems. Neri's Art of Glass, p. 125.

CRYSTAL, *rock*, otherwise called *spiri-crystal*, in *Natural History*, a name given to the third order of *crystals* from their being affixed to a *rock*, or other solid body.

This kind of *crystal* is the most common of all others, and is what the generality of authors describe under the name *of crystal of the shops*, being that kept for medicinal purposes.

The clearest, purest, and most transparent that can be had, ought to be chosen; and to prove its genuineness, it may be tried with aqua fortis, true *crystal* making no effervescence with that menstruum.

CRYSTAL, in *Medicine*, has many virtues attributed to it, being esteemed an astringent and lithontriptic; hence it has been given in diarrhœas, the fluor albus, and in cases of gravel in the kidneys. Its dose is a scruple, or half a dram, being first reduced to a fine powder, by repeated calcinations, and extinctions in cold water.

Many are afraid of the use of these flony medicines, in nephritic cases. The objection against *spar* will hold good against *crystal*; but there want sufficient proofs to determine this point. In general, however, SPAR is an alkali, which *crystal* is not.

Crystal has been recommended by some, as a dentrifice, and there is no doubt of its cleaning the teeth; but, like other hard bodies, it is apt to wear away their enamel, and thereby subject them to decay.

CRYSTAL is also used for a fictitious body, cast in the glass-houses; called also *crystal-glass*.

It is, in effect, glass, but carried, in the melting, and in the matter whereof it is composed, to a degree of perfection beyond the common glass. It is similar in appearance to the whitest and most transparent natural *crystal*, though much less hard, and more fusible.

The best artificial *crystals* are said to be those made at Murano, near Venice; called *Venice crystals*.

CRYSTALS,

CRYSTALS, in *Chemistry*, expreſs ſalts, or other matters, ſhot, or congealed, in manner of *cryſtal*. See CRYSTALLIZATION. Thus,

CRYSTAL *of alum*, is alum purified, and reduced into *cryſtals*, in the ſame manner as tartar. In like manner are vitriol, nitre, and other ſalts, *cryſtallized*.

Cryſtals of alum are quadrangular, and brilliant, like diamonds; thoſe of nitre, white, and oblong; thoſe of vitriol, green, angular, and ſhining. See SALT.

CRYSTAL, or CREAM *of tartar*, is tartar purified and diſſolved, and again coagulated in form of *cryſtals*.

To prepare it, they boil tartar in water, ſkim it, and ſtrain it; when cool, there are formed little white ſhining *cryſtals*, at the edges; as alſo a pellicle, or cream ſwimming a-top.

The cream and *cryſtals* were anciently ſuppoſed to be diſferent; but are now found the ſame thing.

Cryſtal of tartar is eſteemed purgative, and aperitive; proper in hydropical and aſthmatical caſes, and in intermitting fevers.

CRYSTAL *of tartar chalybeated*, is when it is impregnated with the moſt diſſoluble parts of iron.

CRYSTAL *of tartar emetic*, is when it is charged with the ſulphureous parts of antimony, to render it vomitive.

CRYSTAL *mineral*, called alſo *mineral ænalyne*, and *ſal prunella*, is nitre detonated with ſulphur, thus: put a pound of nitre in a crucible, and ſet that in a furnace; and when the nitre is in fuſion, let it be detonated with a dram of ſulphur; in which it is to be agitated, whilſt in a fluid ſtate, that it may fix in the form of cakes, or tablets. After the flame is over, invert the crucible into a braſs or copper baſon

This is eſteemed good againſt the quinſiney, whence its name of *ſal prunella*, or *prunella*, expreſſing that diſeaſe. It is cooling, ſedative, aperitive, and diuretic.

CRYSTALS *of ſilver*, or *luna*, dichote ſilver, penetrated and reduced into the form of ſalts, by the ſtrong acid of ſpirit of nitre: or by a ſolution in a weaker acid, if the liquor be left to cool, and the water to evaporate. Theſe *cryſtals* are white, flattened like thin ſcales, and not very hard.

It is uſed for making eſchars, by applying it to any part: it is alſo of uſe internally, in dropſies, and diſeaſes of the brain: though its corroſive quality ſeems to render it unfit for this latter purpoſe.

Mr. Boyle commends it highly in this view; and propoſes a method of rendering it mild, which is not likely to prove effectual; and therefore its uſe in medicine is not yet eſtabliſhed. Maequer.

CRYSTALS *of Mars*, called alſo *ſalt*, or *vitriol of Mars*, is iron reduced into a ſalt by an acid liquor; uſed in diſeaſes ariſing from obſtructions.

CRYSTALS *of Venus*, or of *copper*, called alſo *vitriol of Venus*, is copper reduced into the form of VITRIOL by ſpirit of nitre, or by diſſolving verdigriſe in good diſtilled vinegar, till the acid be ſaturated; it is very cauſtic, and uſed to eat off proud fleſh. It is alſo uſed by painters and manufacturers, and ſold under the name of *diſtilled* VERDIGRISE. It is alſo called *ventual* VINEGAR.

CRYSTAL *of Iceland*, or *Iſland*, a tranſparent ſiſſile ſtone, or ſpar from Iceland, ſoft as talc, clear as rock-*cryſtal*, and without colour; famous among optic writers for its unuſual refractions.

It is there found in great abundance all over the country, but is particularly plentiful in a mountain, not far from the bay of Roſchord, where the fineſt and moſt pellucid pieces are found on digging. The mountain lies in ſixty-five degrees latitude, and has its whole outſide made up of it; but, though this makes a very bright and glittering appearance, it is not ſo fine as that which lies at a little depth, and is met with on opening the ſurface. This is generally taken up out of the earth in maſſes a foot long, and its corners very frequently are terminated in theſe large maſſes, by a ſort of *cryſtals*, very different in figure and qualities from the reſt of the maſs. The ſtone itſelf is of a parallelepiped figure; but theſe excreſcences are either ſingle pyramids, affixed to columns, like common *cryſtal*, or double pyramids, with or without columns between. The ſtone itſelf is ſoft, theſe are hard; and eat glaſs; the ſtone calcines to lime in the fire, theſe run into glaſs; in ſhort the ſtone itſelf is true ſpar, and theſe are true *cryſtal*: beſide theſe, there ſometimes grows out of the ends of the larger maſſes a pure fine aſbeſtos. This likewiſe is the caſe ſometimes in the ſpar found about Bareges in France, and ſhews how nearly together the formation of bodies, wholly different from one another, may happen. The general figure of the ſtone is parrelelepiped; or, as ſome expreſs it, rhomboide; and it retains this not only while whole, but alſo when broken to pieces. Every fragment it naturally falls into, though ever ſo ſmall, being truly of that ſhape.

But it is remarkable, that in ſome places of this mountain, the ſame ſort of matter is found in form of triangular pyramids, all of which have the ſame property of the double refraction with the parallelepipeds of the ſame ſubſtance; ſo that the original error of ſuppoſing [illegible] lities owing to its ſhape, is refuted by this, as well as by the trials made with other pellucid bodies of [illegible] figure, which do not ſhew this remarkable [illegible] Phil. Tranſ. N° 67.

The *Iceland cryſtal* is electrical, and [illegible] draw up ſtraws, feathers, and other [illegible] the ſame manner that amber does.

The vaſt maſſes of white ſpar, [illegible] lead-mines of Derbyſhire, though [illegible] of the parallelepiped figure of the [illegible] have any thing of its brightneſs or [illegible] general lump; yet, when they are broken [illegible] into rhomboidal fragments, and ſome of theſe are [illegible] to be tolerably pellucid: all theſe which are ſo have the property of the *Iceland cryſtal*: and being laid upon paper, where a black line is drawn, they all ſhew the [illegible] double in the ſame manner as the real *Iceland* does.

Iceland cryſtal bears a red-heat without loſing its [illegible] rency; and, in a very intenſe heat, calcines with [illegible] ſion: Reeped a day or two in water, it loſes its [illegible] poliſh.

It is very ſoft and eaſily ſcratched with the point [illegible] pin; it will not give fire on being ſtruck againſt [illegible] and ferments, and is perfectly diſſolved in aqua [illegible] It is found in Iceland, from whence it has its [illegible] and in France, Germany, and many other places [illegible] England, fragments of other ſpars are very often [illegible] taken for it, many of them having, in ſome degree, [illegible] ſame property.

It has none of the diſtinguiſhing characters of *cryſtal*, and is plainly a genus of ſpars, called, from their figure, *parallelopipedia*, which, as well as ſome other bodies of a different genus, have the ſame properties. Bartholine, Huygens, and ſir Iſaac Newton, have deſcribed the body at large, but have accounted it either a *cryſtal* or a talc; errors which could not have happened, had the criterions of foſſils been at that time fixed; ſince ſir Iſaac Newton has recorded its property of making an ebullition with aqua fortis, which alone will prove that it is neither talc nor *cryſtal*, both thoſe bodies being wholly unaffected by that menſtruum.

It is always found in form of an oblique parallelepiped, with ſix ſides, and is found of various ſizes, from a quarter of an inch to three inches or more in diameter. It is pellucid, and not much leſs bright than the pureſt *cryſtal*, and its plaines are all tolerably ſmooth, though when thicely viewed, they are found to be waved with crooked lines made by the edges of impreſſed plates. What appears very ſingular in the ſtructure of this body is, that all the ſurfaces are placed in the ſame manner, and conſequently it will ſplit off into thin plates, either horizontally or perpendicularly; but this is found, on a microſcopic examination, to be owing to the regularity of figure, inequalities of ſurface, and nice joining of the ſeveral ſmall parallelepiped concretions, of which the whole is compoſed, and to the ſame cauſe is probably owing its remarkable property in refraction. *Hill.* See PARALLELOPIPEDIA and SPAR.

The phenomena of this ſtone are very remarkable, were firſt ſuggeſted by Bartholine, and have been examined with great accuracy by M. Huygens, and ſir Iſaac Newton. 1. Whereas in other pellucid bodies there is only one refraction, in this there are two; ſo that objects viewed through it appear double.

2. Whereas in other tranſparent bodies, a ray falling perpendicularly on the ſurface, paſſes ſtrait through, without ſuffering any refraction; and an oblique ray is always divided: in *Iceland cryſtal*, every ray, whether perpendicular or oblique, becomes divided into two, by means of the double refraction. One of theſe refractions is, according to the ordinary rule, the ſine of incidence out of air into *cryſtal*, being to the ſine of refraction as five to three; but the other is perfectly new. The like double refraction is alſo obſerved in *cryſtal of the rock*, though much leſs ſenſibly.

When an incident ray is thus divided, and each moiety arrives at the farther ſurface, that refracted in the firſt ſurface after the uſual manner, is refracted entirely after the uſual manner at the ſecond; and that refracted in the unuſual manner in the firſt, is entirely refracted after the like manner in the ſecond; ſo that each emerges out of the ſecond ſurface, parallel to the firſt incident ray. Again, if two pieces of this *cryſtal* be placed over each other, ſo that the ſurfaces of the one be parallel to the correſponding ones of the other; the rays refracted in the uſual manner in the firſt ſurface of the firſt, are refracted after

after the usual manner in all the other ſurfaces; and the ſame uniformity appears in the rays refracted after the unuſual manner; and this in any inclination of the ſurfaces, provided their places of perpendicular refraction be parallel.

From theſe phenomena ſir Iſaac Newton infers, that there is an original difference in the rays of light; by means whereof ſome are, here, conſtantly refracted after the uſual manner; and others in the unuſual manner. Were not the difference original, and did it ariſe from any new modifications impreſſed on the rays at their firſt refraction, it would be altered by new modifications in the three following ones; whereas, in fact, it ſuffers no alteration at all.

Again, he hence takes occaſion to ſuſpect, that the rays of light have ſeveral ſides, endued with ſeveral original properties: for it appears from the circumſtances, that there are not two ſorts of rays differing in their nature from each other, one conſtantly, and in all poſitions, refracted in the uſual, and the other in the unuſual manner; the difference in the experiment mentioned, being only in the poſition of the ſides of the rays, to the plane of perpendicular refraction. For one and the ſame ray is refracted ſometimes after the uſual, and ſometimes after the unuſual manner, according to the poſition of its ſides to the *cryſtal*: the refraction being alike in both, when the ſides of the rays are poſited the ſame way to both, but different, when different.

Every ray, therefore, may be conſidered as having four ſides, or quarters: two of which, oppoſite to each other, diſpoſe the ray to be refracted after the unuſual manner; and the other two in the uſual. Theſe diſpoſitions, being in the rays before their incidence on the ſecond, third, and fourth ſurfaces; and ſuffering no alterations, for what appears in their paſſage through them, muſt be original and connate.

Father Beccaria corrects the obſervations of Huygens and Newton concerning the refraction of rock or mountain *cryſtal*. The double refraction of the latter happens, when a ray paſſes through two ſides that are inclined to each other, and conſequently iſſues coloured; whereas that of the Iceland *cryſtal* is made by the paſſage of a ray through two parallel ſides, and therefore it iſſues colourleſs. He ſuggeſts, that there may be other ſubſtances, in which there is a manifold refraction. s'Graveſande had a priſm of Braſil pebble, which had a double refraction at each angle, but of a different kind from one another. Phil. Tranſ. vol. lii. part. ii. p. 487, &c. Mr. B. Martin prepared ſeveral priſms of Iceland *cryſtal*, which exhibited not only a double but a multiple refraction. A ſingle priſm produced a ſix-fold refraction; and by combining ſeveral priſms, a number of refractions was obtained equal to the product of thoſe of the ſingle priſms; i. e. a priſm which afforded two images applied to one of ſix, produced a priſm of twelve images, &c. He farther obſerves, with reſpect to Iceland *cryſtal*, that though the ſides of its plane of perpendicular refraction be parallel to one another, a beam of light tranſmitted through them will not be colourleſs; in which property it differs from all other known ſubſtances. See Martin's Eſſay on Iceland Cryſtal, or Prieſtley's Hiſt. of Viſion, period vii. § 8. p. 548, &c.

CRYSTALLI, among *phyſicians*, denote puſtules diſperſed all over the body, white and tranſparent, and of the bigneſs of a lupine: much the ſame with what are otherwiſe called *phlyctænæ*.

CRYSTALLINE *humour* is a thick, compact humour of the eye, in form of a flatiſh convex lens, ſituate in the middle of the eye; ſerving to make that refraction of the rays of light, neceſſary to have them meet in the retina, and form an image thereon, whereby viſion may be performed.

The *cryſtalline* is ſet in the anterior part of the vitreous humour, like a diamond in its collet; and is retained there by a membrane which ſurrounds it; and which, for that reaſon, is called the *capſula of the cryſtalline*.—This membrane is ſometimes alſo called *cryſtalloides*; and by others, on account of its fineneſs, which reſembles that of a ſpider's web, *arachnoides*.

It is the configuration of the *cryſtalline* that occaſions perſons to be either *myopes*, or *preſbytæ*; i. e. to be either long, or ſhort-ſighted; a diſcovery firſt ſuggeſted, and proved by Maurolycus of Meſſina, in a treatiſe, De Lumine & Umbra, publiſhed in 1575. Bapt. Porta thought that this humour was the principal ſeat of viſion.

The *cryſtalline* being of two conſiſtences, outwardly like a jelly, but toward the center as hard as ſalt; hence ſome authors think, that its figure may be varied; which variation they ſuppoſe to be effected by the ligamentum ciliare. Hence, Dr. Grew, and others aſcribe to the ciliary ligament a power of making the *cryſtalline* more convex, as well as of moving it to or from the retina: accordingly by the laws of optics, ſomething of this kind is abſolutely neceſſary to diſtinct viſion: for, as the rays from diſtant objects diverge leſs than thoſe from nigh ones; either the *cryſtalline* humour muſt be capable of being made more convex, or more flat; or elſe there muſt be an elongation of the eye, or of the diſtance between that and the retina.

The *cryſtalline humour*, when dried, appears to conſiſt of a vaſt number of thin, ſpherical laminæ, or ſcales lying over one another. Leewenhock reckons there may be two thouſand of them in one *cryſtalline*; each of theſe, he ſays, he has diſcovered to conſiſt of a ſingle fibre, or fine thread, wound up in a ſtupendous manner, this way and that, ſo as to run ſeveral courſes, and meet in as many centres; and yet not interfere nor croſs in any place. Phil. Tranſ. N° 165, and 293.

The veſſels of the *cryſtalline* humour of the eye are all the branches of an artery, which being ſent off from the artery which enters at the central part of the retina, paſſes through the vitreous humour, and when it reaches the *cryſtalline*, diſperſes its branches along the ſurface of the lens like rain, till they are exceeding minute, when they pierce into its ſubſtance. Med. Eſſ. Edinb. vol. i. p. 317.

M. Petit, the phyſician, has many minute obſervations and experiments on the colour, conſiſtence, meaſure, weight, &c. of the *cryſtalline humour* of the eye, and its *capſula* in different animals: but his obſervations are ſo numerous that we can only take notice of ſome of them. He obſerved, that in ſerpents and fiſhes the *cryſtalline* is nearly ſpherical, whereas in all other animals which he examined it was lenticular, the anterior ſurface being leſs convex than the poſterior.

This humour hardens with age, and is not ſo hard in men as in birds, quadrupeds, and fiſhes: its hardneſs increaſing in the order here expreſſed.

He alſo obſerves, that the *cryſtalline* changes colour with age, becoming gradually more and more tinged with yellow after the age of twenty-five years, in proportion to its hardneſs.

He ſhews, in confirmation of Leewenhock's diſcovery, that the *cryſtalline* conſiſts of concentrical laminæ: he always found the capſula tranſparent, and denies any connection between the membrane and the *cryſtalline*, or that there are any veſſels going from the one to the other: but affirms, that the *cryſtalline* is nouriſhed by abſorbing the lymph lodged between it and its capſula.

But Albinus diſcovered this to be a miſtake; and that, on the contrary, it is connected with the capſula by means of ſeveral veſſels, which, paſſing through ſmall perforations in the capſula, are inſerted at the extremities of it, and ſpread along the back part of it; and that it receives its nouriſhment by veſſels, which are the branches of the central artery paſſing through the vitreous humour, and divided into ſeveral branches in the back part of the capſula, and tranſmitted to the interior parts of the *cryſtalline*, by which it is alſo ſuſpended.

Dr. Potterfield has accounted for the greater central hardneſs of the *cryſtalline*; as the rays of light, which fall near its axis, and would conſequently be leſs refracted than thoſe that fall more obliquely nearer the extremities, have hereby their refraction increaſed, and are made to converge and meet with thoſe at the ſame point with thoſe that paſs through it nearer its edge.

When the *cryſtalline* or vitreous humours are fallen out of the eye, it is eaſy to conceive, that not only the ſight, but the figure of the eye, muſt be entirely deſtroyed; therefore, an accident of this kind muſt at firſt be dreſſed with compreſſes dipped in warm wine, or ſpirit of wine, and afterwards with ſome vulnerary balſam. But it ſometimes happens, when only the *tunica albuginea*, and ſclerotica, are ſlightly wounded, the cornea and uvea remaining unhurt, that the eye recovers itſelf: and though both the vitreous and *cryſtalline* humours fall out by the wound, yet they are renewed again by the efficacy of nature, and the office of ſight performed as well as before the injury happened. Heiſter.

The *cryſtalline* is the ſubject of a diſeaſe called a CATARACT, and the operation of COUCHING. See EYE.

CRYSTALLINE *heavens*, in the *Old Aſtronomy*, two orbs imagined between the *primum mobile* and the firmament, in the Ptolemaic ſyſtem, where the heavens were ſuppoſed ſolid, and only ſuſceptible of a ſingle motion.

King Alphonſus of Arragon is ſaid to have introduced the *cryſtalline*, to explain what they called the *motion of trepidation*, or *libration*.

The firſt *cryſtalline*, according to Regiomontanus, &c. ſerves to account for the ſlow motion of the fixed ſtars; which makes them advance a degree in ſeventy years, according to the order of the ſigns, viz. from weſt to eaſt; which occaſions the preceſſion of the equinox.

The ſecond ſerves to account for the motion of libration,

or trepidation; whereby the celestial sphere librates from one pole towards another, occasioning a difference in the sun's greatest declination.

But the modern account for these motions in a much more natural and easy manner.

CRYSTALLINE *arsenic*. See ARSENIC.

CRYSTALLIZATION, in *Chemistry*, a kind of congelation befalling essential, fixed, and volatile salts; when, being set free from the greatest part of their humidity, they are left to harden, dry, and shoot into crystals.

The term has been extended to denote any regular arrangement of the parts of a body which is capable of it, whether the aggregate masses be transparent or not. Quake stones, pyrites, and minerals, when regularly formed, are said to be crystallized, as well as transparent stones and salts. Ice is a true *crystallization*, formed of long needle-like masses, flattened on one side, and joined together in such a manner, that the smaller are inserted into the sides of the greater; making, as M. Malrau has observed, constantly the same angle, i. e. either 60°, or 120°. Melted metals, and other bodies, which become solid after fusion, affume a regular arrangement, whenever they are cooled slowly enough for that purpose; and thus all kinds of earths, and metallic and mineral matters, whose integrant parts fwim feparately in water, are *crystallized*, by flowly evaporating the watery fluid that feparates their parts, and allowing them to approximate and unite by the moft fuitable fides, forming maffes of a determinate figure. See CRYSTAL, *Rock*.

The ordinary method of *cryftallization* is performed by diffolving the faline body in water, filtering it, and letting it evaporate flowly, till a film appears at the top; and laftly, letting it ftand to fhoot.

Cryftallization may alfo be effected by the application of cold to the water fufpending the falt. As moft falts are diffolved more eafily, and in greater quantity, by hot than cold water, it is plain, that if the water is fuffered gradually to cool, the portion of falt, which was diffolved merely by the heat of the water, will be collected and cryftallized; and the cryftals will be both larger, and more regular, as the water cools the more flowly. An other method of *cryftallizing* falts, is by adding to a folution of falt, a fubftance which has no action on that falt, but which has a greater affinity with the water: and this will ferve to take away from the falt a portion of water, which keeps it diffolved. Spirit of wine will anfwer this purpofe with regard to many falts.

This fhooting is accounted for, on fir Ifaac Newton's principles, from that attractive force which is in all bodies, and particularly in falt, by reafon of its folidity: whereby, when the menftruum or fluid, in which fuch particles float, is fated enough, or evaporated (which brings it to the fame), fo that the faline particles are within each other's attractive powers, and can draw one another more than they are drawn by the fluid, they will run into *cryftals*.

This is peculiar to SALTS; that, let them be ever fo much divided and reduced into minute particles, yet when they are formed into *cryftals*, they each of them re-affume their proper figures; fo that one might as eafily divefl and deprive them of their falinefs, as of their figure. See VEGETATION *of falts*.

Saline *cryftals* retain part of the water with which they were united in folution; and to this they owe their form, tranfparency, and even the cohefion of their parts. This is called by chemifts *the water of cryftallization*; the quantity of it varies in different falts, being greater or lefs, as the acid in them is lefs or more firmly combined with its bafis. M. Baumé has difcovered, that, when the *cryftallization* is properly conducted, this water is perfectly pure, without the mixture of any fubftance foreign to the cryftallized falt.

This being an immutable and perpetual law, by knowing the figure of the *cryftals*, we may underftand what the texture of the particles ought to be, which can form thofe *cryftals*: and, on the other hand, by knowing the texture of the particles, may be determined the figures of the *cryftals*.

For fince the figures of the moft fimple parts remain always the fame; it is evident, that the figures they run into, when compounded and united, muft be uniform and conftant; and fince the force of attraction may be ftronger on one fide of a particle, than on another, there will conftantly be a greater accretion of falts upon thofe fides, which attract more ftrongly; from which it may eafily be demonftrated, that the figure of the leaft particles is entirely different from that which appears in the CRYSTAL. See Macquer's Chem. Dict.

A great number of pigments or colours are obtainable by *cryftallization* from metalline bodies; but thefe are fubject to corrode and eat the canvas, &c. and are not capable of waſhing, by which fome naturally corrofive colours are rendered mild and harmlefs. The blue and green vitriols, or *cryftals* of copper, cannot be deprived of their aqueous, or faline parts, by a dry air, or by wafhing, without fuffering extreme alterations, or being left in the form of a dry, grofs, terreftrial matter, differently coloured from what they were before: and the green *cryftals* of iron, being expofed to the [illegible] white, and when well waſhed in wa[illegible]nefs, and turn to a reddifh, or [illegible] and if deprived of their faline and [illegible] ftrong diftillation, they leave behind [illegible] put mortuum, which being waſhed [illegible] a green, but a brown coloured pig[illegible] and a holds proportionably of other colours obtained by *cryftallization*, there are little hopes of procuring durable [illegible] ments by this operation, which fhall be of the fame four with themfelves, though, after waſhing, fome of colours may be thus procured. Shaw's Lectures, p. [illegible]

CRYSTALLOIDES, the cryftalline coat of the eye, a fine membrane, immediately encompaſſing, and containing the cryftalline humour; and fuppofed to ferve by conftringing or dilating that humour, to vary the [illegible] of its focus.

Anatomifts are divided about the reality of fuch [illegible] which is alfo, from its fine texture, called *aranea tunica*, or *arachnoides*.

CRYSTALLOMANCY, the art of divining, or foretelling future events, by means of a mirror; wherein the thing required are repreſented.

It is alfo called catoptromancy. The firſt from *aqua congelata*, or *cryftal*; and the fecond from *xaτοπτρον*, *mirror*, and *μαντεια*, *divination*.

CRYSTALLUS *logii*, a word ufed by fome of the old authors, not in the expreſs fenfe in which we now make it fignify *rock-cryftal*, but as a general term for all pellucid ſtones. Some extend it even to the factitious, as well as the natural gems.

CRYSTINE, a filver coin in Sweden, equal to fourteen ſols and eleven deniers French. They have alſo *demi-cryſtines*.

CTENITA, or CTENOIDES, names ſometimes given to thoſe pectens which have one of their ſhells very convex. See PECTEN.

CUANDA, in *Zoology*. See PORCUPINE.

CUB denotes a bear's whelp; a fox and martin of the firſt year are alſo called by this name.

CUBA, in *Mythology*, a goddeſs amongſt the Romans, thus called from *cubo*, *I lie down*, who was invoked, in order to make children ſleep.

CUBATURE, or CUBATION, of a ſolid; the meaſuring of the ſpace comprehended in a ſolid; as a cone, pyramid, cylinder, &c. or finding the ſolid content thereof.

The *cubature* regards the content of a ſolid, as the quadrature does the ſuperficies of a figure: ſo that the *cubature* of the ſphere turns on the ſame thing as the quadrature of the circle.

CUBBITTING, in *Farriery*, a vice of horſes, conſiſting in their catching hold of the manger, ſucking in the air, and ſwallowing it down in ſuch large quantities that they are ready to burſt. No method has yet been deviſed of curing this vice.

CUBBRIDGE-*heads*, in *Ship-Building*, is ſometimes uſed for the bulk heads of the fore-caſtle, and the half-deck: the firſt being called the *cubbridge-head before*; the other the *cubbridge-head abaft*.

CUBE, in *Geometry*, a regular or ſolid body, conſiſting of ſix ſquare and equal faces, or ſides, and its angles all right, and therefore equal.

The word comes from κυβος, *teſſera*, *die*.

The *cube* is alſo called *hexaedron*, becauſe of its ſix ſides.

The *cube* is ſuppoſed to be generated by the motion of a ſquare plane, along a line equal to one of its ſides, and at right angles thereto: whence it follows, that the planes of all ſections, parallel to the baſe, are ſquares equal thereto; and, conſequently, to one another.

To deſcribe a rete, or net, wherein any given cube may be conſtructed, or wherewith it may be covered. On the right line AB (*Tab. Geometry, fig.* 11.) ſet off the ſide of the *cube* four times; on A erect a perpendicular, AC, equal to the ſide of the *cube* AI, and complete the parallelogram ACDB: with the interval of the ſide of the *cube*, in the line CD, determine the point K, M, and O; laſtly, draw the right lines, IK, LM, NO, and BD; produce IK and LM, each way to E and F, and to G and H; till EI=IK=KF. and GL=LM=MH, and draw the right lines EG, FH.

To determine the ſurface and ſolidity of a cube. As the ſurface of a *cube* conſiſts of ſix equal ſquares, a ſide multiplied by itſelf, and the product by ſix, will give the ſuperficies; and the ſame product, again, multiplied by the ſide, the ſolidity.

Hence

Hence, if the ſide of a *cube* be 10, the ſolidity will be 1000; if that be 12, this will be 1728: wherefore the geometrical perch being ten feet, and the geometrical foot twelve digits, &c. the *cubic* perch is 1000 *cubic* feet, and a *cubic* foot 1728 *cubic* digits, &c.

Hence, alſo, *cubes* are in the triplicate ratio of their ſides; and are equal, if their ſides be ſo.

CUBE, *duplication of a.* See DUPLICATION.

CUBE, *ſcenery ſpy of a.* See SCENOGRAPHY.

CUBIC *number*, in *Arithmetic*, is a number ariſing from the multiplication of a ſquare number by its root.

Thus, if the ſquare number four be multiplied by its root two, the factum eight is a *cube*, or *cubic number*; and the number two, with reſpect thereto, a *cube root*.

Hence, ſince, as unity is to the root, ſo is the root to the ſquare; and as unity is to the root, ſo is the ſquare to the *cube*: the root will, alſo, be to the ſquare, as the ſquare to the *cube*: that is, unity, the root, the ſquare, and the *cube*, are in continual proportion; and the *cube* root is the firſt of two numbers that are mean proportionals between unity and the *cube*.

CUBIC *numbers, for the compoſition of.* Every *cubic* number of a binomial root is compoſed of the cubic numbers of the two parts of the factum, of thrice the ſquare of the firſt part into the ſecond, and of the factum of thrice the ſquare of the ſecond part into the firſt.

Demonſt. For a *cubic* number is produced by multiplying the ſquare by the root; but the ſquare of a binomial root is compoſed of the ſquares of the parts, and double the factum of one part into the other.

Wherefore, the *cubic* number is compoſed of the *cube* of the firſt part, of the triple factum of the ſquare of the firſt part into the ſecond, and of the triple factum of the ſquare of the ſecond part into the firſt.

An ocular demonſtration of this we have in the following example, where multiplication alone is uſed. Suppoſe, v. gr. the root 24, or $20+4$.

Here
$$\begin{array}{r} 24^3=20^3+1\times4\times20^2+4^3 \\ \qquad\qquad\qquad 20+4 \\ \hline 4\times20^2+2\times4^2\times20+4^3 \\ 20^3+2\times4\times20^2+4^2\times20 \\ \hline 24^3=20^3+3\times4\times20^2+3\times4^2\times20+4^3 \end{array}$$

Then
$$\begin{array}{r} 20^3=8000 \\ 3\times4\times20^2=4800 \\ 3\times4^2\times20=\ 960 \\ 4^3=\ \ 64 \\ \hline 24^3=13824 \end{array}$$

Hence, as the part on the right hand is placed among units, and that on the left among tens; the *cubic* number of the right-hand part muſt be put in the right-hand place; the factum of this triple ſquare into the left, in the ſecond place; and the factum of the triple ſquare of the left into the right, in the third: laſtly, the *cube* of the left-hand part falls in the fourth place.

If the root be a multinomial, two or more characters on the right muſt be eſtimated as one, that it may have the form of a binomial. It is obvious, that any *cube* is compoſed of the cubes of the ſeveral parts of the root, and of the factums of the triple ſquare of any of the left-hand characters into the next on the right; and alſo of the factums of the triple ſquare of the right-hand characters into all the left. Suppoſe, v. gr. the root 2431; take 240 for one part of the root, there will be the other part; conſequently,

$$\begin{array}{r} 240^3=13824000 \\ 3\times240^2\times3=\ 518400 \\ 3\times240\times3^2=\ \ 6480 \\ 3^3=\ \ 27 \\ \hline 243^3=14348907 \end{array}$$

The places of the ſeveral factums are determined from what was obſerved above: for regard muſt here, too, be had to the ciphers to be added to the numbers multiplied by each other, if they be placed alone.

This compoſition of *cubic numbers* once well conceived, the EXTRACTION of *cubic* roots will be eaſy.

CUBE *root*, or CUBIC *root*, the origin of a *cubic number*; or a number by whoſe multiplication into itſelf, and again into the product, any given number is formed.

The *extraction of the cube root* is the ſame thing as the finding any number, v. gr. 2; by whoſe multiplication into twice itſelf continually, a given number, v. gr. 8, is produced: the proceſs whereof, ſee under the article EXTRACTION.

CUBEBS, in *Pharmacy*, a fruit brought from the iſland of Java, in grains, or ſeeds, reſembling pepper, both in form and ſize; whence ſome call it *wild pepper*.

This is a ſmall round fruit or berry, rather leſs than pepper, with a dark brown wrinkled outſide, and whitiſh within, having a little ſhort ſtalk at one end; whence it has been called *piper caudatum*, or pepper with a tail. It is not near ſo hot nor biting as pepper, but is of an aromatic ſmell and taſte.

Botanical writers differ as to the opinion of the growth of *cubebs*; ſome as Mr. Ray, Dr. Plukenet, and others, believe that they grow on trees as big as apple-trees, in bunches like grapes: of which Dr. Plukenet gives a figure. Others, as Herman and Pomet, will have them to grow on a ſcandent plant like pepper.

Cubebs are hurting and drying, ſtrengthen the ſtomach, expel wind, comfort the brain and nerves, and are particularly uſeful againſt the vertigo or giddineſs, with other diſtempers of the head. Miller's Bot. Off.

They are recommended in a hoarſeneſs and loſs of voice, eſpecially when the tonſils are ſtuffed and obſtructed. The dole is from ten to twenty-four grains in ſubſtance, to be chewed, or from a dram to a dram and a half in infuſion.

They are farther recommended in diſorders of the ſpleen, and in cold diſtemperatures of the uterus.

It is ſaid the natives of the place boil it before they allow it to be exported, to prevent its been ſown in other countries.

CUBIC *equation*. See EQUATION.

For the conſtruction of cubic *equations*, ſee CONSTRUCTION.—*For their reſolution*, ſee RESOLUTION.—*For their roots*, ſee ROOT, and EXTRACTION.

CUBIC *foot*. See FOOT.

CUBIC *hyperbola*, in *Conics*, one expreſſed by the equation $xy^2=a$, having two aſymptotes, and conſiſting of two hyperbolas, lying in the adjoining angles of the aſymptotes, and not in the oppoſite angles, like the *Apollonian hyperbola*. It is alſo called an *hyperbolaſmus* of a *parabola*.

CUBICAL *parabolas*, a term uſed by ſome writers for a parabola of the higher kind; v. gr. where $a^2x=y^3$, &c. See CURVE and PARABOLA.

CUBICLE. See CHAMBER.

CUBIDIA, in *Natural Hiſtory*, the name of a genus of ſpars. The word is derived from κυβος, *a die*, and is given them from their being of the ſhape of a common die, or of a cubic figure. The bodies owe this ſhape to an admixture of particles of lead, and there are only two known ſpecies of this genus. 1. A colourleſs cryſtalline one, with thin flakes, found in the lead mines of Yorkſhire, and ſome other parts of the kingdom. And, 2. A milky white one, with thicker cruſts. This is found in the lead-mines of Derbyſhire and Yorkſhire, but is uſually ſmall, and is not found plentifully.

CUBING *of a ſolid*. See CURATURE and SOLID.

CUBIT, a long meaſure, uſed by the ancients, eſpecially the Hebrews; taken from the ordinary extent of a man's arm, between the elbow and the tip of the hand.

In the ſcripture, we find *cubits* of two lengths; the one equal, according to Dr. Arbuthnot, to 1 foot 9 inches $\frac{4}{10}$ of an inch, our meaſure; being the fourth part of the fathom, double the ſpan, and ſix times the palm: the other equal to $1\frac{1}{2}\frac{1}{2}\frac{1}{5}$ foot, or the foot hundredth part of a ſtadium. The Romans, too, had a *cubit*, equal to 1 Engliſh foot, 7 inches, $\frac{4}{10}$ of an inch. F. Merſenne makes the Hebrew *cubit* 1 foot 4 digits and 5 lines, with regard to the foot of the Capitol. According to Hero, the geometrical *cubit* is 24 digits; and, according to Vitruvius, the foot is $\frac{3}{4}$ of the Roman *cubit*, i. e. 16 digits, or FINGER'S-*breadths*.

CUBITÆUS *externus*, or *ulnaris*, in *Anatomy*, the firſt of the extenſor muſcles of the fingers; thus called, as being placed along the *cubitus*, externally.—It riſes from the external protuberance of the humerus, and, paſſing its tendon under the *ligamentum annulare*, is inſerted into the fourth bone of the metacarpus, that ſuſtains the little finger. See ULNARIS *extenſor*.

CUBITÆUS *internus*, the firſt of the flexors, placed along the *cubitus*, within-ſide the arm. It riſes from the internal protuberance of the *humerus*, and part of the *wing*; upon which it runs along till it paſſes under the *ligamentum annulare*, and is inſerted by a ſtrong and ſhort tendon into the fourth bone of the firſt order of the *carpus*.

CUBITI *biceps*. See BICEPS.

CUBITI *brevis*. See BREVIS.

CUBITI *longus*. See LONGUS.

CUBITUS, in *Anatomy*, a bone of the arm, reaching from the elbow to the wriſt; otherwiſe called *ulna*, or the *greater facile*. Some uſe the word for all that part of the arm between the elbow and the wriſt; including the *ulna*, or *cubitus*, properly ſo called, and the *radius*.

CUBITUS, *fractured*. The lower part of the arm, which is called the *cubitus*, contains two bones, the *radius*, and *ulna*: fractures of this part, therefore, ſometimes happen only to one, ſometimes to both thoſe bones, and that ſometimes

sometimes near their extremities, but oftener towards their middle: but, when they are both broken together, the bones are not only very easily distorted from each other, but they are not to be replaced without very great difficulty also: if one only should, on the contrary, be broken, while the other remains whole, the fractured parts do not much recede out of their places, nor are they very difficult to reduce and retain; for the bone remaining sound, is found, in this case, to be a better direction and support than either splints, or bandages. When the fracture happens toward the lower head, near the pronator quadratus muscle, the fractured part is strongly drawn by that muscle, and the intervening ligament that is extended between the radius and ulna, toward the sound bone; and this makes it more difficult to replace. If the radius is to be replaced, whole fragment is contracted towards the ulna, an assistant must hold the arm, while the surgeon inclines the patient's hand towards the *ulna*, to draw back the contracted part of the radius. When this is done he must carefully reduce them by compression on both sides with his hands, so as to reduce the compressed muscle between the radius and the ulna, and the fragments of the radius, to their proper places. The arm is then to be bound up with the proper bandage, and the limb must afterwards be placed in a sort of case made of pasteboard, or light wood, to be suspended in a sling put about the neck.

In setting a fracture of the ulna, the whole method must be the same with this of the radius, except that in the extension, the hand must be bent toward the thumb, and radius, before the distorted part of the ulna can be compressed into its proper place. When both bones of the *cubitus* are broken, the method of cure is much the same with that used to each of them, when broken singly: but there is required more strength and circumspection, both in replacing them, and a great deal of caution in applying the bandage to retain them. Care must also be taken, that, while the arm continues in this case a great while, without motion, the mucilage of the joint does not harden, or the ligament become stiff, and the arm, or *cubitus*, be thereby rendered immoveable. To guard against this, it will be proper to unbind the arm once in two or three days, and to move it a little, carefully and gently, backwards and forwards; and sometimes to foment it with warm water or oil; by which means its motion will be preserved.

CUBITUS, *luxated*. The *cubitus* consisting of two bones, the ulna and radius, is articulated with a ginglymus; and the connection of these bones is such, that the ulna, or *cubitus*, as being the largest bone, and seated in the lower part of the arm, does of itself perform the whole flexion, and extension of the arm; yet it cannot perform those motions without carrying the radius along with it; but, on the other hand, the radius may be turned along with the hand both inward and outward, without at all moving or bending the ulna, as when the pronation and supination of the hand are made thereby. Both these bones of the *cubitus* are so articulated with the lower head of the *os humeri*, that large protuberances are received into deep cavities, or grooves, and the whole invested and fastened with exceeding strong ligaments; so that, notwithstanding the *cubitus* may be luxated in all four directions, outward or inward, backward or forward, yet it is but seldom that it suffers a perfect or entire dislocation, unless the upper part of the ulna be broken, or the ligaments of the *cubitus* much weakened by some great external violence. The slighter, and more recent luxations of this kind are, the more easy is the reduction of them. Be the case better or worse, however, the patient must be placed in a chair, and both parts of the limb, the humerus and the *cubitus*, must be extended in opposite or contrary directions, by two strong assistants, till the muscles are found pretty tight, with a free space between the bones: then the luxated bone must be replaced, either with the surgeon's hands alone, or with the assistance of bandages, that the processes may fall into their sinuses; and when that is done, the *cubitus* must be suddenly bent. But if the tendons and ligaments are so violently strained that they can scarce perform their office, it will be proper to anoint them with emollient oils, ointments, and the fat of animals; or to apply emollient cataplasms and fomentations. As soon as the reduction has been effected, the articulation must be bound up with a proper bandage, and the arm afterwards suspended in a sling hung about the neck. But care must be taken that the bandage is not kept on too long, nor the arm kept entirely without motion all the time, lest the mucilage of the joint should become inspissated, and the articulation rendered, by that means, stiff, or the motion of the part be entirely lost. To prevent this, it will be proper to undress the bandage every other day, and gently to bend, and extend the limb: afterwards compresses dipt in warm wine may be applied, and held on with the bandage. Heister's Surg. p. 164.

CUBO-CUBO-CUBUS. See CUBOCUBUS.

CUBO-CUBUS, the term whereby Diophantus, Vieta, &c. distinguish the sixth POWER; which the Arabs call *quadratum cubi*.

CUBOIDES, or *Os* CUBIFORME, in *Anatomy*, the seventh bone of the foot; so called, from its being in form of a *cube*, or die. See *Tab. Anat. (Osteol.) fig. 7. lit. b.* and also FOOT.

Some also call it *multiforme*: it is situated between the *os naviculare* and the *ossa metatarsi*, on the side of the *os scaphoides*; it has six sides, all very unequal, and very irregular. The upper side is flat and rough, for the insertion of the ligaments which connect it with the neighbouring bones: the lower side has an oblique eminence, and, immediately below that, a canal, or groove, which is also oblique: the eminence divides this side into two, and is a little cartilaginous on that side next the groove; the groove appears to be cartilaginous from a ligament which lines it, and both that, and the edge of the eminence, serve for the insertion of an annular ligament, and for the passage of the tendon of the *peronæus longus*. The posterior side is cartilaginous, broad, oblique, partly concave, and partly convex, answering to the anterior side of the *os calcis*. The anterior side is pretty broad, and is divided into two portions by a narrow prominent line, by which portions this bone is articulated with the third and fourth bones of the metatarsus. The inner side is the longest of all: it has a small cartilaginous surface, by which it is articulated with one of the two *ossa cuneiformia*; the rest is rough, with several depressions in it, which vessels and glands are lodged. Behind the cartilaginous portion there is, in some subjects, another narrow surface, which is articulated with the neighbouring portion of the circumference of the *os scaphoides*. This articulation, when wanting, is supplied by ligaments. The outside is the least of all; it is irregular, short, and narrow; and it has a notch which communicates with the groove, on the lower side. Winslow's Anatomy, p. 99.

CUBROS *Gexira*. See GEXIRA *Cubros*.

CUBUS-CUBI, a name whereby the Arab writers, and those who follow them, denominate the ninth POWER, or a number multiplied eight times by itself continually; which Diophantus, and after him Vieta, Oughtred, &c. call *cubo-cubicubus*.

CUCKING-STOOL, COKESTOOL, or CASTIGATORY, anciently called *tumbrel*, and *trebucket*; an engine for the punishment of scolds and unquiet women, by ducking them in the water.

Kitchen says, "Every one having a view of frank-pledge, "ought to have a pillory and a tumbrell." This machine was much in use, even among our Saxon ancestors, who called it *scealding-stole*, or *scealunga-stol*.

The punishment anciently was also inflicted on brewers, and bakers, transgressing the law; who were thereupon, in such a stool or chair, to be ducked *in stercora*, some muddy or stinking pond. This was anciently written *caging-stool*; in Domesday it is called *cathedra stercoris*.

CUCKOW, CUCKOO, *Cuculus*, in the Linnæan system of *Ornithology*, makes a distinct genus of birds of the order of the *picæ*. The characters of this genus are, that the feet are climbing, having two toes before, and two behind; the bill is smooth, and a little arched; the tail whole, and composed but of ten feathers; the tongue short and membranaceous, and terminated by hairs, and the nostrils prominent. Linnæus enumerates twenty-two species.

The *cuckow* is a bird well known in England by the singularity of its note; its beak is long and strait, only it is a little hooked at the end, of a blackish brown above, and of a yellowish white below; its mouth is yellow within, and the iris of its eyes of a hazel colour; its nostrils round, open, and standing out beyond the surface of the bill, by which mark alone it is to be distinguished from all other birds; its throat, breast, and belly, are white, variegated with transverse streaks of brown; the feathers of its head are brown, with white edges, and its rump is grey; its back, neck, and wings, are of a brownish hue; its long wing-feathers have white tips, and are variegated with black, brown, and white; and the tail-feathers are beautifully variegated with white. Its feet and legs are yellow; its food is caterpillars, and other insects. Ray's Ornithol. p. 63.

It never builds itself a nest, but seizes upon that of any other small bird, and, destroying its eggs, leaves its own in its place. The water wag-tail, yellow-hammer, or a hedge-sparrow, &c. is generally the nurse of the young *cuckow*.

The stomach of this bird reaches almost to the vent; and on account of this formation, which disables it from incubation, and not from want of affection, it probably leaves its young to be hatched by other birds.

Whether

Whether it hides in hollow trees, &c. during the winter, with us, or whether it leaves us for a warmer climate, is not certainly known. It is pretended that many have been found in hollow trees, but the truth of it has never been well attested. It it probably a bird of paſſage, appears early in the ſpring, and makes a ſhort ſtay with us. The continuance of the *cuckow's* ſong is ſaid to coincide with the ſeaſon of the mackarel's being in full roe, viz. from the middle of April to the end of June. The note of this bird is a call to love, and peculiar to the male: from this its name is derived. The *cuckow* was eſteemed for its delicacy as a food by the Romans, and is now eat in France and Italy.

The whole bird and its dung are uſed in medicine. The bird burnt whole is recommended for the gravel, pains and exceſſive humidity of the ſtomach. Rondel.

It is given with good ſucceſs alſo in the paroxyſms of fevers. The dung of the *cuckow* drank is ſaid to cure the bite of a mad dog.

CUCKOW-*flower*, *Lady's ſmock*. See CARDAMINE.

CUCKOW-*pint*, *Arum*. See WAKE-*Robin*.

CUCKOW-*ſpit*, a frothy ſubſtance found on ſeveral plants. See CICADULA.

CUCKSOO, the name of a common diſh among the Moors of Africa, made of flour, and prepared for ſeveral ways of dreſſing afterwards. They take fine wheat-flour, or, when that is ſcarce, barley, millet, or Indian corn flour is made to ſerve: they firſt ſprinkle ſome water over the bottom of an unglazed earthen pan, and then ſhake ſome of this flour into it; they knead this together with their hands, and roll it backwards and forwards under their open palms; by this means they work it into grains like ſago, and then it is fit for uſe: when they have meat to ſtew, they do this in an earthen pot, and over the mouth of this they place a colander, in which is put a quantity of this granulated paſte; over this colander is fixed on a top or cover for the pot, and by this means as the meat ſtews, all the vapour that aſcends from it is received into the grains of *cuckſoo*; by that time the meat is done enough, the *cuckſoo* is ſo ſoo; and opening the pot, they firſt take out this, which is ſoft, ſweiled, and tender, and piling it up in a diſh, they ſhake a hollow in the top of the heap, in which they lay the meat, and then add their ſpices, which are better than thoſe of many neighbouring nations; the pooreſt uſing pepper, ginger, and ſaffron, the richer a great variety.

CUCUBALUS, in *Botany*. See *Berry-bearing* CHICKWEED.

CUCULARIA, in *Botany*. See FUMITORY.

CUCULLA, a cowl. See ABBOT, and COWL.

CUCULLARIS, in *Anatomy*, a muſcle of the ſcapula, ſo called from the reſemblance it is ſuppoſed to bear to a monk's cowl; and *trapezius*, from its reſemblance to a geometrical figure called a *trapezium*. See *Tab. Anat. (Myol.) fig.* 6. *n.* 9. *fig.* 2. *n.* 4. *fig.* 1. *n.* 18.

The fibres of this muſcle have various originations and actions; whence Dr. Drake thinks, it may be more properly called three than one muſcle. The upper order of fibres, or muſcles, ſprings from the *os occipitis*; the ſecond from the ſpine of the vertebræ of the neck, and the third from the ſpines of the eight upper vertebræ of the thorax, or back; and are inſerted into the ſpine, acromium, and the baſis of the ſcapula, and part of the clavicula.

From the different diſpoſitions of theſe fibres, the ſcapula is drawn different ways; the firſt pulling obliquely upwards, the laſt obliquely downwards, and the middle backwards: when they act all three together, they are ſaid to draw backwards only; i. e. the two extremes antagonizing, the middle one alone is at liberty to act.

CUCULLATE *flowers*, among *Botaniſts*, are ſuch as reſemble a *cucullus*, or monk's hood, or cowl. See FLOWER.

CUCULLUS was anciently a traveller's cap; called alſo *cowl*, *goul*, or *gule*: whence the name paſſed to the monks, among whom it ſignified their frock and cap, which were of one piece.

CUCULLUS, in *Conchyliology*, the name of a genus of ſhells, called by other authors cornet ſhells, or *volutæ*. See VOLUTA.

CUCULUS *indicator*, a ſpecies of *cuckow* found in the interior parts of Africa, at a conſiderable diſtance from the Cape of Good Hope, and called by the Dutch ſettlers *honig-voyzer*, or *honey-guide*. It is of a ſmaller ſize than the common *cuckow*. It is famous for conducting thoſe who obſerve its motions, to the wild bee-hives, by a ſhrill note, ſounding *chorr*, *chorr*. This note is anſwered with a ſoft whiſtle, and repeated by the bird till the hive is found. Phil. Tranſ. vol. lxvii. part i. p. 43.

CUCUMBER, *Cucumis*, in *Botany*, a genus of the *monoecia ſyngeneſia* claſs. Its characters are theſe: it hath male and female flowers on the ſame plant, which are bell-ſhaped, of one petal, which adheres to the empalement, and is cut into five oval rough ſegments. The male flowers have three ſhort ſtamina, which are inſerted in the empalement: the female flowers have no ſtamina, but have three ſmall pointed ſtilamens, without ſummits. The germen is ſituated under the flower, which afterwards becomes an oblong fleſhy fruit with three cells, including many oval, flat, pointed ſeeds.

There are three ſpecies of this plant cultivated in gardens, the common kind, the white one, and the long green one. The firſt is what we bring to market in England; the ſecond is the common Dutch kind, and is greatly preferable to ours, as being much firmer, and having fewer ſeeds; and the third is better even than that, but it is raiſed with difficulty.

The common one, which is what our gardeners almoſt ſolely cultivate, is raiſed at three different ſeaſons of the year; the

in each hole, and when they are grown a little farther up the worst of these is to be pulled up, that there may finally remain only four. The plants of this crop will begin to produce fruit in July.

The Hiſtoria Plantarum, publiſhed under the name of Boerhaave, informs us, that if the branches of *cucumbers* are much trodden upon, the fruit will be bitter and emetic; and that a water diſtilled from *cucumbers* when full ripe, and beginning to putrefy, purges ſmartly, in the quantity of a dram.

The *cucumber* is one of the four great coolers of the ſhops. It is almoſt an univerſal ingredient in emulſions, and is found of ſervice in fevers, and nephritic complaints.

CUCUMBER, *ſingle-ſeeded, Sicyos*, in *Botany*, a genus of the *monœcia ſyngeneſia* claſs. Its characters are theſe: it hath male and female flowers on the ſame plant; the male flowers have a bell-ſhaped empalement of one leaf, with five indentures; the petal is bell-ſhaped, growing on the empalement; and they have each three ſtamina, which are united above, terminated by ſummits, joined in a head; the female flowers are like the male, and ſit upon the germen; they have no ſtamina, but the geſtamen ſupports a cylindrical ſtyle, crowned by a thick three-pointed ſtigma. The germen becomes an oval fruit, for with briſtly hairs, having one cell, containing a ſingle ſeed of the ſame ſhape. There are three ſpecies, natives of North America, and the Weſt Indies.

CUCUMBER, *wild, Egyptian*, or *ſpurting*, in *Botany*. See *Momordica* BALSAM *Apoda*, and ELATERIUM.

CUCUMBER, *ſmall creeping*. See MELOTHERIA.

CUCUMBER, *ſerpent*. See TRICHOSANTHES.

CUCUMIS *caprarii*, in the *Botanical Writings* of the Arabians, a name given by Avicenna, and others, to the plant which produced the fruit called BEL. This fruit was like the capers in ſhape, and had a hard ſhell over its kernel, like that of a hazel-nut. Such is the deſcription they give of it, and of the BEL and SEL, two other fruits as like it in ſhape, and other reſpects, as in virtue.

CUCUPHA, an ancient form of medicine: being a cap, or cover for the head, with cephalic powders quilted in it; worn in many nervous diſtempers, and particularly ſuch as more immediately affect the head: as againſt catarrhs, defluxions, &c. It is now much out of uſe.

CUCURBIT, CUCURBITA, in *Chemiſtry*, an earthen, or glaſs veſſel, called alſo *body*; of the figure of a gourd, or a pear; wherein are put the matters to be diſtilled.

It is ſometimes alſo made of tin; and ſometimes of braſs, tinned. When a diſtillation is to be made, they fit on to it a glaſs head with an aperture, and a neck proportional. Thus fitted, it is called an ALEMBIC.

CUCURBITACEOUS *plants*, a claſs of plants, ſo called from their reſemblance to the GOURD, called by the Latins *cucurbita*, which is the head of this family.

Plants of the *cucurbitaceous* kind ſend out their branches every way; which are ſoft and generally beſet with tendrils, by means whereof they cling to the bodies that are near them.

Their flowers are either ſterile, or fertile: the laſt knit, and yield fleſhy fruits of various figures; containing within them ſeveral flat ſeeds placed in three or four lodges, or even a greater number.

Theſe ſeeds have uſually a white ſweetiſh kernel: the greateſt part of them being of thoſe called *frigidæ majores*, or the greater cold ſeeds.

The pumpion, melon, &c. are of the *cucurbitaceous kind*.

CUCURBITINI *lumbrici*, are broad worms that breed in the inteſtines, like the ſeed of a gourd.

CUCURBITULA, in *Chirurgery*, a CUPPING-GLASS, or inſtrument, uſed in the operation of cupping.

CUCURI, in *Ichthyology*, the Braſilian name of a fiſh of the ſhark kind, but not miſchievous, called *caſſon* by the Portugueſe.

It is about two feet and a half long. The head ends in an hyperbolic figure, and the mouth is placed far below its end; it has only one row of teeth, and thoſe very ſmall; its eyes are of the ſize of a large pea; its belly is of a ſilver white. Willoughby.

CUCURUCU, in *Zoology*, the name of a ſerpent found in America, growing to ten or twelve feet long. It is very thick alſo in proportion to its length, and is of a yelloviſh colour, ſtrongly variegated with black ſpots, which are irregularly mixed among the yellow, and often have ſpots of yellow within them, and are plainly black. It is a very poiſonous ſpecies, and greatly dreaded by the natives; but its fleſh is a very rich food, and greatly eſteemed among them, when properly prepared. Ray.

CUD, ſometimes means the inſide of the throat in beaſts, and ſometimes the food that they keep there, and chew over again: from whence, to chew the *cud* ſignifies to ponder, think, or ruminate upon a thing.

CUD *loſt*, cattle ſometimes loſe the *cud* by chance, ſometimes by ſickneſs, poverty, mourning, &c. to cure which, take four leaven of rye bread, and ſalt, and mixing it with human urine and barm, beat it in a mortar: then making a large ball or two thereof, put them down the beaſt's throat.

CUDDY, in a *Firſt-rate Man of War*, is a place lying between the captain and lieutenant's cabin, and the quarter-deck; and divided into partions, for the maſter, and other officers. See *Tab. Ship, fig. 2. lit. r.*

It denotes alſo a kind of cabbin near the ſtern of a ſhallop or barge of burden.

CUDWEED, *Gnaphalium*, in *Botany*, the name of a genus of plants of the *ſyngeneſia polygamia ſuperflua* claſs, the characters of which are theſe: the flower is of the tubulous kind, and is compoſed of ſeveral florets, which are divided into many ſegments and formed like a ſtar at the ends; theſe are placed upon the embryo fruit, and are contained in a general cup, which is of a ſcaly or ſquamoſe ſtructure, but is not at all bright or thining. The ſpecies of *cudweed* enumerated by Mr. Tournefort are eight. The common *cudweed* is deſiccative and aſtringent, and is of great efficacy in hæmorrhages of all kinds, in dyſenteries, and in floodings of the menſes, it has been known to do great cures. Some have recommended the diſtilled water of it in cancers, but this ſeems to have no very great foundation. A decoction of it in ſmall beer is a common medicine among country people for quinſies, and is ſaid ſometimes to have done conſiderable cures in them.

CUDWEED, *Baſtard, Marapus*, or *Gnaphaloides*, in *Botany*, a genus of the *ſyngeneſia polygamia neceſſaria* claſs. The characters are: it hath hermaphrodite and female flowers included in the ſame double empalement; ten hermaphrodite flowers compoſe the diſk, which have one petal, are funnel-ſhaped, cut into five parts at the top, and have five ſhort briſtly ſtamina, terminated by cylindrical ſummits. In the ſame empalement are five female flowers in the circumference, which have each an oval germen compreſſed, hid under the ſcales of the interior empalement, each having a ſtyle by their ſide, which is briſtly, turning towards the hermaphrodite flowers, crowned by ſlender acute-pointed ſtigmas, divided into two parts. The female flowers are ſucceeded by a ſingle oval ſeed; the hermaphrodite flowers are barren. Miller.

CUE, an *item*, or *inuendo*, given to the actors on the ſtage, what, or when to ſpeak. See PROMPTER.

CUERPO. To *walk in cuerpo*, is a Spaniſh phraſe for going without a cloke; or without all the formalities of a full dreſs.

CUGUACUARANA, in *Zoology*, the name of an American beaſt of prey, the *felis concolor* of Linnæus, uſually confounded with the tyger, and deſcribed by Marggrave as one of the three ſpecies of American tygers, the *jaguara* and *jaguaretè* being the two others. Thoſe two animals are plainly rather of the leopard, or lynx, than of the tyger kind; and perhaps, this is as little of the tyger as they. It is a large and very fierce beaſt, of the ſhape of the jaguara, but of one ſimple colour, which is a very pale tawney, like the colour of ſome goats, but not ſo ſtrong. It is a little duſkier on the back than on the ſides, and there is a little white under the chin, and on the belly. Its hair is very ſhort. Ray.

CUGUACUETÈ, and CUGUACUAPARA, in *Zoology*, the Braſilian names of an animal of the capra kind, ſeeming to be the male and female of the ſame ſpecies, and not diſtinct animals. The former has no horns, the latter has, and is probably the male; the horns are compoſed of three branches; they ſend out one near the inſertion, and from this they run up ſingle to the extremity, where they are biſid.

We have not ſeen the animal in England; but its horns, which are very ſingular in their ſhape, are preſerved in the muſeum of the Royal Society. This is the animal which Johnſon has figured under the name of the *capreolus marinus*. *Table* 33.

CUGUPUGUACU, in *Ichthyology*, a name by which many call the MERO, a Braſilian fiſh of conſiderable ſize, and a very good taſte.

CUI *ante divortium*, in *Law*, a writ, which a woman divorced from her huſband hath, to recover lands or tenements from him to whom her huſband alienated them during marriage; becauſe during the marriage ſhe could not gainſay it.

CUI *in vita* is a writ of entry, which a widow hath againſt him to whom her huſband alienated her lands or tenements in his life-time; ſpecifying, that, during his life, ſhe could not withſtand it.

CUJETE, in *Botany*. See CALABASH *Tree*.

CUIRASSE, a piece of defenſive armour, made of an iron plate well hammered; ſerving to cover the body, from the neck to the girdle, both before and behind.

Some

Some derive the word, by corruption, from the Italian *cuore*, *heart*; because it covers that part: others from the French *cuir*, or the Latin *corium*, *leather*; whence *coriaceous*: because defensive arms were originally made of leather.

The *cuiraſſe* was not brought into uſe till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

Hence, *cuiraſſiers*, the cavalry armed with *cuiraſſes*.

The French have ſtill a regiment of *cuiraſſiers*; and a good part of the German cavalry are *cuiraſſed*: but the *cuiraſſe* is principally confined to general officers, and officers of the cavalry. Others bear only a plate of iron, which covers them before.

In the Roman calendar, we find the name of St. Dominic *the Cuiraſſed*; a title given a ſaint of the eleventh century, from his conſtant wearing of an iron *cuiraſſe*, by way of penance.

CUIRIRI, in *Ornithology*, the name of a Braſilian bird of the ſtarling kind, very like the common ſtarling, and no way differing from the *pitanguaguacu*, but that it has a yellow ſpot upon its head.

Probably this is the male of the ſame ſpecies.

CUITPALLI, in *Natural Hiſtory*, the American name of a very beautifully variegated ſtone, found in New Spain, and ſome other places: its name expreſſes the painted ſtone. It is a ſpecies of jaſper of a beautiful green, variegated with very beautiful lines, and clouds of black, and is in ſome parts tranſparent.

CUL *de lamp*, a French term, properly ſignifying the bottom of a lamp. It is applied in architecture to ſeveral decorations, both of maſonry and joinery, uſed in vaults and cielings, to finiſh the bottom of works, and wreathed ſomewhat in manner of a *teſtudo*; particularly a kind of pendentive in Gothic vaults.

CUL *de four*, a ſort of low, ſpherical VAULT, oven-like.

Cul de four of a niche, denotes the arched roof of a niche on a circular plan. See Mem. Acad. Scienc. an. 1719, p. 363.

CULCASIA, in *Botany*, a name given by ſome of the old writers to an Egyptian plant growing near the ſea-ſhores. It is by many ſuppoſed to have been the *colocaſia*, but improperly. The reſemblance of the name was the only thing that gave the idea of its being this plant; but the virtues attributed to it, and the uſes it was put to in the common affairs of life, ſhew that it was the *kali*, or *calli*, the plant of whoſe aſhes they made a falt uſeful in many arts, and ſtill the baſis of the glaſs and ſoap manufacturers, and called by Avicenna *uſnan*.

CULCUL, a ſort of grain brought from Egypt to Conſtantinople, where it is much eſteemed, eſpecially when freſh. Authors are not agreed what plant it is produced from.

CULDEES, in *Church Hiſtory*, a deſignation given to the monks, or prieſts, in Scotland, in the firſt ages of Chriſtianity, whence the term paſſed into Ireland.

They were called *culdees*, quaſi *cultores dei*, from their great piety and devotion.

CULEUS, the name of a meaſure of liquids, the greateſt of all the meaſures among the Romans: it contained twenty amphoræ. Columella reckons the *culeus* of wine, at the vineyard, to be worth three hundred nummi, or ſeventy-five denarii, that is, according to Engliſh rate, a hundred and forty gallons three pints and an half, for two pounds eight ſhillings and five pence farthing, which is about a halfpenny the pint. Columella, lib. iii. cap. 3.

The *culeus* is, by others, deſcribed to contain 160 congii, or 960 ſextarii. We read of *dolia culearia*, and *ſeſquiculearia*, the latter of which muſt have been very large, being about 34 hogſheads, and therefore larger than our pipes.

The word culeus is uſed alſo by ſome Roman authors for a leather ſack.

CULEX, in *Zoology*, the name of a genus of two-winged flies, comprehending the GNATS and HUMBLE-*bee* flies.

The diſtinguiſhing characteriſtic of this genus is, that their head is furniſhed with a ſiphon, or ſucker, very ſlender, oblong, and filiform.

CULINARY, an epithet frequently added to FIRE; determining it to be a common fire, excited in wood, coals, or other ordinary fuel: in contradiſtinction to ſolar fire, or that raiſed by the action of a burning-glaſs; alſo to central fire; to animal fire, &c.

The word is formed from the Latin *culina*, *kitchen*; this being the chief place of ſuch fires.

Culinary fire, according to Boerhaave, conſiſts of a portion of pure elementary, or ſolar fire, attracted by the oily, or ſulphureous parts of the fuel, with ſuch velocity, as that it moves the ſame, agitates and whirls them violently about, and by degrees breaks and attenuates them; renders them volatile, and diſperſes them in air. The effect of air upon this fire is, to make, as it were, a vault around it, and, by that means, reſtrain and keep it in, determine it upon the ſulphur, and thus prevent its too haſty diſſipation.

CULLIAGE, or CULLAGE, a right uſurped by the ancient lords, and eſtabliſhed by a ſhameful cuſtom, which gave them the firſt night with their vaſſals brides.

The word is formed from the French *cul*, *podex*, the *breech*.

It is ſaid this right was eſtabliſhed by Evenus III. king of Scotland, and finally aboliſhed by Malcolm III. a compenſation being ſettled in its ſtead; as occaſioning frequent revolts of the vaſſals againſt their lords. See MARCHETA.

CULLION, in *Botany*. See ORCHIS.

CULM, among *Botaniſts*, a term expreſſing the STALK of graminous plants.

The *culmus*, and *culmen*, of the Latins, and the καλαμος of the Greeks, are what we call a ſtalk of corn or graſs. In graſſes and corns, the *culm* or ſtalk correſponds to the caudex or trunk in trees; and to the *calamus* in the cyperus and bulruſh: ſo that it generally denotes that part which reaches between the root and the ear, or panicle. Hence it appears in general what plants are of the culmiferous kind: but theſe are variouſly limited by the founders of different botanic ſyſtems, who have adopted them for conſtituting particular *genera* of plants.

CULM. See COAL-*duſt*.

CULMIFEROUS, in *Botany*, a term applied to ſuch plants as have a ſmooth-jointed ſtalk, uſually hollow; the ſtalk wrapped about, at each joint, with ſingle, narrow, ſharp-pointed leaves; and the ſeeds contained in huſky huſks.

Culmiferous plants are divided by Ray into two kinds; thoſe with a *greater*, and thoſe with a *ſmaller* ſeed.

Thoſe with a larger ſeed are called *frumentaceous*, or *cereales*; and are again divided into *ſpicatæ*, as wheat, rye, ſpelt, barley, rice, peas, &c. and *paniculatæ* or *juhatæ*, as oats, ſcordium, milium, and maize.

CULMINATION, in *Aſtronomy*, the tranſit of a ſtar or planet over the meridian, or that point of its orbit wherein it is at its greateſt altitude.

Hence, a ſtar is ſaid to *culminate*, when it paſſes the meridian.

To find the culmination *of a ſtar, or the time wherein it paſſes the meridian.* On a meridian line A B (*Tab.* II. *Aſtronomy*, *fig.* 66.) ſtretch a thread, D C, perpendicularly; and from D to E another, D E, cutting the meridian obliquely, at any angle: the triangular thread, D C E, will cut the plane of the horizon in the meridian line, or at right angles; and conſequently will be in the plane of the meridian.

The eye, therefore, being ſo placed, as that the thread D E may cover the thread D C, will *till the ſtar be biſected by the triangle* D C E; for then the eye and the ſtar will, together with the triangle D C E, be in the ſame plane: conſequently the ſtar is in the meridian.

To find the culmination of a ſtar by the globe, ſee GLOBE.

To find the time of a ſtar's culminating; its right aſcenſion, and the ſun's place in the ecliptic, being given.—From the ſun's place find his right aſcenſion; and from this ſubtract the right aſcenſion of the ſtar: the difference being converted into ſolar time, gives the time elapſed from mid-day to the time of the ſtar's *culmination*.

CULPABILIS. See NON *eſt culpabilis*.

CULPRIT, in *Law*, a term uſed by the clerk of the arraignments, when a perſon is indicted for a criminal matter.

After the indictment is read in court (which is the crown's charge againſt the priſoner at the bar), he is aſked if guilty, or not guilty? If he anſwers, *not guilty*, there is next a replication from the crown, by continuing the charge of guilt upon him; which is expreſſed by pronouncing the word *culprit*: *cul* being an abbreviation of the Latin word *culpa*, *guilt*, or *culpabilis*, *guilty*, and *prit* (now *pret*) the old French word for *ready*; or, as others rather think, the Latin *apparet*, *appears*.

From this formula, therefore, of the clerk of the arraignments, the priſoner is deemed guilty of the crime charged on him; and that the crown is ready to prove it upon him.

That this is the true explanation of the term, ſeems evident from the form of the entry of the record of the trial, when drawn at large.

CULTELLATION, a term which ſome authors uſe for the meaſuring of heights, and diſtances, by piecemeal: that is, by inſtruments which give us ſuch heights and diſtances by parts, and not all at one operation.

CULTIVATOR, in *Huſbandry*, the name given by foreigners to inſtruments uſed for ſtirring the earth, anſwering to our hoife-hoes.

CULTRARIUS. See POPÆ.

CULTURE. See AGRICULTURE, and HORTICULTURE.

CULTURE *of hops*. See HOPS.

CULVERIN, in *War*, a long slender piece of ordnance and artillery, serving to carry a ball to a great distance. Menage derives the word from the Latin *colubrina*; others from *culebr*, *snake*; either on account of the length and slenderness of the piece, or of the ravages it makes.

Of these there are three kinds; viz. the *culverin extraordinary*, the *ordinary*, and the *half fixed*.

The *culverin extraordinary* has 5½ inches bore; its length 32 calibers, or 13 feet; it weighs 4800 pound; its load is above 12 pounds; carries a shot 5 inches ½ diameter, weighing twenty pound weight.

The *ordinary culverin* is 12 feet long; carries a ball of 17 pounds five ounces; caliber 5¼ inches; its weight 4500 pounds.

The *culverin* of the *half size* has its diameter 5 inches; is 12 feet long; weighing about 4000 pounds; carries a shot 3 inches ¾ diameter, weighing 14 pounds 9 ounces. See DEMI-CULVERIN.

CULVERTAIL, in *Ship-Building*, is used for a manner of letting one timber into another, so that they cannot slip asunder. The fastening of a ship's *carlings* into the beam is so performed. See DOVE-TAIL.

CUMAMUS, in the *Materia Medica*, a name given by many of the ancients to CUBEBS.

CUMANDA *Guaro*, in *Botany*, a name for certain very large Indian kidney-beans, which, roasted, contused, and exhibited with an egg, are given for fluxes of the belly: boiled, made into a cataplasm, and applied to the belly, they are said to cure colic pains: and they are in this form applied to posthemations, with a view of resolving them.

CUMBEL, in *Botany*, the name by which the ancient Greek writers have described the *lupulus* or hop, with which we make our malt liquors bitter.

CUMELOBOTANE, in *Modern Greek Writers*, is also a name given to the *lupulus*, or plant, which produces the hops.

CUMIN, CUMINUM, in *Botany*, a genus of the *pentandria digynia* class. Its characters are these: it hath an umbelliferous flower, the involucrum of which is longer than the umbel; the great umbel is uniform, the flowers have five unequal petals, whose borders are inflexed; and five single stamina, with a large germen situated under the flower, supporting two small styles, which afterward becomes an oval striated fruit, compofed of two oval feeds, which are convex, and furrowed on one fide, and plain on the other. We have but one species of this genus.

Miller derives *cumin* from *κυω*, *to bring forth*, because it is said to be effectual in curing sterility.

The seed of this plant is much like that of fennel; and grows abundantly in the isle of Malta, where it is sown and cultivated after the manner of corn.

The French frequently call it *anis aigre*, *sharp* or *sour anise*.

It is used with success in vertigos, wind-colics, tympanies, &c. It is esteemed excellent to retrieve the natural heat in stallions, bulls, &c. Pigeons are exceedingly fond of it; whence some make use of it to stock their dove-houses; incorporating it with an earth naturally saline, or some other earth that has imbibed urine.

This seed, as well as the common anise, yields, by expression, a kind of oil, esteemed sovereign in rheumatisms; provided it be used with precaution, and in small quantities. See CATAPLASMA.

CUMIN, *baftard*, or *wild*, *Cuminoides*, *Lagœcia*, in *Botany*, a genus of the *pentandria monogynia* class. Its characters are these: it hath many flowers collected into a head, in one common empalement, compofed of eight indented leaves: the flower consists of five horned petals, at the bottom of which is situated a pointal, attended by five stamina: the pointal afterward becomes an oval seed, crowned with the empalement. There is only one known species of this plant, which is the *cuminum sylvestre*, or wild *cumin* of authors.

CUMPETES, in the *Materia Medica*, a name given by some of the Greek writers to the *carpesia* of Galen and others. This was an aromatic drug, and was the younger shoots and tender twigs of an odoriferous tree, growing on some mountains in Pamphylia, which were collected in the spring, and, when dried, were used as a succedaneum for the cinnamon. The word *cumpetes* often occurs in Myrepsus; but there is some doubt in the orthography, whether it be *cumpetes* or *cumpepes*: there seems most reason to believe the latter is the proper word. Charito mentions this drug in his antidotes, and the commentators usually explain it by the word *carpesia* or *carpesium*, a name by which they understood, though improperly, the cubebs. The Greeks of the later ages, and the Latin writers who succeeded them, all fell into the same error, of calling the *carpesia* the cubeb; though the accounts of the ancient Greeks are against it. Nay, Avicenna seems to have given into the same error; for he has transcribed into his chapter of cubebs what Galen says of the *carpesia*.

CUN, or CUNNING, at *sea*. See COND.

CUNEI, in *Natural History*, a name given to those *tellinæ*, which have one side of their shell much more extended than the other. See MUSCLE.

CUNEIFORM *leaf*, among *Botanists*. See LEAF.

CUNEIFORME *os*, in *Anatomy*. See SPHENOIDES.

CUNEIFORMIA *ossa* denote the fourth, fifth, and sixth bones of the foot; thus called from their wedge-like shape, being large above, and narrow below. See *Tab. Anat. (Offeol.) fig. 7. lit. c c. fig. 3. n. 27. 27.*

They lie all three aside of one another, and are of different sizes; their upper side convex; and their under hollow, by which means the muscles and tendons in the bottom of the foot are not hurt in walking.

At one end they have each a sinus, which receives the *os naviculare*; and at the other end they are joined each to one of the three inner bones of the *metatarsus*. See Winslow's Anatomy, p. 83, and 100.

CUNETTE, or CUVETTE, in *Fortification*, a deep trench about three or four fathom wide, sunk along the middle of a dry mout, to shade out the water, or to make the passage more difficult to the enemy.

CUNEUS, one of the *mechanical* POWERS; more usually by English writers, called the WEDGE.

CUNEUS, among the Romans, a term often used to signify that part of the theatre where the spectators sat, on account of its resembling the figure of a wedge.

CUNEUS, the WEDGE, was also a form of BATTLE frequent among the Romans.

CUNEUS, *parabolic*. See PARABOLIC *Cuneus*.

CUNICULUS, in *Zoology*, a genus of animals of the *lepus*, or HARE-kind, called in English RABBIT.

CUNICULUS *Americanus*, in *Zoology*, a name given by some to the creature called TAPETI, a small species of rabbit.

CUNICULUS *Brasiliensis*, a species of rabbit called APEREA.

CUNICULUS *Sibericus*, the name of the long-tailed Siberian rabbit, the fur of which is much valued. During the summer months many of them are beautifully variegated with oblique and transverse streaks of black and grey.

CUNICULUS, in *Mining*, a term used by authors, in distinction from *puteus*, to express the several sorts of passages and cuts in these subterranean works. The *cuniculi* are those direct passages in mines, where they walk on horizontally; but the *putei* are the perpendicular cuts or descents.

It is an observation with our miners, that the damps so much dreaded in all mines, happen generally in the horizontal cuts; but Dr. Brown, in his examination of the gold and silver mines in Hungary, observes that they as often happen there in the *putei* or *schachts*, as in the *cuniculi* or *stollen*. Another observation as to damps with us is, that they are most frequent in clayey and soft places under ground; but in those mines they are as frequent where the matter is hard stone; and one of the most mischievous that had then lately happened, was in a place every way surrounded with stone so hard, that the tools of the miners could scarce work through it; and the descent had, in the very spot where the damp was, been made by means of gunpowder. In some of the *cuniculi* in these mines, there are damps that regularly return on certain occasions; as if the lower end of the *cuniculus* be filled up with water, certain parts in going to it are always affected with damps, which will put out a lamp or candle the moment it enters them, and often do great mischief to the miners in passing them. Phil. Trans. N° 48. See DAMP.

CUNILA *bubula*, in *Botany*, a name by which Pliny, and some other authors, have called the wild marjoram or origanum.

CUNILA, in *Botany*. See IRON-*wort*.

CUNILA, in the Linnæan *System*, makes a distinct genus of the *diandria monogynia* class; with a ringent corolla; the upper-lip is erect and plane; there are two torn filaments, and the germen turns to four seeds.

CUNILAGO, in *Botany*, is used by some authors for the *carvon*.

CUNINA, in *Mythology*, a goddess who had the care of little children.

CUNNUS, the PUDENDUM *muliebre*; or the anterior parts of the genitals of a woman, including the *labia pudendi*, and *mons Veneris*.

CUNOCEPHALI, in *Mythology*, from *κυων*, *dog*, and *κεφαλη*, *head*, a kind of baboons, or animals with heads like those of dogs, which were wonderfully endowed and preferred, with great veneration, by the Egyptians, in

in many of their temples. It is related, that, by their assistance, the Egyptians found out the particular periods of the sun and moon; and that one half of the animal was often buried, while the other half survived; and that they could read and write. This strange history, Dr. Bryant imagines, relates to the priests of Egypt, styled *cohen*, to the novices in their temples, and to the examination they were obliged to undergo, before they could be admitted to the priesthood. The Egyptian colleges were situated upon rocks and hills, called *caph*, and from their consecration to the sun, *caph-el*; whence the Greeks deduced κηφην, and from *cohen-caph-el* they formed κοκκηφαξ. So that *cohen-caph-el* was some royal seminary in Upper Egypt, whence they drafted novices to supply their colleges and temples. By this etymology, he explains the above history. The death of one part, while the other survived, denoted the regular succession of the Egyptian priesthood. The *cynocephali* are also found in India, and other parts of the world. These and the *accipitres* were thus denominated from their place of residence, and from their worship. Bryant's Analysis of Ancient Mythology, vol. I. p. 329, &c.

CUNODONTES, a people mentioned by Solinus, and Isidorus, and by them supposed to have the teeth of dogs. They were probably denominated, says Dr. Bryant, from the object of their worship, the deity *Chan-Adon*, which the Greeks expressed Κυνθων, and thence called his votaries *Cunodontes*. Ibid. vol. I. p. 321.

CUNONIA, in *Botany*, a genus of the *decandria digynia* class, with a five-petalled corolla; a five-leaved calyx, a bilocular, acuminated, polyspermous capsule, and styles longer than the flower.

CUP. *Calyx*, a vessel so called, of various forms and uses. In the Ephem. Germanic we have a description of a *cup* made of a common pepper-corn, by Oswald Nerlinger; which holds one thousand two hundred other ivory *cups*, each having its several handle, all gilt on the edges; with room for four hundred more.

CUPS, among *Herbalists*, are those short green husks in which flowers grow; some being divided into two, three, four, five, or six leaves. See CALYX.

CUP-*fountain*. See FOUNTAIN.

CUP-*gall*, in *Natural History*, a name given by authors to a very singular kind of galls found on the leaves of the oak, and some other trees. They are of the figure of a cup, or drinking-glass, without its foot, being regular cones, adhering by their point or apex to the leaf; and the top, or broad part, is hollowed a little way.

Besides this species of gall, the oak-leaves furnish us with several others; some of which are oblong, some round, and others flatted; these are of various sizes, and appear on the leaves at various seasons of the year. They all contain the worm of some small fly; and this creature passes all its changes in this its habitation, being sometimes found in the worm, sometimes in the nymph, and sometimes in the fly state, in the cavity of it. See *Tab. of Insects*, N° 25.

CUP *shell*. See SHELL.

CUPA, among the *Ancients*, a kind of boats, used in laying bridges over rivers, being broad below, and narrow above.

CUPANIA, in *Botany*, a genus of the *monœcia monadelphia* class. The male of this genus hath a three-leaved calyx, a five-petalled corolla, and five stamina; the female hath a three-leaved calyx, three-petalled corolla, a style divided into three parts, a three-celled capsule, and a double seed.

CUPOLA, in *Architecture*, the same with DOME.

The word is Italian, formed of the barbarous Latin *cuppula*, otherwise called *thola*, and *tirsis*.

CUPEL, CUPEL, or COPEL, among *Chemists*, a vessel or utensil, used in the trying and purifying of gold, and silver, called also TEST. See COPPEL.

CUPELLATION, in *Chemistry*. See COPELLING.

CUPPING, an operation in *Chirurgery*, for the discharge of blood, and other humours, by the skin.

It is performed by collecting the humours into a tumor under the *cutis*; and letting them out thence, by scarification; i. e. by several incisions made with a scarificator.

The instruments used herein are the *cucurbitulæ*, or *cupping-glasses*, and *scarificator*: the description of each whereof see under their proper head.

The use of *cupping*-glasses is very extensive, comprehending almost the whole body: but their application is to be considered under two different circumstances; for, they are either applied to the place first scarified with a knife, or to a whole skin. This latter is called dry, and the other sanguineous, or wet *cupping*.

Cupping is performed either *with* or *without fire*.

Cupping with fire is the more usual process; and is commonly, among us, thus effected: the air in the cavity of the cucurbitula is heated, and so rarefied, by the application of the flame of a lamp, or the like; and the vessel immediately applied to the part to be *cupped*.

Others, especially the French, proceed thus: a piece of card is cut round, and a lamp, or four little wax candles, affixed to it: this is placed after the manner of a candlestick on the part whereon the operation is to be performed, and covered with a cucurbitula or *cupping-glass*. After the included air has been well heated and rarefied with the flames of the candles, the glass is clapped close to the skin; which is no sooner touched, than the candles are extinguished, and the tumor is raised.

In *cupping without fire*, instead of rarefying the air included in the *cupping*-glass by heat, it is done by a syringe applied to the neck of the *cupping*-glass, fitted with a brass collar, cap, and valve; the *cupping*-glass being applied to the skin, and the SYRINGE wrought, part of the air is pumped out of the cucurbitula; and thus the tumor rises, as in the former case.

The reason of the phenomenon is this: the air included in the *cupping*-glass being rarefied, a great part of the load which before pressed the part, and kept it down, and which still continues to press the rest of the body, is taken off; upon which the air, known to be contained in the vessels of the body, and mixed with the blood and juices, expands itself, and raises a tumor, carrying with it the fluids wherewith it is mingled.

The operation is performed on the back, and on the breasts and thighs, to stop or promote the menses: on the navel, for the colic. *Cupping* is also used for defluxions on the eyes, for venomous wounds and buboes; on the head, for apoplexies, &c.

In dry *cupping*, before the application of the glass, a lighted candle or fire is to be conveyed into it, that the air being expelled by the heat, the glass may immediately be adapted to, and impressed upon the body, until it adheres firmly; an operation which the practitioners at bagnios perform with great dexterity.

The use of dry *cupping* is twofold; either to make a revulsion of the blood from some particular part affected, or else to cause a derivation of it into the affected part upon which the glass is applied. It is in the first sense that Hippocrates orders a large *cupping-glass* to be applied under the breasts of women, who have a too profuse discharge of the menses, intending thereby to cause a revulsion of the blood upwards to the uterus. And upon the same principle have hæmorrhages at the nose been stopped by applying *cupping*-glasses to the legs and feet, particularly about the ankle and knees. Spitting of blood from the lungs has also been cured by the same method; and Sculletus gives a remarkable instance of a woman, who by the repeated application of six *cupping*-glasses, without scarification, to her thighs, was not only relieved of the troublesome symptoms arising from an obstruction of the menses, but was also freed from the obstruction itself.

Dry *cupping* is also used with success to make a revulsion by applying the glasses to the temples, behind the ears, or to the neck and shoulders, for the removal of pains, vertigoes, and other disorders of the head. They are also applied to the upper and lower limbs, to drive blood and spirits into them when they are paralytic; and lastly, to remove the sciatica, or other pains in the joints. The operation, in these cases, is to be repeated till the part looks red, and becomes painful. Heister's Surgery, p. 308.

CUPPING-*glass*, *cucurbitula*, in *Chirurgery*, a glass vessel, applied to certain parts of the body, to draw the blood and other humours, from within, outwards; to be discharged through several incisions made with a scarificator. See the preceding article.

The vessel is of various dimensions: sometimes, instead of glass, it is made of wood, horn, brass, silver, &c.

CUPRESSUS, in *Botany*. See CYPRESS.

CUPRUM. See COPPER.

CURA *avenacea*, a diet-drink of OATS, much recommended by some authors in various distempers.

CURATAS. See CAZIC.

CURATE is properly a PARSON, or vicar of a parish, who hath the charge or cure of the parishioner's souls.

CURATE is now more generally used for a deputy, or substitute of the parson; or one who officiates in the place of the incumbent, or beneficiary. And in case of plurality of livings, or where a clergyman is old and infirm, it is requisite there should be a curate to perform the cure of the church. He is to be licenced and admitted by the bishop of the diocese, or by an ordinary, having episcopal jurisdiction: and when a curate hath the approbation of the bishop, he usually appoints the salary too; and in such case, if he be not paid, the *curate* hath a proper remedy in the ecclesiastical court, by a sequestration of the profits of the benefice: but if he hath no licence from

the bishop, he is put to his remedy at common law, where he must prove the agreement, &c. Rights of Clergy, 127. By statute, where *curates* are licensed by the bishop, they are to be appointed by him a stipend not exceeding 50 *l.* nor less than 20 *l. per annum*, according to the value of the livings; to be paid by the rector or vicar: and the same may be done on any complaint made. Stat. 12 Anne, c. 2.

There are perpetual *curates* as well as temporary, who are appointed where tythes are impropriate, and no vicarage endowed. These are not removeable, and the impropriators are obliged to find them, some whereof have certain portions of the tythes settled on them. Stat. 29 Car. II.

CURATELLA, in *Botany*, a genus of the *polyandria digynia* class; having a five-leaved calyx, four petals, two styles, a tegumine capsule, with double-seeded cells.

CURATIVE *indication*, among *Physicians*, that which directs what is to be done for the cure of a disease. See SYMPTOM, and INDICATION.

CURATOR, among the Romans, an officer under the emperors who regulated the price of all kinds of merchandize and vendible commodities in the cities of the empire.

They had likewise the superintendence of the customs and tributes; whence also they were called *logistæ*.

CURATOR, in *Civil Law*, a trustee, or person nominated to take care of the affairs and interests of a person emancipated, or interdicted.

In countries where the Roman law prevails, between the age of fourteen and twenty-four years, minors have *curators* assigned them; till fourteen, they have tutors.

CURATOR *of an university*, in the United Provinces, is an elective office, to which belong the direction of the affairs of the university; as, the administration of the revenues, the inspection of the professors, &c.

The *curators* are chosen by the states of each province: the university of Leyden has three; the burgher-masters of the city have a fourth.

CURB, in the *Manege*, a chain of iron fastened to the upper part of the branches of a bridle, in the part called the eye, and running over the horse's beard. Care should be taken that it be neither too long nor too short, and the links be large and smooth.

CURB, in *Farriery*, is a hard and callous swelling on the hind part of the hock, attended with stiffness, and sometimes with pain and lameness. See SPAVIN.

CURCAS, in *Botany*, a name given in Egypt to an esculent root, approaching to the taste and virtues of the *colocasia*.

It is also a name used in Malabar for a small fruit of the shape and size of a hazel nut. Both these things have the credit of being great provocatives; and it is very probable that the *curcas* of the East Indies may be the fruit called *bed* by Avicenna, and said to possess the same famous virtues. Garcias has been led into a very great error by this similarity of names and virtues, and supposes the *curcas* of Egypt the same with the *curcas* of the East Indies.

CURCULIO, in *Zoology*, the name of a genus of beetles, distinguished by having their antennæ affixed to an elongated horny snout. See SCARABÆUS.

CURCUM, in the *Materia Medica of the Arabians*, the name of the large celandine; the roots of which, when dried, were used by the dyers of those times as a yellow colour, and by the physians as deobstruents.

CURCUMA, *turmeric*. See TURMERIC.

CURDLING, the coagulating or fixing any fluid body; particularly milk.

Pausanias says, that Aristæus son of Apollo, and Cyrene daughter of the river Peneus, were the first who found the secret of *curdling* milk.

At Florence they *curdle* their milk for the making of cheese with artichoke flowers, in lieu of the rennet used for the same purpose among us.

The Bisaltæ, a people of Macedonia, Rochfort observes, live wholly upon *curdled* milk, i. e. on curds. He adds, that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

Women newly delivered are subject to have their milk *curdled*, converted into little grumæ, in their breasts, which occasions violent pains, with shiverings in the back.

It is owing to the want of being sucked; whence the method of remedying, and preventing it is apparent.

CURE, in *Medicine*. See PALLIATIVE *cure*.

CURE *of souls*, a benefice, the incumbent whereof has the charge and guidance of the souls of the people within a certain extent of ground called a *parish*.

Such are a vicar, a rector, &c. in contradistinction to a prebend, a dean, a chantor, &c.

CURES, *fens*. See SINE.

CURE, in *Falconry*, the same with CASTING.

CUREMA, in *Ichthyology*, the name of a fish of the mullet kind, but of a remarkable size, growing to two feet long, and having a very large moveable upper lip; the under one being small, triangular in figure, and scarce visible, being something shorter than the upper. Its eyes are large, and its fins of a fine silvery white: in all other respects it resembles the common mullet.

CURETES, in *Antiquity*, a sort of priests, or people of the isle of Crete; called also *corybantes*.

The name *curetes*, according to Strabo, was given them because of their cutting off the hair before, to prevent the enemy's taking hold thereof: the word being Greek, κουρῆτες, of κείρω, *tondere*. from κουρὰ, *tonsa*. Others derive it from κουροτροφία, *the feeding or educating of a child*; because they are said to have educated Jupiter.

The *curetes* are said to have been originally of mount Ida in Phrygia; for which reason they were also called *Idæi Dactyli*. Ovid says, they had their origin from a huge shower of rain: Lucian and Diodorus Siculus represent them as very expert in casting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furnishing them with tabors and castanettas; and relate, that they used to dance much to the noise and clashing thereof.

Some authors, however, give a different account of the *curetes*: according to Pezron, and others, the *curetes* were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, what the druids and bards were afterwards among the Gauls, &c. i. e. they were priests who had the care of what related to religion, and the worship of the gods.

Hence, as in those days it was supposed there was no communication with the gods but by divinations, auguries, and the operations of magic, the *curetes* passed for magicians and enchanters: to these they added the study of the stars, of nature, and poesy; and so were philosophers, astronomers, &c.

Such were the *curetes*, and after them the druids; with this difference, that the *curetes*, in the time of the Titans, went to the wars; for which reason they were armed, and were wonderfully dextrous in dancing, cap-a-pie, shaking their bucklers and javelins; from which action, Pezron conjectures, they took their name *curetes*; *cure*, in the Celtic, being the same with κυρω in the Greek; q. d. *I strike*, or *beat*.

According to Kircher, the *curetes* were what the *spirits* are among the Cabbalists, the *potwers* in Dionysius, the *dæmons* among the Platonists, and the *genii* among the Egyptians.

Vossius, De Idololat. distinguishes three kinds of *curetes*; those of Ætolia, those of Phrygia, and those of Crete, who were originally derived from the Phrygians.

The first, he says, took their name from κυρη, *tonsure*; because, from the time of a combat, wherein the enemy seized their long hair, they always kept it cut: those of Phrygia and Crete, he supposes, were so called from κυρος, *young man*; because they were young; or because they nursed Jupiter when he was young.

CURFEU, q. d. *couvre-feu*, a signal of retreat, given in cities taken in war, &c. to advertise the inhabitants to go to bed, and not to stir out any more.

The *curfeu-bell*, wherewith the signal was anciently given, was sometimes hung up as a punishment of sedition. Pasquier says, it was called *curfeu*, and *gorefeu*; as being intended to advertise the people to secure themselves from the robbers and debauchees of the night.

The most ancient *curfeu* was that established in England by William the Conqueror; who appointed, under severe penalties, that, at the ringing of a bell at eight o'clock in the evening, every one should put out their lights, cover, or rake up their fires, and go to bed. Whence, to this day, where a bell is accustomed to be rung about bed-time, it is called *curfeu-bell*. It was abolished by Henry I.

CURIA, in our *Ancient Customs*. It was usual for the kings of England to summon the bishops, peers, and great men of the kingdom, to some particular place, at the chief festivals in the year; and this assembly is called by our historians, *curia*; because they were consulted about the weighty affairs of the nation: whence it was sometimes also called *solemnis curia*, *generalis curia*, *Augustalis curia*, and *curia publica*, &c.

CURIA *adviſare vult*, in *Law*, is a deliberation which the court sometimes take, before they give judgment in a cause wherein there seems to be any point of difficulty.

CURIAM, *accedas ad*. See ACCEDAS.

CURIÆ, *auxilium*. See AUXILIUM.

CURIA *borenum*. See COURT-*baron*.

CURIA *claudenda*, is a writ that lies against him who should fence and inclose the ground, but refuses or defers to do it.

CURIA *militum*, a court ſo called; anciently held at Cariſbrook caſtle, in the iſle of Wight.

Et ideo dominus Willielmus de inſula facere debit ſectum ad curiam *domini caſtri de Cariſbroc, de tribus ſeptimanis in tres ſeptimanas, in* curia *quæ vocatur* curia militum.

CURIA, *rectus in.* See RECTUS.

CURIA, among the Romans, denoted a portion, or diviſion, of a tribe.

In the time of Romulus, a tribe conſiſted of ten *curiæ*, or a thouſand men; each *curia* being one hundred: that legiſlator made the firſt diviſion of his people into thirty *curiæ*.

Afterwards, *curia*, or *domus curialis*, became uſed for the place where each *curia* held its aſſemblies.

Hence, alſo, *curia* paſſed to the ſenate-houſe; and it is from hence the moderns come to uſe the word *curia*, COURT, for a place of juſtice, and for the judges, &c. there aſſembled.

Varro derives the word from *cura*, *care*, q. d. an aſſembly of people charged with the care of public affairs: others deduce it from the Greeks; maintaining, that at Athens they called *κυρια* the place where the magiſtrate held his aſſiſes, and the people uſed to aſſemble: *κυρια*, again, may come from *κυρος*, *authority*, *power*; becauſe it was here the laws were made.

CURIALITAS *Angliæ*. See COURTESY *of England*.

CURIASSIERS, in *War*, horſemen that wear armour. Theſe have ſometimes only breaſt-plates.

CURIATA *comitia*. See COMITIA *curiata*.

CURIACACA, in *Ornithology*, the name of a Braſilian bird, called *maſarina* by the Portugeſe. It is a very large bird, approaching to the ſize of a gooſe, but in ſhape reſembling the curlew. Its beak is ſix fingers breadth long; its head and neck are covered with white and yellow feathers; and its whole body is black, except that on the back, the head, and the lower part of the belly, it has a greyiſh caſt. It is much eſteemed at table. There is another ſpecies of it ſmaller than the former, not exceeding the ſize of a pullet. It is common about the rivers.

CURIMATA, in *Ichthyology*, a name by which ſome authors have called the LAVARETUS, a ſmall fiſh, of a ſort of middle nature, between truttaceous and the herring kind, and caught in the American and German lakes.

CURING, is uſed for the preſerving fiſh, fleſh, and other animal ſubſtances, by means of certain additions of things, to prevent putrefaction. One great method of doing this, is by ſmoaking the bodies; that is, the making them imbibe a great quantity of vegetable fumes; for this is uſually done where wood is burnt. The reaſon of this ſort of preſervation is eaſily ſeen by the curious enquirer, ſince wherever wood, or any vegetable of the acid tribe is burnt, the acid particles go off with the ſmoke, and in this form penetrate into, and lodge themſelves in animal ſubſtances expoſed thereto; by which means this ſmoke acts upon them in the ſame manner that the fumes of ſpirit of nitre would do: and whether it be not a nitrous acid that tinges hams, herrings, &c. to a redneſs in the drying, is a ſubject worth enquiry. Shaw's Lectures, p. 158.

CURIO, the chief, and prieſt of a CURIA.

Romulus, upon dividing the people into *curiæ*, gave each diviſion a chief, who was to be prieſt of that *curia*, under the title of *curio*, and *flamen curialis*.

His buſineſs was to provide and officiate at the ſacrifices of the *curia*; which were called *curionia*; the *curia* furniſhing him with a ſum of money on that conſideration: which penſion or appointment was called *curionium*.

Each diviſion had the election of its *curio*; but all theſe particular *curiones* were under the direction of a ſuperior, or general, called *curio maximus*; who was the head of the body, and elected by all the *curiæ*, aſſembled in the *comitia curialis*.

All theſe inſtitutions were introduced by Romulus, and confirmed by Numa, as Halicarnaſſeus relates it. Godwyn will have two *curiæ* in each *curia*.

CURIOSUS, an officer of the Roman empire, during the middle age, appointed to take care that no frauds and irregularities were committed; particularly no abuſes in what related to the poſts, the roads, &c. and to give intelligence to the court of what paſſed in the provinces. This made the *curioſi* people of importance; and put them in a condition of doing more harm than they prevented: on which account, Honorius caſhiered them, at leaſt in ſome parts of the empire, anno 415.

The *curioſi* came pretty near to what we call *controllers*: they had their name from *cura*, *care*; *quod curis agendis & exercitiosus curſus publici inſpiciendis operam darent.*

CURIOSI *Naturæ*, *Academy of the*. See ACADEMY.

CURLEW, the Engliſh name of the ARQUATA or *numenius*.

Curlews frequent our coaſts in winter in large flocks, but retire to breed in ſummer on the more mountainous parts of the country. Their fleſh is rank and fiſhy, though ſome have highly commended it.

CURLEW, *Jack*, a ſpecies of the CHARADRIUS. It is a migratory bird, appears in England about the middle of April, and retires in autumn. It is remarkable for a piercing ſhrill noiſe, which it begins in the evening: it breeds in rabbit-burrows, and alſo lays its eggs, which are two, of a copper colour, among the ſtones on the bare ground. It feeds in the night on worms and caterpillars, and it is ſaid they will catch mice. Its fleſh is eſteemed very delicate food. In habit, make, and manners, this bird approaches near to the BUSTARD.

CURMI, a name given by the ancients to a ſort of malt liquor or ale. It was made of barley, and was drank by the people of many nations inſtead of wine, according to Dioſcorides's account. He accuſes it of cauſing pains in the head, generating bad juices, and diſordering the nervous ſyſtem. He alſo ſays, that in the weſtern parts of Iberia, and in Britain, ſuch a ſort of liquor was in his time prepared from wheat inſtead of barley.

CURNOCK, a meaſure of corn, containing four buſhels or half a quarter.

CURRANT-*tree*, *vibes*, in *Botany*, a genus of the *pentandria monogynia* claſs. Its characters are theſe: the flower has a bellied empalement, cut at the top into five obtuſe concave ſegments: it has five ſmall, obtuſe, erect petals, growing to the border of the empalement; and five awl-ſhaped ſtamina inſerted in the empalement, terminated by incumbent compreſſed ſummits. A roundiſh germen is ſituated under the flower, ſupporting a biſid ſtyle, crowned by obtuſe ſtigmas; which afterward becomes a globular umbilicated fruit, with one cell, containing many roundiſh compreſſed ſeeds. There are four ſpecies. The *currant*-tree is ſaid to have been firſt brought from the iſle of Zant belonging to Venice, and planted in England in the year 1533.

The firſt ſort grows naturally in the northern parts of Europe, but has been long cultivated in the gardens and greatly improved; ſo that at preſent there are tho following varieties in the Engliſh gardens; viz. The common *currant* with ſmall red fruit, the ſame with white fruit, and another with pale fruit, which is commonly called the Champagne *currant*: but ſince the two ſorts of Dutch *currants* have been introduced, and become common in the gardens, the old red and white *currants* have been almoſt baniſhed. The ſecond ſort, called the ſweet alpine *currant*, is kept in a few gardens for the ſake of variety; but as the fruit is very ſmall, and has little flavour, it is not much cultivated. The third ſort, which is a black *currant*, grows naturally in Helvetia, Sweden, and other northern countries; and is ſometimes cultivated in gardens for its fruit, of which is made a rob very much eſteemed for ſore throats; from whence the fruit has been called ſquinancy berries, on account of their great uſe in quinſies. As this fruit has a ſtrong diſagreeable flavour, it is ſeldom admitted to the table. The fourth ſort grows naturally in Penſylvania; but the fruit does not merit cultivation.

The fruit of the red and white *currants*, are greatly eſteemed for the table, and are alſo very good in fevers: they are cooling and grateful to the ſtomach, quench thirſt, and are ſomewhat reſtringent. The jelly made with the juice of this fruit and ſugar, is very grateful in fevers, and is uſed as ſauce to the table. This fruit may be procured good much longer than moſt others, upon the plants, by planting them in different ſituations; for if they are planted againſt pales or walls expoſed to the ſouth, the fruit will ripen in June; and by planting ſome againſt north walls, if they are ſcreened from birds, and covered from the autumnal froſts, they may hang until November; and as the fruit is greatly uſed for tarts, it is very convenient to keep a ſucceſſion of them for ſo long a time.

The ſeveral ſpecies of *currants* are very eaſily propagated, by planting their cuttings any time from September to March, upon a ſpot of freſh earth, which muſt be carefully kept clear from weeds in the ſpring; and in the dry weather, the young plants muſt be frequently watered. When they have ſtood about two years in this place, they will be fit to tranſplant to the places were they are to remain; and this ſhould be done when the leaves are juſt decayed, that they may have time to be rooted before winter. If they are for ſtandards, they ſhould be planted in rows of ten feet diſtance from one another, and the trees in each row four feet from each other; but the much better way is to train them in eſpaliers, in which ſtate they take up much leſs room, and their fruit is much the finer. They ſhould be placed at eight feet diſtant in eſpaliers, and all their branches trained horizontally. They are to be allowed the ſame diſtance when ſet againſt walls or pales.

Currant-trees produce their firſt fruit on the former year's wood.

wood, and alſo on ſmall ſhags that come out of the old wood. This may give a caution as to the manner in which they are to be pruned.

They will thrive in any ſoil, or ſituation; but this fruit is always beſt taſted when they grow in a dry ſoil, and an open ſpot of ground. Miller.

CURRANTS, in *Commerce*, a kind of little raiſins, or dried grapes of different colours black, white, or red, brought from ſeveral places of the Archipelago, and among others from the iſthmus of Corinth; whence their name, *currants, q. d. Corinths*.

They muſt be choſen new, ſmall, and in large maſſes; and care be taken, that the little Spaniſh *currants* be not ſolſted in their room. When made up in bales, they may keep two or three years, without ſtirring, or giving them air. Their uſe is in ſeaſoning ſeveral viands, and in ſome medicinal compoſitions; where they ſerve in lieu of raiſins. Sir George Wheeler's account of theſe fruits, and the manner of preparing them, is very curious. The iſland of Zant, he obſerves, is the chief place whence *currants* are brought: the *Morea*, or the iſthmus of Corinth, which was anciently the principal plantation, and whence the Latins denominated them *uvæ Corinthiacæ*, now produces no more, as having been much neglected; the jealouſy of the Turks not allowing large veſſels to enter the gulf to take them off their hands.

They do not grow on buſhes, like our gooſeberries, though that be the common opinion, but on vines, like other grapes; except that the leaves are ſomewhat thicker, and the grapes ſomewhat ſmaller: they have no ſtone, and in this country, are all red, or rather black.

They gather them in Auguſt, diſpoſe them in couches on the ground till they be dry, clean them, and lay them up in magazines, which the natives call *ſeraglios*; pouring them in at a hole, till the magazine be full. They cling ſo faſt together by their own weight, that they are forced to be dug out with iron inſtruments.

To barrel them for ſending abroad, they have people who greaſe their feet and legs, and tread them cloſe, that they may keep the better. They are ſold for about twelve crowns the thouſand weight; and pay as much cuſtom to the ſtate of Venice.

Zant produces enough yearly to load five or ſix veſſels; Cephalonia three or four; and the other iſlands one; The Engliſh have a factory at Zant; the Dutch two or three merchants, and the French one: the Engliſh conſuming more than ſix times the quantity that both France and Holland do together. Thoſe of Zant know but little of the uſe we make of them; being perſuaded they only ſerve in dyeing of cloth; and being entirely ignorant of the luxury of Chriſtmas pyes, and Engliſh puddings.

CURRANT, or COURANT *money*, good money, or that which paſſes in commerce from one to another. See COURANT.

CURRANT *accompts*. See BOOK.

CURRANT *coins*. See COINS.

CURRANT *price*. See PRICE.

CURRANT, *Currants*, alſo denotes a ſort of running French dance; ſometimes a muſical air in triple time. See COURANT.

CURRE, an Engliſh name for the fiſh called by authors *cuculus*, and by us more frequently named the *red* GURNARD.

CURRENCY. *Paper currency*, with reſpect to the Britiſh colonies in America.

On the firſt ſettlement of theſe colonies, an Engliſh crown was five ſhillings in denomination; but the trade there was chiefly carried on by exchanging one commodity for another, and with little or no ſilver or gold: ſugar, tobacco, and rice, ſerved as a medium for trade in ſome of the plantations.

As the American commerce flouriſhed, foreign ſpecie were introduced, and became a medium for trade; and bills of credit, commonly called paper credit, or paper *currency*, were remitted to ſome colonies by their governments, to be diſcharged by a tax or otherwiſe, at certain times to come, which added to their medium of trade and circulation, and anſwered the intention of theſe colonies while they kept within due bounds.

As the ſaid ſilver coin went by tale, and were not milled, they were clipped to ſuch a degree, that the exchange to England varied in proportion; and the paper *currency* alſo varied in value, and was depreciated in ſeveral of the colonies, occaſioned by their remitting more than their trade and property could bear, or from ſome other miſtaken conduct.

Now for the better regulating all money and exchange throughout his majeſty's colonies and plantations in America, it may be propoſed that there be an equal and fixed price for ſilver throughout all thoſe colonies; and that all contracts or bargains from ſome certain day to come, be made for ſuch money; and ſuch money to be accounted, received, taken, paid, ſued for, and recovered accordingly. And no recovery to be made for any money of different ſorts or denominations, that ſhall be contracted for after ſuch time, except for ſuch money and at ſuch prices as ſhall thus be ſettled. This will naturally be called ſterling money, proclamation money, or new money; and what is now *currency*, be it what it will, will be called old *currency* or old money.

Notwithſtanding ſuch a regulation, there would ſtill be a ſmall exchange in the ſeveral plantations, in proportion to the riſk, charge, and other incidents attending the tranſporting money from one colony to another: but every one for the future may expect an equal value upon the repayment of the money he ſhall credit, lend, or trade for, without having the value of his property diminiſhed by any law or cuſtom while it is in other people's hands, which is the principal aim of the propoſition.

CURRENT, *from curro, I run*: in *Hydrography*, a ſtream or flux of water in any direction. The ſetting of the *current*, is that point of the compaſs towards which the waters run; the drift of a *current*, is the rate it runs an hour.

Currents, in the ſea, are either *natural* and *general*, as ariſing from the diurnal rotation of the earth on its axis; or *accidental* and *particular*, cauſed by the waters being driven againſt promontories, or into gulfs and ſtreights, where, wanting room to ſpread, they are driven back, and thus diſturb the ordinary flux of the ſea.

The *currents* are ſo violent under the equator, where the motion of the earth is the greateſt, that they carry veſſels very ſpeedily from Africa to America; but abſolutely prevent their return the ſame way: ſo that ſhips are forced to run as far as the fortieth degree of latitude, to find a paſſage into Europe.

In the Streights of Gibraltar, the *currents* almoſt conſtantly drive to the eaſtward, and carry ſhips into the Mediterranean: they are uſually, too, found to drive the ſame way in St. George's channel. The great violence and danger of the ſea in the Streights of Magellan, is attributed to two contrary *currents* ſetting in, one from the South, and the other from the North ſea.

CURRENTS, with reſpect to *Navigation*, may be defined, certain progreſſive motions of the water of the ſea, in ſeveral places; by which a ſhip may happen to be carried forward more ſwiftly, or retarded, in her courſe, according to the direction or ſetting of the *currents* in, with, or againſt, the courſe or way of the ſhip.

The buſineſs of *currents* making a conſiderable article in navigation; the way they ſet, together with their ſtrength is to be carefully obſerved: this ſome do by the ripplings of the water, and by the driving of the froth along the ſhore, when in ſight of it; but the moſt uſual, as well as more ſecurate way, is thus: they firſt fix their boat, by throwing out a triangular piece of wood, with a piece of lead faſtened to it, and tied to the ſtem of the boat with a cord, and letting it ſink eighty or a hundred fathom; or ſometimes, by a kettle tied by the bowl, and ſunk, as the other. By either of theſe means, the boat is brought to ride as at anchor; which done, the log is caſt over, the glaſs turned, and as the log-line veers out, the drift of the log is ſet with the compaſs. See CALM.

This ſhews whether there be any *current*, or none; and if any, which way it ſets, and at what rate it drives: obſerving, however, to add ſomething to the driſt, for the boat's driſt; for though the appear to ſtand ſtill, yet, in reality, ſhe is found to move. This addition, experience has thus determined: if the line the ride by be ſixty fathom, a third part of the driſt to be added; if eighty fathom, a fourth; if a hundred, a fifth.

If a ſhip ſail along the direction of a *current*, it is evident the velocity of the *current* muſt be added to that of the veſſel: if her courſe be directly againſt the *current* it muſt be ſubtracted: if the ſail athwart the *current*, her motion will be compounded with that of the *current*; and her velocity augmented, or retarded, according to the angle of her direction with that of the direction of the *current*; i. e. ſhe will proceed in the diagonal of the two lines of direction, and will deſcribe or paſs through that diagonal in the ſame time wherein ſhe would have deſcribed either of the ſides, by the ſeparate forces.

To determine a ſhip's courſe and diſtance, ſailing obliquely with, or againſt, a current. Suppoſe, v. gr. the ſame N. E. 110 miles, in a *current* which ſets S. W. 30 miles in the ſame time: to ſolve the problem geometrically; ſet off four points from N towards E (*Tab. Navigation. fig.* 15.), and draw AC equal to 110 miles; from C draw CB, parallel to the line NNE, and equal to 30 miles: laſtly, draw AB, which will be the ſhip's true courſe and diſtance.

To

To find which trigonometrically. In the triangle A B C, there are given A C 110, B C 30, and the angle C 22° 30′; then, A C + B C : A C — B C :: 4, ½ A + B : 1, ½ B — A.* That is, as the sum of A C and B C, viz. 140, is to their difference 80, so is the tangent of 78° 45′ to the tangent of 70° 30′. Hence her true course appears to be N. E. 70° 30′, easterly. For her distance; as the sine of the angle A, 70° 30′, is to the drift of the *current* B C, 30, so is the sine of the angle at C 22° 30′, to the distance run, viz. 83 miles.

CURRENTS. *Under*, are distinct from the upper or apparent, and in different places set or drive a contrary way. Dr. Thomas Smith, Phil. Trans. N° 158. or Abr. vol. ii. p. 284, 289, makes it highly probable, that in the Downs, in the Straights of Gibraltar, &c. there is an *under current*, whereby as much water is carried out, as is brought in by the *upper-current*.

This he argues from the ebbing between the North and South Foreland, where it runs tide and half-tide, i. e. it is either ebb or flood in that part of the Downs three hours before it is so off at sea: a certain sign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, i. e. close by the ground; and so at the tide of ebb it will flow under-foot.

This he confirms by an experiment in the Baltic Sound, communicated to him by an able seaman present at the making it: being there, then, with one of the king's frigates, they went with their pinnace into the midstream, and were carried violently by the *current*. Soon after that, they sunk a basket with a large cannon-bullet, to a certain depth of water, which gave check to the boat's motion; and sinking it still lower and lower, the boat was driven a-head to the windward, against the *upper-current*; the *current* aloft not being above four or five fathom deep. He added, that the lower the basket was let down, the stronger the *under-current* was found.

From this principle, it is easy to account for that continual in-draught of water out of the Atlantic into the Mediterranean, through the Streights of Gibraltar; a passage about twenty miles broad: yet, without any sensible rising of the water along the coasts of Barbary, &c. or any overflowing of the lands, which there lie very low.

Dr. Halley solves the *currents* setting in at the Streights without overflowing the banks, by the great evaporation; without supposing any *under-currents*.

CURRICULUS, in our *Ancient Writers*, denotes the year, or course of a year.

Actum est hoc annorum dominicæ incarnationis quater quinquagenis & quinquies quinis ludtris, & tribus curriculis; i. e. in the year 1023 for four times fifty makes two hundred, and five times two hundred makes one thousand; five *lustres* are twenty-five years, and three *curriculi* are three years.

CURRIED *hide*. See HIDE.

CURRIERS are those who dress and colour leather, after it comes from the tan-yard. If *curriers* do not curry leather that is sent to them, within sixteen days between Michaelmas and Lady-day, and in eight days at other times, they are liable to a forfeiture of 5 *l.* on conviction before a justice, to be levied by distress, &c. but subject to a mitigation. 12 Geo. II. c. 25.

CURRODREPANUS, formed of *currus*, *chariot*, and *serra*, *scythe* or *sickle*; in *Antiquity*, a kind of chariot armed with scythes. The driver of these chariots was obliged to ride on one of the horses, as there was no other seat for him; the usual place for him being all armed with knives, as was likewise the hinder part of the chariot. There were no scythes pointing down to the earth, either from the beam or axle-tree; but these were fixed at the head of the axle-tree in such a manner, as to be moveable by means of a rope, and thereby could be raised or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRY-*comb*, an instrument full of small teeth, used for currying horses.

CURRYING is the art of dressing cow-hides, calves-skins, seal-skins, &c. principally for shoes: and this is done either upon the *flesh* or the *grain*.

In dressing leather for shoes on the *flesh*, the first operation is soaking the leather in water, until it be thoroughly wet; then the flesh-side is shaved on a *beam*, about seven or eight inches broad, with a knife of a peculiar construction, to a proper substance, according to the custom of the country, and the uses to which it is to be applied. This is one of the most curious and laborious operations in the whole mystery of *currying*. The knife used for this purpose is of a rectangular form, with two handles, one at each end, and a double edge. They are manufactured at Cirencester, and composed of iron and steel: the edge is given to them by rubbing them on a flat stone of a sharp gritty substance, till it comes to a kind of wire; this wire is taken off by a fine stone; and the edge is then turned to a kind of groove wire by a piece of steel, in form of a bodkin, which steel is used to renew the edge in the operation.

After the leather is properly shaved, it is thrown into the water again, and *scoured* upon a board or stone commonly appropriated to that use. *Scouring* is performed by rubbing the grain of hair side with a piece of pumice-stone, or with some other stone of a good grit, not unlike in thickness and shape to the slate with which some houses are covered. These stones free out of the leather a white sort of substance, called the *bloom*, produced by the oak-bark in tanning. The hide or skin is then conveyed to the shade or drying place, where the oily substances are applied, termed *stuffing* or *dubbing*: the oil used for this purpose is prepared by the oil-leather-dressers, by boiling sheep-skins or doe-skins in cod oil. This is put on both sides of the leather, but in a greater and thicker quantity on the *flesh*, than on the *grain* or hair-side.

Thus we have pursued the *currying* of leather in its wet state, and through its first stage, commonly called *getting out*.

When it is thoroughly dry, an instrument with teeth on the under-side, called a *graining board*, is first applied to the flesh-side, which is termed *graining*: then to the grain-side, called *brushing*: the whole of this operation is intended to soften the piece of leather, to which it is applied. *Whitening* or *paring* succeeds, which is performed with a fine edge on the knife already described, and used in taking off the grease from the flesh. It is then *boarded up* or *grained again*, by applying the graining board, first to the grain, and then to the flesh.

It is now fit for *waxing*, which begins with *colouring*. This is performed by rubbing with a brush dipped in a composition of oil and lamp-black on the flesh, till it be thoroughly black: it is then *fixed*, called black fixing, with a brush or sponge, dried, tallowed with a woollen cloth, and *stuffed* upon the flesh with a broad smooth piece of glass, fixed again with a sponge: and when dry, this sort of leather, called *waxed* or *black on the flesh*, is *curried*.

Currying leather on the hair or grain-side, termed *black on the grain*, is the same in the first operation with that dressed on the *flesh*, till it is coloured. Then the first black is applied to it, while wet; which black is a solution of copperas in fair water, or in the water in which the skins, as they come from the tanner, have been soaked: this is first put upon the grain, after it has been rubbed with a stone; then rubbed over with a brush dipped in stale urine; flicked out with an iron flicker, in order to make the grain come out as fine as possible; and then *stuffed*, in the manner already described among the first operations of *currying*: and when dry, it is *soaped*, i. e. rubbed over with a brush dipped in copperas water on the grain, till it be perfectly black; then flicked with a stone of a good grit, to take out the wrinkles and coarse grain as much as possible: after this the grain is raised with a fine graining board, by turning the skin or piece of leather in various directions; and when a little dried, it is *bruised*, in order to soften it. When it is thoroughly dry, it is *whitened*, bruised again, and grained in two or three different ways; and when oiled upon the grain with a mixture of oil and tallow, it is finished.

Bull and cow-hides are sometimes *curried* for the use of sadlers and collar-makers; but the principal operations are much the same as those we have already described. It should, however, be observed, that only a small portion of flesh is taken off from the hides designed for these purposes. Hides for the roofs of coaches, &c. are shaved nearly as thin as shoe-hides, and blacked on the grain.

CURSED. See ACCURSED, and CORZED.

CURSITOR, an officer or clerk belonging to the court of chancery, who maketh out original writs.

These are also called *clerks of the course*, and are twenty-four in number: making a corporation of themselves. To each of them are allotted several shires; in which shires they make out such original writs as are by the subject required.

CURSOR, a little ruler, or label of brass, divided like a line of sines, and sliding in a groove, or notch, along the middle of another label, or ruler, representing the horizon, and always at right angles to it. It is used in the analemma.

CURSOR is also used for a point screwed on the *beam*-COMPASS: and which may be moved, or slidden along the beam thereof, for the striking of greater or less circles.

CURTAILING, in the *Manage*, the docking, or cutting off a horse's tail.

The practice of *curtailing* is no where in vogue so much as in England; it being a popular opinion, that the cutting off the tail renders the horse's chine or back the stronger, and more able to bear burdens.

The amputation is usually made between the fourth and fifth joints of the tail; a ligature being first tied right about the place, to prevent the flux of blood; and the raw stump afterwards seared up with a hot iron, till the extremities of the vessels be all stopped.

This absurd and barbarous custom is now in great measure out of fashion, and horses are allowed to enjoy the use, and retain the beauty of their tails, as given to them by nature.

CURTAIN, in *Fortification*. See CURTIN.

CURTAINS, in a *Ship-ship*, are pieces of coarse canvas, about three quarters of a yard wide, and a yard long, thickened in a melted composition of pitch, sulphur, rosin, tallow, and tar, and covered with saw-dust on both sides.

CURTATE *distance*, in *Astronomy*, the distance of a planet's place from the sun, reduced to the ecliptic; or, the interval between the sun, and that point where a perpendicular let fall from the planet, meets with the ecliptic.

CURTATION, in *Astronomy*, the interval between a planet's distance from the sun, and the *curtate* distance.

From the preceding article, it is easy to find the *curtate* distance; whence the manner of constructing tables of *curtation* is obvious.

The quantity of inclination, reduction, and *curtation* of a planet, depending on the argument of the latitude, Kepler, in his Rodolphin Tables, reduces the tables of them all into one, under the title of Tabulæ Latitudinariæ.

CURTESY. See COURTESY.

CURTEYN, *Curtana*, a name given to king Edward the Confessor's sword, which is the first sword that is carried before the kings of England at their coronation.

It is said, the point of it is broken, as an emblem of mercy.

CURTICONE, in *Geometry*, a cone whose top is cut off by a plane parallel to its basis; called also TRUNCATED *cone*.

CURTILAGE, *Curtilagium*, in *Law*, a yard, backside, or piece of ground, lying near a dwelling-house.

CURTILLA, in *Zoology*, a name given by some to the *cervus sylvaticus* of Gesner.

CURTIN, CURTAIN, or COURTINE, in *Fortification*, that part of a wall or rampart, which is between two bastions; or which joins the FLANKS thereof. See *Tab. Fortification, fig.* 21. *lit. q q.*

Du-Cange derives the word from the Latin *cortina quasi minor cortis*, a little county-court, inclosed with walls: he says, it was in imitation hereof, that they gave this name to the walls and parapets of cities, which inclose them like courts: he adds, that the *curtains* of beds take their name from the same origin; that *cortis* was the name of the general's, or prince's tent; and that those who guarded it were called *cortinarii* and *curtisani*.

The *curtain* is usually bordered with a parapet five feet high; behind which the soldiers stand to fire upon the covert-way, and into the moat.

Besiegers seldom carry on their attacks against the *curtin*, because it is the best flanked of any part.

CURTIN, *angle of the*. See ANGLE.

CURTIN, *compliment of the*. See COMPLIMENT.

CURVATAPINIMA, in *Ichthyology*, a name by which some authors call the fish more frequently named the BONITO.

CURVATOR *coccygis*, in *Anatomy*, a name given by Albinus to a muscle of the coccyx discovered by himself, and not described by any other author. It is an oblong, thin, and small muscle, and for the most part tendinous. It arises with a double head, one from the inner, and the other from the lower and lateral part of the *os sacrum*; and descending, terminates in three extremities. He calls it the *curvator coccygis*, from its office, which is the bending the coccyx; and says, that he found it in different states, in three subjects: one very perfect and entire; in a second, more imperfect and degenerating; and in the third, resembling a ligament rather than a muscle.

CURVATURE *of a line*, is its bending, or flexure; whereby it becomes a curve, of any peculiar form and properties.

Thus, the *curvature* of the circle is such, as that all points of the periphery are equally distant from one point within, called the *centre*.

The *curvatures* of different circles are to each other reciprocally as their radii.

The theory of the *curvature* of lines is of great use in geometry, in the physico-mathematical sciences. Hence mathematicians have treated this subject fully. We shall here insert as much of this doctrine as seems necessary to enable beginners to form a just notion of the subject, and refer those who desire a farther knowledge to Mr. Mac Laurin's Treatise of Fluxions, whom we have in this, as in many other articles, followed; because he every where endeavours to avoid that air of paradox and mystery, which has been more than once made a reproach to modern mathematicians.

Any two right lines applied to each other, perfectly coincide; and the rectitude of lines admits of no variety. Arches of equal circles applied upon each other, perfectly coincide likewise; and the *curvature* is uniform in all the parts of the same, or of equal circles. Arches of unequal circles cannot be applied upon each other so as to coincide; but when they touch each other, the arch of the greater circle is less inflected from the common tangent, and passes betwixt it and the arch of the lesser circle, through the angle of contacts formed by them, and is therefore less curve. Any two arches of curve lines touch each other when the same right line in the tangent of both at the same point; but when they are applied upon each other in this manner, they never perfectly coincide, unless they be similar arches of equal and similar figures: and the *curvature* of lines admits of indefinite variety. As the *curvature* is uniform in a given circle, and may be varied at pleasure in circles by increasing or diminishing their diameters, their flexure or *curvature* will therefore serve for measuring that of other lines. Only one right line can be the tangent of a given arch of a curve at the same point; but an indefinite variety of circles may touch it there; and these have various degrees of more and less intimate contact with it. And as of all the right lines that can be drawn through a given point in the arch of a curve, that is the tangent which touches the arches so closely that no right line can be drawn between them; so of all the circles that touch a curve in any given point, that is said to have the same *curvature* with it, which touches it so closely that no circle can be drawn through the point of contact between them, all other circles passing either within or without them both.

This circle is called the *circle of curvature*; its centre, the *centre of curvature*; and its semidiameter, the *ray* or *radius of curvature*, belonging to the point of contact. It is also called, especially by foreign mathematicians, the *osculatory circle*.

The arch of this circle cannot coincide with the arch of the curve, but it is sufficient to denote it the circle of *curvature*, that no other can pass between them; as the tangent of the arch of a curve cannot coincide with it, but is applied to it so that no right line can be drawn between them.

As in all figures, rectilinear ones excepted, the position of the tangent is continually varying; so the *curvature* is continually varying in all curvilinear figures, the circle only excepted.

As the curve is separated from its tangent by its flexure or *curvature*, so it is separated from the circle of *curvature* in consequence of the increase or decrease of its *curvature*; and as its *curvature* is greater or less, according as it is more or less inflected from the tangent, so the variation of *curvature* is the greater or less, according as it is more or less separated from the circle of *curvature*.

It is manifest that there is but one circle of *curvature* belonging to an arch of a curve at the same point. For if there were two such circles, any circle described between these through that point, would pass between the curve and circle of *curvature*; against the supposition.

When any two curves touch each other in such a manner that no circle can pass between them, they must have the same *curvature*; for the circle that touches the one so closely that no circle can pass between them, must touch the other in the same manner.

It appears from the demonstration of geometricians, that circles may touch curve lines in this manner; that there may be indefinite degrees of more or less intimate contact between the curve and the circle of *curvature*; and that a conic section may be described that shall have the same *curvature* with a given line at a given point, and the same variation of *curvature*, or a contact of the same kind with the circle of *curvature*.

If we conceive the tangent of any proposed curve to be a base, and that a new line be described, whose ordinate is a third proportional to the ordinate and base of the first; this new line will determine the chord of the circle of *curvature*, by its intersection with the ordinate at the point of contact; and by the tangent of the angle in which it cuts that circle, it will measure the variation of the *curvature*. The less this angle is, the closer is the contact of the curve and circle of *curvature*; and of this contact there may be indefinite degrees.

To give an example: let any curve E M H (*Tab.* II. *Analysis*,

Analyſis, fig. 44.), and a circle E R B touch the right line E T on the ſame ſide at E; let any right line T K, parallel to the chord E B, meet the tangent in T, E M H in M, and a curve B K F that paſſes through B in K: then if the rectangle M T K be always equal to the ſquare of E T, the *curvature* of E M H at E will be the ſame as that of the circle E R B; and the contact E M and E R will always be the cloſer, the leſs the angle is that is contained at B by the curve B K F, and the circle of *curvature* B Q E. —

For it is demonſtrable from the elements of geometry (ſee Mac Laurin's Fluxions, art. 366.) that all the circles that can be deſcribed through E fall without both E R and E M, or within them both, and no circle whatever can paſs between them when the rectangle M T K is always equal to the ſquare of E T, and the curve in which K is always found, paſſes through B, and conſequently the circle E R B, and the curve E M, have the ſame *curvature* at E.

Now let E *m* (*fig.* 45.), any other curve touching E T in E, and *f* B another curve paſſing through B meet T K *in* m and *k*, and let the rectangle *m* T *k* be likewiſe equal to the ſquare of E T; then will the *curvature* of E *m* at E be the ſame as that of the curve E M, as has been mentioned. But the rectangles *m* T *k*, M T K, R T Q being equal to each other, and their ſides therefore in a reciprocal proportion to each other, it is plain that if the arch B *f* paſs between B K the arch of the curve B K F, and B Q the arch of the circle B Q E; the curve E *m* muſt paſs between E M the arch of the curve E M H, and E R the arch of the circle of *curvature* E R B: ſo that E *m* muſt have a cloſer contact with this circle than E M has with it; and the leſs the angle is that is formed by the curve F K B and the circle of *curvature* E Q B at B, the cloſer is the contact at E of the curve E M H and the circle of *curvature* E R B. Thus the curve B K F, by its interſection with E B, determines the *curvature* of E M, and by the angle in which it cuts the circle of *curvature* it determines the degree of contact of E M and that circle, the angle B E T and the right line E T being given.

Hence it follows that the contact of the curve E M H, and the circle of *curvature*, is cloſeſt when the curve B K touches the arch B Q in B, the angle B E T being given; but it is fartheſt from this, or is moſt open, when B K touches the right line E B in B.

Hence, alſo, there may be indefinite degrees of more and more intimate contact between a circle and a curve. The firſt degree is when the ſame right line touches them both in the ſame point; and a contact of this ſort may take place betwixt any circle and any arch of a curve. The ſecond is when the curve E M H and circle E R B have the ſame *curvature*, and the tangents of the curve B K F and circle B Q E interſect each other at B in any aſſignable angle. The contact of the curve E M and circle of *curvature* E R at E, is of the third degree, or order, and their oſculation is of the ſecond, when the curve B K F touches the circle B Q E at B, but ſo as not to have the ſame *curvature* with it. The contact is of the fourth degree, or order, and their oſculation of the third, when the curve B K F has the ſame *curvature* with the circle B Q E at B, but ſo as that their contact is only of the ſecond degree: and this gradation of more and more intimate contact, or of approximation towards coincidence, may be continued indefinitely, the contact of E M and E R at E being always of an order two degrees cloſer than that of B K and B Q at B. There is alſo an indefinite variety comprehended under each order: thus, when E M and E R have the ſame *curvature*, the angle formed by the tangents of B K and B Q admits of indefinite variety, and the contact of E M and E R is the cloſer, the leſs that angle is. And when that angle is of the ſame magnitude, the contact of E M and E R is the cloſer the greater the circle of *curvature* is. When B K and B Q touch at B, they may touch on the ſame or on different ſides of their common tangent; and the angle of contact K B Q may admit of the ſame variety with the angle of contact M E R; but as there is ſeldom occaſion for conſidering thoſe higher degrees of more intimate contact of the curve E M H and circle of *curvature* E R B, Mr. Mac Laurin calls the contact or oſculation of the ſame kind, when the chord E B and angle B E T being given, the angle contained by the tangents of B K and B Q is of the ſame magnitude.

When the *curvature* of E M H increaſes from E towards H, and conſequently correſponds to that of a circle gradually leſs and leſs, the arch E M falls within E R, the arch of the circle of *curvature*, and B K is within B Q. The contrary happens when the *curvature* of E M decreaſes from E towards H, and conſequently correſponds to that of a circle that is gradually greater and greater, the arch E M falls without E R, the arch of the circle of *curvature*, and B K is without B Q. And according as the *curvature* of E M varies more or leſs, it is more or leſs unlike to the uniform *curvature* of a circle; the arch of the curve E M H ſeparates more or leſs from the arch of the circle of the *curvature* E R B, and the angle contained by the tangents of B K F and B Q E at B, is greater or leſs. Thus the quality of *curvature*, as it is called by Sir Iſaac Newton, depends on the angle contained by the tangents of B K and B Q at B; and the meaſure of the inequability or variation of *curvature*, is as the tangent of this angle, the radius being given, and the angle B E T being right.

The rays of *curvature* of ſimilar arches in ſimilar figures, are in the ſame ratio as any homologous lines of theſe figures; and the variation of *curvature* the ſame. See Mac Laurin, lib. cit. ſect. 370.

When the propoſed curve E M H is a conic ſection, the new line B K F is alſo a conic ſection: and it has a right line when E M H is a parabola, to the axis of which the ordinates T K are parallel. B K F is alſo a right line when E M H is an hyperbola, to one aſymptote of which the ordinate T K is parallel.

When the ordinate E B, at the point of contact E, inſtead of meeting the new curve B K, is an aſymptote to it, the *curvature* of E M will be leſs than in any circle; and this is the caſe in which it is ſaid to be infinitely little, or that the radius of *curvature* is infinitely great. Of this kind is the *curvature* at the points of contrary flexure in lines of the third order.

When the curve B K paſſes through the point of contact E, the *curvature* is greater than in any circle, or the radius of *curvature* vaniſhes; and in this caſe the *curvature* is ſaid to be infinitely great. Of this kind is the *curvature* at the cuſpids of the lines of the third order.

As to the circles of *curvature* for lines of the third or higher orders, ſee lib. cit. art. 379, and art. 380, when the propoſed curve is mechanical.

As lines which paſs through the ſame point have the ſame tangent when the firſt fluxions of the ordinates are equal, ſo they have the ſame *curvature* when the ſecond fluxions of the ordinate are likewiſe equal; and half the cloſed of the circle of *curvature* that is intercepted between the points wherein it interſects the ordinate, is a third proportional to the right lines that meaſure the ſecond fluxion of the ordinate and firſt fluxion of the curve, the baſe being ſuppoſed to flow uniformly. When a ray revolving about a given point, and terminated by the curve, becomes perpendicular to it, the firſt fluxion of the radius vaniſhes; and if the ſecond fluxion vaniſhes at the ſame time, that point muſt be the centre of *curvature*. The ſame may be ſaid, when the angular motion of the ray about that point is equal to the angular motion of the tangent of the curve; as the angular motion of the radius of a circle about its centre is always equal to the angular motion of the tangent of the circle. Hence the various properties of the circle may ſuggeſt ſeveral theorems for determining the centre of *curvature*.

See alſo art. 396 of the ſaid treatiſe, and the following, concerning the *curvature* of lines that are deſcribed by means of right lines revolving about given poles, or of angles that either revolve about ſuch poles, or are carried along fixed lines.

It is to be obſerved, that as when a right line interſects an arch of a curve in two points, if by varying the poſition of that line the two interſections unite in one point, it then becomes the tangent of the arch; ſo when a circle touches a curve in one point and interſects it in another, if, by varrying the centre, this interſection joins the point of contact, the circle then has the cloſeſt contact with the arch, and becomes the circle of *curvature*; but it ſtill continues to interſect the curve at the ſame point where it touches it, that is, where the ſame right line is their common tangent, unleſs another interſection join that point at the ſame time. In general, the circle of *curvature* interſects the curve at the point of oſculation, only when the number of the ſucceſſive orders of fluxions of the radius of *curvature*, that vaniſhes at the term of time when this radius comes to the point of oſculation, is an even number.

It has been ſuppoſed by ſome, that two points of contact, or four interſections of the curve and circle of *curvature*, muſt join to form an oſculation. But Mr. James Bernouilli infiſted juſtly, that the coalition of one point of contact and one interſection, or of three interſections, was ſufficient. In which caſe, and in general, when an odd number of interſections only join each other, the point where they coincide continues to be an interſection of the curve and circle of *curvature*, as well as a point of their mutual contact and oſculation. See Mac Laurin's Fluxions, art. 493.

From theſe principles the circle of *curvature* at any point of a conic ſection may be determined. Suppoſe E M H

(*fig.*

(*fig.* 46.) to be any conic section, E T the tangent at E, H I a tangent parallel to E B (a chord of the circle of *curvature*) that meets E T in I, and let E M H meet E B in G. Take E B to E G, in the same ratio as the square of E I is to the square of H I; or when the section has a centre as in the ellipsis and hyperbola, as the square of the semi-diameter C *a* parallel to E T, is to the square of the semi-diameter C A parallel to E B; and a circle described upon the chord E B that touches E T, will be the circle of *curvature*.

When B E T is a right angle, or E B is the diameter of the circle of *curvature*, E G will be the axis of the conic section, and E B will be the parameter of this axis; and when the point G when the conic section cuts E B, and B are on the same side of the point E, E M G will be an ellipsis, and E G the greater or lesser axis, according as E G is greater or less than E B.

The propositions relating to the *curvature* of the conic sections, commonly given by authors, follow without much difficulty from this construction.

1. When the chord of *curvature* thus found passes through the centre of the conic section, it will then be equal to the parameter of the diameter that passes through the point of contact

2. The square of the semi-diameter C *a*, is to the rectangle of half the transverse and half the conjugate axis, as the ray of *curvature* C E is to C *a*. And therefore the cube of the semi-diameter C *a*, parallel to the tangent E T, is equal to the solid contained by the radius of *curvature* C E, and the rectangle of the two axes.

3. The perpendicular to either axis bisects the angle made by the chord of *curvature*, and the common tangent of the conic section and circle of *curvature*.

4. The chord of the circle of *curvature* that passes through the focus, the diameter conjugate to that which passes through the point of contact, and the transverse axis of the figure, are in continued proportion.

5. When the section is an ellipsis, if the circle of *curvature* at E meet C *a* in *d*, the square of E *d* will be equal to twice the square of C *a*. Hence E *d*: C *a*:: $\sqrt{2}$: 1. Which gives an easy method of determining the circle of *curvature* to any point E, when the semi-diameter C *a* is given in magnitude and position.

Several other properties of the circle of *curvature*, and methods of determining it when the section is given; or *vice versâ*, of determining the section when the circle of *curvature* is given, may be seen in Mr. Mac Laurin's Fluxions, art. 375.

CURVATURE, *variation of*. See VARIATION.

CURVATURE, *double*, is used for the *curvature* of a line, all the parts of which are not situated in the same plane.

CURUCUI, in *Ornithology*, the name of an American bird of the wood-pecker kind, and very remarkably beautiful.

CURVE, in *Geometry*, a LINE whose several points tend several ways, or are posited towards different quarters.

In this sense, the word is used in opposition to *a straight line*, whose several points are posited towards the same quarter.

Hence, figures terminated with lines of the first sort are called *curvilinear* figures; in opposition to those terminated with the latter, called *rectilineal* figures.

The doctine of *curves*, and the figures and solids generated from them, constitute what we call the *higher geometry*.

In a *curve*, the line A D (*Tab. Geometry, fig.* 12.) bisecting the parallel lines M M, is called the *diameter*: if the lines be equidistant, and it cut them at right angles, it is called the *axis*; and the point A, whence the diameter is drawn, is called the *vertex*.

The equidistant lines, M M, are called *ordinates*, or *applicates*; and their halves, P M, *semiordinates*.

The portion of the diameter A P, between the vertex, or other fixed point, and an ordinate, is called the *abscisse*.

And the concourse of all the diameters, the *centre*.

Modern geometers frequently consider *curves* as composed of an infinite number of infinitely small right lines: and it is often said, that the ancients also considered *curves* as polygons of an infinite number of sides. But it is certain, that this principle no where appears in their writings. We never find them resolving any figure into infinitely small elements. On the contrary, they seem to avoid such suppositions, as if they judged them unfit to be received into geometry; though it was sometimes obvious, that their demonstrations might have been abridged, by admitting such notions. They considered curvilinear areas as the limits of circumscribed or inscribed figures of a more simple kind, which approach to these limits; so that the difference between them may become less than any given quantity. The inscribed and circumscribed figures were always conceived to be of a magnitude and number that is assignable; and they demonstrated the mensuration, or the proportions of the curvilinear limits themselves, by arguments *ab absurdo*.

But modern geometricians have abandoned the foundations of the ancients. It was thought unnecessary to conceive the figures circumscribed or inscribed, in the curvilineal area, or solid, as being always assignable and finite; and the precautions of Archimedes and the ancients came to be considered as a check upon the geometricians, serving only to retard their progress. Therefore, instead of assignable finite figures, indivisible, or infinitely small elements were substituted; and these being supposed infinite in number, their sum was supposed to coincide with the curvilineal area or solid. See Maclaurin's Fluxions, in the Introd.

Curves are distinguished into *algebraic*, frequently with Des Cartes called *geometrical*; and *transcendental*, called by the same Cartes, &c. *mechanical curves*.

CURVES, *Algebraical*, are those wherein the relation of the abscisses A P, A P, A P, *fig.* 13. to the semiordinates M P, M P, M P, may be expressed by an algebraic equation.

Suppose. v. gr. in a circle, A B $= a$, A P $= x$, P M $= y$: then will B P $= a - x$, consequently, as P M^2 = A P $\times$ P B, $y^2 = ax - x^2$. Or, suppose P C $= x$, A C $= a$, P M $= y$; then will M C^2 — P C^2 = P M^2; that is, $a^2 - x^2 = y^2$.

Note. Those are also called *algebraical curves*, which are of a determinate order; so, as that the equation always continues the same in the several points of the *curve*.

Most authors, after Des Cartes, call *algebraic curves geometrical* ones; as admitting none else into the construction of problems; nor, consequently, into geometry. But sir Isaac Newton, and after him Messr. Leibnitz, and Wolfius, are of another opinion; and think, that in the construction of a problem, one *curve* is not to be preferred to another, for its being defined by a more simple equation, but for its being more easily described.

CURVE, *Transcendental*, is that which cannot be defined by an algebraic equation. See TRANSCENDENTAL *curve*.

Algebraic CURVES *of the same kind or order*, are those whose equations rise to the same dimension.

Geometrical lines being defined by the relation between the ordinates and abscisses (or, which is the same, by the number of points wherein they may be cut by a right line), are well distinguished into two kinds, or orders: in which view, lines of the first order will be right lines; and those of the second, or quadratic order, will be *curves*, viz. the *conic sections*.

Now, a *curve* of the first kind is the same with a line of the second (a right line not being numbered among *curves*); and a *curve* of the second kind is the same with a line of the third. Thus, *curves of the first kind*, are those whose equations rise to two dimensions; if they rise to three, the *curves* are *of the second kind*; if to four, *of the third*, &c.

Thus, e. gr. the equation, for a circle is, $y^2 = ax - x^2$, or $a^2 - x^2 = y^2$. A circle, therefore, is a *curve* of the first kind.

Again a *curve of the first kind*, is that defined by the equation $a \cdot x = y^2$; and a *curve of the second kind*, that defined by the equation $a^3 \cdot x = y^4$.

For the various *curves of the first kind*, and their properties, see CONIC *sections*.

For *curves of the second kind*, sir Isaac Newton has a distinct treatise, under the title of Enumeratio Linearum Tertii Ordinis, which was first printed at the end of Dr. Clarke's Latin translation of sir Isaac's Optics; and since published more correctly by the late Mr. Jones in 1711, with the treatise of Quadratures, and other tracts of its illustrious author: since illustrated by Mr. Stirling, in his Lineæ Tertiæ Ordinis Neutonianæ. Oxon. 1717.

Curves of the second and other higher kinds, he observes, have parts and properties similar to those of the first. Thus, as the conic sections have diameters and axes; the lines cut or bisected by these, are called *ordinates*; and the intersection of the *curve* and diameter, the *vertex*; so, in *curves of the second kind*, any two parallel right lines being drawn so as to meet the *curve* in three points; a right line cutting these parallels so, as that the sum of the two parts between the secant and the *curve* on one side, is equal to the third part terminated by the *curve* on the other side, will cut, in the same manner, all other right lines parallel to these, and that meet the *curve* in three points, i. e. so, as that the sum of the two parts on one side, will be still equal to the third part on the other side.

These three parts, therefore, thus equal, may be called *ordinates*, or *applicates*; the secant, the *diameter*; and where it cuts the ordinates at right angles, the *axis*: the intersection of the diameter and the *curve*, the *vertex*; and the concourse of the two diameters, the *centre*; and

the concourse of all the diameters, the *common or general centre*.

Again, as an hyperbola of the first kind has two asymptotes; that of the second has three; that of the third, four, &c. and as the parts of any right line between the conic HYPERBOLA and its two asymptotes are equal on either side; so, in hyperbolas of the second kind, any right line cutting the *curve* and its three asymptotes in three points; the sum of the two parts of that right line, extended from any two asymptotes, the same way, to two points of the *curve*, is equal to the third part, extended from the third ASYMPTOTE, the contrary way, to the third point of the *curve*.

Again, as in other conic sections, not parabolical, the square of an ordinate, i. e. the rectangle of the ordinates drawn to contrary parts of the diameter, is to the rectangle of the parts of the diameter terminated at the vertices of an ellipsis or hyperbola, as a given line, called the *latus rectum*, is to that part of the diameter which lies between the vertices, and called the *latus transversum*: so, in *curves of the second kind*, not parabolical, the parallelopiped under three ordinates, is to the parallelepiped under the parts of the diameter cut off at the ordinates and the three vertices of the figure, in a given ratio: wherein, if there be taken three right lines situate at the three parts of the diameter between the vertices of the figure, each to each; then those three right lines may be called the *latera recta* of the figure, and the parts of the diameter between the vertices, the *latera transversa*.

And, as in a conic parabola, which has only one vertex to one and the same diameter, the rectangle under the ordinates is equal to the rectangle under the part of the diameter cut off at the ordinates and vertex, and a given right line called the *latus rectum*: so, in *curves of the second kind*, which have only two vertices to the same diameter, the parallelopiped under three ordinates is equal to the parallelepiped under two parts of the diameter cut off at the ordinates and the two vertices, and a given right line, which may therefore be called the *latus transversum*.

Farther, as in the conic sections, where two parallels, terminated on each side by a *curve*, are cut by two parallels terminated on each side by a curve, the first by the third, and the second by the fourth: the rectangle of the parts of the first is to the rectangle of the parts of the second, as that of the second is to that of the fourth: so, when four such right lines occur in a *curve* of the second kind, each in three points; the parallelepiped of the parts of the first will be to that of the parts of the second, as that of the second to the parts of the fourth.

Lastly, the legs of *curves*, both of the *first*, *second*, and *higher kinds*, are either of the parabolic or hyperbolic kind: an hyperbolic leg being that which approaches infinitely towards some asymptote; a parabolic, that which has no asymptote.

These legs are best distinguished by their tangents; for, if the point of contact go off to an infinite distance, the tangent of the hyperbolic leg will coincide with the asymptote; and that of the parabolic leg, recede infinitely, and vanish. The asymptote, therefore, of any leg, is found by seeking the tangent of that leg to a point infinitely distant; and the bearing of an infinite leg is found by seeking the position of a right line parallel to the tangent, when the point of contact is infinitely remote: for this line tends the same way towards which the infinite leg is directed.

Reduction of CURVES *of the second kind.* Sir Isaac Newton reduces all *curves of the second kind* to four cases of equations: in the first, the relation between the ordinate and abscis, making the abscis x, and the ordinate y, assumes this form, $xy - ey = ax^2 + bx + cx + d$. In the second case, the equation assumes this form, $xy = ax^2 + bx^2 + cx + d$. In the third case, the equation is $yy = ax^3 + bx^2 + cx + d$. In the fourth, the equation is of this form, $y = ax^3 + bx^2 + cx + d$. See Stirling's Lineæ, &c. p. 83, &c.

Enumeration of the CURVES *of the second kind.* Under these four cases, the same author brings a vast number of different forms of *curves*, to which he gives different names.

An hyperbola lying wholly within the angle of the asymptotes, like a conic hyperbola, he calls an *inscribed hyperbola*; that which cuts the asymptotes, and contains the parts cut off within its own periphery, a *circumscribed hyperbola*; that, one of whose infinite legs is inscribed, the other circumscribed, he calls *ambigenal*; that whose legs look toward each other, and are directed the same way, *converging*; that where they look contrary ways, *diverging*; that where they are convex different ways, *cross-legged*; that applied to its asymptote with a concave vertex, and diverging legs, *conchoidal*; that which cuts its asymptote with contrary flexures, and is produced each way into contrary legs, *anguineous*, or *snake-like*; that which cuts its conjugate asymptote, *cruciform*; that which, returning around cuts itself, *nodated*; that whose parts concur in the angle of contact, and there terminate, *cuspidated*; that whose conjugate is oval, and infinitely small, i. e. a point, *pointed*; that which from the impossibility of its two roots, is without either oval, node, cusp, or point, *pure*: and in the same manner he denominates a parabola to be *converging*, *diverging*, *cruciform*, &c. Where the number of hyperbolic legs exceeds that of the conic hyperbola, he denominates the hyperbola *redundant*.

Now the various *curves* which he enumerates under these four cases, are in number seventy-two; whereof nine are *redundant* hyperbolas, without diameters, having three asymptotes including a triangle; the first consisting of three hyperbolas, one *inscribed*, another *circumscribed*, another *ambigenal*, with an *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth and sixth, *pure*; the seventh and eighth, *cruciform*; the last, *anguineal*. There are twelve *redundant* hyperbolas, having only one diameter: the first, *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth, sixth, seventh, and eighth, *pure*; the ninth and tenth, *cruciform*; the eleventh and twelfth, *conchoidal*. Mr. Stirling makes these fourteen. Two are *redundant* hyperbolas, with three diameters. Nine are *redundant* hyperbolas, with three asymptotes converging to a common point; the first formed of the fifth and sixth redundant parabolas, whose asymptotes include a triangle; the second, of the seventh and eighth; the third and fourth, of the ninth; the fifth is formed of the fifth and seventh of the redundant hyperbolas, with one diameter; the sixth, of the sixth and seventh; the seventh, of the eighth and ninth; the eighth, of the tenth and eleventh; the ninth, of the twelfth and thirteenth: all which conversions are effected, by distinguishing the triangle comprehended between the asymptotes, till it vanish into a point.

Six are *defective* parabolas, having no diameters: the first, *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth, *pure*, &c.

Seven are *defective* hyperbolas, having diameters: the first and second, *conchoidal*, with an *oval*; the third, *nodated*; the fourth, *cuspidated*, which is the cissoid of the ancients; the fifth and sixth, *pointed*; the seventh, *pure*.

Seven are *parabolic* hyperbolas, having diameters: the first, *oval*; the second, *nodated*; the third, *cuspidated*; the fourth, *pointed*; the fifth, *pure*; the sixth, *cruciform*; the seventh, *anguineous*.

Four are *parabolic* hyperbolas: four are *hyperbolisms* of the hyperbola: three, *hyperbolas* of the ellipsis: two, *hyperbolisms* of the parabola.

Six are *diverging* parabolas: one, a *trident*; the second, *oval*; the third, *nodated*; the fourth, *pointed*; the fifth, *cuspidated* (this is Neil's *parabola*, usually called the *semicubic parabola*); the sixth, *pure*.

Lastly, one commonly called the *cubic parabola*.

Mr. Stirling and Mr. Stone have shewn this enumeration to be imperfect; and Mr. Murdoch has since found some new species. See his Geneſis Curvarum per Umbras.

Organical description of CURVES. 1. If two angles, given in magnitude, P A D, P B D (*Tab. Geometry, fig.* 14.) revolve round poles given in position, A and B; and their legs, A P, B P, with their point of concourse P, pass over another right line: the other two legs A D, B D, with their point of concourse D, will describe a conic section passing through the poles A B; unless that line happen to pass through either of the poles A or B; or unless the angles B A D and A B D vanish together; in which cases, the point will describe a right line.

2. Now, if the legs A P, B P, by their point of concourse P, thus describe a conic section passing through one of the poles, A; the other two, A D, B D, with their point of concourse D, will describe a *curve of the second kind*, passing through the other pole B, and having a double point in the first pole A; unless the angles B A D, A B D, vanish together; in which case, the point D will describe another conic section, passing through the pole A.

3. If the conic section, described by the point P, pass through neither of the poles A, B; the point D will describe a *curve of the second or third kind*, having a double point: which double point will be found in the concourse of the describing legs A D, B D, when the two angles B A P, A B P, vanish together. The *curve* described will be of the *second kind*, when the angles B A D, A B D, vanish together; otherwise of the *third kind*, having two other double points in the poles A and B.

With regard to *double points of the curves*: we have observed

ferved, that *curves* of the fecond kind may be cut by a right line in thofe two points: now two of thefe fometimes coincide, v. gr. when the right line paffes through an infinitely fmall oval, or through the concourfe of two parts of a *curve*, mutually cutting each other, and uniting in a cufp. Sometimes all the right lines only cut the *curve* in one point; as in ordinates of the Carteſian and cubic parabola, &c. in which cafe, we muſt conceive the right line paſſing through two other points of the *curve*, placed as it were, at an infinite diſtance: two of theſe coincident interſections, whether at a finite or infinite diſtance, make what we call a *double point*.

The theory of *curves* is a very conſiderable branch of the mathematical ſciences. Thoſe who are curious of advancing beyond the knowledge of the circle and the conic ſections, and to conſider geometrical *curves* of a higher nature, and in a general view, will do well to ſtudy Mr. Cramer's Introduction à l'Analyſe des Lignes Courbes Algebraiques, printed at Geneva, 4to. 1750, which the learned and ingenious author compoſed for the uſe of beginners. We have an elegant poſthumous work of Mr. Maclaurin, printed at the end of his Algebra, and entitled De Linearum Geometricarum Proprietatibus Generalibus. The ſame author, at a very early age, gave a remarkable ſpecimen of his genius and knowledge in his Geometria Organica, and carried theſe ſpeculations farther afterwards, as may be ſeen in the theorems he has given us in the Philoſophical Tranſactions. See Martyn's Abridg. vol. viii. p. 62, ſeq.

Curves may be organically deſcribed by the rotation of angles, in the manner mentioned above; but there is another general method of deſcribing *curves* by the rotation of rulers or ſtraight lines, inſtead of angles.

Thus, if inſtead of angles we uſe three rulers, D Q CN, SP (*Tab. II. Analyſis, fig.* 474), which are ſuppoſed to revolve about the poles D, C, S, and to cut one another always in three points, N, Q, and P; if any two of theſe interſections, as N, and Q, be carried along the given ſtraight lines AE, EB, the third interſection P will deſcribe a conic ſection.

If you aſſume any number of poles whatſoever, and make rulers revolve about each of them, and all the interſections but one, be carried along given right lines, that one ſhall never deſcribe a line of a higher nature than a conic ſection. And if inſtead of rulers you ſubſtitute given angles which move on the ſame poles, the *curve* deſcribed will ſtill be no more than a conic ſection.

But by carrying one of the interſections neceſſary in the deſcription over a conic ſection, lines of higher orders may be deſcribed.

The Rev. Mr. Brakenridge has given us a general method of deſcribing *curves*, by the interſection of right lines moving about points in a given plane. See Phil. Tranſ. N° 436. Martyn's Abridg. vol. viii. p. 58, ſeq. But the demonſtrations are not yet extant, excepting the particular caſes demonſtrated in his Exercitatio Geometrica de Curvarum Deſcriptione, Lond. 1733. 4to. *Curves* may alſo be deſcribed by the projection, or ſhadows of other *curves*. Thus the projection, or ſhadow of the circle upon different planes, will form the reſt of the lines of the ſecond order, or conic ſections. This is evident, becauſe the rays of light proceeding from a point out of the plane of a circle, and falling upon the circumference of that circle form a cone, which being cut by the plane upon which the ſhadow of the circle is projected, the different conic ſections will be formed according to the poſition of the interſecting plane.

In like manner, the projections or ſhadows of lines of the third order, will form other lines of the third order; and projections or ſhadows of lines of the fourth order, will form lines of the fourth order, &c.

And as the circle, by the projection of its ſhadow, forms the conic ſections, ſo the five diverging parabolas among the lines of the third order, will, by their ſhadows, form and exhibit all the reſt of the lines of that order. See Newton, Enumerat. Lin. Tertii Ordin. publiſhed by Mr. Jones, 1717.

This hint of ſir Iſaac Newton has been lately purſued and illuſtrated with great elegance by Mr. Murdoch, in his treatiſe entitled Newtoni Geneſis Curvarum per Umbras, ſeu Perſpectivæ Univerſalis Elementa. Lond. 1746, 8vo.

By an accurate enumeration of theſe projections, Mr. Murdoch finds, that the number of ſpecies of the lines of the third order amount to ſeventy-eight in all.

Deſcription of CURVES *of the ſecond order, having double points.* Theſe are all deſcribed from ſeven given points, whereof one is the double point itſelf: thus, let there be given any ſeven points of the *curve* to be deſcribed; as, v. gr. A, B, C, D, E, F, G (*Tab. Geometry, fig.* 15.) whereof A is the double point: join the point A, and any other two points, v. gr. B and C; and let the angle CAB, of the triangle ABC, revolve about its vertex A; and another of the angles ABC, about its vertex B: and when the point of concourſe C, of the legs AC, BC, is ſucceſſively applied to the four other points D, E, F, G, let the concourſe of the remaining legs AB and BA fall on the four points P, Q, R, S.

Through thoſe four points, and the fifth A, deſcribe a conic ſection; and let the forementioned angles CAB, CBA, ſo revolve, as that the point of concourſe of the legs AB, BA, may paſs over that conic ſection; and the concourſe of the other legs AC, BC, will deſcribe the propoſed *curve*.

Uſe of theſe CURVES *in the conſtruction of equations.* The uſe of *curves* in geometry is, by means of the interſections thereof, to ſolve problems. See CONSTRUCTION.

Suppoſe, v. gr. an equation to be conſtructed of nine dimenſions, as $x^9 + bx^7 + cx^6 + dx^5 + ex^4 + (m+f)x^3 + gx^2 + hx + k = 0$; where b, c, d, &c. ſignify any given quantities affected with the ſigns + or —: aſſume the equation to a cubic parabola $x^3 = y$; and the firſt equation, writing y for x^3, will come out $y^3 + by^2 + cy^3 + dx^2 y + exy + my + fx^2 + gx^2 + hx + k = 0$; an equation to another *curve* of the ſecond kind, where m or f may be aſſumed or annulled at pleaſure: and by the deſcriptions and interſections of theſe *curves* will be given the roots of the equation to be conſtructed. It is ſufficient to deſcribe the cubic parabola once. If the equation to be conſtructed, by omitting the two laſt terms hx and k, be reduced to ſeven dimenſions; the other *curve*, by expunging m, will have the double point in the beginning of the abſciſſa, and may be eaſily deſcribed as above: if it be reduced to ſix dimenſions, by omitting the three laſt terms, taking $gx^2 + hx + k$; the other *curve*, by expunging f, will become a conic ſection: and if, by omitting the three laſt terms, the equation be reduced to three dimenſions, we ſhall fall on Dr. Wallis's conſtruction by the cubic parabola and right line.

CURVE *of a double curvature*, or CURVE *having a double curvature*, is uſed for a *curve*, all the parts of which do not lie in the ſame plane, that is, ſuch as cannot be deſcribed on the ſame plane.

The *curves* commonly treated of in geometry, are ſuppoſed to be deſcribed, or to have all their points placed in the ſame plane; but if a *curve* be ſuppoſed to be deſcribed on a *curve* ſurface, in ſuch a manner that all the points of that *curve* cannot lie or be ſituated in one and the ſame plane, then will the *curve* ſo deſcribed have a *double curvature*.

Monſieur Clairaut has publiſhed an ingenious treatiſe on *curves of a double curvature*. See his Recherches ſur les Courbes, à double Courbure, at Paris, 4to. 1731. Mr. Euler has alſo treated this ſubject in the Appendix to his Analyſis Infinitorum, vol. ii. p. 323.

CURVE *of equable approach*. See APPROACH.

CURVE, *rectification of a*, denotes the finding a right line equal to a *curve*. For the praxis hereof, ſee RECTIFICATION *of curves*.

CURVE, *inflition of a*. See INFLECTION.

CURVE, *quadrature of a*, the finding the area, or ſpace included, by a *curve*; or the aſſigning a ſquare equal to a curvilinear ſpace. See QUADRATURE.

CURVES, *family of*, in an aſſemblage of ſeveral *curves* of different kinds, all defined by the ſame equation of an intermediate degree; but differently, according to the diverſity of their kind.

E. gr. Suppoſe an equation of an indeterminate degree, $a^m - ix = y^n$. If $m = 2$, then will $a^2 - ix = y^n$; if $m = 3$, then will $a^3 - ix = y^n$; if $m = 4$, then $a^4 - ix = y^n$, &c. all which *curves* are ſaid to be of the *ſame family*, or *tribe*.

The equations whereby the families of *curves* are defined, are not to be confounded with the tranſcendental ones: for though, with regard to the whole family, they be of an indeterminate degree; yet, with reſpect to each ſeveral *curve* of the family, they are determinate; whereas tranſcendent equations are of an indefinite degree, with reſpect to the ſame *curve*.

All algebraic *curves*, therefore, compoſe a certain family, conſiſting of innumerable others; each whereof comprehends infinite kinds. For ſince the equations whereby the *curves* are defined enter the facts, either of the powers of the abſciſſes and ſemiordinates into the given co-efficients, or of the powers of the abſciſſes into the powers of the ſemiordinates, or of the mere given quantities; and all equations may be equal to nothing (v. gr. if $ax = y^2$, then $ax - y^2 = 0$); the equation for all algebraic *curves* will be

$$\left.\begin{array}{l} ay^n + bxy^{n-1} + nx^2y^{n-2} \text{ &c.} + fy^n \\ + fx^n - 1 + kxy^{n-2} \\ + qy^{n-2} \end{array}\right\} = c.$$

CURVE, *cauſtic*, in the higher geometry, a curve formed by

by the concourſe, or coincidence of the rays of light reflected, or refracted from ſome other *curve*.

Every curve has its twofold cauſtic; accordingly, cauſtics are divided into *catacauſtics*, and *diacauſtics*; the one formed by reflection, the angle of reflection being equal to that of incidence, the other by refraction.

The geneſis of theſe *curves* may be thus conceived; let A B, A B, &c. *Tab.* II. *Analyſis*, *fig.* 48. repreſent an infinite number of incident rays, that lie all in one plane of incidence; it is evident, that after reflection or refraction, they will not belong to a ſingle point or focus, but cut one another in an infinite number of points: then, if a *curve* be ſuppoſed of ſuch a ſhape as to touch every one of the reflected or refracted rays B F, B F, &c. produced, if need be, in the points F, F, &c. the *curve* F F F is called a *cauſtic* by reflection or refraction, as the name is applied to reflected or refracted rays. It is plain, that if two tangents B F, B F interſect one another in G, and be ſuppoſed to approach one another till they coincide, the ſpoints of contact and of interſection will alſo coincide: and therefore the reflected or refracted ray touches the *cauſtic* in that point of the ray, where its interſection with the next ray vaniſhed, when they were ſuppoſed to coincide. And if two incident rays infinitely near to each other be conceived to revolve about their focus A, in the plane of incidence, the focus F or point of interſection of the reflected or refracted rays will deſcribe the *cauſtic* above defined; which is real or imaginary, as F is the focus of converging or diverging rays.

Or, a *cauſtic* by refraction, called a *diacauſtic*, may be ſuppoſed to be thus generated. Imagine an infinite number of rays, as B A, B M, B D, &c. (*Tab. Geom. fig.* 20.) iſſuing from the ſame luminous point, B, to be refracted from, or to the perpendicular M C, in the *curve* A M D; and ſo, as that C E, the ſines of the angles of incidence C M E be always to C G, the ſines of the refracted angles C M G, in a given ratio: then the curve line, which touches all the refracted rays, is called the *diacauſtic*.

M. Bouguer obſerves, that there are two *cauſtics* formed at the ſame time, by convex and conſtave ſurfaces; and that they occaſion two different images of objects ſeen by reflection from them. See his Traité d'Optique; or Prieſtley's Hiſt. of Viſion, p. 233. See alſo on this ſubject, Smith's Optics, p. 171—181.

Cauſtic curves have this remarkable property, that when the *curves* that produce them are geometrical, they are equal to known right lines.

Thus, the *cauſtic* formed by reflected rays from a quadrant of a circle, which came at firſt parallel to the diameter, is equal to three fourths of the diameter; which is a ſort of rectification of *curves* that preceded the invention of the new doctrine of infinites, on which moſt of our rectifications are built.

Cauſtic curves are uſually ſuppoſed to be the invention of M. Tſchirnhauſen; but it is only the name he invented. The firſt mention he made of them was in the year 1682, when he produced no inſtance but that of the cauſtic in a circle, which he might have learned from Dr. Barrow's Lectiones Opticæ, publiſhed in 1669. It would have been eaſy for him to have done the ſame for any *curve*, by the help of the radius of curvature publiſhed by Huygens in his Horologium Oſcillatorium, in 1673. It is certain this had been done by ſir Iſaac Newton as early as the year 1669, as appears from his Lectiones Opticæ, which were read that year at Cambridge, though not publiſhed till after his death, viz. in 1728. Act. Erud. Lipſ. ann. 1682. p. 364. Newt. Lect. Opt. ſect. 4. Prieſ. Stat. Rep. Lett. tom. i. p. 50, ſeq.

CURVE *reflectoire*, in *Optics*, ſo called becauſe it is the appearance of the plane bottom of a baſon covered with water to an eye perpendicularly over it. In this poſition the bottom of the baſon will appear to riſe upwards from the centre outwards; but the curvature will be leſs and leſs, and at laſt the ſurface of the water will be an aſymptote to it. M. Mairan, who firſt conceived this idea from the phenomena of LIGHT, found alſo ſeveral kinds of theſe *curves*; and he gives a geometrical deduction of their properties, ſhewing their analogy to cauſtics by refraction. Ac. Par. 1740. H. 121. M. 1. Dr. Prieſtley's Hiſt. of Viſion, p. 752.

CURVES *by the light*, or COURBES *de la lumiere*, in *Optics*, a name given to certain *curves* by M. Kurdwanowſki, a Poliſh gentleman. He obſerved that any line, ſtraight or curved, expoſed to the action of a luminous point, received the light differently in its different parts, according to their diſtance from the ſame. Theſe different effects of the light upon each point of the line, may be repreſented by the ordinates of ſome *curve* which will very preciſely with theſe effects. Dr. Prieſtley's Hiſt. of Viſion, p. 752.

CURVE, *exponential*, is that defined by an exponential equation; that is, by an equation wherein is an exponential quantity, v. gr. a^x, a^y, &c.

The ſymptoms, properties, geneſes, &c. of particular *curves*, v. gr. the cycloid, conchoid, &c. ſee under their proper heads, CYCLOID, CONCHOID, &c.

CURVE, *logarithmic*.

This *curve* was called *logarithmic* or *logiſtic* by Huygens; though others had conſidered it before him, none had named it. He has given us ſeveral curious properties relating to it, at the end of his Treatiſe of the Cauſe of Gravity, but without demonſtrations. Theſe have been ſince ſupplied by Guido Grandi. See Huyg. Oper. vol. ii. Amſtel. 1728.

Theſe properties are, 1. The ſpaces comprehended between two ordinates, are as the difference of theſe ordinates. Thus, let A V D (*Tab.* II. *Analyſis*, *fig.* 50.) be a logarithmic, and its ordinates A B, V C, D Q; let the two laſt continued meet A K, a parallel to the aſymptote B O, in E and K, then will the ſpaces A B C V, A B Q D be to each other as E V to K D.

2. If A O be a tangent in A, interſecting C E and K Q in I, G; the ſpaces A V E, A D K will be to each other as V I and D G.

3. The ſpace A B Q D is to the infinite ſpace beyond Q D, and lying between the *curve* and its aſymptote, as K D to D Q.

The accurate author obſerves, that when he ſays the infinite ſpace has a certain proportion to a finite one, he means that this infinite, or indefinite ſpace, may approach ſo near to a given ſpace, having that certain proportion to another, that the difference may become leſs than any aſſigned quantity.

4. The ſub-tangent is conſtant.

5. This ſub-tangent may be found by approximation, and is to the portion of the aſymptote intercepted between ordinates in the ratio of 1 to 1; as 43429, &c. to 30103, or nearly as 23 to 31 that is as the modulus of Briggs's ſyſtem, to the logarithm of 2. See LOGARITHM.

6. If there be three ordinates, as A D, G H, B F, *fig.* 51. and if from the extremity B of the leaſt, there be drawn a parallel to the aſymptote B K, cutting the other two ordinates in R, K; as alſo a tangent B Q, cutting them in N, Q; the infinite ſpaces A B K, H B R will be to each other as the portions of the ordinates intercepted between the *curve* and the tangent, that is, as A Q, H N.

7. The infinite ſpace between the *curve* and its aſymptote, lying beyond any ordinate B F, is double of the triangle B F O, formed by that ordinate, the ſub-tangent and tangent. In which ſenſe this is to be underſtood. See above No 3.

8. The ſpace comprehended between two ordinates is equal to the rectangle under the ſub-tangent and the difference of the ordinates. Thus the ſpace A B F D is equal to the rectangle under F O, A K, or to B M X Y.

9. The ſolid formed by the revolution of the infinite ſpace lying beyond any ordinate about the aſymptote, is to a cone of the height of the ſub-tangent, with a baſe equal to the circle deſcribed with that ordinate as radius, as 3 to 2. Thus the ſolid formed by the revolution of the indefinite ſpace Z F B T, about F Z, is to the cone formed by the revolution of the triangle F B O, as 3 to 2.

10. The ſolid formed by the revolution of the ſame infinite ſpace about the ordinate F B, is ſextuple of the cone formed by the triangle F B O, revolving about F B.

11. The diſtance of the centre of gravity of this infinite plain ſpace from the ordinate B F, is the length of the ſub-tangent F O.

12. The diſtance of this centre from the aſymptote is one fourth of the ordinate.

13. The diſtance of the centre of gravity of the firſt of the before mentioned ſolids, from its baſe, is one half of the ſub-tangent.

14. The diſtance of the centre of gravity of the other ſolid, from its infinite baſe, is one eighth of its axis.

15. If there be two ſegments of an hyperbola, *fig.* 52. comprized between ordinates to one of its aſymptotes, and if the ordinates of the one be to each other, as the ordinates A D, H G of the logarithmic; and if the ordinates of the other be as B F to C E, then will the hyperbolic ſpaces be to each other, as D G to F E. And theſe hyperbolic ſpaces are to the parallelogram of the hyperbola, as the lines D G, F E are to the ſub-tangent F O. So that if this parallelogram be ſuppoſed equal to 0.4342944819, every hyperbolic ſpace comprized

prifed between two ordinates to one of the afymptotes, will be to this parallelogram, as the logarithm of the ratio of the two ordinates, or the difference of the logarithms of the numbers expreſſing the proportions of thoſe ordinates, is to 0,4342944819; taking the logarithms of 10 figures beſides the characteriſtic.

We have mentioned one method of finding the ſub-tangent of a given logarithmic from Huygens in N° 4. But this may be otherwiſe done thus: produce any ordinate C D, *fig.* 53. from C to E, ſo that the ratio of C E to C D be equal to the *ratio modularis*; and the right line E B, drawn from E parallel to the afymptote, and meeting the curve in B, will be equal to the ſub-tangent. The *ratio modularis* is 2,71828218, &c. to 1, or 1 to 0,36787944, &c. for which may be ſubſtituted the approximations 11 to 4, 87 to 32, &c. greater than the true; and 8 to 3, 19 to 7, 106 to 39, &c. leſs than the true ratio. See Cotes, Harm. Menſ. p. 7 and 10.

While the baſe O P increaſes uniformly, let the ordinate P *p*, *fig.* 54. increaſe or decreaſe proportionally, as mentioned under the head LOGARITHM; that is, let the velocity of *p*, in the direction O *o*, be always as the ordinate P *p*; then will the point *p* deſcribe the *logarithmic curve*. The baſe O P is always the logarithm of the ordinate P *p*; and if the uniform motion of P be equal to the motion of *p* a in the direction O *o*, then is the ordinate O *o* the modulus of this ſyſtem of logarithms; and the fluxion of any ordinate is to the fluxion of the baſe, as that ordinate a to O *o*.

By the general property of tangents, the fluxion of any ordinate is to the flux ion of the baſe, as that ordinate is to the ſub-tangent. Hence the ſub tangent O T, or A T, will be equal to O *o*. The ſub-tangent will therefore be conſtant. In any other *logarithmic curve*, the ſub-tangent will always be equal to that ordinate, whoſe fluxion is equal to the fluxion of the baſe; that is, the modulus always expreſſes the ſub-tangent of the *logarithmic curve*. See LOGARITHM.

The ſub tangent of the logarithmic expreſſing the modulus of that ſyſtem of logarithms, the ſub-tangent will be the logarithm of the *ratio modularis*, that is, of the ratio of two ordinates raiſed at the extremities of the ſub-tangent; and as the *ratio modularis* is the ſame in all ſyſtems of logarithms, ſo the ratio of the two ordinates placed at the extremities of their reſpective ſub-tangents, is the ſame in all *logarithmic curves* whatſoever.

When the *logarithmic curve* is ſuppoſed to be deſcribed, exponential quantities are eaſily determined by it. Let the ordinate A *a* be expreſſed by A; let O P be to O A as any quantity expreſſed by *x* is to 1: then the ordinate P *p* may be expreſſed by A^x, an exponential quantity of the firſt degree when *x* is variable. See EXPONENTIAL.

To reſtify the logarithmic CURVE. Let it be required to find the length of the logarithmic arc E *e*, *fig.* 55. Draw the perpendiculars E L, A, *e l a*, to the afymptote; and having drawn the tangents E T, *e t*, take A L equal to the exceſs of the tangent above the ſub-tangent A T, and *a l* equal to the exceſs of the tangent *e t* above *e f*; then having drawn L M, *l m* parallel to the afymptote, if the difference of the tangents E *f*—*e f*, be added to the difference of the parallels *l m*—L M, the aggregate will be equal to the arc *Ee*. Cotes, Harm. Menſ. p. 23, 24.

CURVES, *radial*, in a denomination given by ſome authors to *curves* of the ſpiral kind, whoſe ordinates, if they may be ſo called, do all terminate in the centre of the including circle, and appear like ſo many radii of that circle; whence the name.

CURVES, *regular*, are ſuch whoſe curvity proceeds continually in the ſame uniform geometrical manner. Such are the perimeters of the CONIC *ſection*, &c.

Such as have a point of inflection, or regreſſion, and which being continued to a certain point, turn themſelves a contrary way, are called *irregular curves*. Such are the conchoid, and the ſolid parabola, which has a ſquare for its parameter. See FLEXION and RETROGRESSION.

CURVE, *characteriſtic triangle of a*, in the higher geometry, is a rectilinear right-angled triangle, whoſe hypothenuſe makes a part of the *curve*, not ſenſibly different from a right line. It is ſo called, becauſe curve lines are uſed to be diſtinguiſhed hereby.

Suppoſe, e. gr. the ſemiordinate *p m* (*Tab. Analyſis, fig.* 7.) infinitely near another P M; then will P *p* be the differential of the abſciſs: and letting fall a perpendicular, *m* R = P *p*, R M will be the *differential* of the ſemiordinate. Draw, therefore, a tangent T M; and the infinitely ſmall arch M *m* will not differ from a right line: conſequently M *m* R is a rectilinear right-angled triangle, and conſtitutes the characteriſtic triangle of that *curve*.

CURVET, in the *Manege*. See CORVET.

CURVICAUDA, in *Natural Hiſtory*, the name of a ſpecies of bee-fly, very common in England, and very troubleſome to horſes, commonly known by the name of the WRINGLE-TAIL.

CURVILINEAR, or CURVILINEAL *figures*, in *Geometry*, are ſpaces bounded by crooked lines; as the circle, ellipſis, ſpherical triangle, &c.

CURVILINEAR *angle*, and *ſuperficies*. See ANGLE, and SUPERFICIES.

CURVIROSTRA, in *Ornithology*, a ſpecies of LOXIA.

CURVIROSTRA *foſſilis*, in *Natural Hiſtory*, the name of a ſpecies of foſſile ſhell, found very frequently in the ſtone quarries of Northamptonſhire, and the neighbouring counties. It is a ſpecies of cockle, and is diſtinguiſhed by its beak not ſtanding in the middle, but always inclining to one or the other ſide. The ſhell is ſometimes found remaining entire, and in its native ſtate and condition, but more frequently there is ſtony matter depoſited in its place.

CURULE *chair*, *ſella* CURULIS, in *Antiquity*, a high ivory chair, wherein certain of the Roman magiſtrates had a right to ſit.

The *curule* magiſtrates were, the ædiles, prætors, cenſors, and conſuls.

The ſenators, who had borne theſe charges, were carried to the ſenate on *curule chairs*, as alſo thoſe who triumphed: the chair being fitted into a kind of chariot, *currus*; whence the origin of the word *curuliſt*.

The *curule chair* is uſed, on medals, to expreſs a *curule* magiſtracy: when traverſed by a haſta, it is the ſymbol of Juno, and ſerves to expreſs the conſervation of princeſſes.

CURULE *ſtatues*. See STATUE.

CURURU, in *Botany*, a name uſed by Plumier in the ſame ſenſe with the *ſarſona* of the ſame author, in its generical characters, and called by Linnæus PAULINIA.

CURURUCA, in *Ichthyology*, the name of an American freſh water fiſh, of an oblong, and not flatted, body. It grows to a foot and a half in length; its mouth is very large. It is eaten in the Braſils.

CUSCASOW, the name of a Mooriſh diſh eaten in Egypt. It is made of flour tempered with water, rolled in the hands into ſmall pieces, and then put into a colander, over a boiling pot, ſtopped cloſe round; ſo that it is dreſſed with the ſteam; and when it is done enough, they put butter to it.

CUSCUTA. See DODDER.

CUSHION, *Ladies*, in *Botany*. See SAXIFRAGE.

CUSHION, *Sea*, *Statice*. See THRIFT.

CUSHION, *a rubber*, in *Electricity*. See ELECTRICAL *machine*.

CUSHION, in *Engraving*, is a bag of leather filled with ſand, commonly about nine inches ſquare, and three or four thick, uſed for ſupporting the plate to be engraved.

CUSHION, in *Gilding*, is made of leather, faſtened to a ſquare board, from fourteen inches ſquare to ten, with a handle. The vacuity between the leather and board is ſtuffed with ſilver tow or wool, ſo that the outer ſurface may be flat and even. It is uſed for receiving the leaves of gold from the paper, in order to its being cut into proper ſize and figures.

CUSI, in *Natural Hiſtory*, a name given by the people of the Philippine iſlands to a very ſmall and very beautiful ſpecies of PARROT.

CUSP, *coſpis*, properly denotes the point of a ſpear, or ſword; but is uſed in *Aſtronomy* to expreſs the points, or horns, of the moon, or any other luminary.

CUSP, in *Aſtrology*, is uſed for the firſt point of each of the twelve houſes, in a figure, or ſcheme, of the heavens. See HOUSE.

CUSPIDATED, in *Botany*, is when the leaves of a flower end in a cuſp, or point, reſembling that of a ſpear.

CUSPIDATED *hyperbola*, &c. See CURVE.

CUSTARD *apple*. See *Cuſtard* APPLE.

CUSTODE *admittendo*, and CUSTODE *amovendo*, are writs for the admitting or removing, of guardians.

CUSTODES *libertatis Angliæ authoritate parliamenti*, was the ſtyle or title, in which writs, and other judicial proceedings, did run in the time from the death of Charles I. till Oliver was declared protector, &c.

CUSTODIA. See RECTO *de cuſtodia terræ & hæredis*. *Hæredi deliberande alii qui habet* CUSTODIAM *terræ*. See HEREDE.

CUSTOM is uſed to denote the manners, ceremonies, or ways of living of a people, which in time have turned into habit, and by uſage obtained the force of laws.

In

In this ſenſe, *cuſtom* implies things that were at firſt voluntary, but are become neceſſary by uſe.

CUSTOM, *Conſuetudo*, in *Law*, is a law not written, eſtabliſhed by long uſage, and the conſent of our anceſtors. No law can oblige a people without their conſent: ſo wherever they conſent and uſe a certain rule or method as a law, ſuch rule, &c. gives it the power of a law; and if it is univerſal, then it is common law; if particular to this or that place, then it is *cuſtom*. 3 Salk. 112. And as to the riſe of *cuſtoms*, when a reaſonable act once done, was found to be good, and beneficial to the people, then did they uſe it often; and by frequent repetition of the act, it became a *cuſtom*; which being continued without interruption time out of mind, it obtained the force of a law, to bind the particular places, perſons, and things concerned therein. Thus a *cuſtom* had beginning, and grew to perfection: and a good *cuſtom* muſt be grounded on antiquity, continuance, certainty, and reaſon; antiquity, for that it hath been time out of memory, or threeſcore years, as limited by the ſtatute; and time out of mind, is where no man then living hath heard or known any proof to the contrary. It is ſufficient, if two or more witneſſes depoſe, they heard their fathers ſay the ſame of their time. If it be matter of record, the continuance of one hundred years is ſufficient.

The effect of a *cuſtom*, thus circumſtantiated, is, that in popular ſtates, and limited monarchies, it ſerves to interpret the written laws: for in abſolute monarchies, it is the king alone who hath the power of interpreting laws. Hence, the word *cuſtom* is ſtill retained, and ſerves to expreſs the particular rights, and municipal laws, eſtabliſhed by uſage in particular provinces, &c. after they are reduced into written laws.

In this ſenſe, moſt of the common law of England is *lex non ſcripta*; being originally no more than the *cuſtoms* of our forefathers.

Lex non ſcripta, in this ſenſe, is uſed in oppoſition to *ſtatutes*, or *acts of parliament*; which commence laws at once.

Cowel diſtinguiſhes *cuſtom* from *preſcription*, in that the former is more general, and relates to ſeveral perſons; whereas the latter is uſually confined to this or that man. Five years time, too, are ordinarily ſufficient for preſcription; whereas, for *cuſtom*, there are required a hundred.

Cuſtoms are real things, and are included within their limits, or territories: they are either *local*, i. e. reſtrained to this or that place; or *general*.

The *cuſtom* of Paris ſerves as a rule for all the other places of France, where they have no proviſions contrary to it.

The Romans were governed by *cuſtoms*, or unwritten laws, after the expulſion of their kings.

CUSTOM *of London*. The principal local *cuſtoms* of this city are the following: if a citizen and freeman dies, his goods and chattels, ſhall be divided into three parts; the wife ſhall have one part, the executors another, to diſcharge legacies, &c. and the children unprovided for the other third part. If he has no wife, half of his perſonal eſtate goes to his children, and the other moiety is at his own diſpoſal: if he has a wife and no children, half belongs to her. By ſtat. 11 Geo. I. c. 18. the above *cuſtom* takes place only when a freeman dies inteſtate; but he is impowered by will to diſpoſe of his perſonal eſtate as he pleaſes. A woman in London, that uſes a trade, without her huſband, is chargeable without him, as a *feme ſole* merchant; and if condemned, may be put in priſon till ſhe pay the debt; and her bail are liable, if ſhe abſents herſelf, and the huſband ſhall not be charged. It is the *cuſtom* of the city of London, that a perſon educated in one trade may ſet up in another. And if a debtor be a fugitive, he may be arreſted before the day to find better ſecurity. Every tenant at will of a houſe above 40*s per ann.* in the city, ought to give and receive half a year's warning on leaving it. Any *cuſtoms* are tried by writ to the lord mayor and aldermen, who certify whether there be ſuch a *cuſtom* as is pleaded by their recorder: and the *cuſtoms* of London are taken notice of in the courts at Weſtminſter.

CUSTOM *of Merchants*, denotes certain rules of judging in relation to contracts, bills, &c. eſtabliſhed by the uſual proceeding of merchants.

CUSTOM, *Dower by*. See DOWER.

CUSTOM, *Suit*. See SUIT.

CUSTOMS, in *Commerce*, the dues, duties, or tolls, paid by merchants to the king, for carrying out, and bringing in, of merchandizes.

Some have imagined that they are called *cuſtoms*, becauſe they were the inheritance of the king by immemorial uſage and the common law, and not granted him by any ſtatute; but ſir Edward Coke has clearly ſhewn, that the king's firſt claim to them was by grant of parliament 3 Edw. I. and this is expreſſly acknowledged by that. 25 Edw. I. c. 7. with reſpect to the *cuſtoms* on exported wools, ſkins, and leather, which were called the ſtaple commodities of the kingdom; and theſe *cuſtoms* were formerly denominated the hereditary *cuſtoms* of the crown. They were alſo called *cuſtoma antiqua & magna*, in contradiſtinction to *cuſtoms parvi & nova*, being an impoſt of three pence in the pound paid by merchant ſtrangers on all commodities imported and exported. This was called the alien's duty, and firſt granted in the 31ſt year of Edward I.

There is another hereditary duty pertaining to the crown, called the PRISAGE or BUTLERAGE of wines, conſiderably older than the *cuſtoms*, to which we may add other *cuſtoms* payable on exports and imports, and diſtinguiſhable into SUBSIDIES, impoſed by parliament on the fore mentioned ſtaple commodities, TONNAGE, POUNDAGE, and other impoſts.

It was enacted, anno 6 Edw. III. that no new *cuſtom* could be levied, nor old ones increaſed, but by authority of parliament; which was afterwards confirmed by 16 Car. I. c. 8.

By the term *cuſtoms*, as it is now underſtood, we mean ſuch duty or ſubſidy as is paid by the merchant at the quay, on all imported as well as exported commodities, by authority of parliament; unleſs where particular reſtrictions and allowances are ſpecified. The duty of tonnage and poundage was granted to Charles II. for his life, and 19 his two immediate ſucceſſors; but now by three ſeveral ſtatutes, 9 Ann. c. 6. 1 Geo. I. c. 12. and 3 Geo. I. c. 7. it is made perpetual, and mortgaged for the debt of the public. The *cuſtoms* impoſed by parliament are chiefly contained in two BOOKS *of rates*; to which *many* ſubſequent additions have been made. Aliens pay a larger proportion than natural ſubjects. Blackſt. Com. vol. i. p. 313, &c. See DUTY, and NATURALIZATION.

The amount of the *cuſtoms* in England, being the mediam of the payments into the exchequer, for three years ending in 1773, as ſtated by Dr. Price, a late writer on finance, is 2,528,275*l.* and the expence of collecting, being the average of 1771, and 1772, bounties included, 15 *per cent.* of the groſs produce, excluſive of drawbacks and over-entries, or 468,707*l.* and that of the *cuſtoms* in Scotland eſtimated in the ſame manner; is 68,360*l.*

In caſe goods and merchandiſe are brought to a port, and part of the goods are ſold there, but never landed, they muſt pay the *cuſtoms*. Ships outward bound, and coming from beyond ſea, having goods and merchandiſe on board, are to be entered at the *cuſtom*-houſe, and the *cuſtoms* paid or agreed for, under penalties and forfeiture of the goods; one moiety to the king, and another to the ſeizer, &c. 13 and 14 Car. II. Officers of the *cuſtoms* may ſearch ſhips; and having writ of aſſiſtance, ſearch houſes. By other ſtatutes, foreign goods, taken in at ſea by any coaſting veſſel, ſhall be forfeited, and treble value: and for prevention of clandeſtine running of goods, if any foreign brandy, &c. is imported in veſſels under forty tons, the importer ſhall forfeit the veſſel and brandy. Run goods concealed or offered for ſale, are liable to forfeiture and treble value. 8 and 11 Geo. I. When three perſons are aſſembled and armed with fire-arms, &c. to be aſſiſting in running goods, they ſhall be adjudged guilty of felony. And two or more found in company within five miles of the ſea-coaſt, with any horſes, carts, &c. on which are put above ſix pounds of tea or five gallons of brandy, or other foreign goods of 30*l.* value, landed without entry, and not having permits, who ſhall carry any offenſive weapons, &c. or aſſault any officer of the *cuſtoms*, ſhall be deemed runners of goods, treated as felons, and the goods ſhall be ſeized and forfeited. If any perſon offers any tea, brandy, &c. to ſale, without a permit, the perſons to whom it is offered may ſeize and carry it to the next warehouſe belonging to the *cuſtoms* or exciſe, and be entitled to a third part of the produce on condemnation. And perſons offering any bribe to officers of the *cuſtoms* to connive at the running of goods, are liable to a forfeiture of 50*l.* obſtructing ſuch officers in entering and ſearching ſhips, incurs a forfeiture of 100*l.* and if the officers are wounded or beaten on board any ſhip, the offenders incur the penalty of tranſportation, &c. 9 Geo. II. See DRAWBACK, and EXCISE.

CUSTOM-HOUSE, an office eſtabliſhed on the frontiers of a ſtate, or in ſome chief city, or port, for the receipt of the cuſtoms and duties of importation and exportation, impoſed on merchandiſes, by the authority of the ſovereign, and regulated by tariffs, or books of rates.

There are ſeveral *cuſtom-houſes* in the ſeveral ports of England: the moſt conſiderable is that of London. It

is under the direction of nine commissioners appointed by patent; who have the charge and management of all the customs (the petty farms alone excepted) in all the ports of England.

Other officers are, a secretary, solicitor, receiver-general, comptroller of the outlying payments of the receiver-general, comptroller-general, inspector of the out-port collectors accounts, inspector-general of the exports and imports, register-general of all ships of Great Britain, surveyor general, surveyor of the sufferings, register of the seizures, &c. all holding their places by patents: with other inferior officers, appointed by warrant from the board of treasury. These officers shall have no ships of their own, nor use merchandise, factorage, &c. under penalty of 1000l. They are also prohibited to trade in any victuals liquors, on pain of 50l. and forfeiture of office: for taking a bribe they shall forfeit 100l. and 500l. for making salse seizures.

CUSTOMARY *tenants*, CUSTUMARII, or *tenentes per consuetudinem*, are such tenants as hold by the custom of the manor, or their special evidence.

These were anciently bondmen, or those that held *tenura bondagii*. *Et omnes illi qui tenuerint in bondagii tenura, solebant vocari customarii*. MS. de Consuetud. Man. de Stoke Clifford, de anno 3 Edw. II.

CUSTOS *brevium*, the name of an office belonging to the court of common pleas, executed by four persons, and a deputy, who receive and keep all the writs, and put them upon files, every return by itself; and at the end of each term receive of the prothonotaries all the records of the *nisi prius*, called the *postea*.

The writs are first brought in by the clerks of assise of every county, to the prothonotary who entered the issue in that matter, to enter judgment. Four days after the return, the prothonotary enters the verdict, and judgment thereupon, into the rolls of the court; and then delivers them over to the *custos brevium*.

The *custos brevium* also makes entry of writs of covenant, and concords on fines; and makes copies and exemplifications of all writs and records in his office, and of all fines levied: the fines, when engrossed, are divided between the *custos brevium* and chirographer; the former keeping the writ of covenant and the note, the latter the concord and foot of the fine.

In the court of king's bench there is likewise a *custos brevium & rotulorum*, who files such writs as are there used to be filed, and all warrants of attorney; and transcribes or makes out records of *nisi prius*, &c.

CUSTOS *placitorum coronæ*, in our *Ancient Writers of Law*, seems to be the same with him we now call *custos rotulorum*, which is mentioned in the writ *de odio & atia*.

CUSTOS *rotulorum*, he who has the custody of the rolls, or records, of the sessions of peace; and, some say, of the commissions of peace itself; appointed by a writing signed by the king's hand.*

He is always a justice of peace, and quorum, in the county where he hath his office; and by his office appears to be rather a minister than a judge: because the commission of the peace, by express words, lays this special charge upon him: *Quod ad dies & loca prædicta, brevia, præcepta, processus, & indictamenta prædicta coram te & dictis sociis tuis venire facias.* It is his province to appoint the clerk of the peace.

CUSTOS *spiritualium*, he who exercises spiritual or ecclesiastical jurisdiction in any diocese, during the vacancy of the see.

This, by the canon law, belongs to the dean and chapter; but, in England, to the archbishop of the province, by prescription: though divers deans and chapters do challenge it, by ancient charters, from kings of this land.

CUSTOS *temporalium*, the person to whose custody a vacant see was committed by the king, as supreme lord; who, as a steward of the goods and profits, was to give an account to the escheator, and he into the exchequer.

His trust continued till the vacancy was supplied by a successor, who obtained the king's writ, *de restitutione temporalium*; which was commonly after consecration, but sometimes before.

CUT *a feather*, in *Sea Language*, is when a well-bowed ship so swiftly presses the water, that it foams, or froths. To *cut the sail*, is to unfurl it, and let it fall down.

CUT-*bastion*. See BASTION.

CUT-*purse*, in *Law*; if any person *clam & secrete*, and without the knowledge of another, cut his purse or pick his pocket, and steal from thence above the value of twelve pence, it is felony excluded clergy. 8 Eliz. 3 Inst. 68.

Cut-purses or *foculorii* were more severely punished than common thieves, by the Roman and Athenian laws.

CUT-*roof*. See ROOF.

CUT-*water*, the sharp part of the head of a ship below the beak. It is so called because it cuts or divides the water before it comes to the bow, that it may not come too suddenly to the breadth of the SHIP, which would retard her.

CUTAMBULI, a name given by the old writers on medicine to certain worms bred under the skin, and causing by their creeping a very uneasy sensation. Afterwards the same word was used to express certain uneasy itchings caused by a scorbutic habit, and resembling the crawling of worms.

CUTANEOUS, something that concerns the *cutis*, or skin; whether in the way of distemper, or remedy.

Thus, we say, *cutaneous* eruptions; the itch is a *cutaneous* disease.

CUTANEOUS *eruptions*, in infants. See INFANT.

CUTHBERT *duck*, in *Zoology*. See DUCK.

CUTICULA, CUTICLE, in *Anatomy*, a thin, pellucid membrane, void of sense; serving as a cover to the *cutis*, or skin. See *Tab. Anat.* (*Myol.*) *fig.* 9.

The *cuticula* is that first, and outermost covering of the body, called also *epidermis*, but more commonly the *scarf skin*; or that soft tegument which rises in a blister upon a burn, or the application of a cautery.

It sticks close to the surface of the *cutis*, or true skin, to which it is also tied by the vessels that feed it; though these are so small as not to be seen.

When examined by a microscope, it appears to consist of several lays of exceeding small scales, which cover one another, more or less, according to its different thickness, in the several parts of the body; and in the lips, where the scales appear plainest because the skin is thinnest, they do little more than barely touch.

These scales are either the excretory ducts of the glands of the *cutis*, as is the case apparently in fishes; or else the glands have their tubes, opening between the scales. See MILIARY *gland*.

Leuwenhoeck reckons, that in one *cuticular* scale there may be 500 excretory ducts; and that a grain of sand will cover 250 scales: so that one grain of sand will cover 1,25,000 pores, or orifices, through which we daily perspire.

Yet, notwithstanding the exceeding porosity of the *cuticula*, it obstructs a great part of the serous humours, which would otherwise be evacuated, by the glands of the *cutis*; as is evident, from that plentiful discharge consequent on the application of a blister, or other accident, whereby the *cuticula* is removed, and the *cutis* bared.

The scales are often glued together by the grosser parts of our insensible transpiration hardening upon them by the heat of the body, which caries off the more volatile particles; and in this is supposed to consist that indisposition we popularly call a COLD.

The humour which is thenceforward separated by the glands of the skin, being pent in between the scales, causes frequent itching; and where the matter has been long pent up, small pimples, and other foulnesses: for removing of which, nature directs to those wholesome remedies of frequent rubbing, washing, or bathing.

Some imagine the *cuticle* to be formed from the grosser parts of the excrementitious serous humour, eliminated through the pores of the *cutis*, and condensed on the surface; like the pellicle which appears, upon evaporation, on the surface of the serum of the blood: but Leuwenhoeck, with more probability, takes it to be from an expansion of the excretory ducts of the glands of the skin.

Its use is to defend the nerves of the *cutis*, which are the origin of the sense of feeling, from the injuries of rough and hard bodies; as well as the air; for either of those would make too exquisite and painful an impression on the naked nerves; or the air would dry them, so as that they would be less susceptible of the nicer touches of pleasure.

Riolanus, and several others, maintain that the *cuticula* of women has no pores: Molinette argues the contrary from their sweating; but maintains, also, that this is true of dogs and cats, who never sweat, how much soever fatigued. See SKIN.

CUTICULAR *glove*, in the Phil. Trans. denotes a separation of the *cuticle* from the *cutis*, from the wrist to the finger-ends, &c. in the form of gloves, occasioned by a singular kind of fever. See the case and history related, ibid. vol. lix. N° 38. an. 1769.

CUTICULARES *caruncule*. See CARUNCULÆ *cuticulares*.

CUTIS, in *Anatomy*, the *skin*; a reticular plexus, or body of vessels, immediately under the cuticle, or scarf skin. See *Tab. Anat.* (*Myol.*) *fig.* 8.

The vesicles of the *cutis* contain a mucous liquor; from the tincture of which, Malpighi, and others, take the colour of the skin to be derived; founded on this, that the *cutis*, as well as *cuticle* of blacks, is white, and the blood red, &c. and that the only thing they have peculiar in this part, is the colour of this liquor.

The

The *cutis* conſiſts of fibres of its own; or, according to Steno, is formed out of the productions of the tendons of the ſubjacent parts: which terminate in an infinite number of pyramidal papillæ, interwoven with innumerable nervous fibres, and other veſſels, forming what we call a PARENCHYMA. It is by means of theſe papillæ that the *cutis* becomes the organ of feeling.

Dr. Hunter ſays, that when the ſkin is once deſtroyed, it is never regenerated, and that the cicatrix is hardened fleſh.

The *cutis* is generally connected to the ſubjacent parts by the *membrana adipoſa*, and its proper veſſels, the veins, arteries, nerves, &c. Its uſe is to wrap up and cover the whole body; to be a general emunctory for the matter of perſpiration; and to be the organ of feeling.

The diſeaſes of the *cuticula* and *cutis* are, the itch, leproſy, ſmall-pox, meaſles, ſcarlet fever, and eryſipelatous inflammations.

CUTTER, in *Sea-language*, denotes a ſmall veſſel commonly navigated in the Engliſh channel, furniſhed with one maſt, and rigged as a ſloop. Many of theſe are uſed in an illicit trade: and others employed, under the direction of the admiralty or cuſtom-houſe, by government, to ſeize them.

CUTTER is alſo the name of a ſmall boat belonging to ſhips of war. It is broader, deeper, and ſhorter than the BARGE or PINNACE; fitter for ſailing, and uſually employed in carrying ſtores, proviſions, &c. to and from the ſhip. CLINCHER-work is uſed in the ſtructure of theſe boats.

CUTTER *of the tallies*, an officer of the exchequer, who provides wood for the tallies, and cuts the ſum paid upon them. See TALLY.

CUTTING, a term uſed in various ſenſes, and various arts; in the general, it implies a diviſion or ſeparation.

CUTTING is particularly uſed in *Heraldry*, where the ſhield is divided into two equal parts, from right to left, parallel to the horizon, or in the feſſe-way.

The word is alſo applied to the honourable ordinaries, and even to animals, and moveables, when they are divided equally the ſame way; ſo, however, as that one moiety is colour, the other metal. The ordinaries are ſaid to be *cut, couped*, when they do not come full to the extremities of the ſhield.

CUTTING, in *Chirurgery*, denotes the operation of exacting the STONE out of the bladder by ſection. See LITHOTOMY.

CUTTING-*glaſs*, in *Chirurgery*. See CUPPING-*glaſs*.

CUTTING, in *Coinage*. When the lamin, or plates of the metal, be it gold, ſilver, or copper, are brought to the thickneſs of the ſpecies to be coined, pieces are *cut* out, of the thickneſs, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been ſtamped on them.

The inſtrument wherewith they *cut*, conſiſts of two pieces of ſteel, very ſharp, and placed over one another; the lower a little hollow, repreſenting a mortar, the other a peſtle. The metal put between the two, is *cut* out in the manner deſcribed under COINAGE.

Note. Medallions, where the relievo is to be great, are not *cut*, but caſt, or moulded.

CUTTING, in the *Manage*, is when the horſe's feet *interfere*; or when with the toe of one foot he beats off the ſkin from the paſtern-joint of another foot.

This is more frequent in the hind feet than the fore: the cauſes are either weakneſs in the reins, not knowing how to go, or ill ſhoeing.

CUTTING, in *Painting*, the laying one ſtrong lively colour over another, without any ſhade or ſoftening. The *cutting* of colours has always a diſagreeable effect.

CUTTING *in wood*, a particular kind of ſculpture, or engraving; denominated from the matter wherein it is employed.

It is uſed for various purpoſes; as, for figured letters, head and tail-pieces of books; and even for ſchemes and other figures, to ſave the expences of engraving on copper: and for prints, and ſtamps for paper, callicoes, linens, &c.

The invention of *cutting in wood*, as well as that in copper, is aſcribed to a goldſmith in Florence; but it is to Albert Durer, and Lucas, they are both indebted for their perfection. See ENGRAVING, and PRINTING.

One Hugo de Carpi invented a manner of *cutting in wood*, by means whereof, the prints appeared as if painted in chiaro-obſcure. In order to this, he made three kinds of ſtamps for the ſame deſign; which were drawn, after one another, through the preſs for the ſame print: they were ſo conducted, as that one ſerved for the grand lights, a ſecond for the demi-teints, and a third for the outlines and the deep ſhadows.

The art of *cutting in wood*, was certainly carried to a very great pitch above two hundred years ago; and might even vie, for beauty and juſtneſs, with that of engraving in copper. At preſent it is in a low condition, as having been long neglected, and the application of artiſts wholly employed on copper, as the more eaſy and promiſing province: not but the wooden *cuts* have the advantage of thoſe in copper on many accounts; chiefly for figures and devices in books; as being printed at the ſame time, and in the ſame preſs, as the letters: whereas, for the other, there is required a particular impreſſion. In the repreſentation of plants and flowers, and in deſigns for paper-hangings, where the outline only is wanted to be printed, or a bold full manner, this method will be found cheaper and more effectual than the uſe of copper-plates.

The *cutters in wood* begin with preparing a plank or block, of the ſize and thickneſs required, and very even and ſmooth on the ſide to be *cut*: for this they uſually take beech, pear-tree, or box; though the latter is the beſt, as being the cloſeſt, and leaſt liable to be worm-eaten. The wood being cut into a proper form and ſize, ſhould be planed as even and truly as poſſible: it is then fit to receive the drawing or chalking of the deſign to be engraved. But the effect may be made more apparent, and the ink, if any be uſed in drawing, be prevented from running, by ſpreading thinly on the ſurface of the wood, white lead tempered with water, by grinding with a brush pencil, and afterwards rubbing it well with a fine linen rag, whilſt it is wet; and when it is dry, bruſhing off any looſe or powdery part with a ſoft pencil.

On this block they draw their deſign with a pen, or pencil, juſt as they would have it printed. Thoſe who cannot draw their own deſign, as there are many who cannot, make uſe of a deſign furniſhed them by another; faſtening it upon the block with paſte made of flour and water, with a little vinegar, or gum tragacanth; the ſtrokes or lines turned towards the wood.

When the paper is dry, they waſh it gently over with a ſponge dipped in water; which done, they take off the paper by little and little, ſtill rubbing it a little firſt, with the tip of the finger; till at length there be nothing left on the block, but the ſtrokes of ink that form the deſign, which mark out ſo much of the block as is to be ſpared, or left ſtanding. Figures are ſometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the ſurface of the wood.

The reſt they *cut* off, and take away very curiouſly with the points of very ſharp knives, or little chiſſels, or gravers, according to the bigneſs or delicacy of the work, for they uſe no other inſtruments.

It differs from engraving in copper, becauſe in the former, the impreſſion comes from the prominent parts, or ſtrokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and eaſy than that of copper-plate: becauſe they require only to be dipt in the printing-ink, and impreſſed on the object in the ſame manner and with the ſame apparatus as the letter-printing is managed; and for purpoſes that do not require great correctneſs, the impreſſion is made by the hand only, a proper handle being fixed to the middle of the print, by which it is firſt dipped in the ink, ſpread by means of a bruſh, on a block of a proportionable ſize covered with leather; and then lifted up inſtantly, and dropped with ſome little force on the paper, which is to receive the impreſſion. Handmaid to the Arts, vol. ii. p. 222.

CUTTINGS, or *ſlips*, in *Gardening*, the branches or ſprigs of trees, or plants, cut or ſlipped off to ſet again; which is done in any moiſt fine earth.

The beſt ſeaſon is from Auguſt to April; but care is to be taken, when it is done, the ſap be not too much in the top, leſt the cut die before that part in the earth have root enough to ſupport it: nor yet muſt it be too dry, or ſcanty; the ſap in the branches affiſting it to take root.

In providing the *cuttings*, ſuch branches as have joints, knotts or burrs, are to be cut off two or three inches beneath them, and the leaves to be ſtripped off ſo far as they are ſet in the earth. Small top-branches, of two or three years growth, are fitteſt for this operation.

CUTTING-*teeth*, in *Anatomy*. See TEETH.

CUTTLE-*fiſh*, *Sepia*, in *Zoology*, the name of a genus of ſea-inſects of the *gymnarthria* kind, called alſo the INK-*fiſh*.

The body of the *ſepia* is of an oblong figure, and depreſſed; it is furniſhed with ten tentacula, two of which are longer than the others, and are pedunculated. It is often ſix inches in length, and three and a half in diameter.

It is ſupported by an oblong, light, and ſpongy ſubſtance, of

of a friable texture, and lined with a light fungous pith. This is used by the silver-smiths, and as a counterfeit under the name of *os sepiæ*, *os sepiæ*, or *cuttle-bone*. This animal, when it is in danger of being taken, is said to emit a black liquor like INK, out of its mouth in considerable quantities, whereby the water is rendered black, and it finds an opportunity of escaping; and from this property it has got the name of the *sea-hare*. It is usually a stranger to our seas, as appears by its bones being found on our shores.

CUTTLE-*fish bone*, *Sepiæ os*, or *testa*, is a white, spongy testaceous substance, growing on the back of the *cuttle-fish*, and seeming almost to be calcined by the sun.

It is cooling and abstersive, and chiefly used in medicine as a styptic.

It is hard on one side, but soft on the other, so as to receive neat impressions from medals, which is said to be used for the casting of metals, which then take the form of the original. It is likewise used for polishing and cleaning silver. See Lewis's Com. P.

CYAMUS, in *Natural History*, a name given by the people of Guinea to a bean which they esteem greatly for its medicinal virtues. They boil it in water, and give the decoction in cases of the colic, in which it proves a cure. It is a species of the *anonis*, or rest-harrow, and is common in Africa, and the West Indies, Sir Hans Sloane having very well figured, and described it, under the name of *anonis non spinosa minor glabra procumbens flore luteo*, the yellow flowered, small, procumbent, smooth *anonis*, without thorns.

It is found in vast abundance on the banks of the Rio Cobre, near the city of St. Jago de la Vega, or Spanish Town. Phil. Transf. N° 232.

CUTTS, flat-bottomed boats, built low and commodiously, used in the channel for transporting horses. Strow. Anal. p. 412.

CUVETTE. See COUETTE.

CUURDO, in *Botany*, is, with some authors, the name of the cinnamon-tree.

CYAMEA, in *Natural History*, the name by which the ancients call the black stinty eagle-stone. Pliny describes its blackish colour, and says, that when broken, there was found within it another stone of the bigness of a horse-bean. This is what rattles in it when shaken.

CYANELLA, in *Botany*, a genus of the *hexandria monogynia* class. The corolla consists of six petals. The fruit is a roundish trifulcated capsule, consisting of three valves, and containing three cells: the seeds are numerous and oblong.

CYANEUS, in *Zoology*. See COLUBER.

CYANUS, in *Botany*. See BLUE-*bottle*, and CENTAURY.

CYANUS, in the *Natural History of the Ancients*, is used to express two different substances. The one, the *lapis lazuli*; the other, the *lapis armenus*, a substance used by the painters in its native state, and very improperly called a stone, being a mere earth, and being truly to copper, what yellow ochre is to iron.

CYATHUS, from κυαθω, *to pour out*, in *Antiquity*, a liquid measure among the Romans, being the twelfth part of the SEXTARIUS. It only held as much as a man could easily drink at one draught, and was divided into twelve parts, called UNCIÆ.

CYBÆA, in *Antiquity*, a kind of ship used in commerce, of a roundish form.

CYBELE, in *Mythology*, a heathen goddess; the daughter of heaven and earth, wife of Saturn, and mother of the gods. She was adored under the names of Ops, Rhea, [illegible]es, Dyndimene, Berecynthia, &c. from Mount Cybelus in Phrygia. [illegible] a chariot drawn by lions, her garland in her hand, and a turret on her

[illegible] a name given by the ancients to a [illegible]g in a mountain of that name in [illegible]n extremely bright white, with [illegible] black.

[illegible]cies of divination performed by

[illegible]nus of the cry[illegible]
[illegible] *is mix*

[illegible] 1. One when prepared with water alone, it refreshes and nourishes greatly.

CYBISTA, a Grecian dance, so called from the name of its inventor, one of the satyrs belonging to Bacchus. It consisted of a combination of grave and gay movements.

CYCAMEN, in *Botany*. See SOW-*bread*.

CYCLAS, in our *Old Writers*, a long garment, close upwards, and open, or large below. Matt. Paris, speaking of the citizens of London, tells us they were *vestes ventilantis armis*, cycladibus *auri textis ex humeris*. Anno 1236.

CYCLE, from κυκλος, *I revolve*, in *Chronology*, a certain PERIOD, or series of numbers proceeding orderly from first to last, and recurring again from last to first, successively, and without interruption.

The origin of *cycles* was thus; the apparent revolution of the sun round the earth, has been divided, arbitrarily, into twenty-four hours; the basis or foundation of all our mensuration of time. Civil use knows none but hours; or rather multiples of hours, as days, and years. But neither the annual motion of the sun, nor that of the other heavenly bodies, can be measured exactly and without any remainder, by hours, or their multiples. That of the sun, v. gr. is three hundred and sixty-five days, five hours, forty-nine minutes, nearly; that of the moon, twenty-nine days, twelve hours, forty-four minutes.

Hence, to swallow up these fractions in whole numbers, and yet in numbers which only express days and years, *cycles* have been invented: which, comprehending several revolutions of the same body, replace it, after a certain number of years, in the same points of the heaven whence it first departed; or, which is the same thing, in the same place of the civil calendar.

Such is the famous *cycle* of 19 years, called al[illegible]

CYCLE *of the moon*, or *lunar* CYCLE, a period [illegible] years; equivalent to 19 lunar years, and [illegible] lunary months, which was thought to contain [illegible] days, or 235 synodical months; in which ti[illegible] and full moons are supposed to return to th[illegible] of the Julian year. See CALIPPIC.

This is also called the *Metonic period*, from [illegible] Meton, the Athenian; and the *golden numb* in propriety, the golden number is rather t[illegible] number which shews the year of the lunar [illegible] any given year is in. This cycle of the mo[illegible] true for 310.7 years; for, though the new [illegible] same to the same day after 19 years; yet no[illegible] time of the day, but near an hour and a [illegible] which error, in 310.7 years, amounts to a[illegible] Yet those employed in reforming the calend[illegible] supposition of the lunations returning prec[illegible] years to 19 years, for ever.

The use of this *cycle*, in the ancient calend[illegible] the new moon of each year, and the time [illegible] In the new one, it only serves to find the E[illegible] shew, in either calendar, that the new moon [illegible] days too late.

As the orientals began the use of this *cycle* at [illegible] the council of Nice in 325, they assumed, for t[illegible] year of the *cycle*, the paschal new moon to fall [illegible] thirteenth of March: on which foot the lunar *cycle* [illegible] fell on the first of January, in the third year.

The occidentals, on the contrary, put the number one [illegible] the first of January, which occasioned a considerable di[illegible]ference in the time of Easter: hence, Dionysius Exiguus upon framing a new calendar, persuaded the Christians of the West to solve the difference, and come into the practice of the church of Alexandria.—*To find the year of the lunar* CYCLE, is to find the golden number. See GOLDEN-*number*.

CYCLE *of indiction* is a series of fifteen years, returning constantly around, like the other *cycles*; and commencing from the third year before Christ. See INDICTION.

CYCLE *of the sun*, or *solar* CYCLE, a revolution [illegible]ears, beginning with 1, and ending with 28; [illegible]ssed, the Dominical or Sunday-letters, and [illegible]ress the other feasts, &c. return into the [illegible]er, and proceed in the same order as [illegible]ys of the month return again to the [illegible]ek; the sun's place to the same signs a[illegible] ecliptic on the same months and days. [illegible]fer one degree in a hundred years; and the [illegible]gin the same course with respect to the days [illegible]ek on which the days of the month fall.

[illegible]is called *solar cycle*, not with regard to the sun [illegible]hich has nothing to do herein; but from Sunday, [illegible]ently called *dies solis*, *the day of the sun*: in regard [illegible]OMINICAL letter is principally sought for from this [illegible]olution.

[illegible]he reformation of the calendar under pope Gregory [illegible] called

casioned a considerable alteration of this *cycle*: in the Gregorian calendar, the *solar cycle* is not constant and perpetual; because every fourth secular year is common; whereas, in the Julian, it is bissextile. The epocha, or beginning of the *solar cycle*, both Julian and Gregorian, is the ninth year before Christ.

To find the cycle *of the sun for any given year*: add nine to the number given, and divide the sum by 28; the number remaining will be the number of the *cycle*, and the quotient the number of revolutions since Christ.

If there be no remainder, it will be the twenty-eighth, or last year of the *cycle*.

CYCLE *of the Sun in* Julian *Years*.

1	GF	5	BA	9	DC	13	FE	17	AG	21	CB	25	ED
2	E	6	G	10	B	14	D	18	F	22	A	26	C
3	D	7	F	11	A	15	C	19	E	23	G	27	B
4	C	8	E	12	G	16	B	20	D	24	F	28	A

CYCLE *of the Sun from the* Gregorian *Year* 1700, *to the Year* 1800.

1	DC	5	FE	9	AG	13	CB	17	ED	21	GF	25	BA
2	B	6	D	10	F	14	A	18	C	22	E	26	G
3	A	7	C	11	E	15	G	19	B	23	D	27	F
4	G	8	B	12	D	16	F	20	A	24	C	28	E

CYCLE. it may be obſerved, is not only applied in general to all the numbers that compoſe the ſeries; but to each number in particular: thus we compute, that the ordinary epocha from the birth of Jeſus Chriſt had the *ſolar cycle* 10; the *lunar cycle*, or the golden number, 2; the Dominical letter B; and the *cycle of indiction* 4.

CYCLE, *great Paſchal*, is another name for the *Victorian*, or *Dionyſian* PERIOD.

CYCLISCUS (from κυκλος, *circulus*), an inſtrument in form of a half-moon; uſed by the ſurgeons to ſcrape the ſkull, in fractures of that part.

CYCLOID, in *Geometry*, one of the mechanical, or, as others term them, tranſcendental curves; called alſo the *trochoid*.

CYCLOID, *the genefis of the*, may be conceived by imagining a nail in the circumference of a wheel: the line which the nail deſcribes in the air, while the wheel revolves on a right line, is the *cycloid*. Hence it is called *trochoides*, from τροχος, a *wheel*.

It is deſcribed by the motion of a point C (*Tab. Geometry, fig.* 16.) in the periphery of a circle C D H, while the circle makes a revolution along the right line A B. This line is called the baſe; the line E F biſecting it at right angles in F is called the axis; and the point E the vertex of the *cycloid*. The circle by which it is deſcribed is called the generating circle. Hence we may eaſily deduce and demonſtrate the properties of this curve. The right line A B is equal to the periphery of the generating circle C D H, and A F equal to the ſemi-periphery: and in any ſituation of this circle, the right line A D is equal to the arc CD, and therefore the arc C H = D F = I K = C G; but C H is equal to the arc E G; therefore C G = arc E G, and the ordinate C K equal to the ſum of the arc E G, and its right line G K.

Again, a line C H parallel to the chord E G, is a tangent to the *cycloid* in C. Let an ordinate *c k* be drawn very near C K, as in the figure; let C *u* and G *u* be parallel to the axis, and meet it in *u* and *n*; and from O, the centre of the circle E G F, draw the radius O G. Since *c k* = E *g* + *g k*, *c u* will be = G *g* + *g n*. Let the ordinate *c k* approach to C K, and at length coincide with it, as G *g* and G *n* vaniſh, the triangles G *g n* and G O K become ſimilar; becauſe the arc G *g* in this evaneſcent ſtate coincides with its tangent, the angle O G *g* is a right angle = *n* G K; and therefore *g* G *n* = O G K: whence G *g*: *g n*:: O G: O K, and G *g* + *g n*: *g n*:: O G + O K (= F K): O K. But G *u*: *g n*:: G K: O K, therefore G *g* + *g n*: G *u*:: F K: G K; G K = E K, and conſequently *c u*: C K:: E K: E K; and ſuppoſing the chord C *c* to be drawn, the triangles *c u*, K E C will be ſimilar, becauſe they have equal right angles, and the ſides about thoſe angles proportional; and therefore the chord C *c*, as the points C and *c* coincide, becomes parallel to E C, both meeting us on the ſame ſide of the axis in the point C; therefore the tangent of the *cycloid* C H is parallel to the chord E G.

Again, the arc of the *cycloid* E C is double of the chord E G, and conſequently equal to the ſtraight line C H, which is the tangent of the arc E C, and the equal vertical angles, Q M being indefinitely ſmall, and coinciding with the tangent; and E N = N M as tangents to the ſame circle meeting in N; therefore P Q = Q M, and Q *s* biſects the baſe of the iſoſceles triangle, and conſequently M P = 2 M *s*; but L S, being an indefinitely ſmall part of the curve, and coincident with the tangent, is parallel to MP, the chord produced, and equal to it; therefore L S = 2 M *s*. But as L S is the increment of the curve generated in the ſame time in which the chord E M increaſes by M O, ſince E Q ſuppoſed to be drawn is equal to E *s*, when Q and M coincide: conſequently the curve increaſes twice as faſt as the chord, and as they begin to increaſe together, the arc of the *cycloid* E L will be always double of the chord E M. Hence it appears that the ſemi-*cycloid* E L B is equal to twice the diameter of the generating circle, E F; and the whole *cycloid* = 4 E F.

Again, let E R be parallel to the baſe A B, and C R parallel to the axis of the *cycloid*; the ſpace E C R is bounded by the arc of the *cycloid* E C, and the lines E R and R C, will be equal to the circular area E G K. Draw *c r* parallel to C R; ſince *c u*: C *u*:: G K: E K, as we have already proved, E K × *c u* = G K × C *u*; and therefore C R × R *r* = G K × K *k*, and the little ſpace C R *r* = G K *k*: conſequently the areas E C R, E G K increaſe by equal increments; and as they begin to flow together, they muſt be equal. Whence it follows, making A T perpendicular to the baſe at A, that the ſpace E T A C E is equal to the ſemicircular area E G F: and conſequently, that the area E C A F E, or ſemi-*cycloidal* ſpace is equal to three times the area of the generating ſemicircle E G F; becauſe A F is equal to the ſemiperiphery, and therefore E F A T being a rectangle under the diameter and ſemiperiphery, is equal to four times the ſemicircle E G F. Thus it appears, that the whole *cycloidal* ſpace is triple the area of the generating circle.

This property of the *cycloid* might likewiſe be eaſily proved, by ſuppoſing a line *a β* to be drawn at a diſtance below the centre equal to that of C K above it: let it interſect the generating circle E G E in γ; then *a* γ + C G = E γ or (F G) + E G = the ſemiperiphery E G F: and thus the ſum of every pair of lines drawn in the ſame manner will be E G F; and the number of them would be as O E; therefore the part of the *cycloidal* ſpace E C A F G E, ſuppoſed to be formed by theſe lines, would be equal to O E × E G F = to the area of the generating circle; then, adding to each the ſemicircular area, and the ſemi-*cycloidal* ſpace E C A F E, will appear to be equal to three times the ſemicircular area, &c.

Laſtly, if the line E A be drawn, the area intercepted between the *cycloid* E C A, and this line, will be equal to the ſemicircle E G F; for the area E C A F E = 3 E G F, and the triangle E A F = A F × ½ E F = the rectangle of the ſemicircle and radius = 2 E G F; therefore their difference, the area E C A E, is equal to E G F.

The *cycloid* is reputed a modern curve, and its invention aſcribed, by ſome, to Merſenne; by *others*, to Galileo; but Dr. Wallis ſhews it of an older ſtanding, and to have been known to Bovillus about the year 1500, and even conſidered by cardinal Cuſanus much earlier, viz. before the year 1451. Phil. Tranſ. abr. vol. i. p. 116.

Mr. Huygens has demonſtrated, that from whatever point or height, a heavy body, oſcillating on a fixed centre (v. gr. a pendulum), begins to deſcend; while it continues to move in a *cycloid*, the times of its falls, or oſcillations, will be equal to each other. This property M. Fontenelle ſtates thus: the nature of the *cycloid* is ſuch, that if a body, which deſcribes it, fall from a greater height, and by that means acquire a certain augmentation of velocity, as in Galileo's theory, the greater *cycloidal* arch which it deſcribes, takes up preciſely that excels of velocity: ſo that the body does not deſcribe it either ſooner for its being accelerated, or later for having a greater ſpace to move; and being acquires an equality in time, notwithſtanding the inequality of ſpace. This is fully demonſtrated, ſince the time of the deſcent of a portion of the pendulum is accelerated at any point M (Tab. III. *Geometry, fig.* 31.) of the curve, as in the point of the *cycloid* VM, that remains to be conſidered. The force of gravity, ſuppoſed to be inviolable, acting in the direction of the diameter DV, may be reſolved by DV; and it may be reſolved into the two forces DT and VQ; the firſt of which, in a direction parallel to the ſtring ſuſtaining the pendulum C N, being oppoſed [illegible]

an I it is a well known theorem in mechanics, that, when the accelerating forces are as the spaces to be described, thoſe ſpaces will be deſcribed in equal times. It appears from the foregoing demonſtration, that the part of the gravity, which the ſtring ſuſtains in any point *M*, is to the whole weight of the pendulum, as the chord DQ to the diameter.

It is alſo demonſtrated by writers on this ſubject, that the time of a complete oſcillation in the cycloid is to the time in which a body would fall through its axis, as the circumference of a circle to its diameter (Prop. 25. Horſley's Oſcillations; Keill's Introd. Lect. xv. prop. 40.); whence we may eaſily infer, that the vibrations in unequal arcs are performed in equal times.

The cycloid is alſo of the ſwifteſt deſcent; and ſome have imagined that a ray of light paſſing through the atmoſphere is continually refracted in this curve. See farther on this ſubject, Pell. Trans. No. vol. i. p. 462, &c. vol. iv. p. 5[illegible]. Maclaurin's Fluxions, art. 405—408. Account of Newton's Pell. Diſc. p. 209. &c. Cotes's Opera Miſc. p. [illegible] Stirling. Linæ tertii Ordinis. Appendix.

To this application it is, that the pendulum clock is built: on the ſubject whereof, the ſame M. Huygens has written a large volume, under the title of Horologium Oſcillatorium. See PENDULUM, and OSCILLATION.

CYCLOIDAL *ſpace*, the ſpace contained between the cycloid, and its ſubtenſe.

CYCLOMETRY, from κυκλος, *circle*, and μετρεω, *I meaſure*, the art of meaſuring cycles, or circles.

CYCLOPÆDIA, from κυκλος and παιδεια, *inſtruction*, the circle, or compaſs of arts and ſciences; more ordinarily called *encyclopædia*.

The word *cyclopædia* is not of claſſical authority, though frequent enough among modern writers, to have got into ſeveral of our dictionaries. Some have cenſured us for having called the preſent work by this name; not conſidering, that names and titles of books, engines, inſtruments, &c. are in a great meaſure arbitrary; and that authors make no ſcruple even of coining new words on ſuch occaſions when there are no old ones to their mind. Thus it is Dr. Hooke calls his fine book of microſcopical obſervations, Micrographia; Wolfius his book on the air, Aerometria; Drake his book of anatomy, Anthropologia, &c. all of them words of modern, if not of their own fabric; and on no better authority ſtand the names of half our later inventions, as *microſcope*, *teleſcope*, *barometer*, *thermometer*, *micrometer*, &c. But it is ſuggeſted the word *cyclopædia* is ambiguous, and may denote the *ſcience of a circle*, as well as the *circle of ſciences*: we anſwer, that as cuſtom, the only ſovereign rule of language, has determined the word to the latter ſenſe, it is no more chargeable with ambiguity than a thouſand other words of received uſe; no more, for inſtance, than *micrometer*, which might either denote a *little meaſure*, or a *meaſure of little things*.

CYCLOPES, from κυκλος, and ωψ, *eye*, in *Mythology*, a people who were ſaid to inhabit the iſland of Sicily, in the primitive times, together with the Leſtrigones. According to Heſiod they were the ſons of heaven and earth; but of Neptune and Amphitrite, according to Euripides and Lucian. They were called *Cyclopes* from their being deſcribed with but one eye, placed in the middle of their forehead, and were of gigantic ſtature: they were ſaid to be the companions of Vulcan. They are repreſented as a people lawleſs, ſavage, and delighting in human fleſh; which character aroſe from the cruel cuſtom of ſacrificing ſtrangers, whom fortune brought upon their coaſt. It is related that Apollo killed the principal among them for having forged the thunderbolts which Jupiter hurled againſt his ſon Æſculapius. The adventures of Polyphemus with Ulyſſes and Galatea are well known.

The explanation of this allegory has been repreſented to be man in a ſtate of uncultivated nature; unacquainted with the laws of ſocial ſociety, and living in a ſtate of brutal force, having but one ſenſe, which was ſight. Him Ulyſſes overcame by ſuperior knowledge and experience. The Cyclopes, according to Dr. Bryant, were a tribe of the ſacred Armenians, who ſettled in many parts of Greece. They were famous for architecture; and the idea of this people was borrowed from the lofty towers which they raiſed. As theſe buildings were often ſituated on the ſides of hills, to ſhew upon every occaſion their ſuperiority, by which they guarded both the entry, and the temple of the deity might have been called Cu-Cel-Ops, *Domus Cæli Pythonis*, whence Κυκλωψ, and the priests and people *Cutelopiones*. Analyſis of Ant. Mythol. vol. ii. p. 491, &c.

CYCLOPTERUS, *in Ichthyology*, the name of a genus of the branchioſtegous fiſhes, the characters of which are theſe: the branchioſtege membrane on each ſide contains ſix ſmall and cylindric bones; the body is of an oblong, globoſe figure; the belly-fins unite at their extremities, ſo as to form one circular fin, of the ſhape of a funnel; the fins are ſix in number. We at preſent know only one ſpecies, which is the LUMP-*fiſh*, or ſea-owl.

The name is formed of κυκλος, a *circle*, and πτερον, a *fin*; and expreſſes that this fiſh has ſomething circular in its fins, thoſe of the belly being concreted into this form. See *Tab. of Fiſhes*, N° 32.

This is a genus of the *nantes amphibia*, in the Linnæan ſyſtem.

CYDER, a briſk, tart, cool liquor, prepared from apples. The apples ſhould remain on the tree, till they are quite ripe; and this is a circumſtance of great importance with reſpect to the quality of the *cyder*. They ſhould be gathered by the hand in dry weather, and the drieſt part of the day, that they may be guarded both from bruiſes and moiſture. They ſhould then be ſorted, according to their various degrees of maturity; and laid in ſeparate heaps to ſweat and meliorate: ſweating, however, ſeems to be neceſſary only for apples, that are not quite ripe; though ſome recommend it as proper for all apples. The duration of the time of ſweating is beſt determined by the ſmell of the fruit; different kinds require different lengths of time, viz. from eight or ten days to ſix weeks. The harſher the apple is, the more time it needs; they ſhould be well wiped before they are uſed; the rotteſt part, if any, ſhould be thoroughly pared off, and the ſtalk taken out.

CYDER, *manner of making*. The fruit is firſt ground in a mill, or pounded in a trough, and the juice ſqueezed out of the pomace in a preſs; then it is ſtrained through a ſieve, or other filtre, and tunned up; the veſſel is not to be full. It is better to put the *cyder* into tubs or vats during the firſt fermentation, than to tun it immediately from the preſs. The curious in the manufacture of it have a large veſſel in the ſhape of an inverted cone, with a part cut off near the vertex, holding from five to twenty hogſheads, in which they ferment it. In this veſſel the heavier lees ſubſide, and the lighter forms a cruſt at the ſurface, by the breaking and ſinking of which they judge when it is fit for racking; and it is drawn off by a tap near the bottom. For two or three days it is to be ſtopped looſely, then quite cloſed with clay; a ſmall vent-hole ſhould be left open for ſeveral days, or looſely ſtopped up with a peg, till the wild ſpirit of the liquor be ſpent; afterwards both the vent-hole and bung may be cloſed. Henceforward, a ſmall quantity is to be drawn every day for ſome weeks, till ſuch time as it be ſuppoſed pretty clear: then it is pierced, to ſee how fine it is; the ſummer fruit after a month: the gennetmoil after the firſt froſts; the redſtreak not till after January; and the other winter fruits about the ſame time.

If it be new not found fine enough, it ſtands a month longer; and if after this it be defective, it is racked off like wine, ſo as to keep out the air.

Some, inſtead of racking, fine it with iſinglaſs, ſteeped in white wine, and diſſolved over the fire; this they boil in a quantity of the liquor to be fined, and then mix it with the reſt: and others, inſtead of diſſolving the iſinglaſs over the fire, let it ſteep in the white wine for about a month, in which time it diſſolves into a jelly of itſelf; a quantity of this is mixed with ſome of the liquor, and the whole beat to a froth; then mingled, together with ſome broom, with the reſt. The liquor once fine, it is drawn off, without any further trouble.

Some recommend frequent racking, and others ſtrongly for ſtopping and increaſing the fermentation: but this ſhould be regulated according to the ſtrength or weakneſs of the *cyder*.

When the *cyder* has done fermenting, two or three handfuls of wheat ſtraw, thrown into each veſſel, will ſkim off the head or cream of the liquor, and make it look better; and the *cyder* is much improved by putting to a ſtrong head almoſt three quarts of good wheat, waſhed and huſked. Double [illegible] cyder may be [illegible] by a [illegible] and putting [illegible] ſecond [illegible]

preserved, by adding wheat to it, in the proportion of about a gallon to a hogshead; and a greater degree of acidity may be corrected by egg-shells, powdered alabaster, &c. Ginger is used for accelerating the maturation of *cyder*, helping its fermentation, preserving it, and correcting its flatulence.

It is observed, that a mixture of fruits is of great advantage to *cyder*; the worst apples, mixed together, making as good *cyder* as the best make alone: always observing, however, that they be of equal ripeness.

The best mixture, according to Mr. Worlidge, is that of redstreaks with golden renners: bitter apples spoil the *cyder*, but the juice of them, and of crabs, yield as good spirits as the best apples, when fermented: neither the sour nor bitter taste arising with the spirit upon distillation.

The stire, under-leaf, fox-whelp, and golden pippin, have not yet been found to do so well in mixtures, as each of them does by itself.

If the apples be pounded in a stone mortar, which is the custom of some, the kernels and stalks are bruised with them, which gives the liquor an ill savour.

The best *cyder* of all the kinds is that made from the redstreak apple, grafted upon a gennet-moil stock. These two sorts of apple-trees always agree very well, and the stalks scarce ever canker, as the crab-stalks usually do, when this apple-tree is grafted upon them. The fruit of the redstreak, on the stock here recommended, is always larger and milder, and, when ripe, is a very good eating apple, and the *cyder* made from it is mellower, and has not the over roughness and austerity that has, which is made from the same apple on the crab-stock; the apples also need less mellowing, in order to their making into *cyder*, the stalk, in a great degree meliorating the fruit; for as an apple grafted on a crab becomes better by obtaining an acrimony and quickness from the fruit, so a crab, and the redstreak apple, as it is called, which is in itself no other, obtains softness, mellowness, and bigness, by being grafted on a good apple. Phil. Trans. N° 70.

It might be a great improvement to many estates, to cultivate on the grounds not fit for corn, the proper sorts of apples for *cyder*. It is a marketable commodity at all times, and costs no fuel to brew it; and the labour is but once in the year. The greater quantities of *cyder* are made together, the better it usually succeeds, but the vessels should also be large in which it is kept. In this case it will not only keep many years, but will improve all the time. Phil. Trans. N° 134.

Hugh Stafford, Esq. a Devonshire gentleman, published, about 1753, a pamphlet in 4to. on *cyder-making*, which may afford some instruction and entertainment to those who cultivate apples, and make *cyder*.

By six several acts, for every hogshead of *cyder* and PERRY made in Great Britain, and sold by retail, there shall be paid by the retailer the sum of 6*s.* and 8*d.* and by 12 Ann. stat. 1. 4*l.* more to be paid by the first buyer or retailer; and by 1 Geo. III. cap. 3. 4*l.* more over and above all other duties payable for *cyder* and perry sold by retail; and by 6 Geo. III. cap. 14. 6*s.* more; and for every hogshead consigned to an agent or factor 16*s.* and 8*d.* By 10 Geo. III. cap. 2. it is declared, that *cyder* and perry made in Great Britain shall in no case whatever be chargeable with more than 16*s.* and 8*d.* a hogshead.

CYDER, *Pippin.* This is a sort of *cyder*, which in many places, might be made in great quantities, where the redstreak *cyder* apple will not thrive: the harshness that is apt to be in this sort of *cyder*, is the only objection to its value, it being of a good body, and otherwise, in all respects, commendable: the great reason of this harshness is the light foulness; or, as the *cyder* people express it, the flying lee that always is in this sort. But it is easily by watching a proper time, to draw off the liquor from that and other lees, so as to make it enough a clearer in other casks, much of the lee will be left out, and the *cyder* lose its harshness. Phil. Trans. N° 70.

CYDER *spirit*, a spirituous liquor drawn from cyder by distillation, in the same manner as brandy from wine. The particular flavour of this spirit is not the most agreeable, but it may, with care, be diverted wholly of it, and rendered a perfectly pure and insipid spirit, upon rectification. The traders in spirituous liquors are well enough [illegible] with the value of such a spirit as this: they [illegible] the flavours of [illegible] and sell it [illegible] for this purpose, the mark is put in a large vat, with a proper quantity of boiled water, which has stood till it be cold again: if half the quantity of water be used that there was of *cyder*, it will be good; if the quantities be equal, the *cyder* is will be small. The whole is left to infuse forty-eight hours, and then well prest: what is squeezed out by the press, is immediately stunned up and stopped, it is fit to drink in a few days.

It clarifies of itself, and serves in families instead of small beer. It will keep if boiled, after pressure, with a convenient quantity of hops.

CYDONIA. See QUINCE.

CYDONITES *Finum.* See WINE.

CYGNUS, or CYGNUS, *Gallus*, the SWAN, in *Astronomy*, a CONSTELLATION, of the northern hemisphere, between Lyra and Cepheus.

The stars in the constellation *Cygnus*, in Ptolemy's Catalogue, are 19; in Tycho's, 38; in Hevelius's 74; in the Britannic Catalogue, 81. The order, names, longitudes, latitudes, magnitudes, &c. whereof, are as follow.

Names and situations of the stars.	Bayer's Cha.	Signs	Longitude	Latitude		Magnitude
				N.		
In the right north wing	ε	♊	10 58 12	73 50	0	4
			25 18 47	50 57	30	5
			21 10 45	46 25	4	6
			28 51 20	67 21	44	6
			Unknown	Unknown		
5.						
In the mouth	β		26 55 37	49 0	31	3-4
			13 44 40	72 10	10	6
		♋	20 56 17	55 15	18	6
			Unknown	Unknown		
Middle of the 3 in right wing	ι	♊	13 42 43	71 18	38	6
10.						
			2 38 16	57 23	56	6
		♍	0 16 10	50 39	18	5
South of the 3 in right wing	δ		14 22 42	69 37	56	4
			7 54 44	62 42	5	6
			5 50 43	57 15	9	6
15.						
		♌	17 2 8	69 30	52	6
In the corner of the right wing	χ		4 36 37	53 42	33	5
		♍	11 57 7	64 27	14	5-6
			8 53 22	58 7	12	6
			24 15 54	70 53	26	5-6
20.						
In the middle of the neck	κ		8 37 28	54 28	48	6
			10 31 20	57 32	43	6
		♐	4 48 24	74 10	15	6
		♑	Unknown	Unknown		5
25.		♓	10 58 10	55 54	29	6
	22		23 44 12	67 33	40	6
	1.δ		12 30 29	54 38	16	5
	2.δ		13 57 43	55 1	40	5
	3.δ		15 34 43	54 36	33	6
First of the two in right foot	1.ω		23 46 19	63 43	29	4
30.						
	2.ω		23 47 55	63 38	31	5
			25 31 58	64 16	53	5-6
			Unknown	Unknown		
			17 29 14	55 29	20	6
New star of the year 1600	m		15 44 13	52 36	45	6
35.						
			17 2 13	54 33	16	6
In the breast.	γ		20 32 51	57 9	20	3
			Unknown	Unknown		
	δ		15 42 22	49 36	33	6
			20 51 58	65 4	46	6
40.						
	ι		16 24 20	47 28	53	4
			20 0 57	53 7	0	6
In the right knee	1.ρ	♐	1 22 17	69 41	46	6
		♑	20 59 54	55 25	24	5
45.						
	2.ρ		2 32 30	70 10	1	6
		♐	22 37 19	71 18	11	6
			19 20 17	58 57	21	6
In the knight and			20 14 55	68 22	13	6
50.			Unknown	Unknown		
			7 17 58	64 4	18	6
In the corner of the left wing		♑	21 21 20	60 20	20	6
In the middle of the same wing			25 40 41	54 38		6

Names and situations of the stars.	Boyer's Cha.	Sayer's Cha.	Longitud.	Latitude. N.	Magnitude
60.					6
In the left knee					5
In the extremity of her wing					4
Southern of three small ones in the wing					5
Northern					5
			Unknown	Unknown	6
					6
					6
					6
					6
					6
					6
					1.4
			Unknown	Unknown	6
	1.w				4
	2.w				5

CYGNUS, in *Ornithology*. See SWAN.

CYGNUS *mansuetus*, the *hooded swan*, a name very improperly given by some authors to the DODO, a very large bird, rather approaching to the cassowary kind, but not so long-legged, or long-necked. Ray.

CYLINDER, in *Geometry*, a solid body, contained under three surfaces; supposed to be generated by the rotation of a parallelogram, as CBEF *(Tab. Geometry, fig. 17.)* about one of its sides, CF.

If the generating parallelogram be rectangular, as CBEF, the *cylinder* it produces will be a *right cylinder*, i. e. a *cylinder* whose axis is perpendicular to its base.

If the parallelogram be a *rhombus*, or *rhomboides*, the *cylinder* will be *oblique*, or *scalenous*.

The surface of a *right cylinder*, exclusive of its bases, is demonstrated to be equal to a rectangle contained under the periphery, and the altitude of the *cylinder*.

The periphery, therefore, of the base, and thence the base itself, being found, and multiplied by two, and the product added to the rectangle of the height, and periphery of the *cylinder*, the sum will be the area or superficies of the *cylinder*: multiply this by the area of the base; and the product will be the solidity of the *cylinder*.

For it is demonstrated, that a circle is equal to a triangle, whose base is equal to the periphery, and height to the radius; and also, that a *cylinder* is equal to a triangular prism, having the same base and altitude with itself: its solidity, therefore, must be had by multiplying the superficies into the base.

Again, since a cone may be esteemed an infinite-angular pyramid, and a *cylinder* an infinite-angular prism; a cone is one third part of a *cylinder*, upon an equal base, and of the same height.

Farther, a *cylinder* is to a sphere of the same base and altitude as 3 to 2.

Lastly, it is demonstrated in mechanics, that the solidity of a *cylinder* is the factum of the generating rectangle ABCD, *(Tab. Mechanics, fig. 28.)* into the periphery of the circle described by the radius KG, which is subduple of EF, or the semidiameter of the *cylinder*. See CENTRO-BARYC *method*.

CYLINDERS, *for the ratio of*. As all *cylinders*, cones, &c. are in a ratio composed of their bases and altitudes; hence, if their bases be equal, they will be in the ratio of their heights; if their altitudes be equal, in the ratio of their bases.

Hence, also, the bases of *cylinders* and cones being circles; and circles being to a duplicate ratio of their diameters; all *cylinders* and cones are in a ratio compounded of the plain ratio of the altitudes, and the duplicate ratio of the diameters: and, if they be equally high, as the squares of the diameters.

Hence, again, if in *cylinders*, the altitude be equal to the diameter of the bases, they will be in a triplicate ratio of the diameters of the bases. All *cylinders*, cones, &c. are in a triplicate ratio of their homologous sides; as also of their altitudes.

have this theorem: the surface of a *cylinder* is equal to a circle, whose radius is a mean proportional between the diameter and height of the *cylinder*.

The diameter of a sphere, and altitude of a CYLINDER *equal thereto, being given, to find the diameter of the* cylinder: the theorem is, the square of the diameter of the sphere is to the square of the diameter of the *cylinder* equal to it, nearly, as triple the altitude of the *cylinder* to duple the diameter of the sphere. See SPHERE.

To find a tete, *or cage, whence a* cylinder *may be formed, or wherewith any* cylinder *may be covered*. With the diameter of the base describe two circles; find their peripheries: and, upon a line equal to the altitude of the *cylinder*, form a rectangle, whose other dimension is equal to the found periphery. Thus may the *cylinder* required be formed, or covered.

When the *cylinder* is oblique, the estimate of its superficies depends upon the rectification of the ellipse; for a plane cutting the *cylinder* at right angles to the axis will produce an ellipse, and the superficies will be equal to the product of this elliptic periphery by the side of the *cylinder*.

CYLINDER, *resistance of a*. See RESISTANCE.

CYLINDER, *scenography of a*. See SCENOGRAPHY.

CYLINDER *charge*, in *Gunnery*, is that part of a great gun which is possessed by the powder and ball.

CYLINDER *concave*, in *Gunnery*, is all the chase, or hollow length, of a piece of ordnance.

CYLINDER *vacant*, in *Gunnery*, is that part of the hollow that remains empty, after the gun is charged. See CANNON.

CYLINDER, *rolling*, in *Mechanics*, a *cylinder* which rolls up an inclined plane.

The phenomena of the *rolling cylinder* may be easily accounted for from what we have observed under centre of gravity.

For let ABED *(Tab. III. Mechanics, fig. 34.)* represent the section of a *cylinder* of wood, bialled on one side by a cylindrical piece of lead as B, which will bring the centre of gravity out of the centre of magnitude C to some point G between C and B. Let FH be an inclined plane, whose base is FL. It is evident the *cylinder* laid upon the plane will no where rest but there, where a perpendicular to the horizon FL passes through the centre of gravity G, and that point of the plane E, in which the *cylinder* touches it; and this, in all angles of inclination of the plane less than that whose sine is equal to CG, the radius being CD, will be in two situations ABED, and *abed*: because when the *cylinder* moves, the centre of gravity describing a circle round the centre of magnitude C, this circle will meet the perpendicular in two points G and *g*, in each of which the centre of gravity being supposed, the *cylinder* will rest. Therefore the *cylinder* moves from E to *e* by the descent of the centre of gravity from G to *g*, in the arch of the cycloid G*bg*.

If the *cylinder* ABED, *fig.* 35. infisling on the horizontal line EL, in the point E, has the centre of gravity G in the horizontal diameter DB, it will gravitate in the perpendicular G*e*: if therefore the plane FH touch the *cylinder* in the point *e*, it is evident the *cylinder* cannot either ascend or descend on such a plane. Because G in any situation between *e* and H, or *e* and F, will gravitate to the left or right from the point in which the *cylinder* touches the plane; and so will in either case bring it back to the point *e*. And as the angle EC*e* is equal to HFL, it follows, that a *cylinder* cannot ascend on a plane whose inclination is greater than that angle.

CYLINDRICAL, *Column, Compasses, Mirrours, Wax-Candles*. See the several substantives.

CYLINDROID, in *Geometry*, a solid body, approaching the figure of a *cylinder*; but differing from it in some respect, e. gr. as having its bases elliptical, but parallel and equal.

The word comes from κύλινδρος, *cylinder*, and εἶδος, *form*.

CYLINDRUS, *Cylinder*. See HYSTRIX.

CYLINDRUS, in *Conchology*, the name of a genus of shell fish, of which there are many very elegant and rare species. This genus is most generally, at present, called *voluta*, though this is very improper: the word *cylindrus* very aptly expressing the shape of the shell, which is cylindric and oblong, and the *volutæ*, which signifies that figure we call a scroll, not being expressive of it.

of the same size, the tail part being always, however, somewhat thicker than the head. The *head* is not separated from the body by an elevated rib, as in the volute, but follows the shape of the body, though sometimes it is separated by a dentated furrow; and in some, though very few species, by a rib, or rising circle. This is a very puzzling circumstance in the distinction of the shell, bringing it to a near alliance with the volute; but, in this case, the point of the shell must be regarded, which in the *cylindrus* is always obtuse, but in the voluta always pointed. See *Tab.* III. *of Fossils, Class* 9. and *Tab. of Shells*, N° 12. Among the species of this family of shells, there are found two very remarkable distinctions; the one is in the species just mentioned, which has a rib near the head; the other is in the olive *cylindrus*, the two extremities of which are nearly equal, but the middle very considerably swelled.

The family of the *cylindri* are very numerous. See farther Hist. Nat. Eclair. p. 284. See LIMAX.

CYLISTICI, in *Antiquity*, a denomination given to the *pancratiastæ*; because when the weaker found himself sore pressed by his adversary, he fell down, and fought, rolling on the ground. See PANCRATIUM.

The word is formed from κύλισις, *to roll*, or *tumble*.

CYLLOSIS, the same with CYLLUM.

CYLLUM, from κύλλος, *lame*, in *Medical Writers*, is used to signify a leg put out of joint outwardly; also one that is lame and crooked.

CYMA, in *Botany*, a term signifying the tender sprout of any plant, especially of the cabbage kind.

CYMA, in *Architecture*. See CIMA, and CYMATIUM.

CYMATITES, in *Natural History*, a name given by some writers to a species of ASTROITES, the lineations of which are indented and repredent waves.

CYMATIUM, CIMATIUM, or CIMA, in *Architecture*, a member, or moulding of the cornice, whose profile is waved; i. e. concave at top, and convex at bottom; frequently also called *doucine*, *gorge*, or *gula rectæ*; especially by the French: by the Italians *golletta*, i. e. *gula*; but more usually *cymatium*, among us; being the laft, or uppermoft member of the cornice. See *Tab. Architecture, fig.* 8.

Some write the word *fimaife*, from *fimus*, *camus*, *flat-nofed*; but this etymology is improbable: the beauty of the moulding conlifts in its having its projecture equal to its height. M. Felibien therefore rejects this origin; contending, that the moulding is not fo denominated from its being the uppermoft member of the cornice, but, according to the fentiment of Vitruvius, from its being waved, from the GREEK κυμαινω, *undulo*, of κυμα, *wave*. This is certain, that Vitruvius fometimes ufes the word *unda* for *cymatium*; and fometimes *lyfis*, i. e. *folution*, *feparation*; becaufe cornices, where the *cymatia* are found, feparate one piece of architecture from another; as the pedeftal from the column, and the frieze from the cornice. But it muft be obferved, that he does not confine *cymatium* to the cornice, but ufes it for any fimilar moulding, wherever he meets with it; in which he differs from the more accurate among the moderns.

Felibien makes two kinds of *cymatium*; the one *right*, the other *inverted*: in the firft, that part which projects the farthefl is concave, and is otherwife called *gula recta*, and DOUCINE. In the other, the part that projects farthefl is convex, called *gula inverfa*, or TALON.

Our architects do not chufe to give the name *cymatium* to thefe mouldings, except when found on the tops of cornices; but the workmen apply the name indifferently, wherever they find them. Palladio diftinguifhes the *cymatium* of the *cornice* by the name *intervolate*.

CYMATIUM, *Tufcan*, conlifts of an ovolo, or quarter round. Philander makes two Doric *cymatiums*, whereof this is one: Baldus calls this the Lefbian *aftragal*.

CYMATIUM, *Doric*, is a cavetto; or a cavity lefs than a femicircle, having its projecture fubduple its height. See *Tab. Architecture, fig.* 25. N° 6.

CYMATIUM, *Ionic*, according to Vitruvius, is what we ordinarily call ovolo, or a quarter-round member, having its projecture fubduple to its [illegible]

CYMBAL, a mufical inftrument, ufed among the ancients, and by the Greeks and Romans, call by the name of *cymbalum*.

[illegible] the word from the Greek κυμβη, *vas*. [illegible] from κυμβος, *concave*, or [illegible] from κυμα, *wave*, or [illegible] from κυω, *to conceive*, [illegible] figure of feveral other things denominated from it; as a bafin, caldron, goblet, cafque, and even a fhoe, fuch as thofe of Empedocles, which were of braft.

In reality, the ancient *cymbala* appear to have been very different from our kettle-drums, and thefe ufe of another kind: to their exterior cavity was faftened a handle; whence Pliny compared them to the upper part of the thighs, or buttocks; and Rabanus to phials.

They were ftruck againft one another, in cadence, and made a very acute found. Their invention was attributed to Cybele, whence their ufe in feafts and facrifices: feeting alide this occafion, they were feldom ufed but by diffolute and effeminate people. M. Lampe, who has written expreffly on the fubject, attributes the invention to the Curetes, or inhabitants of mount Ida, in Crete: it is certain thefe, as well as the Corybantes, or guards of the kings of Crete, and thofe of Rhodes, and Samothracia, were reputed to excel in the mufic of the *cymbal*. See CORYBANTES.

The *cymbals* of Bacchus were two fmall braft veffels, fomewhat in the form of a fhield, which being ftruck together by the hands, give a found. The well-known ftatue of the dancing fawn has one of thefe in each hand.

The Jews, too, had their *cymbals*, which they called מְצִלְתַּיִם or, at leaft, inftruments, which the Greek, Latin, and Englifh tranflators, render *cymbals*; for as to their matter, form, &c. the critics are wholly in the dark.

The modern *cymbal* is a mean inftrument, chiefly in ufe among vagrants, gypfies, &c. It conlifts of fteel wire, in a triangular form, whereon are paffed five rings, which are touched and ftirred along the triangle with an iron rod held in the left hand, while it is fupported in the right by a ring, to give it the freer motion. Durandus fays, that the monks ufed the word *cymbal* for the cloifter bell, ufed to call them to the refectory. See BELL.

CYMATIUS *flores*. See STORAX.

CYMBARIA, in *Botany*, the name of a genus of plants, of the *didynamia angiofpermia* clafs; the characters of which are thefe: the perianthium is erect, and divided into feveral fegments; two of them, which ftand oppofite to one another, are larger and broader than the reft; the other ten are very narrow: this cup does not fall with the flower. The flower is monopetalous, and its tube is oblong and inflated; the mouth is open; the upper lip is reflex, obtufe, and divided into two fegments; the lower one is obtufe alfo, and is divided into three. The ftamens are four ftaments, of the length of the tube; the antheræ are bifid, and prominent; the germen of the piftil is oval; the ftyle is capillary, and of the length of the ftamina, and the top of it is bent; the ftigma is obtufe. The fruit is an oval capfule, compofed of two valves, and having only one cell; this is fquare, and contains a number of fmooth angular feeds.

CYMBIFORME *Os*, in *Anatomy*. See NAVICULARE *Os*.

CYMBIUM, in *Natural Hiftory*, a name given by many authors to a kind of fea-fhell, commonly called the GONDOLA *fhell*. It is of the genus of the *cochlea globofa*, or *ftriata*, and there are feveral fpecies of it.

CYMENE, in *Botany*, a name given by the ancient Greeks to a plant with which they ufed to dye woollen things yellow, and with which the women alfo ufed to tinge the hair yellow. The *cymene* of the Greeks is evidently the fame plant with the *lutum* or *lutea herba* of the Latins; and this is defcribed to have leaves like the *linum*, or flax, and flowers like the *genifta*, or broom. It is plain from this, that the *lutum* of the Romans was the plant we call *genifta tinctoria*, or dyer's weed, ftill ufed to dye yellow, and which anfwers to all the characters of the Roman defcription.

CYMINALIS, in *Botany*, a name ufed by fome authors for the *gentian*, the plant whofe root is the fine bitter drug of that name.

CYMINO, *Cotapafm i.* See CATAPLASM.

CYNAPIUM, in *Botany*, a name ufed by authors for the

[illegible]

CYNANCHICE, in *Botany*, [illegible] name of a genus of plants, [illegible] clafs; the characters of which are [illegible] CYNANTHEMIS, in *Botany*, [illegible] CYNANTHROPIA, [illegible]

being properly the ARTICHOKE; and *cinara* the choc-doon, or some other thistle-like plant allied to the artichoke kind, of which the ancient Greeks eat the young and blanched stalks, as we do the chardoons.

CYNEBOTE, the same with CYNEGETICS.

CYNEGETICS, from κυνηγος, *hunter*, of κυων, *dog*, and αγω, *I lead on*, books treating of the art of hunting. Gratius Faliscus has written a Cynegetics in Latin verse.

CYNICS, a sect of ancient philosophers, who called themselves on their contempt of every thing valuable in life, and state, arts and sciences; all except virtue and its ornaments. The founder of this sect is said to have been Antisthenes, a disciple of Socrates, who, on hearing of his master's death, quitting the Pyræum, retired to the Cynosarges, a kind of academy out of the walls of Athens, and there opened a school. Hence some will have the name κυνικος, *cynicus*, viz. from κυων, *dog*, which others, with more probability, derive it from the *dog-like* severity and austerity of their manners. Thus, Aristotle observing, that the Cynics *wore no clothes but their cloaks*, &c. Hence, Diogenes the Cynic, *bites the evil*; and Antisthenes himself, *an impudent and sincere* dog, *an incorrigible and sincere* man. The distinguishing character of the *Cynics* was to bark at the ill, and to defend and fawn on the good.

Lucian much extols the *Cynical* genius: "a *Cynic* philosopher is a messenger sent from Jupiter to overlook human affairs; a public doctor, and tutor of mankind; who instructs and chastises at the same time; an Æsculapius, a lord and king, adorned with a sceptre and diadem, who governs the people; and this voluntarily, without trembling, without guards, &c. "but by a good conscience." The ground of this encomium may be owing, in some measure, to the affinity between the *Stoics* and *Cynics*: the chief difference between them consisted in this, that the former were more modest and reserved than the latter; who were said to have banished all shame, and were able to practise any obscenity without blushing.

Hence, Laertius observes of Diogenes, that he did every thing openly, whether it belonged to Ceres or to Venus: though the same Laertius adds, that he did it in imitation of the choreidascal, i. e. he only ran to an excess of impudence, to put others out of conceit with it.

CYNIC *Period*. See *Egyptian* YEAR.

CYNIC *spasm*, *spasmus* CYNICUS, a sort of convulsion, whereby the patient is brought to imitate the gestures, snarlings, howlings, &c of a dog. See SPASM.

Dr. Freind, in the Philosophical Transactions, gives us an account of a very extraordinary *spasmus* of this kind, wherewith two families, at Blackthorn in Oxfordshire, were seized.

The novelty of the thing drew abundance of visitors to the village; and among the rest Dr. Willis; who, a good while before he reached the place, heard a terrible noise of barking and howling: upon his entering the house, he was immediately saluted by five girls, bawling, and answering each other by turns, with violent motions of the head. In their face there was no convulsion seen, beside *cynic* distortions, and oscillations of the mouth: their pulse was pretty regular; their noise was rather like that of the howling, than of the barking of dogs; though its returns were more frequent, with deep sighings between.

The *spasmus* had seized them all equally: whereof the youngest was but six, and the eldest fifteen years of age: at intervals they had their reason and senses entire; but not long, before one of them, returning to her yelling, fet on the rest: till at length, all fainting, they fell, like epileptics, on a bed laid in the middle of the room to receive them.

A little while they would lie quietly and decently together; but upon a new orgasm of the spirits, they began to beat and bruise each other. Two of the youngest awaked while the doctor stayed, and left their fellows

[illegible] made was incessant [illegible] much like the barking and [illegible] given out, as a quaint [illegible] of three notes, or tones, repe[illegible] by deep sighs, &c. accom[illegible] gestures and mutations of [illegible] This disease the doctor takes to [illegible] from the [illegible] cause of [illegible] the animal [illegible] driving the mad [illegible] the eucrasia [illegible]

CYNIPS, in *Zoology*, a genus of four-winged *hymenopterous* [illegible] a proboscis, and with a sting, [illegible] concealed.

CYNOCEPHALUS, from κυων, *dog*, and κεφαλη, *head*, in *Zoology*, the [illegible] one of the genera of monkies which have a [illegible] and resemble a dog about the head. The [illegible] tails, some [illegible] shorter, and are [illegible] English [illegible] veral [illegible] name of whi[illegible]

CYNOCRAMBE, [illegible] *Britan*, *Theb.* CARDAMY.

CYNOCYNON. See ACONITE.

CYNODESMUS, or CYNODESMON, the band, or ligament, which tie[illegible] head to the nuca glands.

CYNOGLOSSUM, from κυων, *dog*, and [illegible] in *Botany*. See HOUNDSTONGUE.

CYNOGLOSSI *radix*, *hound's-tongue root*, *Medica*, is emollient, anodyne, and mi[illegible] gently astringent, and is esteemed a ge[illegible] catarrhs, diarrhœas, dysenteries, and [illegible] all kinds; also in the ulcer albus, and g[illegible]

CYNOGLOSSUS, in *Ichthyology*, the nam[illegible] mon in the Mediterranean sea, and brou[illegible] Rome, Venice, and elsewhere. It much [illegible] *soal*-fish, but is a worse fish for the table.

CYNOGLOSSOIDES. See BORRAGE.

CYNOGLUCOS, from κυων, *dog*, and [illegible] *Natural History*, a name given by the an[illegible] a creature which had the shape partly [illegible] partly of a wolf, and was generated according accounts, by a mixture of those two species of animals in copulation, as the LEUCROCOTTA was between the hyæna and lioness.

CYNOMITRA, in *Botany*, a genus of *the decandria monogynia* class of plants; the cup of which is four-leaved, and the fruit a fleshy, lobated pod, containing a single seed.

CYNOMORIUM, from κυων, *dog*, and μορον, *fruit*, in *Botany*, a name given by Micheli, and continued by Linnæus, to a genus of plants, of the *monœcia monandria* class; the characters of which are these: it produces separate male and female flowers, but they stand almost close to one another, in the same amentum or ear. In the male flowers the general cup is an erect amentum, imbricated on every side, and composed of oblong, erect, truncated squamulæ, each containing one flower, and formed narrow at the bottom, and gibbous on one side and hollow on the other; there is no petal, and in the midst there arises, by way of a filament, one firm and strait filament, longer than the cup, and crowned with a double apex. In the female flowers the common amentum is the same as in the male, but they have no outer cup than is formed by the leaves of the plant. The germen of the pistil is globose; the style is longer, erect, firm, and of the length of the cup; the stigma is obtuse: the seed is single and naked.

CYNOMULA, the *dog-fly*, as the Greek term imports, in *Zoology*. See DOG-*fly*.

CYNOPHONTIS, in *Antiquity*, a festival observed in the dog-days at Argos, and so called κατα τους κυνας φονους, i. e. from killing dogs; because it was usual on this day to kill the dogs they met with.

CYNOREXY, or CYNODES OREXIS, an immoderate appetite in the degree of a disease; called also [illegible] and BOULIMY.

CYNORRHODON, [illegible] term figuratively [illegible] the common wild [illegible] fo, [illegible] common in our hedges.

CYNOSARGES, from κυων, *dog*, and αργος, *white*, a word used in the [illegible] to denote [illegible] the common [illegible] the [illegible] the [illegible] [illegible] [illegible]

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